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SOCIAL CAPITAL OF OLDER MIGRANTS, AND ITS CONSEQUENCES FOR HEALTH: A QUANTITATIVE STUDY WITH *SHARE* DATA

Cognome Boerio Nome Pryanka

Matricola 818002

Tutor: Prof.ssa Emanuela Sala

Coordinatore: Prof.ssa Carmen Leccardi

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Introduction

The aging of the population is now emerging as a global concern (Harper 2014). Older population cohorts are growing disproportionally faster than younger ones. Western developed countries, being amongst the first to complete the demographic transition, have grown increasingly older. Indeed, they are characterized by older median ages and larger proportional shares of their older populations (65+)[1] than the rest of the world. For example, 18% of the developed world's population is now 65 years or older, compared to just 7% in less developed countries (Population Reference Bureau 2016). Similarly, life expectancy is typically higher in the developed world, averaging 79 years compared to just 68 years in less developed countries (Newbold 2018). The proportion of the population over 65 is expected to represent over 20% of the world's population by 2050. The aging of the baby boomers (i.e., people born between 1945 and 1964) has been described as an approaching tsunami (Frey 2001), given the size of this cohort and their ability to shape the political and economic structure of the entire society (Newbold 2018).

This study is about older and aging people; however, it should be briefly emphasised that the increased number of older people is only one factor causing population aging. Populations "age" for different reasons than individuals do, and these reasons have to do with essentially two demographic trends (Moody and Sasser 2012): lowering fertility and increasing life expectancies. With the exception of sub-Saharan Africa, the majority of the world's countries have either nearly or fully completed the demographic transition from a high fertility and mortality regime to a low fertility and mortality regime (Franklin and Plane 2017).

One of the regions facing these challenges is Europe. According to EUROSTAT data, in Europe's "28 countries", the number of older people (65+) compared to the total population increased by 3 percentage points from 2007 to 2018 (from 16.9% to 19.7%). People aged 80+, instead, represent the 5.6% of the population. The most significant number is given by the old-age dependency ratio[2]. In this case, the ratio increased by 5 points between 2007 and 2018, and now reaches 30.5. Projections predict that it will reach 49.9 in 2050. The future old population, represented by people between the ages of 50 and 64, is also considerable (20.4%) (EUROSTAT 2018). A longer life may imply a longer period of

[1] In the literature, older people are defined as those who are 65 years old or grater, with 65 being the typical retirement age. Furthermore, in some cases they can be divided into "younger-old" (i.e., 65-79) and "old-old" (i.e., 80+). Sometimes the category of oldest-old (85 and over) is also used (Moody and Sasser 2012; Newbold 2018).

[2] This indicator is the ratio between the number of persons aged 65 and over (the age when they are generally economically inactive) and the number of persons between age 15 and 64. The value is expressed per 100 persons of working age (EUROSTAT 2018).

physical and mental decline. It could mean a growing number of frails, chronically ill older adults. These changes in the population have implications for both individuals and societies, and especially for welfare states. At the individual level, the main challenge is coping with an aging body. Of great importance is also maintaining a valued place in society, whereas older people are often stereotyped as marginals. At the society level, this leads to the necessity of rationing heath care and, at the same time, providing long-term care to older people in need (Moody and Sasser 2012; Guerin et al. 2015).

Another challenge that Europe (and the developed world) faces nowadays is the aging of the migrant population. Between 2010 and 2015, migrant people over 55 years of age increased by 50% in countries like Finland, Luxemburg and Portugal; in Denmark, Italy, Greece, Malta, Norway and Spain they increased by 25% over the same period. A strong increase is also recorded among aging people (45-54 years old) in this category (Ciobanu, Fokkema, and Nedelcu 2017). But what is meant by the term "migrant"? The European Commission has defined it as:

"A broader-term of an immigrant and emigrant that refers to a person who leaves from one country or region to settle in another, often in search of a better life." (EUIP 2017) UNESCO, instead, started its definition of migrant this way:

"The term migrant can be understood as *any person who lives temporarily or permanently in a country where he or she was not born, and has acquired some significant social ties to this country.* However, this may be a too narrow definition when considering that, according to some states' policies, a person can be considered as a migrant even when s/he is born in the country." (UNESCO 2017)

In this study, migrant is intended as a person who was born in a country other than the one where he or she is aging; in other words, a person who lives and grows old in a host country (close to UNESCO's definition). In this sense, I will use "migrant" and "non-native" as synonyms.

Nowadays, aging migrants in Europe are mainly young adults who arrived after 1945. These migrants were directed to the countries of North-West Europe and were mainly labour migrants. This mass migration lasted the first thirty years after 1945. Such migrants were generally expected to return to their countries of origin. However, a high proportion of them chose to stay and become permanent or semi-permanent residents (White 2007). From that decade onwards, for reasons connected to both economic opportunities and weakly-developed legal and political systems for dealing with migration, the migration flow moved to southern Europe destinations such as Italy and Spain (White 2007). Many of these migrants are baby boomers and are now aging in these countries. The issue of aging migrants

is no longer a concern exclusive to Nordic countries but is now a problem concerning all of Europe. Furthermore, although the post-2008 global economic and financial crisis briefly abated the flow of international immigration, especially authorized labour immigration, it did not cause it to deviate significantly from its post-1960s expansionary trajectory[3] (Messina 2017). In these circumstances, it is reasonable to hypothesise that the aging process of the migrant population will increase in intensity in the near future in many countries and for many groups of earlier migrants.

The dynamics of these major demographic and population processes (aging and migration) have become topics of considerable concern for researchers and policies makers (Turchin 2003; Stough et al. 2018). Older people and migrants are seen in many policy documents, scientific studies and mass media as disadvantaged with respect to health and well-being, and the ability of coping with an aging body (e.g., Ylänne, Williams, and Wadleigh 2009; Solé-Auró and Crimmins 2008; Lanari, Bussini, and Minelli 2014). However, among all older people, some are able to remain in good health until very advantaged ages. One reason of this is social capital (SC), which has the ability to "breed" well-being an health in many ways (Berkman et al. 2000). But what about migrants? there are differences between native and non-native population? According with the convoy model (Kahn and Antonucci 1980), older people have a more solid social support on which to count, compared to younger ones, because of the greater potential of knowing his/her network members, given by the experience. Moreover, this model underlines how if an old person experiences some specific life circumstances, they could prevent him or her from maintaining the core network. In this case, the protective aspect of network and SC will be unavailable, and the subject might result physically and psychologically at risk. In other words, characteristics of the individual and characteristics of the environment interplay, resulting in potential changes in the SN with subsequent consequences for health and well-being. In this sense, migrants older people experience very particular individual and environmental characteristics during the life course, that can undermine their ability to maintain a solid support network and take advantage from their SC. This represent a very salient difference between native and non-native population, and it can highly negatively affect their health and well-being.

This research fits into this research problem and has the main purpose of increasing knowledge in these fields. In particular, this study aims to shows the relationship between two forms of SC, bonding and bridging, and health and well-being; important aspects when we refer to the aging and older population. The focus will be on the migrant older and aging

[3] Nowadays migrations are also caused by climate change (Feng, Partridge, and Rembert 2018) and wars.

population (50+) in Europe. I choose to also consider people between 50 and 64 years old, because, as I underlined, they represent a very large cohort and will be the older people of tomorrow. Studying this population is very important to prepared for the moment when baby boomers will be of retirement age.

This study aims to fill two important gaps in the literature: knowledge about the migrant aging population, and comparisons among countries and regions in Europe. The SC approach is widely used in social inclusion studies of the general and older population. However, studies on migrant older people are rarely conducted using such an approach. Many studies are conducted at a national or regional level (e.g., Zunzunegui et al. 2003; Litwin 2011; Wu et al. 2016) rather than at the European level. Furthermore, SC is not a defined concept and the operationalization of it is not standard in sociology. These characteristics make it difficult to compare different studies and to have a global view of the phenomenon in Europe.

In order to carry out this research and fill the above gaps, I used European data on aging and older people. In particular, I analysed wave 6 of SHARE (Survey of Health Ageing and Retirement in Europe) data, collected in 17 European countries and Israel among the population aged 50 and older. These data allow me to compare the native and migrant population and underline the link between SC, health and well-being among this population in Europe. In particular, the main research questions I will attempt to answer are:

1a. Analyse SC of older people (50 and over) in Europe

1b. Are there significant differences between the native and non-native population?

2a. What kind of SC (*bonding* or *bridging*) is associated with better physical health among older or aging people?

2a.1. Are there significant differences between the native and non-native population?

2b. What kind of SC is associated with better mental health among older or aging people?

2b.1. Are there significant differences between the native and non-native population?

2c. What kind of SC is associated with better well-being among older or aging people?

2c.1. Are there significant differences between the native and non-native population?

3. What is the role of macro aspects (e.g., policies about migrant integration or social protection of older people) in these associations?

Findings show that those who make up the aging and older population in Europe have social networks composed of, on average, more than two contacts; and the majority of them are members of the family. Furthermore, they are very satisfied with their networks. Participation is rather low, with the exclusion of participation in clubs and other sport organizations. Finally, these aging and older people are more often care givers than people who need support. There are some slight differences among natives and non-natives, almost always in favour of migrants coming from "poor" or developing countries. These results are in line with the "migrant selectivity theory". In general, bridging SC is positive for the health and well-being of older people in Europe. Bonding SC, instead, is, in some of part, negative for health. These results confirm the existence of a "dark side" of SC. Finally, macro aspects do shape the relationship between SC, (mental and physical) health, and well-being. Macro aspects result as very important to taken into account, especially when considering older migrants: a favourable environment is essential for them to make full use of the positive aspect of bridging SC.

Outline

In the first chapter I present my theoretical framework: the SC approach. Firstly, I introduce the concept and the main authors who talk about SC: Bourdieu, Coleman, Putnam, Burt and Lin. Secondly, I present some theories linking SC, health and well-being. In particular, I talk about the two main approaches: the social network and social cohesion approaches; and I report the principal mechanisms by which SC affects health and well-being. Thirdly, I illustrate how the SC approach is applied to the study of migrants, stressing the importance of the distinction between bonding and bridging SC; and some theories about their health and well-being. Furthermore, I illustrate the convoy model, in relation with the study of older adults. Before concluding, I briefly talk about the "dark sides" of SC, i.e., possible externalities produced by SC; and about critical points and open issues of the concept. I conclude by exposing my individual SC approach and an attempt to formulate a theoretical framework linking all the topics of this research: aging, SC, migration, health and well-being.

In the second chapter I perform a literature review of the research on the relevant topics of my research, with a focus on European studies. Firstly, I present studies on the relationship between SC, health and well-being, among the general population (with a focus on older people). In particular, I report studies that distinguish between cognitive and structural SC; bonding, bridging and linking SC; or individual and collective SC (and their effects on health and well-being). I, then, report evidence from studies measuring SC through single components (SN variables, social support and social participation). Furthermore, I present studies underlining the importance of socio-economic and demographic aspects in the association between SC and health, and the importance of the context. I conclude with two open issues that emerge from these studies: the use of the variable "trust" and the possibility of a reverse causation between health and SC. Secondly, I report studies with a focus on the migrant population. I introduce evidence about two theories regarding the health and well-being of this population: the healthy migrant effect and the immigrant health paradox. I then report on other literature that underlines the worse health condition of migrant population. Furthermore, I summarize studies reporting a decline in SC during migration. I conclude this paragraph by reporting studies on the relationship between SC and health among the migrant population, stressing the importance of distinguishing between bonding and bridging SC. I conclude the chapter, summarizing the findings and underlining the limits that emerge from this literature review. Finally, I briefly introduce my study's contribution to the literature to overcoming the identified limits.

The third chapter illustrates the methods: aims, data, population, variables and techniques. In the last three chapters I present the results. In the first one (chapter 4) I report bivariate analyses and tests of significance in order to reply to the first question: is the SC of older migrants different from the SC of older natives? In the second chapter (chapter 5), I report the regressions needed to fulfil aim 2: which characteristics of SC are positively associated with health and well-being? are there significant differences between natives and non-natives? Finally, in the third chapter (chapter 6), I report the regressions needed to answer question 3: what is the role of context in these associations?

I conclude with some discussions and remarks about my results (chapter 7), drawing on theory and the existing literature. I explore possible implications for policies, and suggest possible pathways for future research.

1 Theoretical Framework: The Social Capital Approach

The aim of this chapter it is to summarize the theory of SC, which is necessary to comprehend the approach of this work. In the first part I begin with a general introduction of the concept of SC. After, I explain the theories and definitions of the main authors, experts on this topic. I start with the three recognized founders of the SC theory: Pierre Bourdieu, James Coleman and Robert Putnam. In particular, Bourdieu conceptualized three forms of capital and focused on the dynamics of power. Coleman attempted to find the balance between an individualistic and a socialized individual. Putnam dealt with the problem of cooperation, and introduced a fundamental distinction for my research: bonding and bridging SC. To them, I add two more recent authors: Ronald Burt and Nan Lin. Burt, with Granovetter, introduced and expanded the argument of weak ties and bridging ties. Drawing on their theory, Lin explored the issues of action, resources and social structure, and introduced, among other things, the distinction between individual and collective SC. Not all of these theorizations are developed and implemented in my theoretical framework and research. However, this theoretical framework is essential for introducing and understanding SC theory. Furthermore, I'm aware that these are not the only authors talking about SC or the capital concept in general[4], but I decide to focus on them because of their importance for the development of the concept in sociology and in other social sciences.

In the next part I focus on SC as it relates to the three important topics of this research: health, the migrant population, and older people. In the health paragraph, I introduce the two main approaches linking SC with health (and well-being): the social network and the social cohesion approach. I continue with the mechanisms identified for explaining the link between SC and health. In the "migrant" paragraph, I introduce the concept of community, which is related to the distinction between bonding and bridging SC; and the theories about migration and health: "healthy migrant effect" and "immigrant health paradox". I then talk about older people, introducing the convoy model.

Finally, I present a consideration of the negative effects and open issues of SC. I conclude with a presentation of the approach used in this research and an attempt to produce a theoretical framework linking all of my topics of interest: older people, the migrant

[4] For example, Karl Marx was the one to introduce the concept of capital; but, for the sake of brevity, I decided to avoid this introduction. Another example is Mark Granovetter, who I briefly discuss in the paragraph on Burt. I make this choice because Burt's theory recalls Granovetter and somehow goes beyond his theory. Finally, I excluded many others, especially recent authors (Portes 1998; Dasgupta 2000; Fukuyama 2000; Van der Gaag and Snijder 2004).

population, SC, and health and well-being. To the best of my knowledge the following are the theories necessary for my research.

1.1 What Is Social Capital?

This project takes part in different fields of study: social capital, aging, migration, health and well-being. The first mention of the term SC seems to have been in L. J. Hanifan's *The Community Center*, published in Boston in 1920 (Baron, Field, and Schuller 2000). Later, the concept was formulated by sociologists (Bourdieu 1986; Coleman 1990), and has since been adopted mostly in economic (Dasgupta 2000) and political science (Putnam 2000) theory and research (Svenden and Svenden 2009).

SC is simultaneously an economic, sociological and political concept. It is a wide notion difficult to operationalize and define. In general, it is possible to define SC as a concept representing relationships among individuals with some kind of meaning, which enable individuals or a group to pursue goals more effectively than would otherwise be possible. It cannot be reduced to the attribute of an individual. It is an abstract property of relationships and is multidimensional (Szreter 2000): there is not one single dimension to describe and define it.

The introduction of the SC concept into social science has had some merits (Schuller, Baron, and Field 2000): it shifts the focus of analysis from the behaviour of individual agents to the pattern of relations between agents, social units and institutions and acts as a link between micro-, meso-, and macro-levels of analysis. Furthermore, it has the advantage of being a multi-disciplinary and interdisciplinary concept and possesses heuristic qualities. SC brings a fresh perspective to the issue of the nature of the social order by redirecting attention to three important questions: sociality, sociability and social embeddedness (D. Castiglione 2008). The SC research programme was built upon a general dissatisfaction with the traditional view of sociality. Sociologists have consistently tried to show that it is a mistake to theorize, for example, job seeking simply in terms of the rational choices of optimizing individuals (Portes 1998; Fevre 2000). SC literature is part of a more general trend in social theory that wishes to modify the selfish paradigm by placing it into a more socialized context. Economic and social science begin to see network cooperation as profitable. Economists underline how such profit occurs when single actors provide each other with valuable information and services. Rational action is not the only motivating force in complex social systems (Svenden and Svenden 2009). Sociability describes the association-based view of SC: the impulse to enter into close relation or association with others. It underlines the pleasure individuals find in being part of associations, widening social horizons and solidarities

regardless of the more instrumental purpose of the association itself. Finally, social embeddedness is about the importance of group membership, and other more instrumental advantages that come from being connected to a network.

1.1.1 Pierre Bourdieu and the Reproduction of the Dominant Class

The first important author who talked about the concept of SC in sociology was Pierre Bourdieu. This author's doctrine gave a large contribution to sociology. To understand his work on SC, it is necessary to present a brief overview of his general theory. Bourdieu's main interest lies in the ways in which society is reproduced, and how the dominant classes keep their position. In other words, he is concerned with the dynamics of power in society. Bourdieu's work emphasized structural constraints and unequal access to institutional resources based on class, gender, and race. For the author, all these social and structural phenomena could not be explained by economics alone, and he underlined the importance of cultural capital – the ways in which people use cultural knowledge to undergird their place in the hierarchy (Bourdieu 1984; Gauntlett 2011). He studied the nature of culture, how it is reproduced and transformed, and how it connects to social stratification and the reproduction and exercise of power. His use of the term "capital" to indicate cultural properties signals the intention to address differential resources of power (Schuller, Baron, and Field 2000). "Capital is accumulated labor which, when appropriated on a private, i.e., exclusive, basis by agents or group of agents, enables them to appropriate social energy in the form of reified or living labor" (Bourdieu 1997, p.46). Economic, cultural, and social capital are the three main ways in which resources can be accumulated: both material and symbolic resources that individuals and groups use to reproduce the conditions in which they live and the relationships of power characterizing society (Bourdieu 1986; Dario Castiglione, Van Deth, and Wolleb 2008).

Bourdieu defines SC as:

"the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital, a 'credential' which entitles them to credit, in the various senses of the word. These relationships may exist only in the practical state, in material and/or symbolic exchanges which help to maintain them" (Bourdieu 1986, p.248).

SC depends on the magnitude of one's connections and on the volume or amount of capital in these connections' possession. It is a collective asset shared by members of a

defined group, with clear boundaries, obligations of exchange, and mutual recognition. On the other hand, for the author, SC is not uniformly available to members of a group or collective; rather it is available to those who make efforts to acquire it by achieving positions of power and status and by developing goodwill. SC enables a person to exert power on the group or individual who mobilises the resources (Bourdieu 1986). For Bourdieu this capital is irreducibly attached to class and other forms of stratification which, in turn, are associated with various forms of benefit or advancement. Bourdieu's SC does not include collective property attributes, which Bourdieu instead calls cultural capital. SC, indeed, is not reducible to economic or cultural capital, nor is it independent of them, acting as a multiplier for the other two forms, while being created and maintained by the conversion of economic and cultural capital in the unceasing effort of sociability (Bourdieu 1997; Schuller, Baron, and Field 2000). SC is a mere disguise for economic capital (Lin 2001).

According to the author, some goods can only be obtained by virtue of SC, at the cost of investment in sociability which is necessarily long-term. 'In contrast to the cynical but also economical transparency of economic exchange, in which equivalents change hands in the same instant, the essential ambiguity of social exchange, which presupposes misrecognition, in other words, a form of faith and of bad faith, presupposes a much subtler economy of time" (Bourdieu 1997, p.54). The different types of capital can be channelled into economic capital, but only at the cost of transformation, which is needed to produce the type of power effective in the field in question. The way in which this transference happens is socially and historically determined, and so too is the way in which the symbolic qualities of cultural and social capital can be converted into the more material qualities of economic capital. Such conversion is ultimately what Bourdieu considers the basis of social reproduction and successful power transference (Bourdieu 1986; Dario Castiglione, Van Deth, and Wolleb 2008). In other words, both social and cultural capital are, ultimately, economic capital; because all three forms of capital increase the power and economic advantage of the individual.

