Carers and Careers

Grandparental care investment and its labour market consequences in Europe

Proefschrift

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Grandparental investment and labour supply: where does it come from, where does it go

1.1 Introduction

Several countries around the world celebrate National Grandparents' Day. For the Roman Catholic Church, it is on Guardian Angels' Day with the strongly symbolic aim to recognize the crucial functions of role models and kinkeepers grandparents have in Western societies. In the media, grandparents' effort in childcare is saluted as "the most effective welfare tool of the country" (Di Todaro, 2017) and employed as emblem of sincere family relations. In Italy, the joy of childcare provision has even been used to defend pension reforms. As the former Prime Minister Matteo Renzi put it, early retirement should be possible for grandmothers to enjoy time with grandchildren (Bassi, 2015). Few years later, he even used his two grandmothers for political campaign, presenting them as his "spin doctors" (Renda, 2018). Nevertheless, the depiction of grandparents as happy care providers moves the attention away from institutional arrangements that vastly leave families alone in providing care to dependent members. For example, the Spanish general workers' union has invited grandparents to strike, to show their key role in the functioning of the state (Tremlett, 2010). Fuelled by the event, English journalists have reiterated that a grandparental strike would grind UK economy to a halt (Smethers, 2010). Grandparents provide the childcare that working parents cannot give, and the state fails short to supply. They have been compared to a silent army (Uglow, 2012) that undertakes very large volumes of childcare, due to the high (and raising) cost of formal childcare. And they bear the consequences: to support young families' employment, many working grandmothers cut their working hours, and even give up their jobs completely.

Grandparent research dates back to the 1940s when, during and in the aftermath of World War II, grandmothers were family rescuers (von Hentig, 1946); and it spans across several research domains: the concept of *grandparental investment*, vastly used in the social sciences, stems from evolutionary theory, it refers to "[…] the various types of care (like solicitude, looking after grandchildren, getting in contact, investing time, and tangible resources) grandparents may provide for their grandoffspring" (Schwarz, Pashos, & Euler, 2016). From the 1980s, social scientists had become interested in family caregiving spurred by two major social phenomena. First, the increased life expectancy, that makes it common for grandchildren to grow up while their grandparents are still alive. Second, young women's empowerment from traditional gender roles, which has led to increased labour market participation around motherhood, and the consequential need for care options other than maternal childcare. Grandparents often are this informal care option, which is reflected in lively research on grandparents' childrearing

practices (Szinovacz, 1998), especially the content and characteristics of the grandparent-grandchild relation (Cherlin & Furstenberg, 1986). In the 1990s, grandparents find place in prominent theories that still dominate the debate in sociology of ageing and family: on the one hand, the intergenerational solidarity model, which is a typology of the motives binding family members (Roberts, Richards, & Bengtson, 1991). On the other hand, the life-course perspective, which emphasizes past experiences as determinants of present family relationships (Szinovacz, 1998, p. 11).

As of today, the social sciences study grandparents, once again, as family rescuers – they compensate the inefficiencies and rigidities of the current welfare state. Grandparental childcare in particular plays a pivotal role in current European societies, because it eases young women's labour market participation (Aassve, Arpino, & Goisis, 2012; Arpino, Pronzato, & Tavares, 2014; Bratti, Frattini, & Scervini, 2018; Dimova & Wolff, 2011) and supports fertility (Aassve, Meroni, & Pronzato, 2012; Battistin, De Nadai, & Padula, 2014; Tanskanen, Jokela, Danielsbacka, & Rotkirch, 2014; Tanskanen & Rotkirch, 2014). It therefore finds place in the long-lasting debate about the interconnection of the family and the state in providing individuals' welfare (Igel & Szydlik, 2011), dominated by the debate between the *crowding-out* perspective, that sees the expansion of the welfare state as replacing family solidarity, and the *crowding-in* perspective, according to which the state institutions support family's care responsibilities, stimulating family members time investment (Künemund & Rein, 1999). The *specialization* hypothesis reconciles the two perspectives, finding that state and family complement each other, because they specialize in different services and duties (Brandt, Haberkern, & Szydlik, 2009). Finally, grandparents concur in grandchildren's rearing not only with the provision of material support. In recent years, grandparents have found place in social stratification research as well: as the characteristics of the family of origin strongly determine individuals' educational and occupational achievements (Breen & Jonsson, 2005), research has investigated the extent to which grandparents play an active role in the intergenerational transmission of resources (for a review, see Anderson, Sheppard, & Monden, 2018), and consequently, the reproduction of inequality.

Drawing upon these strands of research in grandparenthood, the present dissertation firstly investigates the content of the grandparents-grandchildren relationship in a stratification perspective, and subsequently, the consequences of grandparenthood in terms of labour market participation for mid-life women

comparing countries based on their particular policy-logic, as well as adopting a life course perspective. By doing so, I will give three main contributions to the current debate.

The **first contribution** to the literature is the investigation of the grandparent-grandchild relation as located in stratification research. It has been overlooked by research that grandparents' childcare motives could go beyond the mere need of support by the adult children, and involve investments aimed at fostering grandchildren's personal development. I argue that this investment is likely to be stratified across educational layers, following a strategy called "concerted cultivation" (Lareau, 2003). This strategy is among the explaining mechanisms for the empirically observed educational gradient in parenting. Highly educated mothers (Craig, 2006; England & Srivastava, 2013; Gimenez-Nadal & Molina, 2013; Guryan, Hurst, & Kearney, 2008; Kitterød, 2002) and fathers (Gracia, 2014; Hook & Wolfe, 2012; Raley, Bianchi, & Wang, 2012; Sullivan, 2010; Sullivan, Billari, & Altintas, 2014) spend more time with their children than their lower educated counterparts, and in different activities, for example exchanging opinions, going to theatres, museums, and other organized leisure activities. In this way, they endorse their children with resources that secure their educational and occupational achievements – concurring to the intergenerational transmission of advantage. Following this reasoning, I aim at uncovering whether grandparents from high socio-economic backgrounds perform different activities with grandchildren than their lower educated counterparts, and whether they are moved by different motives, as to support grandchildren's school achievements, social and cultural capital. The study sheds light on the reproduction of inequality that could be at play in the extended family as well: children are exposed to a "extended-family environment" that endorses them with various forms of capital, above and beyond what parents alone could offer (Jæger, 2012). Stratification scholars have long been aware that the transmission of advantage could surpass the relation between parents and children and extend back to grandparents (for a review, see Anderson, Sheppard, & Monden, 2018). My study is a further step in the investigation of the mechanisms that link (extended)family resources to individuals' future educational and occupational achievements.

Moving to the second and third contributions, I expand the possibility that grandparental childcare investment could have implications for grandparents themselves, beyond the (positive) externalities for grandchildren. More in detail, grandparents' childcare could lead to work adjustments for grandparents - for

grandmothers, to be more precise. Reproductive labour for family members is traditionally women's work; women are kinkeepers and expected to have a flexible work commitment as to accommodate the involvement with care duties (Uunk, 2015). Challenges of caregiving come up several times in a lifetime: as mothers, women often adjust their work commitment to accommodate the involvement in the newborn's life (Begall & Grunow, 2015; Cantalini, 2019; Craig & Mullan, 2010; Evertsson, 2012; Schober, 2013); in mid-life, grandmothers do (once again) the lion share of childcare (Hank & Buber, 2009), and therefore, they can find themselves (once again) in the situation to choose between work and family duties.

The consequences of grandparenthood in terms of labour market participation are a relatively new area of research. Mid-life individuals are likely to become grandparents while still active on the labour market themselves (Leopold & Skopek, 2015a), and they are the target of public policy reforms aimed at increasing retirement age (Annesley, 2007). These two roles of care provider and active worker might fuel a situation of role conflict as both activities demand time and energy. Extant cross-national research has confirmed the relation between grandparenthood and early retirement. Overall, older workers look forward to retiring early to spend time with grandchildren (Higgs, Mein, Ferrie, Hyde, & Nazroo, 2003; Hochman & Lewin-Epstein, 2013) and, apparently, they put it in practice. In a comparative research across Europe with ESS data, Van Bavel and De Winter (2013) show that being a grandparent stimulates early retirement, especially for women. The results hold true even when limiting the analysis to people in fair health and wealthy economic condition. Similarly, De Preter, Van Looy, and Mortelmans (2013) show that older workers who look after their grandchildren on a regular basis are more likely to retire. Backhaus & Barslund (2019) observe that, on average across European countries, being a grandmother decreases labour supply by 26 percentage points. Several single-country studies reach similar conclusions. In a study on Austria, Frimmel and colleagues (2017) find that becoming a grandmother decreases the labour supply of women by 8%. In the US, Rupert and Zanella (2018) show that employed grandmothers tend to reduce their working hours when they get a grandchild. Lumsdaine & Vermeer (2015) in the US find an effect of the birth of a new grandchild on the retirement hazard, although financial incentives, such as liquid wealth, pensions and health insurance are better predictors of retirement decisions. Kridahl (2017) using Swedish register data, finds that grandparents have a higher retirement risk than non- grandparents, even after controlling for age and other central predictors of retirement.

Even though there is already empirical evidence that grandchild's birth is related to labour market participation in a number of welfare settings, such as Continental Europe (Frimmel *et al.*, 2017), Northern Europe (Kridahl, 2017) and Anglo-Saxon countries (Lumsdaine & Vermeer, 2015; Rupert & Zanella, 2018), these contributions are difficult to compare because they employ different datasets, sample selections, and statistical tools. In the **second contribution,** therefore, I propose a theoretical reasoning based on the heterogeneity of the institutional settings that can shed light on the interconnection of the context with grandmothers' employment. I argue that for labour market adjustments to happen, there must be a mismatch between the *need* for grandparental childcare and the *availability* of grandparents as care providers. On the one hand, young families might *need* grandparental childcare when they have no formal alternatives, i.e. in terms of public childcare services – but also, when they cannot provide care themselves, i.e. when both parents are employed. The consideration of the need of childcare is rooted in the tradition of welfare regime studies (Esping-Andersen, 1999): welfare states participate in shaping the level of grandparental need which in turn could result in different labour market behaviour for grandmothers across European countries. This broad theoretical approach provides a breeding ground for the *crowding-in* and *crowding-out* perspectives, and the specialization hypothesis, theoretical tools to understand the connection between the welfare state and grandparental childcare. On the other hand, grandmothers are *available* as care providers when free from paid employment. This availability depends on pension eligibility criteria and economic incentives embedded in social security systems, which are the main factors driving the timing of retirement (Boeri & Brugiavini, 2008) and which strongly differ across European countries (OECD, 2011b). Hence, characteristics of the pension system of the country influence the extent to which labour market withdrawal is a feasible and attractive option for mid-life women when they are grandmothers.

As a **third**, and final, **contribution** to the literature, I apply the life-course perspective to the study of grandmothers' employment within specific case-studies: England and Italy. The life-course perspective is a theoretical perspective starting from the assumption that:
"[…] the implications of early adult choices extend even into the later years of retirement and old ages [...] the later years of aging cannot be understood in depth without knowledge of the prior life course" (Elder, 1994, p. 5)

Late-life labour force participation is shaped and determined by the way in which the working career developed and was intertwined with family responsibilities. All the elements belonging to the life trajectory of individuals "pile up" in late life, when individuals eventually face the transition to grandparenthood. Several studies have linked women's working career and reproductive history with retirement timing, and two main perspectives emerge: the so-called "attachment hypothesis", and the opportunity-costs perspective. The former explains that decisions taken early in life (for example, the decision to be full-time caregiver around motherhood) are reproduced later in life, due to the stability of preferences and role patterns throughout the adult life (Finch, 2014; Hank, 2004; Hank & Korbmacher, 2013; Henretta & O'Rand, 1980; Pienta, 1999; Pienta, Burr, & Mutchler, 1994; Svensson, Lundholm, De Luna, & Malmberg, 2015). The latter predicts that the interweave between care and work throughout life sets cumulative advantages and disadvantages in terms of eligibility criteria for retirement later on in life (Finch, 2014). These perspectives have not been employed in the study of grandparents and employment, and to date research completely misses an understanding of the differences in grandparents' employment according to the characteristics of the previous life course.

To conclude, this first chapter is meant as backbone to the four empirical chapters that constitute the dissertation. On the one hand, backbone as connection. Each of the empirical chapters stands alone, with a theoretical section of its own. This introductory chapter shows how the four empirical chapters (Chapters II-V) are intertwined and, altogether, draw a multifaceted picture on grandparenthood and its social consequences. The connection between the chapters will be further developed in the conclusions chapter (Chapter VI) at the end of the present dissertation. On the other hand, backbone as foundation. Each empirical chapter pertain to a specific debate. Therefore, the space provided by this introductory chapter is employed for clarifying the stream of literature I aim at positioning within, and for getting the chance to elaborate more on a few issues that were not addressed in single empirical chapters.

The following pages are organized in four sections. I will first provide an outline of the four empirical papers comprising the dissertation, as to ease the connection between the theoretical framework presented in this chapter and its actual empirical developments ("Overview of the empirical chapters"). Subsequently, I will provide a general overview on the study of grandparenthood, touching its historical development and its demographic features (section "Background"). The remaining

three sections follow the red-thread of the three contributions my thesis aims at giving to the literature: (i) stratification research could benefit from the study of grandparents' time investment in grandchildren ("Contribution I", section 1.4) (ii) the study of the consequences of grandparenthood could be enriched by cross-country comparison, based on the everlasting debate on the relation between the family and the state in providing individuals with welfare ("Contribution II", section 1.5) (iii) the study of the consequences of grandparenthood could be completed by a closer look at the heterogeneity among grandmothers, in particular given their previous work-family history ("Contribution III" , section 1.6).

1.2. Overview of the empirical chapters

At its core, the present work investigates grandparents' involvement in the life of grandchildren, and, in turn, the consequences that grandparenthood could have on the labour market participation of grandmothers. On the one hand, I argue that grandparents spend time with grandchildren for additional reasons on top of the need of support of the younger generations, reasons related to cultural investment; and this involvement is socially stratified along educational layers. On the other hand, I build on the demographic evidence about the overlap between grandparenthood and employment (Leopold & Skopek, 2015a) due to the increased life expectancy, as well as rising pension age (Annesley, 2007); these two roles can fuel a situation of work-family conflict for older workers because both activities require time and energy. Therefore, I ask whether becoming a grandmother is related to labour market behaviour, and how the relation varies according to the opportunity structure individuals are embedded in, in terms of institutional context and previous work history.

Paper 1 (Chapter II) aims at investigating the stratification in grandparental childcare with SHARE data (2004-2015) and ELSA data (2016/2017), which can add additional light on the driving factors of grandparents' involvement in grandchildren lives. More in detail, while grandparental childcare has been often investigated as driven by the *need* of support by the younger generations, motives related to cultural investment have been vastly neglected: I argue that individuals from different socio-economic background could enact the grandparental role differently, and for several reasons. In the case of parenting, several studies have shown that individuals adopt different parenting styles according to their socio-economic background (Dotti Sani & Treas, 2016). I make use of Lareau's (2003) concerted cultivation formulation of the parenting strategy adopted by highly educated families, as mechanism linking parental cultural resources and children's

educational attainment. This mechanism could apply to grandparents as well: mid-life individuals could decide to enact the grandparental role for reasons related to the development of grandchildren's well-being and human capital, beside adult children's need of support.

Therefore, despite the *need* of support from grandparents is not the only motive driving grandparental childcare, caregiving related to *need* remains an extremely crucial and widespread element of support for young women's employment. It positions in the debate on the interconnection between the family and the state as institutions providing individuals with welfare; the field traces back to Esping-Andersen's (1999) concept of *de-familialization* and continues through the elaboration of the *crowding-in* and *crowding-out* perspectives. The relation between the two institutions delineates a North-South gradient in grandparental childcare, which is the cornerstone of the macro-level theoretical framework.

In **Paper 2** (Chapter III), with SHARE data (2004-2015), I assess the influence of the institutional context on the probability to be employed for European grandmothers. Van Bavel and De Winter (2013) have been the forerunners of this approach; their study is the only one including Southern European countries (i.e. Spain), but it considers only one aspect of the policy environment relevant for grandparental employment, namely childcare services coverage, and it does not find clear-cut country-specific results. The present work is the first taking into consideration the opportunity-structure conditioning both the *need* for grandparental childcare (as shaped by the public provision of childcare and labour market participation of young mothers) and the *availability* of grandparents in terms of pension regulations. It employs six macro-level indicators that provide a more complete picture of the structural factors affecting grandparental employment: the effective age at retirement, that measures the availability of early retirement options; the implicit tax on continued work and the progressivity index, that measure the redistributive power of the pension system; childcare enrollment rate, maternal labour market participation rate, and female part time work participation rate, that measures the *need* for grandparental childcare. The central question of the chapter is whether grandmothers are more likely to withdraw from the labour market where they are more needed, such as in Southern European countries, although the polarization of grandparental childcare (intensive vs no childcare) makes these expectations less straightforward. To the contrary, grandparental childcare as motivated by preferences (like in Northern European countries) could also be a spur for labour market withdrawal (*crowding-in* versus *crowding-out).* Furthermore, grandparental

childcare depends on grandparental availability. In case grandparents are still in employment, pension regulations (such as statutory pension age and contributions) play a role in easing/constraining the labour market behavior of grandparents. International comparison shows that the more generous the pension system, the larger the decline in labour market participation of older workers (De Preter *et al.*, 2013; Schils, 2008). For these reasons, I expect that where the pension system is more generous, older workers are more likely to retire when the first grandchild is born.

Furthermore, two single-country studies will compare settings where grandparental childcare is highly needed: England (Paper 3), where childcare services are market-provided and not beneficial to low-income families, and Italy, where childcare services are underdeveloped, but the family has a central supportive role (Paper 4). The most interesting difference is in the labour force participation rate of women. While in England most women are employed, in Italy, due to the centrality of family in care provision, roughly half of women is inactive (European Commission, 2016). Moreover, Paper 4 will be the first contribution on Southern European countries that takes into account the demographic, social, and institutional factors making *familialistic* countries an extremely peculiar case when studying grandparenthood (Zamberletti, Cavrini, & Tomassini, 2018) and employment. Finally, England and Italy differ in the availability of early retirement options: while in Italy early retirement has been a vastly-implemented policy measure (Bratti *et al.*, 2018), in England early retirement options have always been discouraged (Schils, 2008). Moreover, the attention to the *availability* of grandparents as care providers, as shaped by the pension regulation of the country, is most of all exemplified by the consideration of the previous life course. The grandchild birth might lead to adjustments in the late life working careers of grandparents, but the possibility (and willingness) to stop working depends on the work history of grandparents that we conceive as the interweave of their decisions about work and family during the life course. Paper 3 and 4 are meant to deepen the understanding of grandmothers' employment in a life course perspective.

In **Paper 3** (Chapter IV), employing ELSA (2002-2015) data on England, I put forward two perspectives in explaining the relation between the previous working career and labour market withdrawal after the grandchild birth: the so-called "attachment hypothesis", and the opportunity-costs perspective. On the one hand, role patterns developed throughout the adult life might remain similar later in life. Women who continued to work during their childbearing period are more

likely to be at work thereafter (Finch, 2014; Hank, 2004; Hank & Korbmacher, 2013; Henretta & O'Rand, 1980; Pienta *et al.*, 1994). The same holds true for women postponing childbearing (Pienta, 1999; Svensson *et al.*, 2015). These studies use the so-called "attachment hypothesis" to explain the underlying mechanism: in case women have invested in their personal attainment and human capital accumulation, they hold stronger ties to the labour market that lead to late retirement (Hank, 2004; Pienta, 1999). This perspective is useful to highlight differences in grandmothers' labour market behavior according to the previous life course. Indeed, mid-life women have already taken decisions, throughout their adult life, on the reconciliation between paid work and care responsibilities. When becoming grandmothers, they may reproduce preferences and practices already put in place when they became mothers. For example, the preference for care responsibilities over work commitment during the life-course, exemplified by a reduction in working hours after the birth of the first child, might relate to similar decisions for care responsibilities over work later on in life, after the birth of the first grandchild. On the other hand, a continuous labour market participation around motherhood, as resulting from human capital investment and preference for self-realization, might lead to a lower willingness to retire early to provide grandchildren with care, similarly to the behavior implemented around childbirth. In fact, a crucial factor for retirement timing is the number of years worked (Hank & Korbmacher, 2013), because the majority of European pension systems require a certain amount of pension contributions to retire with full benefits. Those women who have broken working careers, due to family responsibilities, have limited capacity to build a pension wealth or economic independence. The opportunity-costs associated with foregone earnings from employment negatively affects the decisions to anticipate retirement. Finch (2014) finds evidence that women with non-continuous working careers are more likely to extend paid work in the UK. To the contrary, having worked certain years allows retiring earlier, and a continuous working career secures economic stability and independence. Thus, I speculate that, the longer the record of pension contributions, the easier for grandmothers to retire.

In **Paper 4** (Chapter V), using retrospective information from the Italian Multipurpose survey on Family and Social Subjects (2009), I explain that both age, contribution history, and occupational status during the life course enable/constraint retirement after the birth of the first grandchild. The paper builds on various steps illustrating both theoretically and empirically the patterns of labour force participation of Italian women, starting point of a set of considerations

related to the underdevelopment of childcare services, lowest low fertility, and early retirement options. All these elements illustrate a surprising peculiarity of the Italian context: it is likely that grandparenthood occurs after retirement, with the consequence that older workers are not affected by childcare responsibilities while still employed. Moreover, I operationalize the previous life course in terms of social class and number of years worked, as to measure the employment conditions that apply to the retirement of different categories of workers.

1.3. Background

1.3.1. 70 years of research on grandparents

The study of grandparenthood as a research topic dates back to the aftermath of World War II in the United States. In one of the first articles on the topic, von Hentig (1946) writes:

"Grandparents, and especially the grandmother, reassume a sociological function the moment a gap has to be filled and missing members of the intermediary generation have to be replaced" (p. 389).

The consequences of World War II on families, such as departure, disappearance, death, and desertion of one of the parents, calls grandmothers' in as a refuge for children. With the emergence of the industrial society, the idea of the "isolated nuclear family" (Parsons, 1949) gains ground, with a consequent marginalization of grandparents research; if any, research uncovers a "hands off" policy of grandparents who would rather not interfere with child-rearing practices (Albrecht, 1954). In the 1960s, Neugarten and Weinstein (1964) pioneered the study of the symbolic meaning of grandchildren to the grandparent. Ground-breaking is the idea that grandparenthood is not characterized anymore (only) by authority or by need. For example, grandchildren are a source of biological renewal, making grandparents feel young again; but also, the "opportunity to succeed in a new emotional role, with the implication that the individual feels himself to be a better grandparent than he was a parent" (p. 201). Furthermore, the authors come first in elaborating the idea of grandparenting style: there are *formal* grandparents, "those who follow what they regard as the proper and prescribed role"; *fun seekers*, a relation "characterized by informality and playfulness"; the *surrogate* parents, with caretaking responsibilities; the *reservoir of family wisdom*, dispenser of special skills passed down from generation to generation; and the *distant* figure, only present occasionally in the life of grandchildren, such as during Christmas

gathering and summer holidays. It is only in the 1980s that grandparental research gains attention *per se*, detaching from the wider research in intergenerational family relations. This affirmation of grandparenthood research was spurred by the unmet care needs created by the growing number of employed mothers, as well as the rising number of teenage pregnancies and the AIDS epidemic, and the incidence of divorce. Therefore, family studies and gerontology vastly investigate all the shades of the grandparent-adult child-grandchild relation, for example the changing demographic of grandparenthood (Hagestad & Lang, 1986), childrearing practices, grandchildren's cognitive development, and the consequences on the grandparent-grandchild relation of negative family events, such as death, disability, divorce (for a review, see Szinovacz 1998, p. 8). In this period, the very influential work from Cherlin and Furstenberg (1986) advances the field of grandparenting styles exploring the stratification along socio-demographic lines of childrearing practices. In the 1990s, new large-scale surveys allow attempts in mapping the characteristics of ties between generations adding the variable of *change*. The intergenerational solidarity model elaborates a typology of bonds across family members, based on the very crucial sociological concept of solidarity, and most importantly, how these bonds evolve over time, and across the life course (Roberts *et al*., 1991).

[1] For example, the effect of childhood experience with grandparents affects several outcomes later in life. This will further be delineated by the life course

[1] Solidarity is "the glue which overcomes the centripetal tendencies of human self-interest, thus accounting for social order" (Roberts *et al*., 1991, p. 12). Applying this concept to the study of multigenerational families, family sociologists have formulated the so-called intergenerational solidarity model, a typology of the ties that bind family members together (Bengtson, 2001; Bengtson & Roberts, 1991; Roberts et al., 1991). The model is meant to provide ground for a formal theory construction. In the words of the authors: "We conceptualize intergenerational family solidarity as a multifaceted, multidimensional construct reflected in six distinct elements of parent-child interaction: affection, association, consensus, resource sharing, the strength of familism norms, and the opportunity structure for parent-child interaction. The aim of the theory is to specify interrelationships among these elements of intergenerational solidarity" (Bengtson & Roberts, 1991 p. 856). The model has revealed useful to investigate how relationships between parents and children develop during the life course, but also, how they evolve in changing historical times. Contradicting the claims on the rising centrality of the nuclear family (Burgess, 1926; Parsons, 1949; Popenoe, 1993), multigenerational bonds are more important than nuclear family ties in contemporary US, especially for instrumental support and resource sharing (Bengtson, 2001; Glass & Bengtson, 1986). Main critics of the model maintain that the term solidarity is positive: it implies affection and consensus, while a lack of these sentiments could be interpreted as absence of solidarity (Marshall, Lomax Cook, & Marshall, 1993). In reality, family members can experience ambivalence, namely conflicting feelings that could lead to a contradictory behaviour (Bengtson, Giarrusso, Mabry, & Silverstein, 2012), as well as conflict (Bengtson & Oyama, 2010). Later developments of the intergenerational solidarity model (Cruz-Saco & Zelenev, 2010) have focused on adjacent generations, namely parents and children, while Silverstein *et al.* (1998) developed the only attempt to apply the model to non-adjacent generations as well, namely considering the relation between grandparents and grandchildren.

perspective (Bengtson, Elder, & Putney, 2005). Finally, the emergence of a gender perspective on grandparental studies should be mentioned. First, social theories notice that, despite it is unquestionable that grandmothers cover the largest amount of care responsibilities, mid-life men are offered a second chance in parenting after becoming grandfathers, after the years around parenthood when they were busy with paid employment (Kivett, 1991). Second, evolutionary theory develops interest in grandparents, namely on grandparental investment (for a review, see Coall & Hertwig, 2010). According to evolutionary theories, parental and grandparental investment are driven by the need to increase the survival of the offspring. Grandmothers, especially maternal grandmothers, invest more in grandchildren because they are certain of genetic relatedness.

1.3.2. The demography of grandparenthood

In Western societies, life expectancy has progressively increased, whereas fertility rates decreased. These two major societal phenomena have important implications for the study of grandparenthood. Population trends influence not only the generation of grandparents under investigation, but the generation of their offspring as well. In fact, "grandparenthood constitutes a counter transition; that is, a transition determined not only by the grandparent's own characteristics and life choices but also by those of his or her children and grandchildren" (Szinovacz 1998a, p. 37). In other words, the transition of grandparenthood reflects population trends in at least two generations. Therefore, increasing life expectancy and declining fertility rates played a role in altering the structure of families, as well as shaping the timing of the transition to grandparenthood, and its stratification across educational layers.

Life expectancy has been increasing during human history, mainly thank to the decrease in child mortality. However, in the past three decades, the major source of increase in life expectancy has been the reduced mortality of older people, to be attributed to decreased tobacco use and cardiovascular disease mortality (Mathers, Stevens, Boerma, White, & Tobias, 2015) and increased health spending per capita (OECD, 2017a). For example, among OECD countries, the life expectancy at age 65 was 14 years in 1970, and 19.5 years in 2005. Japan, France, and Spain are the countries with the highest life expectancy, which was around 15 years in 1970, and reached 21/22 years in 2005. Denmark fares worst, with a life expectancy of 19.4 years in 2005, below the OECD average. At the bottom of the distribution there are Latvia and Hungary, were older individuals live on average 16.5 years after reaching 65 (OECD, 2017a). However, not all these years are lived

in good health: to the contrary, among OECD countries, people aged 65 have the prospect to live only 9.4 healthy life years, with a range between 16.3 in Sweden, 7.7 in Italy, and 4 in Slovak Republic (*ibidem*).

At the same time, starting from the 1990s, Southern, Central, and Eastern European countries witness the emergence of a below-replacement fertility level, which is below the replacement rate of 2.1 children per woman. Italy and Spain represent a peculiar situation: in 1993 they reached a Total Fertility Rate below 1.3 children per woman (Kohler, Billari, & Ortega, 2002), called "lowest-low fertility". To the contrary, countries such as Netherlands and Denmark exhibited below-replacement fertility in the late 1960s, but their fertility level increased again in the late 1990s (Kohler *et al.*, 2002). The major reason of the fertility level decline lies in the *tempo* of fertility. Women postpone the age at first child to the extent that subsequent fertility is not achieved due to biological reasons. In Southern European countries, fertility postponement leads to a decline in completed fertility, because women have very scarce progression probability after the first child. To the contrary, the association between low-fertility and tempo (postponement) is weaker, for example, in Denmark, where the negative effect of postponement on completed fertility has progressively turned into recuperation of delayed births in women's later life (Kravdal & Rindfuss, 2008; Lappegård & Rønsen, 2005; Nisén, Myrskylä, Silventoinen, & Martikainen, 2014). At the same time, childlessness is on the rise, especially in German-speaking countries, where 20% of women at the end of the reproductive periods will stay childless. Similar numbers are reported for the UK and Finland, while in Eastern and Southern Europe the phenomenon is relatively new (Kreyenfeld & Konietzka, 2017).

These changes in reproductive behavior have several driving factors, three of which stand out. Firstly, the "second demographic transition" (Lesthaeghe, 1995) is an ideational change, during which values have shifted toward higher order needs, such as individual self-fulfilment and autonomy. It has coincided with women's emancipation from traditional gender roles and secularization (Kertzer, White, Bernardi, & Gabrielli, 2009). Secondly, an increasing percentage of women has achieved secondary or tertiary education. Investments in human capital intensify the opportunity costs of motherhood (Cantalini, 2019) in terms of foregone earnings and career advancements. Therefore, it is especially among highly educated women that postponement takes place. As income increases with career advancements, highly educated women wait to achieve a stable and fruitful labour market position before progressing to motherhood (Wood, Neels,

& Kil, 2014). Similarly, several highly educated women decide to remain childless (Kreyenfeld & Konietzka, 2017). Finally, especially in Southern European countries, the transition to adulthood happens at later ages, because of longer permanence in the educational system and difficulties in finding a job. Young individuals live longer with parents, waiting to achieve a certain degree of stability before starting a new family (Livi-Bacci, 2001).

Therefore, more generations live within the same timespan for longer periods; and, younger generations include less family members. At the beginning of the 1990s, Bengtson and colleagues (1990) notice that contemporary families have the structure of a "beanpole". The idea was refined by Knipscheer (1992) who coins the term "verticalisation" of family ties: family members have more vertical ties, but less horizontal ones. Children have more grandparents than siblings (Jensen, Kjørholt, Qvortrup, & Sandbæk, 2004).

Yet, the study of the changes in the intergenerational structure of families over time is complicated, both for methodological issues and for data availability (for a review, see Herlofson & Hagestad, 2011). With SHARE data, several scholars have attempted to map the intergenerational ties of individuals aged 50+ in Europe (Kohli, Künemund, & Ludicke, 2005). Results show that the most prominent family arrangement is a three-generation structure. On average across European countries, 48% of women aged 50-59 live in a three generational family, a percentage that increases to 61% for women aged 60-69 and drops to 30% among the 80+. There are differences across countries: the percentage of women 50-59 living in a three-generational structure ranges from 44% in Sweden to 52% in Greece. When looking at more complex family arrangements a wider difference emerge: 11% of Italian women aged 50-59 against 30% of Swedish and French women are part of a four-generational structure (Kohli *et al.*, 2005). As far as grandparenthood is concerned, Kohli, Künemund, and Vogel (2008) estimate that between 75% and the 80% of individuals aged 50-59 years old living in Mediterranean countries (Italy, Spain, and Greece) are grandchildless; against 60% in Sweden and 40% in Poland. After the age of 60, the percentage drops to 20% for Sweden and 10% for Poland. Spain partially catches up, with roughly 30% of individuals aged 60-69 without grandchildren, whereas in Italy the percentage remains 30% and in Greece 40% (see also Puur, Sakkeus, Põldma, & Herm, 2011).

Several scholars have been interested in understanding when exactly individuals become grandparents across European countries. Hagestad and Lang (1986) are

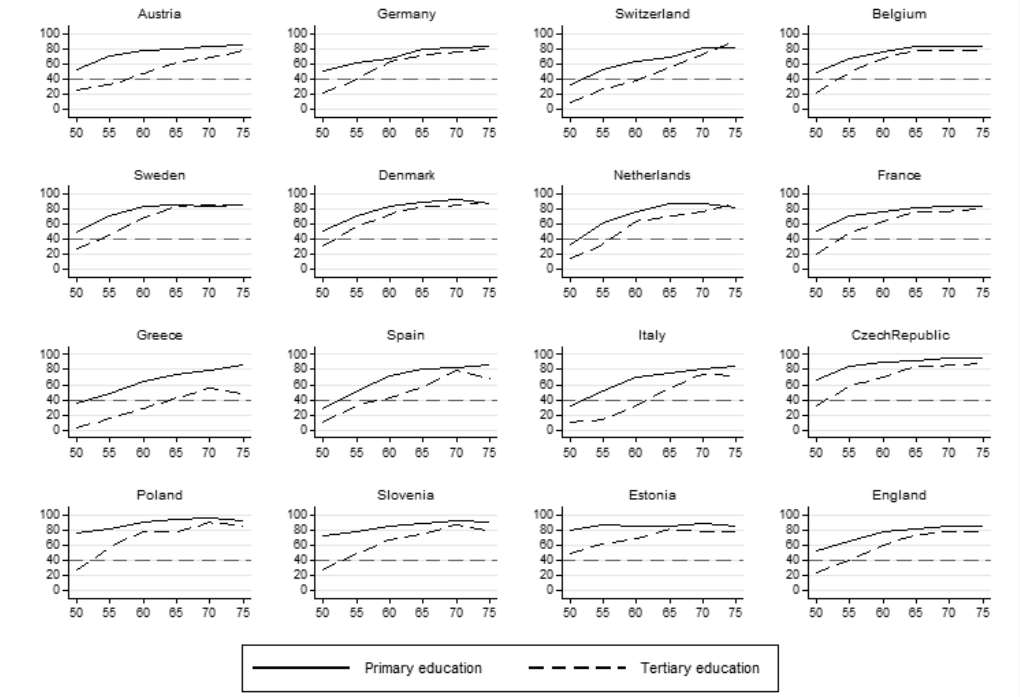
the first noticing that many issues concerning grandparenthood in a life course perspective are vastly understudied. Szinovacz (1998) estimates that in the US women become grandmothers at 45.8 years old, while men at 48.7 years old, with race differences. In the Netherlands, Dykstra and Komter (2006) find a mean age at grandparenthood of 53 for women and 55 for men. With a comparison across cohorts between East and West Germany, Leopold & Skopek (2015a) find that the age at grandparenthood has moved forward between the pre-war and the post-war cohort of about 3 months per year. Due to this trend, the median age at grandmotherhood has shifted from 47 to 53 in East Germany, and from 55 to 60 in West Germany. For men, the shift is from 50 to 56 in East Germany, and from 59 to 65 in West Germany. The reason lies in the continuously late and low fertility rate starting from the 1960s in Germany, which has affected already these two generations. Nevertheless, fertility decline in West and East Germany has followed different trends that reflect in variation in the age at grandparenthood. Context-comparison has been developed further in a later article by Leopold and Skopek (2015b), who explain that the timing of grandparenthood strongly varies across institutional contexts. For example, American men become grandfathers at 52 years, whereas women at 49; grandparenthood occurs almost three years earlier in Eastern European countries, and eight years later in Western ones, reflecting heterogeneity among welfare systems across the line of *familialism*. All these studies notice that grandparenthood is more and more distinct life phase than active parenthood, and most importantly, the transition to grandparenthood overlaps with other roles, especially the one of active worker. Similar results are found for Canada: individuals become grandparents later in life due to postponement of fertility, and the incidence of childlessness. In 1985 the 60% of women aged 50-54 were grandmothers, against the 30% in 2011 (Margolis, 2016). Di Gessa and colleagues (2018) notice a similar decline in the probability to be grandparent by the age of 60 in Italy across cohorts. Nevertheless, they stress that the postponement of the transition is mostly driven by changes in the composition of family and educational level across cohorts. Exploiting further the cohort perspective, Margolis & Verdery (2019) clarify that the increase in the proportion of non-grandparents across cohorts is due to the intertwine between childlessness among the grandparents' cohort, and childlessness among their children's cohorts. These two trends make the 25/30% of the 1960 birth cohort die without grandchildren in the US. Finally, Arpino *et al.* (2018) investigate the heterogeneity in the probability to be grandparent with respect to family history. Early grandparents are those who married early, had fast progression to first (and higher order) births, and had many children.

Nevertheless, as fertility is strongly related to educational level, the transition to grandparenthood is likely to be stratified as well. Skopek and Leopold (2017) provide the first attempt to investigate the educational gradient in the transition to grandparenthood, studying Germany. The authors find that the educational stratification in fertility is "magnified" in the transition to grandparenthood: among those individuals at risk of experiencing the transition, West German lower-educated women become grandmothers 6 years earlier than their higher-educated counterparts, doubling the differences observed for age at parenthood. For East German women and West and East German men, the likelihood to become grandparents converges later in life, showing that the differences in educational level are only temporary, and emerge from different timing in their fertility. Furthermore, among East German individuals, the persistence of high fertility level leads to early parenthood and grandparenthood, and therefore in a weaker relation between educational level and fertility. The study thus explains that the stratification of the age at first birth by educational level reflects in a positive educational gradient in grandparenthood.

However, the study of the stratification of grandparenthood is limited, to date, to Germany. In Europe, there are no dataset that collect information on the date of birth of the first grandchild across several countries. The Survey of Health, Ageing, and Retirement in Europe (SHARE) is the only available dataset comprising several European countries that, at least, gathers information on grandparenthood status, namely whether an individual is a grandparent or not, without additional detail on the moment of the transition. ELSA (the English Longitudinal Study on Ageing) is its English correspondence. Still, the datasets are useful to gain a better understanding on the cross-country differences in the share of grandparents across educational layers. Figure 1.1 (author's calculation) provides an overview of the stratification of grandparenthood across European countries. I calculate the proportion of individuals who are grandmothers by age group and educational level with SHARE and ELSA data.

All over European countries, at any given age, primary educated women are more likely to be grandmothers than their tertiary educated counterparts. However, striking differences exist across countries, which mirror the fertility patterns discussed in the previous paragraph. For example, in Austria, the 20% of highly educated women is a grandmother by the age of 50, against 50% of low educated women; the percentages increase to 60% and 80% respectively by the age of 65. By the age of 75, highly educated women catch-up, and the educational difference

Figure 1.1. Percentage of women who are grandmothers at a given age, by educational level and country.



Source: SHARE data (2004-2015) and ELSA data (2002-2015). Own calculations.

in the probability to be a grandmother disappears. In Sweden, even though there is a grandmotherhood-gap in early years, the catch-up occurs almost 10 years earlier, around the age of 65. Denmark and Netherlands exhibit similar patterns. In Greece, the catch-up does not occur at all, with only 40% of women being grandmother by the age of 70. In Eastern European countries, it is very interesting to notice the very high rate of grandmotherhood already in early ages: by the age of 50, the gap is massive, with already 80% of low educated women being grandmothers, against the 20% of highly educated women (40% in Estonia). England displays a grandmotherhood-gap of around 30 percentage points by the age of 50, but it quickly closes around the age of 60.

1.4. Contribution I – Grandparental care investment in a stratification perspective

Not only do individuals become grandparents at a different pace according to their educational level, but also, they differ in the time and resources they invest in their grandchildren. In the following sections, I will review studies showing that grandparents' resources influence grandchildren's life outcomes (section 1.4.1). The mechanisms at play could be like the one adopted by parents to pass on resources to the offspring: grandparents from different socio-economic background adopt targeted grandparenting strategies to endorse their grandchildren with the various forms of capital they own (section 1.4.2).

1.4.1. Inequality of opportunity in a three-generational perspective

Inequality of opportunity lies at the core of stratification research, which, in turn, is one of the liveliest areas of inquiry in the social sciences. Studies on the topic regard the extent to which educational and occupational attainments are related to individuals' ascribed characteristics - among others, individuals' social origin (Breen, 2004; Breen & Jonsson, 2005; Burton & Grusky, 1992; Erikson & Goldthorpe, 1992; Ganzeboom, Treiman, & Ultee, 1991; Kerckhoff, 1995; Shavit & Blossfeld, 1993).

