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The impact of family care on the well-being of providers and recipients of long-term care: A cross-sectional study of five European countries

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Introduction

In recent decades there have been significant demographic changes in European countries, which are expected to have both short-term and long-term consequences. Progressive population ageing is one aspect of these changes, due to the combination of longer life expectancy and decreasing birth rates. By 2050, 28.5 per cent of the population of the current EU countries will be aged 65 and over up from 19.7 per cent in 2018 and the number of people aged 85 years or more is expected to more than double (Eurostat, 2019).

Population ageing is likely to result in a greater societal burden of care, although reduced morbidity among older adults will offset some of the impact of population aging. Nevertheless, there is likely to be a much greater demand for long-term care (LTC) in European countries by 2050 (European Commission, 2015a). European countries have developed a range of programmes and services in order to satisfy LTC needs (Ranci and Pavolini, 2013), although family members are expected to continue to play a key role. Against the backdrop of different national trajectories and models, a progressive reorganization of LTC systems is under way, involving a far-reaching reorganisation of the public provision of care (Luppi and Nazio, 2017).

Falling birth rates may mean that adults have more time to look after their parents when they are no longer able to take care of themselves, although there will inevitably be fewer children who can play this role. Population ageing is therefore likely to have important implications for public welfare and represents a crucial challenge for researchers and policy makers.

The first chapter of this thesis summarises the existing literature on the role of the family, the market and the state in providing assistance to older adults and summarises previous research on the consequences of caring for the wellbeing of carers and care recipients. In the second chapter we outline the comparative and quantitative methodology adopted in this thesis as well as presenting and describing the data to be used. A rich conceptual discussion as well as a description of measures and scales on a number of crucial characteristics in relation to long-term care and well-being are provided

in the third chapter. Chapters Four and Five contain an overview of the main empirical findings, against the backdrop of the theoretical considerations set out in the first chapter.

As we argue in Chapter 1, it is helpful to position comparative research such as this in relation to Esping-Andersen's work on *The Three Worlds of Welfare Capitalism* (1990). Esping-Andersen provides a theoretically-grounded typology of welfare states which explores the inter-relationships between the state and the market. He identified three welfare states regime-types, (corporativist, social-democratic and liberal), and assigned Italy to the category of corporativist countries, along with Austria, France and Germany.

Using a rather different theoretical approach, Hall and Soskice, in *The Varieties of Capitalism* (2001), argue that the Southern European countries, along with France and Turkey, might be situated at the border between liberal market economies (LMEs) and coordinated market economies (CMEs). Greece, Italy, Portugal, and Spain do not converge on complementary institutions (deliberative institutions included) and practices across the different spheres (industrial relations, vocational training and education, corporate governance, inter-firm relations, intra-firm relationships).

Through a constructive critique of these approaches, and building on a growing body of scholarship on Southern European welfare arrangements, we will consider whether it is possible to identify a Mediterranean type of welfare regime, by investigating areas such as home ownership, pensions and social security (Castles, 1995; Castles and Ferrera, 1996; Ferrera, 1996; Ferrera and Rhodes 2000; Rhodes, 1996). It is particularly important to build this kind of typology on solid empirical foundations, so we will review research on the role of family members - and women in particular - in providing care to older adults in different European countries (Binder and Freytag, 2013; Brenna and Di Novi, 2013; Di Novi *et al.,* 2015; Jurado Guerrero and Naldini, 1996; Naldini, 2003; Naldini *et al.,* 2006; 2016; Trifiletti, 1999; Chauvel and Leists, 2015; Sarti *et al.*, 2013).

With the publication of a wave of recent studies on Southern European countries, a more complete and detailed description of European welfare regimes has emerged, which enriches and extends Esping-Andersen's original work. Within this body of work, authors from different disciplines

sometimes refer to arrangements for elderly care, and it is crucial that this is conceptualised correctly. The most common way of relating care by family members to other forms of assistance is to describe this as involving an intergenerational transfer or exchange. This overlooks the role of culture, politics, public policy and social structure, which must arguably be integrated within a single framework. It is also important to consider whether different arrangements have a differential capacity to boost the well-being of care-givers and of the recipients of care and assistance.

At the present moment, as population ageing is increasing the pressure on existing welfare systems, it is crucial to consider how LTC needs are changing, how different regimes are responding to these changing needs and how this is impacting on individuals and families. The research questions at the heart of this project are whether there is a distinctive Southern European model of care and assistance for older adults and whether this is associated with higher or lower burdens for families, and higher or lower well-being for the individuals involved.

It has been argued that ageing tends to lead to a weakening of social connections with people outside the family, primarily due to the way in which poor health curtails social participation. At the same time, family ties come to have an increasingly relevant social role (Giudici *et al.*, 2018). This topic has been investigated from different angles in recent decades. Some scholars have studied the ways in which networks change over the life course by showing that the share of non-family members, the number and intensity of social contacts all tend to decrease over time. A number of studies have sought to ascertain whether these changes are associated with specific movements in the health and well-being of older adults (Cappellato, 2015; Rafnsson *et al.*, 2015; Tomini *et al.*, 2016; Zhang *et al.*, 2017; Zou *et al.*, 2015).

Other authors have studied the different ways in which family members can be involved in providing care to older adults, looking at whether and how family roles relate to public policies. As Naldini (2003) and Naldini and colleagues (2006; 2016) argue, in many Southern European countries the lack of public policies for older people strengthens family ties but can give rise to 'overburdening'. At the same time, cultural values can reinforce or undermine the ability and willingness of older

people to live independently in their own home, and can explain the willingness of family members to embrace specific care arrangements.

Hämäläinen and Tanskanen (2019) suggest that practical help is the most frequent form of assistance that adult children provide to their parents as they grow older, noting the importance of gender differences. In fact, and perhaps unsurprisingly, women tend to accept a larger share of the burden of caring for elderly family members than men. A stronger emotional bond has also been documented between adult women and their mothers, as these authors observe. Research has shown that providing LTC to older family members can have positive and negative effects on well-being, suggesting that it is necessary to carry out a comparative, empirical investigation of the nature and strength of inter-generational family relationships and care arrangements at different stages of the life course and their gendered effects on the well-being of all those involved.

Overall, what is lacking in the literature is a more comprehensive understanding of how LTC redefines and reshapes the relationships, roles and identities of older people. In general terms, the strength of family ties is believed to exert a protective effect in terms of life expectancy, although it has also been noted that the strength and range of friendship relations are more strongly associated with well-being, and it is also possible that 'overburdening' can have harmful effects (Holt-Lunstad *et al.,* 2015, Santini *et al.*, 2015b). How this balance is managed in different families and across different countries is therefore a question of considerable interest, and one that demands a careful and well-structured comparative empirical research design.

There is a considerable amount of US research showing that ties with friends (as opposed to family members) are associated with better health, life satisfaction (LS), quality of life (QoL) and subjective well-being (SWB) (Carrieri *et al.*, 2012; Jivraj *et al.*, 2014; Hansen and Slagsvold, 2012; Luhmann *et al.*, 2012). These authors and others have noted the difficulties involved in making causal inferences based on these kinds of associations, due to the possibility of reciprocal or reverse causation and spurious correlations. Some scholars have argued that networks are likely to have a positive impact on LS, due to their capacity to channel resources (Bishop *et al.*, 2012; Boyce *et al.*,

2013; Gana *et al.*, 2013, Joshanloo *et al.*, 2016). It is also possible that LS increases the individual's ability to develop and sustain a wider and more varied social network (Enkvist *et al.*, 2012). According to other authors, well-being has not been shown to have a measurable impact on network size or the intensity of social contacts (Pratschke *et al.*, 2016a).

How networks function, how they change with ageing and how they relate to well-being over the life course demands further research. For example, many researchers have found that socio-economic status (SES) appears to influence network size. This is presumably because more affluent individuals have the resources required to engage in leisure and social activities, to meet up with friends and to invite others into their homes, with the result that they tend to have larger and more diversified networks.

In most countries, as people grow older, their family members are expected to become a key source of care. At the same time, the nature of this role appears to vary quite considerably across countries. This suggests that basic research on how families mobilise and distribute resources such as time and care, goods and services in different European contexts would be potentially very valuable, particularly if this can then be linked with an empirical assessment of well-being.

Scholars from different disciplines, including Epidemiology, Social Psychology and Sociology have used different well-being concepts, such as happiness, life satisfaction and quality of life. Whilst it is often argued that happiness (or subjective well-being) and life satisfaction are unidimensional constructs, quality of life is typically treated as a multi-dimensional construct. Instruments covering symptoms, impairments, health, functional status and emotional states have been used in various combinations to measure quality of life. In line with Chatterjil and colleagues (2002), Ryff and Keyes (1995) and others, we treat well-being as a second-order concept measured by SWB, LS and by the constituent dimensions of QoL. We are primarily interested in whether and how family ties influence well-being rather than health, although we acknowledge that well-being must be measured in the context of health status.

Chapter 1 Theoretical background

1.1. Population ageing and the needs of older adults

"An unfortunate stereotype of the older generation today is of "greedy geezers" who are spending their children's inheritance on their own retirement pleasures (Bengtson, 1993). This myth is not in accord with the facts" (Bengtson, 2001: 7).

In his book *Beyond the Nuclear Family: The Increasing Importance of Multigenerational Bonds* (2001), Bengtson documents the increasing flow of resources from older to younger generations. Between 2018 and 2050, in the EU-28, the number of people aged less than 55 years is expected to decline by 9.6%, the number of people aged 65-74 years to increase by 17.6%, those aged 75-84 years to increase by 60.5% and those aged 85 years or over (the so-called *very old*) to more than double (Eurostat, 2019: 15). This development is driven by longevity and is likely to lead to a drastic decline in the level of family support provided to older adults in at least half of EU Member States (Eurostat, 2019). The decreasing proportion of elderly parents living with their adult children and the increasing share of elderly people living alone anticipates this trend (Wittenberg, 2015).

Women have lower excess mortality from acute disease (Le *et al.*, 2015) but lower disability-free life expectancy than men (Boerma *et al.*, 2016; Crimmins *et al.*, 2010; Hayat *et al.*, 2014; Kontis *et al.*, 2017; OECD, 2018; Salvini, 2015). Nevertheless, a "gender rapprochement" in life expectancy at birth and life expectancy at 65 years has become evident in recent decades (Livi Bacci, 2015a). Interestingly, research suggests that self-reported health (SRH) is better for women and that they have a lower incidence of certain health conditions (Boerma *et al.*, 2016; Crimmins *et al.*, 2010).

Cross-class differences are also apparent, with some socio-economic status (SES) indicators influencing the prevalence but not the incidence of disease (Hayat *et al.*, 2014; for education and income, see House, 2005; for education, see Glymour *et al.*, 2012). The fact that different SES

indicators capture different aspects of health outcomes has received little attention, and very few authors analyse the differential explanatory power of these variables (Bobok, 2009; Eurohealth, 2009; Masseria, 2009; O'Donnell, 2009; for socio-economic deprivation, see Aylin *et al.*, 2001; for wealth see Demakakos *et al.*, 2015; for income and wealth see Duncan *et al.*, 2002 and Litwin and Stoeckel, 2013).

There is still no consensus on whether the price of lower mortality will be higher morbidity (Nagaratnam and Nagaratnam, 2019; Solé-Auró and Alcañiz, 2014) or whether elderly adults will maintain good health for longer in the future (House, 2005; Wittenberg, 2015; Zhang *et al.*, 2017). This could come about by virtue of a greater awareness and knowledge of risk factors (Vita *et al.*, 1998; for obesity, see Strandberg *et al.*, 2013; Zajacova and Ailshire, 2013) and healthy behaviours (Fox *et al.*, 2011; Xue *et al.*, 2012). House (2005) reports that middle-aged people aged 45-65 years and older adults (65 years and over) are now experiencing lower rates of morbidity compared to the recent past. Zhang and colleagues (2017) also show that compared to middle-aged and younger people, the elderly tend to be more satisfied with their lives (referred to as the "paradox of well-being").

There is, by contrast, a broad consensus on the fact that older adults are among the needy of society and that population ageing will increasingly translate into higher public expenditure on health care and long-term care:

"*Long-term care, as distinct from traditional health care intervention, is often required to help persons complete the essential tasks of daily living, which they may be prevented from completing themselves either due to chronic illness, disability or frailty"* (European Commission, 2001: 25).

Long-term care often starts after an accident, an illness, or even a stay in hospital, either all at once or by degrees (Nagaratnam and Nagaratnam, 2019: 40). It is the increasing proportion of elderly people with disabilities which contributes to the growing demand for long-term care (Colombo *et al.*,

2011). This cannot fail to put pressure on the available services to provide effective and efficient care. There is therefore an urgent need for public policies to address this key issue in a comprehensive way, by promoting and preserving a balance between different actors.

The fact that elderly adults are affected by greater morbidity and disability is challenging for society as a whole. However, a large literature continues to focus exclusively on macro-level factors, such as cultural norms, institutional arrangements, political forces and structural conditions, making comparisons and contrasts between different countries or clusters of countries (Antonnen and Sipilä, 1996; Bettio and Plantenga, 2004; Esping-Andersen, 1990; Estévez-Abe *et al.*, 2001; Jurado Guerrero and Naldini, 1996; Hall and Soskice, 2001; Naldini, 2003; Naldini *et al.*, 2006; 2016; Pfau-Effinger, 2005; Trifiletti, 1999). Other scholars stress the importance of micro-level factors, such as social relations and interactions with others, examining their role and relevance in relation to care. In comparative research on social policy, there is widespread agreement on the idea that family provision of long-term care for the elderly involves an exchange or a transfer of resources across generations (Albertini *et al.*, 2007; Brenna and Di Novi, 2013; Da Roit and Naldini, 2010; Saraceno, 2010; 2011; Saraceno and Keck, 2010). We believe that it is necessary to integrate these two levels of analysis, both theoretically and empirically, and this is one of the key aims of this project.

The point of departure for this study is the awareness that a number of different actors - both collective and individual - are mixed up in a complex system of support and care for older adults (which we will subsequently refer to simply as *long-term care*; Wittenberg, 2015). Each of these actors may be seen as contributing, to differing degrees, to maintaining or improving well-being. In other words, we can treat the social actors involved in care systems as mediating between macro-level arrangements, on the one hand, and individual well-being, on the other. The aim of this project is to contribute to debates about the role of different actors in long-term care, and the consequences for individual well-being, within the context of comparative research on the welfare state. We will seek to determine whether the well-being of individuals who are not able to take care of themselves

may be treated as a product of care (*i.e.* wellbeing is produced), or whether it is largely unrelated to this.

In this thesis, we study four countries from Southern Europe - Greece, Italy, Portugal and Spain – with a view to assessing their differences and similarities. These countries have received much less research attention than those situated in North Western Europe, and raise some interesting questions, as we will see later, in terms of the relationship between family arrangements and public welfare systems. We will compare these four countries with Germany, which has received much more attention and will enable us to assess the nature and magnitude of differences and similarities between the Southern European countries. We will seek to determine whether there is a distinctive Mediterranean model of long-term care for elderly people and whether this is associated with higher or lower burdens for families, and higher or lower well-being for the individuals involved.

1.2. Who benefits from the welfare state

Since the Nineteenth Century, a key political issue has been whether social-democratic welfare policies can reduce the negative effects of capitalist competition on the well-being of weaker social groups. Specific political arrangements involving class coalitions appear to have encouraged the development of the welfare state in several countries; working-class mobilisation, trade unionism, party development and class alliances have been identified as crucial elements in relation to this process (Esping-Andersen, 1989).

It is undeniable that Esping-Andersen with his *The Three Worlds of Welfare Capitalism* (1990) inaugurated a new way of thinking about the welfare state, signalling a breaking point with classical liberalism. He provides a theoretically-based typology of welfare states, focusing on the interplay of state and market, proposing three welfare state regimes: social-democratic, liberal and conservative. Each regime is a product of a specific combination of interlocking historical forces, such as patterns of working-class formation, institutionalisation of political behaviour and construction of political coalitions (Esping-Andersen, 1989; 1990).

What marks the difference between these welfare state regimes is essentially whether the balance tips in favour of the state or the market. With the shift from a rural to a more urban society associated with modernisation, the middle classes came to have a decisive influence over welfare state policies. Esping-Andersen (1989) suggests that the middle classes are well-placed to benefit from these policies by virtue of their capacity to build political coalitions and to exploit political influence.

The social-democratic welfare state regime is positioned at one extreme, with the state having the upper hand, characterised by universal benefits and significant redistribution of wealth. Social democracy has historically been the predominant political force in Scandinavian countries, providing benefits to a base comprising not only the working class but also sections of the middle classes.

The liberal welfare state regime is at the opposite extreme, where the market prevails. These systems typically rely on means-tested benefits and modest social insurance provisions, leading to a much lower degree of redistribution of wealth. Another key feature is that the market generally satisfies the demand for social protection of the new middle classes in these countries (which include Australia, Canada, the UK and the US).

The conservative welfare state regime is of particular interest to our study. Welfare arrangements in the countries concerned are more a matter of state-and-market syncretism rather than politics against market. Social rights and benefits typically depend on family position and social status of the head of household, and the middle classes once again rely heavily on private welfare. The conservative welfare regime accords a key role to the family, in accordance with social catholicism and the 'principle of subsidiarity' (Esping-Andersen, 1989; 1990).

The Three Worlds of Welfare Capitalism (Esping-Andersen, 1990) is one of the most disputed books in political economy and comparative research on the welfare state, drawing the attention of many contemporary researchers and triggering a proliferation of rival classifications and typologies (see, for example, Arts and Gelissen, 2002; Powell and Barrientos, 2004; Room, 2000). A review of this large literature goes beyond the scope of this thesis, but we do recognise that Esping-Andersen's treatment of the Mediterranean countries has raised objections. Along with Austria, France and

Germany, Italy is assigned to the conservative welfare regime in Esping-Andersen's typology (although he does not analyse data for Greece, Portugal or Spain). Between the 1960s and the 1990s, Italy demonstrated a number of similarities with the pioneers of social insurance (Austria and Germany), whilst from the 1990s onwards, it became increasingly clear that Southern European welfare states are quite different from those of the conservative welfare regime. As far as social security is concerned, the Southern European countries have also taken quite a different path from the "conservative family of nations" (Castles, 1995).

Southern Europe is relatively underdeveloped in economic terms, and this has implications for policies on home ownership, pensions and social security (Castles and Ferrera, 1996; Ferrera, 1996; Ferrera and Rhodes, 2000). This represents one way of characterising the Southern European countries and differentiating them from the more economically-powerful countries of the conservative welfare regime, although it is problematic in a number of respects. The aforementioned authors have argued, for example, that Mediterranean countries represent late-comers when compared with other European countries, which implies that they are likely to follow the conservative welfare regime.

Another tradition of political economy research entered this debate more recently. Hall and Soskice in *The Varieties of Capitalism* (2001) maintain a focus on the antithesis between state and market, providing a two-way classification of liberal market economies (LMEs) and coordinated market economies (CMEs). What differentiates these two models is how they cope with coordination difficulties in five contexts: corporate governance, industrial relations, inter-firm relationships, intra-firm relations, vocational training and education. The authors focus on complementarities between institutions and practices (so-called "institutional complementarities"), and this is another distinctive and useful aspect of their approach.

The category of LMEs includes almost all of the Anglo-Saxon countries (Australia, Canada, Ireland, New Zealand, the UK, the US) where firm behaviour reflects market-oriented relations. In the CMEs (Austria, Belgium, Denmark, Finland, Germany, Japan, The Netherlands, Norway, Sweden

and Switzerland), by contrast, firms tackle coordination problems through non-market relationships, interacting strategically with multiple actors, including state agencies, financial institutions and other firms. Rather than juxtaposing politics and market directly, Hall and Soskice emphasise cooperation and competition as strategic alternatives. When we compare their twofold typology with that of Esping-Andersen, it is evident that the countries described as belonging to the liberal welfare regime are considered LMEs by Hall and Soskice, while only two of the four countries in the conservative welfare regime (Austria and Germany) are included with the Scandinavian countries in the category of CMEs.

For the purposes of our study, what is worthy of attention is the fact that these two approaches treat political systems or institutional arrangements as key macro-level factors which define welfare arrangements, against the backdrop of structural conditions. Some attempts to extend these approaches have been proposed (Estévez-Abe *et al.*, 2001; Molina and Rhodes, 2007; Rhodes, 1996). Albeit with a focus on vocational training and education, Estévez-Abe and colleagues (2001) emphasise the implications of product-market strategies in competitive global markets for redistributive welfare outcomes. There is indeed a complex relationship between product-market strategies, political-institutional frameworks and welfare policies.

Molina and Rhodes (2007) suggest that Mediterranean capitalism represents a distinct model which extends to France, Greece, Italy, Portugal, Spain and Turkey. These countries rely on different combinations of institutional coordination and market reliance in different spheres (Hall and Soskice, 2001: 21). Putting together these three macro-level factors, relating to institutional arrangements, political forces and structural conditions, it is possible to distinguish between LMEs, CMEs and mixed-market economies (MMEs). When we compare different MMEs, political divisions over the welfare state may be seen as determining different policy paths, despite similarities in their institutional arrangements (Molina and Rhodes, 2007). The Mediterranean area is therefore subject to a set of factors linked with late and uneven development which shape distributive outcomes in these countries. This maintains a focus on Mediterranean countries as late-comers which struggle

with underdevelopment in the European context and consequently develop distinctive institutional and welfare arrangements.

On the other hand, turning from political economy to comparative research on the welfare state, several scholars have identified other specificities of Southern European countries which cannot be subsumed under the 'underdevelopment paradigm' or the so-called "Southern syndrome" (Rhodes, 1996). One focus of these contributions is the role of culture and the way in which cultural factors have shaped the nature and role of the family. Rhodes (1996) himself observes that the family was the main source of welfare (along with charity) in pre-industrial and early industrial Europe, and that it continues to play a relevant role by filling gaps in the coverage of state welfare programmes. Trifiletti (1999) argues that the Mediterranean countries are distinctive, as welfare policies reflect normative principles regarding the role of women within and outside the family:

"*It is no accident that today among European countries only the Mediterranean ones have such strikingly similar explicit legal obligations to maintain extended family kin in need"* (Trifiletti, 1999: 53).

The social roles of women are of fundamental importance when we look at the interplay between the market, state welfare and the family. Whilst in the post-war decades relatively few women held paid employment, since the 1990s the contribution of women to household income has grown rapidly in Belgium, France and the Northern European countries, whilst Italy and Spain remain far behind (Esping-Andersen, 2003). Welfare state policies contributed to reducing women's subordination within the family (Antonnen and Sipilä, 1996). But despite their higher educational attainments and growing participation in the labour market, women still experience subordination within the family as far as the long-term care needs of elderly people are concerned. This extends to Portugal, notwithstanding appreciable advances in the full-time labour market participation rate for women as far back as the 1970s (Torres *et al.*, 2013).

This is a complex issue, and careful consideration of the Mediterranean area allows us to achieve a more comprehensive understanding of European welfare states and of the tensions they face in relation to long-term care for older adults (Antonnen and Sipilä, 1996; Bettio and Plantenga, 2004; Jurado Guerrero and Naldini, 1996; Naldini, 2003; Naldini *et al.*, 2006; 2016; Pfau-Effinger, 2005; Trifiletti 1999). Antonnen and Sipila (1996) show that since the late 1980s, with the exception of Greece, a Mediterranean model has emerged, defined by the tiny proportion of older adults receiving long-term care outside the family (implying that social care services played a marginal role). The patterns of care provision observed in Belgium, France, Germany and the Netherlands are more in line with the principle of subsidiarity, with the family continuing to take formal responsibility for elderly people, but the state and voluntary organisations being involved in providing funding and social care.

In comparative research on health policy, the threefold typology of health care systems has also attracted attention. Following Giarelli (2011: 23), we can distinguish between the Beveridge and Bismarck models. The Beveridge model was created in the UK and spread to the Scandinavian countries and Southern Europe, with its system of universal entitlements. The Bismarck model was established in Germany and spread across Central Western Europe, based on statutory social health insurance funds (SHI). The Semashko model which was introduced in the former Soviet Union and spread across Central Eastern Europe revolves around a centrally-planned health service.

When we compare the two major models, it is evident that the main difference is to what extent the social right to health is acknowledged to all citizens (Beveridge model) or kept for the 'insiders' of the labour market (Bismarck model). However, as we will see in more detail in the next sections of this chapter, where we describe the empirical context, in the four countries of Southern Europe, there are sharper tensions between universalism and selectivity, with a number of consequences for long-term care. By contrast, in Germany, which is pioneer of the Bismarck model, a relatively high participation in the labour market may be seen as a necessary condition for funding the social health

insurance schemes. The contributions are paid equally by employed and employees, and there is not a highly selective approach to health care and long-term care in particular.

Figueras and colleagues (1994) discuss the existence of a "Mediterranean model" of health care. Notwithstanding the creation of a national health service in Italy (1978), Spain (1986) and Greece (1983), following the UK model, this model was unevenly and partially implemented in the Southern European countries. The nature and the role of the family (and of women in particular) in providing care coincides with the shortcomings of health care services targeted at elderly adults in the Mediterranean countries.

Some attempts to extend this approach have been proposed (Giarelli, 2006; 2011; 2021; Guillén, 2002; Guillén and Alvarez, 2001; Perdiguero Gil, 2019; Petmesidou and Guillén, 2008). In the context of increasing female labour force participation and smaller family size, institutional arrangements and political forces may be seen as emphasising the legacy of the statutory social health insurance funds, despite the historical development of a UK-style national health service (since 1979 in Portugal). There is indeed a complex network of macro-level factors which lead us to question the existence of a "Mediterranean model" of health care.

Giarelli (2006; 2011; 2021) argues that the way in which the four countries of Southern Europe attempted unsuccessfully to create a universalistic system of health care in the 1970s-1980s, and to improve the organisation of health care and financial management procedures in the 1990s, varied considerably between Italy and Spain, on the one hand, and Portugal and Greece, on the other. By contrast with Italy and Spain, the absence of a deep devolution of powers, alongside the absence of a strong reformist coalition of interests in the political arena explains the main difficulties in health policy implementation.

Guillén (2002), Guillén and Alvarez (2011) and Petmesidou and Guillén (2008), in a similar vein, argue that these two seasons of health policy reforms offer a means of understanding why Italy, Spain, Portugal and Greece (albeit to a different extent) are much closer to Germany than to the UK. The Mediterranean area is subject to a set of factors which shape health care outcomes in these countries,

not least of which are institutional inertia as delay or absence of a deep devolution of powers, and inability or absence of strong reformist coalitions of interests making policy pressure in the political arena.

In what follows, we will integrate three types of factor – macro-, meso- and micro-level – as we develop an empirically-grounded framework for studying the configuration of care arrangements for older adults with long-term care needs in Europe.

1.3. The role of the family in long-term care for the elderly

In comparative research on social policy, sound empirical evidence relating to different models of welfare provision is still lacking and there is little research on the implications of different long-term care arrangements for individual well-being.

Two types of cross-country differences are worth emphasising. According to some scholars, it is important to focus on graduated differences in the welfare mix along a continuum between familialism and individualism, rather than looking for sharp demarcations (Saraceno, 2010; 2011; Saraceno and Keck, 2010). Saraceno and Keck (2010) refer to four patterns, starting with 'unsupported familialism', where the family is the major provider of care due to the absence of state-provided services and of legal obligations. In 'supported familialism', the state supports the family through financial provisions (both transfers and allowances) in line with the principle of subsidiarity. In 'de-familialism', state-provided services, market-financed services, private social health insurance schemes and the family are all players in the long-term care arena, in the context of a profound individualisation of social rights. In 'optional familialism', state-provided services are combined with market-financed services to create a mixed system.

Some scholars have noted that the first type, 'unsupported familialism', is particularly evident in Southern Europe, where long-term care is almost entirely viewed as a private responsibility of individuals and their families. Catholic doctrine (and Christian social principles more generally) emphasises duties and responsibilities towards family members (Jurado Guerrero and Naldini, 1996; Rhodes, 1996). Naldini and colleagues (2006) provide a useful explanation of this issue:

"*Behind the presence or absence of certain policies, there are normative models of family forms, gender, and intergenerational obligations that guide the design of such policies while at the same time reinforcing or weakening them"* (Naldini *et al.*, 2006: 90).

To put it differently, the residual role of state-provided services in the Mediterranean countries is not only unsurprising, but is closely related to the role of the family (Naldini, 2003). Considering cultural factors, and going beyond institutional arrangements, political forces and structural facets, Southern Europe should not necessarily be viewed as a late-comer compared to other European regions. Late-comers can and do catch up with leading countries, whilst Greece, Italy, Portugal and Spain have distinctive cultural and social features which mean that they are more likely to develop and maintain distinct identities and arrangements (Trifiletti, 1999).

Cross-country differences have also been attributed to the North-South divide (Albertini *et al.*, 2007; Brenna and Di Novi, 2013) in the structure of inter-generational resource transfers. Albertini and colleagues (2007) find that in Northern Europe, more family members devote time to elderly relatives, but they do so less frequently and less regularly than in Southern Europe, where fewer people dedicate more time to these activities, implying a greater specialisation in terms of social roles. In Austria, Denmark, Germany, Greece and Sweden, older adults have the highest probability of receiving help from family members, while this probability is lowest in France, Italy, the Netherlands, Spain and Switzerland. By contrast, Greece, Italy and Spain have the highest intensity of assistance, measured as the average number of hours of help received from family members. This time, the lowest levels are observed in Denmark, the Netherlands and Sweden with Austria, France and Germany occupying an intermediate position. This would fit with a model whereby, in the Mediterranean countries, elderly people move in with their children when they need long-term care, but receive relatively little support until that moment, perhaps due to geographical mobility or high pre-existing family commitments relating to childcare.

Similarly, with a focus on the intensity of long-term care for elderly people, Brenna and Di Novi (2013) show that in Northern Europe stronger systems of formal care combine with weaker informal care arrangements on a voluntary basis. This leads to greater choice in terms of care configurations (Hämäläinen and Tanskanen, 2019). In Southern Europe, by contrast, there is often no alternative to family care. It is important to take account of this tradition of comparative research on intergenerational relationships, as the type of care received reveals differences between individual countries, rather than different models of welfare provision where the Mediterranean countries are assimilated to a separate pattern. Involuntary provision of care in the Mediterranean area has been shown to be strongly detrimental to the well-being of care-givers (Binder and Freytag, 2013; European Commission, 2018d: 12).

These different strands of research guide our comparative analysis of long-term care in Germany, Greece, Italy, Portugal and Spain. Esping-Andersen and Hall and Soskice provide useful descriptions of state-and-market syncretism, which is a key concept when studying welfare state formation in the European periphery.

Criticism of the "Mediterranean model" of health care also provides motivation for comparing these five European countries. Emphasis on the logic of transformation and stasis embedded in each country of Southern Europe highlights a number of similarities with Germany, not least of which is the legacy of social health insurance schemes, which retarded and hampered the historical development of the health service.

These approaches encourage us to explore the nature and magnitude of similarities and differences between the individual countries, without making unwarranted assumptions.

We simultaneously argue that focusing on Mediterranean countries as an example of delayed development leaves out a number of potentially important macro-level factors. In a study of four liberal countries (Australia, Canada, the UK and the US), O'Connor and colleagues (1999) argue that it is not appropriate to treat the US as simply a "welfare state laggard". So, while working within the

threefold typology of Esping-Andersen, comparative research can nonetheless be sensitive to cross-national differences.

Emphasising the role of the family within the Southern European countries, and assuming that the normative dimension of family welfare has explanatory power only in this region, is unconvincing. As far as long-term care for older adults is concerned, family care cannot be viewed as a forced choice alone, but is also related to the institutional logic of public welfare arrangements and wider processes of social change. In the context of increasing female labour force participation and decreasing family size, the availability and affordability of family members to take care of needy elderly people cannot be taken for granted anymore (Blöss and Ambrosetti, 2018). This points to the relevance of extending our focus on the role of different actors in long-term care and comparing Germany, Greece, Italy, Portugal and Spain.

1.4. The empirical context

Following Campbell and colleagues (2015), it is possible to distinguish between institutional care and home and community-based services (HCBS) which form part of in-kind care services. The former (residential care) consists of forms of care at the border between health care and social care, as elderly people may receive medical services and nursing care as well as social services and social support in relation to their activities of daily living (ADL). The balance between these two forms of care can vary over time, but there is often a shift towards greater medical/nursing care at the end of life. Home and community-based services generally involve a care worker providing help with activities of daily living, including personal care, household chores, paperwork and certain aspects of medical/nursing care or treatment (Genet *et al.*, 2013: 85). This form of care is generally complemented and integrated by family support and enables elderly people to remain in the community.

As we will show in the following five sections dedicated to the five countries, there have been several attempts to encourage home care in the place of inadequate or unnecessary institutionalised care all over Europe (Gori *et al.*, 2015). This trend, however, has proceeded at a

different pace across countries. Since the 1990s, in Italy, Spain and Greece, a relatively small number of nurses and of inpatient beds in the elderly care sector has been compensated for by high numbers of physicians, with many beds in acute hospitals being occupied by the chronically ill and needy elderly, by contrast with other Western European countries (Figueras *et al.*, 1994: 139).

Alongside cross-national differences in the in-kind care services that are available, it is important to consider the provision of cash-for care schemes (publicly-funded monetary transfers). This type of care is increasingly widespread in Europe and is likely to redefine what we mean by long-term care in the future. The introduction of care allowances is illustrative of how different actors - the state, the market, the family - mobilise resources in order to take care of elderly adults and the way in which each interacts with the others. Particularly where there are no limits on how such money is spent, these benefits may be used by elderly adults either directly - to purchase hours of care or to employ paid carers - or indirectly as a supplement to the income of family care-givers. This reflects a marginal role of the state, which is confined to the provision of cash contributions rather than services, and a marked privatization of care with a more blurred border between the market and the family (Da Roit, 2010).

As we will see in the next chapter, the comparative design of this research allows us to consider between-country differences in cultural norms, institutional arrangements, political forces and structural conditions, with a view to assessing differences and similarities in long-term care arrangements in Italy, Spain, Portugal, Greece and Germany.

1.4.1. Italy

In Italy, Law no. 833 (Article 32) of 23 December 1978 established the national health service, which replaced the social health insurance funds, acknowledging the right to health to all citizens. Apart from providing funding for a unitary scheme, the aims of the new universalistic approach to health care were achieved only partially, as social inequalities in health largely remained (European Commission, 2018c; Giarelli, 2011; Guillén, 2002; ISTAT, 2010).

Since the 2000s, there have been a relatively high proportion of physicians and very high levels of hospital health care expenditure, along with a shortage of nurses and very low levels of public spending on prevention (less than 1% in Italy, against about 5% in Germany) (Giarelli, 2006: 30). This is a clear indication of the shortcomings of the Italian system of long-term care, where nurses are key professionals for meeting the needs of the elderly, and where prevention may avoid the risk of inadequate or unnecessary hospitalisation. The provision of long-term care for older adults has not been a central concern of governments in recent decades, notwithstanding population ageing is not new anymore (Campbell *et al.*, 2015: 55; Capacci and Rinesi, 2018).

The Italian system of long-term care consists of in-kind care services, cash-for care schemes and leave from work. Institutional care and home and community-based services are means-tested and locally-regulated. Institutional care is the least developed component with a very low number of nursing home admissions but a very high proportion of co-payments by users. Apart from day care and respite care - which are almost non-existent - there are two locally-regulated programmes providing medical care (so-called *assistenza domiciliare integrata – ADI*) and social care (so-called *servizio di assistenza domiciliare – SAD*). The Italian regions are responsible for the former, whilst the municipalities are in charge of the latter (Campbell *et al.*, 2015; European Commission, 2018c: 8). As stated earlier, home and community-based services consist of help with the activities of daily living and certain aspects of medical/nursing care or treatment.

These in-kind care services are highly differentiated on a territorial basis, are both under-funded and under-developed, and are combined with an over-exploited and over-developed cash-for-care policy.

Cash-for care schemes are universal and nationally-regulated. The “attendance allowance” (*indennità di accompagnamento*) was introduced in the 1980s, and there has been a gradual weakening in the direct provision of in-kind care services and a strengthening of transfers since then (Campbell *et al.*, 2015; Gori *et al.*, 2015). Following the assessment of the overall level of

individual disability, this cash contribution is run by the national institute of social security and financed through general taxation.

This cash-for-care scheme has encouraged reliance on migrant women as a cheap source of labour where family members are unable (or may be unwilling) to provide long-term care. According to a recent ISTAT estimate (2010), almost 80% are undocumented domestic workers who are hired to cater to needs that cannot be met by either state-provided services or the formal market. In the South of Italy, in the context of low demand for low-qualified female labour, many women take these transfers as income and provide care within the home to parents or other older family members. Whatever their use, many older adults who receive these transfers find that this system is not tailored to meeting their numerous long-term care needs (European Commission, 2018c).

Concerns have been raised from several sides that Italy is still far from having a configuration of care which provides for the long-term care needs of elderly people (see, for example, Campbell *et al.*, 2015; European Commission, 2015b; European Commission, 2018c; Gori *et al.*, 2015; Wittenberg, 2015). This inability to respond to the long-term care needs of elderly adults and their families is due to a particularly poor coordination capacity between the national, regional and local levels. This became evident immediately following approval of Law 328/2000 and Law 3/2001, which redefined some of these responsibilities. Federalist arrangements generated further constraints in relation to long-term care. This has reduced central government involvement in relation to an already residual role of residential care tailored to meeting severe or quite severe long-term care needs, and to home and community-based services fundamental for those who have a degree of individual autonomy. Law 296/2006 created a national fund for older adults with long-term care needs (the "National Fund for Non-Self-Sufficient Persons") mainly managed by the regions, but this was cancelled in 2012 (European Commission, 2015b: 10).

Government involvement in this area was also affected by the economic crisis that began in 2008, which led to further cuts in care services (European Commission, 2018c).

The third pillar of the Italian system of long-term care - care leave - enables employees to take from a minimum of three working days to a maximum of 2 years of paid leave. However, this is only granted to employees who have to assist a severely-disabled family member, leaving aside those who are outside the labour market. It is also confined to one person per household, meaning that it does not consider care sharing between family members (referred to as the 'principle of sole carer').

Some sociologists argue that families should be treated as strategic actors in relation to care and institutionalisation in particular (Albertini and Kholi, 2017; Da Roit and Naldini, 2010; Garber and MaCurdy, 1990). With a focus on intergenerational relationships, Albertini and Kholi (2017) argue that adult children play a dual role: direct, by providing unpaid informal care to their elderly parents, and indirect, by helping them to access other forms of paid care, either formal or informal, effectively reducing the risk of entering residential care. By contrast, childless elderly adults are more likely to enter a nursing home, regardless of their health status.

Moving on to conjugal relations, Garber and MaCurdy (1990) show that living with a partner greatly diminishes the likelihood of being admitted to a nursing home, suggesting that fairly basic forms of family support may often suffice to enable older adults to remain at home.