1.1.1.1 Critiques and Discussion

Some criticism of Bourdieu's theory has been advanced. Bourdieu used SC to explain social inequality. His vision reflects the saying, "it's not what you know, it's who you know". This approach, however, focuses only on the middle and upper classes making sure that their spheres remain exclusive (Gauntlett 2011). He intended SC as another tool in the armoury of the elite, deployed to ensure that the "wrong" kind of people do not enter their circles (Bourdieu 1986). Most models of SC picture it as a force binding groups together in a way

that is basically positive for the people concerned; the "dark side" of SC is revealed when we judge that the group in question may have malevolent intentions towards other people. SC is seen as just a nasty exclusionary device – although its users would see it as neutral and rational (Gauntlett 2011). The Bourdieu approach is an important reminder that SC can be exclusionary. Bourdieu likes to talk about people actively "playing the game", but ultimately sees them as pretty powerless (Gauntlett 2007). Bourdieu tends to assign so much power to the social context that his universe "ultimately remains one in which things happen to people, rather than a world in which they can intervene in their individual and collective destinies" (Jenkins 2002, p.91). Bourdieu's version of SC offers an explanation of the ways in which those at the top of social hierarchies can hold onto their position through a range of subtle techniques which cumulatively form an iron grip (Gauntlett 2011).

1.1.2 James Coleman and the Theory of Social Action

Another important author writing at the beginning of SC's theorization is James Coleman. He was a contemporary of Bourdieu. However, the two authors had a rather different vision of the concept. In order to identify Coleman's view of SC, we first need to describe his theory of social action. The author identified two approaches in the description and explanation of social action. One, characteristic of most sociologists, sees the actor as socialized and action as governed by social norms, rules, and obligations. The principal virtues of this intellectual stream lie in its ability to describe action as being embedded in a social context and to explain the way action is shaped, constrained, and redirected by that context. The other, characteristic of the work of most economists, sees the actor as having self-interested goals and as acting independently. Its principal virtue lies in having a principle of action, that of maximizing utility. This approach is connected to the extensive growth of neoclassical economic theory. Coleman placed himself in the middle of this debate and underlined how the problem with the first vision was that if the actor is a product of their environment, then they have no "internal springs of action", no individual drive or purpose (Gauntlett 2011). But, at the same time, he stressed how "[t]he economic stream […] flies in the face of empirical reality: persons' actions are shaped, redirected, constrained by the social context; norms, interpersonal trust, social networks, and social organization are important in the functioning not only of the society but also of the economy" (Coleman 1988, p.96). Coleman picked components from both of these approaches. He accepted the principle of rational or purposive action and attempted to show how that principle, in conjunction with particular social contexts, can account for the actions of individuals in particular context and for the development of social organization (Coleman 1988). He sought to combine the insights of

sociology and economic theory, seeing SC as a way of making sense of the overly rational and individualistic models of traditional economics. He proposed a model in which SC is one of the potential resources an actor can use, alongside other resources such as their own skills and expertise (human capital), tools (physical capital), or money (economic capital) (Gauntlett 2011).

Coleman underlined how SC resides in the connections between people and gave some definitions of the concept.

"Social capital is defined by its functions. It is not a single entity, but a variety of different entities having two characteristics: they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure" (Coleman 1990, p.302). "Social capital […] is created when the relations among persons change in ways that facilitate actions" (Coleman 1990, p.304).

It facilitates productive activities, just as physical and human capital do. "The function identified by the concept 'social capital' is the value of those aspects of social structure to actors, as resources that can be used by the actors to realize their interests" (Coleman 1990, p.305).

Quoting Coleman (1988), Leonard (2004) underlined how the presence of SC encourages certain actions, which facilitate the accomplishment of mutually beneficial ends. Individuals are drawn into social structures characterized by high levels of outstanding obligations and effective sanctions ensure that obligations are adhered to. Coleman's main intention was to provide a framework for his intuition that the social relations characterizing the social structure within which individuals act are also a resource for the individual. SC provides a middle ground between a rational choice perspective, which conceives social actions as the result of self-interested individuals, and a social-norm perspective, which explains social behaviour as being dependent on the exogenous constraints imposed by norms. He took rational action as a starting point but rejected the extreme individualistic premises. SC as a resource for action is one way to introduce social structure into the rational action paradigm; to reconcile individual action and social structure, normative-driven and self-interested behaviour in social analysis (Coleman 1988, 1990; Dario Castiglione, Van Deth, and Wolleb 2008). Coleman inserted himself into a neo-functionalist theoretical framework (Schuller, Baron, and Field 2000). As stated earlier, the concept of SC identifies certain aspects of social structure by their functions, "just as the concept of chair identifies certain physical objects by their functions" (Coleman 1988, p. S101), despite differences in form appearance and construction. Like other forms of capital, SC makes possible the achievement of certain goals that in its absence would not be possible. Unlike other forms

of capital, SC inheres in the structure of relations between actors and among actors. It does not resided in the actors (Coleman 1988). It constitutes both an aid in accounting for different outcomes at the level of individuals actors and an aid in making the micro-to-macro transitions. An important aspect of Coleman's theory is how SC creates human capital in the next generation (Coleman 1988). This human capital, such as a secure sense of self-identity, confidence in expressing one's own opinions, and emotional intelligence, enables young people to become better learners, and so to be more successful in school and society. Human capital emerges out of SC, because this kind of development depends upon relationships, most obviously within the family (or other support network). In other words, the human capital of the parents will be of no use to the sons unless the parents communicate properly with them (Gauntlett 2011).

For Coleman, SC consists of two elements: it is an aspect of the social structure and facilitates the actions of individuals within the structure. As expressed in the first definition, like other forms of capital, SC is productive, making possible the achievement of certain ends that would not be attainable in its absence. Furthermore, SC is not completely fungible, but is fungible with respect to specific activities. A given form of SC that is valuable in facilitating certain actions may be useless or even harmful for others (e.g., social control in a neighbourhood could be useful in order to avoid robberies and other deviant behaviour, but, at the same time, it could be damaging to the outsider intent to approach the group). For this reason, SC is not usable in the same way across individuals or activities. SC represents the resources, real or potential, gained from relationships (Coleman 1990; Lin 2001). Furthermore, the author identifies three components of SC: obligations, expectations and trustworthiness of structures; information channels; and norms and effective sanctions. These components characterize the social relations that can constitute useful capital resources for individuals. Firstly, obligations, expectations and trustworthiness of structures are synthetized by the author in this example: "if A does something for B and trusts B to reciprocate in the future, this establishes an expectation in A and an obligation on the part of B. this obligation can be conceived as a credit slip held by A for performance by B." (Coleman 1988, p.S102). This form of SC depends on the trustworthiness of the social environment, meaning that obligations will be repaired, and the extent of obligations upheld. The density of obligations means that the overall usefulness of the resources of that social structure is amplified by their availability to the others when needed. An example is a loan between friends or neighbours, without any formal contract. Secondly, there is a great potential for the acquisition of information (e.g., an opportunity for a new job) that inheres in social relations. Information is important in providing a basis for action, but acquiring it

is costly. One means by which information can be acquired is through the use of social relations that are maintained for other purposes (Coleman 1988).

Regarding norms and sanctions, the author refers to the "exchange theory[5]"(Coleman 1987; Cook and Whitmeyer 1992); a conceptualization of social interactions as an exchange between parties, with the interaction continuing if the exchange is profitable for both. Social exchange often occurs not in isolated two-person transactions but within a context of systems of exchange, where there is competition for scarce resources (Coleman 1990). The result is a socially efficient outcome, in the sense that the level and direction of action is governed by all its consequences, where social norms can allow the actor affected by externalities to gain partial control of the action. If those norms fail to come into existence, the level and direction of action are governed only by the interests of the actor and the outcome is not socially efficient, because some of its consequences play no part in governing it. The social system then comes to consist of individual solutions to individual problems, with all suffering at the hands of the others, as each carries out his actions unconstrained by the consequences for the others. It is in this sense that social norms constitute SC. The system is not a Hobbesian "war of all against all" but more a system of "each for himself', with each imposing external diseconomies upon the others (Coleman 1987). In this sense, norms constitute a form of SC. An important norm is that the individual should forgo self-interest and act in the interests of the collectivity. In some cases, norms are internalized; in others, they are supported through external rewards for selfless actions and disapproval for selfish actions. Norms of this sort are important for overcoming the public goods problem that exists in collectivities. This form of SC may facilitate some forms of actions but may also constrain others (e.g., norms about youth behaviours in a community could prevent them from having a good time) (Coleman 1988).

Furthermore, Coleman recognizes two types of social structures that generally facilitate the creation and maintenance of SC: social networks and social organizations (voluntarism, civic organizations, political organizations) (Coleman 1988; Maloney, Smith, and Stoker 2000). All social relations and social structures facilitate SC; actors establish relations with a purpose and continue them when they continue to provide benefits. However, some social structures are especially important in facilitating the creation of some forms of this capital. Among these structures, networks with high closure – networks in which everyone is connected – are the main source of SC. Access to and flow of information is easier. The facilitation of sanctions makes it less risky for people in the network to trust

[5] This theory was formulated drawing on George Homans' theory and the publication of "Social Behaviour and Exchange" in 1985

one another. More reliable communication channels protect ego from exploitation: he and his contacts are more able to act in concert against someone who violates their norms of conduct (Lin 2001a). Lack of closure of social structure, for example, may impede the emerging of norms. Norms arise as an attempt to limit negative external effects (e.g., impossibility for two actors not related to each other to defend themselves from a third actor) or encourage positive ones. They allow for the emergence of effective sanctions that can monitor and guide behaviour. In a social structure incompletely interconnected (not all actors know each other) not all actors can be sanctioned in the same way. Closure is also important for trustworthiness, which allows for the proliferation of obligations and expectations. Reputation cannot arise in an open structure, and collective sanctions that would ensure trustworthiness cannot be applied (Maloney, Smith, and Stoker 2000). Lin stresses how Coleman's view of SC focuses on the risks associated with being a broker (Coleman 1988; Lin 2001a). Another important social structure is the social organization (e.g., voluntary organization). Organization and closure work together through multiplex relation. In multiplex relation people are related in more than one context (neighbour, coreligionist, etc.). The central property of this relation is that it allows the resources of one relationship to be appropriated for use in others.

In conclusion, SC is not necessarily owned by the individual but instead arises as a resource that is available to them. An example is a neighbourhood where you can trust that people will look out for your children. An individual has access to a form of SC, which other people in other neighbourhoods do not. This is not a resource that this person could sell or give to his friends. SC is a resource based on trust and shared values, and develops from the weaving-together of people in communities (Gauntlett 2011). In other words, SC is more similar to a public good than a private good. The social structure that makes possible norms and sanctions does not benefit primarily the person whose efforts are necessary to bring them about but benefits all those who are part of such a structure. The trustworthiness of an actor will facilitate others' actions whereas his lack of it will inhibit others' actions, but this does not enter into his decision. Finally, an individual that acquires information for his own benefit could be a precious informant for another individual. SC as a public good is an important resource for individuals, and may affects their ability to act and their perceived quality of life. The last quality of SC is that most forms of it are created or destroyed as by-products of other activities. It arises or disappears without anyone's willing it (Coleman 1988).

1.1.2.1 Critiques and Discussion

However, some later theorists of SC have criticized in part the perspective of this author. Lin, among the first, underlined how this "functional" view of SC may be a tautology: SC is identified when and if it works. It represents a vision of SC as indistinguishable from its outcome. The causal factor is simply defined by the effect (e.g., kin ties are SC for X, because they help him, but not for Y because kin ties do not help him) (Lin 2001). Coleman has also been criticized by network analysts because of his view of SC as a collective good. Network analysts, instead, intended SC as a purely utilitarian concept; thus elements that are difficult to operationalize and measure have to be avoided. According to them, all the confusion could be avoided if the research programme were to focus on an egocentric network approach (Lin 2001a; Adam and Roncevic 2003). Gauntlett (2011) talked extensively about the limits of Coleman's theory. According to this author, Coleman's approach leads to a broader view of SC, wherein it is not only seen as stock held by powerful elites, as it is for Bourdieu, but it is noted for its value for all kinds of communities, including the powerless and marginalised. SC, then, in any context, relies on people looking beyond themselves and engaging in supportive or helpful actions, not because they expect a reward or immediate reciprocal help, but because they believe it's the good thing to do. However, Coleman continued to underline the individualistic character of the individual of the rational choice theory. It is in this way that he contradicted himself, somehow; he identified a paradox of altruism and individualism as two specific characteristics of a person. Coleman could not quite square sociality with the rational action that his theory assumes:

"[SC] is an important resource for individuals and may affect greatly their ability to act and their perceived quality of life. They have the capability of bringing it into being. Yet, because the benefits of actions that bring social capital into being are largely experienced by persons other than the actor, it is often not in his interest to bring it into being" (Coleman 1988, p.118).

One possibility, identified by Gauntlett (2011), was that he could overcome this problem by suggesting that when people are altruistic, they might still be carrying the hope that if they give support to others they contribute to a general culture of community helpfulness and support, which might "pay off" one day when they themselves need a hand. But actually, Coleman got around the apparent "irrationality" of altruistic behaviour by saying that SC arises as a "by-product" of other activities. This particular assertion seems to be an unnecessary return to the individualism of economics from which he sought to escape. Gauntlett (2011) argued that many people engage in supportive activities, helping colleagues or neighbours, because they are "knowing actors", aware of the values of community and

mutual support, and wanting to make that a part of their lives. They also may also simply be happy to do nice things for people who they like (Gauntlett 2011). Coleman never recognized this possibility. Finally, unlike Bourdieu's pessimistic description of the eternal self-reproduction of elites, Coleman highlighted the usefulness of SC as part of a potential solution for marginalised learners, and its importance in parenting for people of any social class. Less helpfully, he did not seem willing to entirely follow through on his own observations about the limitations of rational, individualistic economic theory – as seen in the rather robotic "does not compute" refusal to understand why someone might be helpful to someone else without any obvious reward (Gauntlett 2011).

1.1.3 Robert Putnam and Other Authors Dealing with the Problem of Cooperation

A more recent theorist, subsequent to Coleman and Bourdieu, and more involved in empiric work, is Robert Putnam. He became famous thanks to his two empirical works on Italian and American society (Putnam 1993, 2000). However, he also produced a large theoretical apparatus on SC. To introduce Putnam's concept of SC, it is necessary to start with how he deals with the problem of cooperation and collective life (Putnam 1993). The economic and political performances of societies depend on how the members of a community solve the problem of collective action. Theories of collective action concern settings in which there are groups of individuals, common interest among them, and potential conflict between the common interest and each individual's interest (e.g., Prisoner's Dilemma) (Ostrom and Ahn 2009). In a collective situation every party would benefit if they could cooperate. However, in the absence of a credible mutual commitment, everyone has an incentive to defect and become a "free rider"; and each actor expects the other to defect. Even if neither part wishes harm to the other, and even if both are conditionally predisposed to cooperate, credible sanctions against defection are absent. In this situation, each part finds cooperation irrational, and all end up with an outcome no one wants. One solution could be the Hobbesian Leviathan third-party enforcement, where if both parties concede to the Leviathan the power to enforce comity between them, their reward is the mutual confidence necessary to civic life (Putnam 1993). However, the basic problem is that impartial enforcement is itself a public good, subject to the same basic dilemma of collective life that it aims to solve: the third-party itself must be trustworthy; and coercive enforcement is expensive. In the language of game theory, it is not a "stable equilibrium", i.e., a situation in which no player has an incentive to alter his behaviour. Game theorists generally agree that cooperation should be easier when players engage in indefinitely repeated games, so that a defector faces punishment in

successive rounds. Both accurate information (monitoring) and reliable enforcement (sanctions) are essential. Overcoming dilemmas of collective action depends on the broader social context, and a spontaneous cooperation is facilitated by SC[6].

Putnam describes SC as referring "to features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions" (Putnam 1993, p.167). However, SC is itself a public good and like all public goods, it tends to be undervalued and undersupplied by private agents. According to the author, trust is the lubricant of cooperation; it entails a prediction about the behaviour of an independent actor. Social trust can arise from norms of reciprocity and networks of civic engagement. Social networks are the ones that allow trust to become transitive and spread: I trust you, because I trust her, and she assures me that she trusts you. Norms, instead, lower transaction costs and facilitate cooperation. Rules are the result of human beings' effort to establish order and increase the predictability of social outcomes (Ostrom and Ahn 2009). The most important of these norms is reciprocity. Reciprocity can be defined as an internalized personal moral norm as well as a pattern of social exchange. Generalized reciprocity refers to a continuing relationship of exchange that is at any given time unrequited or imbalanced, but that involves mutual expectations that a benefit granted now should be repaid in the future. It serves to reconcile self-interest and solidarity. An effective norm of generalized reciprocity is likely to be associated with a dense network of social exchange. The norm of generalized reciprocity is a highly productive component of SC. Communities in which this norm is followed can more efficiently restrain opportunism and resolve problems of collective action. Balanced reciprocity, instead, "refers to a simultaneous exchange of items of equivalent value, as when office-mates exchange holiday gifts" (Putnam 1993, p.172).

Furthermore, Putnam stressed how every society is characterized by networks of interpersonal communication and exchange, both formal and informal; and introduced the distinction between "horizontal" and "vertical" networks. "Horizontal" networks bring together agents of equivalent status and power whilst other networks are primarily "vertical", linking unequal agents in asymmetric relations of hierarchy and dependence. Networks of civic engagement, like the neighbourhood association, represent intense horizontal interactions and are an essential form of SC. They increase the potential costs to a defector in any individual transaction; foster robust norms of reciprocity; facilitate communication

[6] Herreros talked about the state as a third-party enforcer of private agreements. However, the role of the state is open to an important criticism: acting as a third-party enforcer of private agreements the state does not promote trust, but cooperation; it makes trust redundant. Nevertheless, by forcing private agreements, the state can at least create an environment where trust can grow (Herreros 2009).

and improve the flow of information about the trustworthiness of individuals; and embody past success at collaboration, which can serve as a culturally-defined template for future collaboration. In conclusion, stocks of SC, such as trust, norms, and networks, tend to be self-reinforcing and cumulative. They increase with use and decrease with disuse. Virtuous circles are produced, resulting in social equilibria with high levels of cooperation, trust, reciprocity, civic engagement, and collective well-being (Putnam 1993).

Ahn and Ostrom's (2008) doctrine is close to that of Putnam and to his problem of collective action. They identified two different approaches to SC. The first is from a more traditional neoclassical economics viewpoint: SC is a term used to refer to the cooperation-enhancing effects of repeated interaction and networks. The other (the one on which the authors focus their attention) is an approach from the perspective of second-generation theories of collective action[7], according to which SC is a useful framework that presents an understanding of how cooperation is achieved in societies. Second-generation collective-action theories acknowledge the existence of multiple types of individuals. In other words, these theories admit the existence of individuals other than completely selfish and rational ones, with heterogeneous preferences. The SC approach cannot be framed totally in the first-generation collective-action theories, but needs those implications of the second-generation approach (Ostrom and Ahn 2009). As underlined by Putnam, trustworthiness, networks, and norms are the three basic forms of SC (Ahn and Ostrom 2008; Ostrom and Ahn 2009). The various forms of SC contribute to successful collective action by enhancing trust among the actors, which is the core link between SC and collective action. However, according to Ahn and Ostrom, trust itself is not a form of SC but an outcome. It allows the trustor to take an action involving risks: the trustor knows the incentive structure the trustee faces given the repetitive nature of the interaction, the existence of other network members who observe the trustee's behaviour, and the rules or laws that punish or reward the trustee. Dasgupta observed that "trust and reputation for trustworthiness are rather like knowledge; they are valuable both intrinsically and instrumentally" (Dasgupta 2000, p.334). Trust represents the expectation arsing within a community based on commonly shared norms. These communities do not require contractual or legal regulation of their relationships because prior moral consensus provides a basis for mutual trust (Fukuyama 1995). Moreover, networks allow for norms and information flow. Key assumptions are that actors and actions

[7] First generation collective-action theories (Olson 1965) concluded that individuals could not achieve joint benefits when left by themselves if they were in a situation where everyone would benefit whether or not they contributed to the effort. It was based on the universal selfishness assumption. Game theory, belonging to the second generation, instead, introduced the concept wherein if the trust situation is repeated, or embedded in a social network composed of potential future partners of transaction, cooperation is possible (Ahn and Ostrom 2008).

are to be viewed as interdependent rather than dependent, and that the relational ties between actors are channels for the transfer and flow of material and non-material resources. Relational data cannot be reduced to the properties of the individual agents themselves (Scott 1997), nor can trust. Other authors talk about trust and networks as two essential components of SC (Schuller, Baron, and Field 2000). Other terms, such norms or obligations, are mentioned almost as frequently by SC theorists (Dasgupta 2000).