Nevertheless, the two-generational approach has been criticized, calling for a "multigenerational view of inequality": "We ignore the effects of ancestors and higher-order social contacts at the peril of sound demographic research" (Mare 2011, p. 19). As scholars start questioning "whether ancestors more distant than the parental generation directly affect a child's outcomes" (Anderson *et al.* 2018, p. 116), several studies investigate the so-called *grandparent effect*. Results are mixed: in a systematic review, Anderson and colleagues (2018) find that only the 58 percent of the 69 studies that model the relationship between grandparents' resources and grandchildren' educational achievement, net of parental resources,

report significant association. [2] Despite this very large body of literature, the aforementioned studies rarely investigate which are the mechanisms actually relating grandparents' resources with grandchildren's achievement. As an exception, in a recent study, Lehti, Erola, & Tanskanen (2019) put forward three possible mechanisms: grandparents could act as *stabilizers*, in the sense that they provide resources to the offspring's family to compensate the lack of resources, or stability (for example, in case of parental divorce, or material deprivation). Further, there could be a *legacy effect*: grandparents directly transmit resources to the offspring, both financially and culturally. Finally, the *exposure hypothesis* conceives grandparents as kinkeepers: they could be the link between grandchildren and the extended family network. Given the large number of family ties available thanks to grandparents, grandchildren could more easily benefit from the extended family network's resources when they share several lifetime years with the grandparents. Similarly, Sadruddin and colleagues (2019) review 206

[2] I believe important to mention the most recent and robust studies on the topic. Møllegaard and Jæger (2015) in Denmark find a positive relation between grandparents' cultural capital and the likelihood grandchildren choose the academic track in upper secondary education. In the Netherlands, Bol and Kalmijn (2016) detect no grandparent effect, while for the same country Knigge (2016) is able to relate great-grandfathers' and grandfathers' status with the status attainment of men. In England, Chan and Boliver (2013) confirm the association between grandparents' and grandchildren's class position. In Sweden, Hällsten and Pfeffer (2017) find a relation between grandparents' wealth and grandchildren's grade point average (GPA) in the 9th grade; Dribe and Helgertz (2016) find a stable association over time between 1815 and 2011 between grandfathers' and grandsons' occupational status. According to Modin and colleagues (2013), the higher the grades grandparents had in school in mathematics and Swedish, the higher the odds of grandchildren of receiving high grades in these subjects. In the US, Fergusson and colleagues (2008) investigate young children, and find that those with college educated grandparents have higher literacy and math skills. Song (2016) find a grandparental effect in years of education both for whites and African-Americans, but only when children grow up in two-parents families. Moreover, Zeng and Xie (2014) find a direct effect of grandparents' educational attainment on grandchildren's schooling, but only if the two live together. Braun and Stuhler (2016) find no grandparent effect in Germany. However, several studies notice that the grandparent effect can differ across socio-economic groups. In the US, Jæger (2012) explains that "[...] the extended family's effect need not materialize at the mean. Rather, the effect likely varies across the distribution of family SES and by the quality of family relations [...] grandparents' [...] socio-economic characteristics matter more for children's educational success in low-SES families than in high-SES families. This result is consistent with the hypothesis that resources in the extended family compensate for negative consequences of growing up in a low-SES family" (p. 918). Deindl and Tieben (2017) in a study across European countries gets to similar conclusions, calling the phenomenon "buffer hypothesis". In Taiwan, Chiang and Park (2015) find no direct effect of grandparents as well, but they conclude that grandparents' schooling is more beneficial to grandchildren with highly educated parents. Finally a few studies have warned against the difficulty of a multigenerational research design (see, for example, Breen 2018; Mare 2014). Among different problems, the largest is surely the risk of omitting to operationalize some dimensions of parental SES that can lead to the overestimation of the direct grandparental effect.

studies on the relation between grandparental involvement and grandchildren's educational and health outcomes. They develop a conceptual framework that can guide the operationalization of grandparental involvement and the study of the mechanisms through which it (eventually) influences grandchildren's outcomes. The authors identify three measures of the influence of grandparents: contact with grandchildren, caregiving behavior, and support in terms of resources.

Despite these crucial contributions to the field, the direct measurement of the content of the grandparent-grandchild relationship is left in the background, especially under the light of an eventual *legacy effect*. While it is pretty straightforward to measure grandparents' financial contribution to grandchildren's wellbeing, it remains unknown how grandparents transmit cultural resources to grandchildren. This approach could enrich the current reasoning on the intergenerational transmission of inequality.

1.4.2. (Grand)parents and cultural reproduction

In the present dissertation, I expand the theory of cultural reproduction and the notion of concerted cultivation to grandparenting, as to investigate in a stratification perspective the content of the grandparent-grandchild relationship. This stream of research could shed additional light on the mechanisms relating the extended family with grandchildren's achievement, which at its core focusses on the *time* and *activities* parents from different socio-economic background perform with the offspring. (Grand)children from upper-middle class families could benefit from a stimulating environment in the parental house, as well as spend time away from the parents with similarly highly educated grandparents, who put in practice rearing strategies once again related to the fostering of their hard and soft skills.
Bourdieu's theory of cultural reproduction (Bourdieu, 1977; Bourdieu & Passeron, 1990) explains that families have different forms of capital: economic, social (social network), and cultural (Bourdieu, 1986), that can be invested for generating resources. The most-used definition of cultural capital has been proposed by Lamont and Lareau (1988, p. 156): "widely shared, high-status cultural signals (attitudes, preferences, formal knowledge, behaviors, goods and credentials) used for social and cultural exclusion". Cultural capital is particularly important in the field of education: teachers are prone to valorizing children and families that possess it. In fact, as cultural capital is associated with high social status and culture, children who display these behaviors are perceived by teachers as academically brilliant, leading to favorable treatment and educational success. Jæger and Breen (2016) draw a dynamic model to systematize the theory of cultural reproduction,

to explain the steps through which family of origin enhance children's educational success:

"Parents' investment in their child's cultural capital helps to determine the child's cultural capital. This influences teachers' perceptions of (and inputs in) the child, which, in turn, affects the child's educational performance. The child's educational performance leads parents to update their investment, and this new investment, together with existing cultural capital, shapes the child's later cultural capital, which affects teacher perceptions, and so on. This process continues throughout the period of compulsory schooling, eventually leading to final educational attainment, which affects socioeconomic success" (p. 1092).

Cultural capital is "inherited" by children in the sense that the parents invest on them, both actively (for example, taking the children to museum, reading books) and passively (through exposure to books in the home, or art). Lareau (2003) bridges the cultural reproduction theory from Bourdieu and studies on linguistic codes stratified across social classes (for example, Bernstein, 1971). The two researches are connected

"[…] via the concept of habitus. She states that individuals in different social locations are socialized differently. This socialization provides children with a sense of what is comfortable and natural, e.g., habitus in Bourdieu's terms. Differences in habitus give individuals different cultural skills, social connections, educational practices, and other cultural resources, which translate into different benefits as individuals move out into the world" (Bodovski & Farkas, 2008 p. 906).
During her ethnographic study, in fact, Lareau (2003, p. 238) observes that:

"in these [middle-class] families, parents actively fostered and assessed their children's talents, opinions, and skills. They scheduled their children for activities. They reasoned with them. They hovered over them and outside the home they did not hesitate to intervene on the children's behalf. They made a sustained and deliberate effort to stimulate children's development and to cultivate their cognitive and social skills."

She calls this childrearing strategy *concerted cultivation*: children are treated as a "developmental project" which creates in children a sense of entitlement that "[…] plays an especially important role in institutional settings, where middle-class children learn to question adults and address them as relative equals" (Lareau

2003, p. 2). For example, middle-class children "[…] acted as though they had a right to pursue their own individual preferences and to actively manage interactions in institutional settings. They appeared comfortable in these settings; they were open to sharing information and asking for attention […] it was common practice […] to shift interactions to suit *their* preferences".

To the contrary, parents from low socio-economic backgrounds see a boundary between adults and children, which translates in the use of directives, instead of engaging in reasoning to persuade children about what to do. They facilitate the "accomplishment of natural growth" (Lareau 2003, p. 3): concerns about making-ends-meet make it an important task to fulfil children's needs, such as putting food on the table, and providing physical care. For the rest, children from low socio-economic backgrounds have control over their time, they are free to go out and play with siblings and peers. Working class children develop a sense of constraint when face-to-face with institutions: they accept authority without questioning, they have no special demands, they even bear difficulties in dialoguing with professionals due to limited vocabulary – in this sense, working class parents maintain a distance to professionals and a separation from the school.

In quantitative social research, many other studies have operationalized the concerted cultivation strategy and investigated the mediating role of parenting in the relation between family of origin SES and educational achievement (Bodovski & Farkas, 2008; Cheadle, 2009; Irwin & Elley, 2011).

Furthermore, Laureau's (2003) concerted cultivation has been vastly employed as underlying explanation for the well-known educational gradient in parents' time with children. Highly educated mothers spend more time with children than the lower educated ones (Craig, 2006; England & Srivastava, 2013; Guryan *et al.*, 2008; Kalil, Ryan, & Corey, 2012; Kitterød, 2002), and most interestingly, highly educated fathers as well: they comply to a new model of fatherhood, where childcare is no longer a female domain (Gracia, 2014; Hook & Wolfe, 2012; Raley *et al.*, 2012; Sullivan, 2010; Sullivan *et al.*, 2014). Even though cross-country differences are difficult to quantify, the stratification of parent-child relation persists across institutional contexts (Craig & Mullan, 2010; Dotti Sani & Treas, 2016; Gracia & Ghysels, 2017; Sayer, Gauthier, & Furstenberg, 2004). Surely, the educational gradient in parenting has a paradoxical nature: highly educated families are those with the lowest time to devote to childcare, due to more rewarding jobs, the highest opportunity-cost of foregoing earnings for family time, and the economic

resources to outsource care duties. Yet, the time spent with children does not depend upon mothers' employment (McLanahan, 2004; Raley *et al.*, 2012); to the contrary, it results from a re-allocation of time: employed mothers prefer to cut on sleeping and leisure to compensate for the time spent away from their children (Sayer *et al.* 2004).

To sum up, the transmission of cultural capital from parents to children is among the several mechanisms underlying the relation between family of origin and individuals' educational achievement. High SES parents spend more time with children, and in activities related to the development of their cognitive skills, social capital, vocabulary, and many other elements that are positively rewarded in the educational system and on the labour market. Yet, despite there exists a classical research on grandparenting styles (Cherlin & Furstenberg, 1986; Neugarten & Weinstein, 1964), no study has aimed at uncovering to what extent grandparents' time involvement is also stratified along educational layers, and which kind of activities grandparents with different degrees of cultural capital perform with grandchildren. In the first empirical chapter of the present dissertation (Chapter II), I will investigate under this light the content of the grandparent-grandchild relationship and speculate upon the implications for the intergenerational transmission of inequality.

1.5. Contribution II – Grandparenthood and employment in a comparative perspective

While educational stratification drives the motives of the involvement in grandchildren's lives, the institutional setting of the country constraints, or enables, the availability of grandparents as care providers (against active workers) as well as the need of them to step in with childcare. The present section provides a theoretical underpinning to the country-comparative part of the dissertation. It lays the foundations for studying the (eventual) cross-country variation in the degree to which older workers reshape their labour market behavior after the birth of a grandchild.

The remainder of this section will be organized as follows. Esping-Andersen's work (1990) is the most famous attempt to put forward a theory about welfare regimes and their implications for individuals' general welfare (section 1.5.1). With the concept of *de-familialization*, it defines the power of social institutions in lessening individuals' reliance on the family. The policy-mix of the country therefore shapes the *need* for informal support by grandparents (section 1.5.2), which,

in turn, can lead to labour market adjustments by grandparents. In this respect, three perspectives have been elaborated on the relation between the welfare state and intergenerational support. The *crowding-out perspective* maintains that public support in the form of state transfers as well as social services substitute the exchange of support between generations (section 1.5.3); the *crowding-in* perspective explains that welfare state and family stimulate each other in providing support to individuals; and finally, the *specialization* hypothesis reconciles the two, arguing that the welfare state and family support take over different responsibilities. After having listed the most important empirical contributions on the debate, I show how the three perspectives relate to the study of grandparental childcare (section 1.5.4).

Later on in the dissertation, I will also compare countries on the side of the *availability* of grandparents, as I will study the influence of the generosity of the pension system and early retirement regulations in allowing older workers to retire early after the birth of a grandchild (Chapter III). Nevertheless, this introductory chapter revolves around studies on the exchange of resources between generations, field in the social sciences where the study of grandparents became prominent. Yet, I am aware that pension regulations fall under the umbrella of the welfare state as well and they will be considered simultaneously in the empirical chapters.

1.5.1. Decommodification and social stratification

Esping-Andersen (1990)'s *Three Worlds of Welfare Capitalism* is a classical book for the study of the welfare state. The book traces "the historical developments of states that have forged the emergence of a peculiar form of welfare statism, and the history of political class coalitions" (p. 1). Organizing concept of the book is *welfare regimes* which allows to "sociologize" (p. 3) the study of the welfare state, via the study of "international variations in social rights and welfare state stratification" due to different arrangements occurring between the state, the market, and the family (p. 26).

The core idea of the welfare state is Marshall's formulation of social citizenship (T. H. Marshall, 1950). Since the markets are hegemonic and universal, the welfare of individuals strictly depends on the "cash-nexus", namely the alienating nature of the relations of production within a capitalist economy; in other words, the Marxist idea of the commodification of labor power. The introduction of social rights means the loosening of the commodity status, the replacement of class

status with social citizenships in the access to services. Yet, to truly de-commodify the individual on the market, social rights must be inviolable, based on citizenship and not on performance; at the same time, social citizenship is interwoven with the concept of social class. Here rests the international variation; and, in this respect, the state interacts with the family and the market in social provision of welfare.
Esping-Andersen comes up with a "minimal definition" of *decommodification*: "[...] citizens can freely, and without potential loss of job, income, or general welfare, opt out of work when they themselves consider it necessary" (p. 23). Furthermore, the welfare state promotes social stratification: "the welfare state is not just a mechanism that intervenes in, and possibly corrects, the structure of inequality; it is, in its own right, a system of stratification. It is an active force in the ordering of social relations" (p. 23). For example, in targeting certain population strata, such as social classes, it reinforces a division among wage earners who are entitled to a unique set of privileges or rights. Esping-Andersen provides an empirical analysis alongside the two dimensions of *decommodification* and *stratification* of several European countries, confirming his expectations of the existence of three separate welfare clusters. Three welfare regimes are identified: the liberal in the Anglo-Saxon countries, the corporatist in central Europe, and the social-democratic in Scandinavia. [3]

In the Anglo-Saxon countries (*liberal* welfare regime), the welfare state is social assistance dominated, thus rights are attached to demonstrable need. Apart from those who fail in the market, all the others are encouraged to seek private-sector welfare. The consequent social structure is a dualism between those who can purchase services on the labor market and those who are totally dependent on the welfare state, who are punished and stigmatized.

Scandinavian countries are part of the *social-democratic* welfare regime, with the highest level of decommodification. The Beveridge-type citizens' benefit offers a basic, equal benefit to all, irrespective of previous earnings, performance, contributions. The drawback is that such a system is not able to assure to everyone

[3] Esping-Andersen focusses also on the "welfare mix" (state-market nexus) as key component of welfare regimes: "State and market, or, if you will, political power and the cash nexus, have interacted continuously to manufacture the peculiar blend of social provision that goes into defining welfare-state regimes" (p. 79) and "[...] regimes can be compared with respect to which essential human needs are relegated to private versus public responsibility" (p. 80). The relationship is explored for pensions, coming up with "pension regimes": corporative state-dominated insurance systems, residualist systems, universalistic state-dominated systems. I will not elaborate on this element because the present chapter discusses Esping-Andersen as formulating the idea of de-familialization, important concept for the study of intergenerational exchange of resources.

a standard high enough that not working would be a genuine option. The model promotes equality of status: the system tries to cultivate cross-class solidarity, even if it can turn into a dualism like the social-assistance state: the new middle-class, unsatisfied by flat-rate universalism, turns to private insurance.
Finally, in the *conservative* model, typical of Continental and Southern Europe, compulsory state insurance is associated with strong entitlements, according to eligibility and benefit rules. The implication is that decommodification is associated with contributions, thus work and employment. Therefore, the divisions among wage earners increase, because each class and status group is eligible for a different program. [4]

Feminist scholars have largely criticized Esping-Andersen of being *gender blind* in the concept of decommodification, of overlooking the role of the family in the welfare triad, and neglecting the "gendering" power of the welfare state (Lewis, 1992, 1997; Orloff, 1993; Sainsbury, 1999). Esping-Andersen answers to these critiques in a subsequent work, *The Social Foundations of Post-Industrial Economies* (Esping-Andersen, 1999). He recognizes that the unpaid work done by women is a major source of welfare. The welfare production of any of the three institutions (state, market, and family) depends on the other two; therefore, the welfare of individuals depends upon how they manage the provisions from these three. For example, a traditional male breadwinner family model needs less public and private welfare provision than a dual earners couple, because women bear the responsibilities for reproductive labour and care. The market endures the consequences in terms of less labour supply and less need of purchasable services. At the same time, universal and/or cheap provision of services leads to changes in both families and market: fewer women "need" to be housewives and can participate in the labour market, leading to greater propensity in purchasing services.

1.5.2. Defamilialization and grandparents

Different degrees of state welfare provision influence the extent to which women can be at work, and in turn, the *need* to rely on family members for care. In this sense, the re-specification of the concept of *de-commodification* (Esping-

[4] There are several further developments of Esping-Andersen's (1990) typology (for a review, see Arts and Gelissen, 2002), the most famous of those considers a fourth regime, namely the Southern European one (Italy, Spain, Greece, and Portugal). These countries are peculiar for the kind of familialism they embody (see also Ferrera, 1996). Moreover, the existence of three clusters has been strongly questioned by subsequent studies replicating Esping-Andersen's work, see Bambra (2006, 2007), Scruggs and Allan (2008) and Scruggs and James (2006). The debate is beyond the scope of the present work, where I aim at outlining the way the family has been studied within the context of social policy.

Andersen 1999, p. 43) is of importance for the present work. The concept of *de-commodification* assumes individuals to be already "commodified", namely it targets mainly standard, full-career male worker. It is not applicable to most women who are "imprisoned" in a pre-commodified status. In other words, the welfare state provides social insurance or career-based entitlements, which are attached to the male provider; women receive welfare support as derivative of the husband's worker status. For example, countries belonging to the Continental European cluster have high scores of decommodification, and yet they remain *familialistic: "*a *familialistic* welfare regime is therefore one that assigns a maximum of welfare obligations to the household*"*, while *de-familialization* refers to "policies that lessen individuals' reliance on the family; that maximize individuals' command of economic resources independently of familial or conjugal reciprocities" (p. 45). The point is that care responsibilities and family obligations restrict women's opportunity to participate in the workforce; thus, to gain full economic independence, *de-familialization* depends on the welfare state. Esping-Andersen's (1990, 1999) work implies that the welfare state can take over women's care responsibilities to free up time and energy for labor force participation. The specification of the concept of *de-familialization* sets the scene for two considerations relevant for the present work.

Firstly, following Esping-Andersen (1990, 1999), several researchers have attempted the categorization of countries according to the interdependence of welfare state and family (for a review, see Arts & Gelissen, 2002; Bambra, 2007).[5] Other contributions have studied women's gainful employment outside the family as enabled by public policies (Del Boca, Pasqua, & Pronzato, 2009; Hegewisch & Gornick, 2011; Thévenon, 2011). Overall, research shows that countries with similar welfare state strategies also have similar patterns of gender stratification (Mandel, 2009). Different forms of welfare intervention, based on different ideological approaches, reproduce the gender stratification. In other words, they

[5] For example, Lewis has developed the idea of "caring regimes" (Lewis 1992, 1997), Anttonen and Sipila (1996) talk about "European social care services models", Bettio and Plantenga (2004) about "care regimes", Pfau-Effinger (2005) about "care arrangements", Pascall and Lewis (2004) about "gender regimes", Kalmijn and Saraceno (2008) about "care packages", until the more recent "adult worker model" (Daly, 2011) and "social investment state" (see for example Hemerijck, 2018). Finally, another stream of research (e.g. Leitner, 2003) investigates *varieties of familialism:* countries can be classified on the base of their defamilializing *and* familialistic policies, that can coexist. There are welfare regimes that rely on, and actively support, the family as main source of care (for example, through cash benefit, or lengthy maternity leave) and other that aim at relieve the family from care responsibilities (via publicly- or market-provided services). Each country presents a mix of these two sets of policies.

operate in a continuum between fostering women's autonomy and strengthening the traditional division of labor between men and women (and within women).

This excursus on the gender structure of European countries is relevant to understand the country-heterogeneity in labour market behavior of mid-life individuals after the birth of a grandchild. A certain policy-logic influences the extent to which women are in paid employment. In details, family policy is strongly related to female labour market participation rate: where the welfare state supports with services and leave options women's work-family reconciliation, more women are active on the labour market (Thévenon, 2011). The interconnection of family policy and female labour market structure shape the *need* for grandparental childcare (Bordone, Arpino, & Aassve, 2017; Di Gessa, Glaser, Price, Ribe, & Tinker, 2016), which, in turn, can lead to labour market adjustments by grandparents.

Secondly, the core point of Esping-Andersen's book (1999) evolves around the emergence of a new political economy, which he calls post-industrial. He argues that welfare capitalism is sliding into crisis and decay, and the reasons relate to the malfunctioning of labour markets and families that are both undergoing revolutionary change. On the one hand, the labour market in incapable of providing equality and full employment at the same time. On the other hand, families are instable and "on a fertility strike". The new global economy asks for employment and wage flexibility, while the price for the high European standards of equality and social justice is mass unemployment. According to the author, "the 'real' crisis of contemporary welfare regimes lies in the disjuncture between the existing institutional construction and exogenous change" (p. 5). In other words, the welfare state and labour market regulations mirror a society that does not exist anymore, dominated by industrial production and demand for an undifferentiated, male, low skilled labour force, high fertility rates, and traditional families where women were housewives and primary caregivers. With the massive entrance in the labour market of women starting from the 70s, the inability of the welfare state to comply with a certain population structure manifested under the shape of low fertility rates. Especially in *familialistic* countries, women who cannot rely on publicly provided childcare services have been postponing, or foregoing, motherhood to pursue their working career (Billari & Kohler, 2004).

In this setting, grandparents take the role of a safety net – in other words, working women can take advantage of their mid-life parents' availability to receive the childcare support not available from the state.

To sum up, the welfare state and the family are interconnected, and this relation influences the female labour force participation rate of a country. These three elements, in turn, determine the extent to which young parents (need to) rely on grandparents for childcare, with (eventual) consequences on the labour market participation of the latter.

1.5.3. Does the welfare state crowd-out the family?

Esping-Andersen's (1999) *de-familialization* concept conceives the welfare state in charge of women's care responsibilities and to free up time and energy for labor force participation – in other words, the welfare state should *substitute* the role of the family. To what extent this is the case has long been central in research on the intergenerational exchange of resources. The field has been questioning whether the relation between the welfare state and the family is in fact one of replacement (*crowding-out*) or whether (and how) they stimulate each other (*crowding-in*). In the last decades, scholars have found empirically support for a more nuanced picture, referred to as "mixed responsibility", "functional differentiation" (Motel-Klingebiel, Tesch-Roemer, & Von Kondratowitz, 2005) or, as we will call it in the present work, "specialization" (Brandt, 2013) of different supportive instances.

The *crowding-out* perspective finds roots in classical family sociology that has adopted a modernization standpoint.[6] The decline of the family in modern societies was blamed on the development of the post-war welfare state, that has pushed responsibilities from the family towards the public system: a more generous welfare state would weaken family solidarity (for a review, see Künemund & Rein, 1999). However, stimulated by the theoretical formulation of the so-called *intergenerational solidarity model* (see footnote 1), family sociologists could empirically investigate the types of ties that binds family members together (Bengtson, 2001; Bengtson & Roberts, 1991; Roberts et al., 1991) and show the persistence and importance of multigenerational family ties for individuals' well-being (Bengtson, 2001; Glass & Bengtson, 1986). Moreover, several theories have been put forward on the reasons for family exchange.

[6] Durkheim has been among the first scholars worrying about the declining bonding power of the family due to the individualization of social relations (Bynder, 1969). Burgess (1926) and Parsons (1949) expected that the original extended family would be replaced by a nuclear family with an emotional-supportive role after the Industrial Revolution. Later, Popenoe (1993) hypothesized a decline of the nuclear family as social institution, arguing for example that individuals have lost interest in investing time, money, and energy, on family life.

The development of the *contingency theory* accounts for the reasons of *inter-vivos* financial transfers between old parents and adult children during the life-course: family members exchange resources across the generational lines on the base of the recipients' resource needs, and the availability of donors' resources (Eggebeen, 1992; Fingerman, Miller, Birditt, & Zarit, 2009; Rossi & Rossi, 1990).

As of donors' motives, two hypotheses are the most used: the exchange hypothesis and the altruism hypothesis (Settersten & Angel, 2011). According to the *exchange hypothesis*, the assistance provided is based on reciprocity: the donor provides the recipient with help, so to assure a transfer of similar value in the future. The exchange perspective, furthermore, attributes to the family the role of institution that smooths risks, reallocating goods and services where they are most needed (in its economic formulation, see Pauly, 1990). Following the sociological tradition, the exchange perspective is rooted in the fundamental normative principle of repayment of a debt; for this reason, the latent structure of favours-to-be-repaid constitutes a form of social capital for family members, a latent resource that can be consumed once it is needed (Silverstein, Conroy, Wang, Giarrusso, & Bengtson, 2002). Friedman, Hechter, & Kreager (2008) develop the *rational grandparent model*, where grandparents are rational actors who use their relationship with grandchildren as a conduit to reciprocal relationships with the grandchild's parents. Thus, grandparental investment activates children's norms of reciprocity. According to the *altruism hypothesis*, affection and emotional closeness are the reason motivating the resource exchange between family members. Dowd (1984) argues that different age groups might not exchange resources equally, whereas they are driven by "beneficence". [7] In the compensatory altruism formulation, "parents gain satisfaction from children's well-being by augmenting children's earning capacities through investment in human capital and wealth transfers of non-human capital" (MacDonald & Koh, 2003, p. 75).

Given that family members exchange resources moved by motives of *altruism* or *reciprocity*, "there is no reason to assume that a generous social security system will, in general, *crowd-out* reciprocity-oriented behaviour" (Künemund and Rein

[7] According to Dowd (1984) "universal norm of beneficence or goodness requires individuals to give others such help as they *need* and without thought of what they have done or can do for them. For some groups, beneficence thus supersedes reciprocity as the prevailing norm governing social interaction. Children, who for the most part are unable to reciprocate within the time that the donor may have need of such reciprocation, or the seriously ill, who are manifestly unable to do so within any foreseeable future time, are two such aggregates for whom *beneficence* rather than *reciprocity* is the more salient norm" (p. 103).

1999, p. 92). To the contrary, the generosity of the welfare state can relieve the "burden" of family responsibility, making possible the unveil of relationships based on intimacy and affection. In the following section, I will explain the extent to which grandparental childcare is shaped by the welfare system of the country, and how this form of intergenerational exchange of resources provides challenges to the *crowding-in* and the *crowding-out* hypotheses.

1.5.4. Grandparents and the welfare state

Apparently, as altruism and reciprocity are important motives for giving, a generous welfare system poses the conditions for strengthening family solidarity in terms of exchanges: where the welfare states provide universal services, the help given to family members might be more stimulated by intimacy, expectations, or reciprocity – in other words, *crowded-in* (Künemund & Rein 1999). At the same time, a generous welfare state increases the resources individuals can transfer to other family members, e.g. pension income can be used to support adult children.
Yet, reality comprises much more shades than black and white: the relation between the state and the family in the *crowding-* perspectives must be studied distinguishing the *occurrence* of resource exchange from the *intensity* of resources exchange. In this sense, research finds support both for the *crowding-in* and *crowding-out* hypotheses (Albertini, Kohli, & Vogel, 2007; Brandt, 2013; Brandt *et al.*, 2009; Igel, Brandt, Haberkern, & Szydlik, 2009). The likelihood of intergenerational help is highest in Northern Europe (supporting *crowding-in*), but individuals devote little time (or resources) to helping relatives (supporting *crowding-out*); to the contrary, in Southern Europe, help is less likely but more time-consuming, and there is a polarization between considerable support received by the family and no support at all. Therefore, the *specialization* hypothesis explains that, the higher the welfare state generosity, the less intense is the intergenerational exchange of resources; in fact, public services take over the most demanding, or specialized, forms of support, such as physical care (Brandt *et al.*, 2009). Family members can provide practical, or emergency, support to each other. State and family perform the tasks they are the best suited for (Igel *et al.*, 2009). Additional back up to this hypothesis is given by analysing help motives: while in Southern Europe help is motivated by obligations, in Northern Europe by enjoyment (Brandt, 2013).

Therefore, the question is: in those countries where public childcare services are widespread, to what extent do grandparents provide childcare? Also in this case the expectations go in the direction of the North-South gradient and the *specialization hypothesis*, as found about the intergenerational exchange of other

kind of resources. In Southern European countries, grandparental childcare is less common in occurrence, but more intense (daily, weekly) than in Northern European countries (Hank & Buber, 2009; Igel & Szydlik, 2011). Igel and Szydlik (2011) argue that public expenditures for family and childcare *crowd-in* the occurrence of grandparental childcare and *crowd-out* the intensity. The welfare state stimulates family solidarity by unburdening caregivers from the heaviest tasks, and grandparents are free to take up care responsibilities according to their availability and taste (Igel *et al*., 2009).

More recent studies investigate the differences in grandparents' caregiving across countries considering both the policy mix and the female labour market participation rate of the country (Bordone *et al*., 2017; Di Gessa, Glaser, Price, *et al*., 2016; Price, Ribe, & Di Gessa, 2018). Bordone and colleagues (2017) relate grandparental childcare with indicators of public services offered for childcare and effective parental leave. They compute the so-called early-care gap measure (following Saraceno & Keck, 2011), that refers to the responsibility left to families for caregiving net of parental paid leave and availability of childcare services. In countries with a low early-care gap (i.e. Northern European countries), grandparents only step in when needed, not taking up grandparental childcare on a daily or weekly basis. To the contrary, in Southern Europe, women are mainly full-time caregivers, without the need to receive any family help for childcare or other activities. However, when employed, the shortage of services makes relevant an extensive network of informal support. Thus, in Mediterranean countries, grandparents provide childcare daily. Moreover, in Southern European countries, when women work, they usually do it full-time, which leads to higher need for fully engaged grandparents.

To sum up, the macro-institutional context strongly shapes mothers' care and employment reconciliation, in turn shaping the need and the provision of grandparental care. In this sense, the relation between the birth of a grandchild and labour market withdrawal might vary across European countries according to the level of public childcare services available, and the female labour market structure, which affect the *need* of grandparental childcare.

1.6. Contribution III – Grandparenthood and employment in a life course perspective

Beyond contextual differences that can shape grandmothers' work commitment, it is crucial to highlight the differences between grandmothers in terms of early

and late life working career. In this sense, the life course perspective offers the theoretical tools to study late life events as following early life trajectories. In the remaining of this section, I will firstly review the outset of the life course perspective (section 1.6.1) and secondly, I will list the founding principles and relate them to the study of grandparenthood (section 1.6.2).

1.6.1. Life course perspective, a theoretical orientation

The life-course perspective has been defined, at its initial stages in the 60s, as an *emerging paradigm*. It has roots in major trends of the 20th century, that highlighted the urge to study human lives in relation to interpersonal, structural, and historical forces. On the one hand, the rapidity of social change (such as two World Wars, the Cold War, the Women's Movements, post-war prosperity, economic downturns) altered the life-trajectories of individuals. On the other hand, the change in the age structure of the society, through increased life expectancy and decline in fertility and mortality, resulted in the rapid growth of the oldest segment of the population, which put financial strains on the State, and care burden on families. The availability of longitudinal data and statistical innovations, such as event history analysis, has made possible to study lives as "influenced by an ever-changing historical and biographical context" (Elder, Kirkpatrick Johnson, & Crosnoe, 2003, p. 7).
The life course perspective is a *theoretical orientation*, namely it establishes a common field of inquiry by providing a framework for descriptive and explanatory research. This framework covers the identification and formulation of research problems, rationales for variable selection, and strategies for research design and data analysis (Merton, 1968). From this definition, the life course takes the shape of age-graded patterns that are embedded in social institutions and history (Elder, 1994; Elder & Shanahan, 2007; Settersten, 2003). Central to the life course theory become the implications of social pathways in historical time and place for human development and aging. In sociology, the study of the life course raises questions on the role of certain institutional arrangements in building the tracks that individual trajectories are bound to follow. As Mayer (2009, p. 163) argues:

"With the term life course sociologists denote the sequence of activities or states and events in various life domains spanning from birth to death. The life course is thus seen as the embedding of individual lives into social structures primarily in the form of their partaking in social positions and roles, that is, regarding their membership in institutional orders. The sociological study of the life course, therefore, aims at mapping, describing, and explaining the synchronic and diachronic distribution of individual persons into social positions across the life-time".

The regularities in the life course of individuals are accounted for by three mechanisms. Firstly, societies are internally differentiated into subsystems or institutional fields. For example, the educational system regulates the educational careers with sequences of classes depending on age; it divides pupils according to vocational, professional, or higher training, with the time-related sequence of classes and certificates. Furthermore, labour market regulations define who is employed, who is not, and who is inactive, regulating employment trajectories that, in turn, depend on the economic cycles of supply and demands. Again, public welfare decides the duration of maternity leaves, the age at retirement; similarly, family norms distinguish between being single, divorced, or married. Secondly, sociology investigates whether central life course outcomes are shaped by experiences and resources acquired earlier in the biography of individuals (such as family disruption during childhood and unemployment episodes). Thirdly, life courses are to be considered at the population level – the size of one's cohort, or the dynamic of union formation, for example, influence individuals' opportunities way beyond personal intentions or choices. Thus, lives of individuals are not considered as histories of persons, but as "patterned dynamic expressions of social structure" (Mayer 2009, p. 165).

Therefore, the term *social pathway* identifies all those trajectories that individuals and groups of a certain society follow, from education to work, to family, to retirement. They are shaped by historical forces and are often structured by social institutions. Individuals usually follow *institutionalized* trajectories, that are at the same time subjected to change due to the impact of the broader contexts in which they are embedded in. Even if individuals decide which pattern to follow, their decisions are constrained/enabled by the opportunity structure present in the society and the historical time they live in.

1.6.2. Principles and grandparents

The principles of *lifespan*, *timing*, *linked lives*, and *human agency*, located in *historical times*, are the *mechanisms* through which the environment influences the course and substance of lives. In this sense, they can be useful theoretical tools to enrich the study of grandparental employment with a life-course perspective. Approaching grandparenthood from a life-course perspective means bringing together the life-course of grandparents (the entwine between their work and family trajectories) and short-term transitions (changes in state or role, namely the transition to grandparenthood), that can lead to the opening of opportunities for behavioral changes (the reshaping of work commitment). All these elements are

constrained/enabled by historical forces and social institutions (the institutional context of the country).

Principle of timing: the developmental antecedents and consequences of life transitions, events, and behavioural patterns vary according to their timing in a person's life. [8] The same event can have different consequences on the life of individuals depending on when it occurs during the life course. The *normative* timing in the life course was among the first elements in the study of grandparenthood in a life course perspective. People are aware when a certain transition should occur to them, since they are aware of social schedules (Settersten & Hagestad, 1996). Therefore, individuals who become grandparents "off-time" can experience stress or take distance from active grandparenting (Hagestad & Lang, 1986). Similarly, the timing of the transition can have implications for other spheres of life. For example, in this study, I consider that mid-life individuals who become grandparents while being active worker could face role conflicts leading to early retirement or labour market withdrawal.

Principle of life-span development: human development and aging are lifelong processes. The lifespan is often represented as a sequence of life-stages, from childhood to old age; social sciences usually focus on a specific field, such as the study of children's cognitive skills, parenthood, or retirement. However, the lifespan as *aging process* is to be understood from a life-long perspective, since patterns of late-life adaptation are linked to early years of life-course development: central life course outcomes are shaped by experiences and resources acquired earlier in the biography of individuals. Among others, the *cumulative inequality theory* (Ferraro, Pylypiv Shippee, & Schafer, 2009) is an example of mid-range theory that applies the life course perspective to the sociological study of inequality, showing how childhood conditions have long terms consequences expanding to adulthood. In this frame, I study the work history of grandmothers as being intertwined with the reproductive history. Since women traditionally bear responsibility for care work, the onset of motherhood often leads to labour market withdrawal, or reduction in working hours. The way the working career and the reproductive sphere have been juggled by women during the life-course has long-term consequences for retirement timing, because it sets restrictions, or opportunities, in later life. Women's working career and reproductive history are linked with retirement timing through two main perspectives: the so-called "attachment hypothesis", and the opportunity-costs perspective (Finch, 2014; Hank, 2004; Hank & Korbmacher,

[8] The definitions (in italics) of the life course principles are cited *verbatim* from Elder *et al.* (2003)

2013; Henretta & O'Rand, 1980; Pienta, 1999; Pienta *et al.*, 1994; Svensson *et al.*, 2015) (see Chapter IV).

Principle of agency: individuals construct their own life course through the choices and actions they take within the opportunities and constraints of history and social circumstances. This principle stresses the importance of individual choices among the set of opportunities and constraints they face. A very important manifestation of agency is the one of self-efficacy: "It refers to the perception of oneself as a causal agent in one's environment, as having some control over one's circumstances, and being capable of carrying out actions to produce intended effects" (Grecas 2003, p. 370). Choices made by individuals have repercussion on their future trajectories. Yet, "environments vary greatly with regard to the opportunities they provide for exercising agency and self-efficacy" (Grecas 2003, p. 373). Individuals occupy a certain position in the social structure, which endorses them with resources leading to different opportunities for action. As aforementioned, individuals make choices during the life-course, in terms of work-family reconciliation. This has consequences for late-life employment. However, most importantly, the decision to withdraw from the labour market after the birth of the grandchild is the central display of *agency* in the present work. Labour market status is reshaped based on certain "opportunities and constraints" of history, such as the pension regulations in force, in interaction with the social circumstances of the need of care for the grandchildren.

Principle of linked lives: lives are lived interdependently, and socio-historical influences are expressed through this network of shared relationships. Significant others have a role on shaping the timing of life trajectories of the individuals. Social change and institutions can affect individuals not only directly, but also because the changes are linked to their interpersonal contexts. Even though "the concept of "linked lives" refers to any social linkage, which creates contingencies in life decisions and actions", it has been the bridge between life course sociology and family sociology (Settersten and Angel 2011, p. 21). It has been applied to the study of multigenerational families, in particular how sociohistorical change affects interaction among successive family generations. As a result, the famous "intergenerational solidarity model" identifies the dimensions of family relations, allowing to study both how relations among family members evolve during their life course, but also how they change across evolving social contexts (Putney & Bengtson, 2003). Therefore, the principle highlights how the nature and strength of bonds between individuals of different generations relate to individuals' life outcome, such as the propensity to

provide care and support to each other. In this work, I argue that grandparental employment is intertwined with the employment of the adult children, and the birth of a grandchild, both who are the significant others conditioning the life of the individual. After the birth of a grandchild, individuals belonging to two generations (grandparents and parents) adjust their work commitment according to each other's availability and preferences. The working life of young parents leads to an increase in the need of childcare, that is filled by the involvement of grandparents, who might in turn reshape their working life.

Principle of Historical Time and Place: individual life course is embedded in and shaped by historical times and places over a lifetime. This principle considers the interplay of social change with individual's lives, such as changing socioeconomic conditions, residence, workplaces, as well as historical context (such as World War II) and place. In the words of Everett Hughes (cited by Elder, 1994, p. 13):

"some people come to the age of work when there is no work, others when there are wars [...] such joining of a man's life with events, large and small, are his unique career, and give him many of his personal problems"

As aforementioned, recent advances in the field pinpoint that not only individuals take decisions according to a certain opportunity structure, but several subsystems of institutional fields (such as the educational system, the family, the labour market) determine which "life avenues" are open and which are not (Mayer, 2004, p.165). The life course of individuals unfolds according to the institutional configurations of the historical moment and the country/region where the individual lives in (Mayer, 2004, 2009; Settersten & Mayer, 1997). In the last decades, European governments have progressively increased the retirement age, with the consequence that individuals are spending more years on the labour market, which hinders their availability as care providers. This was not the case in the 90s, for example in Italy, where individuals were encouraged to take on early retirement from their 40s (Bratti *et al.*, 2018). Moreover, European countries have different pension regulations, and they offer different policy-mix to sustain fertility and work-family reconciliation for women. These institutions influence not only the availability of grandparents as care providers, but also the need of grandparental childcare. The relation between the context and grandparental employment was explained in the previous section ("Contribution II", section 1.5), where I delineate the *crowding-out* (section 1.5.3) and the *crowding-in* perspectives, and the *specialization* hypothesis (section 1.5.4).