Da Roit and Naldini (2010) refer to four strategies within the family as a whole. Firstly, where elderly people still have a degree of individual autonomy, family members are rarely engaged in caring. Secondly, as they grow more dependent, the family outsources part of the caring tasks by hiring a care attendant, frequently from the migrant labour market. Family care-givers and care attendants are both involved in the provision of informal care while simultaneously carrying out other activities. Thirdly, where elderly adults need continuous care, they are likely to move in with a family member or vice versa, with serious repercussions for the private life of all involved (for chronic diseases, see Converso, 2015; for neurodegenerative diseases, see Cappellato, 2015). Finally, institutionalisation may be the only option if long-term care needs are particularly great, although this is more a matter of forced choice rather than strategy (Da Roit and Naldini, 2010).

Several shortcomings characterise the Italian system of long-term care, and many challenges must be tackled, not least of which is how to meet the long-term care needs of those who cannot rely on a family network.

1.4.2. Spain

In Spain, as in Italy, the establishment of a national health service, based on Law no. 14 of 25 April 1986, led to the adoption of a number of measures to improve employment and social protection in general (Guillén, 2002; Guillén and Alvarez, 2001). However, these aims were achieved only partially. The right to health care was extended to poor elderly people in 1989. At the same time, the process of decentralisation has been much weaker than in Italy (Giarelli, 2011).

Act 39/2006 signals the creation of a system that assimilates long-term care for older adults into the regionally-regulated social services system. There is a universal system of entitlements for elderly people with various degrees of dependency (moderate, severe and high). Following assessment, the regional social services system defines an individualised care plan that identifies the services required to meet the long-term care needs of the individual (Zamora López *et al.*, 2018a; 2018b). Funding is strongly dependent on taxes and co-payments by beneficiaries, according to the type of service required and individual resources (European Commission, 2018e).

As far as in-kind care services are concerned, institutional care is targeted at elderly adults with moderate-to-high levels of dependency, although a low take-up reflects the cost of these in-kind care services and the preferences of older adults and their families. Day/night centres are targeted at older people with a moderate degree of dependency and represent a very important source of support for family carers. Home and community-based services are more widespread and consist of tele-assistance at home for elderly people with a moderate degree of dependency and home care for highly dependent elderly adults.

Moving on to cash-for-care schemes, these can be used to either ease family care or to purchase care, as in Italy. The cash contribution for informal unpaid care is subject to two restrictions: care

must be provided by family members and the amount received must compensate for care-related costs (including the informal carer's work). The cash contribution for purchasing care in state-provided services or in the formal market (including residential care and home and community-based services), are strongly dependent on the degree of dependency. There is also a restriction on the amount received, as this benefit must be used to purchase services (albeit with free choice of professionals) (European Commission, 2018c; 2018e).

One might say that the Spanish system of long-term care seeks to boost family care through transfers. This was evident immediately following approval of the national reform plan in 2014, which led to further reductions in the extent of coverage and intensity of protection. However, against the backdrop of these structural conditions, cultural norms (and care obligations in particular) also play a very relevant role (Blöss, 2018; Blöss and Pagès, 2018; Domínguez Folgueras *et al.*, 2018; Naldini *et al.*, 2006; 2016). Particularly when women are economically active, family care can be combined with the hiring of migrant workers (Da Roit *et al.*, 2013; European Commission, 2018e). This points to the relevance of ascertaining the set of factors underlying this configuration of care and its impact on the well-being of all involved.

Notwithstanding an increase in coverage of dependent elderly adults, the Spanish system of long-term care was greatly affected by the economic crisis that began in 2008. In Spain, as in Italy, inability to respond to the long-term care needs of elderly adults and their families is due to a particularly poor coordination capacity between the central administration and the autonomous communities, and between the latter and the municipalities. Availability, affordability and coverage all point to a care which is highly differentiated on a territorial basis, without reducing the family burden of informal unpaid care.

1.4.3. Portugal

Whilst Italy, Spain and Greece have drawn attention over recent decades, Portugal has only recently been the object of scholarly attention as far as long-term care is concerned. Law no. 56 of 21 July 1979 (following approval of the new constitution in 1976) established a national health

service which acknowledged a universal right to health care for all citizens. However, as in Greece, there have been larger difficulties in implementation than in Italy and Spain, and a universalistic approach to health care was never achieved. Nor was the aim of improving the organisation of health care ever attained, with excessive centralisation, inefficiencies and managerial problems remaining. Some scholars have identified resistance by right-wing political parties, public social health insurance funds and civil society actors such as employers' associations as explanatory factors for this uneven development of public health services (Giarelli, 2006; Guillén, 2002; Petmesidou and Guillén, 2008).

There is a relatively high share of private spending on health care and long-term care in Portugal, contributing to greater differences with the other countries of Southern Europe. In 2015, Portugal had the highest proportion of out-of-pocket expenses for long-term care in Europe (European Commission, 2018d: 10). This points to the nature and role of the family as a means of affording out-of-pocket expenses rather than as a source of direct assistance.

The national network for integrated continuous care (so-called *RNCCI*) was implemented in 2007, involving the provision of long-term care and other services. Portugal now has a well-organised system of formal care, involving public and private services (both for-profit and not-for-profit) that are funded by the state and by end users, with means-testing, although there are no legal obligations for family members to cover costs (European Commission, 2018d).

Three types of services are provided: health care, institutional care, home and community-based services. Apart from health care, which is not targeted at individuals with long-term care needs, services in-kind are insufficient in the face of widespread need for long-term care, which affects a large share of older adults. The rigidity of entitlement rules to enter institutional care is a specificity of the Portuguese system of long-term care (European Commission, 2018d; Lopes *et al.*, 2018).

Low levels of home and community-based services also reflect an under-funded and under-developed public policy area, and lead to a considerable burden for families. Significant

asymmetries are particularly pronounced at regional level, leading to very low levels of coverage especially in the Algarve regions. Another concern has been raised that the Portuguese system of long-term care is unaffordable, as its room for manoeuvre is confined to the poorest parts of the population, with waiting times reaching up to 219 days for long-term care (European Commission, 2018d: 10; Joël *et al.*, 2010).

Elderly people with long-term care needs are entitled to a dependency supplement, which is a publicly-funded monetary transfer targeted at those who have limitations with ADL, both non-pensioners and pensioners. This cash contribution is means-tested, and the amount received changes on the basis of the individual resources rather than the degree of dependency. An already minimal provision of this cash benefit has suffered from the effects of the economic crisis. This has meant public spending cuts in this publicly-funded benefit (European Commission, 2018d; Lopes *et al.*, 2018).

1.4.4. Greece

In Greece, even more than in Portugal, the establishment of a national health service (Law no. 1379 of 1983) does not represent a radical rupture with the social insurance model pioneered in Germany and Austria. The legacy of the statutory social health insurance funds is a specificity of the Greek system, leading to strong inequalities between different professions and between urban and rural areas. A number of attempts to limit the role of the private sector have also had little success, due to resistance on the part of the medical unions and other powerful lobbies. This leads to a highly fragmented system of health care, with a specific public-private mix (Giarelli, 2011; Guillén, 2002; Perdiguero Gil, 2019; Petmesidou and Guillén, 2008).

In Greece, as in Portugal, the two seasons of public policy reforms, respectively in the 1970s-1980s and 1990s, never yielded a universalistic health service. In fact, Greece has the most under-funded and under-developed system of long-term care in the Mediterranean area. Long-term care for elderly people is not a priority in terms of funding, provision and regulation (Genet *et al.*, 2013) and government involvement is meagre, leaving informal care essentially to the family.

Before the economic crisis, informal care was largely dependent on migrant labour, as in Italy and Spain, but family care subsequently became more common. Because of the declining number of women entering or remaining within the labour market, the option of caring for an elder family member became more feasible. The progressive pauperisation of lower-class families resulted in family care being the only alternative to unavoidable and unaffordable formal care. In turn, the shortage of state-provided services has led people to consider part-time employment or even early retirement to reconcile between care and work responsibilities. Traditional attitudes and behaviours in relation to responsibilities for care may also account for low levels of female labour market participation and high levels of female-provided family care (European Commission, 2018b; 2018c; 2018e). This points to the relevance of assessing the interplay of institutional arrangements and cultural norms if we want to improve our understanding of the consequences of long-term care for families.

The unified agency for social insurance (so-called *EFKA)*, the Ministry of Health and the Ministry of Labour, Social Insurance and Social Solidarity are jointly in charge of providing public services, especially institutional care and home and community-based services. However, 240 care homes providing institutional care are run by private organisations (both for-profit and non-profit), and are more widespread in urban areas compared with rural areas. For-profit care homes are run by private enterprises, are privately paid for by elderly people and their families. Non-profit care homes are run by local authorities, charitable organisations and the Church, subsidised by the state and funded by co-payments by beneficiaries (European Commission, 2018b).

In 1998, a long-term care programme at the border between residential care and home and community-based services, so-called “help at home”, was introduced, based on rigid income criteria and targeted at severely disabled people and those aged 78 years or over. Since the 2000s, the European Social Fund has encouraged home and community-based services through funding

for “help at home”, with 68 day-care centres managed by municipalities or municipal enterprises for community-dwelling elderly.

Greece falls far short of meeting the long-term care needs of the majority of elderly people as a result of its rigid eligibility criteria. The other three Southern European countries considered here have recognised the need to extend entitlements (European Commission, 2018b: 8; 2018c; 2018d; 2018e). Other shortcomings include territorial inequalities, with a particularly poor concentration of care resources in rural areas compared with urban, lack of in-kind care services and long waiting times (European Commission, 2018b).

1.4.5. Germany

Germany is a pioneer of social insurance and provides for different forms of long-term care (ISTAT, 2010). In 1995, the introduction of a social health insurance fund, the so-called “long-term care insurance scheme” (LTCI), with the Long-Term Care Insurance Act, signalled an expansion in the extent of coverage. Followed by the Complementary Nursing Act in 2002 (which was reformed in 2008, and improved in 2015), this programme is universally-oriented, nationally-regulated, and targeted at elderly adults with chronic conditions (European Commission, 2018a; Rothgang, 2005; Theobald and Hampel, 2013).

LTCI has become mandatory for all citizens since 2009, and consists of a public scheme and a private scheme, although co-payments by older adults or their families are expected (as well as contributions from municipalities). It is linked with the system of health care, as the public scheme is targeted at public health insurance holders and the private scheme is targeted at people with private health insurance. Due to this public-private split, the scheme has different impacts on different social groups, and the public scheme is financed through income-related contributions on the basis of an income ceiling which exempts more affluent individuals.

Until 2016, a three-level long-term care arrangement provided for the assessment of long-term care needs by the Medical Review Board (so-called *medizinischer dienst der krankenversicherung - MDK*), along with the statutory health insurance funds. The eligibility criterion consists of the

need to receive regular care with activities of daily living (ADL) for at least six months (relevant, severe and quite severe), and no barriers are placed on formal care availability or access.

In the context of a profound individualisation of social rights, this long-term care arrangement is aimed at preserving or regaining individual autonomy and responsibility. Prevention and rehabilitation are given priority over long-term care, and home and community-based services are prioritised over institutional care (European Commission, 2018a). This is likely to prevent, delay or reduce the negative effects of disability and poor health, ultimately reducing long-term care needs.

LTCI benefits consist of in-kind care services (institutional care, home and community-based services), cash-for-care schemes or some combination of the two. Institutional care covers nursing care facilities funded by LTCI, with co-payments by beneficiaries for accommodation, catering and housing. Home and community-based services consist of the provision of long-term care by professionals recruited and paid by LTCI for day/night centres and home care (Theobald and Hampel, 2013). Since the introduction of LTCI, there has been an increase in private for-profit in-kind services (European Commission, 2018a; ISTAT, 2010; Rothgang, 2005).

Moving on to cash-for-care schemes, LTCI benefits are either directly granted to a family (statutory pension insurance, for example) or to cover the additional costs incurred by family carers (European Commission, 2018a; Rothgang, 2005; Saraceno, 2010). As in Italy (albeit to a lesser extent than in the latter case), these benefits encourage family care, particularly when older adults do not qualify for state-provided services (following an assessment of needs) or families cannot afford to pay for private services.

In 2016, these care allowances were the most common form of benefit in Germany, accounting for about 50% of all recipients (European Commission, 2018a: 8). Informal unpaid care (within the family) is therefore the most common form of care, and women (spouses/partners, daughters or daughters-in-law) are the most frequent family members involved. If we consider elderly people who are no long able to look after themselves, almost 70% are cared for by close relatives,

whilst the remaining roughly 30% lives in a nursing home (European Commission, 2018a: 10; Rothgang, 2005).

The acknowledgment of unmet needs has led to reforms in recent years, as a five-level long-term care arrangement provided for the assessment of the individual's environment, functional limitations and health in 2017. This contrasts with the situation in the Mediterranean countries, where any extension in eligibility criteria, as in Italy, simply reflects the demand for state-provided services in the context of an uncertain and under-developed institutional arrangement (European Commission, 2018a; 2018c).

In Germany, the aim of a sound mode of funding, with the reduction of fiscal burdens on the local levels, has been achieved since the introduction of LTCI, and has reflected a very long but fruitful political debate (Theobald and Hampel, 2013). By contrast, in Spain, the goal of funding through general revenues was achieved only with considerable delay, and in Portugal and Greece has never been achieved. In these three Southern European countries, public policy reforms met much stronger resistance in the political arena (Giarelli, 2011; Guillén, 2002; Perdiguero Gil, 2019; Petmesidou and Guillén, 2008).

Although Italy, Spain, Portugal and Greece show systematic differences with Germany in institutional arrangements, political forces and structural conditions, it is apparent that family care covers the lion's share of long-term care needs in all five countries. At the same time, whether this is more a matter of forced choice rather than a strategy seems to change in the different countries. These five case-study countries offer a means of exploring how different macro-level factors can be linked in a different manner, and the way in which this link defines the configuration of care arrangements for elderly adults with long-term care needs.

1.5. From family ties to family care

In theoretical work on social ties, scholars have referred to social capital (Arezzo and Giudici, 2015; 2016), social relations (Aartsen and Jylhä, 2011; Aartsen *et al.*, 2017; Cacioppo *et al.*, 2010; Golden *et al.*, 2009; Greaves and Farbus, 2006; Holt-Lunstad *et al.*, 2015; Liao *et al.*, 2014),

social networks (Giles *et al.*, 2005; Litwin and Shiovitz-Ezra, 2010; Rafnsson *et al.*, 2015; Santini *et al.*, 2015a; Tomini *et al.*, 2016; Zou *et al.*, 2015) and social support (Sener, 2011) in relation to the elderly, exploring their effects on health, well-being or both.

Social capital is one of the most controversial concepts in contemporary social theory, drawing the attention of many contemporary researchers and triggering a proliferation of rival concepts and measures. Conceptualised in one of its structural aspects (*i.e.* networking), social capital is of particular interest in the context of ageing. Arezzo and Giudici (2015) find that ties with friends (bridging ties) positively affect self-perceived health more than ties with family members (bonding ties).

A specific strand of research addresses the absence of social ties (social isolation) and its effects on health and well-being. Some scholars find that being socially engaged reduces the risk of adverse health and non-health outcomes, whilst being socially isolated has the opposite effect (Greaves and Farbus, 2006; for mortality, see Holt-Lunstad *et al.*, 2015; Lyyra, 2006). Social relations may be insufficient to sustain well-being, either objectively (social isolation) or subjectively (loneliness) (Golden *et al.*, 2009). While social isolation indicates the absence of social relations, loneliness is a subjective state, reflecting a discrepancy between desired and actual social relations (Litwin and Shiovitz-Ezra, 2010: 380; Thøgersen-Ntoumani *et al.*, 2011: 76).

According to the activity theory of ageing (or the normal theory of ageing) and the continuity theory of ageing (Aartsen and Jylhä, 2011), people who are unable to renew their social relations following retirement are more likely to experience loneliness. When we look at the effects of loneliness on health and well-being, we find that this can lead to higher all-cause mortality, greater risk of suicide (Aartsen *et al.*, 2017), physical sickness, poor physical functioning, depressive symptomatology and lower well-being (Cacioppo *et al.*, 2010; Litwin and Shiovitz-Ezra, 2010; Thøgersen-Ntoumani *et al.*, 2011).

Although loneliness decreases with age, how individuals feel about their social connectedness influences how they feel more generally (Joshi *et al.*, 2003). In accordance with socioemotional selectivity theory, Cacioppo and colleagues (2010) highlight how, with ageing, people become more selective in their social relations as a means of regulating their emotions. Elderly people tend to select social partners to maximise emotional experiences, while minimising emotional risks, and this selective social connectedness appears to improve their life expectancy.

It remains to be verified whether ageing has specific implications for social relationships in the presence of long-term care needs. It is important to distinguish between ties with friends (their social network), and the extent, frequency, type and intensity of social interactions. It is possible to distinguish two different types of social support: emotional and instrumental. Simplifying, the former involves giving affection and emotional closeness, whilst the latter involves providing resources or concrete assistance. This distinction is useful when seeking to understand how care relations and care transactions are structured among elderly adults. As we will see in Chapter 3, this raises a number of challenging issues in terms of the choice of measures for comparative research.

It is important to realise that ties between elderly people and their family and friends are not necessarily motivated by the provision of resources or concrete assistance. Research reports that adult children, grandchildren, other relatives, spouses and neighbours can be a source of social support, with positive impacts on the well-being of older adults. Some work suggests that a higher proportion of family members in social networks is associated with well-being, compared with friends (Tomini *et al.*, 2016). Others have reached the opposing conclusion that it is mainly ties with friends that positively influence the well-being and the survival of elderly adults (Giles *et al.*, 2005; Santini *et al.*, 2015b), or report that ties with family members or relatives are associated with a deterioration in the mobility of older adults (Litwin and Stoeckel, 2013). This finding contradicts the main effects perspective, which affirms that social networks have a positive influence on health, and the stress-buffering hypothesis, which stresses their indirect effects. But

Liao and colleagues (2014) find that ties with close relatives do not necessarily have protective effects in terms of cognitive ageing in middle age.

The precise relationship between social ties, health and well-being remains an open research question, both in terms of direct and indirect effects. We also know relatively little about how this association varies with long-term care needs. Empirical evidence suggests that specific features of social networks may influence health and well-being, such as the number of contacts (Litwin and Shiovitz-Ezra, 2010), the proportion of family members in the network (Tomini *et al.*, 2016), the degree of interconnectedness (Zou *et al.*, 2015) and the frequency of contact (Rafnsson *et al.*, 2015). Each of these characteristics has the potential to influence the availability and type of social support and companionship available to the individual.

In line with equity theory in social relationships, which is an extension of the socioemotional selectivity theory, there is empirical evidence that increases in social support negatively affect life satisfaction, presumably because this implies greater dependency (Sener, 2011). This raises the issue of reciprocity and solidarity between care providers and receivers, although it is also important to contextualise these important issues in a culturally and socially appropriate manner, taking account of the perceptions of all actors involved.

There is a large literature on conjugal ties and intergenerational relations (Albertini and Kholi, 2017; Bengtson, 2001; Bengtson *et al.*, 2002; Hämäläinen and Taskanen, 2019; Luppi and Nazio, 2019), while ties between siblings and other family relationships have received little attention (see, for example, Burbidge and Minnes, 2014). For this reason, we will not restrict our analysis to spouse/partner and child/parent support.

In line with the intergenerational stake hypothesis and the family solidarity theory in general, it would appear that older generations activate a much greater psychological investment in their intergenerational relationships than younger generations (Bengtson, 2001; Bengtson *et al.*, 2002). However, in this study we are particularly interested in upward intergenerational investment,

flowing from adult children to their elderly parents. As pointed out earlier, this type of investment has already revealed cross-cluster differences.

If care sharing regards both elderly parents and children simultaneously, the situation of the 'sandwich generation' becomes particularly critical. Some scholars affirm that competing, or even contrasting, obligations can emerge within the family, as the demands of childcare can lead to less time for looking after elderly parents (Giudici *et al.*, 2018; Hämäläinen and Tanskanen, 2019), whilst others argue that this is primarily a question of opportunity, rather than competition. For example, Luppi and Nazio (2019) find that taking care of children encourages the provision of care to elderly parents and vice versa, a finding that corroborates the family solidarity theory. This issue will be considered carefully in this work, as we noted that being part of a 'sandwich generation' may not necessarily result in a decline in the well-being of family care-givers.

This family solidarity theory further indicates that the likelihood of receiving long-term care along generational lines depends upon intergenerational relationships themselves. One might imagine that people who do not have family members or other relatives (such as childless elderly adults) cannot by definition receive long-term care. But some studies show that this is not always the case. Albertini and Kholi (2017) show that individuals who are in contact with their children sometimes receive less social support than those with less regular contact, presumably because the latter can draw on other sources of support.

Care sharing in the family varies by gender as men with sisters tend to share with them or to delegate to them caring activities, especially when highly intensive forms of care are required. This is more common in the Mediterranean countries than in other regions of Europe, and men without sisters are frequently substituted by their wives when a family member requires care (Luppi and Nazio, 2019). Women are more likely to take care of their elderly parents than their male counterparts, and mothers are more likely to be cared for by adult children than fathers.

Hämäläinen and Tanskanen (2019) show that emotional closeness and care are exchanged between daughters and mothers. Both women and men provide their elderly parents with practical

help at the onset of long-term care needs, throughout Europe. By contrast, when these needs increase, gender differences affirm themselves with greater force, especially in countries where public welfare is weak. This suggests that the notion of a North-South gradient may have some explanatory power. For example, Di Novi and colleagues (2015) highlight how institutional arrangements, such as the weakness of systems of public welfare in the Mediterranean countries, can have adverse effects on health and non-health outcomes.

It is important not to confuse intergenerational relationships with long-term care arrangements when analysing happiness or satisfaction (Amirkhanyan and Wolf, 2003; 2006a; 2006b). Simply having an elderly parent with long-term care needs may be enough to negatively affect individual well-being. The type of care required and its distribution could then have additional impacts and a high care burden may reduce care-givers' ability to deal with stressors, against the backdrop of work-related stresses and rewards (Raschick and Igersoll-Dayton *et al.*, 2004).

In this context, gendered family care arrangements in Southern Europe might result in gender differences in well-being more generally, while revealing similarities and differences with other countries. The type of investments required and the distribution of long-term care is likely to lead to a higher burden for families (and for women in particular) in Southern European countries, compared with Northern and Western Europe. These micro-level factors must therefore be controlled for: having an elderly parent with long-term care needs, the type of investment required and its distribution within the family. Only then can we explore the impact of caring on the well-being of family members.

Some living arrangements have already proven to be strongly predictive of health and well-being among elderly people (Wiles *et al.*, 2011), especially for those receiving care at home (for those living in nursing homes, see Tarugu *et al.*, 2019). In the presence of serious long-term care needs, those who are cared for at home by family members, perhaps due to the lack of availability of state-provided services or unaffordable private services, appear to experience a decrease in well-being (Giudici *et al.*, 2018).

This means that, along with the severity of long-term care needs, it is important to assess whether family care reflects a lack of alternatives or whether this takes place with the support of services (public and/or private). It is crucial to fill these gaps in relation to the receivers and family care-providers in order to assess the claim that there is a Mediterranean model of long-term care for elderly people. Similarly, many macro-, meso- (including family and household composition) and micro-level factors that could affect the well-being of receivers and family providers of care remain unexplored. It is therefore essential to link them in order to evaluate whether family care leads to higher or lower wellbeing of all involved.

Chapter 2 Research methodology

2.1. Research questions

Building on the theoretical discussion and literature review presented in Chapter 1, the central research question addressed by this project is whether it is possible to identify a Mediterranean model of long-term care for elderly people. This is a complex and challenging question, which requires careful consideration of how families seek to meet the long-term care needs of their older members and how they resolve any resulting tensions. Our aim is to evaluate the evidence in relation to long-term care for older people in different European countries by linking family arrangements to welfare systems.

As we argued in Chapter 1, it is increasingly important to integrate family care for older adults within the context of comparative research on welfare arrangements in Europe. In this project, we investigate similarities and differences in family care for elderly people in four countries situated in Southern Europe (Italy, Spain, Portugal, Greece) and compare them with Germany. This enables us to assess the nature of family care in these countries and to determine whether it is legitimate to treat the four Southern European countries as forming a single type.

As we showed in Chapter 1, it is fundamental to integrate family care for elderly people within the context of comparative research on social policy in Europe and to consider European and non-European research on the determinants of well-being. In this project, we investigate how different actors mobilise available resources in order to take care of older people. This enables us to evaluate whether family care for older adults is associated with higher or lower burdens for families and to determine whether the role of the family reflects a lack of alternatives or whether this takes place with the support of other actors.

Another research question addressed by this project is whether family care for older people in these different countries is associated with higher or lower well-being for the individuals involved.

This is an interesting and important aspect of the experience of older adults with long-term care needs, but also of their care providers. Considering both parties is fundamental to evaluating the costs and benefits of different long-term care arrangements. Our goal is to assess their implications by considering the role of family members and other actors in the provision of care. We will assess whether the association between family ties, health and well-being varies with long-term care needs, and whether family care for older people can promote and preserve the well-being of all involved. In the next section of this chapter, we discuss in more detail the data used, available variables and how they can be used to address the research questions.

2.2. The Survey of Health, Ageing and Retirement in Europe (SHARE)

The empirical research presented in this thesis relies on secondary data analysis (Park, 2006). We use data from the Survey of Health, Aging and Retirement in Europe (SHARE), an innovative source of information on the themes at the centre of this project. The survey has a cross-national design, allowing researchers to study population ageing and its impacts in a range of European countries, with their different cultures, histories and public policy approaches. It also incorporates a longitudinal component, following the ageing process as it evolves over time as well as space. The intention is to shed light on how public policies influence the attitudes, behaviours and well-being of European citizens (Börsch-Supan and Jürges, 2005; Börsch-Supan *et al.*, 2005; Malter *et al.*, 2016).

The research is based primarily on Wave 6 (2014/2015) of SHARE, which is the most recent dataset available and only the second wave containing data on respondents' families and social networks (the first was Wave 4, carried out in 2010/2011). Our research questions can be addressed most effectively using cross-sectional data, due to the comparative design of SHARE and our need to identify differences and similarities between individuals in terms of long-term care needs, care and assistance, health status and well-being. As stated earlier, we are interested in studying the effects of receiving and providing care within the family in terms of individual well-being.

The target population comprises people aged 50 and over, and may be said to cover three groups: those aged 50-74, those aged 75-84 and those aged 85 and older. This will facilitate the analysis of

differences which have accumulated over the life course; the combination of theory and empirical analysis will allow circumscribed causal inferences to be drawn (Park, 2006). We are not primarily concerned with studying contemporary processes of institutional change in Europe, although each case will be framed in relation to the theoretical literature on welfare arrangements.

By virtue of its longitudinal design, SHARE provides detailed information on three distinct phases of life: the time before retirement (where the emphasis is on labour market participation), the time after retirement (including changes in consumption, financial status and social network) and old age (with special regard to long-term care needs). As we will see in more detail in the next section, where we discuss the sampling design of SHARE and the composition of the national samples that are analysed in this thesis, respondents may be either economically active or outside the labour market, including individuals who take care of family members as well as those in need of care, with a gradual shift over time from the first to the second category.

SHARE was inspired by other longitudinal surveys, such as the English Longitudinal Study of Ageing (ELSA), which began in 2002 and whose original sample was interviewed as part of the Health Survey for England (HSE) in 1998, 1999 and 2001. Another precursor is the US Health and Retirement Study (HRS), which began in 1992. The added value of SHARE derives from the way in which it covers differences in cultures, histories, and public policy approaches across Europe. It has a number of affinities not only with ELSA and HRS, but also with other national ageing surveys, such as the Italian Longitudinal Survey on Ageing (ILSA), the German Ageing Survey and the Irish Longitudinal Study on Ageing (TILDA). National health surveys can also be used to study aspects of ageing and health, and these themes have been studied using data from the Survey of Income and Living Conditions (EU-SILC), the European Social Survey (ESS), and using survey data collected by the World Health Organization (WHO).

SHARE has in turn inspired other surveys, such as the Brazilian Longitudinal Study on Ageing (ELSI), the China Health and Retirement Study (CHARLS), the Longitudinal Ageing Study in India (LASI), the Japanese Study on Ageing and Retirement (JSTAR) and the Korean Longitudinal Study

on Ageing (KLOSA) in South Korea (Börsch-Supan *et al.*, 2013). SHARE provides data on health-care provision, health status, health-care utilisation, quality of care and individual circumstances (family composition, family form, socio-economic position) and social relationships (social participation, social networks, intimacy). It includes indicators of quality of care for elderly people, relying on standardised questionnaire modules and well-constructed scales and indices, like the 12-item control/autonomy/self-realisation/pleasure scale (CASP-12). International coding schemes are used wherever relevant, including the international standard classification of education (ISCED) (Börsch-Supan, 2018).

SHARE is an appropriate data source for addressing the research questions at the heart of this project for several reasons. Firstly, it was specifically designed to shed light on variations in individual circumstances and social relationships during the ageing process.

A key issue involves evaluating individual long-term care needs and tailoring services to match the circumstances and preferences of different social groups. Many older adults do not need full-time care, and the provision of well-targeted services can reduce the need for more costly forms of assistance and enable families to take care of their older members for a longer period of time, if they choose to do so. It is important, however, to understand the tensions and benefits, the weaknesses and outcomes of different long-term care arrangements across the public/private, family/non-family and formal/informal divides.

Secondly, SHARE includes self-assessments of the quality of care received by elderly people living at home. It is considered particularly important to incorporate the preferences of care recipients within research on long-term care arrangements and related policies, treating them as active and autonomous subjects, rather than as the passive objects of policies. SHARE also enables us to reconstruct a picture of the configuration of social actors who actually provide care. As policy-makers seek to enhance the role of families and to control the cost of public provision of care, it is also crucial to assess whether the resulting care burden is sustainable and how it impacts on the well-being of both care-recipients and care-givers.

Thirdly, the use of harmonised questionnaires ensures that cross-national comparisons can be made, which enables researchers to study differences and similarities between European countries. Indeed, comparative surveys have already demonstrated their value within the European context and policy-makers and researchers are aware of the need to identify models of good practice and to explore the role of culture, family structure, neighbourhoods and social relations as they have evolved in different contexts. As we indicated earlier, we are particularly interested in identifying clusters of countries with similarities. A key question is whether it is possible to identify a Mediterranean model in relation to long-term care arrangements for older people, whether Southern European countries should be assimilated to the Continental model, or whether national specificities predominate.

Despite its strengths as a representative survey of the European elderly population based on a longitudinal design, SHARE has some weaknesses. Firstly, although people in nursing homes and other institutions form part of the target population, SHARE does not provide satisfactory coverage of the elderly institutionalised population, and this coverage also varies across countries and waves (Bergmann *et al.*, 2017; Schanze, 2017).

Secondly, it is not possible to quantify the total number of hours of care provided, which places limits on how we can measure the care burden for families. Although there are measures of the frequency and type of care provided by various individuals, it is not possible to calculate the share of care provided by family members and other individuals.

Thirdly, most of the available measures are available for the respondent only, which means that it is not always possible to take account of both sides of the care relationship when measuring the impact of family care for older adults on the well-being of all those involved. This can generally only be achieved where one member of a couple assists the other, which means that it is not possible to systematically assess the impact of providing care on other family members or relatives.

2.3. Sampling design and data collection

The reference population for SHARE comprises residents who are aged 50 years and older as well as their spouses or partners (who do not have to meet this age threshold). Individuals living in nursing

homes or similar institutions for older adults are included in some countries (including Italy, Spain, Portugal, Greece and Germany), although the coverage appears to be poor in most cases. Individuals who are incarcerated, hospitalised, out of the country during the data collection period, unavailable, or unable to speak the language (or languages) of the country are also excluded (Bergmann *et al.*, 2015; De Luca *et al.*, 2015). (Table 2.1)

Table 2. 1. Frequencies of the institutionalized population coverage in Italy, Spain, Portugal, Greece and Germany, Waves 1, 2, 4, 5 and 6.

Wave	Variable	Italy	Spain	Portugal	Greece	Germany
Wave 1	Yes, temporarily	1	n.a.	n.a.	5	n.a.
	Yes, permanently	6	8	n.a.	n.a.	n.a.
	No	1246	1093	n.a.	1653	687
	Total	1253	1101	n.a.	1658	687
Wave 2	Private household	1762	1407	n.a.	2111	937
	Nursing home	n.a.	4	n.a.	n.o.	5
	Total	1762	1411	n.a.	2111	942
Wave 4	Private household	2393	2643	1497	n.a.	973
	Nursing home	n.a.	7	3	n.a.	7
	Total	2393	2650	1500	n.a.	980
Wave 5	Private household	3650	5095	n.a.	n.a.	4300
	Nursing home	8	30	n.a.	n.a.	22
	Total	3658	5125	n.a.	n.a.	4322
Wave 6	Private household	5259	5554	1651	4926	4375
	Nursing home	28	48	22	2	33
	Total	5287	5602	1673	4928	4408

Notes: SHARE Data Release 7.0.0. Wave 1, variable hc029_: In a nursing home during last 12 months; Waves 2, 4, 5 and 6, variable mn024_: Nursing home interview; n.a.: not applicable.

Due to the country-specific under-coverage of this segment of the reference population (Schanze, 2017: 30), it will not be possible to compare elderly people living in private households and older people living in nursing homes. Individuals resident in nursing homes will therefore be excluded from the sample, along with their partners/spouses aged under 50 years.

Once an individual or household has been sampled, the 'household respondent' is asked to answer questions on accommodation, consumption and income. The 'financial respondent' (who could be a different person) is similarly requested to answer questions on assets and financial transfers, whilst the 'family respondent' is called upon to provide information on children and social support. The sampling design of SHARE allows for national variations, while ensuring that comparisons can be made (Malter and Börsch-Supan, 2017).

One reason for these variations has to do with the availability of information on the target population. In countries lacking a sampling frame with full coverage of residents (including Italy, Spain, Portugal and Greece), or countries with population registers administered at local level (including Germany), a multi-stage sampling design is adopted. The existence of regional or sub-regional population registers allows a simple random sampling (SRS) procedure to be applied at this lower level. In such countries, municipalities or zip codes are used as primary sampling units (PSUs), with stratification. Then, within each of these PSUs, individuals or households are selected. In countries lacking a sampling frame with reliable information on age (including Portugal and Greece), a screening procedure is used (Bergmann *et al.*, 2017; 2019a).

The adoption of different sampling designs is associated with the efficiency of the national samples, but does not lead to bias in relation to estimates. SHARE encouraged adequate sample sizes, minimal clustering, minimal variation in selection probabilities and the use of stratification, while adopting, like all representative surveys, a probability-sampling design with minimal population coverage errors (Bergmann *et al.*, 2015; Lynn *et al.*, 2013).

In Wave 1 (excluding Portugal) the participant countries constructed a baseline sample which was then followed over subsequent waves of data collection. Since Wave 2 (but excluding Wave 3),

SHARE has comprised two samples (with some national variations), one containing individuals who form part of the longitudinal panel (having already been interviewed in previous waves), and another containing individuals who were interviewed for the first time (referred to as 'refreshment samples'). Refreshment samples bring younger age-cohorts (who turned 50 since the original baseline samples) into the study to improve the representation of the target population and to compensate for panel attrition (Bergmann *et al.*, 2015; De Luca *et al.*, 2015; Lynn *et al.*, 2013).

In Wave 2, longitudinal panels and refreshment samples are both present for Italy, Spain, Greece and Germany. In Wave 4, both types of samples are present for Italy, Spain and Greece. In Wave 5, this is the case for Italy, Portugal, Greece and Germany (De Luca *et al.*, 2015). In Wave 6, which we are most directly interested in here, these two types of samples are present for Italy and Greece, whilst Spain, Portugal and Germany have only panel samples. Cohort effects are not a problem as all data were collected in the same period, and the use of calibrated cross-sectional weights ensure that each sample can be used to make valid inferences at national level.

The SHARE datasets that have been officially released (including release 7.0.0., which we rely on here) include different types of sampling weights to enable valid statistical inferences to be made in relation to the target population. Firstly, there are the design weights, which compensate for the design effect due to unequal sampling probabilities under the assumption that data are missing completely at random (MCAR), defined as the inverse of the selection probability. This type of sampling weight compensates also for the design effect due to clustering, which is used in countries having locally-administered population registers as sampling frames (including Germany, where municipalities are selected in the first stage and age-eligible individuals are selected in the second stage) (Bergmann *et al.*, 2015; 2017).

By means of a re-weighting statistical procedure, calibrated weights go beyond this to control also for selective non-response and attrition in the panel, by drawing on auxiliary information in the

population of reference (calibration variables)[1]. SHARE provides weights for cross-sectional studies and longitudinal analyses, and sampling weights for making statistical inferences to the target population of individuals and the target population of households.

The statistical analyses presented in this thesis rely on the use of cross-sectional individual calibration weights and cross-sectional household calibration weights for all of the countries in Wave 6 of SHARE[2].

SHARE employs stratification by region to ensure representation of different geographical areas within countries and to increase the efficiency of the estimates. In some countries (including Italy), age and gender are also used in stratification (Bergmann *et al.*, 2015; 2017; De Luca *et al.*, 2015). Data collection for SHARE has taken place every two years since 2004 (Wave 1). In the regular SHARE Waves (1, 2, 4, 5 and 6), there is an emphasis on respondents' current life circumstances, whilst in Waves 3 and 7 (referred to as SHARELIFE), the focus shifts to respondents' life histories, adopting the life history calendar (LHC) approach to collect retrospective information (Bergmann *et al.*, 2017; 2019b; Börsch-Supan, 2018; 2019; Börsch-Supan *et al.*, 2005; 2013).

By Wave 6 (which ended in November 2015), 18 European countries - Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Italy, Luxembourg, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, plus Israel - had joined SHARE (Bergmann *et al.*, 2015). Data collection generally consists of face-to-face interviews via computer-assisted personal interviewing (CAPI), except for Waves 1, 2 and 4, where self-completion pencil-and-paper questionnaires were used, together with end-of-life interviews via computer-assisted telephone interview (CATI). In Wave 6, data were collected between December 2014 and November 2015, with few exceptions (including Greece). SHARE specifies standards and protocols to encourage high response rates for refreshment samples and high retention rates for longitudinal samples (Tinker *et al.*, 2009).

[1] Calibration weights are generally close to the design weights and draw on a set of calibration variables such as age, gender, and geographical distribution of national populations. They rely on the less stringent assumption that data are missing at random (MAR) (Bergmann *et al.*, 2015; De Luca *et al.*, 2015; De Luca and Rossetti, 2018; Lynn *et al.*, 2013).
[2] These weights are identified in the dataset by the names *cciw_w6* and *cchw_w6*, respectively.