Another concept introduced by Putnam is the distinction between bonding and bridging SC. This distinction was first developed by Putnam in his study about American society (Putnam 2000) from a critical perspective: he tried to acknowledge the exclusion aspect of SC through this conceptualization. He described bonding SC as good for "getting by" (exclusive) and bridging as essential for "getting ahead" (inclusive) (Putnam 2000, p.23). Bonding SC occurs among homogeneous populations; it is mainly parochial and only benefits those with internal access (Leonard 2004). While it can act as an effective resource for specific groups (such as ethnic minority groups), its benefits are limited. The very factors that promote its development, such as tight bonds of trust and solidarity, may ultimately prevent its members from reaching their full potential. They may be held back by family and community demands, and will only become successful if they are able to forge ties with others in the wider society: developing bridging SC. Bonding SC may have "illiberal effects": the inclusion of some members in support networks may depend on the exclusion of others. Strong networks may support immediate needs but, without access to bridging SC, participants miss out on the necessary resources to get ahead. Implicit in Putnam's work is the idea that bridging SC can lead to the acquisition of other forms of capital such as financial and human capital (Leonard 2004).

1.1.3.1 Critiques and Discussion

Putnam has been criticized both theoretically and empirically. At the theoretical level, scholars underline how he accentuates forms of SC based on democratic values and attitudes, whereas, for example, other authors such as Coleman, seek to explain a wider field of action (Maloney, Smith, and Stoker 2000). From political science's point of view, Putnam has been accused of neglecting the role of politics (J. Field 2008). He appears to have an over-socialised view of behaviour that leads him to offer a bottom-up perspective, which neglects the role played by political activities and institutions in the creation and destruction of SC (Maloney, Smith, and Stoker 2000; J. Field 2008). For example, the author does not take into account the possibility that associationism could be a response to poor government performance. Furthermore, from a sociological point of view, Putnam has been criticized because he does

not grant agency to the individual. Because he views SC as generated solely through long-term social and economic processes, there seems to be little scope for human agency in his account (J. Field 2008). Portes and Landolt (1996) criticized Putnam because, in his work in Italy (Putnam 1993), he considered SC as a positive resource and failed to fully acknowledge the possibility that the concept may have only partial benefits. Putnam does not recognize that SC can become a constraint on individuals' actions and choices, and may stem from excluding others from access to resources. However, Putnam (2000) addresses this criticism by introducing the distinction between bonding and bridging SC.

However, some authors (Matthews 1983; Richling 1985; Leonard 2004), also criticized Putnam's definition of this distinction. According to Leonard (2004), Putnam fails to recognize that bridging SC also has exclusionary aspects. Putnam's distinction between bonding and bridging SC does not go far enough in acknowledging the inherently unequal features of both bonding and bridging SC. There are two main problems with Putnam's treatment of bonding and bridging SC. Firstly, according to Putnam, bonding SC is unequal because it excludes those outside of the community, but that, at the local community level, it is inclusive. This conclusion is debatable. Secondly, Putnam implies that making the transition from bonding to bridging SC benefits the community as a whole rather than single individuals within the community. The relationship between bonding and bridging SC is much more complicated that Putnam suggests. Leonard tried to explain his critique in his research in West Belfast (Leonard 2004).

In his formulation of bonding SC, Putnam implicitly takes for granted the positive features of concepts such as altruism and reciprocity. He does not appear to recognize that altruism and reciprocity might present traces of self-interest. In West Belfast (Leonard 2004), for example, males recognized having only performed favours for those they felt would be able to reciprocate at some point in the future. Optimism also pervades Putnam's notion of the transition from bonding to bridging SC. He fails to recognize the inherent inequalities within communities exhibiting bonding SC. To Putnam, such communities are homogeneous. The only problem is their relationship with other communities or networks. However, if such communities are themselves internally unequal, then any transition to bridging SC is likely to produce unequal benefits. Furthermore, the West Belfast example demonstrates how bridging SC benefited individuals rather than communities. The West Belfast example also reveals the role of the state as a crucial player in facilitating or inhibiting the emergence of SC. In general, as stated before, Putnam neglects the role of the state in creating conditions that facilitate the development of SC. Making the transition from

bonding to bridging SC may not necessarily lead to the positive outcomes envisaged by Putnam but rather reinforce existing social, economic and political inequality (Leonard 2004).

At the empirical level, Putnam is criticized mostly by Campbell and colleagues. The authors examined the suitability of Putnam's conceptualization of SC as a tool for studying local community life in England (Campbell, Wood, and Kelly 1999); in particular his notion of a cohesive civic community characterized by a generalized level of trust and identity. The authors underline how Putnam's view is a romanticized one of society in the twenty-first century, which is characterized by high levels of mobility, instability and plurality. Besides, they discovered that civic engagement played an important role in American and Italian communities, but not in England. Finally, they emphasized how, unlike what Putnam theorized, SC is not a homogeneous resource that is equally created, sustained, and accessed by all members of a community. People are embedded in local networks to different degrees and different ways (Campbell 2000).

In conclusion, Putnam's declaration of the "disappearance of civic America" (Putnam 2000) brought him both consensus and fame, and criticism. The main critique during the years has been that his work focuses on official and institutionalised associations and does not present a correct picture of Western society (Maloney, Smith, and Stoker 2000; J. Field 2008). Furthermore, from the methodological point of view, Putnam's work can be criticized for retro-fitting concepts of SC; i.e., use of existing survey questions rather than development of new questions specifically designed to measure SC (J. Field 2008). This could influence his theoretical conclusions, too. Portes stressed how Putnam, and also other authors such as Coleman, does not distinguish between SC and the resources acquired through it (Portes 1998; Paterson 2000). They probably see no point in studying networks without also studying what networks generate. The author, furthermore, showed how Putnam's vision is too celebratory: according to Putnam, SC seems to be the cure for all society's diseases, and he does not recognize the presence of a dark side of SC (Portes 1998). Another criticism he receives along with Coleman is for his tendency to underestimate the power of inequalities in the distribution and access to SC. As emphasized by Portes, these authors do not take into account the possibility of a dark side of SC. Bourdieu, instead, talks about dark side of SC only for disadvantaged groups (J. Field 2008). No one of these authors pays attention to the gender factor and all three produce an ahistorical conceptualization of SC. In particular, Coleman and Putnam consider the possibility of alterations over time, but not that SC outcomes may change, and bring about the respective consequences (J. Field 2008). Outcomes of SC are always good, regardless of time and context.

1.1.4 Ronald Burt and the Structural Hole Argument

Ronald Burt is a contemporary of Putnam, but his theorization is rather different. Burt's perspective is more individualistic and focused on social networks. He is probably the most prominent author to have made an explicit bridge between networks and SC (Schuller, Baron, and Field 2000). His approach has been defined as "network-based utilitarian", as well as Lin's approach (the last author of this list) (Adam and Roncevic 2003). According to Burt, SC is related to the concept of competition in the social structure (Burt 1992). Actors bring capital to a social situation where there is a competition in order to walks away from these competitive circumstances with some kind of profit. Burt uses the term "player" to indicate social actors, as they "play" the game of competition in every social situation and because they actively manipulate resources (Lin 2001b). SC represents the relationships with other players and it is the final arbiter of competitive success among them. It is about how competition works when players have established relations with the others. Social structure renders competition imperfect by creating entrepreneurial opportunities for certain players and not for others. According to Burt, there are two principal conceptualizations of SC, derivable from the preceding authors (Bourdieu, Coleman, Granovetter …). The first describes a network as your access to people with specific resources. It describes the way resources available to any one person in a population are contingent on the resources available to individuals socially proximate to the person. This idea has circulated as power, prestige, social resources, and SC. A second line of work describes social structures as capital in their own right. In other words, the first approach describes networks as conduits, whereas the second describes how networks are themselves a form of SC. Both are essential: SC is at once the resources contacts hold and the structure of contacts in a network. The first term describes whom you reach; the second how you reach them (Burt 1992). Burt focuses on the second conceptualization.

The most important concept of Burt's theorization of SC is the structural hole (Burt 1992). Burt uses the term structural hole to indicate the separation between nonredundant contacts. Nonredundant contacts are the ties connecting different people, with distinct resources and information. Where cohesion is low, there is a structural hole between players. On the other hand, contacts are redundant if they lead to the same people, and, so, to the same information benefits. Contacts are also redundant if they are connected by a strong relationship (i.e., if there is a strong cohesion). However, the author points out that the likelihood that information will move from one person to another is proportional to the strength of their relationship. In conclusion, individuals involved in a structural hole will have advantages in obtaining new information and resources, but communication and

sharing among them will be slower and more difficult (than among people connected by strong ties).

According to Burt, there are two kinds of benefits derivable from networks: information and control. Information benefits occur in three forms: access, timing and referrals (Burt 1992). Access refers to receiving valuable information and knowing who can use it. Given that there is a limit to the volume of information that anyone can hold and process, the network becomes an important screening device. Beyond making sure that you are informed, personal contacts can make sure you are one of the people who are informed early. Timing is important with information. You can only be in a limited number of places within a limited amount of time. Personal contacts can have your name mentioned at the right time in the right place, so that opportunities are presented to you. Referrals resolve the issue of legitimacy. You are a suspect source of information until someone inside a social structure can speak to your virtues. The network form that generates information benefits also generates control benefits, giving certain players an advantage in negotiating their relationships. Thanks to the control benefits, these players are more likely to secure favourable terms in opportunities they choose to pursue.

The concept of control benefits leads to the tertius gaudens' argument ("the third who benefits"). People deriving control benefits from structural holes are called tertius gaudens. When you take the opportunity to be the tertius, you become an entrepreneur – a person who generates profit by being between others. These players have two strategies for deriving control benefits in a social situation: people can be played against one another when they compete for the same relationship (e.g., when two or more individuals want to buy a good, the seller can play their bids against one another to get a higher price); or people can be played against one another when they make conflicting demands to the same individual in separate relations (e.g., students who strikes her own balance between the simultaneous demands of different professors). Control emerges from the tertius traying to insert itself into this tension and mediating the conflict between the other players. In this situation information is moved between contacts by the tertius. Having access to information means being able to identify where there will be an advantage in bringing contacts together, and is key to understanding the resources and preferences being played against one another. A concept related to the tertius gaudens is structural autonomy. Structural autonomy is a concept defining how much a player's network is rich in structural holes, rich in entrepreneurial opportunity, and rich in network benefits. A player is structurally autonomous when he has numerous structural holes around his contacts, and none attached to himself. Structural autonomy summarizes the action potential of the tertius's network.

In order to obtain higher benefits from a social relationship, network structure is key. Players with well-structured networks obtain higher rates of return in terms of benefits. A large, diverse network is the best guarantee of having a contact present where useful information is. Size is the more familiar criterion: bigger is better. More contacts can mean more exposure to information, more likely early exposure, and more referrals. But increasing the size of the network is not always the solution: what mostly matters is the number of nonredundant contacts (Burt 1992). In this sense a dense network is negative: it requires the same time and energy to maintain it but provides less information than a sparse network (composed of people that do not know each other). The issue of maintaining the network is opportunity costs[8]. In that sense, a dense network is inefficient. This is not to say that benefits must increase linearly with size and diversity, but, other things held constant, the information benefits of a large, diverse network are greater than the information benefits of a small, homogeneous network. What matters is the number of nonredundant contacts (Burt 1992).

Burt recognized that the structural hole argument seems to describe the same phenomenon as Granovetter's weak ties concept. Burt himself explained that this is not the case. According to Granovetter theory, a person (in particular, a man) never finds a job through his close contacts, but through weak ties (i.e., acquaintances) (Granovetter 1973). In a cluster of people with strong relations, information circulates at high velocity; each person tends to know what the other people know. The spread of information about new ideas and opportunities must come through weak ties that connect people in separate clusters, but, according to Burt, the causal agent in the phenomenon is not the weakness of a tie but the structural hole. Tie weakness is a correlate, not a cause. A weak relationship (but also a strong one) generates information benefits when it is a bridge over a structural hole. Second, the weak ties argument obscures the control benefits of structural holes. Finally, Burt affirms how "the task for a strategic player building an efficient-effective network is to focus resources in the maintenance of bridge ties. Otherwise, and this is the correlative substance of the weak tie argument, bridges will fall into their natural state of being weak ties" (Burt 1992, p.30). Therefore, Burt stresses how the structural holes are something more than simple weak ties. Even though there are low cohesive ties, they need to be maintained, through the conservation of the interest of both sides to share information and resources.

In conclusion, the structural hole argument has a number of qualities (Burt 1992). First, competition for benefits is a matter of relations, not a player attribute. Competition is

[8]From a normative economics point of view, SC can be briefly defined as the general set of relationships that minimizes the transaction costs of information across the whole economy. Given the importance of transaction costs, it has a productive significance equivalent to the other recognized form of capital (Szreter 2000).

not about being a player with certain physical attributes; it is about securing productive relationships. Physical attributes are a correlate, not a cause, of competitive success. Second, competition is a relation emergent, not observed. The structural holes are invisible relations of nonredundant relations visible only in their absence. The task of analysing competition is made more difficult by the fact that the structural holes where competition thrives do not connect the players we see. The holes connect invisible pieces of players, the pieces we see in any one of the many roles and markets in which the person or firm is a player. Third, competition is a process, not just a result.

1.1.4.1 Critiques and Discussion

It is clear that Burt deals mainly with the instrumental type of relationships, and focuses on individual benefits, differing in comparison to the wider civic benefits claimed for other forms of SC. This conceptualisation of SC as merely a career asset, then, can result as less appealing than a wider conceptualisation, such as the one from Putnam or other scholars (e.g., SC as a tool for cooperation, SC as explication of the raising of a dominant class) (Schuller, Baron, and Field 2000). Furthermore, he recognizes the great importance of information resources, almost ignoring other forms of benefits deriving from SC (such as cooperation, support, social control). The author also speaks of control, but always in terms of control over the diffusion of information among actors. Finally, Lin disputed his structural hole argument, underlining how network locations are a precursor of SC and not a measure of it. According to Lin, network locations should facilitate, but not necessarily determine, access to embedded resources (Lin 2001a). Being a structural hole does not assure you access to more benefits.

1.1.5 Nan Lin: Resources, Social Structure, and Action

The last recent and important author for the development of the concept of SC is Nan Lin. He talks widely about how the notion is conceptualized, but also about how to measure the concept. As the last one of this list, Lin analysed, systematized and compared theories and knowledge generated by the previous authors, including those quoted in previous paragraphs. Before talking about SC, it is necessary to introduce the concept of capital. According to Lin, capital is both a concept and a theory. As a concept, it represents investment in certain types of resources of value, in a given society. As a theory, it describes the process by which capital is captured and reproduced for returns (Lin 2008). Lin defines capital as "investment of resources with expected returns in the marketplace" (Lin 2001, p.3). And, similarly, he defines SC as resources embedded in a social structure which are accessed and mobilized in

purposive actions (Lin 2001). This definition contains three elements: resources embedded in a social structure; accessibility to such resources by individuals; and use or mobilization of such social resources by individuals in purposive actions. SC is able to produce returns through some mechanisms (Lin 2001). Firstly, it facilitates the flow of information: ties located in hierarchical position can provide individuals with useful information. Secondly, ties can extend influence over the agents who play a critical role in decisions (i.e., hiring or promotion) involving the actor. Some social ties carry more value and resources than others, due to their strategic locations. Finally, relations can be certifications of the individual's social credentials; some of which influence the individual's access to resources through SC. Social relations reinforce identity and recognition, through being a member of a social group sharing similar interests and resources.

Not all scholars agree with how these mechanisms are interpreted. Lin (2008) identified two theoretical approaches to describe and explain these mechanisms and the process of how SC is expected to produce returns, i.e., benefits for the individual. In one process, SC is conceived of in terms of its capacity (the pool of resources embedded in one's social network) and the expectation is that the richer or greater the capacity, the better the return. This approach focuses on use of SC. In the other approach, SC is defined in terms of its actual use for production, and the expectation is that the better the capital use, the better the return. This description focuses on mobilized SC.

Lin is also interested in understanding at which level these SC's benefits are used: individual or collective. The author, analysing the previous theories of SC, recognized two perspectives relative to the level at which return, or profit is conceived (Lin 2001). From one perspective, the focus is on the use of SC by individuals. At this level SC can be seen as similar to human capital: investments can be made at the individual level with an expected return to the individual. There are two types of resources to which an individual can gain access and use: personal resources and social resources. The first ones can be ownership of material as well as symbolic goods. Social resources, instead, are accessed through an individual's social connection. Social resources far outweigh personal resources in their potential usefulness to the individual, because those resources can be borrowed. Aggregation of individual returns can also benefit the collective. Two authors adopting this perspective are Flap (1991) and Burt (1992). The second perspective focuses on how certain groups develop and maintain SC as a collective asset and how such an asset enhances group members' life chances. Authors sharing this approach are Bourdieu (1986), Coleman (1990), and Putnam (1993). Nevertheless, all scholars agree with the view that it is the interacting members who make the maintenance and reproduction of this social asset possible.

Resources are embedded in social relationships and social structures and can be mobilized when an actor wishes to increase the likelihood of success in a purpose action. Unlike human capital (representing individual characteristics such as level of education, social class and others), the resources of other actors can be accessed and borrowed (Lin 2001). Therefore, one major controversy is whether SC is a collective or individual good. Most scholars agree that it is both, and it is sometimes perceived as a public good. Lin argue that SC, as a relational asset, must be distinguished from collective assets and goods such as culture, norms, and trusts (Lin 2001).

Lin identified two primary motives for actions in a social situation: to protect existing valued resources (maintaining resources) and to gain additional ones (gaining resources) (Lin 2001). The first one promotes expressive action. In other words, maintaining one's resources requires recognition by others of one's legitimacy in claiming property rights to those resources or sharing one's sentiments. The action can be seen as instrumental, but the expected response is primarily expressive: acknowledging ego's property rights or sharing ego's sentiment. The second motive primarily evokes instrumental action, which hopes to trigger actions and reactions from others leading to more allocation of resources to ego. The action can be seen as a means to achieve a goal. Likewise, instrumental action contains expressive elements in that actors (*alters*) must have sentiment for ego to take action on ego's behalf. However, action is required on the alter's part, and the end result is expected to be a gain for ego. Examples include seeking a job or getting a loan. The motivation to maintain resources is the most important driving force. Losing resources in one's possession poses a greater mental and physical threat to ego's existence than not gaining additional resources. Thus, expressive action is expected to take precedent over instrumental action. For instrumental actions there are three possible returns: economic, political (hierarchical position in a collective) and social (reputation). For expressive action, instead, three types of return can be specified: physical health, mental health, and life satisfaction. *Alters* are willing to share their resources with ego because the preservation of ego's resources reinforces the legitimacy of *alters*' claims to like resources (Lin 2001).