2

The educational gradient in grandparental childcare: when, how, and why? Evidence from SHARE and ELSA

Abstract

Using the Survey of Health, Ageing, and Retirement in Europe (SHARE, 2004 – 2015) and the English Longitudinal Study of Ageing (ELSA, 2016/2017), we study whether, when, how, and why grandparents with different educational level spend time with grandchildren. We find that highly educated grandparents are more likely than low educated grandparents to perform childcare throughout the year, even when it is not strictly needed by the middle generation, i.e. the daughter is not employed. Moreover, highly educated grandparents spend more time with grandchildren in interactive and educational care than low educated grandparents, activities we consider with human capital implications, mainly moved by the motivation to "help grandchildren develop as people". Our study is a further step in the investigation of the mechanisms relating family resources and individuals' achievements, pinpointing at the existence of specific grandparenting styles stratified across educational layers that can concur to the intergenerational transmission of inequality.

2.1. Introduction

Notwithstanding the claims of decline of the family as social institution (Burgess, 1926; Parsons, 1949; Popenoe, 1993), family bonds are intact all over Europe: family members live close to each other, feel close to each other, and exchange resources and support (Hank, 2007). These bonds extend over generations. In particular, grandparents are actively involved in grandchildren's lives (Attias-Donfut, Ogg, & Wolff, 2005; Hank & Buber, 2009; Igel & Szydlik, 2011), with relationships based on companionship and affection. This phenomenon is relatively recent, enabled by the increased life expectancy that makes common for grandchildren to grow up while the grandparents are still alive.

Despite grandparenting is acquiring a central position in family research (for a review, see Hank, Cavrini, Di Gessa, and Tomassini 2018), there is a limited understanding of the characteristics of grandparents enacting this role. As King and Elder (1998) put it: "In the wake of current trends and changes in family patterns [...] a greater understanding of what motivates grandparents to become involved in their grandchildren's lives has never been more crucial" (p. 450). In contemporary Europe, these "current trends" first and foremost refer to the increased labour market participation of women, and young mothers in particular. The lack of formal childcare services in several European countries provokes difficulties in reconciling work and family life, creating an unprecedented need for grandparental childcare (Bordone *et al.*, 2017). Therefore, research to date has singled out several factors driving grandparental childcare related to grandparents' characteristics, such as demographic factors, competing role obligations, multiple family demands, and health conditions (Hank & Buber, 2009; Luo, LaPierre, Hughes, & Waite, 2012; Zamberletti *et al.*, 2018). In addition, the relation between care provided by grandparents and welfare state provision and how this shapes young women's employment is studied (e.g. Dimova and Wolff 2011).

Our study aims to shed additional light on the driving factors of grandparents' involvement in grandchildren's lives by investigating the stratification in grandparental childcare. More in detail, motives related to cultural investment have been vastly neglected. In the case of parenting, several studies have shown that individuals adopt different parenting styles according to socio-economic background (e.g. Dotti Sani and Treas, 2016). This mechanism might apply to grandparents as well: mid-life individuals could decide to enact the grandparental role for reasons related to the development of grandchildren's well-being and human capital, beside adult children's need of support. We therefore argue

that individuals from different socio-economic backgrounds could enact the grandparental role differently, and for different reasons.

Put in this perspective, educational level is likely to be a crucial factor in the way individuals enact, and experience, the grandparental role, especially because of different values attached to work and family. Scholars have observed the existence of an educational gradient in grandparental childcare (Glaser, Price, Ribe Montserrat, Di Gessa, & Tinker, 2013; King & Elder, 1998; Lakomý & Kreidl, 2015; Luo *et al.*, 2012; Zamberletti *et al.*, 2018), but the driving mechanisms have remained rather overlooked. In this study, we aim at providing a complete picture of the (eventual) educational gradient in grandparental childcare, touching childcare occurrence, frequency, the activities performed with grandchildren, and the reasons driving this involvement. As a novel contribution to the literature, we will interpret grandparental involvement in grandchildren's lives around the focal point of cultural investment.

Detailed data on grandparental childcare are not widely available in Europe, therefore we will make use of two different surveys: the Survey of Health, Ageing, and Retirement in Europe (SHARE, 2004 – 2015) and the English Longitudinal Study of Ageing (ELSA, 2016/2017). SHARE is the only European dataset with socio-demographic information on both grandparents' and adult children's characteristics that also contains information on the occurrence of grandparental childcare. ELSA includes more detailed information on the time, activities, and reasons driving grandparental childcare, but lacks information on the adult children, the "middle" generation. Using two sources of data with a different scope is not optimal in terms of generalizability, but we consider it the best solution for gaining a better and more complete understanding of the mechanisms driving mid-life individuals' involvement in the life of the grandchildren.

In fact, despite data limitations, assessing the educational gradient in grandparental childcare is utterly important, since the time spent with young children is positively related to their cognitive development and well-being (Cano, Perales, & Baxter, 2018). Parental time investment is a tool for cultural reproduction, a way to transmit cultural capital to children that can be exploited in the educational system, so to reproduce the socio-economic position of the family (Jæger & Breen, 2016). Our study could provide additional insights in the way families from different socio-economic statuses invest time and resources in children, since mechanisms of cultural investment are at work when considering the extended

family as well (Jæger, 2012). The reproduction of family advantages to children might be reinforced by grandparents' role in childcare.

2.2. Theoretical Background

Highly educated mothers (Craig, 2006; England & Srivastava, 2013; Gimenez-Nadal & Molina, 2013; Guryan *et al*., 2008; Kitterød, 2002) and fathers (Gracia, 2014; Hook & Wolfe, 2012; Raley *et al*., 2012; Sullivan, 2010; Sullivan *et al*., 2014) spend more time with their children than their lower educated counterparts. This educational gradient has stimulated a burgeoning amount of research highlighting that the stratification of parent-child relations persist across institutional contexts (Craig & Mullan, 2010; Dotti Sani & Treas, 2016; Gracia & Ghysels, 2017; Sayer *et al*., 2004).

Surely, the educational gradient in parenting has a paradoxical nature: highly educated families are those with the lowest available time to devote to childcare, due to more rewarding jobs, high opportunity-cost of foregoing earnings for family time, and the economic resources to outsource care duties. Yet, research shows that the time spent with children does not depend upon mothers' employment (McLanahan, 2004; Raley *et al*., 2012). To the contrary, it implies a re-allocation of time: employed mothers prefer to cut on sleeping and leisure time to compensate for the time spent away from their children (Sayer *et al*., 2004).

These differences find their origin in different parenting norms, or parenting styles. As shown by Lareau (2003), parents from different socio-economic backgrounds have different logics of child rearing. Parents from the upper-middle class treat their children as a "developmental project": they aim at fostering children's talent by engaging them in organized leisure activities, eliciting the sharing of their opinions, feelings, and thoughts. They also have more financial resources to support children's involvement in extra-curricular activities. Moreover, upper-middle class parents are aware of guidelines and practices that make up "proper parenting" and can promote educational development in children, derived from professionals who work with children, for example teachers and doctors. These practices involve the importance of talking with children, supporting their interest, being active in their schooling activities, but also reasoning with them in order to teach them how to solve problems, instead of using physical force. These guidelines form a "dominant set of cultural repertoires" on how children should be raised, which in turn define what Lareau (2003) calls the process of "concerted cultivation" (p. 4). Using Pierre Bourdieu's language, she argues that "[…] middle-class parents,

and mothers in particular, routinely scanned the horizon for opportunities to activate their cultural capital and social capital on behalf of their children" (p. 180). Numerous quantitative studies show that highly educated parents (mothers in particular) perform different activities with children than lower educated parents. In particular, they carry out activities related to the development of children's school achievement, e.g. helping children with homework (Bianchi & Robinson, 1997; Gimenez-Nadal & Molina, 2013; Sayer *et al*., 2004), and cultural capital, e.g. attending cultural activities (Gracia, 2015). In this respect, Kalil, Ryan, and Corey (2012) talk about a "developmental gradient". Highly educated mothers are aware of children's developmental stages, so they invest time with children in those activities that are the most appropriate for children's developmental needs.

To the contrary, parents from low socio-economic backgrounds see a boundary between adults and children, which translates in the use of directives, instead of engaging in reasoning to persuade children about what to do. They facilitate the "accomplishment of natural growth" (Lareau 2003, p. 3): concerns about making-ends-meet make it an important task to fulfil children's needs, such as putting food on the table, and providing physical care. For the rest, children from low socio-economic backgrounds have control over their time, they are free to go out and play with siblings and peers.

These contrasting parenting strategies lead to the transmission of differential advantages to children: the "concerted cultivation" strategy fosters children's talent, social capital, cognitive development, and verbal agility, which in turn promote the future socio-economic success of children. Research has confirmed that concerted cultivation parenting strategies concur in the explanation of elementary school achievement of children from different socio-economic background: "higher SES parents teach and develop children's behaviors that are related to positive schooling outcomes, and the effects of such actions on child outcomes continue to be statistically significant even after inclusion of a number of strong statistical controls" (Bodovski and Farkas 2008, p. 915).

Yet, parents are not the only care providers for children. In the last decades, grandparents have acquired a central role in (grand)children's lives. Stratification scholars have long been aware that the transmission of advantage could surpass the relation between parents and children and extend back to grandparents. Several studies have tried to establish a direct link between grandparents' socio-economic status and grandchildren's school achievement (for a review,

see Anderson, Sheppard, and Monden 2018), but the results are mixed. Some studies find no effect (Bol & Kalmijn, 2016), others highlight the importance of grandparents' cultural (Deindl & Tieben, 2017; Møllegaard & Jæger, 2015), or economic resources (Hällsten & Pfeffer, 2017); other are not able to draw conclusions on mechanisms (Sheppard & Monden, 2018). Finally, some scholars even warn against methodological problems embedded in a three-generational approach (Breen, 2018; Mare, 2014).

We therefore argue that studying the educational gradient of grandparental childcare could shed additional light on the mechanisms through which the family transmits advantage to children. Few decades ago, Cherlin and Furstenberg (1986) wrote a book that is considered the benchmark of the study of grandparenthood: they observed the emergence of a new kind of relation between grandparents and grandchildren, based more on love, affection and companionship than on authority and emotional distance. They pioneered the idea of grandparenting styles, identifying three: the involved, the companioned, and the remote; and they highlighted variations in terms of race, ethnicity, gender, and grandchildren's age. Subsequently, research mainly carried out in the US identified grandparenting styles that vary across educational layers. Highly educated grandparents are actively involved in grandparenting, they are influential, supportive (Mueller, Wilhelm, & Elder, 2002) and they hold mentorship roles (King & Elder, 1998). This is more in line with the "concerted cultivation" style to develop children's talents than to the "accomplishment of natural growth" style. However, the understanding of grandparenting styles has not been advanced in last years, although grandparents could implement strategies that play an active role in the reproduction of inequality. Given that social origins determine individual's position in the social structure (Breen & Jonsson, 2005), highly educated grandparents are likely to have highly educated children. Therefore, children from highly educated parents, who also have highly educated grandparents, might be those receiving a cumulative investment in terms of involvement by family members. To the contrary, children from more disadvantaged social origins might receive scarce investment by both parents and grandparents.

2.3. Hypotheses

As a first step, the present work will assess the existence of an educational gradient in grandparental childcare in Europe. We will consider the occurrence of grandparental childcare in general, but we will also single-out childcare provision that takes place on a regular basis, and we will distinguish between the moment

of its occurrence, namely schooldays, weekends, or holidays. In fact, providing childcare few times per year, maybe during summer holidays, could be different than a daily interaction, in terms of passing on resources. As we argued above, the latter would fit in the "concerted cultivation" strategy more likely to be adopted by highly educated grandparents. Thus,

Hypothesis 1: There is an educational gradient in grandparental childcare:

Hypothesis 1a: highly educated grandparents are more likely to provide grandchildren with care than low educated ones

Hypothesis 1b: highly educated grandparents are more likely to provide grandchildren with care on a regular basis than low educated ones

Moreover, we investigate whether there are differences in grandparents' caregiving according to children's characteristics (i.e. the middle generation, grandchildren's parents). Recent literature has been focusing on grandparents as care providers for grandchildren, highlighting their importance as safety-net for families, especially in response to the lack of formal alternatives, such as childcare services. In fact, grandparents' childcare enables and supports young women's labour market participation (Aassve, Arpino, *et al.*, 2012; Arpino *et al.*, 2014; Bratti *et al.*, 2018; Dimova & Wolff, 2011) and fertility (Aassve, Meroni, *et al.*, 2012; Battistin *et al.*, 2014; Thomese & Liefbroer, 2013). Grandparents step in with childcare when their adult daughters are in employment to ease their work-family reconciliation. For the purpose of this study, we are particularly interested in unveiling grandparental childcare when the daughters are not in employment – when, therefore, they themselves could provide care to their children. In fact, when childcare is not driven by need, it could be driven by taste (Igel & Szydlik, 2011). In other words, grandparents then are free to decide when to spend time with grandchildren, beyond the adult children's need of support in specific moments of the day or week, imposed by working schedule. Highly educated grandparents might be willing to spend time with their grandchildren as cultural investment conform to the "concerted cultivation" strategy. Therefore, our hypothesis offers the following scenario:

Hypothesis 2: Net of adult daughters' employment, highly educated grandparents are more likely to provide childcare than low educated grandparents.

In the second part of this study, we aim at taking a closer look at the content of the grandparent-grandchild relation. Grandparents can participate in grandchildren's lives by engaging in different types of activities. Some of these activities are more closely connected to the "concerted cultivation" strategy mentioned above, whereas others are more related to need for support. With respect to the first, Lareau (2003) mentions active participation in children's schooling and organized leisure activities. We therefore consider activities as educational care (helping with homework) and interactive care (leisure activities) to have cultural capital implications. Secondly, grandparental childcare may comprise activities directed at the support of the adult children, to ease their time constraints, such as collecting or bringing the children to school or playground and having the child sleep over. In addition, grandparents may be engaged in activities related to physical care (preparing meals), and to emergency, such as being present when the grandchild is ill. Hence, we expect that:

Hypothesis 3: The educational gradient in grandparental childcare is larger concerning activities related to the concerted cultivation strategy (i.e. educational care and interactive care) than for activities related to adult children's support, physical care, and emergency care.

Similar arguments could be used for the reasons motivating grandparental childcare. To start with, grandparents could spend time with their grandchildren following the "concerted cultivation" strategy: they help to develop grandchildren as individuals. Grandchildren are thus seen as a "developmental project" (Lareau 2003). Secondly, grandparents could step in with care to ease the time constraints of the adult children by helping them to go out to work, helping them save money that would otherwise be devoted to public childcare, or by helping them "take a break" from family duties, or to go out in the evening. Thirdly, we consider that grandparental childcare could be driven by the fact that grandparents prefer to be the primary caregivers, trusting family care more than the care supplied by public services. Linking these reasons with the educational gradient in grandparental childcare, we expect that:

Hypothesis 4: The educational gradient in grandparental childcare is more motivated by reasons related to the concerted cultivation strategy

(i.e. development of grandchildren) than by reasons related to adult children's need, and care preferences.

2.4. Materials and Method

2.4.1. Data

The present study will employ two data sources. Firstly, we use data from wave 1 (2004-2005), wave 2 (2006-2007), wave 5 (2013), and wave 6 (2015) of the Survey of Health, Ageing, and Retirement in Europe (SHARE) (Stuck *et al.*, 2013). SHARE is a cross-national biannual panel database collecting information on health, socio-economic status and family network of individuals older than 50 and their partners, living in 27 European countries and Israel. Secondly, we make use of the 8th wave (2016/2017) of the English Longitudinal Study of Ageing (ELSA), a biannual panel study about health, economic position and quality of life among individuals older than 50 and their partners, living in private households (Marmot *et al.*, 2018). We restrict our analysis to wave 8 since it is the only one containing a grandparenting section. The two studies are highly comparable in terms of sampling methodology and content, being part of the Health and Retirement Studies family. The information they contain are complementary: SHARE includes information on the occurrence and frequency of grandparental childcare, with information on the characteristics of the adult children, which enables us to test hypotheses 1 and 2. The ELSA survey has more detailed information on grandparenting: the dataset contains information on activities and reasons motivating grandparental childcare, so we can test hypothesis 3 and 4, however without controlling for the characteristics of the adult children, as this information is not available.

2.4.2. Sample Selection

In both datasets, we select individuals who are between 50 and 80 years old and have at least one grandchild younger than 15. Due to the structure of the data, we must take some survey-specific decisions.

As for SHARE, the dataset comprises several modules. We rely on the modules on social support (SP), containing information on (grandparental) caregiving, and on children (CH), containing information on children's characteristics. Firstly, these modules were not surveyed in wave 3 (SHARELIFE) and its follow-up wave 7, which only contain information on the previous life course of the respondents, therefore they are excluded from the sample. Secondly, we omit wave 4, because it is not possible to link information on grandparental caregiving (SP module) with adult

children's characteristics (CH module), namely grandchildren's parents. Thirdly, and consequently, only those countries that participated in the survey (a least) in wave 1, 2, 5, and 6 are part of the analysis. These countries are Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and Switzerland. Israel is excluded from the sample as it is not in Europe. Fourthly, it should be noted that the SP and CH modules were answered by the so-called family respondent in wave 5 and 6, on behalf of the couple. The family respondent is the first person (chronologically) of the couple that is interviewed. Respondents who do not live with a partner are automatically family respondents. Therefore, in our analysis, we include only family respondents from wave 5 and 6.

Since we are interested in studying grandparent (Generation 1)'s childcare in relation to children (Generation 2)'s characteristics, the unit of analysis is the grandparent-child dyad. We construct dyads for each grandparent (G1) in combination with each child (G2). Firstly, we only keep dyads of grandparent (G1)-daughter (G2). Women more often are the primary caregivers for children. We assume that their employment is the factor driving grandparental childcare. In fact, we do not have information on the adult child (G2)'s partner. In case we also kept dyads with male children (G2), we would not have information on whether their wife/partner was in employment, which is crucial in studying grandparental childcare in relation to children's employment. The implications of this sample selection will be discussed in the conclusions section. Secondly, we exclude from the analysis those dyads where the child (G2) does not have children herself. This means that we keep only those dyads where at least one grandchild is present. Finally, SHARE being a survey with a panel design, there are repeated observations for each respondent. We keep only the information at the baseline, namely the first time the grandparent appears in our sample, either because the grandparent

enters the survey, or because the dyad becomes sample eligible (for example, the child gives birth to a new child, and therefore the grandparent meets the condition of having at least one grandchild younger than 15). The final sample amounts to dyads for 13,111 for grandmothers and 10,237 dyads for grandfathers.

As for ELSA, we include only those respondents who answered to the survey questions in a personal interview.[9] Since this survey does not contain information on children (G2), the unit of analysis is the grandparent (G1), and not a grandparent-child dyad as in the SHARE data. The final sample amounts to 2,173 grandmothers and 1,663 grandfathers.

2.4.3. Variables

In SHARE, we employ several dichotomous *dependent variables related to grandparental childcare*. They capture whether the grandparent has provided to the grandchild, without the parents being present, in the last twelve months (i) daily care (ii) weekly care (including daily care) (iii) care at all. In case the grandparent-daughter dyad involves more than one grandchild (in other words, in case the daughter has more than one child), the grandparent answers the question with respect to the youngest grandchild.

The main *independent variable* is the level of education of the grandparent, and it can either be low (no education and primary education), medium (lower secondary and upper secondary education), or high (post-secondary non-tertiary, first stage of tertiary, and second stage of tertiary education). The main *moderating variable* is the employment status of the daughter (G2) and it captures whether she is either in employment, not in employment (unemployed, parental leave, housewifery), or in other states (vocational training, disability, military, other non-codable states).

For G1, we add the following *control variables*: age in categories (50-60, 61-70, 71-80), activity status (employed, not employed, else), partners' employment status (partner employed, partner not employed, no partner, else), difficulty with daily activities (0-5: how many activities are difficult to perform among walking across the room, dressing, bathing, eating, getting in/out of bed), and number of grandchildren. For G2, we add the following control variables: educational level (low: none, primary, and lower secondary education; medium: upper secondary, and post-secondary non-tertiary education; and high: first stage of tertiary, and

[9] Some respondents did not personally do the survey interview, because they were hospitalized or in general unfit for answering. In these cases, a family member or neighbor did the interview, but they were not asked to answer the question on grandchildren's age. These respondents (n=246) are excluded from our sample.

second stage of tertiary education); and marital status (whether she has a partner or not). Finally, we add a control variable measuring the proximity of residence between G1 and G2 (1 km, 1-25 km, more than 25 km), and we include country and interview-year fixed effects.

In ELSA, we employ a different set of *dependent variables related to grandparental childcare*. Respondents were asked to select the activities they do with grandchildren and the reasons for spending time with them from a list; they had the possibility to pick as many as applicable. Firstly, we measure the occurrence of grandparental childcare, namely whether the grandparent has provided, in the last twelve months, to the grandchild without the parents being present (i) care at all (ii) care during school terms - weekdays (iii) care during school terms - weekends (iv) care during school holidays (v) care throughout the whole year. Secondly, we measure a set of activities: whether the grandparent spend time with grandchildren (i) helping with homework (educational care) (ii) in leisure activities (interactive care) (iii) preparing meals (physical care) (iv) collecting/bringing him/her/them to school, playground (v) overnight without parents (vi) when he/she/they is/are ill (emergency).[10] Additionally, we alter the operationalization of activities to include information on the frequency of these activities: the aforementioned variables take the value of 1 only in case the activity is performed *frequently*, against occasionally, rarely, or never. We assume that in order to be effective in passing on resources, the grandparenting style inspired by cultural investment has to be reiterated. With this double set of variables, we measure both the occurrence and the time investment of grandparents. Finally, we consider a set of reasons for grandparents to spend time with grandchildren: (i) "To help them develop as people" (ii) "to help his/her/their parents go out to work" (iii) "to help out financially" (iv) "to give his/her/their parents a break" (v) "so his/her/their parents can go out in the evening" (vi) "the family prefers family care".[11]

[10] We did not show results for "just being around in case of need" as it does not refer to any specific activity. The educational gradient amounts to around 13 percentage points among grandmothers, while no gradient is present among grandfathers. Results are available upon request.

[11] We did not consider the following reasons driving grandparental childcare: "it keeps me young and active", "it makes me feel engaged with young people", "to give my grandchild(ren) a break", and "it is difficult for me to refuse". Due to limited space, we tried to limit the reasons to those more strictly related to the concerted cultivation argument, and to the need of support from adult children. For the first three items, the educational gradient is present and amounts to around 8 percentage points. No gradient is present for the last item. Results are available upon request. Furthermore, the ELSA questionnaire offers the possibility to freely mention other reasons for looking after grandchildren; when possible, these responses are coded in the following options: "out of love for them", "because I enjoy spending time with them", and "to keep them occupied". For our sample, they include very few cases (respectively 47, 94, and 0), therefore we exclude them from the analysis.

The main *independent variable* is the level of education of the grandparent, from a question on the age he/she completed education. It is recoded in low (never went to school, 15 and under), medium (at 16, 17, or 18), and high (19 or over). We selected these benchmarks to distinguish between people who attended or not high school, and further, people who continued after high school for university studies.

We add a set of *control variables*: age in categories (50/60, 61/70, 71/80), whether in paid work, marital status, difficulty with daily activities (0-5), number of grandchildren, and proximity of residence between grandparents and the nearest grandchild (less than 15 minutes, between 15 minutes and 1 hours, more than 1 hour).

Table 2.1 includes descriptive statistics on the variables of interest, separately for grandmothers and grandfathers, from SHARE; while Table 2.2 displays these statistics for ELSA.

Table 2.1. Descriptive Statistics, SHARE survey

		Grandfathers		Grandmothers	
		Dyads	%	Dyads	%
Daily Care	Yes	843	8.23	1,596	12.17
(at least) Weekly Care	Yes	2,439	23.83	4,118	31.41
Any Care	Yes	6,148	60.06	9,259	70.62
Educational Level G1	Low	2,802	27.37	4,225	32.22
	Medium	4,927	48.13	6,453	49.22
	High	2,508	24.50	2,433	18.56
Age G1	50-60	2,981	29.12	5,240	39.97
	61-70	4,794	46.83	5,610	42.79
	71-80	2,462	24.05	2,261	17.25
Employment Status G1	Employed	2,704	26.41	3,084	23.52
	Not Employed	6,970	68.09	9,213	70.27
	Other	563	5.50	814	6.21
Partners' Employment G1	Employed	1,908	18.64	1,875	14.30
	Not Employed	5,487	53.60	5,583	42.58
	No partner	2,727	26.64	5,524	42.13
	Else	115	1.12	129	0.98
Difficulty Activities Daily Living G1	mean(sd)	0.14	(0.60)	0.14	(0.60)
N. Grandchildren G1	mean(sd)	4.35	(3.19)	4.12	(3.05)
Employment Status G2	Employed	7,344	71.74	9,346	71.28
	Not Employed	2,600	25.40	3,369	25.70
	Other	293	2.86	396	3.02
Educational level G2	Low	1,730	16.90	2,389	18.22
	Medium	4,741	46.31	6,003	45.79
	High	3,766	36.79	4,719	35.99
Marital Status G2	Partner	8,454	82.58	10,719	81.76
	No partner	1,783	17.42	2,392	18.24
Proximity G1-G2	1 km	2,264	22.12	3,125	23.83
	1-25 km	4,664	45.56	5,846	44.59
	> 25 km	3,309	32.32	4,140	31.58

Table 2.1. Descriptive Statistics, SHARE survey (continued)

		Grandfathers		Grandmothers	
		Dyads	**%**	**Dyads**	**%**
Country	Austria	269	2.63	360	2.75
	Germany	960	9.38	1,201	9.16
	Sweden	1,192	11.64	1,413	10.78
	Netherlands	927	9.06	1,107	8.44
	Spain	761	7.43	968	7.38
	Italy	720	7.03	1,002	7.64
	France	690	6.74	887	6.77
	Denmark	853	8.33	1,063	8.11
	Greece	529	5.17	763	5.82
	Switzerland	255	2.49	298	2.27
	Belgium	1,002	9.79	1,190	9.08
	Czech Republic	595	5.81	796	6.07
	Poland	546	5.33	773	5.9
	Ireland	159	1.55	231	1.76
	Luxembourg	174	1.7	243	1.85
	Portugal	22	0.21	15	0.11
	Slovenia	262	2.56	339	2.59
	Estonia	62	0.61	129	0.98
	Croatia	259	2.53	333	2.54
Wave	2004/2005	4,450	43.47	5,509	42.02
	2006/2007	2,622	25.61	3,306	25
	2013	1,975	19.29	2,649	20.2
	2015	1,190	11.62	1,647	12.56
Total		10,237		13,111	

Table 2.2. Descriptive Statistics, ELSA survey

		Grandfathers		Grandmothers	
		N	%	N	%
Any Care	Yes	1,068	64.22	1,587	73.03
Care Weekdays	Yes	179	10.76	312	14.36
Care Weekend	Yes	183	11	275	12.66
Care Holidays	Yes	291	17.5	454	20.89
Care Throughout Year	Yes	586	35.24	915	42.11
Activities: Helping with Homework	Yes	383	23.03	709	32.63
Activities: Leisure	Yes	911	54.78	1,346	61.94
Activities: Preparing Meals	Yes	709	42.63	1,405	64.66
Activities: Collecting/bringing	Yes	590	35.48	945	43.49
Activities: Stay Overnight	Yes	700	42.09	1,119	51.5
Activities: Stay when Ill	Yes	300	18.04	695	31.98
Freq. Activities: Helping with Homework	Yes	106	6.37	232	10.68
Freq. Activities: Leisure	Yes	405	24.35	699	32.17
Freq. Activities: Preparing Meals	Yes	302	18.16	774	35.62
Freq. Activities: Collecting/bringing	Yes	237	14.25	460	21.17
Freq. Activities: Stay Overnight	Yes	140	8.42	284	13.07
Freq. Activities: Stay when Ill	Yes	40	2.41	76	3.50
Reasons: Development	Yes	485	29.16	675	31.06
Reasons: Parents Work	Yes	692	41.61	1,048	48.23
Reasons: Financial Help	Yes	332	19.96	532	24.48
Reasons: Parents Break	Yes	684	41.13	1,002	46.11
Reasons: Parents Evening	Yes	576	34.64	864	39.76
Reasons: Preferences for Family Care	Yes	204	12.27	401	18.45

Table 2.2. Descriptive Statistics, ELSA survey (continued)

		Grandfathers		Grandmothers	
		N	%	N	%
Educational Level	Low	610	36.68	775	35.66
	Medium	668	40.17	1,045	48.09
	High	385	23.15	353	16.24
Age	50-60	183	11	382	17.58
	61-70	879	52.86	1,148	52.83
	71-80	601	36.14	643	29.59
Employment status	Not Employed	1,178	70.84	1,611	74.14
	Employed	485	29.16	562	25.86
Marital Status	No Partner	322	19.36	703	32.35
	Partner	1,341	80.64	1,470	67.65
Difficulty Activities Daily Living	mean(sd)	0.26(0.77)		0.29(0.82)	
N. Grandchildren	mean(sd)	4.26(3.71)		4.66(4)	
Proximity	< 15 min	739	44.44	1,007	46.34
	15 min- 1 hour	529	31.81	698	32.12
	> 1 hour	395	23.75	468	21.54
Total		1,663		2,173	

2.4.4. Analytical strategy

Due to the dichotomous nature of our dependent variables, we employ logistic regression models, separately for grandmothers and grandfathers.

The results will be presented as follows. In the first part of the study, we will use SHARE to test hypotheses 1 and 2. We will run models for each of the dependent variables related to grandparental childcare, including all the independent variables of interest. Since it is problematic to interpret log-odds ratios (Mood, 2010), we calculate the average marginal effects (AMEs), which are the average differences in probability between the categories of the independent variable of interest, in our case, grandparental educational level. The results will thus show the size of the educational gradient, namely the difference in probability of providing care (and the other dependent variables related to grandparental childcare) between highly (tertiary) and low (primary) educated grandparents. Subsequently, the models will include an interaction term between grandparents' educational level and adult

daughter's employment status. Again, the results will be presented as predicted probabilities. We cluster the standard errors at the grandparent level because the unit of analysis is the grandparent-adult child dyad and we have repeated observations per individual.

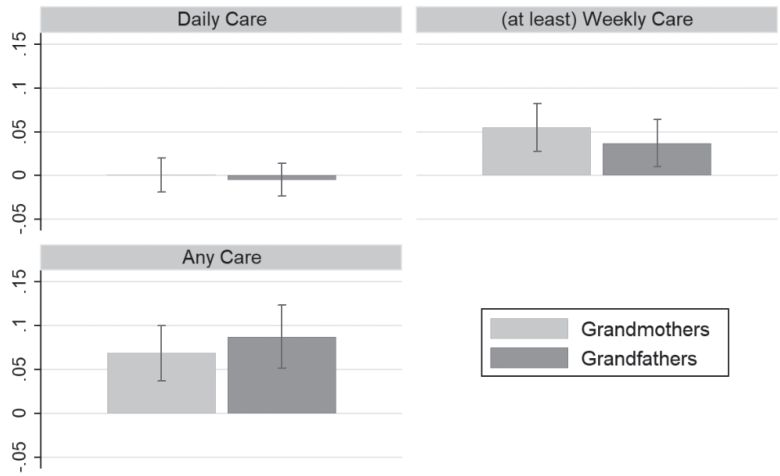
In the second part of the study, with ELSA data, we will test hypotheses 3 and 4. Separate models will be employed with the dependent variables measuring occurrence and frequency of activities, and reasons of grandparental childcare. The results will be presented in terms of average marginal effects (AMEs).
Tables with complete models are available in the Appendix.

2.5. Results

2.5.1. The educational gradient in grandparental childcare

Figure 2.1 shows AMEs of providing care between highly educated and lower educated grandparents obtained from SHARE data, controlling for all the relevant characteristics of grandparents (G1) and adult children (G2). While we do not detect any educational gradient in the probability to provide care every day, highly educated grandmothers are around 5 percentage points more likely to provide care

Figure 2.1. Difference in probability (AME) to provide daily, weekly, and any childcare between highly and low educated grandparents, by sex. 95 % CI. Logistic regression models with all control variables included. Clustered standard errors at the grandparent level.



Source: SHARE data (2004 – 2015)

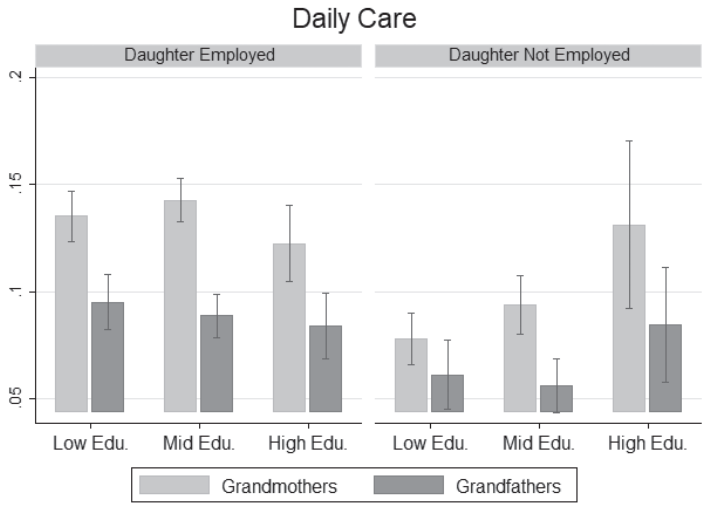
at least weekly than low educated grandmothers (Hypothesis 1b). The gradient increases to 7 percentage points when looking at the provision of care in general (Hypothesis 1a). The differences between grandmothers and grandfathers, at this stage, are not statistically significant. Overall, we can consider Hypothesis 1 only partially confirmed for both grandmothers and grandfathers.

2.5.2. Daughter's employment

To test Hypothesis 2, in Figures 2.2 and 2.3, we show the predicted probability to provide daily and weekly care for models where we added the interaction term between grandparents' educational level and daughters' employment status. Figure 2.2 shows the probability to provide daily care. We do not find an educational gradient when the daughter is in employment: grandparents are equally likely to provide daily childcare when the daughter is employment across educational layers; if any difference is worth mentioning, it looks like highly educated grandmothers are less likely than low educated grandmothers to provide daily care if the daughter is employed. No difference is noteworthy among grandfathers either. However, the educational gradient in grandparental childcare appears when the daughter is not in employment. Highly educated grandmothers are more likely than low educated grandmothers to provide daily childcare if the daughter is not employed, and thus allegedly less in need of support. The same holds true for grandfathers, but the probability to provide childcare is much smaller, and the confidence intervals tend to overlap.

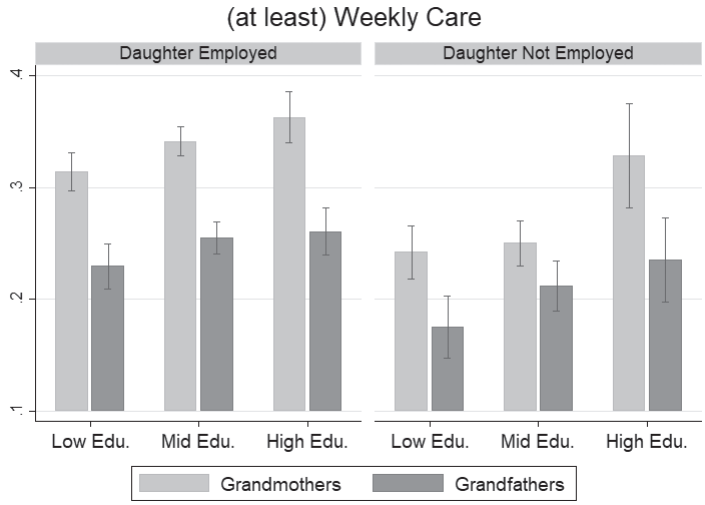
Figure 2.3 shows the probability to provide (at least) weekly care. We find an educational gradient in grandparental childcare net of daughters' employment. Highly educated grandmothers and grandfathers are more likely to provide weekly childcare than low educated ones when the daughter is employment; the same holds for grandmothers and grandfathers who have a daughter who is not in employment. Once again, even if the gradient is present, the probability to provide care for grandfathers is in general lower than for grandmothers. Given that we observe an educational gradient in grandparental daily (Figure 2.2) and weekly (Figure 2.3) childcare, even when the daughter is not employed, we consider confirmed hypothesis 2.

Figure 2.2. Predicted probabilities to provide daily childcare, by educational level and sex. 95 % CI. Logistic regression models with interaction term between grandparents' educational level and daughter's employment status. All control variables included. Clustered standard errors at the grandparent level.



Source: SHARE data (2004 – 2015)

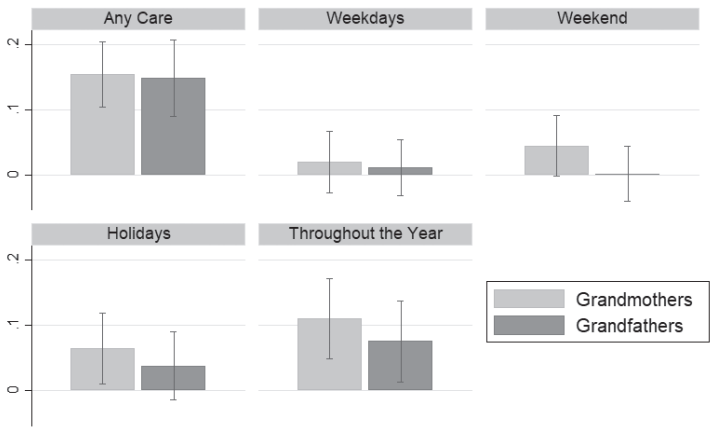
Figure 2.3. Predicted probabilities to provide weekly childcare, by educational level and sex. 95 % CI. Logistic regression models with interaction term between grandparents' educational level and daughter's employment status. All control variables included. Clustered standard errors at the grandparent level.



Source: SHARE data (2004 – 2015)

In the second part of this study, we employ ELSA data. To start with, we assess the educational gradient in grandparental childcare. When looking at the provision of any care with ELSA data (Figure 2.4), the educational gradient amounts to 15 percentage points for both grandmothers and grandfathers. Compared to the results obtained with SHARE data, it is not surprising that we find a larger educational gradient in Figure 2.4, since the models with ELSA do not control for children's characteristics. In fact, the educational gradient in grandparental childcare mirrors the educational gradient in parenting: highly educated grandparents are more likely provide childcare, because they are more likely to have highly educated daughters, due to the intergenerational transmission of resources (Breen and Jonsson 2005). In turn, highly educated daughters are more likely to be in employment, because investment in human capital leads to higher labour market attachment (Jaumotte 2003) – and thus, more need of informal childcare support. Nevertheless, the educational gradient in grandparental childcare is present in results both from SHARE and ELSA, in the first case net of children's characteristics, [12] which means that grandparental investment operates above adult daughters' need.

Figure 2.4. Difference in probability (AME) to provide any care, or care during weekdays, weekend, holidays, and throughout the year, between highly and low educated grandparents, by sex. 95 % CI. Logistic regression models with all control variables included.



Source: ELSA data (2016 – 2017)

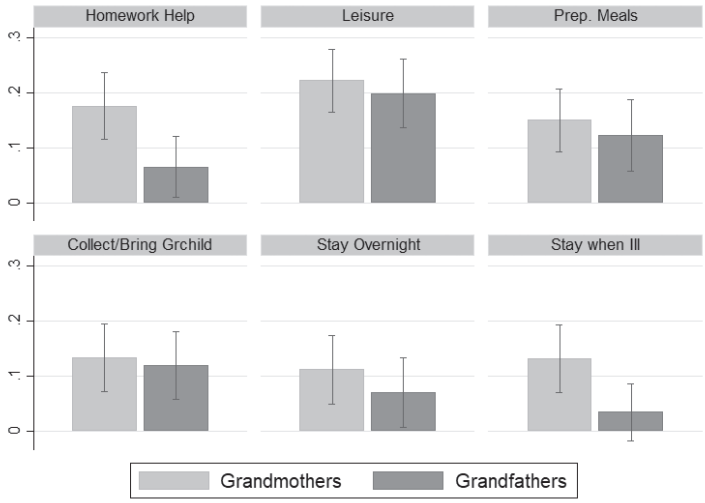
[12] For example, in SHARE, the educational gradient in "any care" from a model without controls for children's educational level and employment status amounts to 10 percentage points, against the 7 percentage points from the model with controls shown in Figure 2.1 (ELSA data).

When looking at the other results in Figure 2.4, we observe that the educational gradient is larger for grandparents who provide childcare throughout the year, compared to childcare limited to school days, weekends, or special occasions such as holidays. There are no differences between grandparents from different background in the time spent with grandchildren during weekdays. Interestingly, we detect a difference when considering weekends and holidays among grandmothers, even if the effect is only marginally statistically significant. The results provide additional background to the confirmation of hypothesis 1.