When we carried out the descriptive analyses we took the sampling design and clustering into account (Eisele and Zhu, 2013) using the *svyset* function in Stata (Gutierrez, 2008; Rafferty, 2008; StataCorp, 2013). Unfortunately, it is not possible to take stratification into account as this aspect of the sampling design varies within individual sub-samples, even within a single country.

In Portugal, two subsamples were specified in the first wave of data collection, after this country entered SHARE for the first time (Wave 4). These sub-samples were defined on a geographical basis[3]. Although it may be possible to use full information on the sampling procedures within each of these subsamples, it would be extremely complex and time-consuming to integrate the results and to make cross-national comparisons.

A further difficulty relates to the available documentation, which does not provide the researcher with a complete description of the different sampling designs used. For these reasons, we perform descriptive analyses using the cross-sectional calibration weights with the *svyset* function in Stata. In Chapter Three we will assess whether it is also possible to take account of the degree of clustering when carrying out statistical tests. In the following sections of this chapter we describe the sampling designs employed in Italy, Spain, Portugal, Greece and Germany, based on the available SHARE documentation and associated national datasets.

2.3.1. Italy

In Italy, the original Wave 1 target population comprised all Italian-speaking residents born in 1954 or earlier and their spouses or partners of any age at the time of the interview. This implies that all households with at least one Italian-speaking member born in 1954 or earlier could be sampled, and this was also the case for subsequent waves. Within each household, only one eligible individual, and his or her spouse/partner, was interviewed. Convicted criminals and people living in institutions

[3] In Greece, four subsamples were used in Wave 2 and SHARELIFE. In the 2004 Wave, two subsamples were used in Italy, Spain and Germany. In the 2006 Wave, five subsamples were employed in Spain and six each in Italy and Germany. In the 2010 Wave, six subsamples were utilised in Germany, seven in Spain and eight in Italy. In the 2012 Wave, eight subsamples were specified in Spain and Germany and ten in Italy. In Wave 6, subsamples were used in all countries: no less than twelve in Italy, eight in Spain, two in Portugal, five in Greece and eight in Germany

were not considered part of the target population, although those living in nursing homes and other institutions for the elderly were sampled (Börsch-Supan and Jürges, 2005; Lynn *et al.*, 2013).

Refreshment samples were subsequently implemented by sampling individuals born in 1956 or earlier in Wave 2, in 1960 or earlier in Wave 4, in 1962 or earlier in Wave 5, and in 1964 or earlier in Wave 6. To improve the representation of the target population, younger age-cohorts from 1957-1960 were over-sampled in the 2010 Wave. The data collection period for Wave 6 started in January 2015 and finished in October 2015, about a month before most other SHARE countries (Malter and Börsch-Supan, 2017).

Due to the availability of municipal electoral registers, a three-stage sampling design with clustering and stratification was applied. In the first stage, geographical areas were stratified by the number of people aged 50 and over (large, medium, small), and geographical location (North-West, North-East, Centre, South and Islands), leading to the definition of 15 strata. 93 municipalities were selected, the largest 11 of which were stratified by population size (the other 82 were selected with simple random sampling within each stratum). If for any reason a whole municipality had to be excluded after being sampled, simple random sampling was used to substitute it. A probability proportional to the size (PPS) design at the first stage allowed equal probability of selection of individuals at later stages (Schanze, 2017).

In the second stage, 4 electoral divisions were selected with simple random sampling without replacement in each of the sampled municipalities, whilst in the third stage, a two-phase sampling design with stratification was applied. In the first phase, 60 individuals of any age were randomly sampled within each electoral division, after stratifying by gender (30 males and 30 females). In the second phase, simple random sampling without replacement was used to select 25 individuals (11 males and 14 females) within each municipality.

As mentioned, in some large municipalities, stratification by population size was used to improve the efficiency of the design. In the municipalities like Milan, Naples, Rome and Turin, this entailed a distinct sampling design, whereby between 8 and 16 electoral divisions were selected with simple

random sampling without replacement, and 75 (33 males and 42 females), 50 (22 males and 28 females), 100 (44 males and 56 females) and 50 (22 males and 28 females) individuals were selected, respectively.

2.3.2. Spain

In Spain, the original 2004 Wave target population consisted of all households with at least one Spanish-speaking member born in 1954 or earlier and his or her spouse or partner of any age. Individuals living in nursing homes and other institutions for older people were also sampled (Börsch-Supan and Jürges, 2005; Lynn *et al.*, 2013).

Refreshment samples were implemented in Wave 2 by sampling individuals born in 1956 or earlier, or in 1960 or earlier in Wave 4, whilst panel samples are present in Waves 3, 5 and 6. The data collection period for Wave 6 was in line with that of most other SHARE countries, with the first interview in January 2015 and the last in November 2015 (Malter and Börsch-Supan, 2017).

In the 2004 Wave, due to the existence of a list of census sections, a two-stage sampling design with clustering and stratification was used. During the first stage, 7 strata (based on municipalities) were defined by reference to population size. 328 census sections were then selected with a systematic random sampling procedure and sampling probability proportional to population within each stratum. During the second stage, 11 individuals were selected with systematic random sampling from each census section.

In the 2006 Wave, a refreshment sample of 506 individuals was included, 276 of whom were born in 1954 or earlier and 230 in 1956 or earlier. A similar sampling design to the one employed in Wave 1 was used: 46 census sections were selected within each stratum and 11 individuals (6 born in 1954 or earlier and 5 born in 1956 or earlier) were selected within each of these.

In the 2010 Wave, a refreshment sample of 2,131 individuals was included, with 7 born in 1954 or earlier, 1,652 born in 1956 or earlier, and 472 born in 1957-1960. A similar sampling design to the one in Waves 1 and 2 was again used: 118 census sections were selected within each stratum, and 18 individuals (14 born in 1956 or earlier and 4 born in 1957-1960) were selected within each. The

efficiency of the national sample is due to the availability of a list of census sections supplemented by a list of individuals born in 1960 or earlier, based on municipal registers. Although population registers were not available for use as a sampling frame, SHARE could nevertheless use this reliable information on the size of the target population to avoid screening households.

2.3.3. Portugal

As stated earlier, Portugal joined SHARE for the first time in Wave 4. The target population includes all households with at least one Portuguese-speaking member born in 1960 or earlier and his or her spouse or partner of any age. Individuals living in nursing homes and other institutions for older adults were also included. Along with this baseline sample, refreshment samples were not included in the subsequent wave (Wave 6), and only a longitudinal panel is present (Lynn *et al.*, 2013; Malter and Börsch-Supan, 2017).

A five-stage sampling design with clustering and stratification was used, based on a list of age-eligible individuals registered by the National Health System. This complex but well-structured sampling design ensured minimal population coverage error. In the first stage, 24 strata (22 sub-regions and 2 regions (Madeira, Azores)) were defined, with stratification by 7 geographical areas and population size (less than 10,000 inhabitants, between 10,000 and 20,000 inhabitants, more than 20,000 inhabitants). 4-digit zip codes were then selected with simple random sampling within each stratum.

Within each 4-digit zip code, a sample of parishes was selected with probability proportional to the number of 7-digit zip codes within them. Within each parish, a sample of 7-digit zip codes was selected using simple random sampling. Within each 7-digit zip code, a sample of building addresses was selected with systematic random sampling. The sample size is proportional to population size, although in the 2 sub-regions of Sul Interior, and in the cases of Madeira and Azores, the number of building addresses is between two and five times the population size, respectively. A screening procedure was applied to households and interviewers randomly selected one age-eligible household member and his or her spouse or partner for inclusion in the study.

2.3.4. Greece

In Greece, the original Wave 1 target population comprised all Greek-speaking residents born in 1954 or earlier and their spouses or partners of any age. Individuals living in nursing homes and other institutions for elderly people were also sampled (Börsch-Supan and Jürges, 2005). Refreshment samples were implemented by sampling individuals born in 1956 or earlier in Wave 2, and in 1964 or earlier in Wave 6. Longitudinal panels have been present in all waves since the baseline sample. Fieldwork for Wave 6 took place between April 2015 and November 2015, with slight differences from most other SHARE countries, where interviews began earlier in the year (Malter and Börsch-Supan, 2017).

Due to the availability of a list of prefectures, a two-stage sampling design with stratification was used. In the first stage, telephone numbers were selected with systematic random sampling in each prefecture. In the second stage, a random walk procedure permitted screening of telephone numbers to identify a sample of households meeting the age requirements (Bergmann *et al.*, 2015).

2.3.5. Germany

In Germany, the original 2004 Wave target population consists of all German-speaking residents born in 1954 or earlier and their spouses or partners of any age. Individuals living in nursing homes and other institutions for older people were also included (Börsch-Supan and Jürges, 2005; Lynn *et al.*, 2013).

Refreshment samples were implemented by selecting eligible individuals born in 1956 or earlier in Wave 2, and in 1962 or earlier in Wave 5. Longitudinal panels are present in Waves 2, 3 and 6. In the 2006 Wave, younger age-cohorts born in 1955-1956 were over-sampled. Similarly, in the 2010 Wave, younger age-cohorts born in 1957-1960 were over-sampled (Bergmann *et al.*, 2017). The duration of the fieldwork for Wave 6 was in line with that of most other SHARE countries, with the first interview in January 2015 and the last in November 2015 (Malter and Börsch-Supan, 2017).

As stated earlier, SHARE encouraged countries without a single national sampling frame to use a multi-stage sampling design. A two-stage sampling design with clustering and stratification was

applied in Germany. 1,460 strata were defined with stratification by district and population size within each region. In the first stage, 219 municipalities were selected with probability proportional to population within each stratum. In the second stage, due to the availability of municipal population registers, 44 individuals (35 born in 1956 or earlier and 9 born in 1957-1960) were selected within each municipality.

2.4. Sample characteristics

In this section we will describe the characteristics and circumstances of respondents in all five samples[4]. Cases with no calibration weights were also excluded. In Italy these 113 cases include people aged under 50 years and those who did not provide a year of birth (3 people). For the purposes of the analysis presented in this chapter, it is considered important to have coherent, consistent and complete data on age and to use weights when generalising to the population aged 50 years and over. In Spain (n = 71), Portugal (n = 16), Greece (n = 148) and Germany (n = 77), similar restrictions were applied.

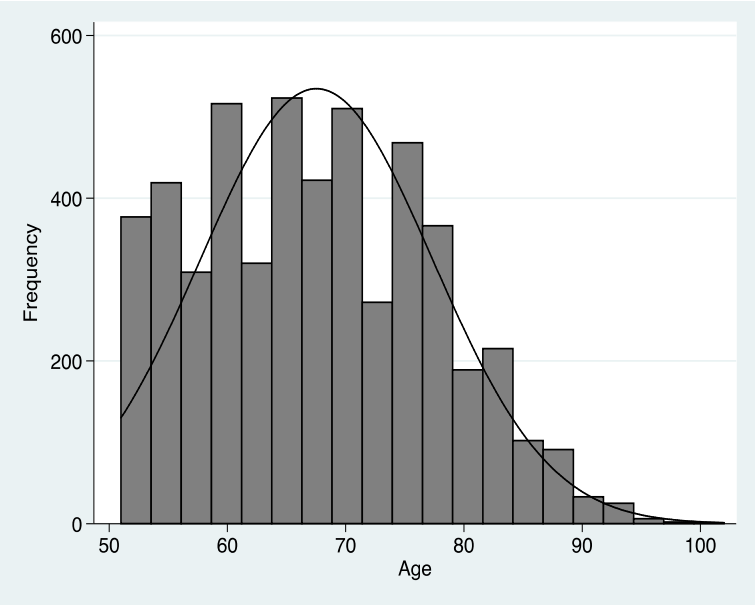
A small number of cases lacking information on other key socio-demographic characteristics were also excluded. In Italy (n = 4), Greece (n = 1) and Germany (n = 2), a very small number of individuals failed to report their educational attainments, marital status and current employment situation. Due to the tiny number of cases involved, there is no risk of bias. After excluding the aforementioned groups, we have 5,166 cases in Italy, 5,504 in Spain, 1,637 in Portugal, 4,777 in Greece and 4,300 in Germany. All these individuals live in private households, are aged 50 and over and have basic socio-demographic information.

In Italy, the average age is 67.5 years (Figure 2.1). Portugal, Greece and Germany are similar (Figures 2.3, 2.4, and 2.5), although Spain has a slightly higher mean (almost 70 years, see Figure 2.2). Since respondents in all countries are aged on average 65 years and over, it is important to

[4] As already mentioned, due to the poor coverage of elderly institutionalised people in all countries, those living in a nursing home were excluded from the analysis, leading to the loss of a very small number of cases: in Italy 28, in Spain 48, in Portugal 22, in Greece 2 and in Germany 33.

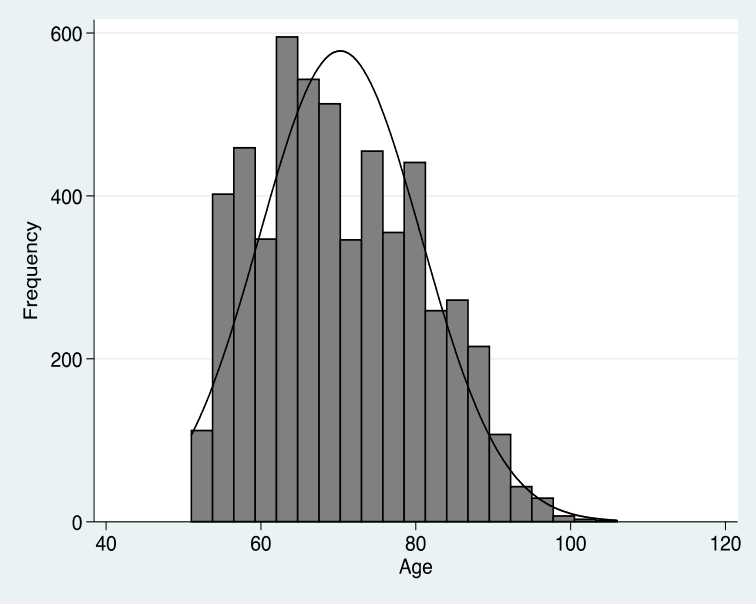
describe their characteristics and life circumstances before summarising their long-term care needs and family care arrangements.

Figure 2. 1. Distribution of age, Italian sample (n = 5,166), Wave 6.



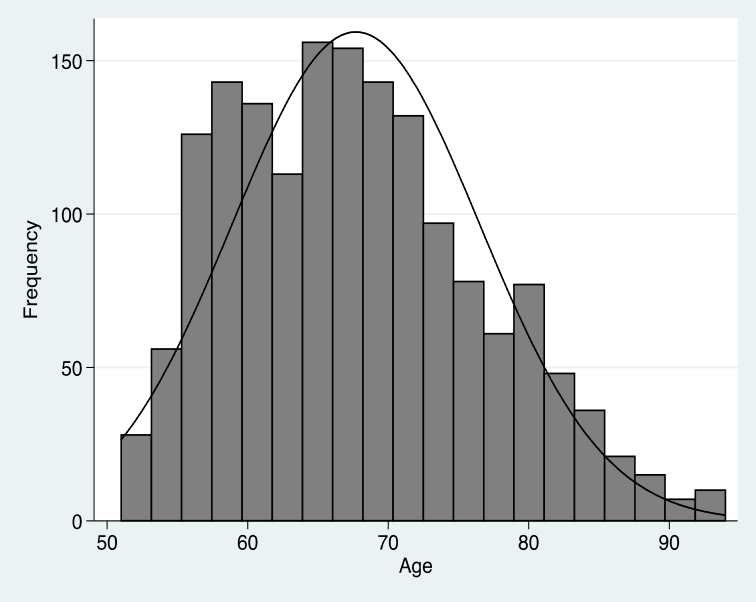
Notes: SHARE Data Release 7.0.0. Mean = 67.53 years; Standard Deviation = 9.83 years.

Figure 2. 2. Distribution of age, Spanish sample (n = 5,504), Wave 6.



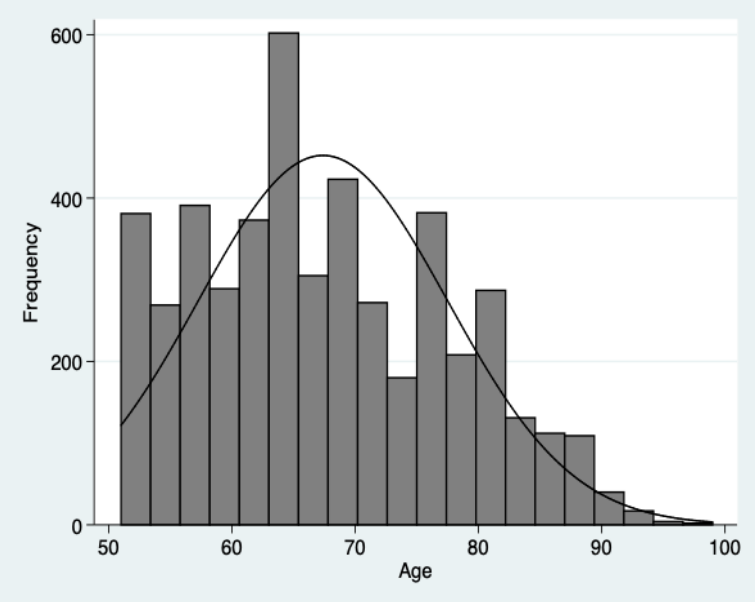
Notes: SHARE Data Release 7.0.0. Mean = 70.24 years; Standard Deviation = 10.45 years.

Figure 2. 3. Distribution of age, Portugal sample (n = 1,637), Wave 6.



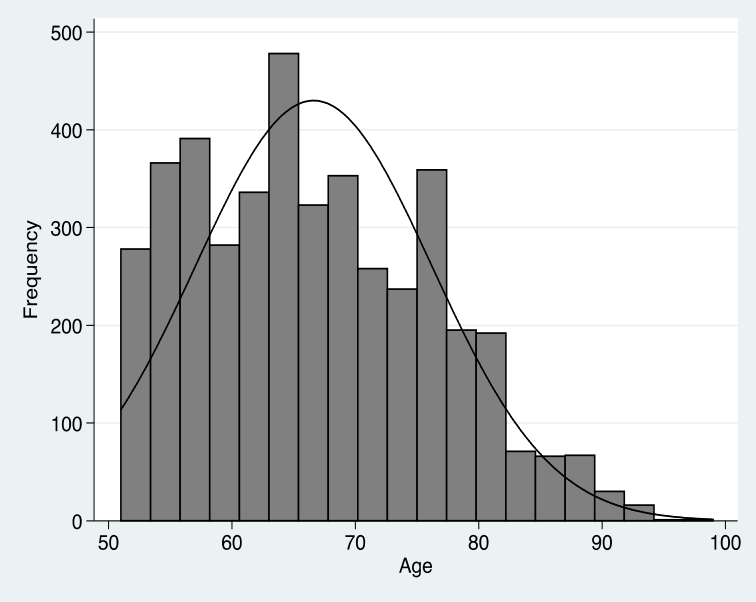
Notes: SHARE Data Release 7.0.0. Mean = 67.70 years; Standard Deviation = 8.81 years.

Figure 2. 4. Distribution of age, Greek sample (n = 4,777), Wave 6.



Notes: SHARE Data Release 7.0.0. Mean = 67.38 years; Standard Deviation = 10.12 years.

Figure 2. 5. Distribution of age, German sample (n = 4,300), Wave 6.



Notes: SHARE Data Release 7.0.0. Mean = 66.62 years; Standard Deviation = 9.58 years.

About one third of respondents in the Italian sample are aged 50-59 years, with Spain, Greece and Germany having a similar age profile. In these countries, there are potentially more family carers, with better health status, than in Portugal, where this age category is smaller (Table 2.2).

Table 2. 2. Age group of respondents, all samples, Wave 6.

Age groups	Italy	Spain	Portugal	Greece	Germany
50-59 years	31.48	35.72	27.34	31.05	32.82
60-69 years	28.34	25.86	34.42	28.61	28.31
70-79 years	23.21	21.04	23.39	22.71	25.08
80+ years	16.98	17.38	14.85	17.62	13.80
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries.

In Italy, women account for just over half of the sample and the composition of the other national samples is similar (Table 2.3). The share of women aged 80 years and over never falls below 15

percent, and is larger than the share of males in this age group in all countries (see Appendix). As women tend to have higher life expectancy and lower disability-free life expectancy, it is important to study gender differences as well as age when investigating long-term care needs.

Table 2. 3. Gender of respondents, all samples, Wave 6.

Gender	Italy	Spain	Portugal	Greece	Germany
Male	45.72	46.21	44.02	45.97	46.51
Female	54.28	53.79	55.98	54.03	53.49
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries.

One of the largest differences observed when comparing the countries of Southern Europe and Germany regards education. Whilst in Italy, Spain and Greece, about half of respondents have no more than a primary school education, reaching two thirds in Portugal, in Germany only a very small share of people with such low educational attainments is observed. The differences are similar if we consider higher education levels (Table 2.4). This is most likely the result of an education process which developed differently across Europe, with compulsory secondary education being introduced earlier in Continental Europe than in the Mediterranean area. If we consider how education changes based on age, we note that in the countries of Southern Europe, more than half of those aged 70-79 years and two thirds of the oldest age group have low educational attainments. In Germany, this pattern is not observed for any of the age groups (see Appendix).

Some scholars (Ballarino *et al.*, 2010; Ballarino and Checchi, 2013) show that having a secondary education is more widespread in Germany than in Italy, and the descriptive statistics suggest similarities among all countries of Southern Europe. In Germany, about two thirds of the sample have a secondary school education, reflecting the importance of a system which combines education and vocational training. This difference between the countries of Southern Europe and Germany could be

associated with differences in health and well-being. For example, recent secondary data analyses using SHARE (Etman *et al.*, 2014; Stolz *et al.*, 2017) show that, among European community-dwelling individuals aged 50+ years, those with lower educational attainments have a higher risk of frailty over time than the more highly educated, with higher levels and steeper trajectories for the oldest age groups in the countries of Southern Europe. In Italy, Spain, Portugal and Greece, we find that the majority of the oldest age cohorts have low attainments. It is therefore important to investigate how health status varies based on education as well as age and gender and to consider the potential mediating role of education and other indicators of socioeconomic status in the association between family care for elderly people and individual well-being.

Table 2. 4. Education of respondents, all samples, Wave 6.

Education	Italy	Spain	Portugal	Greece	Germany
Low (ISCED 0-1)	42.65	51.60	67.69	42.51	1.49
Medium (ISCED 2-3)	46.91	36.78	23.12	34.77	64.84
High (ISCED 4-5-6)	10.44	11.62	9.19	22.73	33.67
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,114), Spanish sample (n = 5,366), Portuguese sample (n = 1,636), Greek sample (n = 4,775), German sample (n = 4,267). Weights applied to all countries. ISCED 0 = Pre-primary education; ISCED 1 = Primary education (First stage of basic education); ISCED 2 = Lower secondary education (Second stage of basic education); ISCED 3 = (Upper) secondary education; ISCED 4 = Post-secondary not tertiary education; ISCED 5 = First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 = Secondary stage of tertiary education (leading to an advanced research qualification). (UNESCO-UIS, 2006:19).

Just over two thirds of the Italian sample are married (or common-law spouses), and the situation is similar in the other countries, with the highest rates observed in Portugal and Germany (Table 2.5). However, how marriage moderates the impact of caregiving on well-being may nevertheless vary cross-nationally.

The study of marital role quality goes beyond the scope of this thesis, but we do recognise that marital status might moderate the association between caregiving and well-being. For example, there

are great differences between the countries of Southern Europe and Germany in relation to separation and divorce rates, which could affect the provision of care (see Appendix).

Table 2. 5. Marital status of respondents, all samples, Wave 6.

Marital status	Italy	Spain	Portugal	Greece	Germany
Married, or common-law spouse	69.03	71.75	74.98	70.61	63.42
Separated spouse, or divorced	6.70	6.40	5.07	7.44	13.57
Never married	8.21	7.62	3.13	4.80	7.16
Widowed	16.06	14.22	16.81	17.14	15.84
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,166), Spanish sample (n = 5,385), Portuguese sample (n = 1,637), Greek sample (n = 4,775), German sample (n = 4,271). Weights applied to all countries.

Along with education, occupational status has been shown to influence health in old age (Stolz *et al.*, 2017). Due to the target population of SHARE, the majority of respondents in almost all countries are retired, with relatively small differences in relation to labour force participation. In Germany, however, fewer respondents are unemployed,[5] whilst in the countries of Southern Europe (in ascending order, Portugal, Italy, Greece, Spain) the percentage of people who are unemployed or homemakers never falls below 15 per cent and exceeds 30 per cent in Spain (Table 2.6).

When labour market situation is disaggregated by gender, these differences persist. Women are more likely to be homemakers because of the unequal division of domestic labour in society, and this is especially true of the countries of Southern Europe, reaching almost half of the sample in Spain and Greece. In Germany, no great gender differences are observed, regardless of current job situation

[5] Although the Great Recession in 2008 affected the Old Continent as a whole with consequences in the long-run, Germany set up reforms aimed to improve its model of coordinated market economy (CME), thus preserving its pivotal principles of economic efficiency and social cohesion. As we argued in Chapter 1, the institutional arrangements in such a CME encourage economic development, while discouraging the free market, resulting moreover in decreasing social inequalities (Ballarino and Checchi, 2013; Ballarino et al., 2010).

(see Appendix). These differences are expected to have different physical and psychological consequences and may also be associated with a different gender division of caring work.

The association between employment and family care for elderly adults has been documented at national level (Da Roit and Naldini, 2010; Ehrlich *et al.*, 2019; Keck and Saraceno, 2010), and across Europe (Naldini *et al.*, 2006; 2016). However, the ways in which combinations of different social roles impact on health and well-being is a topic of debate. The statistical analyses presented in Chapter 5 assess whether there are differences between women and men in this regard, and between Southern Europe and Germany.

Table 2. 6. Current labour market situation of respondents, all samples, Wave 6.

Current labour market situation	Italy	Spain	Portugal	Greece	Germany
Retired	46.69	38.76	54.32	45.58	52.98
Employed, or self-employed	26.29	23.81	22.77	24.03	34.15
Unemployed, or homemaker	21.03	30.40	16.09	25.84	8.46
Permanently sick or disabled	5.98	7.03	6.81	4.54	4.40
Total	100.00	100.00	100.00	100.00	100.00

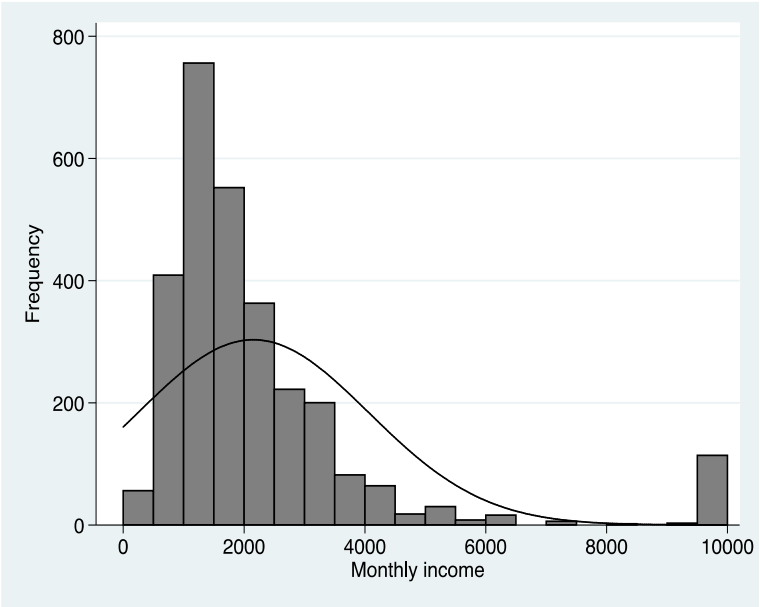
Notes: Italian sample (n = 5,153), Spanish sample (n = 5,499), Portuguese sample (n = 1,636), Greek sample (n = 4,770), German sample (n = 4,299). Weights applied to all countries.

For the purposes of this thesis, it is important to obtain an accurate measure of socio-economic status (SES). As we discussed in Chapter 1, along with education and occupation, income and wealth are considered important predictors of health and well-being. Furthermore, in SHARE, there is a household respondent for accommodation, consumption and income, as well as a financial respondent who provides information on assets and financial transfers. Five household-level measures may be considered: monthly income, number of cars (as an indicator of wealth), type of dwelling and subjective measures such as making ends meet, ability to afford unexpected expenses, need to keep living costs down. In the statistical models presented in Chapters Four and Five, these variables will

be used to assess the role of SES in relation to family care for elderly people and as a determinant of individual well-being.

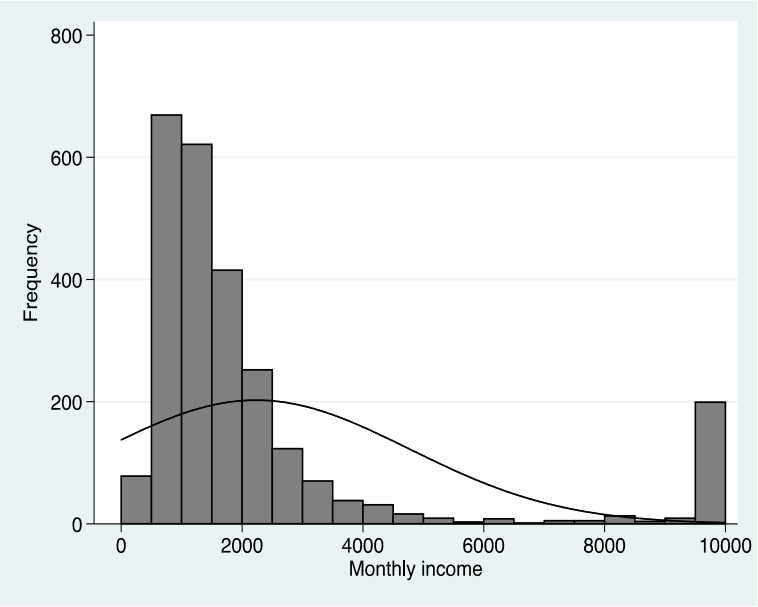
There are several large outliers in relation to monthly income, which could exert undue influence on the statistical models. For this reason, all cases above EUR 10,000 per month were truncated. In line with the results presented above in relation to education and the labour market, the differences between the countries of Southern European countries and Germany are evident in relation to income. In Italy, monthly income is on average about EUR 2,000 (Figure 2.6). Similar figures are observed in Spain, Portugal and Greece. In Germany, however, where there is a larger share of educated and economically active respondents, average monthly income approaches EUR 3,000 (Figures 2.7-2.10).

Figure 2. 6. Distribution of monthly income, Italian sample (n = 2,901), Wave 6.



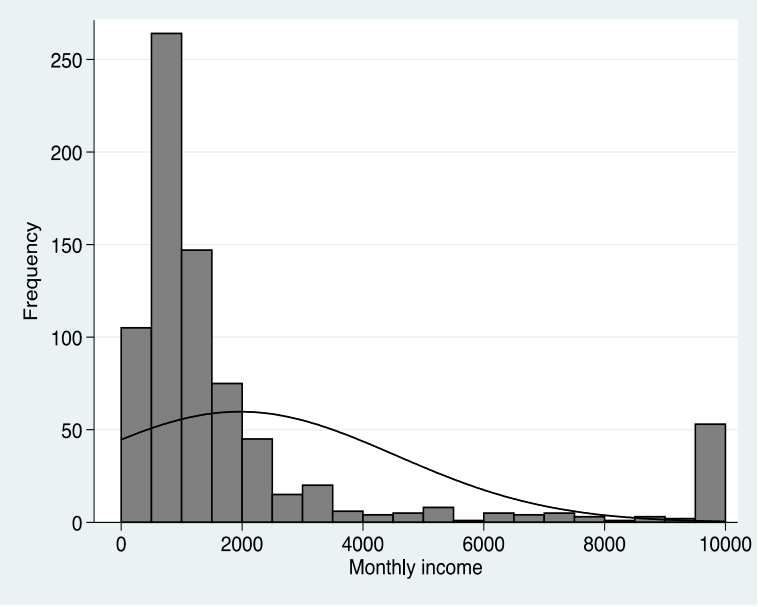
Notes: SHARE Data Release 7.0.0. Mean = EUR 2154.03; Standard Deviation = EUR 1909.10.

Figure 2. 7. Distribution of monthly income, Spanish sample (n = 2,569), Wave 6.



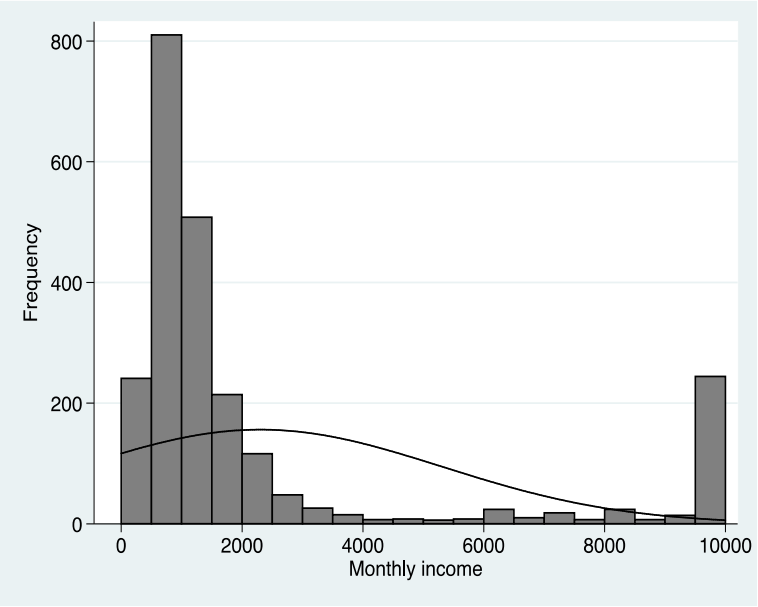
Notes: SHARE Data Release 7.0.0. Mean = EUR 2230.45; Standard Deviation = EUR 2533.00.

Figure 2. 8. Distribution of monthly income, Portuguese sample (n = 771), Wave 6.



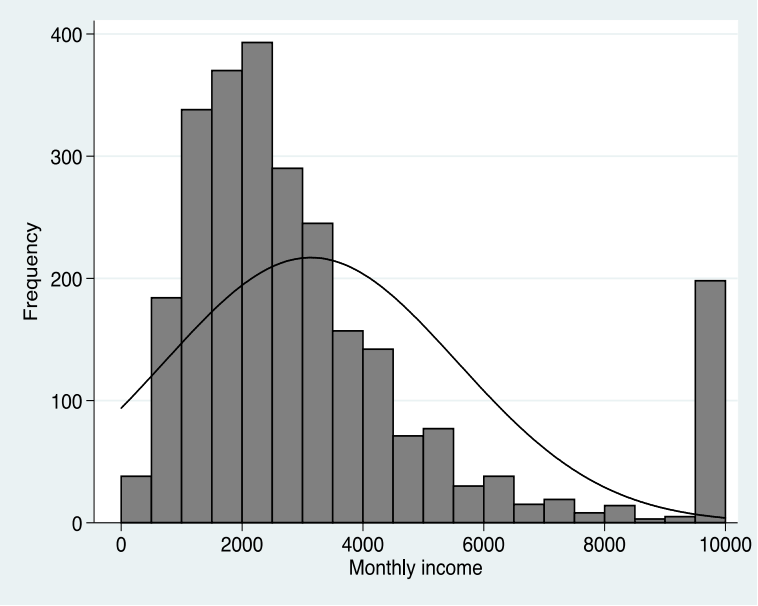
Notes: SHARE Data Release 7.0.0. Mean = EUR 1965.48; Standard Deviation = EUR 3010.43.

Figure 2. 9. Distribution of monthly income, Greek sample (n = 2,355), Wave 6.



Notes: SHARE Data Release 7.0.0. Mean = EUR 2299.65; Standard Deviation = EUR 1909.10.

Figure 2. 10. Distribution of monthly income, German sample (n = 2,635), Wave 6.



Notes: SHARE Data Release 7.0.0. Mean = EUR 3137.72; Standard Deviation = EUR 2422.86.

In line with a strand of research reporting the positive association between SES and health (Hsu and Cossman, 2013), in the presence of long-term care needs, a low (or very low) monthly income might make it more difficult to access formal care systems and to afford out-of-pocket expenses.

People in the countries of Southern Europe may therefore be expected to rely more heavily on family care for older adults than in Germany. This is particularly likely in Portugal and Greece, where about half of sampled households have a monthly income below EUR 1,000, compared with less than one in ten in German (Table 2.7). Considering ownership of a durable good like a car, differences between Greece and Germany are also clear: whilst in the former, few sampled households have two or more cars, this applies to well over a quarter of German households (Table 2.8).

Table 2. 7. Monthly income of households, all samples, Wave 6.

Monthly income groups	Italy	Spain	Portugal	Greece	Germany
< EUR 1,000	19.03	29.27	54.96	44.77	9.47
EUR 1,000-1,500	33.10	30.81	18.22	25.61	17.43
EUR 1,501-2,000	18.40	15.22	12.39	7.72	15.66
EUR 2,001-3,000	17.86	10.50	4.82	4.71	24.10
EUR 3,001-5,000	7.31	4.28	2.72	1.61	20.74
EUR 5,001-10,000	4.30	9.92	6.87	15.57	12.60
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 2,901), Spanish sample (n = 2,569), Portuguese sample (n = 771), Greek sample (n = 2,355), German sample (n = 2,635). Weights applied to all countries.

Table 2. 8. Number of cars of households, all samples, Wave 6.

Number of cars	Italy	Spain	Portugal	Greece	Germany
None	25.82	41.74	32.63	43.79	22.77
One car	49.36	45.12	45.04	46.41	52.26
Two cars or more	24.82	13.13	22.34	9.80	24.97
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 3,315), Spanish sample (n = 3,487), Portuguese sample (n = 991), Greek sample (n = 3,243), German sample (n = 2,881). Weights applied to all countries.

It is interesting to note how the sampled households assess their current standard of living, regardless of their monthly income, and to evaluate whether the different measures of SES agree. In

Italy, about one quarter of the sample state that they have great difficulty making ends meet and almost one third have some difficulties (few households find it easy making ends meet). The largest differences are once again observed between Greece and Germany. In Greece, a large proportion of households have great difficulty making ends meet and few find this easy, whilst the opposite is the case in Germany (Table 2.9).

Well above half of the Italian sample can afford to pay unexpected expenses, which is the case in all countries except Greece (Table 2.10) and only one fifth of Italian households report having to keep living costs down due to the financial reasons (more than half in Greece). In Germany, by contrast, few households face this difficulty (Table 2.11). In Italy, about half of the sample lives in an apartment and just over half live in a detached house. Apart from Portugal and Germany, where more than half of the sample live in apartments and almost one third live in detached houses, there are no major differences across countries (Table 2.12).