The two types of actions are also related to the types of interaction. Homophilous interactions characterize relations between two actors who have similar resources, which can include wealth, reputation, power, and lifestyle. Heterophilous interactions describe relations between two actors with dissimilar resources. The logical deduction is that heterophilous interactions are less likely to occur and do not promote shared sentiments, or that sentiments do not lead to heterophilous interactions. Heterophilous interactions imply a decrease in the intensity of relations, a decrease in the density of the network, and a diversification of thr

resources embedded among members (Lin 2008). These kinds of interactions require efforts, as the interacting partners, aware of the inequality in differential command over resources that can be brought to bear, need to assess each other's willingness to engage in exchange. The resource-poorer partner needs to be concerned about the *alter*'s intention or ability to appropriate resources from them. And the resource-richer partner needs to consider whether *alters* can reciprocate with resources meaningful to their already rich repertoire of resources. One motive for heterophilous interactions is that individuals prefer to associate with others with a somewhat better social status, explained by the prestige hypothesis (Laumann 1966). Such an interaction is expected to enhance the prestige of the less advantaged actors. Such a halo effect in itself does not represent a permanent gain, since termination of the interaction might also result in loss of the halo (Lin 2001). The relative advantage of networks that bind, bond, or bridge afforded to SC depends on the purpose of the action (Lin 2008).

The expressive action (maintaining resources) is likely to result in ego's seeking out other actors who have similar resources and a similar interest in maintaining and defending them. The more similar the partners' resources, the more likely they will share an understanding and concern for those resources. In this case, empathy and common concern promote interaction. Thus, there is less concern regarding the possible intention or ability of *alter* to appropriate resources from ego. The cost of guarding and defending resources is reduced. Defending one's resources requires the sentiment and support of those who are in the same social group or in a similar position in the hierarchical structure. Gaining resources requires another type of interaction. The instrumental action is better served, in term of return, if the actor engages in heterophilous interactions. Interaction also represents the joining of the two social positions that the actors occupy. A higher position in the hierarchical structure not only controls more resources, but also has a better view of the other positions in the structure and a greater command. Access to such a position affords the possibility of borrowing that command or view. However, the effort involved in those interactions is costlier. It means seeking out actors in a different social position than ego's. Firstly, the homophily principle suggests that finding and engaging others with dissimilar resources represents an extraordinary interaction requiring greater effort. Secondly, heterophilous interaction goes beyond simply the reversal of homophilous interaction. It is costly and unusual and produces symmetric exchanges. Instrumental action requires a greater degree of agency to overcome the normative homophilous pattern of interaction (Lin 2001).

Resources are an important piece of Lin's SC theory. Resources are defined as valued goods in a society and for most societies, they correspond to wealth, reputation, and power. One implication of the use of SC is its assumed obligation of reciprocity or compensation

for exchange of resources (Lin 2001). The social structure consists of a set of positions that are ordered according to valued resources, such as class, authority, and status. This structure has a pyramidal shape. A position closer to the top has greater access to and control of resources and greater access to positions of other rankings and, so, to SC. The position on the social structure also determines the amount of influence it may exert on other (lower) positions for instrumental purposes. Different hierarchies (defined by different resources) tend toward congruence and transferability. There tends to be a correspondence among hierarchical positioning across resource dimensions. Some implications of this are that social interactions are more likely to occur among individuals at similar or adjacent hierarchical levels. Secondly, expected or fair exchange involves partners who can offer as well as receive resources. Thus, the closer or more similar the social position, the more likely it is that the occupants will interact with one another.

Therefore, the possibility to access SC depends on the position of ego in hierarchical structures, the nature of the tie between ego and the other actors, and the locations of the ties in the networks. These three factors lead to some theoretical propositions concerning access to SC (Lin 2001):

- "The better the position of origin, the more likely the actor will access and use better SC" (Lin 2001, p.64). It is hypothesized that the level of the initial position is positively related to the SC reached through a contact. This hypothesis is known as the strength-of-position proposition.

- "The stronger the tie, the more likely that the SC accessed will positively affect the success of expressive action" (Lin 2001, p.65). Access to SC is also affected by ego's relationships with others in social networks: the stronger the relationship, the more likely the sharing and exchange of resources. "The weaker the tie, the more likely ego will have access to better SC for instrumental action" (Lin 2001, p.67). Granovetter argues that the tie between two individuals forming a bridge, for example, is weaker because each individual participates in a different social circle (Granovetter 1973). Weaker ties characterized by less intimacy, less intensity, less frequent contact, fewer obligations, and weaker reciprocal services should be associated with more dissimilar resources. They provide access to wider resource heterogeneity.

- "The closer individuals are to a bridge in a network, the better SC they will access for instrumental action". "The strength of a location (in proximity to a bridge), for instrumental action, is contingent on the resource differential across the bridge." (Lin 2001, p.69). The benefit of a strategic location such as a bridge (i.e., a tie linking different social circles, without which two social circles would be independent of one another. Concept

developed by Burt) in a social network determines the resources accessed. The relative advantage of proximity to a bridge in a network is contingent on the relative resourcefulness of the nodes to which that bridge provides access. "Access to a better SC tends to occur for an individual actor who occupies a location closer to a bridge that links the actor to those in relatively higher hierarchical positions." (Lin 2001, p.72). The relative advantage of having bridges or weaker ties is a function of the relative vertical distance between ties or clusters of ties.

- "Networking (tie and location) effects are constrained by the hierarchical structure for actors located near or at the top and bottom of the hierarchy." (Lin 2001, p.74). Toward the top of the hierarchical structure, the vertical reach toward the upper ceiling is increasingly reduced. Thus, the likelihood of reaching up, as compared to reaching down, is decreased when the vertical link (weaker tie) is evoked. In fact, at the very top, every vertical link would be a downward link. Thus, stronger ties (horizontal) rather than weaker ties should be more effective in accessing better SC. In other words, as one's position in the hierarchical structure moves toward the upper ceiling, the homophily principle rather than the heterophilous principle becomes more effective. At the low end of the hierarchy, there will be more positions, as well as more occupants. As the size of the population of positions and occupants increases, there is a greater likelihood of interaction among them. Then it is conceivable that the social network becomes more homogeneous and less diverse as the size of the group increases. The lack of opportunity structure reduces the effect of networking as a way of accessing "better" SC (i.e., more resourceful SC). It is in the middle range of the hierarchical structure, therefore, that we should expect to detect the strength of networking effects. There, the vertical reach should have the best probability of reaching upward.

1.1.5.1 Critiques and Discussion

In conclusion, Lin's theorization is close to Burt's, but he does not recognize the importance of a number of benefits, and not only of flow of information (as Burt did). The author speaks about information, but also influence (similar to control, for Burt), and identity and recognition. Lin, as a network analyst and a proponent of the network-based utilitarian approach (as Burt), is convinced that the egocentric network approach is the most appropriate in any empirical study, because it is the most effective compared to other approaches. This claim, however, is highly problematic (Adam and Roncevic 2003). The main issue concerns validity: do founders of the network approach actually know what they are measuring? Some networks can cause the destruction of SC, rather than the creation or use of it (Portes 1998). An example could be when a person takes advantage of resources

embedded in networks in order to reach a higher career position, even though they have a lower level of human capital than persons who cannot mobilize such network resources (Adam and Roncevic 2003). In other words, Lin does not recognize the dark side of SC and the possibility that something that benefits the individual may be detrimental to the group.

1.2 Social Capital, Health, and Well-Being

The main purpose of this research is discovering how SC impacts health and well-being. Here, a definition of what is meant by health and well-being is needed.

1.2.1 Health and Well-Being: Some Definitions

With the word health, studies about SC refer to a wide number of physical and mental conditions: mortality, limitations in daily life, chronic diseases, depression, stress. All of these physical and mental conditions can be affected by the individual' social relations and social activities.

In 1946, the World Health Organization (WHO) defined health as a state of complete physical, mental and social well-being. This definition represented a holistic description that takes the different dimensions and determinants of health into account, including psychological and social dimensions. With this statement, the focus shifted from a strict medical orientation on health to the subjective well-being of the population (Forsman 2012). Although the concept of health was expanded, it was still seen as a dichotomy between health and disease. It would take decades until the introduction of dynamic health theories would emerge. In line with the multidimensional view of health status, health can be defined according to the salutogenetic model, which describes the wide continuum between health and illness (Antonovsky 1987). From this perspective, health status is dynamic and influenced by both dimensions on the continuum. The key concepts of this model are people's health resources and their capacity to both comprehend their situation and use the health resources available in order to cope with ill-health and other stressors in life (Antonovsky 1987; Lindström and Eriksson 2005; Forsman 2012).

According to Suominen (2015) health can be categorized into three main dimensions: biomedical, perceived, and sociological or social health (Purola 1971). In the first approach a sharply delineated boundary between health and disease is assumed. The health of an individual can be determined by measurements based on natural sciences, such as laboratory tests. Sometimes a sharp boundary can be found (e.g., bone fracture based on x-ray examination), but, mostly such kinds of strict boundaries do not exist. In the second approach health is defined as perceived health or subjectively rated health (SRH). The most

important practical consequence of this dimension of health is that it leads the patients to make contact with the health care system (Suominen 2015). The dimension of social health incorporates functional aspects of health. According to Talcott Parsons' (1952) work of medical sociology, the patient, in order to be entitled to the role of the sick, is expected to perceive her or his state as an unwanted one, be willing to accept treatment, and hopes to be cured. In most cases medical diagnosis alone cannot reveal sufficient information about the patient's capacity to carry out activities of daily life or work. Everyday abilities can depend on demands from the external environment and, so, no absolute measure is possible (Suominen 2015). All this makes clear why it is important to study health from a sociologic point of view.

Furthermore, health can be divided into somatic and mental health, and both can be considered to have biomedical, perceived or social dimensions (Lehtinen 1991; Suominen 2015). A person in a good mental health is capable of interacting with other people and with the social system she or he lives in; and he/she is capable of productively taking part in activities that the surrounding system perceives as useful (e.g., work). Similarly, in 2005, the World Health Organization (2005) defined mental health as a state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, is capable of working productively and is able to make a contribution to his or her community.

The Cambridge Dictionary defines well-being as "the state of feeling healthy and happy" (Cambridge Dictionary 2019b). Its main purpose is to measure quality of life (Borrat-Besson, Ryser, and Goncalves 2015), which is, among other things, determined by health; however, health is not the only one factor influencing it. This concept has been interpreted in a number of ways in the literature. In a narrow sense, quality of life can solely refer to an individual's subjective experience of her or his life (Suominen 2015). Conceptually, well-being can be further divided into a more cognitive dimension called life satisfaction as well as into a more emotional dimension of happiness (Veenhoven 1984). Life satisfaction is a general evaluation of how life has corresponded to one's expectations and how well the individual has been able to fulfil one's anticipations, whereas happiness is understood as a predominantly emotional, intense, and also more temporary phenomenon (Suominen 2015). Furthermore, the concept of well-being can be approached from the perspective of "level of living", which refers only to the material dimension and does not take into account the subjective experience of resources (Suominen 2015).

Finally, well-being can be conceptualised according to theories about resources or theories about needs (Suominen 2015). Central resources are health, food, housing,

conditions of growth and development and family relations, education, employment and working conditions, economic resources, political resources, and leisure time and recreation (Johansson 1970; Suominen 2015). According to this approach, well-being is a state in which most of the central resources are at the individual's disposal. From another point of view, well-being can be interpreted as a measure of how an individual can fulfil his needs (Hyde et al. 2003). Central needs can be categorized as basic physiological needs, social needs, or needs related to interaction with other people, and needs related to self-realization (Maslow 1968; Allardt 1975). According to this perspective well-being is defined as a state where central needs are met. According to Doyal and Gough (1991), the solution is the combination of both theories: resources can be understood as resources only after they can be used for the fulfilment of needs.

1.2.2 The Impact of Social Capital on Health and Well-Being

In recent years, the impact of SC on health and well-being has become the object of many studies, especially at the empirical level. However, an important theoretical corpus is also present. Cassell (1976) and Cobb (1976) were the first to suggest that social networks might be critical for health. Other suggestions came from the sociologist Emile Durkheim and the psychoanalyst John Bowlby. In 1995, Link and Phelan (1995) focused the attention on social factors as keys causes of disease and argued that public health researchers should pay attention to societal factors. Before the SC theory assumed the importance that it has today, Van der Poel (1993) introduced the concept of the "main effect" of the social network, in contrast to the stress-buffering effect. According to the stress-buffering effect, the SN only operates when actual support is needed: the support coming from the network buffers the negative effect of stress on well-being. On the other hand, according to the main effect, the very possibility of accessing personal relationships has a positive impact on well-being. The main effect also works when there is no actual support needed. The knowledge alone that there are a number of persons ego can turn to when support is needed has a positive impact on well-being.

In public health literature, SC is defined as "the resources available to individuals through their affiliative behaviours and membership in community networks" (Kawachi 1999, p. 121). Individual investment in society increases a person's SC, makes that person more integrated and improves her health and well-being (Cocherham 2007; Carrasco and Bilal 2016). There are two main approaches in the study of the association between SC and health: the social network and social cohesion approaches (Kawachi, Subramanian, and Kim 2008). The first approach is closer to Bourdieu's and Lin's point of view and refers to the

resources embedded within a personal social network: social support, information channels, social recognition. This school conceptualizes SC as both an individual and collective attribute. The second approach measures SC as the resources available to social groups and divides it into two components: cognitive and structural (Uphoff 1999). Cognitive SC is related to the perception of the level of trust and reciprocity of individuals, and it is represented by trust, shared values, empathy and respect toward community. Structural SC, instead, is related to the actions of individuals and aspects appear in rules and specific behaviours (such as networking or volunteering activities). What this approach is trying to emphasize are contextual influences on the individual. Hence, a given member of a group may be an uncooperative, mistrusting individual, but he or she may reside in a community where others are trusting and helpful toward each other; the uncooperative individual may then end up benefiting. The social cohesion school is inspired by Putnam's theory and conceptualizes SC as a group attribute (Kawachi, Subramanian, and Kim 2008).

Both approaches elaborate a number of explanations of the association between SC and health. The mediating pathways by which networks might influence health status at the behavioural level are essentially four (Berkman et al. 2000). Firstly, the most studied mechanism concerns how the structure of networks influences health via the provision of many kinds of social support. The social support could be emotional (love and caring, sympathy, and understanding), instrumental (aid or assistance with tangible needs), appraisal (help in decision-making) or informational (provision of advice or information) support (Weiss 1974). These kinds of support are often difficult to disaggregate. Social influence is another possible pathway: shared norms and social control of health may have direct consequences on individual behaviour. Influence need not be associated with face-to-face contact, nor does it require deliberate or conscious attempts to modify behaviour. People obtain normative guidance by comparing their attitudes with those of a reference group of similar others. Attitudes are conformed to and reinforced when they are shared with the comparison group but altered when they are discrepant (Erikson 1988). Shared norms around health behaviours might be powerful sources of social influence with direct consequences on the behaviours of network members. Then, health-related behaviours, such as smoking, diet, and drinking, are determined not only by conscious rational choice by individuals on the basis of good information, but also by the extent to which broader contextual factors support the performance of such a behaviour. Health-related behaviours are shaped by collectively negotiated social identities rather than by factual information about health risks as traditional health education programmes assume (Campbell 2000). Thirdly, through opportunities for engagement and social participation, networks define meaningful

social roles, which in turn provide a sense of value, belonging, and attachment. Furthermore, they provide opportunities for companionship and sociability. These roles that provide each individual with a coherent and consistent sense of identity are only possible because of the network context, which provides the theatre in which role performance takes place. These behaviours and attitudes are not the result of the provision of support per se, but are the consequences of participation in a meaningful social context in and of itself. The authors hypothesize that measures of social integration are powerful predictors of mortality because these ties give meaning to an individual's life by virtue of enabling him or her to participate in it fully, to be obligated and to feel attached to one's community (Berkman et al. 2000). Finally, networks provide or restrict access to material goods, resources and services that can be important for the health of individuals. Networks operate to provide access to restricted opportunities in much the same way social status works. These mechanisms are not mutually exclusive. In fact, it is most likely that in many cases they operate simultaneously (Berkman et al. 2000).

These micro-psychosocial and behavioural processes then influence even more proximate pathways to health status including direct psychological stress responses; psychological states and traits including self-esteem, self-efficacy, and security; health-damaging behaviours such as tobacco consumption or high-risk sexual activity; health promoting behaviours, such as appropriate health service utilization, medical adherence, and exercise; and finally exposure to infectious disease agents such as HIV, other sexually transmitted diseases or tuberculosis (Berkman et al. 2000).

1.3 Migrant, Social Capital, and Health

Another purpose of this research is to reveal how the SC dimension interacts with the characteristics of being a migrant person, and its consequences on health and well-being. The theories illustrated above do not refer directly to the migrant condition. Anyway, migration is increasingly becoming more a central issue in social science, and some authors underline the importance of studying it in relation to SC and health. To the best of my knowledge, the following are the authors and the theories theorizing the relationship between migration and SC and migration and health.

1.3.1 Migrants' Social Capital

An important concept when referring to the migrant population is community: the physical location or group of people having something in common (Wierzbicki 2004). Community is a network in which the physical location is important because it establishes relationships

among the people in it; relationships with an internal organization. Community can be defined as a set of social ties localizable on a map (Wierzbicki 2004; Bankston III 2014). It describes homophily, or the tendency of people to form social connections on the basis of common interests, backgrounds, and identities (Bankston III 2014). These networks can differ in their linkages with the world outside and in their being egalitarian networks or networks involving hierarchies of power, prestige, and access to resources. Individuals who occupy positions of centrality can facilitate communication among others, while hierarchical structuring can increase communicative efficiency (i.e., amount of information and opportunities shared in a limited amount of time). Those ties contain different forms of information, both cultural, such as expectations (e.g., expectations of upward mobility or expectations of little possibility of mobility) and norms, and more material sorts of information (e.g., availability of a job) (Bankston III 2014).

Group size is a key feature related to interaction within and outside the group. Individuals in smaller groups tend to have more interactions with outsiders, including higher levels of exogamy, than larger groups do. Closure (proportion of strong ties in the network) is also important: a group with a high degree of closure will necessarily have fewer cross-group links than one that is more open. Size and permeability (i.e., facility of having relations with other social groups) do not simply influence the lives of individual group members, but also affect how the group, as a whole, interacts with other groups. In the study of migrant adaptation, one of the key questions concerns whether strong, bonding ties or weak, bridging ties benefit migrants more efficiently (Bankston III 2014).

Bridging ties are those that link individuals in bounded networks to individuals outside the network boundaries. These ties are typically associated with social diversity, relative anonymity, multiplicity of resources, and personal autonomy. Bonding ties are those that link individuals within bounded networks to each other. They are typically associated with high degrees of cohesion, identification, motivation, and control. The value of the two kinds of ties for members of migrant groups depends on what kinds of resources members of a group can access, how available assets are outside the group, what kinds of information can be found through connections to outsiders, and how dependent individuals are on the flow of external information. Bonding SC can represent an important survival mechanism for residents of disadvantaged communities; but, at the same time, it can represent a burden, because it implies obligation towards other. It is also important whether groups can generate assets of their own, or if finding out about opportunities or resources outside the groups is especially important. Control through strong, bonding ties is often considered important in the education of young members of migrant groups. If one looks at networks from the

perspective of maximizing economic opportunities, though, then the relative value of bonding and bridging ties depends on what options are available within a migrant group and what options are available from the outside the group. Wide-ranging links outside one's own group may be of little value if all of those links are with people who have little to offer. The strength or weakness of social ties, similarly, may be of greater or lesser value depending on how those ties serve to increase and distribute resources among those in a network (Bankston III 2014).

It is also necessary to consider the ways in which bonding and bridging ties interact (Kao 2004). The "enabling" provided by contacts outside of a dense social network may offer a wide range of resources, but it is also less intense than that provided within the network. It means less constrains but also less support. However, if an individual has access to the advantageous social structure of the host society, then a migrant group may have little to offer that can enable that individual, and its constraints may limit life chances. If an individual does not have this kind of access, then a migrant network can offer valuable pay-offs through the sharing of resources and information about opportunities and constraints, which encourages cooperation and discourages unproductive behaviour (Kao 2004).