2.5.3. Grandparental childcare activities

The ELSA survey provides detailed information on the activities that grandparents perform with grandchildren. Figure 2.5 shows an educational gradient in the occurrence of all activities under consideration. It is worth noticing that highly educated grandmothers are around 18 percentage points more likely to perform educational care (*homework help*) than lower educated grandmothers. The gradient is much lower for grandfathers. Moreover, highly educated grandparents are more than 20 percentage points more likely to engage in interactive care (*leisure* activities) with grandchildren than lower educated grandparents. In this case, the difference between women and men is negligible. These two gradients are wider than in all other activities, such as physical care (*preparing meals*), adult children need (*collect/bring the grandchild*(ren) to school or playground, *stay overnight*

Figure 2.5. Difference in probability (AME) to spend time with grandchildren in different activities, between highly and low educated grandparents, by sex. 95 % CI. Logistic regression models with all control variables included.

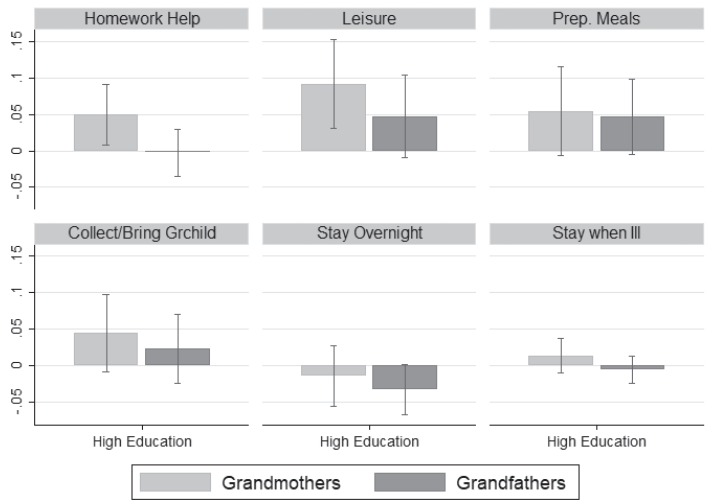


Source: ELSA data (2016 – 2017)

without parents), and emergency (*stay* with the grandchild(ren) *when* he/she/they is/are *ill*).

When refining the measure to single-out frequent involvement in activities, the picture changes (Figure 2.6). The educational gradients in activities related to adult children's need (*collect/bring the grandchild*(ren) to school or playground, *stay overnight* without parents), and emergency (*stay* with the grandchild(ren) *when* he/she/they is/are *ill*) approach zero or are not statistically significant anymore. In the case of physical care (*preparing meals*), the gradient for grandparents is around 6 percentage points, but once again, the confidence intervals overlap with zero. To the contrary, for educational (*homework help*) and interactive (*leisure*) activities, the educational gradient for grandmothers is present, although reduced in comparison with Figure 2.5. In the case of educational care, the gradient amounts to 6 percentage points for grandmothers, while no gradient is present among grandfathers. As far as interactive care is concerned, highly educated grandmothers are around 8 percentage points more likely than low educated grandmothers to frequently perform leisure activities with grandchildren. Overall, we consider hypothesis 3 confirmed, because highly educated grandparents (and grandmothers in particular) are more likely to (frequently) perform activities with cultural capital implications.

Figure 2.6. Difference in probability (AME) to spend time frequently with grandchildren in different activities, between highly and low educated grandparents, by sex. 95 % CI. Logistic regression models with all control variables included.

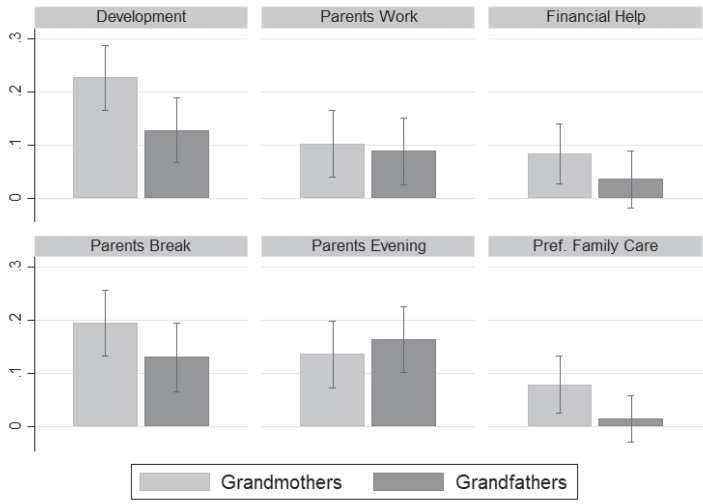


Source: ELSA data (2016 – 2017)

2.5.4. Grandparental childcare motivations

Finally, the ELSA data provide detailed information on the reasons that motivate grandparents to spend time with their grandchildren. Figure 2.7, in line with hypothesis 4, shows that highly educated grandmothers are almost 23 percentage points more likely than low educated ones to provide childcare so to "help grandchildren develop as people" (*development*). For grandfathers, the educational gradient in this particular reason is present as well, but it is much lower in size. Moreover, educational differences in grandparental childcare are present when it comes to supporting children's free time: highly educated grandparents are more likely to provide childcare in order to enable the adult children to take a break from family duties (*parents break*) and go out in the evening (*parents evening*). We find a smaller educational gradient among the remaining reasons for grandparental childcare. The gradient is around 10 percentage points when it comes to material help to adult children: highly educated grandparents are more likely to provide childcare to help children going out to work than low educated grandparents (*parents work*). Finally, the educational gradient is around 8 percentage point for preferences for family care (*preferences family care*) and financial support (*financial help*), but only among grandmothers.

Figure 2.7. Difference in probability (AME) to spend time with grandchildren for different reasons, between highly and low educated grandparents, by sex. 95 % CI. Logistic regression models with all control variables included.



Source: ELSA data (2016 – 2017)

2.6. Discussion and Conclusions

The present study employed data from two surveys, SHARE and ELSA, to study whether, when, how, and why grandparents from different educational layers spend time with grandchildren across European countries. We delineated a theoretical framework that could accommodate educational differences in grandparental childcare. Our contribution lies in increasing the understanding of grandparents' involvement in grandchildren's lives, asserting that they do not only help young families in work-family reconciliation, but that they are also focused on the concerted cultivation of grandchildren beyond adult children's need of support.

Our results confirm that there is an educational gradient in grandparental time spent with grandchildren, even if limited to specific circumstances. As for childcare, the gradient is present for both grandmothers and grandfathers, but the former are in general more likely to provide care. Grandfathers are not strongly involved in caregiving, and when they are, the differences across educational layers are less wide.

To look more closely at the features of the educational gradient, with SHARE data, we showed that highly educated grandparents, especially grandmothers, are the most likely to provide childcare, in particular weekly childcare, while we did not find differences in daily childcare provision. Grandparents' time with grandchildren is stratified by educational level even when accounting for adult children's characteristics, which we employed as a proxy of childcare need. We did not find an educational gradient in daily childcare among grandparents who have an employed daughter: when the adult children need intensive support, most probably all grandparents step in with childcare. However, there is an educational gradient in weekly childcare when the daughter is in employment. Moreover, among grandparents who have a not-employed daughter, highly educated grandparents are the most likely to provide daily and weekly grandchild care. In these cases, we speculated that there might not occur a work-family conflict requiring grandparental help, and therefore, grandparents' involvement could be mainly driven by grandparents' preference to spend time with their grandchildren, allegedly as a cultural investment. This finding enriches the literature on grandparental support as a resource enabling young women's employment: apparently, childcare is provided by highly educated grandparents even if it is not strictly needed.

ELSA data partially supports the picture. We found an educational gradient in childcare provided throughout the year, and even if marginally statistically significant, in childcare during weekend and holidays. The gradient does not subsist when considering weekdays. Weekdays childcare commitment is likely to be bonded to the middle generation's need of support, as parents might be busy with work during the week. In this case, like daily childcare in SHARE, there are no differences among grandparents in offering support. Therefore, it looks like differences exist when considering a constant involvement of grandparents in grandchildren's lives, as well as family's free time. These results could, once again, point toward the idea that highly educated grandparents spend time with grandchildren beyond family's need of support.

When looking at the content of grandparent-grandchildren interactions, with ELSA data, we found that the largest difference between highly and low educated grandparents lies in interactive and educational care. Highly educated grandparents are more often involved in leisure activities with grandchildren, which they perform more frequently than their low educated counterparts. In addition, highly educated grandmothers more often help their grandchildren with homework than low educated grandmothers. We put forward that these activities could have cultural capital implications. In fact, for highly educated grandmothers, the time spent with grandchildren is mainly driven by the willingness to "help grandchildren develop as people".

As far as other motives are concerned, highly educated grandparents seem attentive to the adult children's free time, as they are more likely than their low educated counterparts to provide childcare to give adult children a break from family duties and to go out in the evening. To the contrary, we found weaker differences across educational layers in childcare for financial or time-related reasons (parents are at work).

In our theoretical framework, we maintained that, as in the case of parenting, highly educated grandparents could be interested in spending time with grandchildren to foster their talents, skills, and social capital, in order to provide them with the resources that enhance educational achievement and future labour market positions. This means that grandchildren are exposed to an "extended-family environment" that endorses them with various forms of capital, above and beyond what parents alone could offer (Jæger, 2012). Our findings are important for the literature on intergenerational transmission of resources: several studies

in the last decades have been trying to disentangle the mechanisms according to which parents are able to pass on resources to children as to secure their socio-economic success (Jæger & Breen, 2016), with very crucial implications for the reproduction of inequality. Our study could be a further step in the investigation of these mechanisms, pinpointing at the existence of specific grandparenting styles stratified across educational layers.

The present study presents some limitations that ought to be addressed. Firstly, our two data sources provide a complete picture on grandparental childcare in a two-generational perspective. However, in SHARE, we are only able to study grandparents' childcare in relation to children's characteristics in a quite general way, without the possibility to investigate the details of their involvement. To the contrary, in ELSA, we could not clean the association between educational level, activities, and reason of grandparental childcare, from the effect of children's characteristics, which might result in an upward bias of the educational gradient in grandparental childcare. The different pieces of information included in the two datasets do not make the results completely comparable, but they are meant to provide a more complete picture of grandparental childcare. In addition, it should be noted that they refer to different European countries. It would be interesting to investigate possible country-differences. This, however, was not feasible due to small sample sizes in the SHARE survey, especially as far as dyads of highly educated grandmothers with non-employed daughters are concerned. Surely, we are aware that family policies influence the provision of grandparental childcare driven by adult children's need (Bordone *et al.*, 2017), which could lead to differences in the size of the educational gradient. In addition, the impact of (grandparental) concerted cultivation strategies may vary across countries given differences in the prevalence of cultural understandings in school curricula and methods of assessment (Marks, Cresswell, & Ainley, 2006). Therefore, we consider comparing the educational gradient in grandparental childcare in different countries an interesting avenue for future research, perhaps by using country-specific surveys to increase the sample size.

Secondly, in ELSA, information on activities performed with grandchildren remain rather vague: we could for example not distinguish in the broad specification of "leisure activities" between watching television and going to the theater or the museum; the latter being activities much more linked with concerted cultivation. Similarly, physical care was measured as "preparing meals". Studies on food stratification have shown that high socio-economic status is associated with more

attention by parents to provide children with a healthy diet (Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003). Feeding children through home-preparation of meals is part of that "dominant set of cultural repertoires" (Lareau 2003, p. 4) belonging to highly educated individuals, who are aware of the ways to improve the wellbeing of their offspring. In fact, we do find an educational gradient in the probability to prepare meals to grandchildren between highly and low educated grandparents. Therefore, it would be interesting to compare the educational gradient in preparing meals to the gradient in other activities related to routine physical care, such as bathing, changing diapers, putting children in bed, and dressing them.

Finally, we do not dispose of information on children's partners, and therefore we investigated only (grand)parents with daughters with SHARE data. Spouses bargain and coordinate childcare activities according to time constraints. Research shows that fathers are more likely to step in with childcare when the partner is in employment (England & Srivastava, 2013; Gimenez-Nadal & Molina, 2013; Gracia, 2014; Raley *et al.*, 2012). It could be that grandparental and fathers' childcare complement or substitute each other in supporting mothers' employment, as it was studied in Spain (Meil & Rogero-García, 2015). Nevertheless, ELSA and SHARE surveys are the best data sources on grandparental childcare nowadays present in Europe (Hank *et al.*, 2018). As grandparental childcare is of increasing importance for families all over Europe, both in easing work-family reconciliation and allegedly on the reproduction of inequality, we hope that comparative surveys will more often include detailed questions on grandparenting in the future.

3

The role of the institutional context in grandmothers' labour supply: a European comparison

Abstract

Grandparental childcare is a priceless resource for young families. Yet, grandmotherhood could conflict with employment for mid-life women. In this article, we study the relation between grandmotherhood and labour supply across European countries, with attention paid to differences in terms of family policies, female labour market characteristics, and pension regulations. On the one hand, grandmothers' involvement in childcare depends on the public provision of childcare services and the labour force participation of mothers. Where publicly provided alternatives are scarce, the need of support on childcare by the younger generations could conflict with grandmothers' labour supply. On the other hand, the work-family conflict for grandmothers is fueled, or eased, by the pension legislation of the country. We use SHARE data (2004-2015) on ten European countries and employ an instrumental variable approach. Results reveal that grandmotherhood has an overall negative effect on mid-life women's labour supply, especially in those countries where public childcare services are scarce, early retirement options are available, and the pension system is more generous. Our findings relate to policies aimed at increasing retirement age all over Europe: extending older workers' working life, without adequate public alternatives for childcare, could cause care gaps for the younger generations.

3.1. Introduction

Grandmothers are strongly involved in childcare all over Europe (Attias-Donfut *et al.*, 2005; Hank & Buber, 2009; Igel & Szydlik, 2011). Due to their key role in supporting the younger generations (Dimova & Wolff, 2011), research on the grandparental role and active grandparenting has intensified in the last decades (for a review, see Hank *et al.* 2018). Apparently, women retain the bulk of care responsibilities not only around motherhood, but later in life as well. However, while studies on the relation between care responsibilities and employment have been flourishing for mothers, e.g. investigating the factors helping work-family reconciliation such as formal childcare services and grandparental care (Arpino *et al.*, 2014), scarce attention has been paid to eventual work adjustments mid-life women could implement when they have grandchildren. In fact, mid-life women are very likely to become grandmothers while still active on the labour market: all over Europe, the transition to grandmotherhood typically precedes retirement by at least 5 years (Leopold & Skopek, 2015a). Given that being an active grandmother demands time availability, this study addresses the question whether in Europe grandmotherhood relates to mid-life women's labour supply.

Overall, older workers look forward to retire early to spend time with grandchildren (Higgs *et al.*, 2003; Hochman & Lewin-Epstein, 2013). To date, several studies have shown that they translate this desire in practice: being a grandmother is associated with a reduction in labour supply and work hours (Backhaus & Barslund, 2019; Frimmel *et al.*, 2017; Rupert & Zanella, 2018) and with the speeding up of retirement (De Preter *et al.*, 2013; Kridahl, 2017; Lumsdaine & Vermeer, 2015; Van Bavel & De Winter, 2013) in a variety of institutional settings. However, it is an open question to what extent grandmothers' labour supply varies across European countries, according to differences in terms of family policies, female labour market characteristics, and pension regulations. In fact, it is difficult to compare the existing, mainly national, studies and draw conclusions about differences between contexts due to very different datasets, sample selection, and methodologies employed. Our study contributes to this literature, investigating the impact of the country-specific institutional setting on grandmothers' labour market behavior by studying ten European countries present in all waves of the cross-national biannual panel dataset SHARE (2004-2015). Moreover, we adopt a distinct analytical strategy. The study of changes in labour supply following grandmotherhood is complicated by endogeneity issues, like unobserved factors jointly affecting the birth of a grandchild and grandmothers' labour supply. To deal with this issue, we follow an instrumental variable (IV) approach.

The comparative perspective pinpoints the opportunity-structure in which older workers take decisions about paid employment. The relevance of our study is related to current social transformations and policy reforms, in terms of increased female labour market participation and rising retirement age all over European countries (OECD, 2017b). These developments could intensify the *need* for grandparental childcare, as more young mothers work, while limiting grandmothers' *availability*, as older women are expected to be economically active longer.

3.2. Theoretical Background and expectations

Labour market adjustments of grandmothers, in terms of reduction of labour supply, take place when there is a mismatch between the *need* for grandparental childcare and the *availability* of grandmothers as care providers. As for need, young mothers might require grandparental childcare when they cannot provide care themselves, i.e. when they (and their partners) are employed and when they have no formal alternatives in terms of public childcare services. In other words, *need* could depend on the de-familialistic policies of the country (see section 1.5.2.). Yet, there is striking variation across European countries in terms of family policies and mothers' labour force participation (Thévenon, 2011). Similarly, grandmothers are available as care providers when free from paid employment. This depends on pension eligibility criteria and economic incentives embedded in social security systems, which are the main factors driving the timing of retirement (Boeri & Brugiavini, 2008) and which strongly differ across European countries (OECD, 2017b).

3.2.1. The need of grandmothers as care providers

The debate on the relation between the public support in the form of state transfers and social services, and family support is dominated by the *crowding-in* and *crowding-out* perspectives (see section 1.5.3 and 1.5.4). While in the crowding-in perspective the welfare state and intergenerational support are said to reinforce each other, in the crowding-out perspective, the two are expected to substitute each other (for an exhaustive review of the debate, see Künemund and Rein 1999). Extant research shows that the two perspectives coexist, in a third formulation called *specialization* hypothesis (Brandt, 2013; Brandt *et al.*, 2009; Igel *et al.*, 2009): in the universalistic Northern welfare states, older parents economically and socially support their adult children more often (supporting crowding-in) but with less intensity (supporting crowding-out) than in Southern-European countries, where there is a polarization between considerable support received by the family and no support at all (Albertini *et al.*, 2007). Where the state is more generous,

time-consuming and specialized tasks are carried-out by public services, and the family members can take over voluntary tasks moved by motives of enjoyment instead than obligations (Brandt, 2013).

Same holds for grandparenting. When talking about grandparental childcare, we should make a distinction between occurrence and intensity. With occurrence, researchers measure whether grandchild care by grandmothers happens at all; conditional on the occurrence, intense grandparental childcare refers to a daily or weekly commitment.

Studies estimate that roughly half of European grandparents is involved in childcare (Glaser *et al.*, 2013), but despite this common trend, there are striking differences across European countries. In Southern European countries, grandparental childcare is less common in occurrence, but when it occurs, it is more intense than in Northern European countries (Igel & Szydlik, 2011). For example, in Italy and Spain, roughly 50% of grandparents provide childcare against 65% of grandparents in the Netherlands and Denmark. To the contrary, conditional of providing any childcare, more than 40% of Italian grandparents provide intensive childcare against 20% of the Swedish counterparts (Hank & Buber, 2009).

The explanation lies in the family-policy logic (Price *et al.*, 2018) and in the characteristics of female labour market participation. In Northern Europe, there is less need for grandparental childcare, even if young mothers are extensively employed, thanks to publicly provided options for childcare and availability of part-time work. Moreover, mothers of young children get longer maternity leave with better compensation. Grandmothers can take up care responsibilities according to their preference (Igel *et al.*, 2009; Igel & Szydlik, 2011). To the contrary, in Southern Europe, women are mainly full-time caregivers, without the need to receive any family help for childcare – but when employed, the shortage of public childcare services makes relevant an extensive network of informal support. Moreover, the scarce availability of part-time jobs in these countries increases the need of grandparental childcare for full-time working women (Bordone *et al.*, 2017; Di Gessa, Glaser, Price, *et al.*, 2016).

In this light, we wonder to what extent the labour supply of grandmothers is affected by the institutional characteristics shaping grandparental need. It is difficult to formulate *a priori* country-level expectations about the relationship between grandmotherhood and labour supply across European countries, given

the different mechanisms explaining intensity and occurrence of grandparental childcare. There already is empirical evidence that grandchild birth is related to labour market withdrawal in several welfare settings, such as Continental Europe (Frimmel *et al.* 2017), Northern Europe (Kridhal 2017) and Anglo-Saxon countries (Lumsdaine and Vermeer 2015; Rupert and Zanella 2018; Zanasi, Sieben, Uunk 2019). What is missing is a theoretical reasoning and empirical investigations based on the heterogeneity of institutional settings that can link together these contributions.

The *specialization* hypothesis could open contrasting scenarios. On the one hand, we could expect that, in those countries where services are short, and grandparental childcare is very much needed (i.e. with intensive childcare), grandmothers are less likely to be employed. This was indeed the expectation of the only comparative study on the topic by Van Bavel and De Winter (2013), but no evidence was found that grandmothers are more likely to retire where formal childcare services are not widely available. On the other hand, we could expect that grandmotherhood is related to a reduction in labour supply in Northern Europe, where grandparental childcare, paradoxically, is more likely to occur than in Southern Europe, where the need for grandparental childcare is polarized (i.e. either intense grandparenting or no grandparenting at all). Grandmothers are often not required as care providers, because their daughters (in law) are not employed themselves.

3.2.2. The availability of grandmothers as care providers

The decision to stop working is influenced by several factors, especially the preference of the worker in interaction with a certain institutional context (for exhaustive reviews, see Blöndal and Scarpetta 1999; Duval 2003), such as the financial incentives embedded in the old-age pension system that make retirement affordable or deter workers from remaining in the labour market (Duval, 2003; OECD, 2011b). Hence, characteristics of the pension system of the country influence the extent to which labour market withdrawal is a feasible and attractive option for mid-life women when they are grandmothers. We take three important aspects of a country's pension system into account.

First, all over European countries, the effective age at retirement, defined as the average age of exit from the labour force, is below the statutory retirement age, that refers to the age at which individuals should retire to receive full pension benefits. This means that workers are usually discouraged in working later in life by characteristics of the old-age pension system. Thus, as a first step, it is interesting

to investigate whether in countries in which early retirement options are available, mid-life women are less likely to be employed when they have grandchildren. In the present work, we will consider the effective age at retirement for each country, which indicates to what extent early retirement is common, doable, and accepted.

Secondly, the incentives to stop working in mid-life are based around the concept of pension wealth, a commonly accepted measure of pension system generosity (OECD 2011). Every year of work, individuals pay contributions to the system. In case the individual is eligible for a pension, the receipt of the pension-income cannot be combined with earnings from work. Thus, remaining in the labour market implies foregoing years of pension benefits. There is an implicit tax on continuing to work when the costs of foregoing pension benefits and paying contributions are not repaid by an increase in pension benefits in the future. In a nutshell, a system is "actuarially non-neutral" when "the change in pension wealth from working an additional year is less than the value of contributions paid" (Duval 2003, p. 9). International comparisons show that where the implicit tax on continuing to work is higher (the pension system is actuarially non-neutral or more generous), the larger the decrease in the probability of working for older workers (De Preter *et al.*, 2013; Schils, 2008). For these reasons, we might expect that in countries where the pension system is more generous, mid-life women are less likely to be employed when they have grandchildren.

Finally, it is important to consider the redistributive character of the pension system. Especially in those countries with defined-contribution pensions, inequalities over the life-course translate to inequalities on the verge of retirement, in particular for those individuals who had non-standard careers and low labour market attachment (Bonnet & Rapoport, 2019; Dewilde, 2012) – as very often is the case for women. A redistributive pension system provides basic, flat-rate benefits unconditionally on previous contributions or earnings history. Pension systems providing basic pensions reduce the impact of unstable working careers on the pension income of women (Möhring, 2015). In this sense, comparative research on social security systems uses the term "progressivity", determined "by the relative importance of non-contributory and contributory elements, but also [...] by [...] credits that help cover periods when people are not earning income for reasons such as unemployment or childcare" (OECD 2017, p. 158). Thus, the progressivity of the pension system might make up for eventual interrupted careers, easing the opting-out from the labour market also for those individuals who would need to work passed the retirement age to make up for foregone earnings. To conclude, we

might expect that in countries where the pension system is more progressive, mid-life women are less likely to be employed when they are grandmothers.

3.3. Materials and Method

3.3.1. Data and Sample Selection

We use data from 5 waves (2004 – 2015) of the Survey of Health, Ageing, and Retirement in Europe (SHARE) (Stuck *et al.*, 2013). SHARE is a cross-national biannual panel database collecting information on health, socio-economic status and family network of individuals older than 50 and their partners, living in 27 European countries and Israel. Wave 3 (SHARELIFE) is omitted from the analysis, as it only contains information on the previous life course of the respondents. The same holds for wave 7, that was created as a follow up of SHARELIFE. We select the ten countries in the SHARE dataset that participated in all waves: Austria (AT), Belgium (BE), Denmark (DK), France (FR), Germany (DE), Italy (IT), Spain (ES), Sweden (SE), and Switzerland (CH), plus the Netherlands (NL), even if the latter country did not participate in wave 6. In this way, we make sure that all countries contribute with the same time span. The analytical sample includes observations from women who are between 55 and 65 years old and who have at least one child aged 14 or older: potential grandmothers. After the exclusion of observations with missing data, the final sample comprises 16,490 individuals nested in 30,808 person-wave observations.

3.3.2. Micro-level Variables

The dependent variable captures women's labour supply, namely whether the respondent is in employment or not. It exploits information from the self-reported number of hours worked: it has value of 1 when the respondent declares to have performed at least one hour of paid work in the preceding week, and 0 otherwise. The independent variable captures whether the respondent is a grandmother. It is drawn from a question on the number of grandchildren.

Several individual-level control variables are added to the model: age in categories, educational level (ISCED 1997 classification, recoded in low, medium, and high), subjective health status (excellent and very good, good, fair and poor), employment status of respondent's partner (no partner, partner employed, partner not employed, and a residual category in case marital status is known but partner employment is missing), quintiles of household's net worth adjusted by inflation

with the Consumer Price Index (CPI) with 2015 as a base year, number of children, year of birth of the oldest child, and finally a categorical variable for wave.
Country-specific descriptive statistics can be found in Table A.3.1 in the Appendix.

3.3.3. Macro-level Variables

We choose six macro-level indicators to capture two domains of the institutional setting: grandparental childcare need, and grandmothers' availability as care providers. The characteristics of the institutional setting are measured at the "middle point" of the observation window (see Tables A.3.2 and A.3.3 in Appendix for country scores and correlations between the indicators), as the scores hardly change over the decade of collection of SHARE data.

On the side of grandparental childcare need, three indicators measure family policies and characteristics of the female labour market. Firstly, we use childcare enrollment rate in 2009, with data from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC). It is the percentage of children under 3 years old cared for by formal arrangements other than by the family. [13] Secondly, we consider maternal labour market participation rate in 2007, collected by the DICE Database (DICE Database, 2015) from the OECD Family Database. It refers to the employment rate of women between 15 and 64 years old who have at least one child below the age of 3. Thirdly, we retrieve information on the part-time employment rate for women (25-54 years old) in 2009, from OECD Labour Force Statistics. It is the number of women employed less than 30 hours per week as a share of all the employed women. Finally, we include a measure of effective leave in in weeks in 2009 from the dataset MULTILINKS (Keck, Hessel, & Saraceno, 2009), which is "the number of weeks of both maternity and parental leave, weighted by the level of compensation during leave time" (for the calculation, see Bordone et. al. 2017, p. 852). For this indicator, unfortunately, no data were available for Switzerland.

[13] This is a measure of childcare on the demand side. Measures of the supply of childcare, such as childcare coverage (number of places in public, or publicly subsidized, childcare facilities), would be surely more informative of the shortage of services in certain countries. Unfortunately, data available in the dataset MULTILINKS date back to 2004. Still, a comparison between the two indicators in 2004 indicates that they tend to coincide: in countries, such as Italy, where childcare services available are scarce, all the available spots are taken. Moreover, the 2004 data show that when differences exist between enrollment and coverage, the former is higher than the latter, for some methodological caveats (see MULTILINKS methodological report, by Keck, Hessel, & Saraceno, 2009, p. 63). Therefore, we believe childcare enrollment rate to be a good proxy measure of the availability of childcare services.

On the side of availability of grandmothers as care providers, we choose three indicators referring to characteristics of the pension system. Firstly, we use the effective retirement age for women in 2009, from the dataset MULTILINKS (Keck *et al.*, 2009), apart from Switzerland whose data are from OECD (OECD 2009). It is calculated as a weighted average of (net) withdrawals from the labour market at different ages over a 5-year period for workers initially aged 40 and over. Secondly, we consider a measure of the implicit tax on continued work in regular old-age pension system in 2009, retrieved from OECD (2012) and based on Duval's (2003) calculations. The score refers to the change in pension wealth when working for five additional years. A high score means a generous pension system: the change in wealth from continued work is less than the contributions paid to the pension system. Finally, we consider the progressivity index of the pension system in 2009 from OECD (OECD 2009). A pure basic scheme scores 100, while a pure insurance scheme 0. The formal calculation is 100 minus the ratio of the Gini coefficient of pension entitlements divided by the Gini coefficient of earnings, on both cases weighted by the earnings distribution.

3.3.4. Analytical strategy

We apply a so-called two-steps approach, that involves the estimation of separate models by country, followed by relating the outcomes of these models to macro-level indicators at the country level. We choose this approach due to the limited number of countries. In such a case it is not advisable to perform a multilevel analysis as it would lead to biased country-level coefficients (Bryan & Jenkins, 2016). Moreover, estimating separate models by country gives us the opportunity to deal with endogeneity issues, which may vary across countries, in an adequate way. Thus, as a first step, we run ten linear probability models (LPM) using the IV approach, following the strategy proposed by Backhaus and Barslund (2019), which in turns rely on Rupert and Zanella (2018). Our unit of analysis is the person-wave observation and we account for the structure of the data by clustering standard errors at the individual level. The single-country estimates are saved in a continuous variable (estimated dependent variable, EDV). In a second step, this EDV is separately regressed on the six macro-level indicators to highlight correlations with the institutional setting.

The relation between labour supply and grandmotherhood could be written as follows (Wooldridge, 2012):

$$y_1 = \beta_0 + \beta_1 y_2 + \beta_2 z_1 + u_1 \quad (1)$$

where y_1 is the binary dependent variable, women's labour supply (whether employed or not); y_2 is a binary indicator equal to 1 if a woman is a grandmother; z_1 is a set of control variables (age, educational level, self-reported health status, partner employment, household net worth, number of children, year of birth of the first child, wave); and u_1 is the error term. Bias due to omitted variables may affect our estimate of the effect of grandmotherhood on labour supply, if grandmotherhood and labour supply are jointly determined by unobservable characteristics of the woman. One example could be a woman's work-family values. We cannot observe these values in our data, but they likely influence both the transition to grandmotherhood and labour supply. A person could hold strong family preferences: she could look forward to having grandchildren and being available in taking care of them. Thus, she could withdraw from the labour market, and this availability as a care provider could spur her children's decision to have a baby (Aassve, Meroni, *et al.*, 2012; Pink, 2018). Keeping in mind that work-family values are passed on from mothers to children (Min, Silverstein, & Lendon, 2012), mid-life women's children could also appreciate parenthood and family over career, deciding to have children early in life. Mid-life women's family orientations could lead, then, both to reduced labour supply and early transition to grandmotherhood. Since work-family values are not observed, our main explanatory variable (grandmotherhood status, y_2) will be correlated with the error term u_1 and, consequently, the estimates of y_2 will be biased. In the specific case of work-family values, the presumable positive correlation with the grandmotherhood status y_2 on the one hand, and the negative correlation between the grandmotherhood status y_2 and labour supply y_1 on the other hand, causes a downward bias in the OLS estimates.

A potential solution to the problem of this omitted variable bias is the instrumental variable (IV) approach, which – if the assumptions hold – bases estimates only on the exogenous part of the variation in y_2. In a first stage, y_2 (grandmotherhood status) is regressed on the IV (and a set of control variables), to test their relationship:

$$y_2 = \beta_0 + \beta_1 z_1 + \beta_2 z_2 + v \qquad (2)$$

In a second stage, the predicted value $\hat{y}_2$ from the regression (2) substitutes y_2. Since our dependent variable (women's labour supply) is dichotomous, we make use of a LPM.

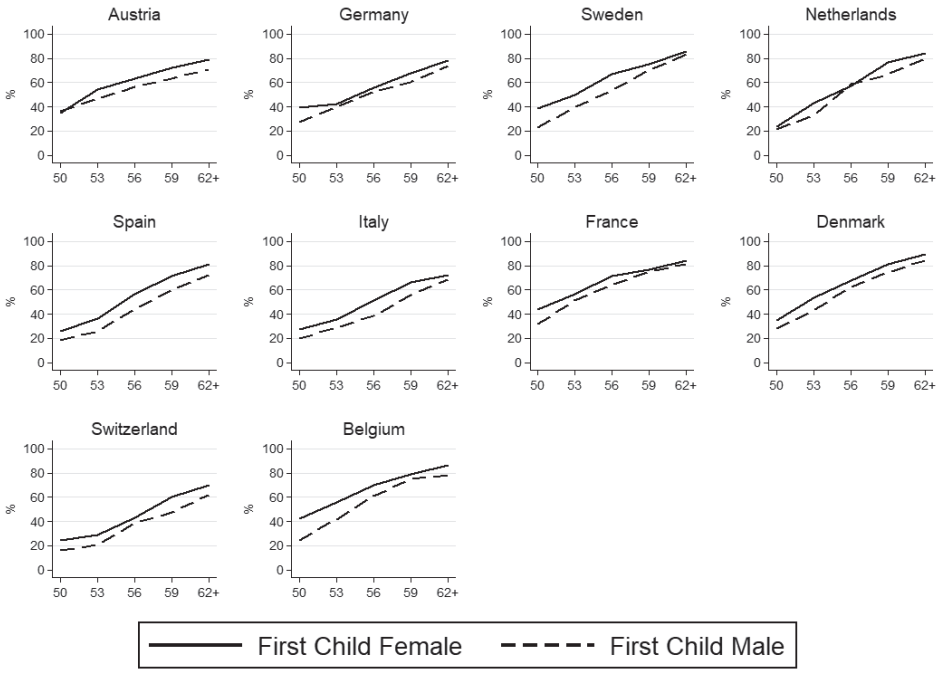
The key of this strategy is to find the proper IV, z_2. Rupert and Zanella (2018) propose to use the sex of the first child as instrument. Women tend to have children earlier than men, which means that women who have a daughter as a first child will become grandmothers earlier in life than women who have a son as a first child. At any given age, the former group is more likely to be a grandmother than the latter group.

The IV being "First Child Female" (FCF) has been tested with SHARE data by Backhaus and Barslund (2019); however, the authors consider Europe as an aggregate. Since we are interested in country differences, we will test separately for each country the assumptions that the IV is required to satisfy. The assumption of instrument relevance requires the IV FCF to be correlated with the endogenous variable y_2 (grandmotherhood status), and via this channel to affect the dependent variable y_1 (labour supply). Further, the assumption of instrument exogeneity requires the IV FCF not to be correlated with the error term u_1: the IV must not be correlated with omitted variables.

We first assess instrument relevance. Figure 3.1 shows, by country, the percentage of women who are grandparent at a certain age and have either a first female child or a first male child. Even if there are differences in the age profiles of grandmothers across countries, all over Europe mothers of first-born females are more often grandmothers at a given age. This first descriptive analysis shows that the IV FCF works in the expected direction.

Moreover, Table 3.1 shows the first stage regression results (regression (2)). As expected, net of other factors, having a female first child increases the probability of being grandmother, and the relation is statistically significant. However, there are differences across countries, which raises doubt that the instrument is not equally strong for all the countries considered. The relation between the IV FCF and grandmotherhood ranges from 10 percentage points in Spain down to 5 percentage points in Sweden, Netherlands, France, and Switzerland. In these latter four countries, the F-statistic is only slightly above, or does not reach at all,

Figure 3.1. Percentage of women who are grandmothers at a given age, by country and by sex of the first-born child



the rule-of-thumb of 10. Indeed, evaluating the F-statistic against the backdrop of Figure 3.1, we notice that in these four countries the difference between having a first-born daughter or son makes only a small difference in the probability to be grandmother between the age 55 and 64. The weak relation between the IV FCF and grandmotherhood status in some countries can be a problem for the estimates in the second stage, as will be discussed later.

It should be mentioned that, given the assumptions on the relation between the IV FCF and the endogenous regressor (grandmotherhood status, y_2), we are estimating a local average treatment effect (LATE) (Angrist and Pischke 2008). LATEs express causal effects for the subpopulation of compliers, i.e. those for whom the value of the endogenous regressor only depends on the value taken by the instrument. Here the group of compliers comprises women who had a first-born daughter and have already become grandparents and women who had a first-born son and have not become grandparents yet. In this sense, these women "comply" with their value for z_2, having their transition to grandparenthood early or late(r) only because of the sex of their first child. This has implications for the

Table 3.1. First stage IV estimates: LPM for the effects of the IV FCF on the probability of being a grandmother by country

		First Child Female	F excluded instrument	Observations
Austria	Coeff.	0.084***	17.6	2,860
	SE	0.020		
Germany	Coeff.	0.070***	13.9	3,153
	SE	0.019		
Sweden	Coeff.	0.049**	8.93	2,863
	SE	0.016		
Netherlands	Coeff.	0.053**	7.8	2,601
	SE	0.019		
Spain	Coeff.	0.100***	34.5	3,316
	SE	0.018		
Italy	Coeff.	0.077***	16.8	3,516
	SE	0.019		
France	Coeff.	0.050**	10.2	3,641
	SE	0.016		
Denmark	Coeff.	0.067***	12.4	2,627
	SE	0.019		
Switzerland	Coeff.	0.058*	5.58	2,070
	SE	0.025		
Belgium	Coeff.	0.068***	18.4	4,161
	SE	0.016		

Models include all control variables. Standard errors clustered at the individual level. * p< 0.05, ** p<0.01, ***p<0.001

size and generalizability of our main estimates, which we will keep into account when discussing our main findings. [14]

As far as the second key assumption, instrument exogeneity, is concerned, testing whether there is a relation between the IV FCF and the error term is impossible, given the unobservable nature of the omitted variables. Instead, relevant

[14] One additional assumption expected by the LATE is the assumption of monotonicity, namely the IV FCF must affect all respondents in the same way. In other words, all women who had a first-born daughter must become grandmothers earlier in life than women who had a first-born son, even if they differ according to observable and unobservable characteristics. As proposed by Rupert and Zanella (2018), we investigate the characteristics of our sample by splitting it according to educational level and household income. All the country-figures exhibit the same pattern, supporting the monotonicity assumption: for example, both among high-income and low-income women, at any given age the share of grandmothers with a first female child is higher than the share of grandmothers with a first male child. The figures, not shown, are available upon request.

arguments need to be found. Rupert and Zanella (2018) propose three observed variables that can be proxies for factors contained in the error term, explaining that mothers of first-born daughters could behave differently than mothers of first-born sons in several domains, which in turn could affect their labour supply. If this was the case, it would imply that the IV FCF relates to the dependent variable labour supply not (only) via grandparenting, but also via other channels. Firstly, having a daughter as first-born child could induce higher fertility than having a first-born son (Dahl & Moretti, 2008) – in turn, high fertility could have a negative effect on labour supply both during the life-course and in mid-life (Damman, Henkens, & Kalmijn, 2015; Hank & Korbmacher, 2013). For example, women with more children could have more employment interruptions, leading to later retirement. In our sample, women with a first female child do not have higher numbers of children (completed fertility) than women with a first male child. The relation between the IV and number of children is very close to zero in all the countries, and it never reaches statistical significance (not shown, available upon request). Secondly, several empirical studies have documented the presence of a child-gender effect on the partnership status of parents: boys tend to increase marital stability and satisfaction relative to girls (Lundberg, 2005). Marital instability could affect women's employment through economic hardship, pushing them in the labour market, and leading to later retirement. However, in our sample there is no relation between the IV FCF and the marital status of women who are part of our sample living in different European countries (not shown, available upon request). Thirdly, maternal (grandchild's mother's mother) and paternal (grandchild's father's mother) grandmothers may have different residential patterns; for example, married women could live closer to their older mothers than married men. This proximity could mean, for example, stronger bonds between mother and adult daughter; the former could be more keen on providing childcare because of a close relation with the daughter, and in turn, would be more affected in labour supply; the latter could be moving closer to her mother, in order to benefit more easily from grandparental childcare, with pressure on grandmothers' labour supply. This does not appear to be the case in our sample: 43% of women whose first child is female live less than 5 kilometers from their daughter, against 45% of women with a first male child. Similarly, among the former, 19% lives more than 100 km away from their daughter, while among the latter 20% lives more than 100 km far away from their son. However, residential patterns differ among European countries: for example, in Sweden, 30% of women with a first-born daughter live less than 5 km apart, while this percentage reaches 67% in Italy. However, the residential patterns between first-born daughters and sons do not show differences *within* countries,

which dispel all doubts about differences in the proximity of residence between mothers and their first-born daughters or sons. Although these three points are surely not conclusive, they do provide some evidence that the assumption of instrument exogeneity holds for the IV FCF.