The subjective indicators of SES agree quite closely: making ends meet, ability to meet unexpected expenses and need to keep living costs down again reveal large differences between Greece and Germany. As stated earlier, this applies also to monthly income.

Table 2. 9. Making ends meet, all samples, Wave 6.

Making ends meet	Italy	Spain	Portugal	Greece	Germany
With great difficulty	23.25	18.07	30.22	43.75	4..26
With some difficulty	35.27	26.79	36.45	42.01	14.44
Fairly easily	27.89	24.07	21.99	9.80	30.60
Easily	13.58	31.06	11.35	4.44	50.70
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 3,272), Spanish sample (n = 3,373), Portuguese sample (n = 962), Greek sample (n = 3,225), German sample (n = 2,851). Weights applied to all countries.

Table 2. 10. Ability to meet unexpected expenses, all samples, Wave 6.

Afford to pay unexpected expenses	Italy	Spain	Portugal	Greece	Germany
No	37.50	36.37	36.23	66.34	22.73
Yes	62.50	63.63	63.77	33.66	77.27
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 3,269), Spanish sample (n = 3,361), Portuguese sample (n = 957), Greek sample (n = 3,183), German sample (n = 2,852). Weights applied to all countries.

Table 2. 11. Need to keep living costs down, all samples, Wave 6.

Need of keeping living costs dawn	Italy	Spain	Portugal	Greece	Germany
No	79.94	85.81	71.89	41.20	93.03
Yes	20.06	14.19	28.11	58.80	6.97
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 3,283), Spanish sample (n = 3,430), Portuguese sample (n = 965), Greek sample (n = 3,234), German sample (n = 2,854). Weights applied to all countries.

Table 2. 12. Building type, all samples, Wave 6.

Type of building	Italy	Spain	Portugal	Greece	Germany
Farm house	2.16	3.62	1.65	2.12	3.80
Family house	54.08	46.29	68.53	49.45	63.33
Building	41.81	45.97	29.30	48.05	30.23
High-rise	1.78	4.03	0.51	0.37	1.71
Sheltered housing	0.17	0.07	0.00	0.00	0.92
Total	100.00	100.00	100.00	100.00	100.00

Notes: Italian sample (n = 3,234), Spanish sample (n = 3,430), Portuguese sample (n = 946), Greek sample (n = 3,247), German sample (n = 2,854). Weights applied to all countries.
Abbreviations: Farm house; Free-standing family house; Building with flats; High-rise with flats; Sheltered housing or residential home

Family composition plays a relevant role in relation to the research questions, since it is crucial in determining how care relations are structured among elderly people. Research reports that the family

is still a pivotal source of social support in old age (Lowenstein, 2007; Lowenstein *et al.*, 2019). In Italy, well over half of respondent's parents are no longer alive, whilst almost one quarter have just one living parent; similar figures are observed in the other countries (Table 2.13). Few respondents report having no children, whilst almost one fourth have one child and roughly one third have two children; having three or more children is less common (Table 2.14).

As we suggested in Chapter 1, along with conjugal ties and intergenerational relationships, ties between siblings and with other family members deserve attention when analysing family care for elderly adults. About one fourth of respondents in the Italian sample have no siblings, almost one quarter have one sibling and another quarter have two. Having three siblings is less common. In Spain and Portugal, however, one quarter of respondents have at least four siblings (Table 2.15).

These figures suggest that having at least one child and at least one parent could result in flows of resources (including time) both downwards and upwards across generational lines. This is a very important point to bear in mind when investigating role strain, health and well-being in the context of family members with long-term care needs.

Table 2. 13. Parents of respondents, all samples, Wave 6.

Parents	Italy	Spain	Portugal	Greece	Germany
None	63.57	61.70	69.49	65.20	65.47
One parent	24.35	26.38	22.07	22.47	24.01
Both parents	12.08	11.92	8.44	12.33	10.52
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,166), Spanish sample (n = 5,504), Portuguese sample (n = 1,637), Greek sample (n = 4,777), German sample (n = 4,300). Weights applied to all countries.

Table 2. 14. Children of respondents, all samples, Wave 6.

Children	Italy	Spain	Portugal	Greece	Germany
None	14.56	12.16	6.19	12.06	12.79
One child	24.33	14.78	19.41	19.35	21.99

Children	Italy	Spain	Portugal	Greece	Germany
Two children	39.55	38.68	47.89	48.86	37.81
Three children	14.27	20.55	11.02	15.29	17.84
Four children or more	7.29	13.83	14.85	4.44	9.57
Total	100.00	100.00	0.64	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,141), Spanish sample (n = 5,365), Portuguese sample (n = 1,636), Greek sample (n = 4,777), German sample (n = 4,296). Weights applied to all countries.

Table 2. 15. Siblings of respondents, all samples, Wave 6.

Siblings	Italy	Spain	Portugal	Greece	Germany
None	24.42	21.76	19.02	22.91	24.35
One sibling	26.92	19.94	20.62	30.81	30.22
Two siblings	22.05	19.14	20.65	20.86	20.40
Three siblings	11.16	14.54	11.08	11.69	12.63
Four siblings	6.84	10.45	12.33	6.45	6.15
Five siblings or more	8.61	14.17	16.31	7.26	6.24
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,166), Spanish sample (n = 5, 504), Portuguese sample (n = 1,637), Greek sample (n = 4,777), German sample (n = 4,300). Weights applied to all countries.

How care and assistance relations are structured among older adults also depends on whether family members live in the same household.[6] Relatively few respondents have parents who are still alive, particularly in Italy (Table 2.16), and the majority of the respondents no longer live with their children (Table 2.17). However, if we consider the number of children present within the household, the largest difference is observed between Italy and Germany. In Italy, there are cohabiting children in roughly one household in seven, whilst in Germany, practically no respondents fall into this category. In Italy, this result has been broadly documented, especially at earlier stages of the life cycle. Indeed, some scholars (Manacorda and Moretti, 2006) argue that cohabitation between parents

[6] "The family within the household is defined as those members of the household who are related, to a specific degree, through blood, adoption or marriage" (OECD, 2008: 198).

and children implicitly involves a 'deal' between the two parties. Parents prefer their children to live with them, and are willing to make downward intergenerational investments. At the same time, this living arrangement is associated with more depressive symptoms and poorer mental health for the cohabiting children (Hikichi *et al.*, 2020). Others see proximity as involving a 'deal' between parents and children (Moscarola *et al.*, 2010). Parents enjoy having their children living nearby, as this decreases loneliness and vulnerability, while increasing the feeling of being looked after. As a result, they 'reward' them by making financial transfers or providing services, whilst children reciprocate with their affection.

Research shows that in Continental Europe (including Germany), prolonged cohabitation between parents and children is associated with closer intergenerational relations (Bertogg and Szydlik, 2016; Szydlik, 1996). However, as we showed in Chapter 1, it is important to bear in mind the different kinds of resources that are transferred between generations and how family composition impacts on this process. As we will see later, in the presence of long-term care needs, the involvement of a larger number of family members would be expected to lower the burden on each person.

These descriptive findings suggest that in the countries of Southern Europe, elderly parents may be more likely to receive care from their children than in Germany. In Southern Europe, social relations along generational lines are strongly influenced by cultural norms and formal obligations (Pinquart and Sörensen, 2020), and this is also likely to impact on care arrangements. As we will see in Chapter Four, where we provide data on family care arrangements for older people across countries, living in the same household may define care and assistance relations in different ways in the countries considered in this study.

Table 2. 16. Parents in the households of respondents, all samples, Wave 6.

Parents in the household	Italy	Spain	Portugal	Greece	Germany
None	97.70	96.81	96.53	98.91	99.05
One parent	2.03	2.68	3.08	1.07	0.87

Parents in the household	Italy	Spain	Portugal	Greece	Germany
Both parents	0.26	0.51	0.39	0.01	0.08
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,166), Spanish sample (n = 5,504), Portuguese sample (n = 1,637), Greek sample (n = 4,777), German sample (n = 4,300). Weights applied to all countries.

Table 2. 17. Children in the household of respondents, all samples, Wave 6.

Children in the household	Italy	Spain	Portugal	Greece	Germany
None	85.70	93.47	95.10	91.57	94.98
One child	9.04	4.07	3.92	5.10	3.62
Two children or more	5.25	2.46	0.98	3.33	1.40
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,166), Spanish sample (n = 5,504), Portuguese sample (n = 1,637), Greek sample (n = 4,777), German sample (n = 4,300). Weights applied to all countries.

SHARE provides a measure of household size at each wave, which is somewhat problematic as (because of the way this information is gathered) it includes deceased family members, those who are temporarily absent and those who have been hospitalised or institutionalised. Unfortunately, we do not have accurate information on the number of people who live in the same household at specific points in time. Furthermore, we have no information across waves on whether other family members – such as siblings – are living in the same household as the respondent. Due to these limitations, we will confine our attention to children, parents, in-laws and partners and draw on multiple datapoints to construct a new measure of household size.[7]

In Italy, as in the other Southern European countries, about one quarter of people aged 50 and over live alone and just over two fifths live with one other person (typically their partner). Roughly one fifth of households comprise three people, and only a few have four people or more. In Germany, by

[7] "The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living" (OECD, 2008: 250). Note that this definition also extends to unrelated ties.

contrast, about one third of people in this age group live alone and more than half are in two-person households (Table 2.18). The eligibility rules in SHARE indicate that from the first wave onwards, all household members aged 50+ years, and their spouses/partners were eligible for an interview (Börsch-Supan, 2019), implying that more than two people could be interviewed, although in practice this is not very common.

Table 2. 18. Household size of respondents, all samples, Wave 6.

Household size	Italy	Spain	Portugal	Greece	Germany
One person	24.12	19.17	13.26	21.80	30.36
Two people	41.16	41.52	49.90	46.29	53.37
Three people	20.90	22.19	20.27	18.17	11.37
Four people o more	13.81	17.11	16.57	13.75	4.90
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italian sample (n = 5,166), Spanish sample (n = 5,504), Portuguese sample (n = 1,637), Greek sample (n = 4,777), German sample (n = 4,300). Weights applied to all countries.

The characteristics analysed in this section show marked similarities between Italy, Spain, Portugal and Greece, and reveal differences between these countries and Germany. This is unsurprising if we consider that macro-level factors, such as economic conditions, political forces, institutional arrangements and cultural norms can have an important influence on the attributes considered. For example, different cultural norms and expectations are associated with a higher rate of separation and divorce in Germany, which is likely to have implications for health and care provision.

Differences between the countries of Southern Europe and Germany are also observed in relation to meso-level factors like the family and household composition, which are assumed to play a relevant role in shaping care arrangements for elderly people. For instance, the number of family members could affect the long-term care needs of elderly adults as well as the frequency, intensity and type of care they receive. This is likely to have implications for the well-being of the receivers and providers of this care. Similarly, living arrangements and residential proximity could impact on

intergenerational flows of resources, which could also have consequences for well-being and the provision of assistance. In Chapter Three, we will turn our attention to composite indicators of health, well-being and disability, and look at whether there are differences in the long-term care needs of older people in the countries considered in this study.

Chapter 3 Key concepts and composite measures

3.1. Introduction

As we argued in previous chapters, there are a number of similarities between the Southern European countries in relation to cultural norms, economic conditions, institutional arrangements, political and structural forces. The same holds for a range of meso-level factors associated with the family and household. These factors are likely to play an important role in shaping care arrangements for elderly people and to have consequences for the well-being of the providers and recipients of care. For example, moral obligations play a role in shaping the nature of family care for elderly adults to the extent that taking care of an older family member is often viewed as a responsibility of specific individuals. Similarly, whether family members live in the same household can shape long-term care and cohabiting in older age cohorts typically involves a considerable amount of reciprocal caring even if this is not identified as long-term care by the people involved.

In this chapter, we will describe some micro-level factors which may also influence long-term care needs and well-being. The aim is to develop reliable measures of complex and multifaceted concepts such as health, well-being, social participation, social network and socio-economic status. As we showed in Chapter 1, it is important to take account of the needs of elderly people when studying the relationship between ageing and long-term care across countries. Individual characteristics influence the needs of elderly adults as well as the frequency, intensity and type of care they receive. Moreover, it is important to be aware that care needs are not necessarily met, just as elderly people may receive care even if they do not need it in order to carry out their everyday activities. This means that differences between the Southern European countries and Germany in relation to needs, and in the relationship between needs and long-term care, are likely to have implications for well-being.

In the following sections of this chapter, we will examine a range of key concepts in greater detail and describe the measures and scales used to evaluate the research questions at the core of this thesis.

My aim is to develop a measurement framework using factor analysis and composite indices (van Smeden *et al.*, 2019). We will only provide some descriptive data in this chapter, as a full multivariate analysis is included in Chapters 4 and 5.

We adopt a range of strategies to handle missing values when developing these new measures. We aim to minimise the risk of bias and to maximise the available information (Marchenko, 2010). We also use uncertainty estimates such as confidence intervals, p-values and standard errors (Allison, 2009; Graham, 2009). For item-level missingness due to selective non-response to a small number of questions, we use single imputation to insert imputed values in the place of missing values, treating these subsequently as if they were observed (Gedikoglu, 2012). We use the expectation maximization (EM) algorithm, which cycles through two subsequent steps: expectation, using the current values of observed variables, and maximisation, getting new values for the unobserved variables (Allison, 2009). This sequence is repeated until the predicted values do not change from one iteration to another. EM is based upon the missing-at-random (MAR) assumption, meaning that missing values may depend on observed variables (Allison, 2000; Medeiros, 2016).

The variables used to construct the composite indicators have less than 1 per cent of missing values, and it is reasonable to assume that missingness depends on the observed variables. It is therefore legitimate to use single imputation to replace missing observations and to proceed subsequently with the construction of the composite indices. This makes optimal use of the available information whilst relying on plausible assumptions.

The composite indices used in this thesis are generally created using exploratory factor analysis, which provides information on dimensionality and validity (Tavakol and Dennick, 2011). Exploratory factor analysis provides estimates of the loading of the manifest variables on the latent factors (StataCorp, 2013). For each composite indicator, distinct blocks of variables are analysed with the aim of assessing whether the different measurement models are reliable and stable when using the SHARE dataset. Dichotomous and ordinal variables are included in the factor analyses based on

the assumptions of the linear probability model and drawing also on empirical results for coarsely-categorised ordinal variables, as reported in the literature.

As we assume that the meaning of the latent variables does not vary across countries, factor analysis is applied to pooled data for all countries. Different sampling designs, cross-sectional calibration weights and information on clustering were used to avoid biased standard errors (Eisele and Zhu, 2013), and to ensure that cross-national comparisons are accurate and reliable.

3.2. Well-being

Well-being is a key concept in policy-related research and when evaluating care arrangements for older adults. A number of studies show that older adults tend to have higher life satisfaction compared to middle-aged and younger people, which highlights the importance of distinguishing between life satisfaction and well-being. More detailed analyses (Bowling, 2005; Ryff and Keyes, 1995) show that elderly people have higher life satisfaction and positive affect but tend to be less happy than younger people. It is thus important to conceptualise well-being in relation to its component domains in order to avoid confounding.

Recent research (Steptoe *et al.*, 2012: 100) shows that well-being has a multifaceted nature, and that at least three different dimensions can be identified: affective or hedonic well-being, which comprises measures of feelings, such as happiness or loneliness; eudemonic well-being, which encompasses assessments of autonomy, control and other aspects of daily life; evaluative well-being, which includes general evaluations, like the life satisfaction. In brief, well-being comprises an affective dimension and a cognitive dimension, a distinction that is useful when seeking to measure well-being and to determine how it varies across countries.

Gender differences are often observed in relation to the affective aspects of well-being. Women tend to report sadness and negative affect more frequently than men, although this may be due (at least in part) to reporting bias due to lower levels of inhibition and reticence (McDowell, 2006; Li, 2015). We know less about gender differences in relation to the cognitive aspects of well-being. This

underlines the need to control for the individual characteristics of elderly adults when investigating well-being in the countries considered in this study.

Some scholars specify a hierarchical structure in which theoretically-based first-order latent factors are treated as a manifestation of a second-order latent construct reflecting overall well-being (Pratschke *et al.*, 2016a; Ryff and Keyes, 1995). In this study, we estimate first-order latent constructs using exploratory factor analysis and construct a composite index of global wellbeing to use as a dependent variable in the statistical models presented in Chapter 5.

In order to create a composite indicator of well-being, we rely on the *ac* module using data from the question items which report how satisfied the respondents are with their lives; whether they think that life has a meaning and the future looks good; whether they look back on life with happiness and look forward to each day; whether they can do the things they want to; whether they feel left out of things or full of energy and endowed with opportunities (these items are identified in the dataset by the names *ac012_*, *ac016_*, *ac017_*, *ac019_-ac025_*).

I also rely on the *mh* module, using data from the question items which record whether respondents felt sad or depressed in the last month; whether they felt irritable, experienced a loss of appetite, fatigue, lack of companionship, felt left out, isolated from others or lonely; whether they had hopes for the future, trouble sleeping or were less interested in things; whether they had difficulty in concentrating; and whether they were tearful (these indicators are named *mh002_*, *mh003_*, *mh007_*, *mh008_, mh010_*, *mh011_*, *mh013_-mh015_-mh017_, mh034_-mh037_*).

I excluded a small number of variables with very low loadings on the latent factors (less than 0.30), or which had similar-sized loadings on more than one factor. This was the case for the question items which record whether respondents think that family responsibilities prevent them from doing things, have suicidal feelings or wish to be dead, feel guilty and whether they think that age prevents them from doing things, feel out of control or enjoy their lives (*ac018_*, *mh004_*, *mh005_* and *ac014_*, *ac015_*, *mh016_* respectively). Once the final set of indicators is defined, we compute Cronbach's alpha (a measure of internal consistency or reliability).

Specification of the number of factors is based on a number of considerations, including substantive considerations as well as the Kaiser criterion, which recommends retaining all factors with eigenvalues greater than 1.0 (Costello and Osborne, 2005; Williams *et al.*, 2010; Yong and Pearce, 2013). Since this sometimes results in an overestimation of the appropriate number of factors, multiple tests were run to determine how many factors were meaningful. Based on the results of these tests, we specified three factors related to well-being, the first of which accounts for 70.8 per cent of the variance of the indicators.

I conducted a Kaiser-Meyer-Olkin (KMO) test, which is a measure of the proportion of common variance in the manifest variables, and reflects how well-suited the data may be to exploratory factor analysis (StataCorp, 2013). The KMO test takes a value very close to 1 (0.91), meaning that the manifest variables are well-suited to exploratory factor analysis. We also rotated the factor loadings using oblique rotation. This choice was guided by the expectation that the component factors are correlated (Osborne, 2015: 5; StataCorp, 2013).

The factor loadings in the pattern matrix are shown in Table 3.1, revealing a clean factor solution and three factors (Albano, 2004; Osborne, 2015). The first relates to life satisfaction and involves general evaluations of respondents' lives through question items *ac020_-ac025_*, with loadings ranging from 0.56 to 0.80. The second factor measures depression through the indicators *mh002_*, *mh007_*, *mh013_*, *mh014_*, with loadings of 0.50 or higher. The third factor is also strong and stable and measures loneliness through the items *mh034_-mh037_*, with loadings that range between 0.63 and 0.76.

Table 3. 1. Pattern matrix with loadings < 0.50 suppressed, pooled sample (n = 20,144), Wave 6.

Variable name	Variable label	Factor1	Factor2	Factor3
ac020_	Look forward to each day	0.64		
ac021_	Life has meaning	0.69		
ac022_	Look back on life with happiness	0.56		

Variable name	Variable label	Factor1	Factor2	Factor3
ac023_	Feel full of energy	0.60		
ac024_	Full of opportunities	0.80		
ac025_	Future looks good	0.80		
mh002_	Sad or depressed last month		0.60	
mh007_	Trouble sleeping		0.50	
mh013_	Fatigue		0.57	
mh014_	Concentration on entertainment		0.51	
mh034_	Feels lack of companionship			0.68
mh035_	Feels left out			0.63
mh036_	Feels isolated from others			0.72
mh037_	Feels lonely			0.76

Notes: SHARE Data Release 7.0.0. Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalization.

The factor correlation matrix is shown in Table 3.2 and confirms the importance of using an oblique rotation. Whilst the first factor measures how individuals assess their satisfaction with life, depression is a measure of feelings, and loneliness reflects how individuals feel about their social network. These factors therefore carry valuable information on well-being, measuring its different dimensions, including a cognitive dimension (life satisfaction) and two affective dimensions (depression, loneliness).

Table 3. 2. Factor correlation matrix, pooled sample (n = 20,144), Wave 6.

Factors	Factor1	Factor2	Factor3
Factor1	1.00		
Factor2	0.53	1.00	
Factor3	0.44	0.48	1.00

Notes: SHARE Data Release 7.0.0. Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalization.

Building on the results of the exploratory factor analysis, we created three new composite indices based on the estimated scores for the common factors using the regression scoring method (StataCorp,

2013). We then carried out another exploratory factor analysis using only these three variables in order to create a measure of global or overall well-being.

As a single factor is appropriate, no rotation is carried out (Albano, 2004; Osborne, 2015) and Cronbach's alpha takes a value close to 1 (0.80), suggesting that the first-order factors are strongly related to each other and the KMO test also yields a satisfactory value considering the number of variables (0.70), confirming that the data are well-suited to exploratory factor analysis. The results strongly suggest that we can view the first-order factors as indicators of a second-order measure of overall well-being, with the factor loadings ranging from 0.68 to 0.85 (Table 3.3). The composite overall index of well-being is once again based on the estimated factor scores using the regression method, rescaled to have mean 0 and standard deviation 1 (StataCorp, 2013).

Table 3. 3. Pattern matrix, pooled sample (n = 20,144), Wave 6.

Variable name	Variable label	Loading
factor1	Life satisfaction	0.75
factor2	Depression	0.85
factor3	Loneliness	0.68

Notes: SHARE Data Release 7.0.0. Extraction Method: Maximum Likelihood.

For the purposes of descriptive analysis we create an ordinal variable with a five-point scale (labelled *very low*, *low*, *average*, *high* and *very high*), where a high score indicates high well-being. In the pooled sample, the mean is 3.20. The mean scores for Portugal and Greece are relatively low, whilst the other countries have higher scores, with Germany having the highest mean (Table 3.4).

Table 3. 4. Average well-being, all samples, Wave 6.

	Mean	Linearized Std. Err.	[95% Conf. Interval]	
All countries	3.20	0.02	3.16	3.24
Italy	3.03	0.03	2.97	3.09

	Mean	Linearized Std. Err.	[95% Conf. Interval]	
Spain	3.21	0.05	3.12	3.30
Portugal	2.74	0.09	2.55	2.94
Greece	2.71	0.01	2.68	2.75
Germany	3.42	0.02	3.38	3.46

Notes: SHARE Data Release 7.0.0. Italy (n = 4,872), Spain (n = 4,969), Portugal (n = 1,467), Greece (n = 4,616), Germany (n = 4,220). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

In Portugal, about one fifth of older adults have very low well-being, and this applies to almost one fourth of people in Greece. By contrast, few of the German respondents fall into this category. Conversely, in Portugal and Greece few respondents (roughly one in twenty) have very high well-being and in Germany this applies to roughly one sixth of the sample. Italy and Spain occupy an intermediate position (Table 3.5).

Table 3. 5. Well-being, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	17.39	14.53	21.99	22.97	7.58
Low	9.20	7.02	10.83	11.61	7.07
Average	37.19	36.19	42.97	40.37	37.82
High	25.51	27.60	19.07	21.17	30.79
Very high	10.71	14.66	5.14	3.88	16.74
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,872), Spain (n = 4,969), Portugal (n = 1,467), Greece (n = 4,616), Germany (n = 4,220). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

This finding supports the evidence presented in Chapter 2, where we reported marked differences between Portugal and Greece, on the one hand, and Germany, on the other, in relation to individual characteristics and life circumstances. However, the data also suggest that there are important differences between the Southern European countries themselves, which cannot be treated as a

monolithic bloc. As far as well-being is concerned, Spain and Italy are more similar to Germany than to Portugal or Greece.

When well-being is disaggregated by age, these cross-national differences persist, suggesting that they are not simply due to differences in demographic composition. In Portugal and Greece, about half of people aged 80 and over have very low well-being, compared to one third in Italy and Spain and one tenth in Germany (Tables 3.7-3.9). When we confine the analysis to people aged 50-59 years, we again find marked differences between Portugal and Greece, on the one hand, and Germany and Spain, on the other, with Italy occupying an intermediate position (Table 3.6).

Table 3. 6. Well-being of respondents aged 50-59 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	13.73	7.20	14.80	17.32	8.88
Low	7.14	4.38	8.07	9.64	7.30
Average	36.92	38.13	45.90	43.82	36.14
High	28.90	31.96	23.96	24.17	30.47
Very high	13.31	18.33	7.27	5.05	17.21
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,872), Spain (n = 4,969), Portugal (n = 1,467), Greece (n = 4,616), Germany (n = 4,220). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Table 3. 7. Well-being of respondents aged 60-69 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	14.00	10.86	15.24	16.68	5.19
Low	7.78	7.69	12.70	10.09	5.37
Average	35.38	33.55	43.77	39.69	33.03
High	30.44	30.26	24.30	27.69	34.83
Very high	12.40	17.64	3.99	5.85	21.58
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,872), Spain (n = 4,969), Portugal (n = 1,467), Greece (n = 4,616), Germany (n = 4,220). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Table 3. 8. Well-being of respondents aged 70-79 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	18.50	18.07	26.57	25.59	6.91
Low	10.02	7.78	12.86	14.25	6.67
Average	41.08	37.81	40.74	41.63	40.63
High	21.60	25.32	13.83	16.60	30.98
Very high	8.80	11.02	6.00	1.93	14.81
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,872), Spain (n = 4,969), Portugal (n = 1,467), Greece (n = 4,616), Germany (n = 4,220). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Table 3. 9. Well-being of respondents aged 80+ years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	30.76	34.73	47.25	42.36	10.82
Low	15.37	11.44	8.02	14.65	11.05
Average	35.16	33.73	38.57	32.80	47.35
High	14.21	15.00	4.20	9.54	22.22
Very high	4.50	5.10	1.96	0.65	8.56
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,872), Spain (n = 4,969), Portugal (n = 1,467), Greece (n = 4,616), Germany (n = 4,220). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

3.3. Health

Empirical research has consistently found a strong association between health and well-being among older adults (Bowling, 2005; Li, 2015; Steptoe *et al.*, 2012). "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity",[8] with different domains, including physical and cognitive function. Secondary data analyses using ELSA (Steel *et al.*, 2004; Steptoe *et al.*, 2012) show that, for community-dwelling individuals aged 50+

[8] Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June - 22 July 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of WHO, no. 2, p. 100) and entered into force on 7 April 1948 (*source*: World Health Organization -WHO).

years and living in England, cognitive function has a greater influence on autonomy and control over daily life than physical function. It is therefore important to look at the multidimensional nature of this latent construct when seeking to understand its relationship with well-being.

Physical function is the ability to carry out the normal physical activities of daily life. Disability, by contrast, is a restriction of physical function, although impairments can be physical, cognitive or both. As a recent secondary data analysis using HRS (Stenholm *et al.*, 2012) suggests, there are well-established associations between chronic disease and declines in physical health, whilst less is known about the relationship between chronic conditions and cognitive function.

Defining and measuring cognitive function is quite complex. As Robine and colleagues (2003) show, research has tended to emphasise specific mental disorders and data on the full range of conditions linked with cognitive function are generally more difficult to obtain. Others (Pincus *et al.*, 1999) point out that scales and measures focus on the evaluation of physical function, tending to neglect the cognitive domain. Patients with rheumatic diseases who have normal scores based on standard health assessment questionnaires may nonetheless experience limitations in relation to daily life due to cognitive function decline.

There is another important issue that we should bear in mind when seeking to define and measure cognitive function. As some scholars suggest, elderly people tend to interpret their somatic symptoms in physical rather than cognitive terms. This trend changes based on individual characteristics such as gender and socioeconomic status. For instance, McDowell (2006) suggests that it is more often the case for women, who tend to report more somatic symptoms than men, and for more affluent individuals. Gender differences are also observed in relation to different measures of cognitive function. As Steel and colleagues (2004) suggest, women tend to outperform men on measures of memory, whilst the opposite is observed in relation to executive function, which may reflect gender differences in education and occupation. Whilst memory scales embrace both objective (such as words-list learning) and subjective measures (like the self-rated memory), measures of executive function rely on other aspects of cognitive function (e.g. verbal fluency).

Using the *ph* module, we created a summary scale using information on health conditions diagnosed by a doctor: heart attack; high blood pressure or hypertension; high blood cholesterol; stroke; diabetes or high blood sugar; chronic lung disease; cancer; stomach or duodenal ulcer, peptic ulcer; Parkinson disease; cataracts; hip fracture or femoral fracture; other fractures; Alzheimer's disease, dementia, senility; other affective/emotional disorders; rheumatoid arthritis; osteoarthritis/other rheumatism; and chronic kidney disease (these items are identified in the dataset by the names *ph006d1-ph006d21*). The new measure is coded 0 for individuals without any condition, 1 for individuals with only one condition and 2 for those who have been diagnosed with at least two conditions. Factor analysis is not necessary or appropriate in this case.

No cross-national differences are observed in relation to individuals with only one chronic condition, who represent about one fourth of the sample in all countries. Interestingly, the largest differences are observed in relation to those who have been diagnosed with two or more conditions, who represent almost one third of the sample in Italy, whilst in Spain, Portugal, Greece and Germany, roughly half of respondents fall into this category (Table 3.10). The distribution of poor health based on reported chronic conditions is therefore quite different from that reported above for well-being.

Table 3. 10. Chronic conditions, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	35.60	29.33	20.23	28.69	26.03
One	26.92	24.50	23.47	26.32	28.36
Two or more	37.48	46.16	56.30	44.98	45.60
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

As expected, the percentage of individuals with chronic conditions increases with age. The differences between countries are more marked when we divide the sample into age groups, with

roughly half of the Italian, Spanish and Greek samples of 50-59 years-old reporting no chronic conditions, compared to just over one third of the Portuguese and German samples. Amongst those aged 80+ the differences are less marked, with Italy having the largest share of healthy individuals (13.5%) and Greece having the smallest (5.5%) (see Appendix).

As well as considering chronic conditions, we also use other composite indicators to measure the long-term care needs of elderly people and to study how health status impacts on individual well-being in the different countries. Using the *ph* module, we create composite indicators of disability using data from questions which record whether respondents have difficulty walking 100m; sitting down for two hours; getting up from a chair; climbing several flights of stairs; climbing one flight of stairs; stooping, kneeling or crouching; reaching or extending their arms above their shoulders; pulling or pushing large objects; lifting or carrying weights over 5kg; picking up a small coin from a table; dressing, including putting on shoes and socks; walking across a room; bathing or showering; eating, including cutting up food; getting in or out of bed; using the toilet, including getting up or down; using a map in a strange place; preparing a hot meal; shopping for groceries; making telephone calls; taking medications; doing work around the house or garden; managing money; leaving the house independently/accessing transport; and doing personal laundry (these indicators are named *ph048d1-ph048d10*, *ph049d1-ph049d15*). In addition, we also include items on falling down; fear of falling down; dizziness, faints or blackouts; and fatigue (*ph089d1-ph089d4*). Since we are interested in elderly adults who need long-term care, it is important to rely on all available information and to identify different kinds of need (for frail older adults, see Bellinghieri *et al.*, 2019), as individuals with more difficulties are likely to have greater long-term care needs.

We again create composite indicators of physical function using exploratory factor analysis and pooled data for all countries. The block of variables listed in the previous paragraph (*ph*) is analysed with a view to identifying the component dimensions. Published research using data from the SHARE survey (Scheel-Hincke *et al.*, 2019) suggests that a two-factor solution is appropriate for this block of variables, including limitations with activities of daily living (ADLs) and limitations with

instrumental activities of daily living (IADLs) (for measurement models in health research, see also Robine *et al.*, 2003; Theou *et al.*, 2015; van Oyen *et al.*, 2006).

We exclude the item which records whether respondents are bothered by falling down (*ph089d1*), due to very low loadings on the factors. Cronbach's alpha coefficient takes a value very close to 1 (0.94), suggesting that these items form a group. After adopting the Kaiser criterion, we run multiple tests and eventually specify two factors. The first is very strong (extracted eigenvalue of 10.61, which accounts for 84.01% of the variance), and the KMO test takes a value very close to 1 (0.97), confirming the suitability of the data to exploratory factor analysis.

We rotate the factors using oblique rotation and examine the factor loadings (Table 3.11). The two factors measure restrictions on physical function (disability) and in particular limitations (with both ADL and IADL; *ph049d2-ph049d6, ph049d8-ph049d11* and *ph049d13-ph049d15*, with loadings ranging from 0.55 to 0.85) and difficulties with mobility involving leg and arm function (*ph048d1*, *ph048d3-ph048d6*, *ph048d8*, *ph048d9*, with loadings that range between 0.53 and 0.74).

Table 3. 11. Pattern matrix with loadings < 0.50 suppressed, pooled sample (n = 20,182), Wave 6.

Variable name	Variable label	Factor1	Factor2
ph049d2	Difficulties: Walking across a room	0.67	
ph049d3	Difficulties: Bathing or showering	0.65	
ph049d4	Difficulties: Eating, including cutting food	0.69	
ph049d5	Difficulties: Getting in or out of bed	0.60	
ph049d6	Difficulties: Using the toilet, including getting up or down	0.72	
ph049d8	Difficulties: Preparing a hot meal	0.83	
ph049d9	Difficulties: Shopping for groceries	0.66	
ph049d10	Difficulties: Telephone calls	0.83	
ph049d11	Difficulties: Taking medications	0.85	
ph049d13	Difficulties: Managing money	0.74	
ph049d14	Difficulties: Leaving the house independently	0.55	
ph049d15	Difficulties: Doing personal laundry	0.71	
ph048d1	Difficulties: Walking 100 metres		0.53
ph048d3	Difficulties: Getting up from chair		0.63
ph048d4	Difficulties: Climbing several flights of stairs		0.72

Variable name	Variable label	Factor1	Factor2
ph048d5	Difficulties: Climbing one flight of stairs		0.60
ph048d6	Difficulties: Stooping, kneeling, crouching		0.74
ph048d8	Difficulties: Pulling or pushing large objects		0.60
ph048d9	Difficulties: Lifting or carrying weights over 5 kilos		0.66

Notes: SHARE Data Release 7.0.0. Extraction Method: Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalization. *ph049d14*: Difficulties: Leaving the house independently/accessing transportation.

The factor correlation coefficient (0.56) strongly supports an oblique solution, as expected.

Building on the results of the exploratory factor analysis, we create new measures counting the number of difficulties for question items with a loading of 0.50 or higher for the common factors. Firstly, we create a summary scale using items measuring difficulties in: walking across a room; bathing or showering; eating, such as cutting up food; getting in or out of bed; using the toilet, including getting up or down; preparing a hot meal; shopping for groceries; making telephone calls; taking medications; managing money; leaving the house independently/accessing transport; and doing personal laundry. The new composite index of ADL/IADL disability has scores ranging from 0, indicating no ADL/IADL limitations at all, to 12, the maximum of ADL/IADL limitations. In Portugal, the percentage of individuals with at least one ADL/IADL disability is above 20 percent, whilst in the other countries it is about 5-6 percentage points lower (Table 3.12).

Table 3. 12. ADL/IADL disability, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	85.16	87.06	78.59	85.53	87.62
One	4.74	3.05	6.08	5.59	4.36
Two or more	10.10	9.89	15.33	8.88	8.02
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,496), Spain (n = 4,998), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

As expected, in all countries, the share of individuals with disabilities increases with age, with the most drastic increase in the oldest age group (80+ years), with roughly one third of respondents having two or more disabilities (more than half in Portugal) (see Appendix).

We also create a scale using information on difficulty walking 100m; getting up from a chair; climbing several flights of stairs; climbing one flight of stairs; stooping, kneeling or crouching; reaching or extending their arms above shoulders; pulling or pushing large objects; and lifting or carrying weights over 5kg. This measure of mobility difficulty ranges between 0, indicating no limitations, and 8, the maximum.

In Italy, Spain and Germany, almost one third of respondents report having difficulties with mobility. In Portugal and Greece, by contrast, almost half of the sample falls into this category (Table 3.13). As we showed in Chapter 2, in Portugal there is an older age profile compared to the other countries.

Table 3. 13. Mobility difficulty, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	58.09	60.05	44.57	43.69	53.21
One	11.94	8.69	10.16	15.18	16.16
Two or more	29.97	31.26	45.28	41.13	30.64
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

When mobility difficulty is disaggregated by age, these cross-national differences still persist. As expected, in all countries, the percentage of individuals without mobility difficulties decreases with age. In Portugal, about one third of respondents aged 50-59 years report having at least two of these difficulties, compared with roughly 10 per cent in Italy and Spain, almost 15 per cent in Greece and

21 per cent in Germany (see Appendix). A larger share of respondents have difficulties with mobility, when compared with ADL/IADL disability.

As we indicated earlier, disabilities and impairments may reflect a decline in cognitive function and not just physical health, and these dimensions are crucial when seeking to measure long-term care needs. For this reason, we use indicators included in the *cf* module to construct another composite indicator, including the number of animals listed (a measure of verbal fluency that is identified in the dataset by the name *cf010_*) and some variables from the *gv_health* module: ten-word memory test (first trial and delayed recall; named *cf008tot* and *cf016tot*). These variables provide precious objective measures of cognitive function.[9]

As these question items are not part of the original measurement instrument for ADL/IADL disability, and relate to a separate domain, they were analysed separately. After making sure that the item-level missingness was due to selective non-response to these individual questions, rather than being determined by the structure of the questionnaire or by broader patterns of non-response, we adopt the same strategy as before to deal with missing values (i.e. EM-based single imputation). The verbal fluency score ranges from 0 to 93 for the pooled sample, with several large outliers which could exert undue influence on the results. For this reason, all cases with values above 40 are truncated at this value.

Cronbach's alpha takes a fairly high value (0.79), and the KMO test takes a value greater than 0.50, suggesting that the data are eligible for exploratory factor analysis (this figure is lower than in previous cases due to the very small number of indicators used). We apply this technique to the pooled data for all the countries in order to create a new measure of cognitive function.

The pattern matrix is presented in Table 3.14, and the pooled sample shows that the manifest variables may indeed be expressed as a function of the factor, which reflects cognitive function involving memory (*cf008tot* and *cf016tot*) and executive function (*cf010_*), with loadings that range

[9]The aforementioned question items record the maximum number of correct words from a semantic category, like animals, in 1 minute (*cf010_*) and the maximum number of words registered (*cf008tot*) and recalled (*cf016tot*) from a list of 10 words (Mehrbrodt *et al.*, 2017).

between 0.55 and 0.86. Unfortunately, it is not possible to identify any other measure of cognitive function with the required characteristics.