Kao (2004) talks about migrants and SC focusing on three interrelated forms of resources: obligations and expectations, information channels, and social norms. According to Kao, members of migrant groups, more than members of other social groups, tend to have relationships within their groups that involve more intense obligations and expectations because of relative isolation or alienation from the larger society. The structure of relations among them can determine the kinds of information available to them. Members of migrant groups have less access to the information available to natives, because of language and limited contact, and therefore rely heavily on flows of information within the community. Relationships continually express and reinforce social norms, so that connections among migrants can maintain a norm, such as trust, that applies specifically to group members. Thus, although social resources shape the experiences of all individuals, the resource of relationships within migrant groups is especially important to migrants.

Within migrant communities, SC can be seen as a form of solidarity (Bankston III 2014). Language, memories of homeland, and common experiences of immigration may be sources of ethnic identification. While possible isolation from the larger society may be a disadvantage in many ways, it can also contribute to intense identification among group members, with each other and promote mutual assistance. Norms and values are not just manifested in behaviour; culture must be grounded in patterns of social relations. Relationships among migrants can also mean constraint; they represent both enabling and

constraining relationships. Bonding ties constrain people, because being surrounded by those with whom one has close and frequent interactions, and who have interactions with each other, limits an individual's freedom of action. Social relations are a form of social control; but social control may also have positive consequences: solidarity, trust, and sense of common identity. In addition, constrains have psychological value: they can prevent group members from feeling lost and alone and can provide help in obtaining new information. SC raises the possibility of a society divided into groups with high internal solidarity: the "Balkanization" problem (Kao 2004). The SC idea implies that the ability of groups to compete for scarce resources depends on strong connections and strong identification within groups, as well as sharp lines of distinction among groups. This does not necessarily produce conflict. Thus, intergroup mistrust and social distance can accompany the in-group cooperation and solidarity that produce SC. In conclusion, cohesive communities might be characterized by distrust, fear, racism, and exclusion of outsiders, and as such may not be healthy for those who are not a part of them, or for insiders who disagree with the majority (Baum 1999).

1.3.2 Migrants and Health

Two theories, instead, explain the relationship between migration and health: the "healthy migrant effect" and the "immigrant health paradox". The healthy migrant effect (Hamilton 2015) stresses how migrants arrive in a new country (especially to find a job) with an initial health advantage over the native population (Cho et al. 2004; T. G. Hamilton 2015). Migrants represent a positively selected group from their home country, because they are more ambitious and willing to work or have higher levels of education[9] than their counterparts who stayed behind (Portes and Rumbaut 1996; Feliciano 2005). Migrants are self-selected, since only some people want to migrate or have the resources to do so (Feliciano 2005). Relative, not absolute, deprivation motivates individuals to migrate (Stark and Bloom 1985) and, therefore, non-natives could be healthy as much, or more, than natives (Cho et al. 2004; T. G. Hamilton 2015). However, other factors can intervene. Causes of migration are crucial. According to Lee (1966) if migrants leave because of pull factors in the destination, they will be positively selected. If they are responding to push factors in the sending country, they will be negatively selected (i.e., individuals with "lower" socio-economic characteristics). Obstacles are also important: migrants who face the greatest barriers in migrating will be the most positively selected (Lee 1966).

[9] Furthermore, the characteristics of those who leave a country may dramatically affect the remaining population. In developing countries, "brain drain" the out-migration of highly educated professionals, deprives them of various resources (Feliciano 2005).

The "immigrant health paradox" (Abraído-Lanza et al. 1999), instead, deals with what happen after the initial health advantage. After adjusting for socio-economic status, the foreign born generally have a lower mortality rate than the native born; however, this initial advantage disappears with increasing time in the receiving country and across generations[10] (Luthra, Nandi, and Benzeval 2018). There are two popular explanations that might explain this paradox. The first is the "ethnic maintenance" theory: the maintenance of social ties, norms and behaviours prevalent within minority ethnic groups may prove protective for migrants and their children who may be exposed to environmental, social and economic stressors (Lara et al. 2005). Migrant communities are generally positively selected on general health and mortality, and similarly maintain or import more positive health behaviours from their origin country. Thus, as migrants and their descendants loosen their geographic, social, or identificational embeddedness in the ethnic community of their origin country, they become more at risk of adopting the negative health behaviours prevalent in the receiving country and more vulnerable to the psychological and physical stressors of their environment. The health of natives in the destination country is expected to be a strong determinant of migrants' health. By adapting to the lifestyle patterns of the native population in the country of destination, migrants' risk of smoking, obesity, hypertension, and chronic conditions rapidly converges to the level of the native group (Singh and Siahpush 2002). Especially migrants from low-income countries tend to abandon their traditional dietary habits and adopt a westernised, energy-rich diet and a more sedentary lifestyle (Ujcic-Voortman et al. 2012; Rechel et al. 2013).

The second theory is the "racial and ethnic discrimination" theory (Geronimus 1992): migration is expected to intensify stress (through discrimination, racial harassment, physically demanding jobs, etc.) which may lead to the adoption of unhealthy behaviours as a coping strategy (Borrell et al. 2007). The cumulative effect could result in a negative health trend and increases in mortality over time (Luthra, Nandi, and Benzeval 2018). Racial and ethnic discriminatory practices and historical disadvantages could lead to worse socioeconomic positions for minorities, and result in greater exposure to poor work and residential environments and unhealthy behaviours (Guintella et al. 2016). Racial and ethnic prejudice lead to exposure to overt discrimination, unfair treatment, and harassment of minorities, resulting in physiological consequences that lead to ill health (Geronimus, Hicken, and Bound 2006) as well as the adoption of unhealthy coping behaviours (Williams et al. 2011).

[10] This finding is paradoxical because, over time and across generations, the economic conditions of migrants generally improve, and acculturation stress reduces; thus we would expect a positive trend in health with lower mortality risk over time (Luthra, Nandi, and Benzeval 2018).

1.4 Older People and Social Capital

A salient gerontological theory about SC, social support, and social relations is the convoy model proposed by Kahn and Antonucci (1980). The convoy model conceptualizes social relationships as a collection of people who surround individuals during the life course, move with them over time, and are available as resources of support if needed. Convoys are dynamic and lifelong in nature; they will change in some ways but remaining stable in others, across time and situations. The closest relationships, such as spouse, family, and close friend remain relatively stable over the life course. More distant relationships, on the other hand, such as friends, neighbours and co-workers, are more likely to change with changing life circumstances (Antonucci et al 2014). Changes in the core of the network are less frequent than changes in the periphery (Carstensen 1992; Schulman 1975; van Tilburg 1992; van Tilburg 1998). This model is particularly efficient because provides a framework within which to consider specific individual experiences and how individuals recruit and manage their social ties as they enter older age.

Kahn and Antonucci presented a heuristic image of the convoy as a set of three concentric circles that surround the person over time (Kahn and Antonucci 1980). Each circle is considered to represent different levels of closeness to the focal person. Individuals in the inner circle are viewed as the most important support providers and support recipients. These relationships are relatively stable over the life span. Compared to outer-circle members, inner-circle members are expected to include more family and women, to be known longer, to live closer, and to be in more frequent contact. Memberships in the second circle suggest a degree of closeness and relationships that are more than the simple fulfilment of role requirements. And finally, members in the third circle are thought to be close to the focal person but usually in a very role-prescribed manner (e.g., a close and important relationship with a co-worker, which does not transcend the work environment or persist after retirement.

Age differences are used as a preliminary indication of lifespan differences (Kahn and Antonucci 1980). It is hypothesized that older people know their network members longer than younger people. Increased age alone gives the individual a greater potential of knowing their network members than younger people. An older individual who does not report numerous long-term relationships might have suffered an unusual number of losses through death or other external life circumstances or been unable to maintain long-term relationships. In this case, the protective layer of convoy relationships is unavailable, suggesting that the individual in question might be at risk both physically and psychologically. Finally, the convoy

model assumes that there are basic norms of social relationships over time that help individuals maintain their well-being and cope with the stresses of life (Kahn and Antonucci 1980).

1.5 The Dark Side of Social Capital

The SC concept focuses on returns to individuals, which indirectly frames the problem of externalities; i.e., good and bad consequences for those not included in social relations and SC. SC represents those interpersonal relations that are productive for those who invest in them. Even if not directly involved, those outside these networks may be subject to negative externalities. Investment in social networks could have negative consequences, such that the investments fail to function as SC, even though they are producing effects for other group (Warren 2008). In other words, SC theory normally puts the emphasis on the positive effects of sociality, avoiding taking into account forms of power and the influence that power exercises (Portes 1998). Much more often, in fact, SC theory does not consider that mechanisms prompting positive effects, at times, can trigger less desirable effects. Portes (1998) identified, in a specular way to Berkman et al. (2000), four reasons why SC effects are not always positive. Higher SC can involve excessive demands to provide support to others, as well as a restriction of freedom as a result of excessive control from the network or the group. Furthermore, a strong bonding SC can be used to exclude out-group members. Finally, SC can lead to a "down-levelling" of norms, in which the demand for group conformity can pull down the achievement of individuals trying to break free from the group. Villalonga-Olives and Kawachi (2017) added to them, two mechanisms more: behavioural contagion (e.g., the behaviour spreading through the group could be health promoting or health damaging) and cross-level interactions between social cohesion (at contextual level) and individual characteristics.

In his work, Warren asked himself if it is possible to distinguish "bad" SC (i.e., SC having negative consequences for those who hold it and for those not directly involved; such as for their health or freedom) from good SC (Warren 2008). The same kind of social relations may be, indeed, good in one context, but bad in another. In this sense, the distinction between bonding and bridging SC is illustrative. Bonding SC is characterized by closed, inward-looking networks, exclusion, and particularized trust (Svenden and Svenden 2009). It can generate strong in-group loyalty that, for its part, often generates strong out-group antagonism, and so, intolerance and sectarianism: a positive assessment of in-group members is often defined by a negative assessment of out-groups as untrustworthy. This SC is exclusive in nature and it may generate more negative external effects than positive ones

(Putnam 2000; Warren 2008). In this sense, the kind of groupings and voluntary associations that can generate SC also carry the potential to exclude others (Szreter 2000). Freedom of association also implies freedom to exclude (Warren 2008). Bridging SC, instead, is distinguished by open networks across social cleavages, inclusion, generalized trust, and voluntary associations with open membership. It is, therefore, expected to produce only positive effects. Anyway, whether or not bonding SC is bad and bridging SC is good depends on how they combine within a context. A similar discourse can be made for weak and strong ties (Lin 2001).

Furthermore, Warren (2008) identified two principal sources of SC: trust (generalized and particular) and reciprocity (specific and generalized). Particular trust is represented by thick trust within families, kinship groups and networks of close friends. This trust has been associated with the provision of private goods, and, in some cases, can lead to negative societal outcomes (Putnam 2000). Generalized trust – the value that is predicated upon the belief that many others are part of your moral community –, instead, is the foundation of a "well-ordered society". Generalized trust is normative and related to morals and faith in strangers: people trust above and beyond what their rational calculations tell them is appropriate (Mansbridge 1999; Svenden and Svenden 2009). Reciprocity is the basic norm of social exchange. It is also distinguished between specific – e.g., obligations between two specific persons – and generalized – e.g., obligations incurred between one person and everyone else (i.e., I do not level the obligation at you in particular). Generalized reciprocity facilitates cooperation. With specific reciprocity, instead, the exchange is exclusive: it serves to mark the boundary between those who are part of the relationship, and those who are excluded from it (Warren 2008). In conclusion, some sources of SC – those based on the disposition of generalized trust and reciprocity – lack the capacity to function as bad SC. Other sources – particularized and embodying questionable interests and relationships – do have the potential (Warren 2008).

The distribution of power in a society is also important for distinguishing between "good" and "bad" SC. In other words, the context is important. Those forms of SC that can generate negative externalities are more likely to do so within non-egalitarian contexts. The reciprocity for example: in an egalitarian context, generalized reciprocity produces cooperation from which everyone benefits, while specific reciprocity functions as the basic glue of social interaction. In a non-egalitarian context, reciprocity can cause obligations leading to an accumulation of resources in the hands of those who already have more resources. In a way, we should expect that societies with lines of fracture will potentially suffer from group-specific SC (Warren 2008).

1.6 Critical Points and Open Issues about Social Capital

Even after all this theoretical production on SC theory, many issues remain open. SC theory was born as an attempt to integrate the undersocialized economics' vision of society into the oversocialized vision of social science. However, the balance between the two interpretations of society is complicated and results in very different readings of the concept by various authors and approaches.

In this sense, Haynes (2009) argues that SC theory is not social, not capital, and not a theory (Haynes 2009; Claridge 2018). SC is not social: according to some scholars, this concept provides the opportunity to "colonise" the sociological field with economic notions (Haynes 2009). SC is not capital: SC cannot be owned by an individual actor and, therefore, it does not meet the traditional definition of capital (Claridge 2018). Finally, SC is not a theory: many approaches make significant generalizations to simplify the complex social environment with the aim of making measurement more practical and achievable. By doing so, SC loses much of its explanatory power. The use of the word social gives SC enormous generality, as well as ambiguity, and makes SC more of an umbrella concept than a functioning theory (Claridge 2018). Arrow underlines how SC fails to meet the three characteristics of capital: (a) capital has a time dimension; (b) it requires deliberate sacrifice of the present for future benefit; (c) and it is alienable - i.e., its ownership can be transferred from one person to another (Arrow 1999). Nevertheless, some authors reply to these accusations underlining how SC is not immediately used; it is a product of investment. SC, furthermore, is subject to depreciation from both use and non-use (Claridge 2018) and, so, it can be considered capital.

However, if we choose to recognize the SC theory, SC is not an easy concept to define and it can have different meanings. Once again, Haynes directs the attention to the fact that SC can be a tautology (Haynes 2009). Is SC itself a characteristic of a flourishing society, or a means of achieving it? It is an instrument, an outcome or a desideratum? It is being used both as the explanatory variable, for example in relation to social cohesion, and as a descriptor for that same phenomenon. Interpreted as a property of communities rather than individuals, SC could be considered simultaneously a cause and an effect (Portes 1998; Schuller, Baron, and Field 2000). From this statement emerges another dilemma: whether SC is an individual attribute or an attribute of the group. In other words, is SC more similar to human capital, to a public good, or is it both? Another question is whether SC emerges intentionally or as a by-product of relationships and interactions. Furthermore, a legitimate question may be: is it possible to create SC voluntarily, at the individual or at group level? Or

does it emerge always by chance, without anyone pursuing it? In this sense, is it possible to act in order to create and maintain a network as big and diverse as possible, in order to obtain the highest number of benefits possible? Some authors, answering this question, suggest that SC emerges involuntarily (Coleman 1988; Warren 2008). SC is, probably, more often a consequence of pursuing social relations for their own sake, rather than something sought. So, despite the economic inspiration of the concept, there is no presumption that individuals act as rational maximisers also in social relations (Warren 2008).

Moreover, does the SC concept measure SC itself, or resources and consequences of SC? Among others, trust, is a very criticized concept. For some authors it is a specific and important form of SC (Putnam 1993); others define trust more as an outcome of SC and an individual disposition (Ahn and Ostrom 2008); or as a precursor of the SC concept (Warren 2008). Furthermore, the multidimensionality of the SC concept, and its multi-disciplinary and interdisciplinary nature can have both positive and negative characteristics. A concept that crosses more than one discipline can be useful in extensive studies and in bringing attention to the social context also outside the realm of social sciences. However, at the same time, those characteristics may create confusion about the concept and leads to very different interpretations and utilizations of it. Multidimensionality makes the concept able to measure many different situations, but, at the same time, it makes the concept difficult to measure completely.

Finally, many theories fail to underline the relevance of context and timing. Many authors consider SC and its consequences as independent from context and historical period (e.g., Putnam 1993). They do not consider the possibility that different contexts require different kinds of SC, and that the same SC can produce different consequences in different places and times. A considerable exception is represented by Bourdieu, who underlines how the process by which symbolic qualities of cultural and social capital can be converted into the more material qualities of economic capital, is socially and historically determined. Furthermore, recently, some authors have recognized the importance of contextual and historical circumstances, such as the equal or unequal distribution of power and welfare (Fukuyama 2000; Rostila 2007; Warren 2008). In conclusion, when we study SC, it is crucial to be aware of all these dilemmas and of the possible negative consequences of possession of different forms of SC. However, SC remains a very powerful and useful tool for studying resources deriving from relationships and social engagement. I will expose my position in these discussions in the next paragraphs, in which I explain my SC approach and my theoretical framework for connecting migrant older people, health, and SC.

1.7 Conclusions and Discussion

In this chapter I synthetized the theories used in the study of SC, with a special consideration of the theories involving health, older people, and the migrant population. In this conclusion I inferred my approach from the theories presented, and tried to produce an appropriate theoretical framework for my analysis.

1.7.1 How to Study SC of Migrant Older People in Europe, and Its Association with Health and Well-Being? : An Individual Social Capital Approach

As anticipated by the title, in this project I refer to an individual (micro) SC approach, rather than to a collective (macro) SC approach. In this sense, I am closer to Burt and Lin: the use of SC is at the individual level, and investment in it can produce a return on the same level. SC is a relational asset, and it must be distinguished from collective ones (e.g., culture, norms and trust) (Lin 2001a). In this sense, it is closer to the definition of capital (Claridge 2018), and is simply measurable, just as human capital. Another key distinction is between use and access to SC (Lin 2001b). In this project the reference is to the latter i.e., the possibility of accessing a certain number of resources, without necessarily use or need of them (Volker and Flap 2004; Lancee 2012). Therefore, the closest definition of SC to my approach is, probably, the one formulated by Van der Gaag, in his book about the measurement of individual SC:

"Social Capital is the collection of resources owned by the members of an individual's personal social network, which may become available to the individual as a result of the history of these relationships" (Van der Gaag 2005, p.20).

However, I measure the individual personal network (and social participation of different kinds), not the resources available through it. Furthermore, I will not consider as SC, individual disposition (e.g., trust) or the possible results of it, such as norms and values (Ahn and Ostrom 2008). I consider the multidimensionality of the concept as a quality of it and I will make the effort to take into account all of its fundamental dimensions: social relations, support, and social engagement.

Regarding the study of SC and its association with health and well-being, I adopted the SN approach, rather than the social cohesion approach: SC is represented by the resources embedded within a personal network, such as social support, information and social recognition. In this sense, my approach is closer to Bourdieu's and Lin's point of view (rather than to Putnam's). Furthermore, I considered how the very possibility of accessing

personal relationships can have a positive impact on well-being and health; without actually needing any kind of support. In other words, I choose to follow the "main effect" formulated by Van der Poel (1993), rather than "the stress-buffering effect" (i.e., SNs operate when actual support is needed).

Regarding the study of the SC of the migrant population, I focus my attention on the distinction between bonding and bridging SC, and on the positive and negative effects of both, for this population: how bonding SC can mean support, but also exclusion from the general society; and how bridging SC can mean new information and connection with the wider society, but also a distancing from their own community. As underlined in the previous paragraph, this distinction was introduced by Putnam, who stressed the positive effects of bridging SC, rather than bonding SC. Burt reached a similar conclusion with the development of the concept of bridging ties.

Finally, my approach to the study of SC takes into account the importance of the context[11] and timing. I am aware that SC can have different consequences in different places and times.

1.7.2 How to Study SC of Migrant Older People in Europe, and Its Association with Health and Well-Being? : A Theoretical Framework

Against this background, it is possible to develop a theoretical framework taking into account all the topics of this research: SC, health and well-being, older people and the migrant population.

The convoy model (Kahn and Antonucci 1980) underlines how older people have a more solid social support on which to count, compared to young people. This help them on maintain a good health and well-being also in old age. However, this is not inevitably true for migrant older people, who experience life changes which can result in losses of important members of their SNs. Their core networks (or bonding SC) might be less strong than the natives' ones. This may represent a disadvantage for the migrant population, compared to natives; that may have consequences on health and well-being. This disadvantage of the migrant population cumulates with their limited ability to make ties outside of their community; and get in touch with the native, more resourceful, population.