3.4. Results

Table 3.2 reports the results of the effect of being a grandmother on labour supply, i.e. employment status, net of a set of control variables. In column 1, we present the coefficients obtained from the LPM without implementing the IV strategy, while in column 2 the results are shown for the LMP with the IV strategy. In both cases, the estimates originate from single-country models. The LPM estimates without IV show very small and negligible effect of grandmotherhood on labour supply. They range between a 3 percentage points decrease in the Netherlands, and 3 percentage points increase in Sweden. When turning to the estimates with IV, the coefficients significantly increase in absolute magnitude, that is, they become more negative. This confirms the downward bias in the OLS estimates mentioned above, coming from the presence of unobserved grandparental characteristics that positively affect employment status, and negatively affect grandmotherhood status. Moreover, it should be kept in mind that we have identified a LATE with our instrument, which is the effect for the group of compliers. In other words, our estimates compare women whose first-born child was a daughter, namely maternal grandmothers, with women whose first-born child was a son, who are not (yet) grandmothers. Maternal grandmothers are the most likely to be childcare providers (Hank & Buber, 2009), a potential reason why the effect on the labour supply appears large in size.

Turning to the differences between countries, in Italy, having a grandchild decreases the probability to be employed by 50 percentage points; in Austria, Germany, Sweden, Spain, France, Switzerland, and Belgium, between 30 and 15 percentage points; the smallest effects, very close to zero, are found in the Netherlands (-0.015) and in Denmark (0.027). Only in Italy, the coefficient with the IV estimation reaches the statistical significance benchmark of $p < 0.05$.

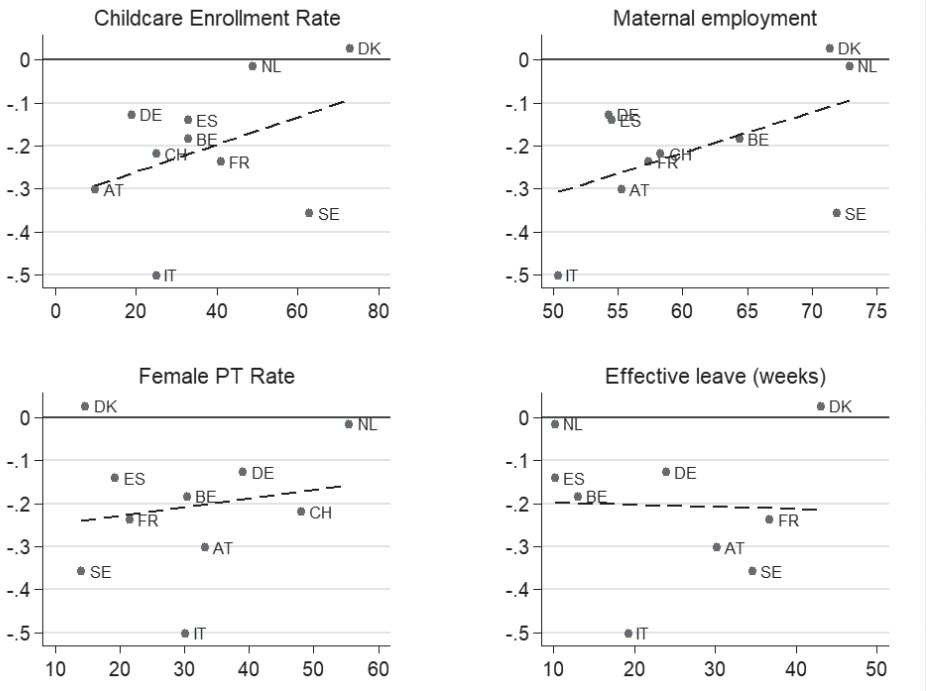
The coefficients from the LPM with IV estimation shown in Table 3.2 are stored in a continuous variable (estimated dependent variable, EDV) which becomes the dependent variable for a set of linear regression models in a second step (n=10), one for each macro-indicator. The EDV measures the difference in probability to be employed between grandmothers with a first female child and non-grandmothers with a first male child, accounting for unobserved heterogeneity, and net of other factors. In Figure 3.2 we show the results with respect to macro indicators related to the need of grandparental childcare; the underlying regression results are reported in Table A.3.5 in Appendix.

Table 3.2 LMP for effect of being a grandmother on labour supply, by country, without and with IV

		(1) without IV	(2) with IV	Observations
Austria	Coeff.	-0.003	-0.300	2,860
	SE	0.022	0.220	
Germany	Coeff.	-0.015	-0.13	3,153
	SE	0.023	0.280	
Sweden	Coeff.	0.033	-0.36	2,863
	SE	0.023	0.400	
Netherlands	Coeff.	-0.031	-0.015	2,601
	SE	0.026	0.400	
Spain	Coeff.	-0.0097	-0.14	3,316
	SE	0.023	0.190	
Italy	Coeff.	-0.029	-0.50*	3,516
	SE	0.019	0.240	
France	Coeff.	0.014	-0.240	3,641
	SE	0.023	0.380	
Denmark	Coeff.	-0.024	0.027	2,627
	SE	0.028	0.290	
Switzerland	Coeff.	-0.011	-0.220	2,070
	SE	0.029	0.440	
Belgium	Coeff.	0.0031	-0.180	4,161
	SE	0.021	0.250	

Models include all control variables. Standard errors clustered at the individual level.
* p< 0.05, ** p<0.01, ***p<0.001

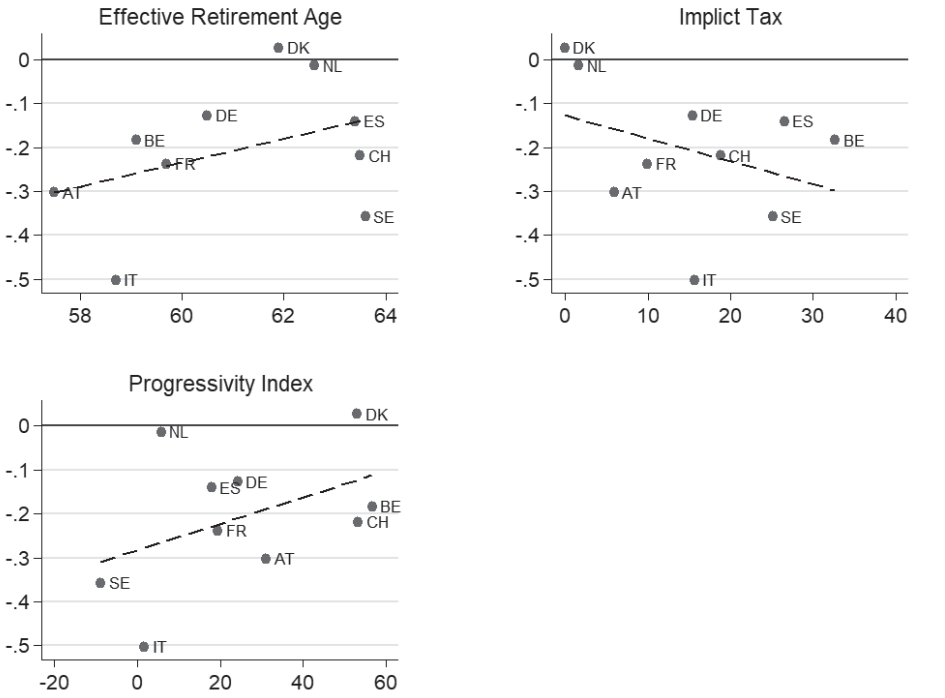
Figure 3.2 OLS regression scores of macro-level indicators measuring grandparental need on EDV



Firstly, childcare enrollment rate is positively associated with the EDV (b = 0.004), but the association is weak. In other words, grandmothers are more likely to be employed than non-grandmothers when they live in countries with more public services for children. The same pattern is found for the rate of mothers in employment: the EDV has a positive association with maternal labour force participation rate (b =0.010). The lower the rate of women in employment, the more negative the effect of grandmotherhood on labour supply. The relation is mainly driven by Italy and its extremely low rate of women in employment. As for female part-time rate, grandmothers are less likely to be employed where part-time work options are scarcely available (b =0.002). Again, the relation is weak, and this time mainly driven by the Netherlands, with a high incidence of part-time employment. Finally, the indicator for effective leave is not correlated with grandmothers' employment.

Turning to variables measuring characteristics of the institutional settings that affect the availability of grandmothers (Figure 3.3), we find a positive association between the effective age at retirement and the EDV (b = 0.027). In those countries where the effective retirement age is lower, namely where it is more common to take up early retirement, the effect of grandmotherhood on labour supply is more negative. The relation between the implicit tax on continued work and the EDV is negative and very weak (b = -0.005): where it is more "expensive" to work one additional year, the effect of grandmotherhood on labour supply is more negative. While all the aforementioned results go in the direction of our expectations, the progressivity index is an exception, showing a positive association with the EDV (b = 0.003): where the pension system is more redistributive, namely the pension contributions do not depend on the contributive record of the person, the effect of grandmotherhood on labour supply is less negative. Finally, it should be mentioned that, given the very limited number of countries, none of the estimates reaches statistical significance.

Figure 3.3 OLS regression scores of macro-level indicators measuring grandparental availability on EDV



3.5. Discussion and Conclusions

In this study, we examined grandmothers' labour supply arguing that, just like in the years surrounding motherhood, the last stage of a woman's working career might be adjusted to accommodate family duties. We argued that the extent to which this is the case depends on contextual factors, such as family policies, female labour market structure, and characteristics of the pension system, that determine the need for and availability of grandparental care. We therefore investigated whether having grandchildren relates to mid-life women's labour supply, and how the relation varies across ten European countries, by employing data from the SHARE survey (2004-2015).

Our results concerning country-differences are not clear-cut. In Italy, we found a statistically significant, negative effect of being grandmother on the probability to be employed of around 50 percentage points; in other countries, such as the Netherlands and Denmark, the effect is very close to zero and do not reach statistical significance. To comment on their plausibility beyond statistical significance is complicated; indeed, due to very different data, sample selection, and methodology employed, the size of our estimates cannot be immediately compared to those from other studies (Frimmel *et al.* 2017; Kridahl 2017; Lumsdaine and Vermeer 2015; Van Bavel and De Winter 2013; Zanasi *et al.* 2019), apart from to the work of Rupert and Zanella (2018) and Backhaus and Barslund (2019) who do employ the IV strategy. The former finds that grandmothers in the US reduce their working hours by 30%, whereas no effect was found on employment status. The latter observes that, on average across European countries, being a grandmother decreases labour supply by 26 percentage points.

Firstly, the relatively large effect for grandmotherhood on working hours and labour supply estimated with the IV in these latter studies and ours, reflects the LATE nature of the estimates. In other words, the effect refers to the specific subpopulation of maternal grandmothers, because they are those with a first-born female child. Maternal grandmothers traditionally provide more childcare once a grandchild is born (Hank and Buber 2009). It therefore is reasonable that grandparenthood negatively affects labour supply the most for maternal grandmothers. Secondly, the study of Backhaus and Barslund (2019) pools together all individual observations and considers Europe as aggregate. With a very large sample size, estimates are associated with a p value lower than 0.05. In the present work, we consider each country separately, which leads to a smaller sample size for each country, perhaps not large enough to detect precise IV estimates. Moreover,

standard errors associated with the single-country coefficients are very high. There could also be problems related to the weakness of the instrument. When performing large-scale comparisons between very heterogeneous settings, the need to implement a comparable estimation strategy across contexts leads to an over-simplification of the peculiarity of each context. In other words, as we showed in the section "Analytical Strategy", the IV FCF does not perform equally well among all the countries considered (Figure 3.1). In several settings, there are no striking differences in the proportion of grandmothers with a first-born son or daughter (such as in the Netherlands, or France), while the difference is more pronounced in Italy or Spain. We thus must be cautious when interpreting our results.

However, in substantive terms, our research suggests that likewise motherhood, grandmotherhood is a life event that could have consequences for women's working career, and these consequences are likely to be shaped by the institutional setting in which women live. On the one hand, we explained that certain aspects of the family policy logic (Price *et al.* 2018) of the country determines grandparental childcare need, which in turn could influence grandmothers' labour supply. We found some evidence that where childcare services are hardly available, and maternal labour market participation is low, grandmothers are less likely to be employed. These two features are inherently intertwined: maternal labour force participation rate and childcare service coverage are highly correlated (r= 0.82, see Table A.3.3 in Appendix). Where public childcare services are scarce, women encounter work-family conflict. The outcome is that several women do not participate in the labour market. In specific cases, such as Italy, this results in a polarization between women employed full-time, or not employed at all. This polarization bounces over grandparental childcare: it is either provided intensively, or not provided at all. To wit, where female labour force participation rate is low, grandmothers are less likely to be employed because their daughters, when employed, have a very strong need of informal support – being the childcare services are hardly available. As a first conclusion, we gather that family policies might have externalities on the labour force participation of two generations of women: they could ease the work-family reconciliation of young mothers, who, in turn, do not need to rely on their older mothers for childcare. Mid-life women could thus avoid labour market withdrawal, or anticipated retirement, for care responsibilities - decisions likely to lead to pension penalties.

On the other hand, our findings suggest that the availability of grandmothers as care providers rests upon the generosity (implicit tax on continuing work) and

flexibility (effective age at retirement) of the pension systems. Once again, these two dimensions are positively related (r=0.14, see Table A.3.3 in Appendix): in those contexts, where stop working is more economically convenient than continuing to work after a certain age, early retirement is a feasible option, and older workers are attracted away from paid employment. The availability of early retirement routes, as well as the economic incentives embedded in the pension system, could make it convenient for older women to reshape their work commitment in order to (eventually) enact the grandparental role.

Bridging these two different aspects of the institutional setting in which individuals live, i.e. family policy and pension system, we believe that the present work acquires relevance in view of recent pension reforms, aimed at extending working life and dis-incentivizing early retirement. Given that future cohorts of grandmothers will be more likely to be in employment until later ages, the increased labour market participation of (young) women could lead to care gaps for (grand)children, in case of limited provision of childcare services.

This study has several limitations that ought to be addressed. Firstly, we are aware that grandmotherhood could lead to shorter working hours, instead of the rough dichotomy between being employed or not. Yet, in light of recent pension reforms, we believed important highlighting the role that the pension system plays in hindering, or enabling, the work-family reconciliation in later life. Secondly, in this work, we analyzed one macro-indicator at the time, instead of considering the institutional setting of the country as comprising several interrelated features. The inclusion in our statistical models of more than one indicator at the time could be problematic given the limited number of second-level units (n=10). However, we highlighted the interconnection between the indicators above and provide correlation coefficients between the macro-indicators in Table A.3.3 in the Appendix. These correlations shed additional light on the relation between different features of the institutional setting and grandmothers' labour supply. Moreover, we could not exploit variation over time in the macro-contextual information to arrive at more robust results, as there is too little variation over the ten years included in the SHARE survey. Future studies could thus investigate the dynamics of grandmothers' labour supply by considering the context altogether, in a more holistic way. Secondly, we found that the progressivity index is positively correlated with grandmothers' labour supply, contrary to our expectation. The reason could lie in the indicator itself. The progressivity index only includes public pensions, leaving aside private and occupational pensions and therefore it provides

only a partial picture of the situation. Moreover, it does not consider that a pension system could target workers according to income group – for example, with an earning-related formula for low-income earners, and a flat-rate formula for high earners. Overall, future research could benefit from the inclusion of more detailed information of the pre-retirement employment and previous working history of individuals, choosing those aspects that are relevant given the pension system of the country. Finally, even though SHARE is the only comparative European dataset with extensive information on mid-life individuals, providing at the same time a decent sample size for each country, it does not report information on the date of birth of grandchildren. This piece of information is hardly available in comparative datasets (Hank *et al.*, 2018), left aside the outdated 2006 wave of the European Social Survey. With this piece of information, future research could closely investigate how the birth of first (and higher order) grandchild(ren) overlaps with employment, and consequent work adjustment, in the framework of the Timing-of-Events approach (Frimmel *et al.* 2017). In other words, research could at the same time consider that the grandchild-effect on labour supply could change according to the age of the grandchild, and account for unobserved heterogeneity.

4

Work history, economic resources, and women's labour market withdrawal after the birth of the first grandchild

A slightly different version of this chapter is published as:
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Abstract

Typically, grandmothers are actively involved in the lives of their grandchildren, most frequently as care providers. At the same time, these individuals become grandparents while still employed. These two roles – of active grandparent and worker – might conflict, since both demand time and energy. This study examines whether the birth of the first grandchild leads to labour market withdrawal for women, and whether there are differences between grandmothers according to their work history and household economic resources. We considered the work history of women both as a measure of work–family preferences and a source of opportunities and constraints to labour market behaviour later in life. Our analyses of data from the English Longitudinal Study of Ageing (ELSA) 2002–2017 using hybrid logistic models show that the probability of labour market withdrawal increases after the birth of the first grandchild. Women who had continuous working careers, or short employment interruptions, were more likely to withdraw from the labour market after the birth of the first grandchild than their counterparts with non-continuous careers, as well as women living in wealthy households. The explanation lies in the lower opportunity cost these women encounter in withdrawing from the labour market. Our findings relate to policies aimed at increasing retirement ages all over Europe, advocating that these measures could conflict with grandmothers' involvement in their grandchildren's lives.

4.1. Introduction

All over Europe, increased life expectancy makes it common for grandchildren to grow up while their grandparents are still alive, and research on the multifaceted role of grandparents has begun to proliferate (for a review, see Hank *et al.* 2018). Scholars have widely investigated the role of grandparents as childcare providers (Attias-Donfut *et al.*, 2005; Hank & Buber, 2009) whose positive externalities extend to at least two generations. On the one hand, grandparental care supports younger generations' employment (Dimova & Wolff, 2011), especially in those institutional settings where formal childcare is rarely or narrowly provided (Bordone *et al.*, 2017). On the other hand, becoming a grandparent is experienced as a highly positive life transition by individuals (Mahne & Motel-Klingebiel, 2012). That is, spending time with grandchildren provides emotional gratification and a sense of belonging and usefulness, with positive effects on health and life satisfaction (Arpino & Bordone, 2014; Di Gessa, Glaser, & Tinker, 2016; Mahne & Huxhold, 2015).

Scientific interest in grandparents coincides with major policy reforms all over Europe aimed at raising pension ages (OECD, 2017b). Scholars warn that keeping older workers in the labour market could conflict with their involvement in grandchildren's lives (Gray, 2005), and that this involvement is related to early retirement preferences (Hochman & Lewin-Epstein, 2013). Indeed, mid-life individuals are likely to be in employment when they become grandparents, as all over Europe the transition to grandparenthood typically precedes retirement by at least five years (Leopold & Skopek, 2015b). In recent years, several cross-national studies in Europe confirm that becoming a grandparent (Van Bavel & De Winter, 2013) and providing childcare (De Preter *et al.*, 2013) are associated with early retirement. Single-country studies focusing on the US, Sweden, and Austria reach similar conclusions (Frimmel *et al.*, 2017; Kridahl, 2017; Lumsdaine & Vermeer, 2015; Rupert & Zanella, 2018).

Our study focuses on England, where the work–grandchild conflict and its consequences for labour market participation have received relatively little attention, especially regarding women, who bear the burden of care responsibilities and are the most likely to provide grandchild care (Gray 2005). The English case is of interest for several reasons. Firstly, in England, grandparents, especially grandmothers, have a complementary role to formal childcare services (Gray, 2005; Wheelock & Jones, 2002). In England, childcare services are market provided, with state-funded places allocated through means-testing (Lewis & West, 2017). The

cost of childcare is among the highest in OECD countries, amounting to 26.6% of family income (OECD, 2011a). To increase maternal employment, the state employs tax credits and subsidizes free hours of childcare for low-income families. Nevertheless, these measures do not fully account for families' childcare needs, especially for those families working non-standard hours. Moreover, they have been the target of recent austerity measures (Lewis and West 2017). Thus, over a third of English families rely on informal care, mainly provided by grandparents, against 20% of families in France and 0.1% in Denmark (OECD 2011). Secondly, English grandparents are expected to be economically active: early retirement solutions are not easily provided (Schils, 2008) and the statutory pension age for women is rising rapidly from 60 to 65, bringing it in line with the pension age for men. Finally, England has a contribution-based pension system (Schils 2008). Contributions to the basic state pension are acquired via years of employment, and individuals can opt into voluntary private pensions to supplement the basic state pension (Gardiner *et al*. 2015). As women's reproductive labour is often linked with discontinuous working careers, they have a limited opportunity to build up state, private, or occupational pensions, with consequences for their pension incomes in later life (Evandrou & Glaser, 2003; Gardiner, Robinson, & Fakhfakh, 2015; Ginn & Arber, 1996; Sefton, Evandrou, & Falkingham, 2011) and retirement timing (Finch, 2014). Thus, women's life courses and economic resources are crucial factors in both the attraction and feasibility of labour market withdrawal (LMW) after the birth of a grandchild.

4.2. Theoretical Background

Grandmothers have already taken significant decisions about work and care at least once in their adult lives, around the birth of their own child(ren). They have decided which strategies to implement in order to reconcile their work and family lives, such as delayed labour market entry, LMW, part-time working, or prolonged work. The adopted work–family strategy has distinct implications for the study of grandmothers' work decisions (Finch, 2014; Hank, 2004; Pienta *et al*., 1994).

On the one hand, we may assume that the priority given to work/family throughout one's working career is an indicator of work/family orientations. Research shows that women who continued to work during their childbearing period were more likely to be at work thereafter (Finch, 2014; Hank, 2004; Pienta *et al*., 1994). The same holds true for women postponing childbearing (Pienta, 1999; Stafford *et al*., 2018). These studies use the so-called "attachment hypothesis" to explain the underlying mechanism: in cases where women have invested in their personal

attainment and human capital accumulation, they hold stronger ties to the labour market, leading to later retirement ages (Hank, 2004; Pienta, 1999). Hence, grandmothers may reproduce preferences and practices already put in place when they became mothers; those who had a continuous working career could be less likely to withdraw from the labour market in the late stage of their career when they have grandchildren than women who had a discontinuous working career due to care responsibilities (Hypothesis 1a).

On the other hand, the decisions about paid work taken earlier in life, for example around childbirth, contribute to economic independence and the accumulation of pension wealth; the years spent working have long-term consequences in terms of retirement eligibility and the economic affordability of LMW. Finch (2014) discusses the opportunity cost of retiring for those women who have had career breaks, usually experienced by women for care responsibilities, due to the resulting low levels of pension wealth. To receive the full state pension in England, individuals must either meet the state pension age or have paid a certain amount of National Insurance (NI) contributions. Individuals contributing for a lesser number of years receive a lower amount. Some workers have the option to maintain a private pension scheme, but this is rarely the case for women (Gardiner *et al.*, 2015), which means that they are more often forced to rely on the flat-rate state pension alone. Additionally, the likelihood of receiving income from a private pension fund, and the amount received, are closely related to the individual's employment pattern (Ginn & Arber, 1996). Therefore, women who had a continuous working career might be more likely to withdraw from the labour market when they have a grandchild compared to women who have had a discontinuous working career (Hypothesis 1b), because LMW is feasible both economically and from the perspective of pension eligibility criteria.

When investigating the late-life career decisions of women, it is important to consider the role played by current economic resources at the household level. It is an additional way to investigate the opportunity cost of LMW for women, because it includes all resources available in the household. A large body of literature shows that, in many European countries, a husband's elevated occupational position is related to a reduction in a wife's work commitment, mainly due to an increased specialization of tasks between the spouses (Blossfeld & Drobnič, 2001). So, even women who did not themselves accumulate economic resources and pension wealth might consider LMW as a viable option when they are part of a high-income household. Total family income can thus make up for a lack of economic

independence or an inability to meet the eligibility criteria for retirement. Thus, women who are part of high-income households could be more likely to withdraw from the labour market when they have grandchildren than their economically disadvantaged counterparts (Hypothesis 2).

4.3. Materials and Method

4.3.1. Data and Sample Selection

We employ the first eight waves of the English Longitudinal Study of Ageing (ELSA) 2002–2017, which is a biannual panel study on health, economic position and quality of life among individuals older than 50 and their partners, living in private households (Marmot *et al*., 2018).[15] We select women between 50 and 65 years old and excluded those who had never done paid work and/or were childless. Furthermore, only those respondents who participated in wave 3 (containing information on previous life course) are included in the sample. After these restrictions and excluding observations with missing values in the variables of interest, the final sample comprises 2,366 women and 10,207 person–wave observations (average 4.4 observations per individual).

4.3.2. Variables

The dependent variable is dichotomous, capturing whether the individual is not in paid work and based on self-report to be economically inactive (looking after home/family) or formally retired.

The main independent variable is the birth of the first grandchild. In fact, research shows that first-born or only children more often receive grandparental childcare than second or subsequent children (Fergusson, Maughan, & Golding, 2008). The respondents are asked to report on the number of grandchildren they had, and from this we create a dummy variable that was equal to (1) if the number of grandchildren changes from 0 to 1 between two waves. This strategy is successfully used by other scholars (e.g. Lumsdaine and Vermeer 2015), since information on the date of birth of the oldest grandchild is not available.[16]

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[15] Ethical approval for all the ELSA waves is granted by the NHS Research Ethics Committees under the National Research and Ethics Service (NRES).

[16] Information about the age of the oldest grandchild was available in the last wave released (8) of the ELSA survey. For those individuals' in analytical sample who also participated in wave 8 (n = 1,753), we used retrospective information about the date of birth of the first grandchild and date of retirement. Results point the same way.

The moderating variables capturing women's work history and economic resources does not vary across waves. To operationalize women's work history, we perform sequence analysis (see "Method and analytical approach" section below) on retrospective information collected in wave 3. This has led to the identification of four groups of women according to their work history between ages 18 and 45: (i) women who had largely continuous working careers, with a maximum one year not in paid work, e.g. on maternity leave; (ii) women who had short (1-5 years) employment interruptions for family-related reasons; (iii) women who had long (6-27 years) employment interruptions for family-related reasons; (iv) a residual category of women with employment interruptions for other reasons.

Current economic resources are measured by the yearly income of the household at the baseline. In this way, we make sure that this moderating variable is not sensitive to moves in/outside the labour market. The measure is adjusted against the Retail Price Index (RPI) of 2015. The variable is at the couple level, and included individual and spouse earnings, family capital income (self-employment earnings, rental income from property, interest income from financial assets), individual and spouse private pensions or annuities from employers, individual and spouse incomes from public pensions (old age, disability), and other government transfers (veteran benefits, welfare benefits, worker's compensation benefits, unemployment benefits). We divide respondents into three groups, identified by income terciles calculated on the income distribution of the year the individual was observed for the first time in the sample.[17]

We included a set of control variables. Among time-varying variables, we include age (in categories), which is strongly related to the transition to both grandparenthood and retirement, and partner's work status (not married, partner not employed, partner employed, partner of other status) as spouses tend to synchronize retirement (Henretta, O'Rand, & Chan, 1993), and having a partner is related to higher family income (Finch 2014). As an enabling factor for grandparental care (Gray 2005; Hank and Buber 2009), we measure the proximity of residence with a dummy variable indicating whether the woman had weekly contact with any of her children in person; and subjective health status (good, fair, bad). Finally, we include life course time-constant characteristics: educational level (less than college, some college, or another kind of qualification), as an additional indication of women's labour market attachment; birth cohort (before/after 1950), capturing

[17] The cut-off points for each yearly family income distribution were (in Euros): 23,087 and 39,834 for 2002/2003, 36,778 and 53,786 for 2004/2005, 27,006 and 49,355 for 2006/2007, 34,050 and 52,849 for 2008/2009, 33,219 and 51,625 for 2010/2011, 31,199 and 51,322 for 2012/2013.

different retirement regulations; number of children, because the greater the number of children, the greater the (eventual) work interruptions as well as the adult children's need of support; and age at motherhood, because it is related to the timing of retirement and grandparenthood.

4.3.3. Analytical Strategy

As mentioned in the "Variables" section, we perform sequence analysis to operationalize the work history variable, relying on retrospective information from wave 3. Respondents are asked the start and end date of each of their employment spells, as well as their status between them. From this information, each year in the life of each respondent is assigned to a certain state, namely persistence in school, gap between school and work (i.e. delayed entry in employment), employment, economic inactivity for family-related reasons (including maternity leave), and a final category with other states (e.g. prison, disability, unemployment, travelling). After the identification of the individual life-sequences, Optimal Marching Analysis (OMA) is used to compute a matrix of dissimilarities between pairs of sequences that served as input for cluster analysis (Abbott & Tsay, 2000). The costs of substitution set to build the matrix are based on the transition probabilities between statuses empirically observed in the data.

The clustering procedure (with Ward's algorithm) provides standard goodness of fit statistics (Calinski Harabasz pseudo-F statistics and Duda Hart pseudo T-squared), which has made us decide on a four-cluster solution: women (i) with continuous careers; (ii) with short employment interruptions (regardless of the reason of interruption); (iii) with long employment interruptions for family-related reasons; and (iv) with long employment interruptions for other reasons. We slightly alter the clusters to have a theoretically-informed categorization of women. In particular, we aim at clearly distinguishing women's work histories on the basis of the reason for employment interruptions. Firstly, in cluster (i) we retain only women who had employment interruptions shorter than or equal to one year, for example maternity leave or short unemployment spells. Secondly, the cut-off point between short and long employment interruptions is set to five years, which is the age children begin compulsory education and are less in need of childcare. Thirdly, in cluster (ii) we include only women with short employment interruptions for family-related reasons. Finally, concerning women in cluster (ii) and cluster (iii) who experienced *both* short employment interruptions for family-related reasons *and* for other reasons, we include only women who *also* had up to two years of employment interruptions for other reasons, and we move women with other kinds of career trajectories into cluster (iv).

To investigate the relation between the transition into grandparenthood and the transition out of the labour market, we use between-within random effects logistic models, also called hybrid models (Allison, 2009; Schunck, 2013). This analytical strategy offers the advantages of fixed-effects models, allowing the decomposition of the *between*- and *within*- individual effects for time-varying covariates. At the same time, it has a more flexible setup, also estimating the coefficients for variables that do not vary within individuals, such as the variables work history and total family income. In this study, we decompose the time-varying predictor "first grandchild born" into two parts: the individual's mean value over time (*between*-individual component) and the deviation from this person-specific mean (*within*-individual component). The *within*-individual component is based on changes over time and resembles estimates of individual fixed-effects models. The score compares the outcome before/after a change in predictor, based on observations belonging to the same individual. In our case, it shows the difference in log-odds of LMW before and after having a grandchild for the same person, namely how *becoming* a grandmother is associated with LMW. In addition, the *between*-individual component accounts for all unobserved time-constant individual characteristics. In other words, it captures all those unobserved variables correlated with grandparenthood that are also correlated with LMW. The score is based on the comparison between women who are already grandmothers and women who are not, namely whether grandmothers, when compared to non-grandmothers, are more likely to withdraw from the labour market.

Since in logistic regression models it is problematic to interpret log-odds ratios (Mood 2010), for each model we present the results in terms of average marginal effects (AMEs), namely the average differences in probability of LMW between the categories of the variables of interest. We set the statistical significance level at $p < 0.05$.

4.4. Results

Table 4.1 shows the characteristics of the sample. A good third of the women (33%) are already outside the labour force (of which 17% were retired and 16% looking after home or family) at the beginning of the observation window, and just over half (53%) of them are already grandmothers when they enter the survey. As to events occurring within the observation window, 24% of the women became grandmothers for the first time, and 43% record at least one transition out of paid employment.

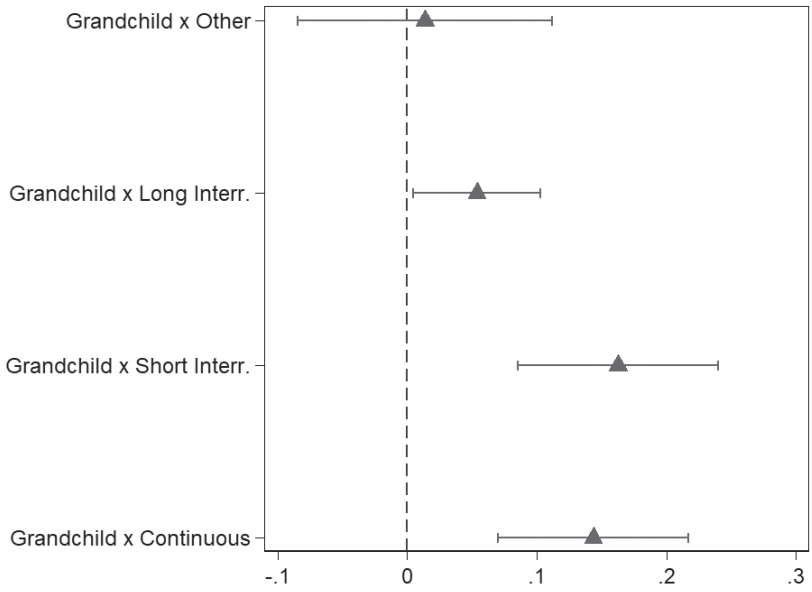
Table 4.1. Descriptive Statistics

		At survey entry	%	N
Work status	Not in labour force	797	33	4,257
	Other statuses	1,569	67	5,95
	Women who withdrew from LM during observation period	1,008	43	
Grandchild	No grandchild born	1,117	47	3,795
	First grandchild born	1,249	53	6,412
	Women who became grandmother during observation period	563	24	
Work history	Continuous	488	21	2,157
	Short interruptions	456	19	2,015
	Long interruptions	994	42	4,29
	Other	428	18	1,745
Total family income	1st tercile	790	33	3,129
	2nd tercile	790	34	3,376
	3rd tercile	786	33	3,702
Age	50-55	1,401	59	2,818
	56-60	529	22	3,611
	61-65	436	19	3,778
Educational level	Less than college	1,368	58	5,805
	Some college	816	34	3,662
	Else	182	8	740
Partner's work status	No partner	572	24	2,441
	Partner employed	1,059	45	4,006
	Partner not employed	451	19	2,645
	Partner other status	284	12	1,115
Birth cohort	Before 1950	1,376	58	5,13
	After 1950	990	42	5,077
Weekly contact children	No	529	22	2,902
	Yes	1,837	78	7,305
Subjective health (good/bad)	Mean (sd)	0.26 (0.54)		
Number of children	Mean (sd)	2.46 (1.25)		
Age at motherhood	Mean (sd)	24.2 (5.13)		
Observations				10,207
Individuals		2,366		

In Table 4.2, we report the results of between-within random effects logistic analyses. Model 1 shows how the birth of the first grandchild related to LMW when all control variables are added. The coefficient based on the *within*-individual component (0.77) is statistically significant, while the *between*-individual component is not.[18] This means that *becoming* a grandmother is positively related to LMW, but *being* a grandmother is not. The AME to be outside the labour market *within* women, namely before and after the first grandchild is born, is around 8 percentage points.

Figure 4.1 displays the AMEs for the probability of being outside the labour market *within* women after the first grandchild's birth, according to work history (from Model 2).

Figure 4.1. Difference in probability of withdrawing from the labour market before/after the birth of a grandchild, by work history. 95% Confidence intervals.



[18] The Wald test of equality of coefficients (based on $\chi 2$ test) shows that the *within* and *between* estimates are different ($p < 0.05$).

Table 4.2. Hybrid models for the probability of LMW

	Model 1			Model 2			Model 3		
	Coeff.		SE	Coeff.		SE	Coeff.		SE
First grandchild born									
Grandchild – within (W)	0.770	***	0.163	1.431	***	0.384	0.114		0.311
Grandchild – between (B)	0.251		0.215	0.960	*	0.402	0.192		0.341
Work history									
Continuous career (reference)									
Short interruptions	0.275		0.226	0.666		0.410	0.273		0.226
Long interruptions	1.228	***	0.196	1.750	***	0.357	1.229	***	0.197
Other	2.195	***	0.239	2.995	***	0.412	2.188	***	0.239
Total family income									
1st tercile (reference)									
2nd tercile	-0.621	***	0.182	-0.640	***	0.183	-0.783	*	0.369
3rd tercile	-0.685	***	0.196	-0.710	***	0.197	-0.697	*	0.344
Interaction terms									
Grandchild (W) x short interruptions				0.142		0.543			
Grandchild (W) x long interruptions				-0.967	*	0.433			
Grandchild (W) x other				-1.327	*	0.539			
Grandchild (B) x short interruptions				-0.649		0.539			
Grandchild (B) x long interruptions				-0.798		0.465			
Grandchild (B) x other				-1.272	*	0.541			
Grandchild (W) x 2nd tercile							0.380		0.399
Grandchild (W) x 3rd tercile							1.233	**	0.391
Grandchild (B) x 2nd tercile							0.226		0.444
Grandchild (B) x 3rd tercile							-0.045		0.428

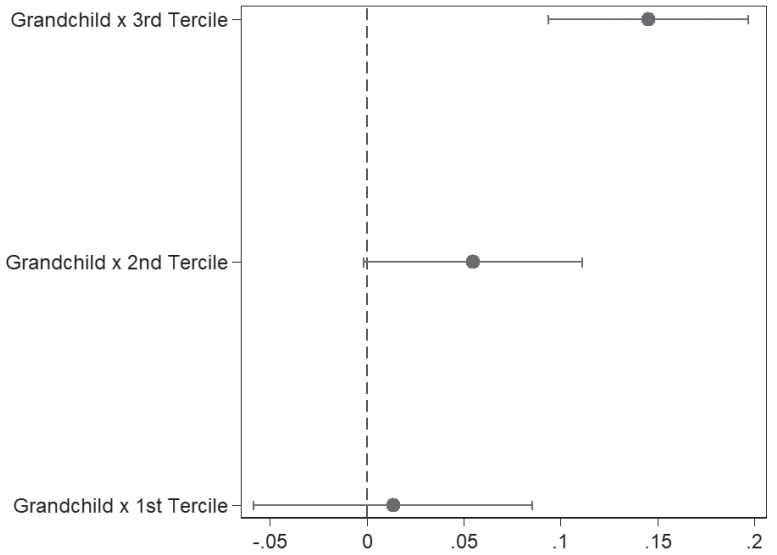
Table 4.2. Hybrid models for the probability of LMW (continued)

	Coeff.		SE	Coeff.		SE	Coeff.		SE
Age									
50-55 (reference)									
56-60	0.778	***	0.104	0.790	***	0.105	0.777	***	0.105
61-65	3.403	***	0.136	3.408	***	0.136	3.405	***	0.136
Educational level									
(less than) high school									
Some college	-0.196		0.163	-0.195		0.163	-0.195		0.163
Else	-0.628	*	0.270	-0.630	*	0.271	-0.631	*	0.271
Partner's work status									
No partner (reference)									
Partner employed	-0.042		0.166	-0.036		0.166	-0.046		0.166
Partner not employed	1.785	***	0.167	1.791	***	0.167	1.771	***	0.167
Partner other status	0.830	***	0.184	0.842	***	0.185	0.815	***	0.185
Birth cohort (born after 1950)	-1.303	***	0.159	-1.297	***	0.159	-1.308	***	0.159
Weekly contact with children	-0.106		0.102	-0.105		0.102	-0.116		0.102
Subjective health (bad)	-0.052		0.087	-0.044		0.087	-0.056		0.087
Number of children	0.033		0.073	0.044		0.073	0.033		0.073
Age at motherhood	0.020		0.018	0.024		0.018	0.020		0.018
Constant	-2.865	***	0.391	-3.372	***	0.455	-2.797	***	0.435
Log-likelihood	-4358.94			-4349.73			-4352.93		

*** p<0.001, ** p<0.01, * p<0.05

Having continuous careers or careers with short interruptions increases the probability of LMW for women after their first grandchild's birth by around 15 percentage points. On the other hand, having long employment interruptions for family-related reasons only slightly increases the probability of LMW, and no increase is discernible for women with careers interrupted for other reasons. Turning to total family income (Figure 4.2, from Model 3), women living in households belonging to the third income tercile are roughly 14 percentage points

Figure 4.2. Difference in probability of withdrawing from the labour market before/after the birth of a grandchild, by total family income. 95% Confidence intervals.



more likely to withdraw from the labour market after the first grandchild is born, while there is no statistically significant relation between becoming a grandmother and LMW for women belonging to the first and second income terciles.

4.5. Discussion and Conclusions

In this study, we investigate how the birth of the first grandchild relates to grandmothers' LMW in England by employing recent panel data from the ELSA survey (2002–2017). Our main contribution is the adoption of a life course perspective, central in the research on ageing (Bengtson *et al.* 2005), because it implies the understanding of late-life events as resulting from the interaction between work history and present contingencies, in our case the birth of the first grandchild. Moreover, we accounted for the fact that labour market decisions are not made in a vacuum, but in a family context (De Preter, Van Looy, & Mortelmans, 2015). That is, current economic resources at the family level could moderate the association between the birth of the first grandchild and LMW. Our results show that the birth of the first grandchild increases the probability of LMW by 8 percentage points, but differences exist according to grandmothers' characteristics.

We found confirmation of the "opportunity cost" perspective, namely the idea that privileged women, both in terms of their own working careers and their household resources, are those who can most easily afford LMW upon the arrival of a grandchild. Firstly, the birth of the first grandchild increases the probability of LMW for women with continuous working careers, or with short employment interruptions, confirming our Hypothesis 1b instead of Hypothesis 1a (the "attachment hypothesis"). The amount of time spent not working in these cases has been short enough to avoid resulting in disadvantages in later life, in terms of pension wealth, and they have been able to withdraw to a larger extent when becoming grandmothers. However, this result should be interpreted with caution, because the 95% confidence intervals partially overlap.