Table 3. 14. Pattern matrix with loadings < 0.50 suppressed, pooled sample (n = 20,185), Wave 6.

Variable name	Variable label	Factor1
cf008tot	Ten words list learning first trial total	0.85
cf010_	Verbal fluency score: number of animals	0.55
cf016tot	Ten words list learning delayed recall total	0.86

Notes: SHARE Data Release 7.0.0. Extraction Method: Maximum Likelihood.

Because we are dealing with a single factor, no rotation can be performed. Building on the results of the exploratory factor analysis, we created a composite indicator of cognitive function using the estimated scores for the common factor, predicted using the regression method and rescaled so as to have a mean of 0 and a standard deviation of 1. We then created an ordinal variable assessed on a five-point scale (*very low*, *low*, *average*, *high* and *very high*), where a low score indicates a high level of cognitive impairment.

There are marked differences between the South European countries and Germany in relation to cognitive function. Very few respondents in Germany have low or very low cognitive function, and a large share (about one third) have very high cognitive function (Table 3.15). This reveals one of the specificities of the German case, when compared with the countries of Southern Europe, as this country has relatively high levels of chronic conditions and physical disability, but low levels of cognitive impairment and high well-being.

Table 3. 15. Cognitive function, all samples, Wave 6, weighted.

	Italy	Spain	Portugal	Greece	Germany
Very low	17.66	20.52	22.90	14.58	7.42
Low	14.73	16.58	15.94	14.02	7.81
Average	41.52	37.15	38.83	42.38	30.39

	Italy	Spain	Portugal	Greece	Germany
High	14.39	13.11	11.28	16.23	19.45
Very high	11.70	12.64	11.05	12.79	34.93
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,893), Spain (n = 4,970), Portugal (n = 1,470), Greece (n = 4,630), Germany (n = 4,222). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

In Portugal, roughly one quarter of those aged 70-79 years have low cognitive function, whilst in Germany, few respondents fall into this category. In Portugal, about one third of people in this age group have very low cognitive function, reaching almost half in the oldest age group. Whilst Italy, Spain and Greece are similar in this respect, Germany has the smallest shares of those with cognitive impairments (see Appendix).

It is important to consider these new measures of health in a holistic manner in order to identify the long-term care needs of elderly adults across countries. Although the patterns of cross-national differences are sometimes complex, long-term care needs are most evident amongst older adults in Portugal. In this country, a relatively large share of elderly people have chronic conditions, disabilities and impairments, even after controlling for age. The differences are smaller in relation to physical function, and larger for cognitive function. The most marked differences are observed between the South European countries and Germany. This suggests that cognitive function may play a key role in determining individual well-being amongst elderly adults. It is therefore of great relevance to understand what is driving these differences in cognitive function and to explore its impact on care arrangements (see Chapter 4).

3.4. Social networks

Theoretical work on social ties embraces different definitions and methods, and empirical work on the relationship between social ties, health and well-being has yielded inconsistent results. Much of the theoretical literature addresses aspects of elderly adults' social networks such as size and composition. As we showed in Chapter 1, ties with family and friends can change dramatically during

later life, with the former becoming more important and the latter progressively losing relevance. It is thus important to consider the frequency and proximity of social ties when seeking to measure social networks (and social support).

Using the *gv_networks* module, we created a summary scale using information on the number of role relations categories in a social network (including children, siblings, parents, friends, paid helpers and others, which are identified in the dataset by the terms *childnet*, *siblingnet*, *parentnet*, *friendnet*, *formalnet*, *othernet*). Respondents could list up to seven social network members (Börsch-Supan, 2019). We also assume that a spouse or partner, if present, is a major source of social support. We thus create a measure of social network size ranging from 0, indicating no social ties, to 8, the maximum.

The strongest cross-national differences are observed between Italy and Germany. Italy has the highest percentage of isolated individuals, whilst in Germany very few respondents fall into this category. In Italy, few respondents have regular ties with four people or more (less than 10%), but in Germany more than one quarter of people have a social network of this size. If we take three ties as the cut-off point, the difference between Italy (23%), on the one hand, and Germany (54%) and Spain (47%), on the other, is enormous (Table 3.16). Portugal (37%) and Greece (34%) occupy an intermediate position. Surprisingly, therefore, older adults in Germany have the strongest social networks, whilst those in Italy are much more isolated. This may help to explain the differences in well-being described earlier, although other factors are also likely to be important in this context. In Chapter 5 we will explore the implications of these differences in a multivariate context.

Table 3. 16. Social network size, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	11.23	3.60	3.56	3.69	3.01
One	45.12	22.60	33.75	32.30	16.77
Two	20.49	26.76	25.88	29.79	26.43
Three	13.91	22.71	23.38	21.65	25.08
Four or more	9.25	24.33	13.43	12.57	28.71

	Italy	Spain	Portugal	Greece	Germany
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Using the *sn* module, we also create a summary scale based on the frequency of contact with social network members (daily; several times a week; about once a week; about every two weeks; about once a month; less than once a month). Wave 6 of the SHARE study provides this information on up to seven named persons (Börsch-Supan, 2020). This enables us to compute the mean frequency of contact with the seven most important people named by the respondent (these items are named *sn007_1-sn007_7*), after coding frequency on a scale of 1-4.

The differences noted above between Italy and Germany are also observed in relation to frequency of contact. In Italy and Greece, a high percentage of people have infrequent contacts with friends and relatives, whilst Spain, Portugal and Germany are rather similar, as about one third of respondents have regular contacts (at least monthly) (Table 3.17).

Table 3. 17. Frequency of contact, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Less often	80.92	60.79	67.17	73.61	63.24
About monthly	16.32	30.29	28.58	23.31	30.76
About weekly	2.59	7.83	3.72	2.96	5.65
About daily	0.17	1.09	0.54	0.12	0.35
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Finally, we create a measure of interconnectedness, relying on a rating of the relationship with each member of the respondent's social network (not very close; somewhat close; very close;

extremely close). We compute the mean using the items *sn009_1-sn009_7*, after coding responses on a scale of 1-3.

As expected, about two thirds of the Italian sample are lacking close connections, whilst in Germany only a little more than one quarter fall into this category. Interestingly, Italy is quite distinct from the other countries in relation to this aspect of social network connections. In Spain, Portugal, Greece and Germany, roughly half of elderly people have some close relations, compared with just 31% in Italy. There are similarities between Spain and Germany, where more than 15 percent of the sample have very or extremely close relationships, with Spain leading the way at almost 21 per cent (Table 3.18). As social networks are thought to operate as a protective factor in relation to well-being among elderly adults, we need to understand the determinants of these large cross-national differences in their structure and composition.

Table 3. 18. Degree of interconnectedness, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Not very close	62.71	30.09	40.79	41.72	27.03
Somewhat close	30.72	48.69	50.84	50.40	56.76
Very close	6.05	16.66	7.91	7.18	15.06
Extremely close	0.52	4.56	0.46	0.68	1.15
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Finally, we create a summary scale using information on the availability of people with whom respondents can discuss important issues, such as things that happen to them, problems they have or other important concerns (these items are named *sn002a_1-sn002a_7*). These question items record information about the respondents' social relations with family members, friends, neighbours, or other acquaintances, and enable us to compute a mean score for intimacy which indicates how many

people there are in the network with whom the respondent can discuss important questions. As we will see in more detail later, this indicator may influence well-being independently of other aspects of the social network.

In Italy, one third of respondents have no intimate relations, and this situation contrasts very starkly with that observed in other countries, particularly if we consider Germany (3%), Greece (5.8%) or Spain (5.9%). These are very large differences when comparing European countries which have many commonalities in terms of cultural and social influences. In Germany and Spain, more than one quarter of respondents have intimate relationships (in the sense of being close) with four or more individuals and no less than 80 per cent of people in the German sample report having two or more confidants, compared with just over 40 per cent in Italy (Table 3.19). This is striking, as Germany also has the highest percentage of people who are separated or divorced (see Chapter 2), and popular stereotypes tend to draw a contrast between 'cold' Germans and 'warm' Italians.

Table 3. 19. Intimate relationships, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	33.28	5.90	12.02	5.81	3.21
One	25.01	22.98	26.43	33.86	16.66
Two	19.08	23.54	24.32	27.74	25.51
Three	13.12	22.44	23.38	20.07	25.16
Four or more	9.51	25.14	13.85	12.52	29.46
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

In Italy, therefore, there are large shares of individuals without social ties (including intimate relations), with infrequent contacts and weak networks, perhaps reflecting the large percentage of older adults who live alone and have little contact with family members and friends. These findings further suggest the importance of controlling for various aspects of social networks when considering

family care for elderly people. Given the striking differences that are observed between Italy and Germany, social networks are clearly a crucial control variable when studying ageing, health and well-being as well as meriting further study in their own right.

The *gv_networks* module comprises a measure of satisfaction with social networks using information from two cardinal variables included in the *sn* module (*sn012_* and *sn017_*). After combining these, we obtain a continuous measure of satisfaction which enables us to assess whether weaker social networks tend to be assessed more negatively than stronger ones. The correlation coefficients between this measure and social network size, frequency of contact, intimate relationships indicate a moderate linear association (0.37, -0.34 and 0.48 respectively), and there is a higher correlation between satisfaction and degree of interconnectedness, suggesting that this variable may be particularly important to well-being. We will test these measures in the statistical models presented in Chapter 5 to assess whether they contribute independently to well-being.

3.5. Social participation

In this thesis, we also consider social participation, which includes engagement in organised cultural and social activities, which many scholars consider to be beneficial in later life and protective of well-being. If family care reduces opportunities for social participation for both care providers and care recipients, this could have implications for well-being. Litwin and Stoeckel (2015) argue that social participation is protective of cognitive function and may compensate for decreases in the size of social networks, helping to buffer the decline in cognitive function amongst people aged 60 and over. For those aged 80 and over, participation may even substitute for social network connections, with beneficial effects on memory, for example. It is therefore important to consider social participation in the context of family care for elderly people, since it may have important implications for the well-being of both the providers and receivers of this care.

Using the *ac* module, we created a summary scale of social participation using data from the question items which indicate whether respondents have engaged in various activities over the course of the last year, including whether they have done voluntary or charity work; attended an education

or training course; gone to a sport, social or other kind of club; taken part in a political or community-related organisation; played cards or games such as chess (these items are identified in the dataset by the names *ac035d1-ac035d7* and *ac035d10*). We create a new measure which ranges from 0, indicating no social participation, to 7, the maximum. We then create a summary scale using information on how often respondents engaged in such activities in the last year (almost every day; almost every week; almost every month; and less often; these items are named *ac036_1-ac036_7* and *ac036_10*). We then compute the mean as a measure of the intensity of social participation. For the purposes of descriptive analysis, we create an overall measure of social participation assessed on a four-point scale (labelled *none*, *low*, *average and high*), where a high score indicates a high level of social engagement (e.g. four activities about weekly).

This variable once again reveals differences between countries, and distinguishes between Southern Europe and Germany. Whilst only 30 per cent of German respondents have a low level of participation, this applies to more than two thirds of respondents in all other countries (Table 3.20). As in the case of social networks, therefore, and perhaps for similar reasons, elderly adults in Germany appear to be more active and more connected than those in South European countries. In Italy, we once again find a large share of people who are not socially engaged, but this time the Southern European countries are very similar.

Table 3. 20. Social participation, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	68.53	70.82	67.25	68.61	30.34
Low	24.96	22.55	24.71	27.17	43.51
Average	5.56	5.46	7.04	3.56	20.03
High	0.95	1.17	1.00	0.66	6.12
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

3.6. Socio-economic status

As we argued in previous chapters, there is extensive evidence of health inequalities in older adults in Europe. Socio-economic status is one of the most controversial concepts in the health inequality literature, drawing the attention of numerous scholars and triggering an abundance of rival concepts and measures. On the one hand, there are indicators regarding current circumstances of life, like income and car ownership, which have accumulated over the life course and, on the other, there are indicators such as education and occupation which refer to previous points in the life course (for ecological indicators like deprivation, see Shah *et al.*, 2012; Smith *et al.*, 2010). All are of particular interest in the context of ageing, and have been shown to influence health in old age (House, 2002; Read *et al.*, 2016). However, less is known about how elderly people assess their current standard of living, and how they evaluate this in relation to their needs.

Using the *co* module, we created a new measure of socio-economic status using data from questions which record whether the household is able to make ends meet, can afford to pay an unexpected expense without borrowing money and puts up with feeling cold to help keeping living costs down (these variables are named *co007_*, *co206_* and *co209_*). Whilst education, current job situation and income yield important information on life circumstances, these variables provide precious subjective measures of socio-economic status, and combining them into a composite index allows us to avoid the multicollinearity problem. This theoretical and methodological issue is fundamental for analysing the influence of socioeconomic status on individual well-being.

Cronbach's alpha takes quite a high value (0.74) and the KMO test also yields a satisfactory value considering the small number of manifest variables (0.66), confirming the suitability of the data to exploratory factor analysis. We again factor analyse the pooled sample data for all countries together.

The pattern matrix is presented in Table 3.21. The manifest variables may be expressed as a function of a single factor, with loadings ranging from 0.59 to 0.85. It was not possible, unfortunately,

to identify any other subjective measure of socioeconomic status. Because we are dealing with a single factor, once again, no rotation can be performed.

Table 3. 21. Pattern matrix with loadings < 0.50 suppressed, pooled sample (n = 20,682), Wave 6.

Variable name	Variable label	Factor1
hh_ends_meet	Is household able to make ends meet	0.85
hh_unexpected_expenses	Afford to pay an unexpected expense without borrowing money	0.68
hh_need	To help keeping living costs down: put up with feeling cold	0.59

Notes: SHARE Data Release 7.0.0. Extraction Method: Maximum Likelihood.

Building on the results of the exploratory factor analysis, we create a new measure of socio-economic status using the estimated scores for the common factor, predicted using the regression method and rescaled so to have a mean of 0 and a standard deviation of 1. We then create an ordinal variable assessed on a five-point scale (*very low*, *low*, *average*, *high* and *very high*), where a high score indicates a high level of socioeconomic status.

This new measure agrees quite closely with what we observed in relation to the objective measures of socio-economic status (see Chapter 2), as it reveals differences between individual countries, and distinguishes between the South European countries and Germany. The most marked differences are observed once again between Greece and Germany. About half of respondents in Greece have low socio-economic status, compared to just one in twenty in Germany. Italy, Spain and Portugal occupy an intermediate position (Table 3.22).

Table 3. 22. Socio-economic status, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	22.32	18.95	27.34	54.44	6.00
Low	13.93	14.18	10.96	12.73	7.07
Average	25.16	17.80	32.91	21.19	12.65

	Italy	Spain	Portugal	Greece	Germany
High	26.19	20.83	19.58	7.91	29.05
Very high	12.40	28.25	9.22	3.73	45.22
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

3.7. Care

As we indicated earlier, we are interested in studying the effects of family care of elderly people, and its impact on the well-being of the providers and recipients. There is evidence that care has a powerful influence on well-being (Bowling, 2005). Elderly adults tend to assess their life as a whole, weighing up the pros and cons of their situation, with a particular focus on their health. Similarly, older adults with health-related problems who can rely on available state-provided services or affordable private services tend to prioritise control over daily life when evaluating aspects of their life. The same could be said of the association between family care for elderly people and individual well-being in its affective components. For example, Stoltz and colleagues (2004) suggest that family carers of cohabiting elder parents with dementia experience depression and loneliness.

Social and cultural contexts are also assumed to play a relevant role in shaping care arrangements for older adults. As we argued in Chapter 1, a number of studies have revealed differences between Southern and Northern Europe in relation to the provision of care within the family. A comparative study of its relationship with the well-being of elderly people (Litwin, 2010) indicates that in Italy, Spain and Greece, there are larger families, more cohabiting children and a higher level of care within the household, whilst in Germany care tends to come from outside the household. This finding is in line with what we reported in Chapter 2 and may reflect different definitions of family relations and family care (and residential arrangements) in the countries considered in this study.

Defining and measuring care needs is fundamental when investigating how families mobilise the available resources in order to meet these needs. Firstly, in the presence of long-term care needs, there can be variations in the type of care provided. The SHARE study provides information on personal care (including getting dressed, eating, lying down or getting out of bed, showering or washing and using the toilet), practical care (including gardening, household chores, repairs, shopping and transport) and paperwork (including filling out forms and dealing with financial or legal matters), which is a useful distinction if we want to improve our understanding of how families meet the long-term care needs of elderly adults Whilst personal care may require more frequent, ongoing assistance, practical care and help with administrative matters may only require intermittent assistance. Unfortunately, the SHARE dataset does not include comparable information on these types of care for people living inside and outside a given household. This information would have enabled us to detect more complex configurations of care, and to distinguish between those which enable older adults to maintain their autonomy and those which focus on providing continuous care within a single household.

Secondly, it is important to identify the intensity of care that is required and provided. The data provided by the SHARE survey unfortunately do not enable us to quantify the total number of hours of care received by each individual. As a consequence, we cannot estimate the proportion of care provided by public or private care providers, or from inside or outside the household. Using the *sp* module, however, we can measure the intensity of long-term care using a frequency measure which is available for the receipt of help from outside the household, for each actor involved: about daily; about weekly; about monthly; and less than once a month. Wave 6 of the SHARE study provides this information in regard to the list of social relations recoded in the *sn* module, so respondents could indicate up to three social network members who provided help (these variables are identified in the dataset by the names *sp005_1-sp005_3*). After transforming each response category in hours per month, we created a new variable assessed on a four-point scale (labelled *1h per month*, *4h per month*, *14h per month* and *90h per month*). We then created a dichotomous variable, where 1 indicates that

the respondent received help at least 14h per month (or weekly care), and 0 otherwise. As we will see in the next chapter, this new measure is useful for identifying patterns of care in the different countries.

Thirdly, some research (Merz and Huxhold, 2010) shows that the provider has an important influence on the association between the provision of care and the well-being of elderly people. Social support from family members, but not friends, and care from friends and neighbours, but not family members, appear to improve the well-being of recipients. Intimate relations with friends and care from family members may be taken for granted, as social relations with friends and neighbours are already motivated by affection and emotional closeness, and care from family members is driven by filial norms and moral obligations. A key issue in terms of well-being is likely to be whether it is possible for both parties to choose how care is provided.

Neighbourhood social cohesion, which comprises interdependence, and neighbourhood social capital, which encompasses the provision of social support, have also been found to be beneficial for the well-being of elderly adults (Bowling, 2005; Cramm *et al.*, 2013). However, we know less about the association between the provision of care and individual well-being, and how this association varies with long-term care needs. We therefore maintain a focus on friends and neighbours when studying the role of individuals outside the family.

In this part of the research, we want to confine our attention to identifying individuals having long-term care needs who receive care. As we noted earlier, these needs can be defined by disabilities and impairments. For example, our preliminary results suggest that in Italy more than 10 per cent of the sample have at least two limitations with ADL/IADL, reaching more than 15 per cent in Portugal, whilst in all other countries less than 15 per cent of respondents fall into this category, especially in Germany. There are therefore cross-national differences in the long-term care needs of older adults. This is important as those who have ADL/IADL disabilities need someone to carry out self-care and instrumental activities for fundamental functioning (Mehrbrodt, 2017). Similarly, individuals whose

cognitive impairments are severe or quite severe need to be assisted when coping with everyday matters (Steel *et al.*, 2004).

Table 3.23 shows how the receipt of care varies with the number of limitations. We include individuals without limitations in order to have a more comprehensive understanding of how the receipt of care relates to the long-term care needs of elderly people. As expected, individuals with at least two ADL/IADL limitations receive more care than those who have only one limitation. This is observed in all countries: about three quarters of the sample in Greece and Germany, almost two thirds in Spain, and roughly half in Italy and Portugal.

Unexpectedly, however, the percentage of those who do not receive care while having ADL/IADL disability is about one fourth in Greece and Germany, reaching almost one third in Italy, Spain and Portugal. This is striking as Greece and Germany show large differences in a number of other respects: from economic forces to individual characteristics and life circumstances (like the current job situation), to socioeconomic status. Before reaching any conclusion, between-country differences in relation to the role of care in the presence of long-term care needs must be investigated carefully.

Furthermore, what is worthy of attention is the fact that roughly one fourth of the German sample receives care without having limitations with ADL/IADL. Greece shows slight similarities, whilst in Italy, Portugal and Spain few respondents fall into this category. This means that in Germany and Greece (albeit to a lesser extent in the latter case), the receipt of care may be also driven by other factors. It also suggests, somewhat surprisingly, that the well-being of older people may depend at least in part on receiving help even in the absence of serious health-related limitations. As we argued in Chapter 2, in the other South European countries the beneficiaries of long-term care, by contrast, have the most severe disabilities and impairments. There is also a relatively high percentage of people with unmet long-term care needs. In the next chapter, we will go beyond these bivariate analyses by performing multivariate models to look at whether different factors drive the receipt of care in these countries.

Finally, Table 3.24 shows how the receipt of care changes based on cognitive impairments. For the purposes of descriptive analysis, we also include individuals with an average cognitive function. As expected, the higher the severity of cognitive impairments, the more likely it is that an individual receives care.

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Table 3. 23. Care for respondents with physical disabilities, all samples, Wave 6.

	Italy			Spain			Portugal			Greece			Germany		
	0	1	2+	0	1	2+	0	1	2+	0	1	2+	0	1	2+
No	88.34	55.90	31.26	91.85	56.06	31.58	93.23	77.99	35.49	82.94	41.38	23.00	76.35	46.34	22.31
Yes	11.66	44.10	68.74	8.15	43.94	68.42	6.77	22.01	64.51	17.06	58.62	77.00	23.65	53.66	77.69
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany. sp002_: Received help from others (outside hh); sp020_: Someone in this household helped you regularly with personal care.

Table 3. 24. Care for respondents with cognitive impairments, all samples, Wave 6.

	Italy			Spain			Portugal			Greece			Germany		
	Average	Low	Very low	Average	Low	Very low	Average	Low	Very low	Average	Low	Very low	Average	Low	Very low
No	87.61	80.74	66.11	90.00	91.75	73.62	90.02	88.35	73.69	80.57	72.26	62.55	72.78	64.75	46.67
Yes	12.39	19.26	33.89	10.00	8.25	26.38	9.98	11.65	26.31	19.43	27.74	37.45	27.22	35.25	53.33
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany. sp002_: Received help from others (outside hh); sp020_: Someone in this household helped you regularly with personal care.

Chapter 4 Multivariate statistical analysis on care configurations

4.1. Introduction

The central research question addressed in this thesis is whether it is possible to identify a Mediterranean model of long-term care for elderly people. By exploring the similarities in family care arrangements for elderly adults in four countries situated in Southern Europe (Italy, Spain, Portugal, Greece) and one North West European country (Germany), we aim to determine whether it is legitimate to treat the four South European countries as forming a single type. In Chapter 1, we saw that political forces, institutional arrangements, economic conditions and cultural norms tend to differentiate the four Southern European countries from Germany and a similar pattern emerged when we described the individual characteristics and life circumstances of SHARE participants in Chapter 2. In Chapter 3, we saw that Germany tends to score more highly than the four South European countries in terms of well-being, health, social networks, social participation and socio-economic status. However, it is also apparent that there are pronounced differences between Italy, Spain, Portugal and Greece.

Interesting but rather counterintuitive results have already emerged in this thesis in relation to the family and household composition and social networks. Frequent accounts of familism, socially cohesive neighbourhoods and warm friendships in Southern Europe would lead us to expect family and friendship networks to play a more relevant role among older adults in the Mediterranean countries included in this study, but our preliminary findings suggest that this is not the case, as social networks appear to be significantly stronger and denser in Germany. At the same time, this does not imply that the situation of elderly people in Italy, Spain, Portugal and Greece is identical, as a number of significant differences between these countries are once again apparent. In this chapter we use

multivariate modelling techniques to shed further light on these issues.

In order to obtain a better understanding of how families meet the long-term care needs of elderly adults, we must assess whether family care for older adults is due to a lack of alternatives or whether it is a preferred outcome. We must therefore look at whether family members provide care directly due to difficulties in accessing public services, because they cannot afford private services, as a result of cultural norms (and care obligations in particular) or for other reasons. At the same time, elderly people with long-term care needs may have preferences which influence outcomes.

In the next sections of this chapter, where we present our multivariate models, we will address this first research question. All variables used in our multivariate models are listed in Table 4.1.

Table 4. 1. Summary statistics of all variables for the pooled sample (n = 21,384).

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
Demographic variables									
age	Age		68.02	10.02		51	106		
gender	Gender	0 = Female 1 = Male			54.37 45.63				
marital_status	Married or common-law spouse	0 = No 1 = Yes			23.42 76.58			200	
hh_partner	Partner in the household	0 = No 1 = Yes			24.13 75.87				
hh_size	Household size (higher scores indicate higher number of household members)		2.30	1.00		1	15		
Socioeconomic variables									
education	Highly educated (ISCED 4-5-6 indicate post-secondary not tertiary education and tertiary education)	0 = No 1 = Yes			81.64 18.36			226	
job_situation	Economically active (employed or self-employed)	0 = No 1 = Yes			74.06 25.94			27	
income[c]	Income (higher scores indicate higher income)		2,527.21	2,457.37		0	10,000		4,132

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
ses[d]	High socioeconomic status (SES) indicates that the household is able to make ends meet, can afford to pay an unexpected expense without borrowing money, and does not need to put up with feeling cold to help keeping living costs down.	0 = No 1 = Yes			79.43 20.57			702	
area	Area of residence indicates that the respondent lives in a big city, the suburbs or outskirts of a big city.	0 = No 1 = Yes			69.51 30.49				1,114
Wellbeing variables									
life_satisfaction	Life satisfaction (high scores indicate higher life satisfaction)		0..50	0.97		-2,37	3.97		1,240
depression	Depression (high scores indicate higher depression)		0.04	0.91		-2,23	3.62		1,240
loneliness	Loneliness (high scores indicate higher loneliness)		0.03	0.92		-2,23	4.23		1,240

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
well_being[d]	Well-being (high scores indicate higher well-being)		-0.05	1.04		-4.43	2.58		1,240
Health variables									
condition	Chronic condition (higher scores indicate higher number of chronic conditions)		1.67	1.59		0	12		
adl_iadl	ADL/ADL disability (higher scores indicate higher number of limitations with ADL and/or IADL)		0.56	1.89		0	12	35	
mobility	Mobility difficulty (higher scores indicate higher number of difficulties with mobility leg and/or arm function)		1.50	2.05		0	7	35	
cognitive_functioning[d]	Cognitive functioning (higher scores indicate higher cognitive functioning)		-0.05	1.03		-4.23	3.41		1,199
sph	Self-perceived health (SPH) - US version (the	0 = No 1 = Yes			77.96 22.04			28	

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
	respondent describes it health status as very good or excellent)								
ltc_need	Significant long-term care needs indicate that the respondent has at least two limitations with ADL/IADL	0 = No 1 = Yes			90.48 9.52				
physical_activity	Physical activity (the respondent is engaged in vigorous physical activity, such as sports, daily)	0 = No 1 = Yes			75.96 24.04			35	
Social network variables									
sn_size	Social network size (higher scores indicate higher number of members within the respondent social network)		2.25	1.40		0	8		
contact	Frequency of contact within the social network (the respondent is in contact at least monthly with its social network members)	0 = No 1 = Yes			71.21 28.79				

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
closeness	Degree of interconnectedness within the social network (the respondent has very close or extremely close connections with its social network members)	0 = No 1 = Yes			87.89 12.11				
intimacy	Intimate relationships (higher scores indicate higher number of social network members with whom the respondent can discuss important issues)		2.19	1.55		0	7		
sn_satisfaction	Social network satisfaction (higher scores indicates that the respondent is higher satisfied with its social network)		8.84	1.32		0	12.75		2,197
social_participation	Social participation (higher scores indicate high levels of social engagement)		2.05	3.15		0	22		
Care variables									

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
care_receipt_weekly	Receipt of care at least 14 hours per month	0 = No 1 = Yes			90.67 9.33				
care_receipt_daily	Receipt of care at least 90 hours per month	0 = No 1 = Yes			95.03 4.97				
care_source	Source of care: none; family, *i.e.* (ex)partner/spouse, children and other family member (mother/father, sibling and other relative); home help, *i.e.* professional or paid service the respondent receives at home due to a health problem and non-family members, *i.e.* friend, (ex)colleague/co-worker, neighbour and other; all actors together	0 = None 1 = Family 2 = Home help/non-family members 3 = Home help/non-family members/family			19.66 58.27 10.38 11.69				
from_family_members	Receipt of care at least 14 hours per month from family, *i.e.* (ex)partner/spouse, children and other family member (mother/father, sibling and other relative)	0 = No 1 = Yes			91.69 8.31				

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
from_non_family_members	Receipt of care at least 14 hours per month from non-family members, *i.e.* friend, (ex)colleague/co-worker, neighbour and other; all actors together	0 = No 1 = Yes			98.80 1.20				
home_help	Receipt of home help care at least 14 hours per month i.e. professional or paid service the respondent receives at home due to a health problem	0 = No 1 = Yes			98.89 1.11				
care_provision_weekly	Provision of care at least 14 hours per month	0 = No 1 = Yes			90.90 9.10				
care_provision_daily	Provision of care at least 90 hours per month	0 = No 1 = Yes			95.77 4.23				
to_family_members	Provision of care at least 14 hours per month from family, *i.e.* (ex)partner/spouse, children and other family member (mother/father, sibling and other relative)	0 = No 1 = Yes			91.94 8.06				

Name	Description		Mean	SD	Percentage	Min	Max	Missing values[a]	Missing values[b]
to_non_family_members	Provision of care at least 14 hours per month from non-family members, *i.e.* friend, (ex)colleague/co-worker, neighbour and other; all actors together	0 = No 1 = Yes			98.36 1.64				
Country variables									
italy	Italy	0 = No 1 = Yes			75.84 24.16				
spain	Spain	0 = No 1 = Yes			74.26 25.74				
portugal	Portugal	0 = No 1 = Yes			92.34 7.66				
greece	Greece	0 = No 1 = Yes			77.66 22.34				
germany	Germany	0 = No 1 = Yes			79.89 20.11				

Notes: SHARE Data Release 7.0.0. SD = standard deviation. a = missing values handled with single imputation. b = missing values handled with multiple imputation. c = truncation of all cases above the boundary EUR 10,000. d = normalization of the factor to have mean 0 and standard deviation 1.

4.2. The receipt of care

In order to answer the first research question - whether there is a distinctive Mediterranean model of long-term care for elderly people - it is important to reconstruct an accurate picture of the configuration of care arrangements for elderly adults with long-term care needs in each country. As we showed in Chapter 3, individuals with ADL/IADL limitations, mobility difficulties or impaired cognitive functioning may not actually receive care, whilst those with a better health status may have help. In other words, we should not expect to find a perfect alignment between needs and care, and it is likely that needs are not met effectively in some contexts (Eurofound 2017; 2020; European Commission, 2016).

This mismatch is apparent when we look specifically at how the receipt of care changes based on the presence of pronounced long-term care needs.[10] As Table 4.2. shows, having significant long-term care needs does not necessarily trigger the receipt of care, and this applies to about half of the sample in all countries, reaching almost three quarters in Portugal. By contrast, the receipt of care is not necessarily driven by the presence of pronounced long-term care needs, although this share is less than 10 per cent in all countries, falling below 5 per cent in Portugal. In other words, older adults who are able to carry out their everyday activities autonomously generally do not receive regular assistance, but only half of those who have difficulties get help.

Table 4. 2. The receipt of care by significant long-term care needs, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Not having significant long-term care needs					
Not receiving care	93.90	94.84	97.78	91.44	91.92
Receiving care	6.10	5.16	2.22	8.56	8.08
Total	100.00	100.00	100.00	100.00	100.00
Having significant long-term care needs					
Not receiving care	56.94	61.97	72.70	49.56	53.66

[10] The German jurisdiction which is comprehensive of a rapid and straightforward assessment of the situation of each individual, defines the presence of two or more limitations with ADL as the key entitlement to receive care (ISTAT, 2010). We adopted this threshold for our measure of physical disabilities (*i.e.* ADL/IADL limitations) in order to identify pronounced long-term care needs.

	Italy	Spain	Portugal	Greece	Germany
Having significant long-term care needs					
Receiving care	43.06	38.03	27.30	50.44	46.34
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

It is therefore important to start by identifying the factors underlying the receipt of care and measuring the remaining differences between countries. This will help us to ascertain whether the aforementioned gap between needs and receipt of care is due to family structure, financial constraints, social isolation or other factors. We estimate a multivariate logistic regression model using an outcome measure that identifies interviewees who receive weekly care (*i.e.* at least 14 hours per month).

Since we want to compare the four Southern European countries and Germany, we apply this statistical technique to the pooled sample (n = 21,384) and include a set of dummy variables to measure residual cross-national differences after controlling for a range of demographic and socio-economic variables. We use nested (hierarchical) regression models, meaning that the parameters of one model are a subset of the parameters of the next, which helps when interpreting the estimated coefficients. In the first model, we verify whether individual characteristics and life circumstances decides who receives regular care, including age, gender, partner in the household, household size, education, income, socio-economic status and area of residence. In the second model, we add chronic conditions, ADL/IADL disabilities, mobility limitations, cognitive functioning and self-perceived health. In the third model, we control for social network size. In the fourth model, we also control for country by including four dummy variables.

After estimating these additive models, we also assess a model which contains three interaction terms, to assess whether the influence of living in a specific country on receiving regular care changes in accordance with age (sixth model), gender (seventh model) or ADL/IADL disabilities (eighth

model). In particular, the relationship between age and ADL/IADL disabilities on the one hand, and the likelihood of receiving regular care on the other, may vary across countries based on eligibility criteria for public assistance, differences in family relationships or cultural factors.

We also apply the final multivariate logistic regression model to each national sample separately. This will help us to assess whether the explanatory variables play a different role in the five case-study countries.

After estimating models with the aforementioned interaction terms, we use likelihood-ratio tests to compare specifications and to assess whether the interactions contribute significantly to model fit.

As we control for age, gender and socio-economic status in our multivariate models, we do not use the cross-sectional calibration weights when estimating the coefficients. This is the standard procedure when using survey data to estimate multivariate models such as these.

For item-level missingness due to selective non-response we use multiple imputation (MI). MI is based upon the missing-at-random assumption (MAR), and estimates the missing values by generating multiple complete datasets. Compared to single imputation, MI uses a set of plausible values, rather than a single value. After analysing separately multiple parameter estimates and standard errors, this process produces a single parameter estimate and standard error (Burns *et al.*, 2011; Henry *et al.*, 2004). We choose a small value of multiple imputed datasets (m = 5) (Graham *et al.*, 2007). This procedure complements the circumscribed use of single imputation when constructing the composite indicators, as described in the previous chapter.

Table 4.3. shows the results for our multivariate logistic regression model, using odds ratios to represent the net effect of each explanatory variable.

The interactions between country and age, country and gender and country and ADL/IADL disability are not statistically significant ($\alpha = 0.05$). Based on the likelihood ratio test, we cannot reject the null hypothesis that the simpler model fits better than each of the models with interaction terms, which implies that the fifth model is the most appropriate.

Table 4. 3. Logistic regression model for the receipt of care, observed odds ratios, pooled sample (n = 21,384).

	Model 1	Model 2	Model 3	Model 4	Model 5
age	1.070***	1.069***	1.023***	1.023***	1.022***
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
gender	0.605***	0.614***	0.750***	0.756***	0.744***
	(0.029)	(0.024)	(0.052)	(0.048)	(0.034)
hh_partner	0.563***	0.566***	0.663***	0.655***	0.659***
	(0.034)	(0.032)	(0.046)	(0.034)	(0.043)
hh_size	0.925**	0.911***	0.808***	0.809***	0.845***
	(0.030)	(0.032)	(0.031)	(0.031)	(0.024)
education		0.822***	1.037	1.029	0.949
		(0.059)	(0.098)	(0.091)	(0.072)
income		1.027**	1.043***	1.043***	1.035***
		(0.011)	(0.011)	(0.011)	(0.013)
ses		0.807***	0.989	0.984	0.963
		(0.048)	(0.064)	(0.072)	(0.073)
area		1.012	0.966	0.967	0.991
		(0.045)	(0.052)	(0.054)	(0.058)
condition			1.094***	1.093***	1.092***
			(0.018)	(0.018)	(0.019)
adl_iadl			1.116***	1.119***	1.124***
			(0.015)	(0.012)	(0.016)
mobility			1.257***	1.256***	1.257***

	Model 1	Model 2	Model 3	Model 4	Model 5
			(0.017)	(0.016)	(0.024)
cognitive_functioning			0.923**	0.919**	0.865***
			(0.029)	(0.030)	(0.030)
sph			0.731***	0.731***	0.709***
			(0.083)	(0.075)	(0.074)
sn_size				1.032	1.028
				(0.023)	(0.024)
italy					0.670***
					(0.074)
spain					0.593***
					(0.054)
portugal					0.356***
					(0.042)
greece					0.963
					(0.103)
_cons	0.002***	0.002***	0.019***	0.018***	0.024***
	(0.000)	(0.000)	(0.006)	(0.004)	(0.006)
Observations	21,384	21,384	21,384	21,384	21,384
Log likelihood	-5930.480	-5918.538	-5383.973	-5382.588	-5325.719
Degrees of freedom	4	8	13	14	18
Pseudo R^2	0.106	0.108	0.189	0.189	0.197

Notes: SHARE Data Release 7.0.0, wave 6. Bootstrap standard errors are shown in parentheses. The constant is statistically significant in all our models. In the fifth model, Germany is the reference category. *** p<0.001, ** p<0.01, * p<0.05.

In Model 5, the odds ratio for age is 1.02 (p-value < 0.001), meaning that for every additional year of age, there is a greater likelihood of receiving care. The odds ratio of receiving care decreases if the respondent lives together with a partner (odds ratio = 0.66, p-value < 0.001) or with any other family member (or close relative) (odds ratio = 0.84, p-value < 0.001). This suggests that some of the gap between needs and receipt of care may be due to under-reporting of assistance by family members within SHARE. Men have a lower probability of receiving care than women (odds ratio = 0.74, p-value < 0.001). The odds ratio for income is 1.03 (p-value < 0.001), meaning that for each unit increase in income, there is a greater probability of receiving care (the units are 1,000s of Euro). Having higher income increases the probability of receiving care, suggesting that some of the gap between needs and receipt of assistance may be due to financial constraints. By contrast, receipt of care is not influenced by education, socio-economic status or area of residence. These results support an independent effect of income on the probability of receiving care and suggest that our health measures control effectively for the social gradient in health (Allin and Masseria, 2009).