In this framework, the distinction between bonding and bridging SC appears to be useful in predicting the health and well-being of the older migrant population. Especially for this population, the possibility of building bridging SC is essential for health and well-being.

[11] I will explain later (paragraph 2.1.6) what exactly I mean by context.

As a disadvantaged social group, being in contact with the general society is fundamental to achieve resources, information and support, for improve health and well-being. However, at the same time, a strong bonding SC is also important. Being in a community formed on the basis of common backgrounds and interests could be a survival mechanism for people of disadvantaged communities (Bankston III 2014), such as migrants. It works as a form of solidarity. Nevertheless, bonding SC is also a constraint, which can limit the freedom of the individual. In other words, bonding SC is composed of strong connections, solidarity, and intense social control, and, it can hardly supply new information and resources; whereas bridging SC is made up of weak ties and less support, but it can provide information and resources not present in a restricted (and disadvantaged) social group. In conclusion, a balance between bonding and bridging SC seems to be essential for migrant older people. Solidarity, community identification, and the possibility of being in contact with the native population are all aspects necessary for their health and well-being. In other words, the issue is reaching a balance between bonding and bridging contacts; having a wide and diverse enough network that can provide both solidarity and non-redundant information. Isolation from any one of the communities (ethnic community, community based on age or native community) is equally detrimental. Following Lin's theory, a person needs to balance her homophilous and heterophilous interactions, keeping in mind that the first, linked to expressive action, are easier and more important (Lin 2001b).

2 Literature Review: What Is Known About the Influence of Social Capital on Health and Well-Being

In the first chapter, I presented the main theory, SC theory, upon which my thesis is based. The following chapter is linked to the previous one, resuming the focus on the relationship between SC, health, and well-being, and the focus on the migrant population. The literature that links SC, health and well-being to the general population and older people is huge. Knowledge about this relationship within the migrant (older) population, instead, is very scant.

This introduction continues to emphasise the main characteristics of studies about SC, health and well-being. In the following part I focus on the literature about the association between SC, health, and well-being among the general population; but, with a particular interest in studies about older people. I chose to include studies about the general population because the focus of my research is on older people, but also on the aging process. Most of the studies about the older population include people from 65 years of age and older, whereas my interest is in people aged 50 and older, i.e., the older population and the future older population. Firstly, I report the results of research distinguishing between cognitive and structural SC, as well as studies about bonding, bridging, and linking SC. Secondly, I summarized, more specifically, the effects on dependent variables (i.e., physical and mental health and well-being) of some SC variables (i.e., variables often used for the operationalization of the SC concept), such as SN variables (among others: SN size, composition of the network, homogeneity or heterogeneity of the network, SN satisfaction), social participation, and social support. I focus on these variables because they are the most oftenly used in the measurement of SC and I will use them in my research. Furthermore, I decide to refer to single measurements of SC and not to indexes, because this is what most of the studies do and because not all the measurements of SC have the same effects on health and well-being[12]. Thirdly, I describe studies which took into consideration intervening variables in the main association, such as collective SC, gender, economic status, living arrangement, and the different effects of the SC of younger and older people on their health. Fourthly, I summarized the literature that focuses on the importance of context in the association between health and SC. In particular, I mainly reported works distinguishing among Welfare regimes. Finally, I discuss some important methodological issues, such as the use of the variable "trust" (i.e., it is a valid measure of SC?), and the reverse causation between

[12] I adopt the same solution in my study: I choose not to create an index, and I consider SC variables separately in my analysis.

health and SC. Furthermore, in the second section I report studies about the migrant population. The literature about the association between SC, health and well-being within the migrant population is restricted. I consequently choose to focus on studies only about health and studies about SC. Firstly, I presented works focusing on the health or on the SC of the migrant population. Then I discuss the literature about the association between SC and health among migrant (older) people; with a particular focus on bonding and bridging SC.

Some studies in the fields of SC, health and well-being are cross-country (e.g., Elgar et al. 2011; Forsman et al. 2012; Mackenbach et al. 2016; Vincens, Emmelin, and Stafström 2018) and based on SHARE data (e.g., Kohli, Hank, and Künemund 2009; Arezzo and Giudici 2017a; Olofsson, Padyab, and Malmberg 2018), while many other studies refer to a single country (e.g., Litwin 2011; Giordano, Björk, and Lindström 2012; Fiorillo and Sabatini 2015), to individual communities (e.g., Zunzunegui et al. 2003; Chipps and Jarvis 2016; Sibai, Rizk, and Chemaitelly 2017), or to single cities (e.g., Cattell 2001; Chan and Lee 2006; Ellwardt, Van Tilburg, and Aartsen 2015; Wu et al. 2016). The majority of this research is about Europe (e.g., Litwin 2010; da Silva 2014; Fiorillo and Sabatini 2015; Tomini, Tomini, and Groot 2016), the USA (e.g., Subramanian, Kim, and Kawachi 2002; Muennig et al. 2013; An and Jang 2016; Cain, Wallace, and Ponce 2017) or China (e.g., Norstrand and Xu 2012; Liu et al. 2016; Sun et al. 2017) and Japan (e.g., Hamano et al. 2011; Murayama et al. 2013; Sato et al. 2018).

Some of these works perform poor a operationalization of SC and conceptualize it as mono-dimensional, often using variables such as trust or social participation (e.g., Ichida et al. 2009; Landstedt et al. 2016; Younsi and Chakroun 2016; Ang 2018); whereas others use many variables to measure SC (e.g., Ramlagan, Peltzer, and Phaswana-Mafuya 2013; O'Doherty et al. 2017; Pinillos-Franco and Kawachi 2018). Finally, some studies use SN variables as SC (e.g., Ellwardt et al. 2015; Litwin, Stoeckel, and Schwartz 2015; Li and Zhang 2015). Some authors distinguish between cognitive or structural SC (e.g., Engstrom et al. 2008; Aida et al. 2011; Arezzo and Giudici 2017b) and bonding or bridging (or linking) SC (e.g., Mitchell and LaGory 2002; Arezzo and Giudici 2017a; Kabayama et al. 2017). The majority of the papers are about individual SC, but a relevant number are about collective SC (e.g., Veenstra 2005; Engstrom et al. 2008; Aida et al. 2013; Maass et al. 2016), or both (e.g., Subramanian, Kim, and Kawachi 2002; Kobayashi et al. 2015; Murayama et al. 2015). Most of these studies are cross-sectional, but more and more works are longitudinal (e.g., Zunzunegui et al. 2003; Kohli, Hank, and Künemund 2009; Croezen et al. 2015; Ang 2018).

Furthermore, some authors adopt a multilevel design (e.g., Snelgrove, Pikhart, and Stafford 2009; Murayama et al. 2012; Lucumi, Gomez, and Brownson 2015).

The operationalization of health is also very varied. I will present the results from studies on both physical and mental health that measure the outcome either with more subjective or objective measurements. Most of the works refer to some form of self-rated-health (e.g., Kawachi, Kennedy, and Glass 1999; Lindén-Boström, Persson, and Eriksson 2010; Pinillos-Franco and Kawachi 2018), or depression index, such as EURO-D or CES-D scale[13] (e.g., Litwin, Stoeckel, and Schwartz 2015; Park 2017; Ang 2018); but other "more objective" methods that measure physical health (physical activity, physical distress, cognitive function, mortality, IADL, ADL[14], chronic conditions, functional disability, ischemic heart disease) (e.g., Barefoot et al. 2005; Aida et al. 2011; Pinxten and Lievens 2014) or mental health (mental distress, psychological distress) (e.g., Hamano et al. 2011; Muckenhuber, Stronegger, and Freidl 2013; Yuasa et al. 2014) are also present. Many papers refer to well-being (or life satisfaction) (e.g., Chan and Lee 2006; Reinhardt, Boerner, and Horowitz 2006; Tomini, Tomini, and Groot 2016). Well-being is often intended as a generic measurement of quality of life. Most of these papers are about the general population, but of particular interest to this work are papers about aging or older people (e.g., Zunzunegui et al. 2003; Arezzo and Giudici 2017a; Litwin and Shaul 2018), or papers comparing the younger and older population (e.g., Muckenhuber, Stronegger, and Freidl 2013; Rostila, Ang 2018).

2.1 Social Capital, Health and Well-Being

As already introduced, in the next section I will talk about cognitive and structural SC as well as bonding and bridging SC. After that I will illustrate the principal SC components, the distinction between individual and collective SC, and the importance of considering socio-economic and demographic aspects and context in the main association. I conclude with some methodological issues.

2.1.1 Cognitive and Structural Social Capital

A review of the literature reveals how many studies (of both among older people and the general population) distinguish between cognitive and structural SC. Cognitive SC includes norms, values, attitudes and beliefs, and takes into consideration people's perceptions of trust and reciprocity. Structural SC refers to externally observable aspects of social organization

[13] Both measures are composed of a number of questions asked directly to the interviewees. A higher score indicates more depressive symptoms.
[14] Instrumental activity of daily living and activity of daily living. These two indexes are composed of items asking about simple activities that occur within the home (ADL) and more complex activities that required interactions with the environment.

(Islam et al. 2006). Most of the time, cognitive SC is represented by general or specific trust and reciprocity, whereas structural SC is represented by SNs, frequency of contact with friends, and varied forms of participation (De Silva, McKenzie, and Harpham 2005; Forsman et al. 2012; Park 2017; Vincens, Emmelin, and Stafström 2018). In their systematic review, Ehsan and De Silva (2015) found that individual cognitive SC (i.e., SC measured at the level of the individual and not at the community or general context level) protects against the development of common mental disorders, such as depressive and anxiety disorders. For structural SC there was no overall association. The authors underline that evidences from both cross-sectional studies and cohort studies confirmed that this relationship is not due to reverse causality (i.e., an effect of health on SC, instead of the other way around) (Ehsan and De Silva 2015). The same results have been found in other systematic reviews and single studies (De Silva, McKenzie, and Harpham 2005; Agampodi et al. 2015; Musalia 2016). Other studies underline the lesser (but present) effect of structural as opposed to cognitive SC (Islam et al. 2006; Kawachi, Subramanian, and Kim 2008; Koutsogeorgou et al. 2015; Vincens, Emmelin, and Stafström 2018). In a longitudinal study about older (65+) Korean women, Park (2017) found that both structural and cognitive SC have a negative association with depressive symptoms. A paper on older European people, using an instrumental variable approach and including structural SC only, stressed how structural SC exerts a positive effect preventing people from suffering from poor self-perceived-health (SPH). Furthermore, the authors added that reverse causation leads to an underestimation of the magnitude of the impact of SC on the outcome (Arezzo and Giudici 2017b). Forsman et al. (2012) found no significant association between trust in neighbours and depression. Public health research recommends that SC be separated into structural and cognitive forms because they have different relationships with health outcomes (Harpham, Grant, and Thomas 2002; van Groezen, Jadoenandansing, and Pasini 2011). However, this is not the only possible interpretation of SC.

Summarizing the results of this paragraph, findings about cognitive and structural SC do not point unanimously in the same direction. Most of the studies distinguishing between cognitive and structural SC found stronger effects from cognitive SC. However, some more recent research conclude that structural SC is important for health and well-being, especially among older people.

2.1.2 Bonding, Bridging and Linking Social Capital

A second distinction present in the literature is the one between bonding and bridging (and linking) SC. This distinction represents a different approach than the one between cognitive

and structural SC, and is based on the concept of homophily. Bonding SC is distinctive of a dense network, largely composed of kin ties, wherein individuals share similar characteristics (such as class or race) and where thick trust flows. This approach rests on the idea of closure (Coleman 1988), according to which, in this kind of network, information and resources flow more easily and there is more sincere support, thanks to "dense" trust. Instead, bridging SC is defined by ties connecting structural holes and thin trust flowing (Burt 1992). Granovetter (1983), stressed the importance ("strength") of weak ties, compared to strong ties, for the circulation of resources and information. These ties allow an individual belonging to a social group poor in resources to get in touch with a group rich in resources (Lancee 2012; Health and Yu 2005). The power of this SC derives from the presence of bridge ties that link two heterogeneous groups, otherwise separated from each other. Characteristic here are ties outside the family and ties that cross social class, race, and other boundaries of social identity (Aguilera 2003; Kawachi, Subramanian, and Kim 2008). Bridging SC is important to the success of civic society and opens channels for voicing concern in favour of those who have little opportunity to reach more formal channels in order to affect societal change (Cullen and Whiteford 2001; Islam et al. 2006). Bonding SC is often measured by family and close networks, and homogeneity of contacts. Bridging, instead, is operationalized through participation and heterogeneity of contacts. Finally, linking SC (sometimes added to this typology) is measured by hierarchical relationships, i.e., relationships in which one actor has some kind of power over the other actor (Murayama et al. 2013; Arezzo and Giudici 2017a; Kabayama et al. 2017).

The distinction between bonding and bridging seems to be especially important for health in contexts with high level of inequality and in low-income regions. Lee (2017), in a longitudinal study about 194 countries, found that bonding SC has negative effects on health and that bridging SC has positive effects on the same outcome. These relationships are more pronounced in low-income countries. Similarly, another study found that access to bridging SC might be more important for the health of older people in low- and middle-income countries compared to higher income countries, because it may buffer the negative effects of socio-economic inequalities (Ng and Eriksson 2015). Mitchell and LaGory (2002)'s research in a high-poverty, racially segregated urban neighbourhood of a mid-sized city in the south of the U.S.A. is one of the most famous regarding these topics. The authors found that bonding SC increases individuals' level of mental distress in this impoverished community. Instead of reducing distress, participation in various organizations tends to be associated with higher distress. Since many of the organizations that residents participate in are located within their community, apparently these ties further burden individuals already

struggling with their own environmental and economic stressors (Mitchell and LaGory 2002). Arezzo and Giudici (2017a), in a study about older people (50+), underlined how the bridging component is especially important in preventing a poor SPH. Social ties outside the family also play a fundamental role in old age, probably because they facilitate the diffusion of knowledge about health-related behaviours and innovation and contribute to the development and maintenance of a greater self-efficacy (Steverink and Lindenberg 2006; Arezzo and Giudici 2017a). Having a heterogeneous network is considered a benefit because people can receive new information and ideas through it (Granovetter 1973). Moore et al. (2011) showed how social ties outside the neighbourhood are associated with better self-rated-health (SRH) because they indicate access to a greater diversity of resources. A systematic review about the negative effects of SC stresses how several downsides of it seems to occur in the context of strong bonding SC and weak bridging SC (Villalonga-Olives and Kawachi 2017). Much research underlines how bonding SC, reinforcing exclusive ties and identities, excludes outsiders. Lack of bridging SC is used to reproduce a dominant social hierarchy (Whittaker and Holland-Smith 2016).

Different results were found by Murayama et al. (2015) in a study about older people in Japan. Bonding SC at the neighbourhood level (i.e., SC not belonging to the individual, but to a group of people, such as a community or neighbourhood) was inversely associated with a depressive mood, whereas bridging was not. Furthermore, the bridging component was positively associated with a depressive mood among women. They also found a significative interaction between individual- and neighbourhood-level bonding SC: people with weaker bonding SC and living in a neighbourhood with weaker bonding SC were more likely to have a depressive mood. A similar relationship was found in another study: people with a high individual-level of bonding trust living in a country with a high level of bonding trust evaluated their health more favourably (Meng and Chen 2014). Differences between men and women were found in one more study of older Japanese individuals. Kishimoto and colleagues (2013) found that, among women, a beneficial effect on SRH was limited to bonding SC; and was inversely associated with poor SRH, even after adding bridging SC to the model. For men, instead, a beneficial effect was found for both types of SC. One possible explanation is that older men in Japan sought and enjoyed stronger associations with their colleagues (i.e., bridging SC) until retirement (Suzuki et al. 2009). While bonding SC could remain after retirement, the loss of frequent connection with colleagues (i.e., bridging connections) could create new challenges for them (Oksanen and Virtanen 2012). The findings also suggest that the threshold for the beneficial effect of bonding SC is different for men and women: for women, a middle level of bonding SC was not significantly

associated with SRH, as it was for men. One explanation could be social desirability among women (Van der Gaag and Webber 2008), i.e., old women may tend to over-report the ammount of group involvement, compared to old men. Therefore, it might be that most of the women reporting a middle level of SC actually have almost no involvement in social groups (Kishimoto et al. 2013). Another study on adults in the USA found that community-level bonding SC was associated with better SRH, while bridging was not (Kim, Subramanian, and Kawachi 2006). Kabayama et al. (2017) also looked at linking SC and found that the hierarchical aspect of SC was negatively associated with mental health.

Mitchell and LaGory (2002) concluded their paper underlining how both bonding and bridging ties are important for the structure of communities. In a healthy community both are present. Bonding ties are crucial to the ability to respond effectively to local problems (Guest 2000), and indicate the strength of the community (Guest and Wierzbicki 1999). Bridging ties are important for the diffusion of information about the community and the obtainment of outside assistance to address significant challenges (Guest 2000; Paxton 1999). Bonding SC could be useful in establishing positive behavioural norms, controlling deviant social behaviours, providing mutual help, and protecting from various sources of vulnerability (i.e., loneliness), as well as in leading to the formation of collective strategies for access to health (Berkman, Kawachi 2000; Cullen and Whiteford 2001). The positive effects of bridging SC on health, instead, come from the possibility for disadvantaged groups to access material and non-material resources through connections to socially advantaged groups (Islam et al. 2006; Di Maggio and Garip 2012).

In summary, studies that distinguish between bonding and bridging SC find that the second is salient for health and well-being, especially in situations of deprivation. Results could be different in different contexts (e.g., Japan).

2.1.3 Social Capital Components

However, most studies on SC talk about a single or group of measures of SC, rather than cognitive and structural or bonding and bridging. In the study of SC, some measurements are particularly used. Of great interest in these studies are variables related to SNs; mainly size and composition of the network, distance and frequency of contact with the network's members, and satisfaction with the network. In some cases, SN variables are presented as network types, i.e., classified according to some characteristics (e.g., networks characterized by family ties, or networks with few but very close contacts, or networks composed of a very low number of ties) (Litwin and Stoeckel 2014; Litwin 2011; Litwin and Shiovitz-Ezra 2011).

Network size has been found to be related to well-being among older adults, but other evidence points to the health and well-being benefits of selective diminution of network ties in late life (Fung, Carstensen, and Lang 2001). As for composition, family ties are seen as dominating the networks of older adults (Cornwell et al. 2009; Litwin and Stoeckel 2014), and the presence of a partner seems to protect from depression and act as an indicator of a higher quality of life (Seeman and Berkman 1988; Buber and Engelhardt 2008; Craveiro 2017). Nevertheless, a growing body of literature documents the importance of friendship ties in late life and the contribution of relationships that derive from personal choice (Litwin 2007). On the basis of several studies, it can be said that older persons in networks characterised by greater interpersonal resources, or considerable SC, show greater well-being or better health than those who are in networks with less SC (Garcia et al. 2005; Dominguez and Arford 2010; Litwin and Shiovitz-Ezra 2011; Litwin and Stoeckel 2014). In other words, being embedded in a large and diverse network is relevant for older people health (Barefoot et al. 2005; Ellwardt et al. 2015). The frequency of interaction with contacts is a factor that has yielded ambivalent results in the literature (Diener et al. 1985; Zunzunegui et al. 2003; Rafnsson, Shankar, and Steptoe 2015): high frequency of contact, in fact, can be protective but at the same time can mean a constant need for support from one's own network and poor health (Deindl, Brandt, and Hank 2016). Also Litwin and colleagues (2015) found that more frequent contact with the network was related to a greater extent of depressive symptoms, but only among respondents aged 80 and older. These authors also stressed how satisfaction with one's SN is a relevant variable and they used it as proxy for the quality of the network[15]. SN satisfaction emerges as the network component with the strongest association with mental health (Litwin, Stoeckel, and Schwartz 2015). Ellwardt et al. (2015) found how perceived quality of social relations potentially reduces mortality risks indirectly via improved mental health. Counterintuitive results were found by Tomini et al. (2016), underlining how the amount of friends in the network appears to be generally negatively related to life satisfaction (but results are not statistically significant in all European countries in the sample).