Secondly, the birth of the first grandchild raises the probability of LMW for women belonging to high-income families, which is not the case for women from low-income households, confirming our Hypothesis 2. This result is in line with previous studies showing that grandparents providing child care are usually more wealthy (Glaser *et al.*, 2013; Gray, 2005; Wheelock & Jones, 2002). For this category of women, choosing to withdraw from the labour market after the birth of a grandchild does not result in a high opportunity cost, even if it could lead, for example, to a reduced state pension income. It could be that living with a wealthy partner makes up for eventual foregone earnings caused by LMW. In fact, individual labour market behaviour involves the family as a unit, especially when it comes to women, whose labour market trajectories are strongly intertwined with family responsibilities and the husband's resources (Blossfeld & Drobnič, 2001; Henretta *et al.*, 1993).

This study presents some limitations that ought to be addressed. Firstly, the dependent variable captures self-reported employment status, regardless of the number of hours worked. We are aware of the fact that women could decide to reduce their working hours, instead of dropping out of work altogether, after the grandchild's birth (see, for example, (Rupert & Zanella, 2018). Moreover, we did not distinguish between full-time and part-time work with regard to our main moderating variable tapping women's working history. Our choice is justified by ongoing pension reforms raising pension age (OECD, 2017b), and thus the urge to understand whether family dynamics could conflict with extended working lives. Surely, this is an interesting and relevant direction for future research. Adjustments in terms of working hours for mid-life women could be investigated in the light of (eventual) transitions to part-time work experienced around motherhood. This would further refine the life course approach and the operationalization of the

"attachment hypothesis" and "opportunity costs" perspective. Secondly, we were unable to include more detailed measures of the life history of the respondents, such as the kinds of jobs they held. This information, not present in the data, could provide additional insights into the socioeconomic positions of women, further disentangling the constraints and opportunities surrounding LMW. We suggest this as an additional direction for further research, to better understand how inequalities during the life course impact later life, especially around the birth of a grandchild. Finally, it could be argued that adult children adjust their fertility intentions on grandparental availability, in the sense that the grandchild's birth occurs once the grandparents are retired. This is the case for Italy (Battistin *et al.*, 2014) and for second-order births in the Netherlands (Thomese & Liefbroer, 2013). Similar evidence is lacking for England, but studies have pointed out that grandparenthood precedes British women's LMW by 7 years (Leopold & Skopek, 2015b). Hence, we believe our study to be well grounded in the field of the consequences of work-family conflict. Further investigation of this reverse relationship, namely how LMW affects the transition to grandparenthood, could shed light on the multiple consequences of rising pension age in terms of fertility.

This article adds England to the collection of single-country studies showing the relationship between the birth of grandchildren and labour market adjustments, which include Austria (Frimmel *et al.* 2017), Sweden (Kridahl 2017), and the US (Lumsdaine and Vermeer 2015; Rupert and Zanella 2018). The overlap between grandparenthood and employment is conflictual for mid-life individuals living in highly heterogeneous welfare settings, who share the desire to early retire to spend more time with their grandchildren (Hochman and Lewin-Epstein 2013). Thus, the conclusions of the present study go beyond the English context and resonate with several voices advocating for caution in raising the retirement age (see e.g., Glaser *et al.* 2013). In settings that lack a universal provision of childcare services, keeping older workers in the labour market could lead, over time, to childcare gaps for working parents (Glaser *et al.*, 2013; Gray, 2005). Moreover, our study suggests that pension reforms might be effective only in keeping economically worse-off grandmothers on the labour market, while better-off women are able to afford retirement or economic inactivity. Low income families might find simultaneous difficulties in relying on market-provided childcare services and on their older mothers, who are unable to give up their work commitments. In countries such as Sweden, where formal childcare services are universally provided, and grandparental childcare is not driven by need (Igel and Szydlik 2011), grandparents still give up their work commitment (Kridahl 2017).

Thus, policies aimed at increasing the labour market participation of older workers are not guaranteed to be effective and may not mitigate financial losses for those aiming to enact the grandparental role. In conclusion, grandmothers should not be overlooked in family policy-making, to ensure that involvement in grandchildren's lives is not the privilege of a few, and to avoid negative effects on labour market participation and pension wealth.

5

Grandmothers' transition to retirement: evidence from Italy

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Abstract

The paper investigates the consequences of grandmotherhood on retirement for Italian mid-life women born before 1949. It accounts for eventual differences in terms of work history, as the transition to retirement depends on the number of years worked, and the kind of job held. Using retrospective data from the ISTAT Multipurpose Survey Families and Social Subjects (2009), individual fixed-effects models show that there is only a weak relation between the birth of the first grandchild and retirement for Italian grandmothers, and no differences in term of work history. The authors argue that the result could originate from two parallel processes. On the one hand, mid-life women seem to retire before becoming grandmothers in Italy (as Kaplan-Meier survivor functions suggest). This could be due to the interplay of the postponement of fertility and availability of early retirement options: women became grandmothers late in life, and they have the possibility to retire early. On the other hand, Italy has a very low female labour force participation rate, and several young mothers are not employed due to the difficulty to reconcile work and family. In other words, young mothers do not need support by grandmothers with childcare, and therefore, grandmothers do not need to early retire so to be helpful with care duties toward grandchildren.

5.6. Introduction

As life expectancy increases, grandparents spend a longer part of their lifetime with grandchildren, which opens opportunities for sharing time, resources, and affection (Zanatta, 2013). Beside the companionship component of the relation, grandmothers are involved with childcare. The support in caregiving is an utterly important enabling factor for young mothers' labour market participation (Aassve, Arpino, *et al.*, 2012; Arpino *et al.*, 2014; Bratti *et al.*, 2018; Dimova & Wolff, 2011), but in turn, it could undermine grandmothers' labour force participation.
In fact, recent studies show that mid-life women are likely to be still in employment when they become grandmothers (Leopold & Skopek, 2015b), which might conflict with their role of care providers since both activities require time and energy. Several studies confirm that being a grandmother is associated with a reduction in work hours and labour supply (Backhaus & Barslund, 2019; Frimmel *et al.*, 2017; Rupert & Zanella, 2018; Zanasi, Sieben, & Uunk, 2019) and with the speeding up of retirement (Kridahl, 2017; Lumsdaine & Vermeer, 2015; Van Bavel & De Winter, 2013) in a variety of institutional settings.

Nevertheless, the relation between grandmotherhood and retirement has not been investigated for Italy, that is likely to differ from other countries. Firstly, Italy has a familialistic structure in which the family (and, more accurately, women) internalizes care duties, and where public services are underdeveloped (Naldini, 2002; Saraceno, 2003). Thus, care responsibilities toward grandchildren could heavily impact mid-life women's transition to retirement, given the lack of publicly provided alternatives to grandparental caregiving. At the same time, low female labour market participation implies that several young mothers do not need grandparental support, given that they often withdraw from the labour force after motherhood (Cantalini, 2019). Secondly, women might decide to anticipate retirement in case there is an overlap between grandparenthood and employment. This is the case all over Europe: despite sharp differences in the timing of grandmotherhood and retirement among European countries, the former typically anticipates the latter (Leopold & Skopek, 2015b). However, this overlap has not been documented for Italy, where a "lowest-low fertility rate" caused by fertility postponement goes hand in hand with several incentives for early retirement. Italian women become grandparents at late ages, and they can opt out the workforce relatively early in life; therefore, there might not be an overlap between grandmotherhood and employment.

When studying these relationships, it is important to consider that Italy has an earnings-related pension scheme, which means that pension income is linked to the previous work history. This implies that early retirement is possible under certain contribution conditions (OECD, 2009). Women, mostly highly educated, who have held better jobs, and cumulated more pension contributions, can retire early, and with higher pension income. We will therefore account for the previous careers of mid-life women, which could enable or constraint early retirement following the transition to grandmotherhood.

The research questions guiding our study thus are: is there an overlap between grandmotherhood and employment in Italy? And subsequently, does the transition to grandmotherhood increase the probability to retire? Does this relation differ according to women's work history?

The present work will use high-quality retrospective data on women born up to 1949 from the ISTAT Multipurpose Survey on Family and Social Subjects (FSS) 2009, the most recent survey available on work and family dynamics in Italy.[19] Even though the present study does not comprise younger cohorts of grandmothers, it could still be informative on the consequences of work-family conflict for mid-life workers in a historical period where the division of labour between the couple was quite traditional, and the pension system was very generous. From our results, it should be possible to speculate about the present and future situation, as pension reforms are increasing the retirement age for both men and women, female labour market participation is growing, but the expansion of publicly provided services for children is not of central concern in the policy agenda of the government.

The remainder of the paper is structured as follows. In section 1, we explain the patterns of grandparental childcare in Italy as compared to other European countries. In section 2, we speculate on the occurrence of an overlap between grandmotherhood and employment in Italy. In section 3, we explain that mid-life women's retirement upon the birth of the first grandchild could depend on the previous work history of women. Section 4 summarizes our expectations. Section 5-7 describe the data, sample selection, variables, and the analytical strategy implemented. The empirical part of the paper comprises descriptive results about the lifelong employment patterns of Italian women (section 8), empirical evidence from Kaplan-Meier survivor function on the overlap between grandmotherhood

[19] The last wave of the FSS was collected in 2016 by ISTAT, but it has not yet been released at the time of the present research.

and employment (section 9), and finally, results from fixed-effects models on the consequences of grandmotherhood for retirement, according to the previous work history (section 10). In the Discussion and Conclusion section (section 11) we comment upon the small effect we find between grandchild's birth and retirement, and we relate it to social, demographic, and institutional forces at play in the Italian context, which make grandmotherhood and employment not often overlap, and grandparental childcare scarcely needed by young families. We conclude by highlighting the limitations of the study and suggesting avenues for future research.

5.7. Theoretical Background

5.7.1. Grandparental childcare in in Italy

Grandparental childcare is often provided upon the need of informal support by the middle generation, i.e. grandparents' offspring. This need is driven by country-level characteristics, in particular female labour market participation and the availability of childcare services for children (Arpino & Bordone, 2017; Brilli, Kulic, & Triventi, 2017; Di Gessa, Glaser, Price, *et al.*, 2016; Hank & Buber, 2009), which shape a European North-South gradient in grandparental childcare.

In Italy in 2009, only 49.7% of the women between 14-64 years old was part of the workforce (ISTAT, 2015). The country has historically been characterized by a male breadwinner model, based on the gendered division of labour between spouses. Men, through paid work, economically support their family members, while women bear care responsibilities toward the family (Saraceno, 2003). Since the family internalizes care duties, the state has a subsidiary role: it intervenes only when the family is not able to protect itself against social risks through its own resources. Saraceno and Keck (2010) name this policy regime "familialism by default", namely "there are neither publicly provided alternatives to nor financial support for family care", (p. 3). For example, public provision of childcare services is extremely underdeveloped: only 22% of the children below the age of three can attend nursery schools (ISTAT, 2016).

The familialistic logic of the welfare state has implications for grandparental caregiving. Southern Europe shows a peculiar pattern in grandparental childcare provision: it is less common in occurrence, but when it occurs, it is more intense (daily, weekly) than in Northern European countries (Igel & Szydlik, 2011). In Italy and Spain, roughly 50% of the grandmothers provide childcare against 65% the

of grandmothers in the Netherlands and Denmark. At the same time, conditional of providing any childcare, more than 40% of the Italian grandmothers provide intensive childcare against 20% of their Swedish counterparts (Hank & Buber, 2009). This North-South gradient rests upon the characteristics of the welfare state. Due to publicly provided childcare services, in Northern Europe there is less need for grandparental childcare, and grandparents could decide, in accordance with the offspring, whether to take up or not care responsibilities. To the contrary, in Southern Europe women are mainly full-time caregivers, and do not need to receive any family help for childcare, but when employed, the shortage of publicly provided services makes relevant an extensive network of informal support (Bordone *et al.*, 2017; Di Gessa, Glaser, Price, *et al.*, 2016).

As a result, in Italy, grandparental childcare is polarized: it either happens intensively, or it does not happen at all. It could, on a population scale, mean a confined need for support by the middle generation, and it questions whether the dimension of the phenomenon is such to influence the retirement timing of grandmothers to free up time for childcare. In the next sections, we delineate a theoretical background to investigate whether women become grandmothers while they are still in employment, a necessary pre-condition for work adjustments to take place.

5.7.2. The overlap between grandmotherhood and employment

It goes without saying that mid-life women might anticipate retirement upon the birth of the first grandchild only in case they are still employed: no work adjustments are needed when they are lifelong housewives, or already outside the workforce. The eventual overlap between grandmotherhood and employment comes as a consequence of two factors. On the one hand, the transition to grandmotherhood depends on the age at childbirth of the middle generation, i.e. the offspring of the grandmother. This age has been increasing because of the birth postponement associated to the "lowest-low fertility rate", which in turn leads to late grandmotherhood. On the other hand, participation in the labour market in mid-life depends on the pension regulations of the country, that determine the age at retirement.

In the 90s, Italy reached the unique situation of "lowest-low fertility rate", which is 1.3 children per woman, far below the replacement rate of 2.1 children per woman (Kohler *et al.*, 2002). The fertility rate only slightly recovered to 1.45 children per woman in 2009, the year in which the FSS data that we employ in this

study were collected. The main reason of the "lowest-low fertility rate" lies in the postponement of fertility, namely the fact that women tend to have children at later ages: becoming a parent later in life leads to a lower number of children (*ibidem*). The "lowest-low fertility rate" has several driving factors, three in particular. Firstly, the second demographic transition (Lesthaeghe, 1995) is an ideational change, during which values have shifted toward higher order needs, such as individual self-fulfilment and autonomy. It has coincided with women's emancipation from the traditional gender roles and secularization (Kertzer *et al.*, 2009). Secondly, the transition to adulthood happens at later ages, because of longer educational careers and difficulties in finding a job. Young individuals live with parents for a longer time, waiting to achieve a certain degree of stability before starting a new family (Livi-Bacci, 2001). Finally, an increasing percentage of women has achieved secondary or tertiary education (Scherer & Reyneri, 2008): investment in human capital intensifies the opportunity costs of motherhood (Cantalini, 2019), in terms of foregone earnings and career advancements. Women find it difficult to reconcile work and family, and highly educated women wait to achieve a stable and fruitful labour market position before entering motherhood (Wood *et al.*, 2014). This transition is particularly harsh in Southern European countries, where the state scarcely implements policies to ease work-family conflict for women.

Fertility postponement is likely to affect the offspring of the cohorts under investigation, which means that grandparenthood happens at later ages for Italian mid-life women. Recent studies confirm that the likelihood to be a grandparent by the age of 60 has been decreasing cohort after cohort (Di Gessa *et al.*, 2018). Skopek and Leopold (2017) in Germany find that the educational stratification in fertility is "magnified" in the transition to grandparenthood: lower-educated women become grandmothers before their higher-educated counterparts, doubling the differences observed for age at parenthood.

In addition, Italian mid-life individuals live longer than the European average (ISTAT, 2017), and they retire on average earlier. Even though the country has been undergoing several pension reforms to raise the retirement age starting from the early-90s, early retirement options have been vastly available (for a detailed overview, see Barbieri and Scherer 2011; Brugiavini and Galasso 2004; Franco 2002; OECD 2009). There are two main routes to retirement: old-age pension, enabled by the achievement of the statutory retirement age, and seniority pension, achieved after cumulating a certain amount of pension contributions. Before the 90s, female workers could retire at age 55, with a minimum of 15 years of

contributions. Otherwise, workers could retire after 35 years of work, regardless of age. The pension income was calculated on a defined-benefit basis linked to the final wage. Therefore, the benefits were independent from contribution history and life expectancy. Additional early retirement routes have been used to a large extent to combat rising unemployment rates caused by deindustrialization. For example, up to the 90s, married women employed in the public sector could retire with 15 years of pension contributions (the so-called *baby-pensioners*). These generous retirement schemes were modified in the early-90s by the Amato and Dini reforms, with the gradual increase of the required age at retirement and the introduction of a defined-contribution plan. However, this new formula will be completely applied in 2035, because it targeted only new labour market entrants, leaving exempted older cohorts. As for now, workers are divided in three groups: those who start working after 1995, who are fully covered by the new rules; those who had at least 15 years of contributions before 1992, who are fully covered by the old formula; and a transition group, covered by a combination of both formulas, comprising those who had less than 15 years of contribution by 1992. Latest reforms, for example in 2004 and 2008, have further increased the retirement age to 60 for women and 65 for men; for claiming early retirement, workers need 35 years of pension contributions and to be at least 58 years old. With 40 years of contribution, it is possible to retire at any age. Finally, still in place is the women-targeted early retirement scheme *opzione donna*, that allows retirement for women who are at least 57 years old and have reached 35 years of contributions.

These characteristics of the Italian pension scheme imply that mid-life women who were employed during the life course could benefit from the possibility to early withdraw from the labour force. In addition, almost half of Italian women have never performed paid work (Scherer & Reyneri, 2008), as we will explain in the next section. These two phenomena drive the very low activity rate of Italian female middle-aged workers. In 1990, the female labour force participation rate in the age range 55-64 was 15%, against the European average of 26%. It increased to 25% in 2009, but it is still below the European average of 40% (OECD, 2019).
In conclusion, while fertility postponement shifts the transition to grandmotherhood toward later ages, especially for higher educated women, the early retirement options allow early exit from the labour force. Therefore, as a starting point for the study of the influence of grandmotherhood on retirement, we question whether the overlap between grandmotherhood and employment occurs in Italy. In the next section, we further elaborate on the argument that retirement timing differs according to the previous working career of women.

5.7.3. Grandmothers' work history

As we outlined in the previous section, the transition to retirement is determined by the design characteristics of the pension system, in interaction with the previous life of individuals. Anticipated retirement after grandmotherhood could be different for women who had different work history. Since Italy has an earnings-related pension scheme, pension income is linked to the previous work history, and early retirement is possible under certain contribution conditions (OECD, 2009), which are cumulated according to the number of years spent on the labour market. The transition to retirement of the cohorts under study is regulated by a defined-benefit system, and for the youngest among them, by a combination of defined-benefit and defined-contribution system. In the first case, pension income depends on the last wage; in the second case, on a combination between the last wage and the contribution history. In both cases, the decision to retire would be driven by the attempt to optimize the pension income (Casarico & Profeta, 2009). The strong relation between pension contributions and pension wealth, embodied in the Italian pension system, favors the "standard Fordist worker" who very early in life entered the labour market, with a mainly uninterrupted career (Zaccaria, 2009), whilst it penalizes the retirement timing and income of those categories of workers who had non-standard working careers (Leitner, 2001). The latter is very often the case for women: the male breadwinner model expects women to take care of home and family, so that they usually experience employment breaks, with negative consequences on retirement timing and pension wealth. For this reason, when studying women's retirement, it is important to consider the previous work history, which could constrain or enable the transition to retirement at a certain age. In the present work, we consider the previous work history of mid-life women summarizing two crucial, and intertwined, characteristics: number of years worked and social class. While the former relates to the amount of cumulated pension contributions, the latter measures occupational position, that opens different routes for retirement (Radl, 2013).

At the same time, women's work history is shaped by the achieved educational level (Cantalini, 2019). On the one hand, low educated women are scarcely represented in the workforce, mainly due to labour market withdrawal around motherhood: employment is not resumed thereafter (Scherer & Reyneri, 2008). When employed, they are more likely to hold less qualified occupations that do not protect them from the risk of experiencing breaks, as the entitlement to maternity leave would (Cantalini, 2019). On the other hand, highly educated women tend to be work-oriented because of the investment in human capital, as they would face potential

career penalties and future income losses as a result of work interruptions. At the same time, they hold better jobs, especially in the public sector which offers "reconciliation returns" (Solera & Bettio, 2007). Therefore, they usually have long, uninterrupted working careers (Bratti & Cigno, 2003).

For this reason, several studies advocate the importance of considering the previous life course when studying women's retirement timing, with the adoption of an opportunity-cost perspective (De Preter *et al.*, 2015; Finch, 2014; Sefton *et al.*, 2011; Stafford *et al.*, 2018): low educated women, who (when employed) usually had short, interrupted, working careers in female-segregated occupations (usually less remunerative), postpone retirement to make up for the forgone pension contributions. This is the reason why Boeri and Brugiavini (2008) find that the reduced generosity of the pension system fuels a postponement of retirement decisions, especially for those women who had gaps in their career. All this draws attention on the importance to consider the earning profiles of individuals along occupational sector and length of working careers.

5.8. Summary of expectations

At the beginning of this paper, we maintained that Italy has a very peculiar configuration of informal support by grandparents: it occurs either intensively, or not at all. We considered it as a first, general, building block to keep in mind when studying grandmotherhood and retirement.

Given this context, we first aim to assess whether grandmotherhood and employment overlap in Italy, and subsequently, whether mid-life women anticipate retirement upon the birth of the first grandchild. Differences among women in terms of educational level and previous working career, nevertheless, leave room for contrasting expectations about the direction of the relations under study.
As far as mid-life women with low education are concerned, they are more likely to become grandmothers earlier in life. The transition to grandmotherhood might not overlap with employment, as they are the least likely to be still in employment in late life, or to have been employed at all during the life-course. In case they are still in employment, however, they have probably had worse employment conditions and employment gaps during the life-course, which make it hard to benefit from accumulated pension rights. Hence, they may find it not possible, or attractive, to take up early retirement upon the birth of a grandchild, as put forward by the opportunity-cost perspective (De Preter *et al.*, 2015; Finch, 2014; Sefton *et al.*, 2011; Stafford *et al.*, 2018).

To the contrary, women with high educational level are more likely to become grandmothers later in life. Given the investment in human capital during the life-course, they are more likely to be in employment in their 50s. Thus, the late transition to grandmotherhood combined with available and attractive early retirement options could make that the transition to grandmotherhood happens after retirement.

In addition, in case it does exist an overlap between grandmotherhood and employment, the life-long advantage in terms of working careers could facilitate highly educated women to anticipate retirement when having a grandchild. In fact, they usually hold good-quality jobs with better earnings and a continuous working career, making them able to benefit from early-retirement options, coupled with higher pension benefits both under the defined-benefit and defined-contribution systems. Moreover, due to the intergenerational transmission of resources (Breen & Jonsson, 2005), they might have highly educated daughters, who are more likely to be attached to the labour market and thus have higher need of informal support. This could, in turn, impact grandmothers' transition to retirement.

Yet, even in this case, it should be kept in mind that these women, still in employment in late life, represent a minority group in the Italian female labour market structure. It could be that the work-orientation that has led them to stay employed all over the life-course continues in the last stage of the working career, independently from the birth of a grandchild.

In the following section, we will closely investigate women's lifelong employment patterns, as to disentangle the relation between grandmotherhood and employment taking into account those characteristics that are likely to impact both transitions, in interaction with the institutional features of Italy.

5.9. Materials and Method

5.9.1. Data and Sample Selection

We use retrospective data from the ISTAT Multipurpose Survey Families and Social Subjects (FSS) 2009. The survey is the most important source of information on socio-demographic characteristics of Italian households, focusing on various aspects of daily life. The sample consists of 20,000 households and almost 50,000 individuals, interviewed through P.A.P.I (paper and pencil interviewing) technique.

We select women born between 1929 and 1949 who are not childless. This selection makes sure that all the respondents are at least 60 by the time of the interview. This means that we can retrospectively observe the transition to retirement for each respondent, whilst we exclude from the sample respondents who are older than 80, prone to recall bias.

Through its retrospective nature, the survey offers the unique opportunity to investigate family-related transitions such as the transition to grandmotherhood, offering at the same time a very complete account of the work history of respondents. In particular, each respondent is asked information on the work history with details on up to 20 employment spells. We construct our analytical dataset as follows. Firstly, we use yearly employment information for each respondent when between 15 and 45 years old: [20] this part is treated as the retrospective part and used to measure the moderating variable on the work history of the respondent with sequence analysis. Secondly, we use yearly information for each respondent when between the age of 50 up to the age of 60. We treat this part as prospective, and on this part, we run our analysis on the relation between grandmotherhood and retirement.

The paper will employ two different samples. The first one includes all women, even those who never performed paid work, amounting to 4,564 women. On this sample, we perform descriptive analysis to highlight the female labour market structure in Italy and to assess the overlap between grandmotherhood and employment. Afterwards, to answer our research question on the effect of the birth of the first grandchild on the probability to retire, we exclude from the sample those mid-life women who were already not employed before the age of 50. This exclusion comes as a result of the sequence analysis (see "Analytical approach" section). The sample of still-in-employment women amounts to 1,819 women and 20,009 person-year observations. This major loss of data is not surprising, given the low labour market participation of mid-life women in Italy (see Figure 5.2).

5.9.2. Variables

We retrieve the date of labour market withdrawal (both formal retirement and other non-employment states, such as housewifery) and the date of birth

[20] We decided 45 as a cut-off point to avoid endogeneity. The years immediately preceding the age of 50 could be shaped by expectations about the future retirement behavior, especially being early retirement common for women in Italy, e.g. workers could improve their employment situation to become eligible for a certain program. Until the age of 45, individuals might be young enough not to think and act upon retirement expectations.

of the first grandchild,[21] which are used for investigating the overlap between grandparenthood and employment. From this information, we construct our variables for the analysis of the relation between grandparenthood and retirement as follows.

Our dependent variable is based on the self-reported employment status of the respondent. It is a time-varying dichotomous variable that has value of (0) before the year of retirement and becomes (1) from the year the respondent declares she was retired.

Our main independent variable is the birth of the first grandchild. From the value of (0), it equals to (1) two years after the date of birth of the first grandchild. We investigate the transition to retirement of grandmothers in the second year after the first grandchild is born, instead of right after the childbirth, because mothers could be more in need of support after the end of the maternity leave. In fact, previous research finds that Italian grandmothers are not involved in childcare for newborn children (Zamberletti, Cavrini, and Tomassini 2018), most probably because employed mothers are still on a maternity leave.

Our moderating variable captures the previous work history of the respondent. It is based on the self-reported employment status of the respondent when she was between the age of 15 and 45. It is the result of cluster analysis following sequence analysis (see "Analytical approach" section), which offers the possibility to combine information on social class and number of years worked. Six clusters are distinguished: (i) women belonging to the upper and lower service class (ii) skilled white collars and clerical workers (iii) women belonging to the petty bourgeoisie, farmers, and agricultural workers (iv) skilled and unskilled manual workers (v) women mainly not employed, with only a few employment episodes mainly as skilled or unskilled manual workers (vi) women who never entered the labour force. The clusters are described graphically in Figure 5.1 and in terms of their educational composition in Figure 5.3. In the next section, we will also

[21] In the survey FSS 2009, each respondent is asked to provide the date of birth of up to three grandchildren. This means that, for people with more than three grandchildren, we cannot be sure about the birthdate of the oldest. We implement the strategy suggested by Di Gessa, Bordone, and Arpino (2018), who provide several tests to ensure the robustness of this choice: "we considered the lowest age between the age obtained by the oldest grandchild among the three for which the age is reported, and the youngest age at which any of the respondents' children left home plus 2 years, assuming that respondents would become grandparents in about a couple of years' time".

provide more information on the average number of years worked by women in each cluster.

Table 5.1 reports descriptive statistics on the aforementioned variables.

Table 5.1 Descriptive statistics for the prospective part, women aged 50-60

		Whole Sample		Still in Employment	
		Observations	%	Observations	%
Retirement	0	45,034	90	15,440	77
	1	5,170	10	4,569	23
	Events	762		664	
First Grandchild Born	0	31,301	62	13,280	66
	1	18,903	38	6,729	34
	Events	1,706		604	
Age	50-51	9,128	18	3,638	18
	52-53	9,128	18	3,638	18
	54-55	9,128	18	3,638	18
	56-57	9,128	18	3,638	18
	58-59	9,128	18	3,638	18
	60	4,564	9	1,819	9
Educational level	Primary	33,671	67	11,528	58
	Lower Secondary	8,283	17	3,190	16
	Upper Secondary	6,204	12	3,575	18
	Tertiary	2,046	4	1,716	9
Work History	I-II	3,201	6	3,201	16
	IIIab	3,960	8	3,960	20
	IVab + IVc + VIIb	7,590	15	7,590	38
	V-VI-VIIa	5,258	10	5,258	26
	Short ES	10,989	22		
	Never worked	19,206	38		
Calendar year	1979-1989	13,037	26	4,385	22
	1990-1999	23,962	48	9,432	47
	2000-2009	13,205	26	6,192	31
Observations		50,204		20,009	
Individuals		4,564		1,819	

Moreover, three additional variables are used. Educational level is related to the description of mid-life women' work history clusters (Figure 5.3) and to the analysis on the overlap between grandmotherhood and employment (Figure 5.5). It is operationalized in primary (illiterate, no title, elementary school), lower secondary, upper secondary, and tertiary (university degree and doctoral degree) education. Secondly, all the results are presented taking age into account, since it is the main determinant of most important life transitions, retirement and grandparenthood in our case. As far as the models testing the relation between grandparenthood and retirement are concerned, age is recoded in categories (50-51, 52-53, 54-55, 56-57, 58-59, 60). Finally, we control for calendar year in three categories (1979-1989, 1990-1999, 2000-2009) to account for possible period effects, for example due to pension reforms.

5.9.3. Analytical Strategy

As a first step, we create with sequence analysis a typology of working careers from retrospective information on previous work histories. The typology is used for descriptive purposes in section 8, to show the life-long employment patterns of the women under investigation, in relation with educational level (whole sample, n = 4,564). It shows, moreover, the characteristics in terms of employment patterns and educational level of those women we exclude between the first (whole sample, n = 4,564) and the second sample (women still in employment at 50, n = 1,819). Later on, in section 5.5.3, the typology is used as the moderating variable "previous work history" in assessing the relation between grandmotherhood and retirement.

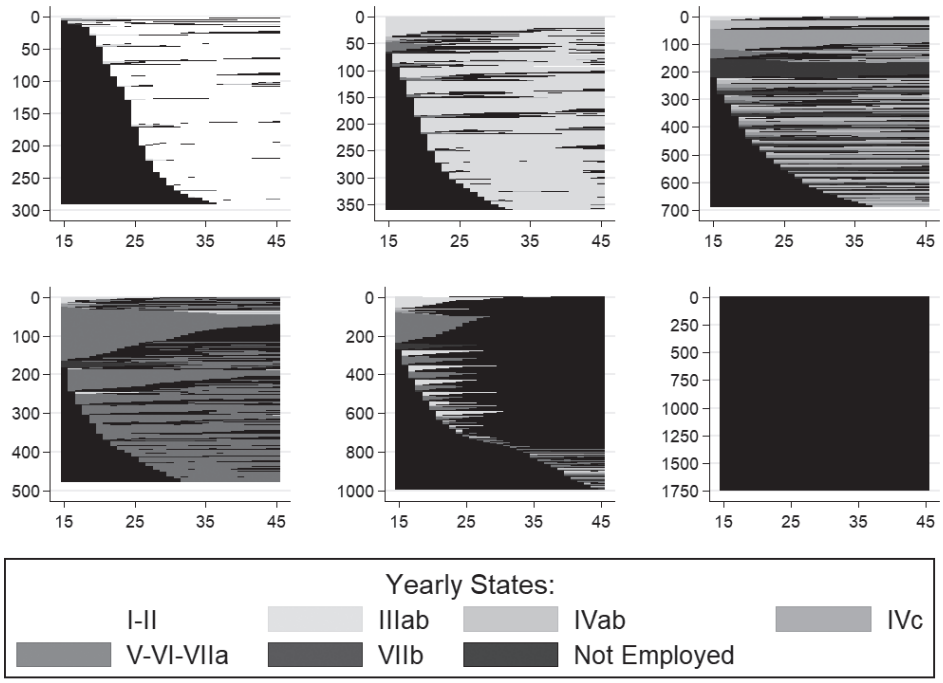
More in detail, we perform sequence analysis with optimal matching technique (OMA) (Abbott and Tsay 2000). When investigating women's work history, this method allows to consider simultaneously the two most important factors in terms of eligibility criteria for retirement (leaving age aside): the kind of job held, and the years spent in the labour market. We reconstruct the work history of the respondents between the age of 15 and 45. For each employment spell, we are able to measure social class based on the EGP class scheme (Erikson & Goldthorpe, 1992) as proposed by several other studies on Italy (see, for example, Barone and Guetto 2016). Moreover, we add the category "not in employment" for those who had unemployment or inactivity spells between two employment spells. Thus, each year in the respondents' life course (15-45 years old) can take only one among the following states: (i) I-II, upper service class and lower service class [22] (ii) IIIab, skilled white collars and clerical workers (iii) IVab, petty bourgeoisie (iv) IVc,

[22] The upper and lower service class are combined because of the low number of respondents.

farmers (v) V-VI-VIIa, skilled and unskilled manual workers (vi) VIIb, agricultural workers (vii) not in employment. Based on these states, we identify individual life-sequences, and we use OMA to compute a matrix of dissimilarities between pairs of sequences that serves as input for the cluster analysis. The costs of substitution set to build the matrix are based on the transition probabilities between statuses empirically observed in the data. Among the possible cluster algorithms, we apply Ward's algorithm, the most common in social sciences because it identifies very large clusters with few residuals (see Aassve, Billari, and Piccarreta 2007). The clustering procedure provides standard goodness of fit statistics (Calinski Harabasz pseudo-F statistics and Duda Hart pseudo T-squared). Based on these statistics and the so-called dendrograms, we decide on six clusters that the most distinguish between individuals' life courses. The clusters partially overlap with the categories of social class, as individuals tended to stick to the same social class all over the life course.

The first cluster (I-II) is the smallest in size (n = 291) and it includes women who had a late entry in the labour market, probably because of long educational careers, and who spent most of their working career in the service class, with very short employment interruptions. On average, these women had worked 20 years. In the second cluster (IIIab) (n = 360) there are mainly women who were skilled white collar and clerical workers. They had worked on average 23 years. Career interruptions are common, but fairly short. The third cluster (IVab + IVc + VIIb) (n = 690) is diverse, and it includes self-employed workers, both urban petty bourgeoisie and farmers. Agricultural workers are also included in this cluster. Women in this cluster had worked on average 24 years. The fourth cluster (V-VI-VIIa) (n = 478) groups skilled and unskilled manual workers, who worked on average 22 years and who also experienced short career interruptions. The fifth and sixth clusters include more than half of the women part of the sample, and they are very different from the other clusters. The fifth cluster (Short ES) (n = 999) comprises women who spent most of their lives as not employed, with only short employment spells (they on average worked 8 years), mainly as (un)skilled manual workers. The sixth and final cluster (Never worked) (n = 1,746) comprises life-long housewives, never in paid employment.

Figure 5.1 Work history of women from 15 to 45 years old, OMA.



Note: n (all mid-life women) = 4,564

As a second step in the analysis, reported in section 9, we want to assess the overlap between grandmotherhood and employment in Italy (Figure 5.5). The analysis will be carried out on both samples, namely on the whole sample of women (n= 4,564), and only on those women still employed by the age of 50 (n=1,819) – therefore excluding those who belong to clusters 5 and 6. We also assess how the overlap varies across educational layers, since educational level is strongly related to both fertility behavior and labour market participation in Italy (Cantalini, 2019).We follow Leopold and Skopek (2015) and perform Kaplan-Meier survivor functions (Cleves, Gutierrez, Gould, & Marchenko, 2010) to estimate the median age (the 50th percentile) at grandparenthood and labour market withdrawal (LMW), namely both formal retirement and other non-employment states (e.g. housewifery).[23] In addition, this

[23] We calculate the median age at LMW instead of considering only retirement to highlight the overlap between grandmotherhood and employment in general. Moreover, as shown in Table 5.1, only the 36% of women do the transition to retirement between 50 and 60 years old; therefore, it is not possible to calculate the median age at retirement (which is the age at which the 50% of the sample has done the transition). Either way, in the fixed-effects models, the results do not substantially change if we consider LMW instead of retirement as dependent variable (see section 10).

strategy allows to correct for right-censoring, namely the fact that many women who are not grandmothers or economically inactive/retired by the time of the interview will experience these transitions in the future. In fact, in case we observed the age at grandparenthood and the age at LMW only for those individuals who already did the transition, we would run the risk of underestimating the median ages, because early transitions would be overrepresented in the data. The time axis starts at individuals' date of birth and ends (1) when the first grandchild is born, or (2) when LMW occurs (in two different calculations). In case these transitions do not occur, the individuals are censored at the interview date (2009).

Finally, in section 10, we use individual fixed-effects linear probability modeling (LPM) (Wooldridge, 2012) for investigating the relation between the birth of the first grandchild and the probability to formally retire, and how the relation differs among work history clusters (Table 5.2). The sample employed is the one of still-in-employment women by the age of 50 (n=1,819) – therefore excluding those women who belong to clusters 5 and 6. The models control for all unobserved time-constant individual characteristics that can affect both the transition to grandmotherhood and retirement, such as work/family preferences. The estimations are based on the comparison of the outcome (retirement) before/after a change in predictor (birth of the first grandchild). Since all time-constant individual characteristics are controlled for by the model, we cannot include time-invariant individual characteristics. Therefore, the variable work history (which is a moderating variable and is time-constant) is included only in interaction with the predictor grandchild's birth. To provide insight into the direct effect of work history on retirement, Figure 5.4 in the "Descriptive Results" section shows the employment rate in mid-life for each work history cluster.

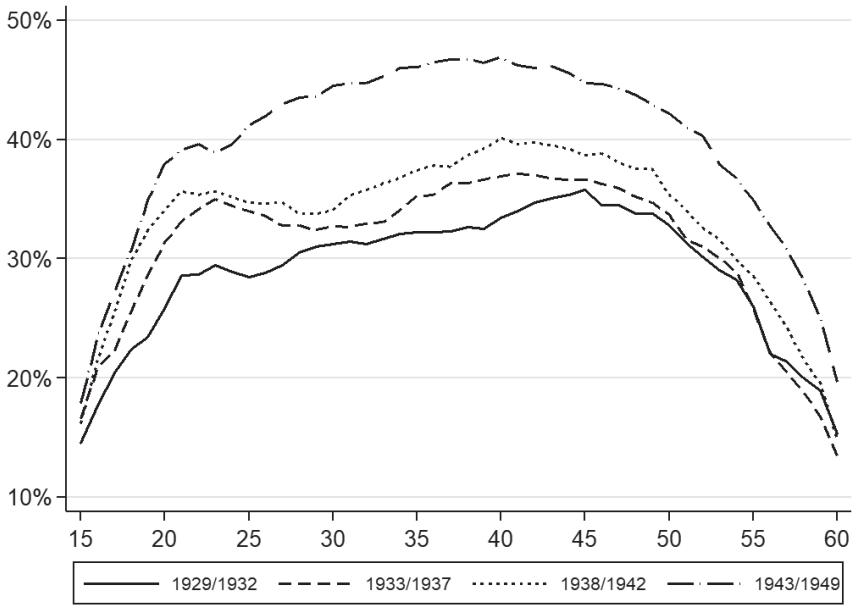
5.10. Results

5.10.1. Descriptive Results: women's employment during the life course

Figure 5.2 shows the employment rate of the Italian women in our sample during the whole life course (15-60 years of age), by cohort. The employment rate displays a reversed-U shape: it increases from the age of 15 to the early twenties, remains stable until early 40s, and then it decreases again. By the age of 60, hardly any women are in employment. Moreover, Figure 5.2 clearly shows that the percentage of women in employment has grown from the oldest to the youngest cohort. Despite this increase, the share of women in employment never reaches 50% at the highest peak, even in the youngest cohort. What is relevant for our

study, it is the fact that only 30% of the women from the oldest cohort, and 40% of the youngest one, are employed by the age of 50, and thus partake in our analysis on retirement consequences of grandparenthood.

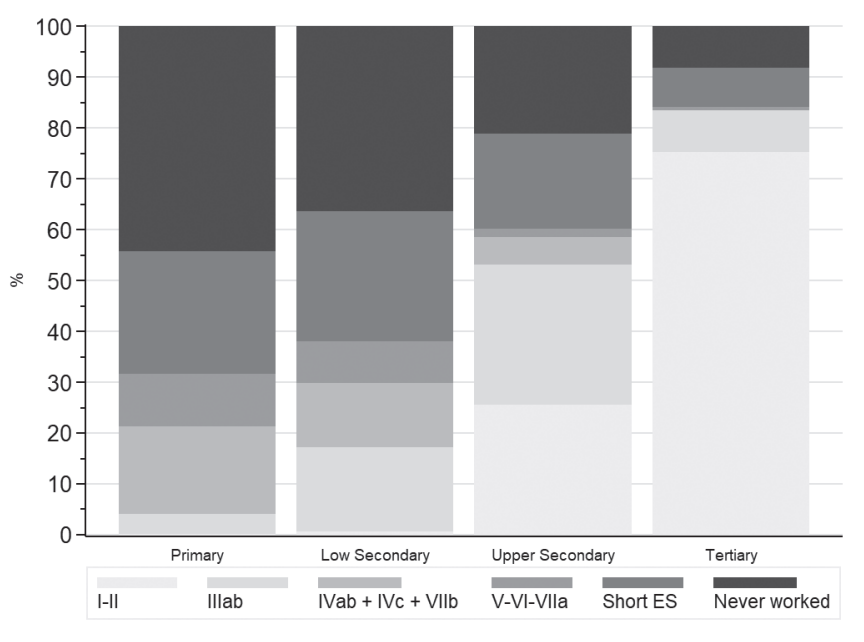
Figure 5.2 Share of women in employment, by cohort



Note: n (all mid-life women) = 4,564

When investigating the work history of women, we show the distribution of work history clusters by educational level (Figure 5.3). Among primary educated women, almost 70% were either life-long housewives or were employed for a very short time. The remaining 30% was self-employed, or among the (un)skilled manual workers. To the contrary, among tertiary educated women, 75% belonged to the service class, with long careers and small employment interruptions. Overall, the higher the educational level, the lower the share of women who have been life-long housewives, and the higher the share of women with no or small interruptions, which means that they have cumulated enough pension contributions during the life course to early retire.