The odds ratios for our measures of physical health indicate that there is a greater probability of receiving care for every additional physical limitation (odds ratio = 1.12, p-value < 0.001), for every limitation to mobility (odds ratio = 1.26, p-value < 0.001) and for every additional chronic condition (odds ratio = 1.09, p-value < 0.001). The probability of receiving care is also much lower if the respondent describes his or her health as very good or excellent (odds ratio = 0.71, p-value < 0.001). As expected, therefore, physical health is a major determinant of care receipt. Similarly, poor cognitive function appears to have an independent effect on the likelihood of receiving help.

Even after controlling for overall health, age, gender and household composition remain important explanatory variables, which means that elderly people are more likely to receive regular assistance even after controlling for their physical health, and the same applies to women and individuals living alone. The latter result is striking, as the odds ratio is just 0.66, suggesting that the odds of receiving help are

about 35% lower for elderly adults who are living with a partner, even after controlling for age, overall health, country of residence and other variables. A large literature suggests that spouses and partners play an important role in providing long-term care (Turjamaa *et al.*, 2020). Our results suggest, however, that the provision of care may be viewed as an intrinsic or "normal" part of intimate relations between older adults, leading to high levels of under-reporting.

Similarly, a large literature on intergenerational relationships suggests that adult children are often involved in the provision of care, often in terms of a 'deal' of reciprocity and solidarity between the two parties (Yakita, 2020). However, the odds ratio for household size is large at 0.84, suggesting that the odds of receiving care decrease by 16% for each additional household member who is present, even after controlling for other variables. This once again points to a possible under-reporting of care work within the household. When responding to surveys, it is possible that people associate the term 'care' with more formal and external interventions, whilst treating the support of household members as a normal part of everyday life.

The probability of receiving regular assistance, all else being equal, is highest in Germany and Greece, which cannot be distinguished in this respect. The odds ratios for the other three country dummies are all significantly below 1, with Italy (odds ratio = 0.67, p-value < 0.001), Spain (odds ratio = 0.59, p-value < 0.001) and particularly Portugal (odds ratio = 0.36, p-value < 0.001) having very different levels of care when compared with Germany, after controlling for individual characteristics and family relationships. Even after controlling for age, gender, household composition alongside a range of socio-economic characteristics and physical and mental health, elderly adults in Germany are almost three times more likely to receive regular assistance than older adults in Portugal, and roughly twice as likely to receive help than their counterparts in Spain and Italy. It is particularly striking that Germany and Greece, which have sharply contrasting scores for well-being, have similar outcomes in relation to the receipt of care. It is therefore likely that care is provided in quite different ways in these two countries,

underlining the importance of exploring the consequences of different welfare state arrangements for individual wellbeing.

As social networks are also found to be particularly strong in Germany, it is interesting to ask whether our social network variables have the potential to explain these differences in relation to the receipt of care. In fact, the results suggest that receipt of care is not influenced by social network size, suggesting that 'social capital' is not a key factor in terms of accessing help with everyday tasks.

Our statistical analysis sheds light on the factors underlying the receipt of care, which include individual characteristics (age, gender), household composition and life circumstances (income). The large difference between Portugal and Germany in relation to unmet needs is once again clearly evident in our statistical model, suggesting that access to care is comparatively straightforward in Germany and particularly difficult in Portugal.

When we look specifically at the country-specific statistical analyses, two explanatory variables play a relevant role in relation to the receipt of care. By contrast with Germany, where the odds of receiving regular assistance decrease if the respondent lives in a big city or in the suburbs or outskirts of a big city, the opposite is the case in Portugal and Greece. This is striking as the largest difference in terms of accessing help with everyday tasks is observed between Germany and Greece on the one hand, and Portugal on the other. However, as we will see in more detail in the next section, where we analyse the sources of care, whilst in Germany and Portugal there are more mixed care configurations, this is not the case for Greece, with the family having the main responsibility.

This suggests that, in the two Southern European countries, care might be differentiated on a territorial basis, as in small towns or in rural areas or villages there might be less availability of care resources, but the mechanism whereby the area of residence impacts on the likelihood of receiving help differs. In Portugal, living in urban areas makes care access provided by external agents easier in comparison with rural areas. In Greece, there are higher levels of geographical mobility from countryside to cities (because

of more favourable life circumstances in the latter) and, as a result, lower levels of 'social cohesion' in the family network, making it more difficult to access care by family members in rural areas.

Social network size is another key factor in terms of the receipt of care. By contrast with Germany and Spain, in Greece, for every additional social network member there is a greater likelihood of receiving help. Germany and Spain show similar outcomes in relation to all social network aspects but this social network variable in particular does not have explanatory power in terms of accessing help with everyday tasks in either country. Greece ranks at an intermediate position in comparison with Germany and Spain, but social network size becomes particularly critical in the situation of long-term care needs of elderly people.

This, however, may be partially related to the way in which we measure this social network variable, which includes family members, as described in Chapter 3. In this Southern European country, indeed, elderly adults are mostly cared for by family members. This means that the higher the number of social ties, the greater the availability of care resources within the family. However, while Germany and Spain have similarities with Greece in the level and source of care, respectively, we do not observe a net effect of the social network variable on the probability of receiving help, a result that requires further research.

In addition, the differences between countries may also be attributable to other factors. Tables 4.4. shows residential care facilities and their distribution across countries. Germany and Spain score more highly than Portugal and, above all, Greece, with Italy occupying an intermediate position. The table helps to explain the outcome of our statistical model, as it reveals that Portugal and Greece have very few publicly-funded nursing homes, whilst Spain and Germany have a very large number of public beds in residential care facilities, with Italy occupying an intermediate position.

Table 4. 4. Residential care facilities[11] in Italy, Spain, Portugal, Greece and Germany in 2015.

	Italy	Spain	Portugal	Greece	Germany
Beds per 1,000 inhabitants ≥ 65 years	18.50	44.40	4.03	1.90	54.40
Absolute numbers	*244,395*	*381,333*	*7,759*	*4,268*	*928,939*

Notes: © OECD, *OECD Health Statistics 2020*. June 2020. http://www.oecd.org/health/health-data.htm for Italy, Spain, Greece, Germany; Lopes *at al.*, 2016 for Portugal.

When we look at public spending and its distribution across countries (Table 4.5.), whilst Germany scores more highly than the Southern European countries in the national health service, differences between individual countries emerge in relation to the funding for long-term care. Germany still ranks highly (more than 15%), but this time is followed by Italy and Spain (about 10%), with Portugal and Greece having the lowest level of public spending in this area (well below 5%).

Table 4. 5. Public spending in Italy, Spain, Portugal, Greece and Germany in 2015.

	Italy	Spain	Portugal	Greece	Germany
Current expenditure on health[a]	8.90	9.10	9.00	8.00	11.20
Current expenditure on long-term care[b]	10.40	9.40	2.60	1.30	16.40

Notes: © OECD, *OECD Health Statistics 2020*. June 2020. http://www.oecd.org/health/health-data.htm for Italy, Spain, Greece, Germany; Lopes *at al.*, 2016 for Portugal. a = share of gross domestic product (GDP). b = share of health current expenditure.

Our results suggest that when all sources of care are taken into account, elderly people in Germany

[11] "Residential long-term care facilities comprise establishments primarily engaged in providing residential long-term care that combines nursing, supervisory or other types of care as required by the residents. In these establishments, a significant part of the production process and the care provided is a mix of health and social services, with the health services being largely at the level of nursing care, in combination with personal care services. The medical components of care are, however, much less intensive than those provided in hospitals" (© OECD, *OECD Health Statistics 2020*. June 2020. http://www.oecd.org/health/health-data.htm).

and Greece are much more likely to receive regular assistance. Whilst in Germany this is likely due to the much higher level of public spending in this area, in Greece, which has similar outcomes for level of care received, there are lower levels of funding for long-term care and a much greater reliance on informal care provided by family members.

Our country-single statistical analyses, furthermore, show that, along with individual characteristics, financial constraints and funding for long-term care, there are other factors underlying the receipt of care. These results reinforce a pattern of cross-national differences, particularly between Germany and Greece. Firstly, against the backdrop of the level of care, the availability of care resources is comparatively more widespread in Germany and particularly poor in rural areas of Greece, compared to urban areas; the same applies to Portugal.

Secondly, family structure is a key factor in terms of accessing help with everyday tasks in Greece, but not in Germany and Spain. Social network size extends to family members, and it is likely that, in Greece, a higher number of social ties reveals a much greater availability of care resources within the family. By contrast, in Germany and Spain, socially cohesive neighbourhoods and warm friendships, rather than familism, may be a key factor in accessing help with everyday tasks. It is necessary, therefore, to evaluate whether long-term care for elderly adults is supplied by family members or other actors in the different countries. In the next section, we will look at the sources of care, with a view to studying how the long-term care needs of older adults are addressed in different contexts.

4.3. The sources of care

In order to obtain a more complete understanding of long-term care, it is important to look at all actors who take care of elderly people. The SHARE survey allows us to identify four patterns of care: individuals who do not receive any care, those who receive family care only, those who benefit from a combination of family care and other forms of assistance and those who rely entirely on non-family support.

Table 4.6. shows how these different sources of care vary across countries, focusing exclusively on individuals with pronounced long-term care needs. In Greece and Germany, most of these individuals receive care, in Italy and Spain this applies to about four-fifths, dropping to roughly half in Portugal.

Interesting but rather counterintuitive results emerge in relation to family care. Frequent accounts of familism in Southern Europe would lead us to expect the family to play a more relevant role among elderly adults in Southern European countries, but our empirical analysis suggests that this is not the case, as family care appears to be equally strong in Germany.

In Portugal, Germany and Italy, roughly half of people in need receive regular assistance from family members, reaching two thirds in Spain and three quarters in Greece. So, the differences between the countries appear to be driven more strongly by varying levels of public provision, rather than differences in relation to the role of family.

In the absence of family care – where older adults are relatively isolated, for example – the absence of a system of public provision based on an assessment of individual needs penalises poorer individuals who risk remaining without support. This risk appears to be particularly great in Portugal, Spain and Italy, due to the late and uneven development of welfare services and perhaps also as a result of the impact of geographical mobility, female labour force participation and the affordability of childcare on the ability of grown-up children to take care of their parents. These factors may help to explain the difference between Greece, on the one hand, and Portugal, on the other. Whilst in Greece, almost three quarters of elderly people who need assistance are cared for by their family members, this applies to less than half of needy elderly in Portugal. It is important to consider how inter-generational exchange may be influenced not only by fertility rates and family structure, but also by geographical mobility, female labour force participation and the capacity to provide regular assistance (Blöss-Widmer *et al.*, 2018; Herlofson and Hagestad, 2011).

More marked differences between the Southern European countries and Germany emerge in relation

to the involvement of carers from outside the family and when there is complete reliance on non-family members (defamilisation). About one fifth of German respondents who need help receive regular assistance from a combination of family and non-family members or only non-family members, whilst in the Southern European countries only a few respondents fall into these two categories. This appears to be the key difference between Germany and the other countries included in this study: where older adults can easily access care provided by external agents, this leads to a much higher level of coverage of needs and is associated with higher individual autonomy, social participation and well-being. However, this does not imply that the situation of elderly people in Italy, Spain, Portugal and Greece is identical, as a number of significant differences between these countries are also apparent.

Table 4. 6. The sources of care, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	19.97	21.67	42.05	9.73	7.21
Family	54.98	65.97	40.81	72.45	52.53
Home help/non-family members/family	13.70	8.84	11.26	8.58	19.14
Home help/non-family members	11.35	3.52	5.88	9.24	21.12
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 1,118), Spain (n = 1,293), Portugal (n = 464), Greece (n = 1,227), Germany (n = 1,235). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

It is necessary to go even further, by carrying out a multivariate statistical analysis of the factors underlying these different care configurations. For this purpose, we estimate a multinomial regression model using the sources of care as the outcome variable (and choosing family care as the baseline category), using relative risk ratios to interpret the results.[12] In this statistical analysis we exclude

[12] The relative risks are the ratios of the probability of choosing one outcome category over the probability of choosing the baseline category and can be obtained by exponentiating the log odds of the outcome categories modeled as a linear combination of the predictor variables.

individuals who did not receive any help. The pooled sample now contains 1,966 individuals, which means that the likelihood of Type II errors is greater in this model that in the case of previous models.

In the first model, we verify whether individual characteristics and life circumstances determine who provides care, including age, gender, partner in the household and household size. In the second model, we add education, income, socio-economic status and area of residence. In the third model, we control for health variables: chronic conditions, ADL/IADL disabilities, mobility limitations, cognitive functioning and self-perceived health. In the fourth model, we also control for social network size and in the fifth, we take account of country by including the four dummy variables (the reference category being Germany) (Table 4.7).

Table 4. 7. Multinomial regression model for the sources of care, observed relative risk ratios, (base outcome = family), pooled sample (n = 1,966).

	Model 1	Model 2	Model 3	Model 4	Model 5
Family			*base outcome*		
Home help/non-family members/family					
age	1.018***	1.025***	1.022***	1.024***	1.027***
	(0.005)	(0.007)	(0.008)	(0.008)	(0.007)
gender	0.800	0.745**	0.728**	0.736*	0.766*
	(0.122)	(0.104)	(0.106)	(0.125)	(0.108)
hh_partner	0.970	0.875	0.892	0.830	0.830
	(0.136)	(0.123)	(0.137)	(0.142)	(0.139)
hh_size	0.851*	0.860**	0.820**	0.832*	0.827**
	(0.0705)	(0.0582)	(0.0739)	(0.0844)	(0.0738)
education		2.122***	2.085***	2.016***	2.134***
		(0.370)	(0.342)	(0.414)	(0.425)
income		1.052**	1.051**	1.050**	1.066**
		(0.0214)	(0.0237)	(0.0238)	(0.0270)
ses		1.346**	1.298	1.290	1.083
		(0.168)	(0.211)	(0.207)	(0.172)
area		1.151	1.180	1.191	1.416**
		(0.186)	(0.168)	(0.193)	(0.217)

	Model 1	Model 2	Model 3	Model 4	Model 5
condition			0.992	0.987	0.999
			(0.0368)	(0.0371)	(0.0389)
adl_iadl			1.112***	1.124***	1.108***
			(0.0253)	(0.0248)	(0.0260)
mobility			0.997	0.990	1.006
			(0.0369)	(0.0360)	(0.0407)
cognitive_functioning			1.234***	1.218***	1.217***
			(0.0791)	(0.0780)	(0.0913)
sph			0.945	0.931	1.000
			(0.289)	(0.281)	(0.294)
sn_size				1.127**	1.134***
				(0.0576)	(0.0473)
italy					1.165
					(0.260)
spain					0.706*
					(0.140)
portugal					1.241
					(0.399)
greece					0.396***
					(0.0965)

	Model 1	Model 2	Model 3	Model 4	Model 5
_cons	0.0841***	0.0364***	0.0422***	0.0300***	0.0253***
	(0.0385)	(0.0246)	(0.0306)	(0.0210)	(0.0164)
Home help/non-family members					
age	0.958***	0.962***	0.973***	0.972**	0.978
	(0.009)	(0.010)	(0.009)	(0.013)	(0.013)
gender	0.933	0.896	0.873	0.867	0.878
	(0.212)	(0.180)	(0.194)	(0.179)	(0.223)
hh_partner	0.661	0.604**	0.575*	0.589*	0.576**
	(0.196)	(0.137)	(0.172)	(0.159)	(0.152)
hh_size	0.719*	0.730*	0.757	0.756	0.773
	(0.141)	(0.138)	(0.154)	(0.142)	(0.121)
education		1.504	1.381	1.400	1.501
		(0.438)	(0.388)	(0.425)	(0.500)
income		1.041	1.036	1.036	1.038
		(0.0395)	(0.0366)	(0.0405)	(0.0478)
ses		1.087	0.992	1.002	0.736
		(0.251)	(0.240)	(0.215)	(0.232)
area		0.894	0.922	0.918	1.143
		(0.184)	(0.208)	(0.215)	(0.292)
condition			0.992	0.996	1.001
			(0.0703)	(0.0610)	(0.0813)

	Model 1	Model 2	Model 3	Model 4	Model 5
adl_iadl			0.962	0.958	0.939
			(0.0466)	(0.0335)	(0.0441)
mobility			0.930	0.932	0.945
			(0.0625)	(0.0594)	(0.0505)
cognitive_functioning			1.082	1.088	1.047
			(0.135)	(0.152)	(0.144)
sph			0.692	0.694	0.824
			(0.334)	(0.335)	(0.360)
sn_size				0.949	0.939
				(0.0667)	(0.0725)
italy					0.622
					(0.201)
spain					0.432**
					(0.166)
portugal					1.338
					(0.588)
greece					0.262***
					(0.106)
_cons	4.297*	2.993	1.932	2.145	2.055
	-3.393	-2.844	-1.433	-2.354	-1.992

	Model 1	Model 2	Model 3	Model 4	Model 5
Observations	1,966	1,966	1,966	1,966	1,966
Log likelihood	-1.325.197	-1.308.631	-1.286.108	-1.281.933	-1.251.788
Degrees of freedom	8	16	26	28	36
LR	60.779	93.911	138.957	147.308	207.597
Prob > LR	0.000	0.000	0.000	0.000	0.000
McFadden's R^2	0.022	0.035	0.051	0.054	0.077

Notes: SHARE Data Release 7.0.0, wave 6. Bootstrap standard errors are shown in parentheses. The constant is statistically significant in all our models for the category Home help/non-family members/family. In the fifth model, Germany is the reference category. *** p<0.001, ** p<0.01, * p<0.05.

We begin by interpreting the relative risk of the respondent falling into the first category (some combination of home help, informal assistance from friends and relatives not living with the respondent and support from family members), compared to the reference group (family only). We then move on to the second category, which involves assistance by non-family members only.

For the first contrast, in Model 5, the relative risk for age is 1.03 (p-value < 0.001). So, given a one-year increase in age, the relative risk of being in the first comparison group is slightly higher (1.03) with respect to the reference group, holding other variables constant. For males relative to females, the relative risk for receiving regular assistance from a combination of sources decreases by a factor of 0.77 (p-value < 0.05). In the presence of a partner, the relative risk also decreases, by a factor of 0.83, although this is not statistically significant. Similarly, if the number of people living in a household increases by 1, the relative risk that an elderly adult receives care from a combination of sources decreases by a factor of 0.83 (p-value < 0.01) compared to care by family members alone.

At this point, we can draw some preliminary conclusions. Our first multivariate model showed that since women live longer than men, and tend to experience higher levels of comorbidities later in life, they are more likely to receive care than their counterparts. It is also possible that older men are more resistant to accepting help or that family members are less likely to offer their support due to gender differences in attitudes and behaviours. As the oldest and frailest individuals in the sample are likely to be elderly women who have already lost their husbands, they are more likely to receive care from people outside the family. These findings corroborate existing research which consistently finds a strong association between the lack of family resources – childless elderly adults, older adults without cohabiting children, or elderly people without co-residing partners – and access to formal care (Albertini and Pavolini, 2015).

The relative risk ratios for our socio-economic variables indicate that elderly people are more likely to receive care from a combination of family and non-family members (compared with family members

only) if they are highly educated (relative risk ratio = 2.13, p-value < 0.001), have higher incomes (relative risk ratio = 1.07, p-value < 0.01), or live in a big city or in the suburbs or outskirts of a big city (relative risk ratio = 1.42, p-value < 0.01).

Unsurprisingly, these socio-economic characteristics are associated with easier access to long-term care which can complement and integrate the work of family members. High education may shape attitudes and behaviours towards care, emphasising individual autonomy and reducing fear of being cared for by non-family members alone (MacFarlane and Kelleher, 2002). Affluence and high socio-economic status ease access to services which are associated with high fees or costs or administrative burden.

A recent secondary data analysis using SHARE Waves 1 and 2 (Albertini and Pavolini, 2015) for four European countries – Denmark, France, Germany and Italy – shows that, among community-dwelling individuals aged 50+ years, those with higher incomes have easier access to formal care. This is the case in Italy, with weaker and highly selective welfare services, and interestingly in Germany, with a stronger system of public provision based on an assessment of individual needs and a more universalistic approach to care. This is because in both countries cash-for-care schemes prevail over in-kind care services, but whilst in Italy the so-called "unequal inequalities" in accessing formal care are due to the poor provision of in-kind care services, in Germany this reflects the preferences of needy elderly people. In this North West European country, higher education is a key factor in relation to the mobilisation of care resources that are external to the family (Terraneo, 2015).

In addition, living in a big city or in the suburbs or outskirts of a big city is also associated with a greater emphasis on individual autonomy, higher levels of female labour force participation (reducing the availability of children) and easier access to care resources that are external to the family. Along with individual characteristics, therefore, the life circumstances of older adults can encourage or obstruct the defamilisation of long-term care.

Continuing to discuss the first set of contrasts in our multinomial regression model, the relative risk ratio for our measure of physical disabilities indicates that if the number of ADL/IADL limitations increases, the relative risk of relying on external care resources (in combination with family care) increases by a factor of 1.11 (p-value < 0.001).

This form of 'partial defamilisation' is arguably fundamental to managing the long-term care needs of elder family members without compromising other roles or commitments. This also offers a means of accessing the skills of qualified and experienced operators. In some jurisdictions, elderly people with difficulties due to comorbid conditions, for example, may be entitled to receive external support from the state or may receive a monetary transfer to compensate them for the cost of private services. This kind of entitlement clearly has the potential to reduce the gap between needs and receipt of care, particularly where services are provided directly by the state on the basis of a rapid and straightforward assessment of the situation of each individual. As we pointed out earlier, Germany is a case in point. The introduction of a morbidity-based risk adjustment (so-called "morbidity-oriented risk structure compensation") in 2007 within the wider German social health insurance scheme (SHI) is a good example of this kind of development, which has already been implemented in many countries of Northern and Western Europe (Gaskins and Busse, 2009).

The relative risk ratio for cognitive function is 1.22 (p-value < 0.001), which implies that elderly adults with higher levels of cognitive function are more likely to receive care from a combination of sources rather than from family members alone. As cognitive function is correlated with professional employment and socio-economic status, it is possible that this variable is effectively mediating the impact of social class, allowing care arrangements to take on a broader and more flexible configuration.

If social network size increases, the relative risk of involving non-family members in long-term elderly care increases by a factor of 1.13 (p-value < 0.001). It is possible that older adults who are more isolated (in the sense of residential isolation, without being deprived of social relationships) rely on their social

networks in order to receive support, either directly or indirectly. Of course, it is also possible that the receipt of care from outside the family has the effect of enhancing the older person's social network, thus preventing them from social isolation.

These results suggest that differences in the care configurations across countries may be due to the ease with which welfare entitlements and individual resources can be combined in order to meet the needs of elderly family members.

We found earlier that roughly half of people in need receive regular assistance from family members alone in Italy, Portugal and Germany, reaching two thirds in Spain and three quarters in Greece and we hypothesised that this pattern of cross-national differences across countries is likely to be driven more strongly by the institutional design of welfare arrangements, rather than differences in relation to the role of family.

Interestingly, if the respondent lives in Spain, he or she is less likely to experience this form of 'partial defamilisation' (relative risk ratio = 0.71, p-value < 0.01), compared with Germany. If the respondent lives in Greece, this is even less likely (relative risk ratio = 0.40, p-value < 0.001), although neither Italy nor Portugal can be distinguished from Germany in this respect. These findings further corroborate our hypothesis that care is provided in quite different ways in Greece and Germany, and their different welfare arrangements may be a key factor in determining sharply contrasting scores for individual wellbeing. As we will see in more detail in the next chapter, where we analyse wellbeing from the perspective of needy elderly and their carers, receiving regular assistance either from a combination of family and non-family actors or from family alone helps to explain differences in wellbeing between these two countries. In addition, we will also see that similarities between Spain and Germany are likely attributable to factors other than care arrangements.

It is necessary, however, to analyse also the factors underlying defamilisation, where other actors substitute completely for family members in the provision of long-term elderly care. We therefore turn

to the second part of Table 4.6.

The relative risk for having a partner in the household is 0.58 (p-value < 0.01), meaning that the relative risk of receiving help from non-family members is considerably lower in this case.

This suggests that being part of a family nucleus is probably a necessary condition for receiving family care. By contrast, widows and elderly women living alone are more likely to receive care from somebody outside the family. In this category (defamilised care) we observe large coefficients and high standard errors, suggesting that it is rather heterogeneous. Rather than coinciding with a structured set of risk factors, in other words, this outcome appears to be rather contingent on circumstances.

Turning now to the socio-economic variables, we find that elderly adults are more likely to receive regular assistance from outside the family if they are more highly educated, have higher incomes or live in a big city or in the suburbs or outskirts of a big city. However, once again, these coefficients are not statistically significant.

The relative risk ratio for our measure of physical disabilities indicates that if the number of limitations with ADL/IADL increases, the relative risk of defamilised care decreases. Similarly, if the number of difficulties with mobility increases, the relative risk of defamilised care decreases.

Once again, if the respondent lives in Spain, he or she is less likely to receive defamilised care (relative risk ratio = 0.43, p-value < 0.01), compared with Germany. If the respondent lives in Greece, this is even less likely (relative risk ratio = 0.26, p-value < 0.001), although neither Italy nor Portugal can be distinguished from Germany. This suggests that the differences noted earlier in relation to Italy and Portugal, on the one hand, and Germany on the other, are due primarily to ease of access to defamilised forms of long-term elderly care rather than the factors which predispose families to embrace this configuration of care.

As we stated earlier, although our first multivariate model (using logistic regression) shows that in Greece and Germany there is a higher likelihood that elderly people with limitations receive care, all else

being equal, these countries show significant differences in how needs are actually met.

Our multinomial regression multivariate model allows us to identify the main factors underlying the transition from family care toward more complex care configurations. Firstly, by contrast with family care, which is still the dominant form of assistance in all countries, the most important recipients of mixed and defamilised forms of care include relatively isolated individuals such as widows and older adults living alone. As we suggested earlier, the late and uneven economic development of Southern European countries may have reduced the ability of elderly people to access support from adult children due to emigration and the more recent nature of urbanisation processes.

Similarly, female labour participation and the availability and/or affordability of childcare services may have dramatically decreased the ability of the principal family carers (mostly daughters or daughters-in-law) to provide elderly care. The issue involving female labour market participation and the work/life balance is crucial, and thus demands careful consideration. It has been argued, for example, that higher rates of female labour market participation lead to greater reliance on external sources of care (both public and private) (Ambrosetti and Strangio, 2018; Arima *et al.*, 2018). Mixed care configurations may enable women, in particular, to reconcile their role as wage earners and their economic independence and professional self-realisation with their duties and responsibilities towards their elder family members.

Secondly, with specific reference to mixed care configurations, favourable life circumstances clearly facilitate the involvement of paid carers, by increasing the availability of individual resources and perhaps also by emphasising individual autonomy and responsibility. This means that deprived single-person households may not only be more likely to have significant long-term care needs, but also have the greatest difficulties in accessing care (Laferrère and Van den Bosch, 2015; Srakar *et al.*, 2015).

Thirdly, although the picture is less clear for defamilised care, it is apparent that in the presence of physical disabilities, different actors mobilise in order to take care of older adults. Institutionalized care is often inadequate or unnecessary for elderly people with long-term care needs, as argued in Chapter 1,

whilst this form of 'partial defamilisation' offers a means of accessing the skills of professionals which can complement and integrate the work of family members (Bauer and Sousa-Poza, 2015). A more mixed care configuration is likely to satisfy more effectively their demand for long-term care and to lower the burden for families.

In order to explore whether the explanatory variables may have a different significance in the five countries, we also apply a multinomial regression model to the single samples. This time, we controlled for a smaller set of explanatory variables, including age, gender, household size (first model), income, area of residence (second model), chronic conditions, ADL/IADL disabilities, mobility difficulties, cognitive functioning (third model) and social network size (fourth model). This simpler specification compensated for the drastic decrease in the sample size for each country.

Interestingly, household size is a key factor in terms of accessing care resources that are external to the family. Whilst in Italy and Greece, where for each additional household member, the relative risk of receiving care only from non-family members decreases, the opposite is the case in Portugal. This difference is particularly pronounced with Italy, where family care is not substituted by external forms of assistance but the two are combined in order to satisfy elderly adults' long-term care needs and, to a greater extent, with Greece, where support from family members alone prevails.

This suggests that, in these three Southern European countries, defamilised care might be driven by different mechanisms. In Italy and Greece, where the family plays a different (but relevant) role in the provision of care (complemented and integrated by external agents and as a single player, respectively), the larger the household size, the greater the availability of care resources within the family. Family structure, in other words, is fundamental for defining the source of care targeted at older adults with long-term care needs. By contrast, in Portugal, the higher the number of family ties, the greater the availability of individual resources and affordability of out-of-pocket expenses.

Table 4.8. shows formal care and Table 4.9 shows long-term care insurance and its distribution across

countries. Formal care is associated with high fees, costs, or administrative burden, but some of these financial constraints can be covered by long-term care insurance. Unsurprisingly, the largest extent of coverage by mandatory long-term care insurance is observed in Germany, followed by Greece, Portugal, Spain and Italy. By contrast, we observe that in Portugal, about 10 per cent of the respondents are covered by voluntary long-term care policies, comparing favourably with all other countries (well under 5 per cent).

Table 4. 8. Formal care, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Receiving formal care	8.56	12.72	9.10	8.73	10.91
Absolute numbers	*442*	*700*	*149*	*417*	*469*

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Table 4. 9. Long-term care insurance, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Mandatory (public/private)	20.59	33.57	71.14	58.03	90.19
Voluntary/supplementary (private)	2.04	3.43	8.72	1.93	2.73
Absolute numbers	*99*	*254*	*112*	*247*	*424*

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Similarly, when we look at out-of-pocket expenses for formal care and their distribution across countries (considering those who declare the amount) (Tables 4.10.-4.11), whilst in Germany only one third of respondents report having paid for long-term care, this percentage rises to almost half in Italy, Spain, Greece, reaching roughly three quarters in Portugal. Interestingly, whilst in this Southern

European country, more than 15 per cent of respondents paid between 5,000 and 10,000 Euros in 2015, in all the other countries this share was about 10 per cent, dropping to almost 8 per cent in Italy and just over 5 per cent in Greece and Germany.

Table 4. 10. Out-of-pocket expenses, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Out-of-pocket expenses	44.12	52.57	71.81	53.72	31.77
Absolute numbers	*195*	*368*	*107*	*224*	*149*

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Table 4. 11. Amount of out-of-pocket expenses, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
< = EUR 1,000	48.89	50.53	44.71	76.34	56.43
EUR 1,001 - 5,000	38.89	35.79	36.47	17.74	35.00
EUR 5,001 - 10,000	7.22	9.82	16.47	5.91	5.71
> EUR 10,000	5.00	3.86	2.35	0.00	2.86
Total	100.00	100.00	100.00	100.00	100.00
Absolute numbers	*180*	*285*	*85*	*186*	*140*

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Furthermore, in Greece, where there are the most adverse life circumstances, more than three quarters have paid for formal care up to 1,000 Euros, whilst this share falls to roughly half in all the other countries. Whilst in this Southern European country, just over 15 per cent have paid for formal care between 1,000 and 5,000 Euros, this percentage is just below 40 per cent in all the other countries. This table helps to explore the extent of coverage of formal care and the role of co-payments in particular,

where Portugal still occupies a leading position, as described in Chapter 1.

There is, however, another issue involving the affordability of out-of-pocket expenses. In Italy and, to a greater extent, in Greece, the financial constraints which are associated with in-kind care services can be partially offset when there is a strong family network. In Portugal, by contrast, family is likely to be more a resource to cope with financial constraints (rather than a care resource in itself). In addition, older adults and their families may prefer to outsource care, and this may reflect less strong care obligations and less strict cultural norms in comparison with Italy and Greece. This issue requires further research.

By analysing these different sources of care, our results show that the nature and the role of family is just one factor underlying the configuration of care arrangements for elderly people with long-term care needs across countries. For example, the institutional design of welfare arrangements appears to play a more relevant role, revealing differences between individual countries, rather than a clear-cut between the South European countries and Germany. The fact that several patterns of cross-national differences across countries emerge in relation to the level and source of care is attributable to a number of factors at different levels of analysis, thus is strongly dependent on the analytical approach adopted. Carefully considering also macro-level factors effectively enabled to reconstruct a more accurate picture of care arrangements.

We observed earlier very low levels of defamilised care in Greece (and to a lesser extent in Spain), whilst the opposite is the case in Germany. We hypothesized that geographical mobility, female labour market participation and the capacity to provide regular assistance in Germany (and much later in Italy, Spain and Portugal) have clearly contributed to a more mixed care configuration.

In addition, there are also economic condition that play a very relevant role in this respect. Although the Great Recession in 2008 affected Europe as a whole, Greece experienced the worst effects, especially following the introduction of austerity measures, more than the other three Southern European countries.

This has meant public spending cuts in the long-term care sector, tax increases and much greater economic hardship for deprived households. This has further accentuated difficulties in accessing public and/or private services, boosting reliance on family care (Lyberaki and Tinios, 2014; 2018). In Germany, by contrast, reforms have improved the already highly developed welfare institutions of this social market economy.

Furthermore, the institutional design of wider welfare arrangements plays a key role in determining differences between individual countries. For example, as far as formal care coverage is concerned, Germany is in a leading position in relation to the public sector, whilst the opposite is the case in Portugal, which has a relatively large sector of private long-term care insurance (Neubert *et al.*, 2019). As a large literature suggests, since the establishment of its national health service (1979), it has compared favourably with other European countries in relation to private spending in health and long-term care in particular (Giarelli, 2006; Guillén, 2002; Petmesidou and Guillén, 2008). This trend, therefore, has remained substantially stable over the past decades.

Finally, alongside the public-private mix, the interplay between the state, the market and the family is fundamental for explaining differences between individual countries. Two patterns of cross-national differences across countries clearly emerge. On the one hand, the German system of long-term care encourages a combination of home help and family care by providing cash-for-care programs. There is also evidence that non-family members are more likely to provide informal care, as a result of socially cohesive neighbourhoods and friendships (Da Roit and Gori, 2019; Gori and Luppi, 2019). The Italian system of long-term care encourages a similar configuration (the difference being support from non-family members due to very high levels of social isolation, as described in Chapter 3). In these two countries, therefore, the centrality of cash-for-care schemes is closely related to the role of family, but the way in which families get involved is quite different. Whilst in Germany, family care is a preferred outcome, as needy elderly can choose between cash and non-cash contributions, in Italy the reliance on

family members is mainly due to a lack of alternatives.

On the other, the financial constraints that are associated with reliance on in-kind care services can be partially compensated for by relying on family members, as is the case in Italy and Greece. In these two countries, family plays a relevant role in care provision (albeit to a different extent). By contrast, in Portugal, where the family is partially substituted by external agents, it offers a means of accessing individual resources and affording out-of-pocket expenses. This leads us to consider the nature and role of geographical mobility, female labour force participation and the affordability of childcare, in relation to the ability of adult children to take care of their elderly parents, and these processes of social change extend to Italy and Spain. In Portugal, therefore, it is more likely that elderly adults and their families prefer to outsource care, presumably because there are weaker care obligations and less strict cultural norms than in Italy and Greece. The highest extent of out-of-pocket expenses is a clear indication of this trend.

It is important, at this point, to analyse how the configuration of care arrangements for older adults with long-term care needs impact on individuals and their families. In the next chapter, we will assess how the different sources of care influence the wellbeing of elderly adults, with a particular focus on family care. We will then evaluate comparatively how providing and receiving regular assistance impacts on the wellbeing of all involved. This will enable us to address our second research question, which is whether family care for older adults with long-term care needs is associated with higher or lower wellbeing.

Chapter 5 Multivariate statistical analysis on wellbeing

5.1. Introduction

Another research question addressed in this thesis is whether family care for older adults leads to higher or lower wellbeing for these individuals and their carers. We are interested in evaluating the costs and benefits of different long-term care arrangements and determining whether family care for elderly people promotes the wellbeing of all involved, whether it has a negative effect on overall wellbeing, or whether it pits the wellbeing of one family member against another. This is of paramount importance as enhancing the role of family is also a major policy strategy to control the costs of the public provision of care across Europe. It is important to evaluate, therefore, whether the resulting care burden is sustainable for families and how it impacts on wellbeing.

In Chapter 4, we saw that there are differences between individual countries, rather than a clear-cut divide between the Southern European countries and Germany. On the one hand, Greece and Germany have similar outcomes in relation to the level of care. On the other, family care can take place alone, as is the case in Spain and Greece, with the support of other actors, like in Italy and Germany, or even can be substituted by external forms of assistance such as in Portugal. At the same time, this does not imply that the situation of elderly adults is similar in Spain and Greece, or in Italy and Germany, nor quite different from that in Portugal. In this chapter, we use multivariate modelling techniques to shed further light on whether wellbeing varies across configurations of care.

In addition, in order to obtain a better understanding of how family care impacts on the wellbeing of receivers and providers of care, we must also compare care receipt from family members, friends and relatives not living with the respondent, and home help. Similarly, we must compare care provision to

family and non-family members respectively. Adopting an analytical approach which looks specifically at the overall wellbeing as well as at the wellbeing of the individuals involved, is important if we want to improve our understanding of the consequences that long-term care has on families as beneficiaries and welfare providers. In the next sections of this chapter, where we present our multivariate models, we will address this second research question.

5.2. The wellbeing of needy elderly

As we have seen, less than 10 per cent of the pooled sample of elderly people receive care linked with ageing. The transition from family care to more mixed configurations, however, is not simply a function of ageing. Family care plays the most relevant role in meeting the needs of older adults who are no longer able to care for themselves. It is important, therefore, to assess the consequences in terms of individual wellbeing across countries.

To this end, we estimate a multivariate regression model using overall wellbeing as our dependent variable. This is a cardinal variable, which means that we can estimate a linear regression model. We apply this technique to the pooled sample (n = 21,384) and, after controlling for a range of individual characteristics and life circumstances (including overall health, social networks and participation), we also include a set of dummies to measure residual cross-national differences.

In the first model, we verify how individual characteristics impact on wellbeing, including age, gender and marital status. In the second model, we verify the influence of life circumstances, including education, current job situation, income and socio-economic status. In the third model, we add chronic conditions, ADL/IADL disabilities, mobility difficulties, cognitive functioning and self-perceived health. In the fourth model, we control for close social relationships. The original specification of the model includes social network size and intimate relationships. Due to the high correlation coefficient between these two variables (α = 0.91), we estimate two models, one with social network size and one with intimacy.

In the fifth model, we also control for social participation. In the sixth model, we control for the different sources of care (the reference category being none). In the seventh model, we add country by including four dummy variables (the reference category being Germany).

Table 5.1. shows the results for our linear regression multivariate model, which represents the effect of each explanatory variable, controlling for the others.