Social participation is another variable often used as a SC indicator. Participation is especially related to depression symptoms and mental health in Western countries, within the general and older populations. However, there is also evidence of this association in South Africa and Latin America (Andrew 2005; Quatrin et al. 2014; Jang et al. 2015; Chipps and Jarvis 2016). In a longitudinal study (1991-2008) in the U.K., Yu and colleagues (2015)

[15] Network quality reflects how people feel about the relationships that they have. People derive different levels of satisfaction from similar network architecture and interactions as a function of their own subjective expectations, appraisals, and wants (Berg et al. 2006).

found that social participation predicts change in perceived mental health, and vice versa[16]. This result is in accordance with other studies (Bertotti et al. 2013; Kawachi and Berkman 2001) that argue that social participation contributes to health by providing a sense of meaning to individuals' lives, as well as by increasing access to social support. Furthermore, it can also influence lifestyle and offer mechanisms for coping with stress (Baetz, Griffin, and Bowen 2004; Vink, Aartsen, and Schoevers 2008). Consequently, social participation is especially important for recovery and improving the health of individuals with poor mental health (Smith, McCullough, and Poll 2003). Ang (2018) stressed how the negative association between participation and depressive symptoms grows stronger with age, but only for men. A plausible explanation here is that men's sense of self and identity tend to be grounded in work status. Social participation in formal organizations or institutions may therefore become more important as men age into later life, by helping them to fill role gaps and ensuring continuity in the transition out of employment. For women, instead, formal social participation does not become more salient for mental health as they age (Williams 2003; Ang 2018). Concerning participation and aging among older people, a study in the Nordic European countries (Nyqvist and Nygård 2013), underlined how both active and passive membership (i.e., the distinction between people investing more or less time and resources in a particular organization) were associated with SRH among 75 years-old people, but that the SRH of 65 years-old people was positive only when related to active membership. Furthermore, a quasi-experimental study in Japan demonstrated how older people participating in salon programs (i.e., participation in community centres) improved their SRH over time (Ichida et al. 2013). In conclusion, social participation may be more important for the health of older adults since they are more likely to experience loss of social roles and group memberships and have fewer chances of regaining them (Ang 2018). Older people who perceive that they have a role identity in society and that they have control over their own lives are more likely to remain healthy and to seek appropriate exercise and nutrition (Lemon, Bengston, and Peterson 1972; Menec and Chipperfield 1997).

Among other things, religious organizations seem to be particularly effective in improving the health and well-being of older people. In a longitudinal study about older people in Europe (SHARE, waves 1,2,4[17]), results show how increased participation in religious organizations predicted a decline in depressive symptoms 4 years later, while participation in political/community organizations was associated with an increase in the

[16] Authors used autoregressive cross-lagged panel models (ACLPM) to simultaneously address reciprocal influences on SC and health (Yu et al. 2015).

[17] Information about participation in religious association is no more present in wave 6 of the same study (the one I used for this dissertation).

same outcomes. The association was not different across European regions (Croezen et al. 2015). Coherently with this result, Muennig et al. (2013) found that attending church more than 12 times per year was associated with reduced all-cause mortality. Finally, Lim and Putnam (2010) stressed how, in the USA, religious people are more satisfied with their lives because they regularly attend religious services and build SNs in their congregations. However, this effect is contingent on the presence of a strong religious identity. In summary, social participation is associated with mental and physical health, but the direction and strength of the association depend on the type of social activity. Religious participation can be particularly important for older people because it leads people to become more attached to their communities, which prevents social isolation, a predictor of old-age depression (Baetz, Griffin, and Bowen 2004). However, participation in political activities could be beneficial for health when reciprocity is expected (Wahrendorf, von dem Knesebeck, and Siegrist 2006). Over time, instead, political participation may lead to higher effort and lower reward, which may trigger depressive symptoms (Croezen et al. 2015).

Another important aspect of SC is social exchange, or social support. It can be understood both in terms of help provided and help received from family, friends and other contacts (Chen and Silverstein 2000; Reinhardt, Boerner, and Horowitz 2006; Liang, Krause, and Bennet 2001). Social support provides direct and indirect access to relevant resources, and should be intended, mainly, as emotional, instrumental and financial support. Giving help to network members is associated with positive health and well-being (Chen and Silverstein 2000), whereas, receiving help can be associated with poorer health outcomes (Lakey and Lutz 1996; Berkman et al. 2000; Reinhardt, Boerner, and Horowitz 2006; Deindl, Brandt, and Hank 2016). O'Doherty and colleagues (2017), in a study about older people in the UK, found that receiving social support does not appear to have any effect on SRH. Reinhardt, Boerner, and Horowitz (2006) underlined how perceived (i.e., support available, even when it is not really needed) and received support have a different impact on well-being and mental health. Received and perceived affective support were related to lower depressive symptoms, while received instrumental support (i.e., material aid or physical help) predicted greater depression. However, perceived instrumental support did not have a significant impact on this outcome. Subjective assessments of social support seem to be more strongly related to health and well-being than other more objective measures (Bowling and Browne 1991; Chi and Chou 2001; Chan and Lee 2006). The recent social cognition approach, in contrast with the more traditional view of social support, holds that perceived support represents a sense of being accepted by others based on beliefs about supportiveness and on the personality of the support seeker (Reinhardt, Boerner, and Horowitz 2006). Having the

perception that support providers are available if needed can be comforting, and may enable a person to deal with a stressful situation in a self-reliant fashion (Bolger, Zuckerman, and Kessler 2000). Some researchers who have shown that support receipt is associated with an increase in depression over time hold that this is due to loss of sense of self-esteem (Bolger, Zuckerman, and Kessler 2000).

2.1.4 Individual and Collective Social Capital

Some studies compare individual SC to forms of collective SC: neighbourhood SC, community SC, contextual SC etc. As already mentioned, this distinction is at the level at which SC is operationalised. Individual SC is a form of SC measured at the individual level; i.e., SC is considered as being owned and used by the individual and not by a community of people. However, SC can also be understood as a quality of the community, rather than an attribution of the individual. Collective SC is measured at some collective level and is not interpreted as being owned by a single individual, but by a form of community of people. Many scholars agree that individual SC has a stronger association with health or well-being (Lindström, Moghaddassi, and Merlo 2004; Veenstra 2005; Poortinga 2006; Nyqvist, Nygard, and Steenbeek 2014) or that the effect of community/collective SC on individual health may be mediated by individual SC (Subramanian, Kim, and Kawachi 2002; D'Hombres et al. 2011). However, some studies lead to the opposite result (Carlson 2004; Ichida et al. 2009; Vincens, Emmelin, and Stafström 2018): collective rather than individual SC impacts health status. In a study in Stockholm, both individual and contextual SC lowered the risk of poor SRH (Engström et al. 2008). The significant aspect is the interaction between the two levels, individual and collective (Meng and Chen 2014; Shen et al. 2014). Murayama et al. (2015) underline how people with a weaker homogeneous network living in a neighbourhood with weaker bonding SC are more likely to be depressed. Similarly, Campos-Matos et al. (2016) studying SC trough trust, showed how belonging to a community with high SC appears to be beneficial to the health of people with a high level of trust. However, the opposite appeared to be the case for mistrustful people. Subramanian et al (2002) have suggested possible explanations: low trust individuals tend to be socially excluded from high SC communities. The more cohesive the community, the more likely it is that socially-withdrawn individuals are set aside, and low trust individuals can experience restrictions on their individual freedom to express themselves when they are surrounded by other people who seem to be different or opposite (Villalonga-Olives and Kawachi 2017).

2.1.5 Socio-Economic and Demographic Aspects

Some socio-economic and demographic variables are particularly important in the association between SC and health. In this paragraph I summarize some studies that compared older individuals to younger ones and studies that took into account gender, economic situation and living arrangement.

Little research on SC, health and well-being compares older people to younger people. However, this kind of comparison is extremely important for understanding if SC exercises a different effect on health according to the age of the individual. Studies on aging that focus on social relations and other related concepts in different contexts and societies have shown a clear relationship with heath status and well-being, particularly in old age (Musick, House, and Williams 2004; Sirven and Debrand 2017). Perceived support tends to produce a stronger and more consistent effect on the health and well-being of older people; more than affective and instrumental support (Norris and Kaniasty 1996). Litwin and colleagues (2015), in Europe, found that more frequent contact with members of the network was related to a greater extent of depressive symptoms, but only among respondents aged 80 and older. Instead, having close friends and family nearby was associated with being less depressed among the younger-old (65-79), but not among the older-old (80+). A possible explanation of this last result could be that proximity reflects more voluntary relationships (Connidis 2010). The young-old tend to maintain more such elective ties more than older-old adults do (Fingerman 2004). The networks of the old-old could have more obligatory ties and fewer chosen ones (Litwin, Stoeckel, and Schwartz 2015). Again in Europe, Rostila, Nygård, and Nyqvist (2015) discovered a significant association between SN and SRH among people aged 60 and over, while no significant association was found among younger people. Some authors seem to find that the effect of social participation on health increases with age (Lee et al. 2008; Myroniuk and Anglewicz 2015). If the strength of the association were to increase over the course of life, health risks associated with a drop in social participation in later life could be amplified because of its greater salience as one ages (Ang 2018). Riumallo-Herl, Kawachi, and Avendano (2014), in Chile, found that SC is associated with depression among all populations, but it is associated with SRH, hypertension and diabetes only among people aged 45 and older. Muckenhuber, Stronegger, and Freidl (2013), in a study on the general population in Australia, stressed how institutional SC (i.e., access to institutionalised resources) is significantly more important for the health of older people than for that of younger people. Furthermore, the mental health of older men is more strongly effected by a lack of informal SC than that of younger men. An explanation for the first result could be that younger people have better opportunities to compensate for a lack of institutional SC

than older individuals do. Otherwise, low SC in younger age could also have negative effects on health in later years, through a cumulative effect over the years (Muckenhuber, Stronegger, and Freidl 2013). Finally, a study in China showed how the effects of SC on physical health tend to be stronger for older adults (60 years old and over) (Liu et al. 2016).

Gender is a relevant dimension in the association between social relations and health and well-being, and some papers stress it. In a study about the general population of Europe, Pinillos-Franco and Kawachi (2018) showed how two different variables matter for the two populations: the presence of people with whom to discuss personal and intimate matters is protective (against poor SRH) for women, whereas for men participation in political parties or action groups are the most protective variables. The authors attempted to give a possible explanation: women consistently report more intimate relationships, and the presence of such contacts can help them to obtain social support (Kawachi and Berkman 2001). By contrast, men rely more on non-family relationships (Moore 1990) which help them to achieve, for instance, valued career positions (van Emmerik 2006) and hence, to reach higher socioeconomic positions in society. Also Ang (2018) found similar results about participation: the negative association between social participation and depressive symptoms grew stronger with age among men. Furthermore, studies conducted in a range of countries have found that men and women benefit from different types of activities (Takagi et al. 2013; Leone and Hessel 2015). Also, the greater importance of informal SC for older men than for younger men could be a gender effect. Managing life during the retirement period is particularly important for men. Older men may need to develop coping strategies for the lack of informal capital which women may have already developed in earlier life (Muckenhuber, Stronegger, and Freidl 2013). Similar explanations linked to the differences in retirement age between men and women were given by Kishimoto and colleagues who found that the positive effect on SRH among women was more likely limited to bonding SC, while the association with bridging SC was less clear (Kishimoto et al. 2013). One interesting result was the one found by Sun and colleagues in China (2017), where SC was associated with health-related quality of life (HRQOL) among women, whereas average family income was associated with the outcome for men. Apparently, women tend to access or mobilize more support than men (Kawachi and Berkman 2001), while men may depend more on economic resources (Sun et al. 2017).

In general, economic situation is a variable that intervenes in the association of SC and health. And, at the same time, SC may intrude and eliminate the association between economic status and well-being or health. In Latin America, trust at the country-level moderates the effect on the association between socioeconomic position and health,

favouring individuals in lower positions, especially in more equal countries (Vincens, Emmelin, and Stafström 2018). Among older adults in one disadvantaged settlement in the Middle East, the association between health and economic security is rendered insignificant by SC (Sibai, Rizk, and Chemaitelly 2017). In deprived communities in Beirut social support was strongly associated with SRH among women, whereas economic security was related to the outcome for men (Chemaitelly et al. 2013). In Beijing and Hong Kong, income is less important than personal network size and social support for the happiness of individuals (Chan and Lee 2006). Ichida et al. (2009), studying older people in Japanese communities through trust, underlined how the association between SC and SRH was made insignificant after adjusting for the Gini coefficient of the region. This suggests that people living in conditions of high-income inequality tend to have low trust levels, and that SC mediates the relationship between income inequality and health (Ichida et al. 2009). Furthermore, the social advantages for individuals with higher socioeconomic status are re-enforced by social connections and social support, in the European context. In turn, health inequalities are attenuated by marital partnership and participation on social activities that benefit more the health of people with lower socioeconomic positions (Craveiro 2017). Finally, in a systematic review, Uphoff et al. (2013) found that 56 studies (out of 60) confirmed a correlation between SC and socioeconomic inequalities in health. 12 studies reported that SC might buffer the negative health effects of low socioeconomic status and 5 studies concluded that SC has a stronger positive effect on health for people with lower socioeconomic status. The beneficial effects of SNs on health may be particularly relevant for lower class individuals due to a higher level of exposure to stressful events (Matthews, Gallo, and Taylor 2010).

Finally, another key factor in the study of SC and health is where and how the individual lives. Living alone is a common condition among older adults, and can have different impacts on their SC and health and well-being. In China, Xu, Norstrand, and Du (2015) underlined that older people living alone possessed similar levels of SC to older people living with others. The opposite result is found in the USA, where older adults living alone are more likely to report feeling sad, hopeless, and worthless. They are also more likely to experience lower levels of social support, trust and cohesion, and enjoy less leisure-time physical activity than those living with others (Yu, Hou, and Miller 2017). The impact of SC on various health outcomes also differs according to the rural or urban living arrangements of the population. However, results are not consistent (Wanless, Mitchell, and Wister 2010; Meng and Chen 2014; Tobiasz-Adamczyk and Zawisza 2017; Sato et al. 2018).

2.1.6 The Importance of the Context

In English, the word "context" has a broad meaning: "the situation within which something exists or happens, and that can help explain it" (Cambridge Dictionary 2019a). Here, by context, I refer to the policies that act in a specific area, the current culture, or the social environment in general; and I am interested in the effect it may have on the association between SC, health and well-being. A context could be more or less favourable (i.e., could be more or less effective for equality) for a specific population (e.g., older people and migrants). I will use context as synonymous with macro aspects. Studies on social phenomena cannot avoid taking into consideration the context, but the ones presented in this section make a particular effort to explain contextual-based dissimilarities and emerging patterns in the association between SC, health, and well-being.

As has already been shown in some previous studies, the country or, more generally, the social environment (e.g., type of policies, type of formal and informal institutions, etc.) in which the phenomenon is studied plays an important role in shaping the association between SC, health and well-being. In the next lines I focus on these papers, placing particular emphasis on the context. In my research I studied Europe, and, for this reason, I report mainly studies analysing the European context. The restrict European environment is wide and diverse. For this reason, it is fundamental to take it into account when investigating the association between SC and health. Many comparative studies indicate cross-cultural and cross-national variations in elders' SC and in their health (Kohli, Hank, and Künemund 2009; Hank 2011; Arezzo and Giudici 2017a; Pinillos-Franco and Kawachi 2018); as well as differences in the scope, strength and direction of observed associations (Litwin 2010). The principal differences pointed out in the literature are between Western and Asian countries and between different areas in Europe. In Japan, community social participation is seen as an obligation. This may lead to mechanisms such as exclusion of outsiders, restrictions on freedom and downward levelling norms, which have negative effects on health (Portes 1998; Kabayama et al. 2017). Pinillos-Franco and Kawachi (2018) found that, among the general population, citizens of Eastern Europe reported lower levels of participation in social activities, institutional trust and sense of belonging; and that the same variables are less protective against poor or fair SRH. Croezen et al. (2015) underlined that respondents (older people) from the Southern European countries reported the least participation in social activities, whereas the lowest level of depression was in Northern Europe. Litwin (2010) compared Mediterranean to non-Mediterranean respondents, and stressed how Mediterranean old people give and receive more within-household help, and have larger family networks and more social exchanges. However, Mediterranean respondents reported

feeling lonelier than non-Mediterranean respondents. One explanation for this paradox could be that these two groups of people have different expectations regarding their relationships[18] (Litwin 2010). Arezzo and Giudici (2017a) reported a combination of more SC and better SPH in Nordic and continental countries, and less SC and poor/fair SPH in Southern and Eastern countries. The same evidence about SNs was found by Tomini, Tomini, and Groot (2016). These results suggest that SC is embedded in a larger social and cultural context (Deindl, Brandt, and Hank 2016), which must be taken into account.

Some researchers have used "welfare regime" types as a method to cluster countries (Esping-Andersen 1990; Ferrera 1996) for the study of associations between SC and health. However, scholars disagree about the effect of welfare and, in particular, about the effects of generous welfare systems on levels of SC (Fukuyama 2000; van Oorschot, Arts, and Gelissen 2006; Rostila 2007). The "crowding out" hypothesis (Oorschot, and Arts 2005; Rostila 2013) suggests that universal welfare states of the socio-democratic model have negative consequences on SC: comprehensive welfare systems provide necessary support, so citizens no longer need personal networks for help, and SC results as deteriorated. Consequently, in these regions other factors might be important for health and well-being (e.g., more tangible aspects, such as use of the health system), and the association between SC and these outcomes would be weak. Other scholars argue that a universalistic welfare regime supports the creation and maintenance of SC (i.e., the "crowding in" hypothesis): this kind of welfare regime may offer financial resources and free time to actively create and maintain social relations, that would positively impact health and well-being. Rostila (2013), referring to Esping-Andersen's (1990) welfare regime typology, found evidence in favour of the second hypothesis: the more that a country spends in the aggregate of social protection, the higher the levels of informal social participation and membership in civic associations. Furthermore, the author emphasizes the presence of a mechanism whereby welfare stimulates SC and promotes a healthier society. The same results were found by Kumlin and Rothstein (2005), who discovered higher levels of trust and sense of belonging, and lower prevalence of fair or poor health in countries with universalistic welfare regimes. Furthermore, Olofsson, Padyab, and Malmberg (2018) found that satisfaction with the SN appears to be more correlated with good SRH in countries in the North. One possible explanation could be that SNs become more important for people's well-being in countries where family-based support is less common and is not taken for granted. Moreover, a higher satisfaction with SNs in these countries could be because they do not need to rely much on

[18] Loneliness tends to be greater in communal societies where one's expectations for social contacts are greater (Van Tilburg et al. 1998).

their network confidents given the great role of the state in their welfare systems. Previous studies based on SHARE data have also shown that older old people in Scandinavian countries are more satisfied with their SNs despite less frequent contact (Hank 2007), and report less loneliness despite the higher prevalence of living alone (Sundstrom, Fransson, and Malmberg 2009).

A systematic review on SC and health (Islam et al. 2006) found that the association between the two variables was consistently reported in less egalitarian countries, or those countries characterized by high concentrations of inequalities such as poverty and racial segregation; rather than in more egalitarian countries. A weaker association was found in more egalitarian context such as Canada and Sweden. These results seem to be more consistent with the "crowding out" hypothesis. Koutsogeorgou et al. (2015) also argued that the relevance of SC for health is weaker in comprehensive welfare states with a large provision of public social welfare. Another explanation could be the fact that there are cross-country differences in the contribution that family or social contacts make as informal care-givers, providing health care to their family members due to social norms imposing the duty to provide care to close informal social contacts (Koutsogeorgou et al. 2015). Craveiro (2017) found a negative influence of social provision and daily contacts on health only in Central and Southern Europe. The author hypothesises that the strong publicly-funded social support systems of Northern European countries may reduce the negative impact of informal social support on health.