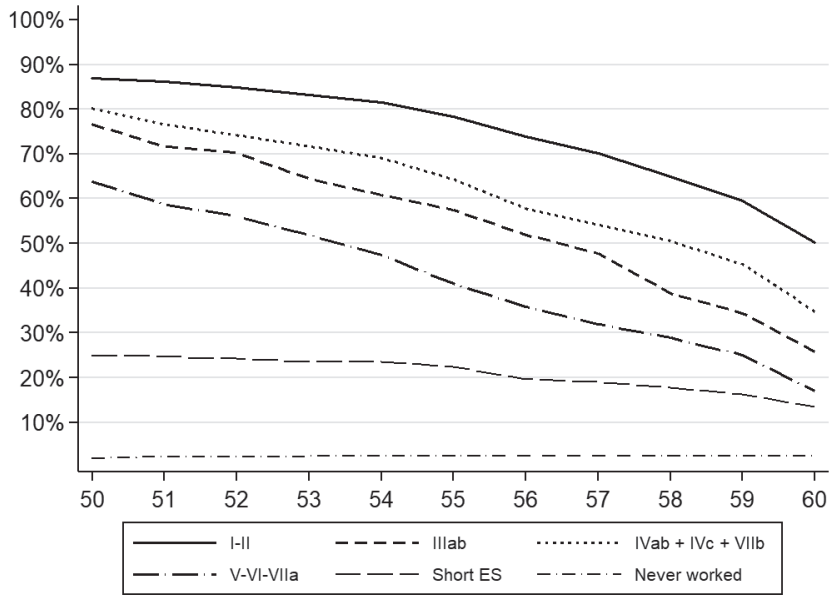
Figure 5.3 Share of women belonging to each work history cluster, by educational level



Note: n (all mid-life women) = 4,564

Finally, we provide descriptive evidence of the relation between women's work history and employment in mid-life (Figure 5.4). In fact, the clusters include the work history up to age 45, and it is important to understand the employment dynamics of women belonging to each cluster thereafter. Figure 5.4 shows, for each cluster, the employment rate for the ages 50-60. Almost all women from the service class are employed at the age of 50, while only 25% of the women who had very short employment spells during the life course are in employment at that age. The skilled white collars and clericals (IIIab), and the (un)skilled manual workers (V-VI-VIIa) report a steady decline in labour market participation: for the former, while almost 80% is employed at the age of 50, only 35% is in employment ten years later. For the latter, the employment rate drops from 65% to 25%. We can conclude that there are indeed differences in mid-life labour market behavior of women according to their previous work history.

Figure 5.4 Share of women in employment between 50 and 60 years old, by work history



Note: n (all mid-life women) = 4,564

5.10.2. Kaplan-Meier estimations: the overlap between grandmotherhood and employment

Figure 5.5 shows the results of the Kaplan-Meier survivor estimations, to investigate the overlap between grandmotherhood and employment. Given the large share of women who never performed paid work, we perform the analysis for two different samples of women. We compute the median age at labour market withdrawal (LMW) for the whole sample (triangles) and for women part of the sample who were still in employment in late life (circles). The second sample thus does not include the work history clusters 5 (Short ES) and 6 (Never worked). For this latter sample (work history clusters 1-4), we compute the median age at grandmotherhood (Xs).[24]

[24] We compute the median age at grandparenthood for the sample of women who ever worked (and not for the whole sample) to be able to compare it with the estimation of the median age at LMW. A more detailed study on the demography of grandparenthood in Italy can be found in Di Gessa, Bordone, and Arpino (2018).

Figure 5.5 Median age at LMW and transition to grandmotherhood, Kaplan-Meier estimator

Note: n (all mid-life women) = 4,564; n (still-in-employment) = 1,819

For the age at LMW, the results substantially change between the two samples of women. When including all women (triangles), the median age at LMW is 61, without noticeable differences across educational layers. However, women who never worked cannot be considered at risk of experiencing LMW (they are left-censored), thus their presence in the sample inflates the median age at LMW. When considering women who have been working during their life course (circles), the median age at LMW drops to 53 years old, ranging from 50 years old for primary educated women, to 60 for tertiary educated women. Contrary to the opportunity-cost perspective we stressed earlier, highly educated women are those who withdraw later from employment, probably because they are more work attached. Finally, low educated women become grandmothers around the age of 55, while their highly educated counterparts experience this transition around the age of 66. We conclude that, across educational levels, the transition to grandparenthood occurs between 5 and 6 years later than LMW. For at least 50% of the Italian mid-life women, grandmotherhood does not overlap with employment.

5.10.3. Fixed-effects models: grandmotherhood and retirement

Moving to the second research question of this study, Table 5.2 shows the relation between the birth of the first grandchild and retirement with individual fixed-effects models. For the reasons explained above, we do not include in the analysis

women who had very short employment spells during their life course and life-long housewives (clusters 5 and 6). In Model 1, we show the direct effect of the birth of the first grandchild on the probability of retirement. Net of age and calendar year, after the birth of the first grandchild, the probability to retire increases by 2 percentage points (b = 0.02; $p < 0.001$). In Model 2, we include the interaction term between first grandchild's birth and woman's work history. All the coefficients are very close to zero and not statistically significant, meaning that there are no substantial differences among women according to their work history. As far as age is concerned, in both models we see that age is the main determinant of retirement: the probability to retire increases of around 35 percentage points when reaching the age of 60. Finally, in either of the models, we do not detect any period effect.

Table 5.2. Individual fixed-effects model for the probability to retire after the birth of the first grandchild

	Model 1		Model 2	
	Coeff.	**SE**	**Coeff.**	**SE**
First Grandchild Born	0.025***	0.007	0.015	0.02
Interaction terms (ref. I-II)				
First Grandchild Born x IIIab			0.028	0.025
First Grandchild Born x IVab + IVc + VIIb			-0.005	0.023
First Grandchild Born x V-VI-VIIa			0.022	0.024
Age: 50-51 (ref.)				
52-53	0.036***	0.006	0.036***	0.006
54-55	0.088***	0.006	0.088***	0.006
56-57	0.170***	0.006	0.170***	0.006
58-59	0.240***	0.007	0.240***	0.007
60	0.340***	0.009	0.340***	0.009
Period: 1979-1989 (ref.)				
1990-1999	0.006	0.008	0.007	0.008
2000-2009	-0.001	0.012	0.000	0.012
Constant	0.089***	0.006	0.089***	0.006

*** p<0.01, ** p<0.05, * p<0.10
Note: n (still-in-employment) =1,819 and N=20,009

5.10.4. Robustness checks

We performed three robustness checks. Firstly, on the same sample of still-in-employment women (n = 1,819 and N = 20,009), we recoded our dependent variable as to capture LMW, namely both formal retirement and other non-employment states (e.g. housewifery). The results are almost the same: the birth of the first grandchild increases the probability of LMW by 3 percentage points ($p < 0.001$). Secondly, we performed distributed fixed-effects models (Dougherty, 2006): the dummy variable for the birth of the first grandchild is replaced with a set of dummy variables that capture the year before the birth and the years since the birth. We aim at accounting for an anticipation effect (i.e. grandmothers retire before the birth of the grandchild) and for long-term effects of the grandchild's birth on retirement. While we do not detect the former, for the latter we find that the first grandchild has a positive effect on retirement of around 3 percentage points starting from two years after the birth, and it does not increase thereafter. Overall, these additional analyses confirm the results presented here.

Finally, we operate a cohort-comparison, because of numerous changes that have been taken places between the 20s and the 50s in Italy. Most importantly, part of the women under investigation has been touched by the pension reform process started in the 90s; therefore, retirement after the birth of the first grandchild could have been feasible to a different extent according to the birth cohort. As explained in section 5.2.2, before the 90s, women could receive old age pension at age 55 having 15 years of contribution, otherwise after having worked 35 years (15 for a married woman). After 1992, the Amato Reform raised the age of retirement to 60 for women, to be attained over the course of 10 years, and the minimum number of contributions to 20. The Dini Reform in 1995 introduced a flexible window for retirement between 57 and 65 years, revisable based on life expectancy and GDP growth. Given these premises, scholars have estimated that the reforms in the 90s have little altered the early retirement behavior of Italian workers so far (Brugiavini & Galasso, 2004; Franco, 2002): since early retirement by years of contribution is not dis-incentivized, the minimum age restriction has often been overcame. Further reforms have little altered the retirement regulations applying to women: in 2009 the retirement age for women is 60, but it possible to retire at age 57 with 35 years of contribution (OECD, 2009). Therefore, calendar year, years of contribution, and employment sector heavily influence retirement behavior, more than birth cohort itself. Still, a cohort-comparison could be informative of other societal changes, including the increased female labour market participation (especially for the daughters of the women under investigation) and the falling fertility rate. With the

same statistical specification of Table 2, we substitute calendar year with cohort (1929-1932, 1933-1937, 1938-1942, 1943-1949) and we interact this new variable with the variable "first grandchild born". No cohort differences are detected.

5.11. Discussion and Conclusions

In this study, we investigated the occurrence of an overlap between grandmotherhood and employment in Italy, and subsequently, the consequences of grandmotherhood on retirement for Italian mid-life women, accounting for differences in terms of work history. Our research finds a weak positive relation between the birth of the first grandchild and the probability to retirement for Italian grandmothers. There are no differences in this relationship according to the previous work history. Despite the importance that the grandparental role assumes for mid-life individuals (Hochman & Lewin-Epstein, 2013), in Italy it does not lead to noteworthy adjustments in the working life of mid-life women. We believe our research sheds light on the peculiarity of the Italian case. Studies in other European countries (Backhaus & Barslund, 2019; Frimmel *et al.*, 2017; Kridahl, 2017; Lumsdaine & Vermeer, 2015; Rupert & Zanella, 2018; Van Bavel & De Winter, 2013) find more substantial grandchild birth effects, although it is difficult to compare the results given the differences in datasets, sample selection, and methodology implemented.

Surely, the finding that grandparenthood does not really jeopardize mid-life women's working life might sound as good news – since, for example, work interruptions in late life could lead to pension penalties (Evandrou & Glaser, 2003). Nevertheless, we argue that the reason could be found in the familialistic nature of the Italian welfare system, which discourages fertility and female labour force participation. In our reasoning, three factors could drive grandmothers' retirement: the extent to which grandmothers' care for the grandchild is needed by their adult children; the extent to which the transition to grandmotherhood happens while in employment; and the characteristics of mid-life women's' previous life course, which poses a set of constraints and opportunities for early retirement. First, we explained that grandparental caregiving is polarized: it either does not occur or occur intensively (Bordone *et al.*, 2017), mirroring the female labour market structure. Where childcare services are underdeveloped, women are scarcely employed, due to work-family conflicts. Thus, mid-life women who provide grandchild care could be life-long housewives; at the same time, economic inactivity among the middle generation means less need of grandparents as care providers. Secondly, we found that retirement preceded the transition to

grandmotherhood for Italian mid-life women, despite the educational level. Our theoretical considerations suggested that this could be due to the interplay of fertility postponement and the availability of early retirement options in Italy. Finally, it seems that these two factors suffice in explaining the negligible effect of grandchild's birth on retirement: the consideration of the previous life course does not add to the phenomenon under investigation, since we do not find differences among work history clusters. Nevertheless, as our descriptive results show, the work history is an important determinant of retirement *per se*, because different investments in the working career during the life course result in different degrees of labour market attachment, and therefore labour market withdrawal.

This study presents some limitations that need to be addressed. Firstly, we could not include information on the socio-economic resources and the work history of the partner. This is unfortunate, as research shows that the resources of the husband shape women's lifelong work commitment (Blossfeld & Drobnič, 2001; Denaeghel, Mortelmans, & Borghgraef, 2011). The reason of this lack lies in the retrospective nature of the FSS, that is surveyed at the household level: all members of the household are asked for information on the previous life course and on the present situation (at the time of the interview). Therefore, for women who co-reside with the partner by the time of the interview, we can retrieve information on the working history of the partner, while we miss retrospective information on the partner for those women who are divorced or widowed by the time of the interview, as the partner is not (anymore) part of the household. [25] Including only women who report this information would introduce a selection bias in the sample, as individuals with high socioeconomic status have higher life expectancy (Lallo & Raitano, 2018). Future research should try to fill this gap, looking at how the partners bargain their work commitment upon the birth of a (grand)child. Similarly, the data do not include information on the parents of the grandchild. The two most important pieces of information would be the employment status of the parents, and the gender of the offspring from which the (grand)child is born. On the one hand, capturing whether the parents are in employment, and thus the extent to which grandmothers' support is needed, would surely be enriching information for our study. On the other hand, research shows that maternal grandparents, grandmothers in particular, are the most involved in childcare (Hank & Buber,

[25] Only the 63% of women in the whole sample, and the 64% of women in the still-in-employment sample, is married by the time of the interview. In the whole sample, the 69% of women belonging to cluster I-II is married, against the 60% of the lifelong housewives. Similarly, widows are the 20% of the I-II cluster, against the 36% of the lifelong housewives.

2009); therefore, the birth of a grandchild could be to a larger extent impacting the working career of these women, compared to paternal grandmothers.

Most importantly, it should be kept in mind that our sample comprises women born before 1949. The FSS 2009 is the most recent survey available with such a rich and comprehensive set of information about the lives of individuals, and to our knowledge it is the only Italian dataset reporting information on the birth of grandchildren. Surely it is of interest to consider a more recent cohort of women, who to a larger extent participated in the labour market, and who were hit by pension reforms such as increasing retirement age. However, we believe our study provides a historical account of the issue of work-family reconciliation in mid-life, which has not been investigated in the Italian context and can be informative for the present and the future situation. In this light, a few final considerations are in order. In our final analyses, we considered a very exceptional group of women, i.e. those who were still in employment in their 50s even though they were born in cohorts where female labour market participation was discouraged. We could speculate that these women are more work attached, for reasons that can range from career orientation to economic hardship. It calls for further investigation to unveil whether the overlap between grandparenthood and employment will become increasingly more likely in recent cohorts. In fact, one piece of the puzzle has barely changed during the years since the release of the FSS 2009: the coverage of childcare services remains quite low and it includes only 22% of the children below the age of three (ISTAT, 2016). The inadequacy of the childcare system, coupled with reforms aimed at keeping mid-life women longer on the labour market, could have consequences for at least two generations: grandmothers who want to enact the caregiving role could end up dropping out of the labour market before the retirement age, with repercussions on pension wealth; and young women eager to invest in their careers, as well as to form a family, could be simultaneously deprived of the informal care provision of their mid-life mothers, while unable to entrust children to formal childcare services.

6

Concluding remarks

Grandparents have been studied as *family rescuers* for the last 70 years. Yet, their role of a safety-net for families has changed in the course of the 19th century: while grandmothers had a "sociological function" (von Hentig, 1946) in providing shelter to grandchildren from families hit by World War II, nowadays they are babysitters in families where both parents are employed, filling the care gaps left by the welfare state.

The time grandparents spend with grandchildren has several implications, which were the focal point of the present dissertation. Grandparents differently invest in their grandchildren, according to their socio-economic status: they are active players in the intergenerational transmission of advantages. At the same time, they bear the consequences of their new role, as grandmotherhood influences labour market participation. The extent to which grandmothers reshape their work commitment is determined, on the one hand, by the previous life course, and on the other hand, by the institutional context in which the decisions take place. These are the central findings emerging from the four empirical chapters comprising the present dissertation, that can be summarized as follows.

6.12. Summary of the empirical chapters and main findings

In the **first** paper (Chapter II), I investigated the likelihood of providing care by grandparents according to their educational level. A well-established finding in the social sciences is the existence of an educational gradient in parenting: highly educated parents spend more time with children; they promote strategies of "concerted cultivation" (Lareau, 2003) to foster children's talent, social capital, cognitive development and verbal agility. Using logistic regression models on SHARE (2004-2015) and ELSA (2016-2017) data, I observed an educational gradient in grandparental childcare as well: highly educated grandmothers are more likely to provide grandchildren with care than primary educated grandmothers. Most interestingly, they provide more childcare even when their daughters are not in employment, hence less in need of informal support. Furthermore, highly educated grandparents are more likely to engage in activities related to interactive and educational care, for reasons related to the development of grandchildren. The findings lead to the conclusions that mechanism of cultural investment could be at work even in the extended family.

In the **second** paper (Chapter III), I argued that labour supply of grandmothers is jointly determined by the need of support by the younger generation, and the availability of grandmothers themselves as care providers. The need of

grandparental childcare is stronger in those countries where there is little or no provision of public childcare services (Bordone *et al*., 2017); at the same time, grandmothers are available as care providers when free from paid employment, namely in those countries where early retirement options are in place. I implemented an Instrumental Variable approach (see Rupert and Zanella 2018) on SHARE data (2004-2015), and regressed single-country scores on several macro-level indicators, representing the levels of informal childcare need (labour market participation rate of young mothers, childcare services coverage for children) and grandparental availability (characteristics of the pension system). I found some evidence that grandmotherhood has a negative effect on employment across European countries, although differences exist according to the institutional context: grandmothers are less likely to be employed where there are fewer childcare services for children, where early retirement options are available, and the pension system more generous.

In the **third** paper (Zanasi *et al*., 2019) (Chapter IV), I concentrated on England to study the relation between the birth of the first grandchild and the probability of labour market withdrawal for mid-life women, with attention paid to differences in terms of work history and economic household situation. I ran hybrid models on data from ELSA (2002-2017), and I showed that the probability of labour market withdrawal increases after the birth of the first grandchild. Women who had continuous working careers are more likely to withdraw from the labour market after the birth of the first grandchild compared to women with non-continuous careers. The same holds for women living in wealthy households. The explanation probably lies in the lower opportunity cost these women encounter in withdrawing from the labour market.

In the **fourth**, and final, paper (Chapter V), I investigated the consequences of grandmotherhood on retirement for Italian mid-life women, accounting for differences in terms of work history, i.e. number of years worked and social class. Using retrospective data from the ISTAT Multipurpose Survey Families and Social Subjects (2009), I showed that there is only a weak relation between the birth of the first grandchild and retirement for Italian grandmothers, and no differences in term of work history. This result could originate from two parallel processes. On the one hand, mid-life women seem to retire before becoming grandmothers in Italy (as Kaplan-Meier survivor functions suggest). This could be due to the interplay of the postponement of fertility and availability of early retirement options: women became grandmothers late in life, and they have the possibility to retire early. On

the other hand, Italy has an extremely low female labour force participation rate, and many young mothers are not employed due to the difficulty to reconcile work and family; in other words, grandparental childcare might not be needed by many Italian young mothers.

The four empirical chapters individually contribute to specific debates, as developed in the first chapter of the dissertation (Chapter I): stratification research, research on welfare regimes and intergenerational exchange of resources, and research adopting the life course perspective. While the first empirical chapter (Chapter II) stands alone in its theoretical underpinning and related conclusions, i.e. the presence of an educational gradient in grandparenting spurred by cultural investment, the other three contributions (Chapter III-V) relate to labour market participation, and they revolve around the following research questions: is grandmotherhood related with employment? Is this relation different across countries, given the institutional setting? Is this relation different among women according to the previous life course? It is worth attempting to give a general, encompassing answer.

Becoming (and being) a grandmother does affect grandmothers' employment in several European countries. It looks like the difficulties in reconciling work and family go at the expenses of the former more than once in a lifetime. If considering the birth of a new family member as an event placed along the life course of women, it first occurs in motherhood, which is often the reason for career interruptions; and it later occurs in grandmotherhood, leading to similar adjustments in women's working career. These adjustments are the outcome of a role overlap, the conflict between paid work and family duties. At the same time, I encouraged a multigenerational perspective: if considering the birth of a new family member as a linkage between two generations, two work-family reconciliations are at stake: the one faced by the new mother, and consequently, the one faced by the new grandmother. The contours of the first work-family conflict are traced by the welfare state of the country, which defines the extent to which young mothers can outsource care duties to publicly provided services, and therefore, stay employed. In case of insufficient public childcare coverage, they could rely on family care. The second work-family conflict, experienced by grandmothers, is indirectly dependent upon their daughters facing this role overlap, and at the same time, upon the pension regulations of the country, which define to what extent mid-life women are expected to work thereafter.

However, the decision to investigate women's late life career both in a life course perspective and in a comparative fashion, i.e. by considering the institutional setting of the country, does not lead to clear-cut results. This leads to the most important take-home message of the present dissertation: grandparenthood and its consequences are a multifaceted phenomenon, which must be studied in a multi-generational framework and by taking into account demographic, social, and institutional trends of current European societies.

6.13. Limitations

The present study is not without limitations. Each chapter has an independent discussion section, in which I outlined the limitations of that study. When attempting a general conclusion, though, comparison between the empirical chapters spurs a more general reasoning on the differences between them that could undermine the comparability of the results. In particular, the second part of the dissertation (Chapter III-V), on the labour market consequences of grandmotherhood, was based on the claim that grandparental childcare emerges at the intersection between the need of childcare by the younger generation; and the availability of grandparents as care providers. The need of childcare by grandmothers is shaped by family policies of the country, which are related to the female labour market structure; the availability of grandmothers as care providers depends on the pension regulations of the country. The extent to which grandparents are needed, and are available, as care providers, influences their labour market behaviour.

How do these theoretical mechanisms compare to the empirical findings? The answer to this question allows to shed light on the most worth-mentioning critical points of the present work.

I observed that where childcare services are short, which goes hand in hand with a low labour market participation of women, and the pension system is generous, grandmothers are less likely to be employed. Nevertheless, Italy emerges in Chapter III as the brightest example of this case, with a pretty sizeable effect of grandmotherhood on employment. However, in Chapter V that purposefully focusses on Italy, I find hardly any change in labour market behaviour following the grandchild's birth. It should be noticed that while the research question is almost identical, the two contributions differ in dataset employed, methodology used, and sample selection, making it difficult to compare the results. On the one hand, the SHARE survey employed in Chapter III offers rich data on several European countries on the socio-demographic characteristics of the population aged 50+,

which makes it the most employed data source in studies on ageing. However, it lacks information on the exact birthdate of the grandchildren (limitation 1), which makes its longitudinal nature difficult to exploit, especially being observations subjected to left censoring. The IV approach that I implemented is by far the best way to handle the data structure. On the other hand, it takes a country-specific survey to really deepen the understanding of the dynamics going on in a country; the survey I used for Italy, the Multipurpose Survey on Family and Social Subjects, includes all the required information, namely date of birth of grandchildren and life course of the respondents. Unfortunately, the most recent version of the data available is from 2009, which means including women born before 1949; because the wave from 2016 has not been released yet (limitation 2).

In my interpretation, the sizeable effect found in Chapter III lies in the IV variable approach which implies the consideration of maternal grandmothers (because of the LATE estimates), who are the most involved in childcare. Moreover, the women considered in Chapter III are from younger cohorts, and therefore, much more often lifelong active workers. The same holds for their daughters – creating an increased need for help in childcare. In Chapter V I confronted a very selected sample. Lifelong homemakers in Italy have been extremely common, especially among the oldest cohorts. As the early retirement options have made possible early exit from the labour market, grandparenthood has occurred after retirement for many of them. The situation has changed for the most recent cohorts, for example for those who are born in the 1960s. In the Italian dataset, where I could only consider cohorts of women born before 1949, while younger cohorts are present in the analysis on SHARE data. These alleged differences between cohorts were not possible to test with the data at hand (limitation 3).

This comparison highlights the importance to consider, for each country, the interconnection of several factors that shape the consequences of grandparenthood in terms of labour market participation. As far as the empirical results are concerned, only the release of more recent data on Italy can make a comparison with SHARE data possible, enabling to draw conclusion on the effect of grandmotherhood on employment. At the same time, several disciplines in the social sciences would benefit from the inclusion in European datasets of information on the socio-demographic characteristics of grandparents, such as the date of birth of first and subsequent grandchildren, which nowadays are hardly

available (Hank *et al*., 2018). [26] Wave 8th of the ELSA study includes this important piece of information. In case this information was collected in other European countries, for example by the SHARE survey, country-comparisons would benefit from an accurate information regarding the *transition* to grandparenthood, which is conceptually different from the grandparenthood status. In fact, the latter is often included in European datasets, but it subjected to left-censoring (especially in short-running panels such as SHARE) in the sense that for individuals who have already grandchildren when they enter the survey, it is not possible to know how old these grandchildren are. This is vital in the study of the consequences of grandparenthood because, for example, a new-born child requires a bigger amount of care by parents and relatives than a grandchild already going to school. Moreover, without knowing the exact date at grandparenthood, it is not possible to learn about short-term changes in employment status of the (new)grandparent. Similar arguments can be made about including characteristics of the adult children, as a three generational perspective is especially important in the study of grandparenthood, since it shapes the need of grandparental childcare as well as the opportunity costs of its realization: employed parents are more in need of childcare than *male breadwinner* families, but grandparental childcare is possible only in case grandparents live close. This brings me to elaborating a few directions for further research in the next section.

6.14. Toward the elaboration of an ecological framework to the study of grandparenthood

The interconnection between the elements comprising the present dissertation contribute to the study of grandparenthood in the social sciences as following an *ecological approach* to the field. As formulated at its outset (Bronfenbrenner, 1995),

"Ecological theory focuses on the interaction and interdependence of individuals and the environment. The environment provides the context for individual behavior and is broadly defined to include the physical, social, cultural, biological, economic, political, aesthetic, and structural surroundings in which individuals live. It also includes the broader contemporary and historical context in which these surroundings are embedded [...] The most notable premise of ecological theory is that individuals are placed in context with behavior examined as a joint function of the characteristics of the person and the environment" (cited by King *et al.* 1998, p. 53)

[26] Round 9 (2018) of the European Social Survey includes the date of transition to grandparenthood. Unfortunately, it was published at the end of January 2020, therefore it was not available when the present dissertation was being elaborated

The ecological approach has much to do with the life course perspective (linked life, historical time and place, timing), which exploits it to link individual development and social conditions, highlighting three levels: micro-level experiences, meso-level social institutions, and macro-level societal constructs (Silverstein & Giarrusso, 2011). It is useful for my purpose to highlight the several elements that must be taken together when studying grandparenthood, and from there, suggest some directions for future research.

In the present dissertation, I considered that individuals have lived a certain life course, made of different life events (**micro-level)**. They have chosen the time to do certain transitions (to parenthood, to a different job, in/out the workforce, etc.) and the time to devote to family and the career.

The time they devoted to family during the life course could generate interesting insights for future research, in case scholars could use information on the parenting strategies mid-life individuals adopted during the life course, when they were parents of young children. This way it could be uncovered whether grandparents reproduce the same kind of childrearing strategies with grandchildren they put in practice when parents, or if there are changes: grandparents could have more time to devote to grandchildren than they had when parents, they have less responsibilities in terms of authority, and in general they get the chances to be "parents" once again with grandchildren.

Moreover, in the present dissertation, I investigated how the previous life course, in terms of years worked and social class, influences late life events in interaction with the transition to grandmotherhood, relying on the "attachment hypothesis" and the "opportunity-costs" perspective. Future research could consider more fine-grained measures of the previous life course, for example including type of employment (part-time vs full-time work) and life-long earnings, to be compared with similar behaviours in late life. This approach could shed additional light on the mechanisms of cumulative (dis)advantage. Similarly, attention could be paid to the time span between events, for example labour market adjustments following grandparenthood could happen at different ages of grandchildren, not necessarily starting straight away after the grandchild's birth.

At the same time, the life course of individuals moves in parallel to the life course of their family members, and it constantly interacts, shaping and being shaped. Family members' lives are linked (**meso-level**). For example, the fertility decisions

taken by one generation, e.g. the adult children, influences the timing for the transition to grandparenthood of the other older generation. In turn, the timing of this transition determines the occurrence, characteristics, and intensity of the intergenerational exchange of resources: grandparental caregiving is made possible by the demographic structure of the three generational family; but it is enabled by the status of both grandparents and adult children. Becoming a grandparent when the adult children are employed could mean care responsibilities toward grandchildren, becoming grandparent while still in employment could make it hard to provide childcare.

In this sense, research on grandparenthood and its consequences should always take into consideration the characteristics of the middle generation (parents), which was not always possible in the present dissertation. In fact, when talking about the labour market consequences of grandparenthood, the labour market status and other characteristics of the children could influence their need of grandparental support (proximity, teenage pregnancy, divorce, bad health…). Moreover, the relation between grandparenthood and employment could be studied together with the relation between adult daughters and employment: in case the former drops out the labour market, are the latter more likely to re-enter after motherhood?

Finally, the life courses of individuals, and the intergenerational exchange of resources, are shaped by the institutional setting of the country and the historical time (**macro-level**). Firstly, in a life course perspective, the welfare state shapes women's life course through family policy (Stier, Lewin-Epstein, & Braun, 2001). According to the possibility to reconcile work and family, women decide the timing of the transition to motherhood. Age at motherhood influences the timing of the transition to grandparenthood in a twofold sense: (i) having children later in life leads to later transition to grandmotherhood because children will reach fertility when their mothers are older, and (ii) mothers and daughters tend to have similar age at motherhood (see Kim 2014; Kolk 2014; Riise *et al*. 2016; Rijken and Liefbroer 2009; Steenhof and Liefbroer 2008), therefore the transition to grandmotherhood happens more or less at double the age at motherhood. At the same time, the pension regulations shape women's life course, because they regulate the extent to which late life labour market participation depends upon the contribution history of individuals. From these two contextual forces, it emerges the overlap between grandparenthood and employment.

Secondly, in three-generational perspective, the exchange of resources is shaped by the institutional setting of the country: the welfare state shapes the extent to which individuals exchange resources (Albertini *et al.*, 2007). Once again, family policy shapes female labour market participation rate, in easing the reconciliation between work and family. Where there is a shortage of service, women are mainly not in employment, but when they are employed, they need grandparents to a greater extent. At the same time, pension regulations shape the extent to which individuals exchange resources, because individuals need to be free from other roles, such as the one of active worker, to be available for caregiving.

In this sense, to really adopt a comparative perspective considering both the institutional setting and historical time, research could investigate how changing institutions during the life course affect the transitions of individuals. This approach naturally leads to a cohort comparison, which is greatly missed in the present dissertation – where I adopted a static comparative view across countries given the available data, instead of an approach both *between* and *within* contexts. On the one hand, mid-life women could be compared in their life transitions with their counterparts born in different historical times and places. On the other hand, mid-life women (G1) could be compared with their daughters (G2), the next generation. In other words, life events happening to the generations of grandparents are the consequence of the interweave of the institutional setting in place during their (G1) life course, and the one in place during the life course of their daughters (G2). As noted by the recent work by Margolis and Verdery (2019) on the changing demography of grandparenthood in the US: "Whether one becomes a grandparent and the timing of that transition depends on whether one has children, the timing of fertility, whether one's children have children, their fertility timing, and mortality conditions" (p. 1498). For example, it would be extremely relevant to disentangle the institutional effects shaping the timing of the transition to grandparenthood between two generations. Institutions, such as family policy, have influenced the transition to motherhood of mid-life women's generation (G1); similarly, family policy have influenced the transition to motherhood of the generation of the adult daughters (G2). Both transitions concur to the timing of the transition to grandparenthood; but in the time span between the transition to motherhood of (G1) and transition to motherhood of (G2) many changes have happened in family policy (increase, decrease, retrenchments) – as well as in other factors, such as drops in fertility levels, which have affected the two generations differently in different countries.

As far as pension regulations are concerned, once again, different laws in place as well as changes in pension regulations (in the direction of a rising pension age, see OECD 2015) have surely opened different avenues for retirement for different cohorts of grandmothers over time. Grandmothers reaching pension age when early retirement options were available could find it less difficult to withdraw from the labour market even though they have not been working all over the life course; differently, women born in times of rising pension age could find it hard to leave active employment to devote time to family duties. Yet, the opposing scenario is also expectable: whenever early retirement has been available, women could leave the labour force in early ages, becoming grandmothers afterwards, without the need to reshape the work commitment to take care of family members. Women living in times of late pension age, then, could be those the most likely to adjust their work commitment upon the grandchild's birth.

6.15. Concluding remarks

To conclude, grandparental childcare and its labour market consequences represent an important topic of investigation, because they create externalities for three generations: the grandchildren, who might receive from grandparental investment resources that secure their future educational and labour market success; the adult children, who benefit from grandparental support in easing the work-family conflict; and grandmothers, who might face a similar work-family conflict in late life, and have to take labour market decisions while being part of a certain opportunity structure created by welfare policy, retirement regulations, and their previous life course. Yet, this multi-generational equilibrium is under siege by recent reforms. Early retirement options are progressively discouraged all over Europe (Annesley, 2007), and therefore, work interruptions in late life cause pension penalties (Evandrou & Glaser, 2003). Given that the overlap between grandparenthood and employment becomes increasingly more likely (Leopold & Skopek, 2015b), and the possibility to opt out of paid work in relatively young ages become less available, there could be a reduction in the availability of grandparents as care providers. At the same time, after the economic crisis, several European countries have operated cuts in publicly provided childcare services and monetary allowances, while others still struggle in meeting the Lisbon target of at least 33% of children under the age of three enrolled in childcare (Bettio *et al.* 2012, p. 157). Thus, pension reforms, if not coupled with simultaneous investments in public childcare services, could lead to the widening of care gaps with negative consequences on the (working) lives of young mothers. These considerations should be an additional spur for policy makers to re-think the current family policy mix of European countries.

7

Appendix

Appendix to Chapter II

Table A.2.1. Logistic regression models for the probability to provide daily care. Clustered standard errors at the grandparent level.

	Base				Interaction term			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level G1 (ref. Low)								
Mid Education	0.18*	0.084	-0.075	0.11	0.13	0.092	-0.059	0.12
High Education	0.075	0.12	-0.039	0.14	-0.068	0.13	-0.14	0.15
Age G1 (ref. 50-60)								
61-70	-0.31***	0.079	-0.053	0.13	-0.31***	0.079	-0.053	0.13
71-80	-0.87***	0.11	-0.39*	0.15	-0.89***	0.11	-0.40*	0.15
Employment Status G1 (ref. Employed)								
Not employed	0.74***	0.1	0.47***	0.14	0.74***	0.1	0.47**	0.14
Other	0.54***	0.16	0.43*	0.2	0.54***	0.16	0.43*	0.2
Partners' Employment G1 (ref. Partner Employed)								
Partner Not Employed	0.093	0.11	0.45**	0.14	0.093	0.11	0.45**	0.14
No partner	0.041	0.11	0.12	0.15	0.045	0.11	0.1	0.15
Else	-0.35	0.39	0.83*	0.35	-0.34	0.39	0.83*	0.35
Difficulty Activities Daily Living G1	-0.25***	0.069	-0.066	0.067	-0.24***	0.069	-0.069	0.067
N. Grandchildren G1	-0.099***	0.015	-0.13***	0.022	-0.099***	0.015	-0.13***	0.022
Employment Status G2 (ref. Employed)								
Not employed	-0.66***	0.078	-0.52***	0.11	-0.80***	0.11	-0.57***	0.17
Other	0.16	0.21	0.056	0.27	-0.067	0.38	-0.02	0.45
Educational Level G2 (ref. Low Education)								
Mid Education	0.21*	0.091	0.28*	0.13	0.19*	0.091	0.26*	0.13
High Education	0.27*	0.1	0.38**	0.14	0.26*	0.1	0.38**	0.14
Marital Status G2 (ref. Partner)								
No partner	0.57***	0.08	0.47***	0.1	0.57***	0.08	0.47***	0.1
Proximity G1-G2 (ref. < 1 km)								
1-25 km	-1.35***	0.064	-1.27***	0.084	-1.35***	0.064	-1.27***	0.084
> 25 km	-3.24***	0.14	-3.27***	0.2	-3.25***	0.14	-3.28***	0.2

Table A.2.1. Logistic regression models for the probability to provide daily care. Clustered standard errors at the grandparent level (continued)

Country (ref. Austria)								
Germany	0.35	0.22	0.056	0.28	0.36	0.22	0.04	0.28
Sweden	-0.77**	0.27	-1.20***	0.36	-0.75**	0.27	-1.22***	0.36
Netherlands	-0.76**	0.26	-0.93**	0.34	-0.75**	0.26	-0.94**	0.34
Spain	1.11***	0.22	0.67*	0.28	1.12***	0.22	0.66*	0.28
Italy	1.61***	0.22	1.10***	0.27	1.63***	0.22	1.10***	0.27
France	0.52*	0.24	0.027	0.3	0.53*	0.24	0.01	0.3
Denmark	-1.71***	0.35	-1.79***	0.46	-1.71***	0.35	-1.79***	0.46
Greece	1.55***	0.22	0.94***	0.28	1.57***	0.22	0.95***	0.28
Switzerland	-0.055	0.33	-0.54	0.45	-0.061	0.32	-0.56	0.45
Belgium	0.55*	0.22	0.43	0.27	0.56*	0.22	0.42	0.27
Czech Republic	0.17	0.24	-0.12	0.32	0.17	0.24	-0.13	0.32
Poland	1.13***	0.23	0.70*	0.3	1.15***	0.23	0.69*	0.3
Ireland	1.20***	0.32	0.92*	0.41	1.19***	0.32	0.90*	0.41
Luxembourg	0.75*	0.3	0.77*	0.35	0.76*	0.3	0.78*	0.35
Portugal	0.6	0.78	0.96	0.57	0.64	0.77	0.97	0.57
Slovenia	0.77**	0.26	0.43	0.33	0.80**	0.26	0.42	0.33
Estonia	-0.039	0.53	-0.16	0.75	-0.097	0.53	-0.2	0.76
Croatia	1.05***	0.28	0.58	0.34	1.07***	0.28	0.57	0.34
Wave (ref. 2004-2005)								
2006-2007	0.059	0.096	0.039	0.13	0.061	0.096	0.038	0.13
2013	0.014	0.1	0.23	0.14	0.011	0.1	0.22	0.14
2015	-0.25*	0.12	-0.16	0.16	-0.26*	0.12	-0.16	0.16
Interaction Terms								
Mid Education # Not employed					0.15	0.16	-0.091	0.22
Mid Education # Other					0.28	0.48	0.21	0.62
High Education # Not employed					0.80**	0.27	0.59*	0.28
High Education # Other					0.56	0.61	-0.045	0.7
Constant	-1.67***	0.26	-1.89***	0.31	-1.63***	0.26	-1.84***	0.31

*** p<0.001, ** p<0.01, * p<0.05
Source: SHARE data (2004 – 2015)

Table A.2.2. Logistic regression models for the probability to provide weekly care. Clustered standard errors at the grandparent level.