Table 5. 1. Linear regression model for the wellbeing of needy elderly, standardised coefficients, pooled sample (n = 21,384).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
age	-0.02***	-0.02***	0.01***	0.01***	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gender	0.34***	0.31***	0.18***	0.19***	0.19***	0.22***	0.21***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)
marital_status	0.39***	0.37***	0.29***	0.28***	0.28***	0.25***	0.25***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.03)	(0.03)
education		0.21***	0.04***	0.03**	0.01	0.03	0.02
		(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)
job_situation		0.13***	0.07***	0.07***	0.07***	0.07**	0.03
		(0.02)	(0.01)	(0.01)	(0.02)	(0.04)	(0.04)
income		0.01***	-0.00	-0.00	-0.00	-0.00	-0.01
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
ses		0.46***	0.30***	0.29***	0.27***	0.35***	0.22***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.04)
condition			-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
			(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
adl_iadl			-0.08***	-0.08***	-0.08***	-0.06***	-0.06***
			(0.00)	(0.00)	(0.01)	(0.01)	(0.01)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
mobility			-0.14***	-0.15***	-0.14***	-0.13***	-0.13***
			(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
cognitive_functioning			0.18***	0.17***	0.16***	0.22***	0.21***
			(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
sph			0.19***	0.19***	0.19***	0.26***	0.32***
			(0.01)	(0.01)	(0.01)	(0.04)	(0.04)
intimacy				0.03***	0.03***	0.03***	0.02***
				(0.00)	(0.00)	(0.01)	(0.01)
social_participation					0.05***	0.08***	0.05***
					(0.00)	(0.01)	(0.01)
family						-0.15***	-0.10**
						(0.03)	(0.04)
home help/non-family members						-0.14***	-0.13***
						(0.05)	(0.05)
home help/non-family members/family						-0.17***	-0.15***
						(0.05)	(0.05)
italy							-0.32***
							(0.04)
spain							-0.13***
							(0.04)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
portugal							-0.15***
							(0.04)
greece							-0.45***
							(0.04)
_const	1.16***	0.71***	-0.71***	-0.76***	-0.81***	-1.10***	-0.81***
	(0.06)	(0.07)	(0.06)	(0.06)	(0.05)	(0.11)	(0.12)
Observations	21,384	21,384	21,384	21,384	21,384	5,337	5,337
Log likelihood	-29723.27	-29104.20	-25522.79	-25487.77	-25436.61	-6999.48	-6924.92
Degrees of freedom	3	7	12	13	14	17	21
LR	2855.77	4093.90	11256.73	11326.77	11429.09	3253.44	3402.54
Prob > LR	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.125	0.174	0.409	0.411	0.414	0.455	0.469

Notes: SHARE Data Release 7.0.0., wave 6. Bootstrap standard errors are shown in parentheses. In the sixth model, *none* is the reference category for *care_source* variable. In the seventh model, *germany* is the reference category for the country variables. The constant is statistically significant in all our models. *** p<0.001, ** p<0.01, * p<0.05.

In Model 7, the coefficient for age is 0.01 (p-value < 0.001), indicating the increase in the wellbeing of elderly people that is associated with a one unit increase in age. Interestingly, after controlling for health, the direction of the association between age and wellbeing changes. These findings are in line with the so-called "paradox of wellbeing": although care needs increase with age, the latter is also associated with higher levels of life satisfaction.

The coefficient for gender is 0.21 (p-value < 0.001), meaning that men tend to have higher wellbeing, with a difference of 0.21 points. This result contributes to the empirical evidence on gender differences in the wellbeing of elderly adults, with men comparing favourably with women. Whilst male-female differences are often observed in relation to the affective component of individual wellbeing, in virtue of our index, we can extend this empirical evidence to its cognitive components (Lukaschek *et al.*, 2017).

The coefficient for marital status is 0.25 (p-value < 0.001), meaning that married or common-law spouses have higher wellbeing, with a mean (conditional) differential of 0.25 units. As a large literature suggests, marriage has protective effects on the wellbeing of elderly adults (Soulsby and Bennett, 2015).

The coefficient for education is 0.02, that for current job situation is 0.03, and that for income is -0.01, and none of these coefficients is statistically significant. For individuals having higher socio-economic status, however, the coefficient is 0.22 (p-value < 0.001), indicating that wellbeing is much greater for those who have more resources. We observed earlier that the likelihood of receiving regular assistance is higher for individuals with higher incomes, and this often involves drawing on the support of professionals and care workers from outside the family. This has the effect of satisfying long-term care needs more effectively, sustaining individual autonomy and wellbeing.

The coefficients for our measures of chronic conditions, ADL/IADL disabilities and mobility difficulties are negative and significantly different from 0 (p-value < 0.001): -0.09 for chronic conditions, -0.06 for ADL/IADL disabilities and -0.13 for mobility difficulties respectively. The coefficient for cognitive functioning is 0.21 (p-value < 0.001), indicating the increase in wellbeing that is explained by

a one unit increase in this variable. The coefficient for self-perceived health is even larger at 0.32 (p-value < 0.001). These findings corroborate existing research which consistently finds a strong association between health and wellbeing among older adults. Chronic conditions, cognitive decline, disabilities and limitations on mobility all have a considerable negative impact on wellbeing.

The coefficient for intimacy is 0.02 (p-value < 0.001), indicating that close social relationships have the effect of boosting individual wellbeing. The presence of people with whom older adults can discuss important issues exerts an influence on wellbeing independently of other characteristics.

The coefficient for social participation is 0.05, (p-value < 0.001), meaning that this boosts individual wellbeing, after controlling for the other variables included in the model. It has been argued that engagement in organized cultural and social activities increases life satisfaction while decreasing depression and loneliness (Aroogh and Shahboulaghi, 2020; Li *et al.*, 2018). Our results support this strand of research. As we computed a mean score from 0 to 7, which indicates how many people there are in the social network with whom the respondent can discuss important questions, and a mean score from 0 to 22, which indicates whether the respondent has engaged in various activities over the course of last year and its intensity, the coefficients are actually bigger than they appear (for more details, see Chapter 3).

We come now to the crucial variables relating to long-term care. The coefficient for family care is -0.10 (p-value < 0.01), which suggests that family care is associated with a significant and sizeable decrease in wellbeing compared with no care, after controlling for the needs and health status of elderly people. Interestingly, mixed care configurations are associated with an even more negative effect (-0.15, p-value < 0.001) and the coefficient is -0.13 for care provided by non-family members. These three coefficients are quite similar, and suggest that even after controlling for functional limitations and health, having to accept help with everyday tasks is itself detrimental to the wellbeing of elderly adults. If they

are assisted by family members only, their wellbeing appears to be slightly better than if they are looked after by a combination of family and non-family actors.

Simply having significant long-term care needs, and thus requiring long-term care, is enough to negatively influence individual wellbeing. This applies regardless of how this care is provided, and the magnitude of this effect is roughly comparable to having mobility problems, a chronic condition or being ten years older.

As far as family care is concerned, we have seen that men tend to receive lower levels of care and tend to be cared for within the family. We hypothesised that elderly men with significant long-term care needs may have attitudes and preferences that influence care outcomes. This helps to explain the differences in wellbeing in relation to the source of care. Further research is required on the relation between gender and source of care, with a view to ascertaining whether there are effectively male-female differences in the extent of coverage of all services, influencing individual wellbeing.

The coefficients for our country dummies are all negative and significantly different from 0 (p-value < 0.001): -0.13 for Spain, -0.15 for Portugal, -0.32 for Italy and -0.45 for Greece. In other words, the wellbeing of older adults is much higher, on aggregate, in Germany than in the Southern European countries, even after controlling for health, wealth and family situation.

We also apply a multivariate linear regression model to the single samples with a view to assessing whether, and in what way, the influence of the explanatory variables varies in the five countries. Marital status and cognitive functioning are key factors in terms of wellbeing. Whilst we observe that married or common-law spouses have higher levels of individual wellbeing, there is a pronounced difference between Greece on the one hand, and Portugal and Germany on the other. If we look specifically at the nature and the magnitude of this effect, in Greece, the partnership situation takes a strong significance in old age, whilst the opposite is the case in Portugal and Germany.

The largest difference between Greece and Germany may be partially related to the fact that, in the North West European country, there is also the highest percentage of separated or divorced people (in comparison with all the other countries). This may result in a lower magnitude of the effect that marital status has on wellbeing. But this does not help us to explain the difference between the two Southern European countries. In the presence of long-term care needs, by contrast with Greece, where the spouse or the partner is likely to be the major carer within the family, Portugal and Germany share more mixed care configurations, where marriage or cohabitation (in the sense of living together with the partner) is not a necessary condition for receiving regular assistance. Indeed, we observed earlier that the relative risk for receiving regular assistance from outside the family is higher for individuals living in Portugal, and this often involves drawing on the support of family and non-family members in Germany. This means that marital status plays a different role in shaping the wellbeing, especially for elderly people with long-term care needs.

When we move on to cognitive functioning, we observe differences between Germany on the one hand, and Italy and Greece on the other. This reveals one of the specificities of the German case (when compared with the countries of Southern Europe), as this country has relatively high levels of chronic conditions and physical disability, but low levels of cognitive impairment and high wellbeing, as described in Chapter 3. This may result in a lower magnitude of the effect that this health variable has on wellbeing in comparison with the two South European countries. But this does not help us to explain why there are no differences with Spain and Portugal, which share significant similarities with their neighbour countries in relation to health.

We found earlier similarities between Germany and Greece in relation to the level of care on the one hand, and between Germany and Italy in terms of source of care on the other. This suggests that other mechanisms might be involved in the effect that cognitive function has on wellbeing. As we will see, as cognitive functioning is correlated with occupation and socio-economic status, it is possible that this

variable is effectively mediating the impact of social class, allowing care arrangements to take on a broader and more flexible configuration. By contrast with Germany, in Greece, where there are more adverse life circumstances, lower levels of cognitive functioning and where care by family members alone prevails, unsurprisingly, we observe a much greater magnitude of the effect that this health variable has on wellbeing.

In Italy, where there are more adverse life circumstances, lower levels of cognitive functioning, but a combination of home help, support from non-family members and assistance from family members, the eligibility criteria to access care might play a more relevant role. In Germany, elderly adults with cognitive impairments are entitled to receive in-kind care services on the basis of a rapid and straightforward assessment of long-term care needs. By contrast, in Italy, means tests (more than need assessment) define who is eligible to receive care. In the presence of cognitive impairments, this kind of entitlement is expected to increase the burden of family members while lowering individual wellbeing. Cognitive function, in other words, is fundamental for preserving wellbeing, particularly where the eligibility criteria to access care are highly selective.

In the situation of long-term care needs, the individual characteristics of older adults can encourage or obstruct the wellbeing. Marital status has a stronger significance in Greece, with very low levels of defamilised care, than Germany and Portugal, with respectively the involvement of carers from outside the family and a complete reliance on non-family members. Furthermore, by contrast with Germany, a stronger influence of cognitive functioning in Greece may be due to the indirect effect of very few individual resources on familised care, whilst in Italy may rather reflect a more selective approach to care with means testing.

At this point, it is important to analyse also comparatively the influence of providing and receiving regular assistance on individual wellbeing. This may help us to assess whether the wellbeing of elderly people with long-term care needs and of their families may be treated as a product of care, or whether it

largely unrelated to this. The issue involving the production of wellbeing and its reproduction during the old age in particular will be discussed in detail in the next, and final, section.

5.3. The wellbeing of receivers and providers of care

We observed earlier that if older adults receive regular assistance from family members only, their wellbeing appears to be slightly better than if they are cared for by non-family members alone, and to a greater extent than if they are looked after by a combination of family and non-family actors. However, there is always a negative association between the source of care and wellbeing, which we argued may be because having to accept help with everyday tasks is itself detrimental to the wellbeing of elderly people.

In this section, what we want to address is how receiving regular assistance and providing care to an elder family member impacts on individual wellbeing, from the perspective of care recipients and carers. The previous results suggest that family care is associated with a significant and sizeable decrease in wellbeing compared with no care, after controlling for the needs and health status of elderly adults. We want to disaggregate this care configuration by those who are cared for and those who provide care in order to assess whether this has a negative effect on individual wellbeing, perhaps pitting the wellbeing of one family member against another. In recent years, policy makers and service programme designers have paid close attention to promoting the role of families as a means by which to control the cost of public provision of care. It is important to ascertain, therefore, not only whether being assisted by family members boosts the wellbeing of elderly adults with long-term care needs, but also whether the resulting care burden is sustainable for family care-givers.

To this end, we estimate another linear regression multivariate model using overall wellbeing as our dependent variable. This time, we use two sets of dummy variables, – one for care receipt, the other for care provision – in the place of the sources of care. In line with the previous multivariate model (linear regression), we distinguish between assistance from family members, support from non-family members

and home help, with a view to assessing whether the influence of receiving regular assistance varies based on the source. Similarly, as SHARE respondents may in turn have helped someone with everyday tasks, we include care provision to family and non-family members. This is the only difference in comparison with the previous statistical analysis.

We apply this technique to the pooled sample (n = 21,384) and, after controlling for a range of individual characteristics (age, gender, marital status in the first model), life circumstances (education, current job situation, income, socio-economic status in the second model), overall health (chronic conditions, ADL/IADL disabilities, mobility difficulties, cognitive functioning, self-perceived health in the third model), intimacy (fourth model), social participation (fifth model) and the five dummies to measure care receipt and provision (sixth and seventh model, respectively) we also include a set of dummies to measure residual cross-national differences.

Table 5.2. shows the results for our linear regression multivariate model, which represents the net effect of each explanatory variable.

Table 5. 2. Linear regression model for the wellbeing of receivers and providers of care, standardised coefficients, pooled sample (n = 21,384).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
age	-0.02***	-0.02***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gender	0.34***	0.31***	0.18***	0.19***	0.19***	0.18***	0.18***	0.18***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
marital_status	0.39***	0.37***	0.29***	0.28***	0.28***	0.27***	0.27***	0.27***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
education		0.21***	0.04***	0.03**	0.01	0.01	0.01	0.03**
		(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
job_situation		0.13***	0.07***	0.07***	0.07***	0.07***	0.07***	0.05***
		(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
income		0.01***	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ses		0.46***	0.30***	0.29***	0.27***	0.27***	0.27***	0.18***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
condition			-0.09***	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
			(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)
adl_iadl			-0.08***	-0.08***	-0.08***	-0.07***	-0.07***	-0.08***
			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
mobility			-0.14***	-0.15***	-0.14***	-0.14***	-0.14***	-0.13***
			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
cognitive_functioning			0.18***	0.17***	0.16***	0.16***	0.16***	0.16***
			(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
sph			0.19***	0.19***	0.19***	0.19***	0.19***	0.23***
			(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
intimacy				0.03***	0.03***	0.03***	0.03***	0.02***
				(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
social_participation					0.05***	0.05***	0.05***	0.04***
					(0.00)	(0.00)	(0.00)	(0.00)
from_family_members						-0.22***	-0.21***	-0.20***
						(0.03)	(0.03)	(0.02)
from_non_family_members						-0.18***	-0.18***	-0.19***
						(0.06)	(0.06)	(0.07)
home_help						-0.08	-0.08	-0.10
						(0.07)	(0.05)	(0.06)
to_family_members							-0.07***	-0.07***
							(0.02)	(0.02)
to_non_family_members							-0.07*	-0.08*
							(0.04)	(0.04)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
italy								-0.18***
								(0.02)
spain								0.01
								(0.01)
portugal								-0.15***
								(0.02)
greece								-0.33***
								(0.02)
const_	1.16***	0.71***	-0.71***	-0.76***	-0.81***	-0.84***	-0.82***	-0.57***
	(0.05)	(0.07)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.05)
Observations	21,384	21,384	21,384	21,384	21,384	21,384	21,384	21,384
Log likelihood	-29723.27	-29104.20	-25522.79	-25487.77	-25436.61	-25368.93	-25360.05	-25103.73
Degrees of freedom	3	7	12	13	14	17	19	23
LR	2855.78	4093.90	11256.73	11326.77	11429.09	11564.46	11582.20	12094.86
Prob > LR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.125	0.174	0.409	0.411	0.414	0.417	0.418	0.432

Notes: SHARE Data Release 7.0.0., wave 6. Bootstrap standard errors are shown in parentheses. In the eighth model, *germany* is the reference category for the country variables. The constant is statistically significant in all our models. *** p<0.001, ** p<0.01, * p<0.05.

Before discussing the sign and the size of the effect that care receipt and provision respectively have on the wellbeing, we pay particular attention to the differences in the coefficients for the other explanatory variables compared with the previous results.

In Model 8, there are no differences in the effect of age ($ß_1 = 0.01$, p-value < 0.001), gender ($ß_2 = 0.18$, p-value < 0.001) and marital status ($ß_3 = 0.27$, p-value < 0.001) on individual wellbeing.

The coefficient for education is 0.03 (p-value < 0.01), that for current job situation is 0.05 (p-value < 0.001), and that for the socio-economic status is 0.18 (p-value < 0.001). However, after controlling for the limitations and health, income is no longer statistically significant.

This means that being highly educated, economically active and having higher socio-economic status boosts individual wellbeing. Individuals having higher levels of individual resources are likely to have better health, denser and stronger social networks and to be socially engaged (Etman *et al.*, 2014). Education, current job situation and socio-economic status, therefore, lead to a healthy and active lifestyle and, in line with a large literature on social inequalities in health, counteract the deterioration in health during old age (Della Bella *et al.*, 2011: 175; Lucchini, 2007; Lucchini and Sarti, 2009).

In the situation of long-term care needs, life circumstances can protect or harm the wellbeing of needy elderly and their family carers. On the one hand, high education may shape attitudes and behaviours towards care, emphasising individual autonomy and responsibility, which take on a strong significance in old age. Participation in the labour market (including temporary unemployment but active job-seeking) may have protective effects on health and delay the onset of long-term care needs. When in need of care, high socio-economic status may ease care access, especially to in-kind care services which involve high fees, costs or administrative burden.

On the other, if we consider the supply side of care, high education may shape attitudes and behaviours towards care. A key issue in terms of wellbeing is likely to be whether it is possible for both parties to choose how care is provided. If this is the case, we would expect that those who are cared for and those

who provide care will have similar scores for wellbeing. Life circumstances, therefore, play a very relevant role in the situation of long-term care needs.

There are no differences in the effect of needs and health status on individual wellbeing.

Similarly, there are no differences in the effect of intimacy and social participation. Having close social relationships and being socially engaged are crucial in preserving a healthy and active ageing.

We come now to the crucial variables relating to family care. Unsurprisingly, the coefficient for those who are cared for by family members is -0.20 (p-value < 0.001), which suggests that family care receipt is associated with a significant and sizeable decrease in wellbeing compared with no family care, controlling for the limitations and health. The same applies for family care provision. The coefficient for those who take care of a senior member is -0.07 (p-value < 0.001), meaning that providing care within the family network lowers wellbeing, after controlling for needs and health status.

As we stated earlier, different sources of care may mediate the impact of health, having harmful effects on wellbeing. Simply having long-term care needs, and thus requiring long-term care, appears to be enough to negatively influence individual wellbeing. This applies regardless of how this care is provided, and the magnitude of this effect is roughly comparable to having poor health.

Another strand of research consistently finds a comparable effect in the sign and the size of taking care of an elder family member (the so-called "caregiver effect") and having a family member who requires assistance (the so-called "family effect") on individual wellbeing. That is, simply having an older family member with long-term care needs may be enough to negatively influence wellbeing (Bobinac *et al.*, 2010). Frequent accounts of familism may lead us to expect that there is an effect of health on the wellbeing not only of those who are cared for but also of those who provide care – whatever the care burden concretely implies. The type of care required and its distribution within the family network could then have an additional impact and a high care burden may further decrease the wellbeing of all involved.

We come now to care outside the family. The coefficient for non-family care receipt is -0.19 (p-value < 0.001), which suggests that if individuals receive regular assistance from non-family members, their wellbeing is worse than if they do not draw on this external care resource. The same applies to non-family care provision and home help (albeit the coefficients of -0.08 and -0.10 respectively are not either statistically significant). This suggests, unexpectedly, that the "caregiver effect" may be stronger than the "family effect" This issue requires further research.

Some scholars argue that the care provider is a key factor in shaping the influence of care receipt on the wellbeing of needy elderly people, as receiving regular assistance from non-family members (like friends), rather than from family members, appears to boost the wellbeing of care recipients. This is because care provision from friends is voluntary, as it is motivated by affection and emotional closeness, rather than being driven by duties and responsibilities as is frequently the case between family members (Merz and Huxhold, 2010). However, our results suggest that care receipt has harmful effects on the wellbeing of elderly people regardless of who is providing the care. In addition, we can extend this empirical evidence to the supply side of care, as providing help with everyday tasks appears to lower wellbeing regardless of the actor who benefits from it.

Both linear regression models, therefore, show that care receipt may have harmful effects on wellbeing. This is because long-term care needs curtail individual autonomy and responsibility, which would enable individuals to be active, connected and to safeguard their roles and commitments when getting older.

Similarly, the needs and health status of elderly adults may compromise the roles and commitments of family carers. In a qualitative research using in-depth interviews with senior workers women for Italy, Da Roit and Naldini (2010) show that taking care of an elder family member have more of an impact on private life rather than work, although for future generations of women workers this may undermine also their roles as wage earners and their economic independence and professional self-realisation. This is

because precarious positions in the labour force may force working women to choose between roles and responsibilities rather than finding a better balance. In line with this strand of research, our results show that taking care of an older family members also harms wellbeing.

Interestingly, wellbeing, all else being equal, is highest in Germany and Spain, which cannot be distinguished in this respect. The coefficients for the other country dummies are all negative and significantly different from 0 (p-value < 0.001), with Italy ($ß_{20}$ = -0.18), Portugal ($ß_{22}$ = -0.15) and particularly Greece ($ß_{23}$ = -0.33) having lower levels of individual wellbeing, even after controlling for other variables.

As we stated earlier, Spain and Germany show significant similarities in relation to factors at different levels of analysis. At the micro-level, we find a particularly large share of individuals having social ties (including intimate relationships), with frequent contacts and strong networks. This is likely to preserve higher levels of individual autonomy and responsibility, and to reduce the risk of becoming dependent and limited in everyday activities when getting older.

At a macro-level, we find a particularly large share of individuals receiving formal care, which consists of the provision of public and for-profit services of home care and related services, with Spain comparing favourably with all of the other countries (more than 10%). Similarly, we observe a very large number of public beds in residential care facilities in Spain and, to a greater extent, in Germany (about 50%). In the presence of disabilities and impairments, the provision of in-kind care services may be a key factor in counteracting the risk of unmet needs, thus maintaining higher levels of individual wellbeing.

However, as far as the gap between needs and receipt of care is concerned, we observed earlier that Spain ranks at an intermediate position in comparison with Greece, Germany and Italy, and is followed by Portugal only. This problem of unmet needs is likely to reflect different dimensions of care configurations. Spain and Germany, which have similar scores for formal care, have quite different

outcomes in relation to the ability to meet needs. In other words, these two countries may have sharply contrasting scores for other structural aspects of formal care, like coverage.

We found earlier that, in Spain, almost one third of respondents report having obligatory long-term care insurance, whilst in Germany almost all elderly people declare that this helps to cover the costs of long-term care (including home care and residential care facilities). At the same time, roughly half of the Spanish sample pays out-of-pocket expenses to benefit from formal care (with almost 10% of people paying up to 10,000 Euro), whilst about one third of German elderly adults draw directly on their individual resources (with roughly all paying less than 5,000 Euros). These different aspects of care systems, which extend to the organisational structure of formal care (including entitlements, coverage and usage) help to explain the differences we observe in the extent of unmet needs.

Unfortunately, the SHARE dataset does not provide more measures on the provision of formal care (in-kind care services and cash-for-care schemes) while providing comparable data on different types of informal care (paid or unpaid). This is fundamental for reconstructing an even more accurate picture of the configuration of care arrangements for older adults in the different countries and analysing how these influence individual wellbeing. However, our results enable us to say something about this issue.

It is increasingly clear that wellbeing is not only a product of care for those who are no longer able to take care of themselves, but is also strongly dependent on other factors. When we look specifically at Spain and Germany, although there are similarities and differences in their care configurations, ‘social capital’ appears to play a key role in the production of wellbeing throughout the entire life course and in old age. We believe, therefore, that wellbeing is a product of a specific combination of interlocking factors in society as a whole, including social networks, individual resources and characteristics. The fact that elderly people may require help at a certain stage of their lives does not reduce the relevance of these broader social factors.

Once again, we apply our final linear regression model to the single samples. This enables us to assess whether the significance of the explanatory variables varies from one country to another.

We observed earlier that married or common-law spouses have higher levels of wellbeing, with the most marked differences being observed between Greece, on the one hand, and Portugal and Germany, on the other. We hypothesised that this individual characteristic is a necessary condition for receiving regular assistance in Greece, as the spouse or the partner is likely to be the principal provider of care within the family, but not in Portugal and Germany, where there are broader and more flexible care configurations.

This time, we observe that the size of the effect that marriage has on wellbeing is larger in Italy and Greece (albeit to a greater extent in the latter case) compared with Germany. This is striking, as Italy and Germany have similar characteristics in relation to the source of care, with a key role for mixed care configurations. Although cash-for-care schemes are important in both countries, the way in which these monetary contributions are spent may be quite different. Whilst in Germany, these care allowances are likely to be used by elderly people (mostly separated or divorced) directly, purchasing hours of care, in Italy older adults may rather pass them on to family carers as a supplement to their income. In the situation of long-term care needs, the significance of marital status for wellbeing varies across countries based not only on the specific source of care, but also on the usage of long-term care benefits (cash contributions).

In addition, we also observed that cognitive functioning increases individual wellbeing, with large differences in the size of this effect between Germany, on the one hand, and Italy and Greece, on the other. We hypothesised that, by contrast with Germany, the stronger influence of this health variable in Greece may be due to the indirect effect of adverse life circumstances on familised care, whilst in Italy this may rather reflect a more selective approach to care in terms of needs (only severe cases) and income (only deprived elderly people).

This time, we observe a clearer pattern of cross-national differences across countries, where Greece still cannot be distinguished from Italy, but has differences with Spain, Germany and particularly Portugal. As we pointed out earlier, receiving formal care is comparatively widespread in Spain and particularly difficult in Greece. Similarly, the largest difference between Portugal and Greece is observed in relation to the source of care, with relatively defamilised and familised care arrangements, respectively. This pattern of cross-national differences, in other words, reveals to what extent the configuration of care arrangements for elderly adults in the different countries is targeted at those with low levels of cognitive functioning.

As some scholars argue, individuals having cognitive impairments and particularly senile dementia, and consequently require assistance around-the-clock, often do not qualify for long-term care benefits or remain with unmet needs. Very low levels of cognitive functioning are seldomly assessed as severe long-term care needs, although they require highly-intensive care (Rothgang, 2005). The decrease in the magnitude of the effect that cognitive functioning has on wellbeing may reflect a much greater ability of care configurations to meet the needs of individuals with cognitive impairments and dementia. This is not the case in Greece, where this form of highly-intensive care is borne by family members alone, nor in Italy, where there are highly selective eligibility criteria. In Greece and Italy, therefore, having better cognitive function boosts wellbeing, more than in Spain, Germany and Portugal.

The patterns of cross-national differences in relation to other explanatory variables - mobility difficulty, self-perceived health, social participation - are quite complex, but some conclusions can be formulated.

As far as difficulties with mobility are concerned, which may not necessarily require long-term care and are rarely assessed as needing care, there are differences between Greece, on the one hand, Spain, Italy and particularly Portugal, on the other (European Commission, 2015a: 145). We observed earlier that older adults who are able to carry out self-care and instrumental activities for fundamental

functioning generally do not receive regular assistance. But there is also the situation of those who are helped while not having two limitations or more with ADL/IADL, and this help may cover those who have mobility difficulties (less than 10% in all countries). Greece has the largest differences with Spain (about 6%), followed by Italy (falling to almost 5%) and Portugal (dropping to roughly 2%). In Greece, the negative association between mobility and wellbeing may be absorbed, to some extent, by the receipt of care (from family members alone), more than in the other three Southern European countries.

Interestingly, when we look specifically at self-perceived health, the largest differences are observed between Spain, on the one hand, and Germany and Greece on the other, which have similar outcomes in relation to the level of care received. We observed earlier that the probability of receiving regular assistance is much lower if the respondent reports having very good or excellent health and, unsurprisingly, there is a positive association between self-perceived health and wellbeing. However, by contrast with Spain, in Germany, which has similar scores on self-perceived health (about 20%), elderly adults have higher levels of care. In Greece, respondents report having very good or excellent health to an even greater extent (reaching almost 30%) and older adults can rely on higher levels of care. This suggests that other mechanisms may be involved in the magnitude of the effect that self-perceived health has on wellbeing. In addition, what our results suggest is that how health influences individual wellbeing in the different countries may be also largely unrelated to care.

We find, finally, that social participation has a smaller impact on individual wellbeing in Spain compared with Italy and Greece. We observed earlier that this is one of the most significant similarities between the Southern European countries. However, whilst in Spain there is a distinct configuration of social networks, in Italy, there is the highest percentage of social isolation, and in Greece, there are very low levels of contact. In addition, we observed that those who are active, more connected and socially engaged have higher levels of autonomy. In Italy and Greece, therefore, it may be that being engaged in

organised cultural and social activities becomes particularly critical to preserve wellbeing, more than in a context of strong social embeddedness, like Spain.

Our empirical research, therefore, effectively enabled to appreciate the nature and the magnitude of similarities and differences in Italy, Spain, Portugal, Greece and Germany in relation to the wellbeing. Individual characteristics (age, gender), life circumstances (education, current job situation, income, ses), chronic conditions and ADL/IADL disabilities have found to have a quite similar significance in the five countries. Interestingly, extending our analytical approach to the single samples also allowed to assess how marital status, cognitive functioning, mobility limitations, self-perceived health and social participation vary from one country to another in influencing individual wellbeing. We believe that it is legitimate, and essential, to integrate our multivariate models with country-single statistical analyses.

Conclusion

As argued in this thesis, the process of population ageing requires a great deal of careful consideration (Livi Bacci, 2015b). A key issue is how to meet the needs of a growing number of elderly people who do not need full-time assistance, but nevertheless have disabilities and impairments which affect their ability to carry out fundamental self-care and instrumental activities of daily living. This process has important implications for public welfare and for society more generally, and requires an accurate assessment of how the long-term care needs of elderly adults vary over time and cross-nationally, how different welfare regimes have responded to these changing needs and how this has impacted on individuals and families.

In Chapter 1, we summarised the literature on European welfare regimes, starting with two key works on this topic, *The Three Worlds of Welfare Capitalism* (Esping-Andersen, 1990) and *The Varieties of Capitalism* (Hall and Soskice, 2001). Through a constructive critique of these seminal contributions, we integrated family care for elderly adults within the context of comparative research on the welfare state. Building on a growing body of scholarship on Southern European welfare regimes, we outlined the state of the art in research on family care arrangements while seeking to integrate culture, public policy and social structure within a single framework.

In Chapter 2, we outlined the comparative and quantitative methodology employed in this thesis as well as describing the dataset used in the empirical analysis. The data that we studied come from the Survey of Health, Ageing and Retirement in Europe (SHARE), a highly-relevant source of standardized, comparative information on the themes at the centre of this project. We draw on Wave 6 (2014/2015) of SHARE, which is the most recent available, includes data on family and social networks.

SHARE is an appropriate data source for addressing the aforementioned research questions, although it has a number of shortcomings, which are discussed in detail in Chapter 2. After weighing up the advantages and disadvantages of SHARE, we presented a range of demographic and socio-economic summary data as well as describing the composition of the households in which the respondents live in each of the case study countries.

In Chapter 3, we concentrated on a number of micro-level factors which are expected to play a key role in relation to long-term care and well-being. We provided a rich conceptual discussion of these characteristics and described the measures and scales that we developed using factor analysis and the techniques of composite index construction. In this analysis, we took account of sampling designs, used cross-sectional calibration weights and identified clusters in order to maximise efficiency and minimise bias, to ensure that all cross-national comparisons were accurate and reliable. Single imputation and multiple imputation techniques were used to handle item-level missingness due to selective non-response, as appropriate.

In Chapters 4 and 5, we presented a number of multivariate statistical models in order to answer the primary research questions. We identified the factors underlying the receipt of care and measured the residual differences between Italy, Spain, Portugal, Greece and Germany. In the first analysis, we estimated a logistic regression model for receipt of 14 hours of care or more per month. In order to achieve a better understanding of long-term care, we then estimated a multinomial regression model that identified the factors underlying receipt of care from family only, a combination of family and other actors and only non-family members (Chapter 4). We then assessed the determinants of individual well-being across countries using two linear regression models, one from the perspective of older adults, the other from that of care recipients and carers (Chapter 5). Although the patterns of cross-national differences across countries are quite complex, a number of conclusions can be made.

Before discussing in detail our findings, it is important to provide a more accurate picture of the role of family members in the context of elderly people with long-term care needs. We want to clarify what we mean by family care, and we do so by describing what it triggers and what it is driven by. Several scholars describe the provision of care by family members in terms of an exchange of resources which is often motivated by affective or emotional components, such as reciprocity and solidarity. For example, elderly parents provide their adult children with financial support, and grown-up children reciprocate with informal care. This theory has its roots in Social Psychology, although it has been extended in Sociology with the intergenerational solidarity theory and the intergenerational stake hypothesis in particular, which are rigorously reviewed in Chapter 1. This approach, however, offers only a partial view of how care by family members relates to other forms of assistance. This gap is only partially filled by other scholars who adopt a more utilitarian view of family care as involving a transfer of goods after assessing related costs and benefits. For example, children choose to take care of their parents when this yields a higher return (like an inheritance) than the cost (such as the time spent to carry out this task). In addition, downward intergenerational investments (from parents to children) may be viewed as a means of compensating children (Bonsang, 2007). Mostly applied in the economic field, this theory finds few applications in Sociology (with the exchange motive theory, for example) as care provision by family members is reduced to a matter of convenience for both parties.

What is lacking in these two theoretical approaches is how family care redefines and reshapes relationships, roles and identities among elderly adults. More emphasis on relational factors should be extended to all those involved (including care providers). We can say that the provision of care by family members is not so much an exchangeable resource or a transferrable good as a social relationship (care relation) involving roles (care receiver and carer) and renegotiable identities.

What can make this more complex is the nature of the care provider. As we indicated in Chapter 1, there are three very important points to bear in mind: which family member is in charge of care, whether

they are involved in other forms of care work, and whether they share this activity with others. Firstly, whilst we can make a clear distinction between care relationships involving children and other intergenerational relations, it is more difficult to measure care within the couple. In theoretical terms, at later stages of the life course, helping a partner (or reciprocal help within a couple) is part of conjugal ties and may not even be perceived to involve the provision of long-term care. By contrast, care relations across generations (and to a greater extent the provision of care by non-family members) are more formalised. A number of considerations can be made in this respect.

If the provision of care is a key aspect of social relations within the couple, this may not even be perceived to involve a burden, and offers an obvious means of cost containment from the perspective of public policy. However, as some scholars argue, it is important to distinguish between help and care (Igel *et al.*, 2009). Whilst fairly basic forms of support from family members (like the partner) may often suffice to enable elderly people to remain at home, even in the presence of long-term care needs, this may give rise to overburdening and may require external support. As our results show, care resources that are external to the family become fundamental for widows and elderly women living alone who can no longer rely on their partner for support.

Unfortunately, the SHARE dataset does not provide measures of the provision of care by a partner while providing comparable data on the domestic tasks carried out by each person. This is of relevance to our statistical models, where having a partner sometimes equates to receiving care, even if the partner is not perceived as providing care. This issue points to a possible report bias in relation to this 'unseen work' within households which should be taken into account in future waves of SHARE. It is not even possible to quantify the total number of hours of care provided, which places limits on the possibility of identifying concrete forms of assistance. This would enable us to take a certain number of hours per day as a cut-off point in order to define care work within households.

Secondly, if care sharing regards both elderly parents and children simultaneously, the situation of the 'sandwich generation' becomes particularly serious. Building on role strain theory, some scholars point out that the demands of long-term elderly care can be hindered due to the time necessary for looking after children. A growing body of scholarship highlights the opportunity represented by childcare for those who take care of elderly parents. Whether this situation is more a matter of conflict or solidarity within the family may depend on female labour force participation. For example, when women can choose to outsource some of their care tasks while entering or remaining within the labour market, this may reinforce solidarity within the family. By contrast, when women are forced to take care of both elderly parents and children simultaneously due to a lack of alternatives, this may lead to conflict and dissatisfaction.

It is not possible, unfortunately, to obtain comparable data on care sharing regarding elderly parents and children. In all of the countries considered, well over half of respondents' parents are no longer alive (almost 70% in Portugal). It is not possible to quantify the total number of hours of care provided, which places limits on how we can measure the care burden for families and analyse how this can compromise other roles.

The percentage of older adults having pronounced long-term care needs is quite low in general (just 10% of each national sample, on average). This means that getting older does not necessarily trigger care needs, as a large share of individuals experience limitations with their activities of daily living (ADLs) only toward the end of their life (and presumably for a relatively short period of time). The theorists of compression morbidity observe that elderly people will continue to maintain good health for longer in the future.

Furthermore, needy elderly people may be institutionalised, rather than being cared for at home. Unfortunately, the data provided by the SHARE survey do not provide accurate information on this issue (for more details, see Chapter 2). As several scholars have shown, severe or quite severe long-term care

needs require highly intensive forms of care, and reliance on residential care could significantly reduce burdens on the 'sandwich generation'.

Thirdly, as we argued in Chapter 1, in the presence of long-term care needs, the involvement of a great number of family members may be expected to lower the burden on each person. Some scholars show that in Northern and Western Europe more family members devote time to elderly relatives, whilst the opposite is the case in South Europe, where there is evidence of greater role specialisation. Families in Italy, Spain and Greece, tend to be larger than in Germany, which may lead us to expect a more equal distribution of family care, a lower care burden on each person and, as a result, a reduction in stress. However, as other authors have shown, we tend to observe higher burdens for families, and women in particular, in South European countries.

Unfortunately, we do not have accurate information on the number of people who live in the same household, as not all household members aged 50 years or over and their partners are interviewed. Furthermore, most of the available measures are available for the respondent only, which poses limits on how to measure the provision of long-term care within the couple (for more details, see Chapter 2). This means that we cannot take into account the distribution of care within the family and we cannot definitively ascertain whether, by contrast with Germany, in Italy, Spain, Portugal and Greece these tasks tend to fall on one person. This represents a crucial challenge for the SHARE survey if we want to improve our understanding of how families meet the long-term care needs of elderly adults.

In addition, there is also a normative dimension which is fundamental when conceptualising family care. As we argued in Chapter 2, cultural norms (and care obligations in particular) shape the nature and the role of the family, with important implications for living arrangements. If we consider care relationships across generational lines, this means that care provision by children is driven by duties and responsibilities, implying also co-residence or "near co-residence" of different generations (Fernández-Carro, 2014; 2016; Isengard and Szydlik, 2012; Isengard *et al.*, 2017).

Unfortunately, we do not have accurate longitudinal data on living arrangements, which would enable us to ascertain whether parents tend to move in with their children when they need care or vice versa. This is a fundamental issue when analysing how family care influences individual wellbeing.

The theoretical approach that guides this thesis addresses the interplay of a number of factors at different levels (macro-, meso-, micro-) in order to explore the patterns of cross-national differences across countries. The first research question we addressed is whether it is possible to identify a Mediterranean model of long-term care for older adults. Our aim was to assess the evidence in relation to long-term care for elderly people in different European countries by linking family care arrangements to welfare systems.

We analysed data relating to all five countries studied with a view to assessing differences and similarities within the group of Southern European countries and between them and Germany. The Mediterranean countries have received much less attention than those situated in North Western Europe in comparative research on welfare systems. Germany has received much more scholarly attention, and the inclusion of this country creates a bridge with other research and permits us to assess whether the similarities between the four Southern European countries are greater than their differences and whether they can be assimilated to a common model or pattern.

Any similarities we observe between Italy, Spain, Portugal and Greece - and any systematic differences with respect to Germany - may be attributed to macro-level factors like political forces, institutional arrangements, economic condition and cultural norms. But meso- and micro-level factors are also important when developing an empirically-grounded framework for studying care arrangements. These include family relationships and household composition as well as individual characteristics and life circumstances.

We emphasised two different dimensions (level of care received, source of care received) in order to identify the configuration of care arrangements for older adults in the different countries. Our first

statistical analysis (logistic regression multivariate model), sheds light on the factors underlying receipt of care, which include individual characteristics (age, gender), household composition and life circumstances (income). Along with these micro- and meso-level factors, by means also of our country-single statistical analyses, at macro-level, three factors help to explain between-countries differences: funding for long-term care (in terms of public spending in general and publicly-funded nursing homes), availability of care resources (internal or external to the family) and family structure.

The first pattern of cross-national differences across countries juxtaposes Greece and Germany (with Portugal and Spain having similarities). Greece has the lowest level of public spending on long-term care and very few beds in residential care facilities, and family care resources are unevenly distributed in spatial terms, with people living in big cities (Athens and Thessaloniki) having greater access. Germany has similar outcomes in relation to the level of care received, but is in a leading position in relation to funding for long-term care, allowing greater access to care resources that are external to the family. Portugal shares with Greece a particularly poor concentration of care resources in rural areas compared with urban areas, whilst Spain shares with Germany a large number of public beds in residential care facilities.

This pattern reveals that the configuration of care arrangements for elderly people in the different countries reflects the interplay of institutional arrangements (funding for long-term care, availability of care resources) and cultural norms (family structure). As comparative research on the welfare state shows, the residual role of institutions in this welfare area partially reflects historical legacies. Only in the two last decades, the so-called "new social risks", including long-term care needs of elderly adults (and conciliation needs of their families) have entered the political arena and public policy debate (Bonoli, 2007; Ranci and Pavolini, 2013). This trend, however, has been proceeding at a quite different pace across countries, leading to different welfare responses. If we extend our attention to Italy, its intermediate position in terms of residential care facilities and public spending on long-term care is

similar to that observed in Spain and not very far behind Germany. However, there are huge differences at regional level in funding for long-term care and in relation to the availability of care resources. Southern regions historically face higher levels of disadvantage than the Centre-North and this is reflected in resources for long-term care (Costa, 2013).

Cultural norms, which exert a powerful influence over family relationships and household composition, appear to play a similar role in Italy, Spain and Greece. By contrast with Germany, these three Southern European countries have larger families and more cohabiting children (or children who live close to their parents). This leads us to expect higher levels of care provision within households or involving family members. However, whilst this is the case in Spain and Greece, with family care playing the dominant role, in Italy, home help and assistance from non-family members are often combined with support from family members. In Germany, more mixed care configurations are observed and in Portugal there is an even greater reliance on non-family members.

Unfortunately, it is difficult to obtain comparable data on sources of care, which would help us to reconstruct a more accurate picture of care configurations in the countries considered. However, our results enable us to shed light on this issue. In particular, our second statistical analysis (multinomial regression multivariate model), shows that variations in the source of care are due primarily to the way in which individual characteristics (age, gender), household composition, life circumstances (education, income, area of residence) interact with the institutional logic of public welfare arrangements. Three factors help to explain between-country differences: family structure, the extent of coverage of long-term care insurance and out-of-pocket expenses.

Our results reveal a number of patterns of cross-national differences rather than simply differences which distinguish the four countries of South Europe from Germany. If we consider economic conditions, the Great Recession in 2008 and subsequent austerity measures dramatically decreased funding for long-term care and reduced access to care in Greece. Along with strong filial norms and obligations, weak

welfare entitlements boosted reliance on family care in this Southern European country. If we consider the late and uneven impact of processes of social change such as geographical mobility, female labour market participation and the affordability of childcare services, it is evident that like Greece, Spain is also far behind Germany in terms of access to welfare services.

If we look at the unemployment rate (both total and by gender), in 2015, Germany scores much lower than other OECD countries and Southern Europe (OECD, 2020). In Germany, the rate is about 5%, whilst in Spain this rises well above 20%, reaching almost 25% in Greece. By contrast, it is just over 10% in Italy and Portugal. When this indicator is disaggregated by gender, cross-national differences persist. In Spain and Greece, higher rates of unemployment and lower rates of female labour market participation have the effect of increasing reliance on family care.

These macro-level factors, however, offer only one means of explaining care configurations in Italy, Portugal and Germany. A different dimension of cross-national differences also juxtaposes Italy and Portugal. Family care arrangements in Italy, Spain and Greece (albeit to a greater extent in the two latter cases) reflect not only family structure, but also the existence of uneven and costly welfare services. For example, usage of the "care attendance allowance" varies throughout Italy. In the South, it is frequently used as a supplement to the income of family carers, whilst in the Centre-North it more often subsidises the cost of employing migrant care workers. In this part of Italy, the recruitment and employment of migrant workers as home-based care work has emerged as a more affordable solution for families where female labour market participation rates are high, while respecting duties toward senior family members (the so-called "migrant-in-the-family" care model) (Williams, 2012). As comparative research on the local welfare state shows, the "North-South gradient" in relation to this monetary contribution reflects differences in the interplay of economic condition and processes of social change. An improvement in economic condition in the Northern regions, a decrease in internal migration (from South to North) are

combined with an increase in female unemployment and very weak welfare services in the South (Andreotti *et al.*, 2013).

There is another issue involving the social roles of women which is of fundamental importance when we look at the interplay between the state, the market and the family in different countries. It has been argued that the "care attendance allowance" introduced in Italy in the 1980s (so-called *indennità di accompagnamento – Ida*) and the reform passed in Spain in 2006 (so-called *ley de promoción de la autonomía personal y atención a las personas dependientes*) reinforced reliance on care provided by low-paid migrant workers. This has a number of consequences for female labour market participation, involving both nationals (family members) and immigrants (care workers) (Da Roit *et al.*, 2013). Although women with elder family members may experience less subordination within the family, women who take care of non-family members may experience more subordination within a non-official or irregular labour market and become the new 'outsiders' of the welfare state.

Cultural norms, therefore, have a strong significance in Italy as well as in Greece and Spain, regardless of what long-term care needs imply in the different regions. By contrast, in Portugal, where we observe greater reliance on non-family members, weak filial norms and obligations have the effect of shaping the nature and role of the family. This often means that family members provide financial resources to afford out-of-pocket expenses or to outsource private care, rather than providing care directly.

As a number of studies show, whether family care is voluntary or involuntary also depends on whether and to what extent other actors are involved (Bolin *et al.*, 2007). Whilst in Northern Europe strong formal care combines with informal care on a voluntary basis, in Southern Europe family care reflects a lack of alternatives, with Continental Europe occupying an intermediate position. We argue that this helps to distinguish between Southern Europe and Germany, but not to explain differences between the individual Southern countries.

Above all, this helps to distinguish between Italy and Germany. In the former, strong filial norms and obligations and weak welfare services tend to define family care as a forced choice. By contrast, in Germany, a lower willingness of children to assist parents directly, combined with widespread access to public services leaves families with greater 'room for manoeuvre' in relation to cash contributions (Albertini and Pavolini, 2015). What our results show, furthermore, is that whether family care is a forced choice rather than a strategy has consequences in terms of living arrangements (cohabitation or residential proximity), the level of care received as well as individual wellbeing. By contrast with Italy, a larger share of individuals receive help in Germany, there is a smaller gap between needs and care received, and higher levels of wellbeing.

In addition, it has been argued that socially cohesive neighbourhoods and warm friendships have the effect of increasing the provision of care from non-family members, allowing broader and more flexible care configurations (Da Roit and Gori, 2019; Gori and Luppi, 2019). Next to family members, non-family members may provide lower-intensity care resources that are external to the family, enabling elderly adults to remain at home. Our findings integrate the empirical evidence in two different directions. On the one hand, social networks and participation promote and preserve wellbeing over time, regardless of care configurations, particularly in Spain (with its family-based care regime) and Germany (with its 'partial defamilisation'). Italy and Germany, by contrast, have sharply contrasting scores for social networks and participation, but similar outcomes in terms of the source of care. Italy has both a high level of social isolation among older adults and more mixed care arrangements.

A number of studies on Central and Eastern European countries show that ties with non-relatives become increasingly important for elderly people when their children are not around (the "phenomenon of people left behind by migration"). Migration, rapid urbanisation and, as a result, rural depopulation are the key processes involved. An increasing number of deprived elderly adults receive social support from non-relatives (Conkova and King, 2018). The South of Italy has also experienced sustained

emigration over many decades, but weak social networks do not appear to offset the loss of family ties, increasing the number of individuals lacking social support in old age, (ISTAT, 2015).

Others show that non-profit organisations and ties with non-relatives can be a valuable resource of social support for elderly people without children, but cannot compensate for a weak welfare system (Albertini and Mencarini, 2014). It was not possible to take into account the third sector in this research, but we do recognise that this is an important issue that demands further research. Our results show, however, that ties with non-relatives are an important source of care and that a relatively large share of socially-isolated individuals have significant long-term care needs and do not receive regular assistance. In other words, the gap between needs and receipt of care is largely explained by social isolation in Italy.

Differences between individual countries become clearer if we consider the extent of coverage of public welfare and out-of-pocket expenses. Germany, which is pioneer of social insurance (with Austria), occupies a leading position in relation to the coverage of public long-term care insurance, while bringing up the rear in relation to out-of-pocket expenses. However, the four countries of Southern Europe have very different arrangements in relation to formal care, the coverage of insurance and the costs that older adults must meet themselves.

Alongside Spain, which compares favourably with the other Southern European countries and Germany in relation to the percentage of individuals receiving formal care, Portugal has a distinct configuration of care arrangements for elderly people. 'Full defamilisation' is observed much more frequently in this country, reflecting the impact of geographical mobility, in particular. Internal migration has redefined and reshaped the nature and role of family members, discouraging duties and responsibilities towards elderly relatives and increasing reliance on private care. The other countries included in this study have sharply contrasting scores for mandatory long-term care insurance but similar levels of reliance on private services.

After clarifying what we mean by family care and assessing the nature and the magnitude of differences within the group of Southern European countries and between them and Germany, we can say that the results of our empirical research provide little support for the existence of a Mediterranean model of long-term care for elderly adults. This is because the family plays a very relevant role in all countries considered, implying that we cannot treat Italy, Spain, Portugal and Greece as forming a monolithic block based on 'familistic' solutions to the problem of elderly care, as an equally strong 'familism' is observed in Germany as far as long-term care for older adults is concerned.

After controlling for a broad spectrum of variables, our multivariate models reveal very significant differences between the countries of Southern Europe, even to the point where we cannot clearly distinguish them from Germany in relation to specific aspects of long-term care. The resulting cross-national heterogeneity within the Mediterranean block deserves more attention from researchers.

Southern Europe should not be viewed simply as a late-comer or as a hybrid compared to other regions of Europe, as distinct care configurations endure at national and regional level. Each European country has a distinct configuration of characteristics which we can only identify through careful analysis.

It is important to appreciate how the legacy of social health insurance schemes, which were pioneered in Germany (and Austria), and the historical development of national health services are combined in different ways in Southern European countries. For example, there is a growing body of scholarship on health policy which is questioning the existence of a "Mediterranean model", following Figueras and colleagues' (1994) seminal work (Giarelli, 2006; 2011; 2021). It has been argued that a number of macro-level factors (political forces and institutional arrangements, above all) have had a harmful effect on health policy in the Southern European countries between the 1970s and the 1990s. However, the way in which these four Southern European countries attempted unsuccessfully to achieve a universalistic system and to improve the organisation of health care varied considerably between Italy and Spain, on

the one hand, and Portugal and Greece, on the other. More recently, the Great Recession of 2008 exacerbated these differences in health policy implementation.

Similarly, it is important to appreciate how policy shifts relate to wider macro-political institutions (Estévez-Abe and Naldini, 2016; Estévez-Abe *et al.*, 2016; Häusermann *et al.*, 2013). It has been argued that political party competition and electoral rules, more than cultural norms, explain differences between individual countries in long-term care policy implementation (even beyond the boundaries of Europe). The new season of public policy reforms in Italy and Spain that followed the outbreak of crisis in 2008 offers a means of framing the configuration of care arrangements for elderly adults in these countries. In short, different levels of access to formal care are largely attributable to the social policy reform passed in 2006 in Spain and policy inertia since the introduction of the "care attendance allowance" in the 1980s in Italy.

Institutional arrangements, political forces and structural conditions distinguish the Southern European countries from Germany and reveal differences between individual countries. However, we cannot confine our attention to these macro-level factors, excluding cultural norms. Long-term care for elderly people is viewed largely as a private responsibility of individuals and families in all five countries studied, in accordance with social catholicism and the "principle of subsidiarity". The assumption that this is more a matter of cultural norms and moral obligations rather than macro-political institutions is rather unconvincing. For example, a new wave of comparative research on the welfare state stresses the link between care culture and institutions in terms of long-term care within continental welfare states (for Italy and Germany, see Albertini and Pavolini, 2015; for Italy and The Netherlands, see Da Roit, 2010).

It has been argued that this link becomes particularly critical where care resources are lacking within the family. This requires close attention in Italy, where the unavailability of family carers leads to a shortfall in care given the lack of a standardised and progressive needs assessment to enter residential care.

The threefold typology of welfare state thus appears to provide a useful model of care arrangements for older adults in different European countries, although there is considerable cross-national heterogeneity within the conservative welfare state regime, as we have seen. By comparing Italy, Spain, Portugal, Greece and Germany, we have been able to detect a number of interesting patterns of cross-national differences in relation to the level and source of care.

At the same time, it is important to extend and enrich this theoretical framework. In particular, it is important to ascertain "what the welfare state provides" (i.e. services in kind, cash-for-care schemes) and to study the impact of these measures in different regions. Our results suggest that similarities in the level and source of care can combine with differences in entitlements, coverage and usage. Research on local welfare is destined to play an important role in exploring this nexus in the future (for Italy, see Andreotti *et al.*, 2001; 2013; Mazzola *et al.*, 2016; for Denmark, see Jensen and Lolle, 2013).

The second research question addressed in this thesis is whether family care for elderly people in different European countries is associated with higher or lower levels of wellbeing. Our goal was to evaluate the implications of care arrangements by taking into account the role of the family and of other actors in the provision of long-term care. To this end, we integrated family care for elderly adults within the context of recent research on the determinants of well-being and carried out a review of the relevant literature. We cannot confine our attention to care configurations only, without considering the wellbeing of individuals who are not able to take care of themselves and of their family members.

Factors influencing wellbeing during old age represent a crucial challenge for policy makers and service programme designers and are increasingly at the forefront of public debate. Our results reveal that factors at different levels of analysis play a key role in the production and reproduction of wellbeing across the entire life course and into old age. The configuration of care arrangements for elderly adults in different countries is just one factor in this process, alongside individual characteristics, life circumstances, social networks and participation. Secondly, our results reveal differences between

individual countries, as well as marked differences between the Southern European countries and Germany.

Three individual characteristics appear to have beneficial effects on wellbeing. In particular, older adults, men and married or common-low spouses have higher levels of wellbeing. This suggests that, along with gender, marital status promotes wellbeing. Our findings further corroborate the "paradox of wellbeing": age has the effect of increasing individual wellbeing, although in the presence of long-term care needs, wellbeing is not simply a function of ageing. By contrast, age may mediate the impact of health status, having harmful effects on wellbeing.

Three individual resources have protective effects on wellbeing, and cast considerable light on patterns of cross-national differences across countries. Being highly educated, economically active and having higher socio-economic status boosts wellbeing, which suggest that these individual resources are fundamental for a healthy and active lifestyle.

In the presence of long-term care needs, individual resources play a key role in sustaining wellbeing during old age. Education and participation in the labour market, besides delaying the onset of long-term care needs, appear to act as strategic symbolic resources. Being highly educated and economically active shape preferences for more mixed care configurations, emphasising individual autonomy and responsibility, as well as preferences for roles and responsibilities outside the family. Having higher socio-economic status eases care access for needy elderly and encourages a better work/life balance for family members. These individual resources play a key role in promoting and preserving over time the wellbeing of all family members and contrast with the situation in the Southern European countries.

Health plays a very relevant role in relation to wellbeing during old age. In particular, ADL/IADL disabilities, alongside chronic conditions, mobility difficulties, cognitive impairments and poor self-perceived health have the effect of decreasing wellbeing.

Although needs and health status distinguish between the four countries of Southern Europe and Germany, it is important to look specifically at indicators of health. Studying the relationship between chronic conditions and wellbeing raises methodological issues. A system of health care which is more oriented toward prevention, rather than treatment, is likely to prevent, delay or reduce the negative effects of chronic conditions, ultimately reducing long-term care needs. This is why the higher incidence of chronic conditions observed in Germany does not translate into lower levels of wellbeing.

Secondly, as different indicators of socio-economic status capture different aspects of health, cognitive function is influenced by the knowledge and skills that come with high education, highly qualified and well-paid jobs. This has two important implications for wellbeing. On the one hand, as cognitive function is correlated with socio-economic status, it is possible that this variable mediates the impact of social class on wellbeing, rather than having an independent effect. On the other, as elderly adults with low levels of cognitive impairments are more likely to receive care from a combination of sources, rather than from family only, because of few financial constraints, it is also possible that this variable mediates the impact of 'partial defamilisation'. This appears to be the key difference between Germany and some of the South European countries. These findings corroborate our hypothesis that the identification of clusters of countries is complex in relation not only to long-term care for older adults but also in relation to wellbeing. Systematic differences with Germany do not involve the Mediterranean block as a whole and appear to be linked with specific characteristics of the social fabric of the different countries.

Our last multivariate model once again revealed differences between the individual countries rather than a clear-cut divide between the Southern European countries and Germany. Patterns of cross-national differences may be due to the availability of individual resources, the degree of defamilisation of care configurations or the extent to which this is targeted at individuals with cognitive impairments. Interestingly, these results show that the South European countries can occupy the leading or the last

positions, based on how we analyse the association between this variable and wellbeing. This issue requires further research, perhaps applying statistical models for mediation analysis (Pratschke *et al.*, 2016b).

Thirdly, there is another important issue involving the relationship between difficulties with mobility and wellbeing, which highlights differences between the Southern European countries. This casts light on the situation of those who receive help while not having significant limitations. Our results suggest that having higher levels of care, as in the case of Greece, is not a necessary condition for meeting the needs of older adults, but may reflect simply a greater willingness to provide help on the part of family members (Oudijk *et al.*, 2011: 230).

Finally, when we consider the association between self-perceived health and wellbeing, our results again reveal considerable differences between countries and suggest that this relation may be driven by factors other than care. Indeed, higher levels of care can be combined with very good or excellent self-perceived health, as in the case of Greece and Germany. Interestingly, the opposite is the case in Spain, which is the country of Southern Europe with the highest levels of wellbeing for those who are cared for and those who provide care. It is possible that this association between health and wellbeing is not linear, and that other mechanisms are also involved.

Social networks and participation are fundamental to wellbeing throughout the entire life course and in old age. Higher levels of individual resources have the effect of increasing social networks and engagement in organised cultural and social activities (Asiamah, 2017). For example, a cross-sectional study at sub-national level in Italy shows that low educational attainments are likely to decrease the frequency of social contact (De Belvis *et al.*, 2008: 790). Similarly, higher levels of health have an impact on social networks and participation. Having very or extremely close relations, discussing important issues with others and being engaged in social activities also presuppose a minimum level of cognitive function, which is also associated with socio-economic status. This helps us to distinguish between

countries and suggests that the significance of these broader social factors persists even when elderly people start to require help at a certain stage of their lives.

Social networks and participation, in other words, play a very relevant role in the reproduction of wellbeing in old age, regardless of the onset of long-term care needs. On the one hand, a number of studies with their roots in Social Psychology show that elderly adults withdraw from the relations, roles and identities they acquired during adulthood. Others recognise that ageing is part of a life-long process where continuities in some spheres of life may compensate for discontinuities in others. This theory has been taken up in Sociology with the continuity theory of normal ageing (Harper, 2009). For example, in the UK, it has been argued that how the death of a spouse affects men and women is quite different. Men are more likely to lose their social ties while preserving their income, whilst women rather experience economics difficulties while reinforcing their social ties. Our results show male-female differences in the presence of long-term care needs, with important implications for the level and source of care. Men are less likely to receive regular assistance and, if they do, they are mostly cared for by family members (often their female partners), whilst women are more likely to be cared for by people from outside the family. This means that social networks represent one way in which elderly women who live alone face age-related changes and access care and support.

On the other, the equity theory in social relationships - which also has its roots in Social Psychology - shows that when individuals perceive that they receive more social support than they give, this harms their wellbeing (McPherson *et al.*, 2010; Nahum-Shani *et al.*, 2011). This theoretical approach has been extended in Sociology, emphasising a more normative dimension within the context of social relations: obligations to reciprocate social support play a very relevant role in determining the degree of balance between benefits and contributions.

Unfortunately, we do not have accurate information on different aspects of social networks like composition. This information would enable us to distinguish between ties with relatives and friends and

to analyse whether the former effectively play a more important role than the latter. However, our composite indicators allowed us to take into account the social support these ties provide. In particular, our results show that intimacy and social participation have the effect of increasing individual well-being, even when older adults need care at a certain stage of their life. Our findings further contribute to the theory of active ageing, which argues that discussing important issues with others and being engaged in organised cultural and social activities are a key source of advice and solace, companionship and emotional support, protecting health and wellbeing (Huxhold *et al.*, 2013). This is important in relation to the patterns of cross-national differences across countries, as Spain has a distinct configuration of social networks, (more similar to the situation in Germany), and people who are active, more connected and socially engaged have higher levels of individual autonomy and responsibility.

Finally, wellbeing appears to be related, at least to some extent, to the configuration of care arrangements for elderly people in different countries. Lower levels of wellbeing in Italy and Greece may be due to tensions in the role of family members in the presence of long-term care needs.

By analysing wellbeing from the perspective of elderly people and those who provide care, our results cast light on our second research question. There is little support for the existence of a beneficial and protective family fabric for individual wellbeing. Family care mediates the impact of needs and health on well-being, with an effect on all family members. Our statistical analyses suggest that the limitations and health of elderly adults are potentially mediating factors in this association, regardless of the source of care and actors involved. Moreover, the "caregiver effect" appears to be stronger than the "family effect".

One of the more surprising findings, as mentioned above, is that Germany and Spain, which have sharply contrasting scores for unmet needs, and different care arrangements, nevertheless have similar scores in relation to wellbeing among older adults. These similarities appear to be associated with the presence of stronger and denser social networks. It is important, therefore, not to treat the wellbeing of

dependent elderly people as a product of care alone. The wellbeing of individuals who are no longer able to take care of themselves should instead be treated as a product of a combination of interlocking social factors, where welfare entitlements and family care take their place alongside individual characteristics, resources, social networks and participation.

We want to conclude this thesis by highlighting the implications of our results for the future design and development of long-term care policies in European countries. In recent years, policy makers and service programme designers have paid particular attention to promoting the role of families as a means of controlling expenditure. However, our results show that family care is not always beneficial in terms of the wellbeing of elderly people. We believe that the design of such policies should start with an accurate assessment of the long-term care needs of elderly adults and only then, based on this information, evaluate whether families can provide the kind of supportive environment they need, perhaps in combination with public provision of services.

Similarly, limitations and poor health among older adults may compromise the roles and commitments of family carers. Particularly when women (mostly daughters or daughters-in-law) cannot choose to outsource some or all of their care responsibilities while working outside the home, this may undermine their wellbeing and ability to provide care. Of course, the conciliation issue is of broader relevance, as women have responsibilities towards other family members and within the community. An accurate evaluation of whether the resulting care burden is sustainable for families, with a view to safeguarding the roles of family members in all spheres of life, should guide the design of such policies.

Finally, it is important to consider wellbeing in a holistic manner if we want to improve our understanding of demographic changes in Europe. From the earliest stages of life, individual characteristics and resources, social networks and participation play a key role in encouraging individual autonomy and responsibility and boosting wellbeing. The fact that people may need care when ageing does not prevent them from acting as autonomous and responsible subjects, and does not reduce the

significance of the main drivers of wellbeing. This means that the design of long-term care should be integrated with interventions in the spheres of education, the labour market and cultural activity to enable adults to maintain a high level of wellbeing throughout their lives, even in the presence of health problems and long-term care needs.

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Appendix

Age of respondents by gender, Italian sample (n = 5,166), Wave 6.

Age groups	Male	Female
50-59 years	33.02	30.18
60-69 years	30.15	26.81
70-79 years	23.27	23.15
80+ years	13.56	19.86
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Age of respondents by gender, Spanish sample (n = 5,504), Wave 6.

Age groups	Male	Female
50-59 years	38.24	33.57
60-69 years	27.01	24.86
70-79 years	21.05	21.03
80+ years	13.70	20.54
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Age of respondents by gender, Portuguese sample (n = 1,637), Wave 6.

Age groups	Male	Female
50-59 years	26.99	27.62
60-69 years	37.81	31.75
70-79 years	22.94	23.75
80+ years	12.26	16.88
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Age of respondents by gender, Greek sample (n = 4,777), Wave 6.

Age groups	Male	Female
50-59 years	32.11	30.16
60-69 years	29.56	27.81
70-79 years	22.76	22.67
80+ years	15.57	19.36
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Age of respondents by gender, German sample (n = 4,300), Wave 6.

Age groups	Male	Female
50-59 years	35.57	30.42
60-69 years	29.22	27.52
70-79 years	24.53	25.55
80+ years	10.68	16.51
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Education of respondents by age, Italian sample (n = 5,114), Wave 6, weighted.

Education	50-59 years	60-69 years	70-79 years	80+ years
Low (ISCED 0-1)	16.93	37.04	59.58	76.78
Medium (ISCED 2-3)	67.37	51.46	33.18	19.95
High (ISCED 4-5-6)	15.70	11.50	7.24	3.27
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data. ISCED 0 = Pre-primary education; ISCED 1 = Primary education (First stage of basic education); ISCED 2 = Lower secondary education (Second stage of basic education); ISCED 3 = (Upper) secondary education; ISCED 4 = Post-secondary not tertiary education; ISCED 5 = First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 = Secondary stage of tertiary education (leading to an advanced research qualification).

Education of respondents by age, Spanish sample (n = 5,366), Wave 6.

Education	50-59 years	60-69 years	70-79 years	80+ years
Low (ISCED 0-1)	29.60	46.38	69.98	83.99
Medium (ISCED 2-3)	54.48	39.54	23.19	11.39
High (ISCED 4-5-6)	15.92	14.08	6.83	4.62
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data. ISCED 0 = Pre-primary education; ISCED 1 = Primary education (First stage of basic education); ISCED 2 = Lower secondary education (Second stage of basic education); ISCED 3 = (Upper) secondary education; ISCED 4 = Post-secondary not tertiary education; ISCED 5 = First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 = Secondary stage of tertiary education (leading to an advanced research qualification).

Education of respondents by age, Portuguese sample (n = 1,636), Wave 6.

Education	50-59 years	60-69 years	70-79 years	80+ years
Low (ISCED 0-1)	64.55	68.82	70.54	66.33
Medium (ISCED 2-3)	31.72	20.10	19.07	20.63
High (ISCED 4-5-6)	3.73	11.08	10.39	13.04
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data. ISCED 0 = Pre-primary education; ISCED 1 = Primary education (First stage of basic education); ISCED 2 = Lower secondary education (Second stage of basic education); ISCED 3 = (Upper) secondary education; ISCED 4 = Post-secondary not tertiary education; ISCED 5 = First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 = Secondary stage of tertiary education (leading to an advanced research qualification).

Education of respondents by age, Greek sample (n = 4,775), Wave 6.

Education	50-59 years	60-69 years	70-79 years	80+ years
Low (ISCED 0-1)	19.66	36.05	57.82	73.50
Medium (ISCED 2-3)	45.75	36.78	27.66	21.29
High (ISCED 4-5-6)	34.59	27.18	14.52	5.21
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data. ISCED 0 = Pre-primary education; ISCED 1 = Primary education (First stage of basic education); ISCED 2 = Lower secondary education (Second stage of basic education); ISCED 3 = (Upper)

secondary education; ISCED 4 = Post-secondary not tertiary education; ISCED 5 = First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 = Secondary stage of tertiary education (leading to an advanced research qualification).

Education of respondents by age, German sample (n = 4,267), Wave 6.

Education	50-59 years	60-69 years	70-79 years	80+ years
Low (ISCED 0-1)	1.82	0.80	1.23	2.61
Medium (ISCED 2-3)	61.27	61.44	67.91	74.67
High (ISCED 4-5-6)	36.91	37.76	30.86	22.72
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weights applied to all countries. ISCED 0 = Pre-primary education; ISCED 1 = Primary education (First stage of basic education); ISCED 2 = Lower secondary education (Second stage of basic education); ISCED 3 = (Upper) secondary education; ISCED 4 = Post-secondary not tertiary education; ISCED 5 = First stage of tertiary education (not leading directly to an advanced research qualification); ISCED 6 = Secondary stage of tertiary education (leading to an advanced research qualification).

Age of respondents by marital status, Italian sample (n = 5,116), Wave 6.

Marital status	50-59 years	60-69 years	70-79 years	80+ years
Married	69.66	78.01	71.93	49.10
Separated spouse	13.65	5.53	2.90	0.89
Never married	11.73	7.84	5.95	5.35
Widowed	4.96	8.62	19.22	44.66
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.
Abbreviations: Married = Married, or common-law spouse; Separated spouse = Separated spouse, or divorced.

Age of respondents by marital status, Spanish sample (n = 5,385), Wave 6.

Marital status	50-59 years	60-69 years	70-79 years	80+ years
Married	78.36	73.58	70.91	56.13

Marital status	50-59 years	60-69 years	70-79 years	80+ years
Separated spouse	9.86	8.29	2.37	1.25
Never married	7.58	8.55	8.93	4.77
Widowed	4.20	9.58	17.79	37.85
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.
Abbreviations: Married = Married, or common-law spouse; Separated spouse = Separated spouse, or divorced.

Age of respondents by marital status, Portuguese sample (n = 1,637), Wave 6.

Marital status	50-59 years	60-69 years	70-79 years	80+ years
Married	83.74	81.64	78.38	38.09
Separated spouse	7.80	5.74	3.66	0.72
Never married	2.29	3.54	3.71	2.82
Widowed	6.17	9.08	14.25	58.37
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.
Abbreviations: Married = Married, or common-law spouse; Separated spouse = Separated spouse, or divorced.

Age of respondents by marital status, Greek sample (n = 4,775), Wave 6.

Marital status	50-59 years	60-69 years	70-79 years	80+ years
Married	76.08	80.12	68.51	48.25
Separated spouse	12.46	6.90	5.10	2.50
Never married	6.98	4.71	3.82	2.98
Widowed	4.48	8.27	23.01	46.27
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.
Abbreviations: Married = Married, or common-law spouse; Separated spouse = Separated spouse, or divorced.

Age of respondents by marital status, German sample (n = 4,271), Wave 6.

Marital status	50-59 years	60-69 years	70-79 years	80+ years
Married	67.74	68.81	63.47	42.10
Separated spouse	17.26	14.20	11.59	7.11
Never married	11.32	6.57	4.79	2.8
Widowed	3.68	10.42	20.15	47.98
Total	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.
Abbreviations: Married = Married, or common-law spouse; Separated spouse = Separated spouse, or divorced.

Current labour market situation of respondents by gender, Italian sample (n = 5,153), Wave 6.

Current labour market situation	Male	Female
Retired	56.37	38.53
Employed, or self-employed	32.80	20.81
Unemployed, or homemaker	6.37	33.40
Permanently sick, or disabled	4.46	7.26
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Current labour market situation of respondents by gender, Spanish sample (n = 5,499), Wave 6.

Current labour market situation	Male	Female
Retired	56.27	23.72
Employed, or self-employed	28.61	19.68
Unemployed, or homemaker	10.31	47.66
Permanently sick, or disabled	4.81	8.94
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Current labour market situation of respondents by gender, Portugal sample (n = 1,636), Wave 6.

Current labour market situation	Male	Female
Retired	59.81	50.02
Employed, or self-employed	24.96	21.05
Unemployed, or homemaker	9.09	21.60
Permanently sick, or disabled	6.14	7.33
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Current labour market situation of respondents by gender, Greek sample (n = 4,770), Wave 6.

Current labour market situation	Male	Female
Retired	59.39	33.83
Employed, or self-employed	33.04	16.35
Unemployed, or homemaker	4.83	43.75
Permanently sick, or disabled	2.74	6.08
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Current labour market situation of respondents by gender, German sample (n = 4,299), Wave 6.

Current labour market situation	Male	Female
Retired	52.65	53.27
Employed, or self-employed	37.24	31.46
Unemployed, or homemaker	4.75	11.69
Permanently sick, or disabled	5.36	3.58
Total	100.00	100.00

Notes: SHARE Data Release 7.0.0. Weighted data.

Chronic conditions of respondents aged 50-59 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	57.67	48.62	36.95	54.10	38.63
One	25.43	23.85	27.47	28.15	29.78
Two or more	16.90	27.53	35.58	17.75	31.59
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Chronic conditions of respondents aged 60-69 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	36.29	28.28	19.41	28.02	27.38
One	30.64	28.51	26.51	31.49	31.41
Two or more	33.07	43.21	54.08	40.49	41.21
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Chronic conditions of respondents aged 70-79 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	21.01	14.07	10.51	12.85	17.91
One	26.62	26.63	18.06	23.55	25.84
Two or more	52.37	59.30	71.43	63.60	56.25
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Chronic conditions of respondents aged 80+ years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	13.45	9.74	6.63	5.45	8.08
One	23.89	17.31	17.58	18.29	23.32
Two or more	62.66	72.95	75.79	76.26	68.60
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,166), Spain (n = 5,504), Portugal (n = 1,637), Greece (n = 4,777), Germany (n = 4,300). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

ADL/IADL disability of respondents aged 50-59 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	95.21	97.95	90.11	97.26	94.64
One	3.01	0.69	4.78	1.05	2.60
Two or more	1.78	1.36	5.11	1.69	2.76
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

ADL/IADL disability of respondents aged 60-69 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	92.72	93.98	87.96	93.72	94.23
One	2.90	1.96	4.31	2.75	2.23
Two or more	4.38	4.06	7.73	3.53	3.54
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

ADL/IADL disability of respondents aged 70-79 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	83.82	86.94	77.84	82.71	86.21
One	6.88	3.67	7.09	7.93	6.24
Two or more	9.30	9.39	15.07	9.36	7.55
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

ADL/IADL IADL disability of respondents aged 80+ years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	55.66	54.53	36.94	55.21	59.85
One	8.11	8.77	11.00	15.15	9.49
Two or more	36.23	36.70	52.06	29.64	30.66
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany

Mobility difficulty of respondents aged 50-59 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	79.28	83.24	58.75	72.12	64.73
One	10.67	5.21	9.22	13.40	14.03
Two or more	10.05	11.55	32.03	14.48	21.24
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Mobility difficulty of respondents aged 60-69 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	64.77	63.46	54.85	47.42	60.04
One	13.43	11.47	11.94	18.86	17.03
Two or more	21.80	25.07	33.22	33.72	22.66
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Mobility difficulty of respondents aged 70-79 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	46.63	47.28	32.88	25.77	47.15
One	13.87	12.51	12.22	16.86	18.97
Two or more	39.50	40.21	54.90	57.37	33.88
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Mobility difficulty of respondents aged 80+ years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
None	23.23	22.71	13.21	10.60	22.71
One	9.15	7.13	4.51	10.20	13.74
Two or more	67.62	70.16	82.28	79.20	63.55
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 5,153), Spain (n = 5,496), Portugal (n = 1,634), Greece (n = 4,773), Germany (n = 4,293). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Cognitive function of respondents aged 50-59 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	7.17	6.64	12.52	4.02	2.43
Low	8.74	13.75	9.92	7.52	3.54
Average	43.64	40.90	40.07	39.76	24.93
High	21.69	19.48	13.24	24.61	18.76
Very high	18.76	19.23	24.25	24.09	50.34
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,893), Spain (n = 4,970), Portugal (n = 1,470), Greece (n = 4,630), Germany. (n = 4,222). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Cognitive function of respondents aged 60-69 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	11.11	12.71	14.36	9.16	2.73
Low	14.93	17.44	13.85	13.07	6.21
Average	44.64	41.11	46.02	49.53	28.33
High	15.66	13.93	16.38	16.54	23.29
Very high	13.66	14.81	9.39	11.70	39.44
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,893), Spain (n = 4,970), Portugal (n = 1,470), Greece (n = 4,630), Germany. (n = 4,222). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Cognitive function of respondents aged 70-79 years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	22.29	28.83	30.88	21.25	9.43
Low	17.69	20.74	24.55	17.96	10.78
Average	43.90	37.48	36.01	43.21	37.79
High	10.13	7.01	4.69	11.86	19.54
Very high	5.99	5.94	3.87	5.72	22.46

	Italy	Spain	Portugal	Greece	Germany
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,893), Spain (n = 4,970), Portugal (n = 1,470), Greece (n = 4,630), Germany. (n = 4,222). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.

Cognitive function of respondents aged 80+ years, all samples, Wave 6.

	Italy	Spain	Portugal	Greece	Germany
Very low	46.71	57.95	53.86	36.42	26.73
Low	22.97	16.32	18.50	23.29	16.53
Average	26.68	20.10	21.93	33.24	34.57
High	2.41	4.13	5.61	4.94	12.56
Very high	1.23	1.50	0.10	2.11	9.61
Total	100.00	100.00	100.00	100.00	100.00

Notes: SHARE Data Release 7.0.0. Italy (n = 4,893), Spain (n = 4,970), Portugal (n = 1,470), Greece (n = 4,630), Germany. (n = 4,222). Weights applied to all countries. Clustering applied to Italy, Spain, Portugal and Germany.