	Base				Interaction term			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level G1 (Ref. Low)								
Mid Education	0.16**	0.059	0.18*	0.077	0.18**	0.066	0.15	0.085
High Education	0.33***	0.08	0.23*	0.091	0.29***	0.086	0.18	0.099
Age G1 (ref. 50-60)								
61-70	-0.29***	0.057	-0.065	0.08	-0.29***	0.057	-0.066	0.08
71-80	-0.89***	0.08	-0.39***	0.1	-0.89***	0.08	-0.39***	0.1
Employment Status G1 (ref. Employed)								
Not employed	0.35***	0.065	0.42***	0.085	0.35***	0.065	0.42***	0.085
Other	0.2	0.1	0.29*	0.13	0.2	0.1	0.29*	0.13
Partners' Employment G1 (ref. Partner Employed)								
Partner Not Employed	0.0015	0.075	0.18*	0.084	-0.0019	0.075	0.17*	0.084
No partner	0.034	0.073	0.0052	0.089	0.032	0.073	0.0012	0.089
Else	0.023	0.22	0.57*	0.24	0.022	0.22	0.56*	0.24
Difficulty Activities Daily Living G1	-0.29***	0.048	-0.19***	0.05	-0.29***	0.048	-0.19***	0.05
N. Grandchildren G1	-0.11***	0.0094	-0.12***	0.013	-0.11***	0.0094	-0.12***	0.013
Employment Status G2 (ref. Employed)								
Not employed	-0.47***	0.054	-0.33***	0.065	-0.45***	0.088	-0.42***	0.12
Other	-0.095	0.14	0.048	0.16	-0.19	0.27	-0.095	0.3
Educational Level G2 (ref. Low Education)								
Mid Education	0.30***	0.065	0.36***	0.083	0.30***	0.065	0.36***	0.084
High Education	0.55***	0.073	0.53***	0.093	0.55***	0.073	0.52***	0.093
Marital Status G2 (ref. Partner)								
No partner	0.15**	0.058	0.11	0.07	0.15**	0.058	0.11	0.07
Proximity G1-G2 (ref. < 1 km)								
1-25 km	-0.84***	0.05	-0.86***	0.059	-0.85***	0.05	-0.86***	0.059
> 25 km	-2.74***	0.074	-2.67***	0.093	-2.75***	0.074	-2.67***	0.093

Table A.2.3. Logistic regression models for the probability to provide weekly care. Clustered standard errors at the grandparent level (continued)

Country (ref. Austria)								
Germany	0.0054	0.15	-0.069	0.18	0.0075	0.15	-0.071	0.18
Sweden	-0.46**	0.16	-0.56**	0.19	-0.46**	0.16	-0.56**	0.19
Netherlands	0.32*	0.15	0.014	0.18	0.32*	0.15	0.017	0.18
Spain	0.21	0.16	0.17	0.19	0.21	0.16	0.17	0.19
Italy	0.62***	0.15	0.31	0.19	0.62***	0.16	0.32	0.19
France	0.17	0.16	-0.045	0.2	0.17	0.16	-0.044	0.2
Denmark	-0.65***	0.17	-0.69***	0.2	-0.65***	0.17	-0.68***	0.2
Greece	0.53**	0.16	0.29	0.2	0.53**	0.16	0.3	0.2
Switzerland	0.56**	0.19	0.18	0.23	0.56**	0.19	0.18	0.23
Belgium	0.50***	0.15	0.45**	0.17	0.50**	0.15	0.46**	0.17
CzechRepublic	-0.24	0.17	-0.23	0.2	-0.24	0.17	-0.23	0.2
Poland	-0.0051	0.17	-0.17	0.21	0.00034	0.17	-0.16	0.21
Ireland	0.67**	0.23	0.84**	0.29	0.66**	0.23	0.84**	0.29
Luxembourg	0.60**	0.22	0.51*	0.25	0.60**	0.22	0.52*	0.25
Portugal	-0.46	0.74	-0.058	0.44	-0.45	0.73	-0.047	0.44
Slovenia	-0.29	0.19	-0.2	0.23	-0.29	0.19	-0.19	0.23
Estonia	-0.3	0.29	-0.96	0.49	-0.33	0.29	-0.98*	0.5
Croatia	0.1	0.2	-0.35	0.25	0.1	0.2	-0.34	0.25
Wave (ref. 2004-2005)								
2006-2007	0.16*	0.067	0.076	0.082	0.16*	0.067	0.075	0.082
2013	0.24***	0.067	0.43***	0.082	0.24***	0.068	0.43***	0.082
2015	0.12	0.089	0.12	0.11	0.12	0.089	0.12	0.11
Interaction Terms								
Mid Education # Not employed					-0.1	0.11	0.088	0.15
Mid Education # Other					0.17	0.33	0.31	0.38
High Education # Not employed					0.24	0.17	0.27	0.18
High Education # Other					0.04	0.39	0.01	0.43
Constant	0.1	0.17	-0.54**	0.2	0.1	0.18	-0.51*	0.21

*** p<0.001, ** p<0.01, * p<0.05
Source: SHARE data (2004 – 2015)

Table A.2.4. Logistic regression models for the probability to provide any care. Clustered standard errors at the grandparent level.

	Base				Interaction term			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level G1 (Ref. Low)								
Mid Education	0.26***	0.064	0.14*	0.069	0.27***	0.071	0.11	0.077
High Education	0.35***	0.086	0.37***	0.082	0.39***	0.094	0.35***	0.09
Age G1 (ref. 50-60)								
61-70	-0.39***	0.066	0.078	0.074	-0.39***	0.066	0.079	0.074
71-80	-1.26***	0.082	-0.39***	0.093	-1.26***	0.082	-0.39***	0.092
Employment Status G1 (ref. Employed)								
Not employed	0.15*	0.072	0.17*	0.076	0.15*	0.072	0.17*	0.076
Other	-0.24*	0.11	0.075	0.12	-0.24*	0.11	0.074	0.12
Partners' Employment G1 (ref. Partner Employed)								
Partner Not Employed	0.025	0.083	-0.0098	0.077	0.027	0.083	-0.011	0.077
No partner	0.06	0.081	-0.19*	0.08	0.06	0.081	-0.19*	0.08
Else	-0.049	0.26	0.31	0.27	-0.048	0.26	0.31	0.27
Difficulty Activities Daily Living G1	-0.34***	0.041	-0.25***	0.044	-0.34***	0.041	-0.25***	0.044
N. Grandchildren G1	0.0065	0.0088	0.0018	0.01	0.0064	0.0088	0.0019	0.01
Employment Status G2 (ref. Employed)								
Not employed	-0.22***	0.05	-0.20***	0.053	-0.17*	0.079	-0.26**	0.096
Other	-0.16	0.12	0.01	0.14	-0.31	0.23	-0.018	0.27
Educational Level G2 (ref. Low Education)								
Mid Education	0.37***	0.063	0.32***	0.069	0.38***	0.063	0.31***	0.07
High Education	0.64***	0.073	0.54***	0.078	0.64***	0.073	0.54***	0.078
Marital Status G2 (ref. Partner)								
No partner	0.051	0.057	-0.11	0.06	0.051	0.057	-0.11	0.06
Proximity G1-G2 (ref. < 1 km)								
1-25 km	-0.35***	0.058	-0.41***	0.061	-0.35***	0.058	-0.41***	0.061
> 25 km	-1.05***	0.062	-1.01***	0.067	-1.05***	0.062	-1.01***	0.067

Table A.2.5. Logistic regression models for the probability to provide any care. Clustered standard errors at the grandparent level (continued)

Country (ref. Austria)								
Germany	0.23	0.16	-0.18	0.17	0.23	0.16	-0.18	0.17
Sweden	0.80***	0.16	0.2	0.17	0.80***	0.16	0.2	0.17
Netherlands	0.88***	0.16	0.39*	0.17	0.88***	0.16	0.39*	0.17
Spain	0.046	0.17	-0.43*	0.18	0.04	0.17	-0.43*	0.18
Italy	0.41*	0.16	-0.44*	0.17	0.40*	0.16	-0.43*	0.17
France	0.79***	0.17	0.19	0.18	0.79***	0.17	0.19	0.18
Denmark	1.00***	0.17	0.42*	0.18	0.99***	0.17	0.43*	0.18
Greece	0.69***	0.17	0.056	0.19	0.69***	0.17	0.064	0.19
Switzerland	0.54**	0.21	-0.073	0.21	0.54**	0.21	-0.072	0.21
Belgium	1.00***	0.17	0.45**	0.17	1.00***	0.17	0.45**	0.17
CzechRepublic	0.3	0.18	-0.31	0.19	0.3	0.18	-0.31	0.19
Poland	0.26	0.18	-0.15	0.19	0.25	0.18	-0.14	0.19
Ireland	1.47***	0.3	0.64*	0.3	1.48***	0.3	0.64*	0.3
Luxembourg	0.83***	0.24	0.023	0.24	0.83***	0.24	0.024	0.24
Portugal	0.38	0.91	-1.12*	0.49	0.37	0.92	-1.12*	0.49
Slovenia	0.25	0.21	-0.35	0.22	0.25	0.21	-0.35	0.22
Estonia	0.34	0.29	-0.76*	0.36	0.37	0.3	-0.76*	0.36
Croatia	0.39	0.22	-0.4	0.23	0.39	0.22	-0.39	0.23
Wave (ref. 2004-2005)								
2006-2007	-0.073	0.073	-0.17*	0.073	-0.073	0.073	-0.17*	0.073
2013	0.24**	0.074	0.48***	0.078	0.23**	0.074	0.48***	0.078
2015	-0.11	0.099	0.2	0.1	-0.11	0.099	0.2	0.1
Interaction Terms								
Mid Education # Not employed					-0.04	0.1	0.09	0.12
Mid Education # Other					0.078	0.29	0.051	0.33
High Education # Not employed					-0.28	0.15	0.062	0.15
High Education # Other					0.5	0.35	0.015	0.38
Constant	0.60***	0.18	0.44*	0.19	0.59**	0.18	0.45*	0.19

*** p<0.001, ** p<0.01, * p<0.05
Source: SHARE data (2004 – 2015)

Table A.2.6. Logistic regression models for the probability to provide any care, care during weekdays, care during weekend.

	Anycare				Weekdays				Weekend			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.46***	0.12	0.29*	0.13	0.1	0.14	-0.13	0.19	0.18	0.15	0.049	0.19
High Education	0.95***	0.17	0.77***	0.16	0.17	0.19	0.12	0.22	0.40*	0.2	0.024	0.23
Age (ref. 50-60)												
61-70	0.17	0.17	0.24	0.19	0.27	0.19	0.27	0.32	0.11	0.19	-0.18	0.25
71-80	-0.73***	0.19	-0.1	0.21	-0.12	0.23	0.51	0.34	-0.35	0.24	-0.55	0.29
Difficulty Activities Daily Living	-0.41***	0.06	-0.26***	0.072	-0.1	0.086	-0.51**	0.18	-0.11	0.094	-0.14	0.13
Number of Grandchildren	-0.027*	0.013	-0.040*	0.016	-0.016	0.017	-0.045	0.027	0.0019	0.018	0.0017	0.024
Employment Status (ref. Not Employed)												
Employed	0.12	0.15	-0.18	0.14	-0.21	0.16	-0.21	0.2	0.24	0.16	0.22	0.18
Marital status (ref. No Partner)												
Partner	0.15	0.11	1.07***	0.14	0.22	0.14	0.35	0.23	-0.078	0.14	0.59*	0.24
Proximity (ref. < 15 min)												
15min -1h	-0.58***	0.13	-0.44***	0.13	-0.11	0.14	-0.48**	0.18	0.16	0.14	0.18	0.17
> 1 h	-1.65***	0.14	-1.56***	0.15	-0.91***	0.2	-1.29***	0.26	-0.55**	0.2	-0.87***	0.26
Constant	1.57***	0.22	0.21	0.25	-1.79***	0.27	-2.00***	0.41	-2.01***	0.27	-2.30***	0.37

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.7. Logistic regression models for the probability to provide care during school holidays, care throughout the year.

	Holidays				Throughout the Year			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)								
Mid Education	0.29*	0.13	0.059	0.16	0.2	0.11	-0.013	0.13
High Education	0.40*	0.16	0.26	0.18	0.51***	0.15	0.37*	0.15
Age (ref. 50-60)								
61-70	0.39*	0.17	0.60*	0.28	-0.11	0.14	0.079	0.19
71-80	0.19	0.2	0.59*	0.29	-0.86***	0.17	-0.22	0.21
Difficulty Activities Daily Living	-0.13	0.075	-0.11	0.097	-0.36***	0.069	-0.20*	0.079
Number of Grandchildren	0.022	0.014	0.0077	0.019	-0.031*	0.013	-0.062***	0.018
Employment Status (ref. Not Employed)								
Employed	0.18	0.14	-0.15	0.16	-0.034	0.12	-9.2E-05	0.13
Marital status (ref. No Partner)								
Partner	0.24*	0.12	0.52**	0.19	-0.051	0.1	0.91***	0.16
Proximity (ref. < 15 min)								
15min -1h	0.27*	0.12	0.25	0.15	-0.62***	0.1	-0.48***	0.12
> 1 h	0.072	0.15	0.21	0.17	-1.72***	0.14	-1.88***	0.17
Constant	-2.20***	0.24	-2.71***	0.35	0.61**	0.19	-0.59*	0.26

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.8. Logistic regression models for the probability to perform activities with grandchildren: helping with homework, leisure activities, preparing meals.

	Helping with Homework				Leisure				Preparing Meals			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.58***	0.11	0.31*	0.14	0.57***	0.11	0.45***	0.12	0.49***	0.11	0.094	0.12
High Education	0.86***	0.15	0.39*	0.17	1.11***	0.16	0.90***	0.15	0.76***	0.15	0.54***	0.15
Age (ref. 50-60)												
61-70	0.26	0.14	0.82***	0.24	0.33*	0.15	0.22	0.18	0.22	0.15	0.096	0.18
71-80	-0.39*	0.17	0.36	0.26	-0.49**	0.17	-0.22	0.2	-0.59***	0.17	-0.52**	0.2
Difficulty Activities Daily Living	-0.25***	0.07	-0.17	0.09	-0.40***	0.062	-0.17*	0.07	-0.45***	0.062	-0.27***	0.077
Number of Grandchildren	0.0044	0.013	-0.0081	0.018	-0.035**	0.012	-0.034*	0.016	-0.016	0.012	-0.012	0.016
Employment Status (ref. Not Employed)												
Employed	-0.0022	0.12	-0.25	0.15	0.2	0.13	-0.17	0.13	0.098	0.13	-0.13	0.13
Marital status (ref. No Partner)												
Partner	-0.034	0.1	0.45**	0.17	0.25*	0.1	0.88***	0.14	0.16	0.1	0.73***	0.14
Proximity (ref. < 15 min)												
15min -1h	-0.32**	0.11	-0.24	0.13	-0.39***	0.11	-0.26*	0.12	-0.51***	0.11	-0.26*	0.12
> 1 h	-1.12***	0.14	-1.14***	0.18	-1.18***	0.13	-1.19***	0.14	-1.37***	0.13	-1.01***	0.14
Constant	-0.81***	0.2	-1.94***	0.31	0.50*	0.2	-0.33	0.24	0.90***	0.2	-0.46	0.24

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.9. Logistic regression models for the probability to perform activities with grandchildren: collecting/bringing them from playground/ school, stay overnight without parents, be present when grandchildren are ill.

	Collecting/ Bringing				Stay Overnight				Stay when Ill			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.34**	0.11	0.25	0.13	0.28**	0.1	0.29*	0.13	0.26*	0.11	0.15	0.15
High Education	0.61***	0.14	0.58***	0.15	0.50***	0.14	0.33*	0.15	0.64***	0.15	0.25	0.18
Age (ref. 50-60)												
61-70	0.34*	0.14	0.32	0.2	0.097	0.14	0.41*	0.19	-0.12	0.14	0.071	0.23
71-80	-0.47**	0.16	-0.2	0.22	-0.57***	0.16	0.028	0.21	-0.97***	0.17	-0.25	0.26
Difficulty Activities Daily Living	-0.38***	0.069	-0.30***	0.083	-0.27***	0.061	-0.17*	0.075	-0.19**	0.068	-0.17	0.099
Number of Grandchildren	-0.036**	0.013	-0.028	0.017	-0.018	0.012	-0.017	0.016	-0.028*	0.013	-0.038	0.021
Employment Status (ref. Not Employed)												
Employed	-0.12	0.12	-0.59***	0.14	0.24	0.12	0.16	0.13	-0.24	0.12	-0.31	0.16
Marital status (ref. No Partner)												
Partner	0.096	0.1	0.88***	0.16	0.18	0.099	1.36***	0.16	-0.13	0.11	0.44*	0.19
Proximity (ref. < 15 min)												
15min -1h	-0.59***	0.1	-0.45***	0.12	-0.28**	0.1	-0.14	0.12	-0.47***	0.11	-0.34*	0.15
> 1 h	-1.45***	0.13	-1.54***	0.16	-1.39***	0.13	-1.18***	0.15	-1.31***	0.15	-1.47***	0.22
Constant	0.12	0.19	-0.86**	0.26	0.32	0.19	-1.51***	0.26	0.053	0.2	-1.30***	0.31

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.10. Logistic regression models for the probability to perform frequently activities with grandchildren: helping with homework, leisure activities, preparing meals.

	Helping with Homework - Freq.				Leisure - Freq.				Preparing Meals - Freq.			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.62***	0.17	0.059	0.23	0.18	0.11	0.094	0.14	0.24*	0.11	0.12	0.16
High Education	0.59*	0.23	-0.045	0.29	0.45**	0.15	0.28	0.17	0.27	0.15	0.33	0.18
Age (ref. 50-60)												
61-70	0.18	0.2	0.46	0.39	0.063	0.14	0.13	0.21	0.025	0.14	0.01	0.23
71-80	-0.63*	0.27	-0.017	0.43	-0.52**	0.17	-0.35	0.24	-0.63***	0.17	-0.33	0.26
Difficulty Activities Daily Living	-0.23*	0.12	-0.14	0.15	-0.32***	0.075	-0.15	0.086	-0.27***	0.069	-0.25*	0.11
Number of Grandchildren	0.0028	0.019	0.0027	0.029	-0.034*	0.014	-0.078***	0.021	-0.037**	0.013	-0.051*	0.022
Employment Status (ref. Not Employed)												
Employed	-0.08	0.18	-0.17	0.25	-0.039	0.12	-0.47**	0.15	-0.091	0.12	-0.38*	0.16
Marital status (ref. No Partner)												
Partner	-0.18	0.15	0.49	0.31	0.07	0.11	0.55**	0.17	-0.012	0.1	0.50**	0.19
Proximity (ref. < 15 min)												
15min -1h	-0.48**	0.16	-0.13	0.22	-0.43***	0.11	-0.36**	0.13	-0.53***	0.1	-0.55***	0.15
> 1 h	-1.82***	0.29	-1.76***	0.44	-1.75***	0.16	-1.84***	0.21	-2.01***	0.16	-1.73***	0.23
Constant	-1.92***	0.29	-3.02***	0.51	-0.17	0.2	-0.73**	0.28	0.19	0.2	-1.11***	0.31

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.11. Logistic regression models for the probability to perform frequently activities with grandchildren: collecting/bringing them from playground/school, stay overnight without parents, be present when grandchildren are ill.

	Collecting/ Bringing - Freq.				Stay Overnight - Freq.				Stay when Ill - Freq.			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.31*	0.13	-0.28	0.18	0.27	0.15	-0.098	0.2	0.78**	0.3	0.17	0.37
High Education	0.3	0.18	0.19	0.2	-0.15	0.23	-0.49	0.27	0.5	0.42	-0.29	0.5
Age (ref. 50-60)												
61-70	0.21	0.16	0.37	0.3	-0.14	0.18	0.33	0.32	-0.053	0.31	-0.075	0.55
71-80	-0.36	0.2	-0.052	0.33	-0.76**	0.23	0.057	0.36	-1.26**	0.47	-0.64	0.63
Difficulty Activities Daily Living	-0.35***	0.093	-0.46***	0.14	0.02	0.083	-0.16	0.14	-0.004	0.15	-0.28	0.28
Number of Grandchildren	-0.039*	0.016	-0.052*	0.024	-0.016	0.018	-0.049	0.031	-0.041	0.038	-0.081	0.062
Employment Status (ref. Not Employed)												
Employed	-0.15	0.14	-0.88***	0.2	0.25	0.16	0.18	0.21	-0.31	0.29	-0.73	0.42
Marital status (ref. No Partner)												
Partner	-0.069	0.12	0.50*	0.22	-0.15	0.14	0.97**	0.31	-0.23	0.26	0.047	0.43
Proximity (ref. < 15 min)												
15min -1h	-0.80***	0.12	-0.96***	0.17	-0.35*	0.14	-0.41*	0.2	-0.91**	0.29	-0.64	0.37
> 1 h	-2.60***	0.25	-2.65***	0.34	-2.09***	0.31	-1.84***	0.38	-2.33***	0.6	-2.09**	0.75
Constant	-0.62**	0.23	-1.18**	0.38	-1.31***	0.26	-2.72***	0.46	-2.62***	0.47	-2.49***	0.72

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.12. Logistic regression models for the probability to provide care for the following reasons: help grandchildren develop, parents are at work, financial help.

	Development				Parents Work				Financial Help			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.43***	0.11	0.29*	0.14	0.2	0.1	0.074	0.13	0.30*	0.12	-0.065	0.15
High Education	1.07***	0.15	0.64***	0.15	0.45**	0.14	0.40**	0.15	0.48**	0.16	0.23	0.17
Age (ref. 50-60)												
61-70	-0.0066	0.14	0.17	0.19	0.29*	0.14	0.21	0.19	0.04	0.15	0.18	0.22
71-80	-0.53**	0.17	-0.32	0.22	-0.36*	0.16	-0.13	0.21	-0.68***	0.19	-0.52*	0.25
Difficulty Activities Daily Living	-0.18*	0.07	-0.11	0.081	-0.24***	0.06	-0.30***	0.078	-0.25**	0.081	-0.29**	0.1
Number of Grandchildren	-0.043**	0.015	-0.066***	0.02	-0.024*	0.012	-0.043**	0.017	-0.015	0.015	-0.034	0.021
Employment Status (ref. Not Employed)												
Employed	0.069	0.12	-0.11	0.13	-0.089	0.12	-0.32*	0.13	0.12	0.13	-0.34*	0.15
Marital status (ref. No Partner)												
Partner	0.13	0.11	0.61***	0.16	0.041	0.098	0.61***	0.14	0.2	0.12	0.51**	0.18
Proximity (ref. < 15 min)												
15min -1h	-0.064	0.11	-0.16	0.13	-0.39***	0.1	-0.54***	0.12	-0.28*	0.11	-0.096	0.14
> 1 h	-0.59***	0.13	-0.91***	0.16	-1.49***	0.13	-1.72***	0.16	-1.45***	0.17	-1.50***	0.22
Constant	-0.78***	0.2	-1.08***	0.27	0.32	0.19	-0.14	0.25	-0.92***	0.21	-1.18***	0.3

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Table A.2.13. Logistic regression models for the probability to provide care for the following reasons: give parents a break, parents go out in the evening, preference for family care.

	Parents Break				Parents Evening				Preferences for Family Care			
	Grandmothers		Grandfathers		Grandmothers		Grandfathers		Grandmothers		Grandfathers	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Educational Level (ref. Low)												
Mid Education	0.38***	0.1	0.30*	0.12	0.33**	0.11	0.40**	0.13	0.26	0.13	0.15	0.18
High Education	0.84***	0.14	0.57***	0.14	0.61***	0.14	0.78***	0.15	0.53**	0.17	0.14	0.21
Age (ref. 50-60)												
61-70	-0.11	0.13	-0.049	0.18	0.17	0.14	0.052	0.19	0.12	0.17	0.3	0.27
71-80	-0.85***	0.16	-0.49*	0.2	-0.54**	0.16	-0.37	0.21	-0.49*	0.21	-0.31	0.31
Difficulty Activities Daily Living	-0.23***	0.061	-0.11	0.072	-0.40***	0.074	-0.13	0.078	-0.17*	0.084	-0.054	0.11
Number of Grandchildren	0.0028	0.012	-0.026	0.016	-0.024	0.013	-0.031	0.017	-0.0029	0.015	-0.028	0.025
Employment Status (ref. Not Employed)												
Employed	0.13	0.12	-0.02	0.12	0.071	0.12	-0.011	0.13	0.00055	0.14	-0.17	0.18
Marital status (ref. No Partner)												
Partner	0.13	0.098	0.80***	0.14	0.089	0.1	0.73***	0.15	0.071	0.13	0.50*	0.23
Proximity (ref. < 15 min)												
15min -1h	-0.2	0.1	0.072	0.12	-0.33**	0.1	-0.17	0.12	-0.31*	0.13	-0.57**	0.18
> 1 h	-0.82***	0.12	-0.66***	0.14	-1.07***	0.13	-1.21***	0.16	-1.22***	0.18	-1.11***	0.23
Constant	-0.014	0.19	-0.80***	0.24	-0.18	0.19	-1.02***	0.25	-1.34***	0.24	-2.00***	0.37

*** p<0.001, ** p<0.01, * p<0.05
Source: ELSA data (2016 – 2017)

Appendix to Chapter III

Table A.3.1. Descriptive statistics, by country

	Austria		Germany		Sweden	
	N	%	N	%	N	%
Working: NO	2082	73	1579	50	916	32
Working: YES	778	27	1574	50	1947	68
Is a grandparent: NO	923	32	1119	36	765	27
Is a grandparent: YES	1937	68	2034	64	2098	73
First Child Male	1410	49	1581	50	1426	50
First Child Female	1450	51	1572	50	1437	50
Age: 55-56	444	16	518	16	377	13
57-58	467	16	545	17	476	17
59-60	544	19	564	18	537	19
61-62	571	20	623	20	569	20
63-65	834	29	903	29	904	32
Health: Excellent/Very Good	1121	39	722	23	1389	49
Good	1052	37	1368	43	869	30
Fair/Poor	687	24	1063	34	605	21
Household net worth: 1st Quintile	847	30	796	25	434	15
2nd Quintile	616	22	685	22	636	22
3rd Quintile	573	20	582	18	521	18
4th Quintile	492	17	625	20	570	20
5th Quintile	332	12	465	15	702	25
Educational level: Low Education	727	25	442	14	831	29
Medium Education	1492	52	1898	60	1029	36
High Education	641	22	813	26	1003	35
Partner employment: No partner	956	33	584	19	644	22
Partner employed	477	17	987	31	1075	38
Partner not employed	1184	41	1048	33	544	19
Partner else	243	8	534	17	600	21
Number of Children mean(sd)	2.17	-1.12	2.09	-0.98	2.47	-1.22
Year birth first child mean(sd)	1974	-6.79	1974	-6.96	1973	-7.46
Wave: 2004-2005	306	11	509	16	602	21
2006-2007	213	7	490	16	586	20
2010-2012	965	34	333	11	369	13
2013	791	28	1016	32	749	26
2015	585	20	805	26	557	19
Total	2,860		3,153		2,863	

Table A.3.1. Descriptive statistics, by country (continued)

	Netherlands		Spain		Italy	
	N	%	N	%	N	%
Working: NO	1618	62	2308	70	2699	77
Working: YES	983	38	1008	30	817	23
Is a grandparent: NO	798	31	1234	37	1475	42
Is a grandparent: YES	1803	69	2082	63	2041	58
First Child Male	1323	51	1783	54	1844	52
First Child Female	1278	49	1534	46	1672	48
Age: 55-56	454	17	588	18	621	18
57-58	469	18	616	19	600	17
59-60	514	20	598	18	636	18
61-62	44	17	604	18	636	18
63-65	715	27	910	27	1023	29
Health: Excellent/Very Good	784	30	718	22	820	23
Good	1167	45	1404	42	1439	41
Fair/Poor	650	25	1194	36	1257	36
Household net worth: 1st Quintile	637	24	364	11	532	15
2nd Quintile	401	15	965	29	778	22
3rd Quintile	507	19	912	27	902	26
4th Quintile	525	20	632	19	750	21
5th Quintile	531	20	443	13	554	16
Educational level: Low Education	1375	53	2547	77	2444	70
Medium Education	609	23	401	12	822	23
High Education	617	24	368	11	250	7
Partner employment: No partner	397	15	413	12	429	12
Partner employed	777	30	975	29	776	22
Partner not employed	841	32	1457	44	1802	51
Partner else	586	23	471	14	509	14
Number of Children mean(sd)	2.4	-1.03	2.39	-1.18	2.12	-0.96
Year birth first child mean(sd)	1973	-6.39	1975	-6.21	1974	-6.6
Wave: 2004-2005	590	23	373	11	554	16
2006-2007	564	22	379	11	576	16
2010-2012	608	23	593	18	676	19
2013	839	32	1049	32	833	24
2015	X	X	922	28	877	25
Total	2,601		3,316		3,516	

Table A.3.1. Descriptive statistics, by country (continued)

	France		Denmark		Switzerland		Belgium	
	N	%	N	%	N	%	N	%
Working: NO	2266	62	1144	44	799	39	2846	68
Working: YES	1375	38	1483	56	1271	61	1315	32
Is a grandparent: NO	928	25	645	25	988	48	1118	27
Is a grandparent: YES	2713	75	1982	75	1082	52	3043	73
First Child Male	1879	52	1298	49	1016	49	2096	50
First Child Female	1762	48	1329	51	1054	51	2065	50
Age: 55-56	657	18	499	19	418	20	841	20
57-58	703	19	483	18	386	19	832	20
59-60	700	19	508	19	345	17	764	18
61-62	641	18	467	18	373	18	721	17
63-65	940	26	670	26	548	26	1003	24
Health: Excellent/Very Good	924	25	1532	58	971	47	1290	31
Good	1722	47	560	21	827	40	1888	45
Fair/Poor	995	27	535	20	272	13	983	24
Household net worth: 1st Quintile	578	16	368	14	369	18	539	13
2nd Quintile	460	13	427	16	273	13	384	9
3rd Quintile	865	24	453	17	198	10	751	18
4th Quintile	971	27	553	21	306	15	1242	30
5th Quintile	767	21	826	31	924	45	1245	30
Educational level: Low Education	1409	39	421	16	492	24	1610	39
Medium Education	1384	38	881	34	1301	63	1246	30
High Education	848	23	1325	50	277	13	1305	31
Partner employment: No partner	1098	30	660	25	497	24	1069	26
Partner employed	743	20	1022	39	718	35	889	21
Partner not employed	1321	36	556	21	382	18	1485	36
Partner else	479	13	389	15	473	23	718	17
Number of Children mean(sd)	2.39	-1.15	2.29	-0.99	2.29	-1.06	2.22	-1.08
Year birth first child mean(sd)	1974	-6.43	1975	-7.17	1977	-6.94	1975	-6.54
Wave: 2004-2005	521	14	291	11	142	7	632	15
2006-2007	517	14	469	18	239	12	571	14
2010-2012	1043	29	398	15	631	30	932	22
2013	866	24	783	30	544	26	1013	24
2015	694	19	686	26	514	25	1013	24
Total	3,641		2,627		2,070		4,161	

Table A.3.2. Descriptive statistics, macro-level indicators, by country

Country	Childcare Enrollment (%)	Maternal Employment (%)	Part-time Employment (%)	Effective Leave (weeks)	Effective Retirement Age (years)	Implicit Tax (score)	Progressivity Index (0-100)
Austria	10	55.3	33.2	30	57.5	5.9	31.2
Germany	19	54.3	39.1	24	60.5	15.4	24.2
Sweden	63	71.9	14.1	34	63.6	25.1	-8.8
Netherlands	49	72.9	55.5	10	62.6	1.6	5.8
Spain	33	54.5	19.3	10	63.4	26.5	17.9
Italy	25	50.4	30.2	19	58.7	15.6	1.6
France	41	57.4	21.5	36	59.7	9.9	19.5
Denmark	73	71.4	14.7	43	61.9	-0.1	53.1
Switzerland	25	58.3	48.1	.	63.5	18.8	53.4
Belgium	33	64.4	30.4	13	59.1	32.7	56.7

Table A.3.3. Correlation coefficients between macro-level indicators

	Childcare Enrollment	Maternal Employment	Part-time Employment	Effective Leave (weeks)	Effective Retirement Age	Implicit Tax	Progressivity Index
Childcare Enrollment	1						
Maternal Employment	0.828	1					
Part-time Employment	-0.454	-0.055	1				
Effective Leave (weeks)	0.415	0.195	-0.58	1			
Effective Retirement Age	0.535	0.475	-0.003	-0.072	1		
Implicit Tax	-0.202	-0.206	-0.220	-0.419	0.143	1	
Progressivity Index	-0.105	0.006	0.095	0.131	-0.129	0.016	1

Table A.3.4. Correlation between macro-level indicators and EDV

	Coeff.	St. Error
Childcare Enrollment	0.004	0.002
Maternal Employment	0.010	0.006
Part-time Employment	0.002	0.004
Effective Leave (weeks)	-0.0004	0.005
Effective Retirement Age	0.027	0.023
Implicit Tax	-0.005	0.005
Progressivity Index	0.003	0.002

* p< 0.05 ** p<0.01 ***p<0.001

Table A.3.5. LPM effect of being a grandmother on labour supply, by country, IV approach (complete models) * p< 0.05 ** p<0.01 ***p<0.001

	Austria		Germany	
	Coeff.	**SE**	**Coeff.**	**SE**
Is a grandparent	-0.3	0.22	-0.13	0.28
Age: 55-56				
57-58	-0.14***	0.027	-0.05	0.026
59-60	-0.29***	0.031	-0.13***	0.027
61-62	-0.41***	0.034	-0.28***	0.032
63-65	-0.44***	0.038	-0.45***	0.034
Health: Excellent/Very Good				
Good	-0.046*	0.02	-0.031	0.022
Fair/Poor	-0.12***	0.023	-0.16***	0.025
Household net worth: 1st Quintile				
2nd Quintile	0.04	0.024	-0.001	0.028
3rd Quintile	0.051*	0.025	0.0002	0.032
4th Quintile	0.027	0.026	0.009	0.029
5th Quintile	0.13**	0.04	0.029	0.038
Educational level: Low Education				
Medium Education	0.027	0.024	0.11***	0.03
High Education	0.16***	0.047	0.15***	0.035
Partner employment: No partner				
Partner employed	-0.035	0.032	0.005	0.031
Partner not employed	-0.09***	0.022	-0.092*	0.037
Partner else	0.011	0.036	-0.021	0.038
Number of Children	0.037	0.022	0.017	0.027
Year birth first child	-0.004	0.007	-0.004	0.011
Wave: 2004-2005				
2006-2007	-0.013	0.033	0.063	0.034
2010-2012	0.11	0.057	0.23**	0.081
2013	0.16*	0.072	0.22*	0.099
2015	0.16	0.083	0.29*	0.12
Constant	0.98	0.85	0.97	1.14

Sweden		Netherlands		Spain	
Coeff.	**SE**	**Coeff.**	**SE**	**Coeff.**	**SE**
-0.36	0.4	-0.015	0.4	-0.14	0.19
-0.002	0.03	-0.061	0.031	-0.012	0.024
-0.022	0.035	-0.12***	0.033	-0.065*	0.027
-0.12**	0.036	-0.21***	0.038	-0.14***	0.029
-0.34***	0.032	-0.33***	0.037	-0.20***	0.031
-0.073***	0.021	-0.036	0.022	-0.044*	0.022
-0.32***	0.029	-0.20***	0.028	-0.13***	0.024
0.13***	0.033	0.069*	0.031	0.035	0.027
0.13***	0.037	0.006	0.03	0.049	0.028
0.10**	0.035	0.019	0.035	0.058	0.031
0.10**	0.038	-0.044	0.032	0.10**	0.035
0.037	0.029	0.081**	0.029	0.10**	0.036
0.087*	0.035	0.16***	0.038	0.20***	0.04
0.029	0.032	0.002	0.046	-0.070*	0.034
-0.11**	0.033	-0.10*	0.042	-0.090**	0.031
0.006	0.031	-0.018	0.043	-0.06	0.037
0.026	0.018	-0.004	0.024	0.0008	0.019
-0.0089	0.016	0.01	0.018	0.001	0.007
0.045	0.039	-0.02	0.042	-0.031	0.033
0.12	0.099	0.04	0.12	0.011	0.059
0.15	0.13	0.039	0.15	0.097	0.073
0.23	0.16			0.094	0.082
1.74	1.73	-0.42	1.86	0.29	0.81

Table A.3.5. LPM effect of being a grandmother on labour supply, by country, IV approach (continued) * p< 0.05 ** p<0.01 ***p<0.001

	Italy		France	
	Coeff.	**SE**	**Coeff.**	**Coeff.**
Is a grandparent	-0.50*	0.24	-0.24	0.38
Age: 55-56				
57-58	-0.046	0.025	-0.057*	0.024
59-60	-0.12***	0.028	-0.24***	0.028
61-62	-0.22***	0.029	-0.42***	0.039
63-65	-0.32***	0.03	-0.54***	0.06
Health: Excellent/Very Good				
Good	-0.044*	0.021	-0.0052	0.023
Fair/Poor	-0.067**	0.024	-0.14***	0.025
Household net worth: 1st Quintile				
2nd Quintile	0.0036	0.027	0.01	0.033
3rd Quintile	0.013	0.028	-0.016	0.032
4th Quintile	0.0043	0.029	-0.035	0.032
5th Quintile	0.025	0.036	-0.01	0.034
Educational level: Low Education				
Medium Education	0.11***	0.029	0.035	0.025
High Education	0.30***	0.051	0.056	0.029
Partner employment: No partner				
Partner employed	-0.052	0.036	0.029	0.03
Partner not employed	-0.099**	0.031	-0.088***	0.024
Partner else	-0.049	0.036	-0.031	0.032
Number of Children	0.025	0.019	0.0038	0.021
Year birth first child	-0.019*	0.009	-0.006	0.016
Wave: 2004-2005				
2006-2007	0.072*	0.035	-0.018	0.03
2010-2012	0.23**	0.077	0.043	0.09
2013	0.30***	0.084	0.15	0.13
2015	0.33***	0.096	0.18	0.16
Constant	2.42*	1.02	1.43	1.76

Denmark		Switzerland		Belgium	
SE	Coeff.	SE	Coeff.	SE	Coeff.
0.027	0.29	-0.22	0.44	-0.18	0.25
-0.050*	0.021	-0.02	0.028	-0.057**	0.02
-0.12***	0.024	-0.071	0.036	-0.19***	0.024
-0.31***	0.03	-0.16***	0.043	-0.28***	0.026
-0.50***	0.037	-0.34***	0.053	-0.34***	0.031
-0.10***	0.022	-0.035	0.024	-0.045*	0.019
-0.27***	0.028	-0.14***	0.038	-0.20***	0.021
0.14***	0.032	0.12*	0.052	0.04	0.031
0.12***	0.032	0.075	0.056	0.038	0.029
0.13***	0.031	0.12*	0.058	0.01	0.028
0.13***	0.033	0.056	0.053	0.0057	0.03
0.062	0.032	0.033	0.035	0.047	0.025
0.17***	0.03	0.084	0.053	0.12***	0.024
0.032	0.03	-0.089*	0.038	-0.038	0.03
-0.15***	0.031	-0.18***	0.04	-0.11***	0.023
0.003	0.031	-0.084*	0.038	-0.052	0.028
-0.022	0.016	0.027	0.033	0.035	0.022
0.004	0.012	-0.0004	0.02	0.001	0.009
0.03	0.039	0.045	0.068	0.062**	0.02
0.04	0.084	0.12	0.14	0.13*	0.056
0.051	0.1	0.1	0.16	0.16*	0.071
0.079	0.12	0.18	0.2	0.18*	0.089
0.23	1.3	0.75	2.11	0.38	1.05

8

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Acknowledgments
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Summary

As life expectancy increases, grandparents spend a longer part of their lifetime with grandchildren, which opens opportunities for sharing time, resources, and affection. The time grandparents spend with grandchildren has several implications, which were the focal point of the present dissertation. Grandparents differently invest in their grandchildren, according to their socio-economic status: they are active players in the intergenerational transmission of advantages. At the same time, they bear the consequences of their new role, as grandmotherhood influences labour market participation. The extent to which grandmothers reshape their work commitment is determined, on the one hand, by the previous life course, and on the other hand, by the institutional context in which the decisions take place. More specifically, the central findings emerging from the four empirical chapters comprising the present dissertation can be summarized as follows.

In **Chapter II**, I investigate the likelihood of providing care by grandmothers according to their educational level. Empirical results point toward an educational gradient in grandparental childcare: highly educated grandmothers are more likely to provide grandchildren with care than primary educated grandmothers. Most interestingly, they provide more childcare even when their daughters are not in employment, hence less in need of informal support. Furthermore, highly educated grandparents are more likely to engage in activities related to interactive and educational care, for reasons related to the development of grandchildren. The findings could suggest that mechanism of cultural investment could be at work even in the extended family. In **Chapter III**, I argue that labour supply of grandmothers is jointly determined by the need of support by the younger generation, and the availability of grandmothers themselves as care providers. I found some evidence that grandmotherhood has a negative effect on employment across European countries, although differences exist according to the institutional context: grandmothers are less likely to be employed where there are fewer childcare services for children, where early retirement options are available, and the pension system more generous. In **Chapter IV**, I concentrate on England to study the relation between the birth of the first grandchild and the probability of labour market withdrawal for mid-life women, with attention paid to differences in terms of work history and economic household situation. Results show that the probability of labour market withdrawal increases after the birth of the first grandchild. Women who had continuous working careers are more likely to withdraw from the labour market after the birth of the first

grandchild compared to women with non-continuous careers. The same holds for women living in wealthy households. The explanation probably lies in the lower opportunity cost these women encounter in withdrawing from the labour market. Finally, in **Chapter V**, I investigated the consequences of grandmotherhood on retirement for Italian mid-life women, accounting for differences in terms of work history, i.e. number of years worked and social class. Results show that there is only a weak relation between the birth of the first grandchild and retirement for Italian grandmothers, and no differences in term of work history. This result could originate from two parallel processes. On the one hand, mid-life women seem to retire before becoming grandmothers in Italy. This could be due to the interplay of the postponement of fertility and availability of early retirement options: women became grandmothers late in life, and they have the possibility to retire early. On the other hand, Italy has an extremely low female labour force participation rate, and many young mothers are not employed due to the difficulty to reconcile work and family; in other words, grandparental childcare might not be needed by many Italian young mothers.

Overall, the most important take-home message of the present dissertation is that grandparenthood and its consequences are a multifaceted phenomenon, which must be studied in a multi-generational framework and by considering demographic, social, and institutional trends of current European societies.

About the Author

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