In sum, these results stress the importance of taking into account the larger social and cultural context. Some authors underline how different cultural expectations regarding the level of SC influence its impact on health and well-being. Finally, there is evidence both in favour of crowding out and crowding in hypothesis.

2.1.7 Trust and Reverse Causation: Two Open Issues

I conclude this section about the association of SC, health and well-being by introducing some methodological issues that have emerged in the literature. These are, in particular, the use of the variable "trust" as an aspect of SC and the possibility of reverse causation. Trust is a variable often used for measuring SC, but there are very controversial opinions about whether it represents SC or not[19] (Giordano, Björk, and Lindström 2012; Molina 2016). In other terms, there is a problem of validity. Trust is usually interpreted as a cognitive component of SC. Fukuyama (1999) sees trust as a by-product of SC and not as a central part of the concept, whereas Woolcock (2001) refers to SC as networks and norms that

[19] This is one of the reasons why I choose not to use "trust" as a SC measure in my research.

facilitate collective action, and trust more as an outcome. This may indicate that the structural and cognitive components do not always go together. Nyqvist, Gutavsson, and Gustafson (2006) hypothesized that, for the oldest old, trust reflect attitudes and individual traits often acquired decades earlier, while the structural aspect of SC probably reflects current living conditions. Van Groezen, Jadoenandansing, and Pasini (2011) found that trust has a significantly positive effect on SPH in Sweden and in Germany, but no effect in the other countries in the analysis. Therefore, trust might be too context-sensitive. The authors concluded that trust and social participation measure two different aspects of SC that must be treated separately.

In a number of studies a causal effect between heath and SC was found, instead of the opposite direction (von dem Knesebeck, Dragano, and Siegrist 2005; Islam et al. 2006; Younsi and Chakroun 2016). In other words, some longitudinal studies indicated how it is health that influences and modifies SC, and not the other way around. Isherwood, King, and Luszcz (2012) in their study, concluded that there is a reverse causation between mental health and participation. Yu et al (2015), in the UK, found that participation and SNs predicted change in mental health and vice versa. Reciprocal causality was also found between loneliness and physical health. Li and Zhang (2015), instead, found a strong reciprocal effect between SNs and health. Others studies that explicitly tested the effects of health on network changes reported mixed results (Mor-Barak and Miller 1991; van Tilburg 1998; Aartsen et al. 2004). De Silva, McKenzie, and Harpham's (2005) systematic review of the relationship between SC and mental health concluded that there is strong evidence that mental illness could result in low SC, as mentally ill individuals are more likely to evaluate things negatively and to withdraw socially. Sirven and Debrand (2012) found that, in Europe, individual SC has a causal beneficial impact on health and vice-versa. However, the effect of health on SC appears to be significantly higher than the effect of SC health. These results indicate that the sub-population reaching 50 years old in good health has a higher propensity to take part in social activities and to benefit from them. Conversely, people with poor or fair health, may see their health worsening faster because of the missing beneficial effect of SC. Finally, many studies have found that happier people often have a wider network (Diener and Seligman 2001; Helliwell and Putnam 2004; Lim and Putnam 2010).

2.1.8 Social Capital, Health and Well-Being: Conclusion and Limits

In sum, studies found a positive relationship between SC, health and well-being; and the relationship is particularly strong among aging and older people. The SC variables that appear to have the strongest effect on health and well-being are SN variables and forms of social

participation. However, these studies have some important limitations. First of all, most of them are cross-sectional and this prevents the possibility of controlling for reverse causation. Furthermore, a relevant number of studies performed a poor operationalization of the SC concept, using just one or two variables, without consideration of the multidimensionality of SC. Some authors decided to use SRH and trust; two variables whose validity is questioned by many experts in the field (Idler and Benyamini 1997; Fukuyama 1999; Woolcock 2001; Jylhä 2009; Grol-Prokopczyk, Freese, and Hauser 2011; Giordano, Björk, and Lindström 2012). With regards to the dependent variable in the association, most of the authors used subjective measures of mental or physical health (Murayama et al. 2015; Park 2017; Sun et al. 2017). The limitations of using only subjective measures are often due to the data. In general, literature about SC and health among older people that takes into consideration the context is lacking. Furthermore, there is a main limitation of studies taking context into consideration: works about Europe mainly used the welfare regime typology in order to control for contextual effects; rather than other clustering strategies more appropriate for studying the health and well-being of older people. Others clustering strategies, for example, could be made according to GDP expenditure of the state on long term care or expenditure on social protection of old age function.

2.2 Migrants, Social Capital, Health and Well-Being

Different considerations should be made in the case of an older migrant population. As old and non-native (i.e., not born in the country of residence), they can be considered a doubly vulnerable population (Poulton 1986; King et al. 2014; Cela and Fokkema 2017). The history of mass migration shows us that the aging process of migrant people is likely to increase in the near future. Mass migration flows occurring up to the mid-1970s in many parts of north-west Europe brought in young adults: these settlers are now rapidly approaching older ages (White 2007). In the future, challenges posed by the aging of the migrant population are likely to concern other countries, such as Italy, where massive migration arrived later. This phenomenon represents a significant structural shift not only in the lives of the populations involved but also in the general societal responses that are needed in terms of welfare and other support (White 2007). As underlined in the introduction, given the lack of literature about the association of interest, I will firstly focus on studies about migrants and health and well-being, and studies about migrants and SC. Then I will present the literature about the association between SC, health and well-being, among the migrant population. In these fields, studies about older migrant people are very few. For this reason, the majority of the following

literature is about the general population, but some of it is about older people or the aging process of the migrant population.

2.2.1 Migrants, Health, and Well-Being

In Europe differences in health and well-being between native-born people and migrants vary by country of study, and country of origin, and gender (Solé-Auró and Crimmins 2008). However, age of arrival and length of residence are also very important. In a follow-up study in Sweden, male migrants appeared to have a higher rates of mortality and heart disease than Swedes, but lower rates than the populations they came from (Gadd et al. 2006). This is also true in other countries, and especially for young migrants whose primary goal is finding a job (Lu 2008; Redstone Akresh and Frank 2008). In England, migrants from Europe have better health than natives, but females from the Caribbean and Africa had higher mortality rates than natives. In France, male migrants from Morocco have lower mortality than native men, but the contrary is true for women (Khlat and Courbage 1996). Lanari, Bussini, and Minelli (2014) found that Eastern European migrants living in Germany, France and Sweden have a health disadvantage, and experience worsening health and less likelihood of recovery, with respect to the native-born population. In Malmusi, Borrell, and Benach's (2010) work on migration in Catalonia, they discovered, studying both internal (i.e., from other regions of Spain) and international migrants, that negative effects on health were mainly limited to migrants from poor areas. In Catalonia, poor or fair health was generally consistent with migrants' socio-economic deprivation, and was apparently more pronounced among manual social classes and among women. Foreign migrants from poor countries had the poorest-socioeconomic situation but relatively better health (especially men with shorter length of residence).

These and other findings highlight the transitory nature of the "healthy migrant effect" (Hamilton 2015) and underline how geographical inequalities are reproduced by the lower social position these migrants have in the host country (Malmusi, Borrell, and Benach 2010). As underlined before, the healthy migrant effect stresses how migrants arrive in a new country (especially to find a job) with an initial health advantage over the native population (Cho et al. 2004; T. G. Hamilton 2015). However, in Europe, while older (50+) migrants from Northern and Central regions have a level of well-being similar to that of natives, Southern and Eastern European, and Non-European migrants have significantly lower levels of well-being than the native population (Sand and Gruber 2016). According to Lanari, Bussini, and Minelli (2018), migrants arriving in the host country during adulthood experienced a relatively fast health decline. Migrants who arrive in childhood, instead, are

"protected" from negative transitions toward bad health. Some authors have observed the rapid deterioration in the health status of migrants from Eastern Europe living in Germany, despite their initial health advantages upon arrival and improved socioeconomic status over time (Ronellenfitsch and Razum 2004). The same has been observed for Hispanic and non-Hispanic migrants who migrated in late adulthood (Gubernskaya 2015).

In the literature, high levels of depression and poor health are mainly attributed to two components: low socio-economic status or stress experienced during the migration and acculturation process (Lindert et al. 2009; Molarius et al. 2009). Many health and well-being discrepancies between migrants and non-migrants, indeed, disappear after controlling for socio-economic status (WHO 2010), though poor socio-economic status might itself be a result of migrant status and ethnic origin do to processes of social exclusion (Davies, Basten, and Frattini 2010). In Israel, ethnic origin seems to matter less for the evaluation of older migrants' well-being than other socio-economic factors such as economic status, SC and health status. However, recent arrivals from the Former Soviet Union do differ from all other older migrant groups in their lower levels of well-being (Amit and Litwin 2010). However, some researchers found that migrants (especially older ones) have poorer health than the native population, even after controlling for socio-economic status (Solé-Auró and Crimmins 2008). Pudaric, Sundquist, and Johansson (2003) found this to be the case in Sweden, among older foreign migrants. In these cases, the reasons for the differences between the two populations could be the stress endured during the migration and acculturation process, which can activate an internal conflict between one's original culture and the new one (Berry et al. 1987; Schweitzer et al. 2006). Depending on the societies involved, this process may result in integration, assimilation, separation, or marginalization[20]. The last two scenarios are associated with a high level of social difficulty (Ward and Kennedy 1994; Berry 1997) and discrimination, which can lead to poor health.

Compared to non-Latino whites in the USA, Latinos have a worse socio-economic profile but a lower mortality rate. However, this advantage seems to decline the longer Latinos reside in the USA and over generations (Abraído-Lanza, Echeverría, and Flórez 2016). Migrants from Eastern Europe to Germany had better heath than native West Germans initially; however, five years after migration, the health differences had disappeared (Stronks 2003), and, at the same time, the socio-economic disadvantage of migrants compared to native Germans had diminished. These results fall under the "Immigrant health paradox" (Abraído-Lanza et al. 1999). Huijts and Kraaykamp (2012) found how, in Europe, migrants from Islamic countries have a better health, because of their socialization of health

[20] For a detailed explanation of the terms "integration", "assimilation", "separation" and "marginalization", see Berry (1997).

behaviour and sanctions against unhealthy behaviours. However, this is not true for second-generation migrants. Also, Islamic migrants adapt to the lifestyle of the host country. Luthra, Nandi, and Benzeval (2018) confirmed the "ethnic maintenance" hypothesis among first- and second-generation migrants in the UK: they found a positive association between ethnic and racial harassment and smoking for ethnic minority women. Ethnic minority men and women who report stronger ethnic maintenance are less likely to binge drink. Migrants moving from a low-income to a high-income country often move from a society in an earlier phase of health transition to one in a more advanced phase, with a declining risk for communicable diseases, but an increasing risk for chronic diseases associated with the adoption of unhealthy lifestyles (Spallek, Zeeb, and Razum 2011). A comparison of Ghanaian migrants in the Netherlands, with their counterparts in urban and rural Ghana, showed a significantly higher prevalence of overweight and obesity among those in the Netherlands and those in urban Ghana compared with the rural Ghanaians (Agyemang et al. 2009). Also the association between perceived discrimination and ill physical and mental health is well established (Paradies 2006; Pascoe and Richman 2009).

Context plays a role in shaping migrants' health. Migrants displayed substantial differences in health according to the country of residence (Bhopal, Rafnsson, and Agyemang 2012). These findings show the importance of factors that are indicative of the local context. Aichberger et al. (2010) found that the influence of being a (middle age and older) migrant on depression was significantly greater in Northern and Western countries, compared to Southern Europe. Sand and Gruber (2016) underlined how the size of the well-being gap between older natives and older migrants varies largely across countries. Family reunion policies measured by the Migrant Integration Policy Index (MIPEX)[21] correlate with these country differences. The migrant-native gap is bigger in countries with unfavourable policies (to family reunion) and smaller in countries with favourable policies. Migrants have a lower level of well-being than the native population in all countries, with the exceptions of Spain and Italy (where family reunion policies are favourable). The differences are larger, instead, in the Netherlands and Denmark. Similar results were found in another study: in Northern and Western European countries, older migrants born in low- and middle-income countries present a higher level of frailty than both older natives and migrants from high-income countries. This disparity was not present in Southern or Eastern European countries (Brothers, Theou, and Rockwood 2014b). Finally, a study comparing migrants' health across

[21] MIPEX is a tool that measures policies to integrate migrants and allows for comparison among countries. Policies are divided into 8 areas, and one of them is family reunion policies (Migrant Integration Policy Index 2015).

regions within Belgium demonstrated that migrants report poorer health in regions with high unemployment and a lack of public services (Lorant, Van Oyen, and Thomas 2008).

There are many reasons why there is not a consistent pattern of health differences between migrants and native populations across time and place (Solé-Auró and Crimmins 2008). First, migration occurs for a variety of reasons, and migrant characteristics may differ due to these reasons (e.g., people migrating at a young age to get a job or people migrating during old age during retirement) as well as to the obstacles to be overcome during the migration process (e.g., arriving from a developing country, or from other parts of Europe). It is also true that differentials between migrants and native populations may differ across dimensions of health (Jasso et al. 2004; Hayward, Warner, and Crimmins 2007). Furthermore, it is possible that differences in the use of healthcare resulting from lack of access or language barriers could result in differences in the progression of health problems, as well as in the reporting of health problems (Smith and Bradshaw 2006).

2.2.2 Migrants' Social Capital

Migration can lead to a reduction or loss of social and family ties and to a subsequent decline in social support, particularly salient in old age (Kauh 1997; Silveira et al. 2002; Park et al. 2015). Being embedded in one's own ethnic community (but also being integrated into society in a larger sense), as well as getting support from family and staying connected to one's native country, are all aspects that help older people to feel less alone (Berry 1997). Aspirations and expectations for the future play an important role in the well-being of this population (Bhugra 2004): the decline of their role within society and the erosion of the traditional family structure can negatively influence well-being (Silveira and Ebrahim 1998). Furthermore, connections that migrants develop when they first arrive are unlikely to remain unchanged, especially if they experience social and geographical mobility within the host society (Ryan 2007, 2011). Empirical studies indicate that migrants report lower levels of generalized trust and have a lower propensity to take part in social activities than natives, even after social and economic statuses are taken into account (Breton 2003; Kazemipur 2004; Aleksynska 2011). Berchet and Sirven (2014) found that older migrants have less SC than natives, also in Northern European countries (which have the highest level of SC). Migrants face a different social, economic, and institutional environment, to which they have to adapt through, for instance, change in cultural habits, creation of social bonds, and acquisition of institutional knowledge and skills (Breton 2003; Berchet and Sirven 2014). The authors identified how social participation and trust are especially driven by higher levels of education and good SRH (Berchet and Sirven 2014). Country of origin is also an important

variable in defining the SC of migrant people. Amit and Litwin (2010), studying aging and older migrants in Israel, found that older migrants from America had the highest mean activity level (i.e., level of social participation). Significantly lower activity levels were found among migrants from Asia and Africa, and the lowest level was report by those, more recent, migrants from Former Soviet Union.

For the creation and maintenance of SC, length of residence in the host society is fundamental: the longer the migrants dwell in the country, the more they become familiar with the country's formal and informal institutions. This facilitates participation in social activities and enhances generalized trust (Berchet and Sirven 2014). Such a process of embeddedment can be seen as a reduction in the "social distance" between migrants and natives, which fosters social connectedness (Akerlof 1997).

Finally, context is fundamental for developing and maintaining of migrants' SC. Berchet and Sirven (2014) found that migrants living in Northern countries in Europe have the highest level of SC, whereas living in France decreases the likelihood of trusting other people among older migrants. The debate on whether SC is a complementary or a substitute to civic society is relevant for the migrant population. Also the mechanisms of the "crowding out" or the "crowding in" effect may intervene among this population (Berchet and Sirven 2014).

2.2.3 The Impact of Social Capital on Health and Well-Being among Migrant Population

Finally, several authors studied the association between SC, health and well-being among migrant population (Carswell, Blackburn, and Barker 2011; Teodorescu et al. 2012). Huijts and Kraaykamp (2012) found that, in Europe, migrants living in countries with large numbers of migrant peers experience worse health. This result is in line with the acculturation theory: presence of a large number of peers from the same country may, in fact, impede integration into the host society (Portes 1998). Large communities may increase the risk of living in deprived areas (Becares, Nazroo, and Stafford 2009). High migrant concentration in regions is associated with the poor health of migrants' occupational status, which, in turn, may lead to a higher risk of reporting poor health (Wiking, Johansson, and Sundquist 2004; Van Tubergen 2006).

On the contrary, Pickett and Wilkinson (2008) underlined how living among large numbers of peers from the same country of origin may be beneficial to migrants' health. A larger community may also have a positive effect on the reduction of psychological symptoms and mortality risks (LeClere, Rogers, and Peters 1997; Anson 2002; Gee 2002;

Becares, Nazroo, and Stafford 2009). The same result was found among older Korean migrants in Texas: higher levels of depression were observed among individuals who received lower levels of community support, had limited participation in ethnic community events and activities, and reported more frequent negative interactions with ethnic community members (Jang et al. 2015). Ethnic communities often serve as a key source of support for older migrants with linguistic and cultural barriers (Chau and Lai 2011; Cheong et al. 2007). Those who are engaged in community-wide ethnic support systems and community activities tend to have better mental health outcomes than those who are isolated (Chau and Lai 2011). Ljunge (2014), studying the children of migrants in Europe, underlined how trust inherited from the parent's birth country is positively related to health. Kim and Harris (2012) found that, among Korean migrants in the USA, the only significant SC determinant of health was high levels of information sharing (among social norms, trust and participation). Among Iraqi citizens recently settled in Sweden, Lecerof et al. (2016) found that trust in others seems to have a protective effect on mental health. Social participation, instead, fulfils the same role when the individual is exposed to the experience of discrimination (Lecerof et al. 2016). Among the general population in Europe, Pinillos-Franco and Kawachi (2018) found that people who said they belonged to a discriminated group reported a lower risk of fair/poor health. Some other studies suggest a lower risk when people report being part of a group that is discriminated on the basis of religion or nationality (Alvarez-Galvez and Slavador-Carulla 2013). Self-reports of belonging to a discriminated group may be a proxy for strong social cohesion and, so, for SC.

The distinction between bridging and bonding SC is especially important among the migrant population. As I have already underlined in the theory chapter, there are two principal hypotheses regarding bonding and bridging SC among this population. From an acculturation perspective, we would expect that living in countries with high levels of social interaction and strong SNs among natives may be beneficial to migrants' health (Kawachi, Kennedy, and Glass 1999; Huijts and Kraaykamp 2012). However, if social engagement is segmented along ethnic lines, high social engagement among natives may not necessarily have positive externalities for migrants' health (Portes 1998), and may even lead to stronger feelings of social isolation among them (Kuo 1976; Anson 2002; Huijts and Kraaykamp 2012). In some cases migrants may come from countries with corrupt governments, where the family is perceived as the only reliable network. They may have difficulties engaging with the community and creating bridging SC, and instead limit themselves to social contact with kin, through means of communication (e.g., internet) (Lecerof et al. 2016). Furthermore, considering the aging of the migrant population, failure to plan for the specific needs of this

sub-group population can constitute a form of social exclusion (White 2007). Empirical evidence underlines that many older migrants lack resources and cultural capital to draw on in old age, so they are forced to turn to their own community or their own families for specific support, to a degree that is less common in general society (Ebrahim 1996; Gardner 2002). Living among relatively large numbers of peers from the same country of origin may be beneficial to migrants' physical and psychological health and mortality risks (LeClere, Rogers, and Peters 1997; Anson 2002; Gee 2002; Pickett and Wilkinson 2008; Becares, Nazroo, and Stafford 2009).

However, ethnic-specific, bonding SNs and SC are not necessarily considered positive for migrants (Anthias 2007). Dense, multiples, ethnic-specific networks, while protecting disadvantaged groups from discrimination and abuse, may exclude members from information about the wider society and produce ethnic enclaves and ghettoization (Portes 1998; Crowley and Hickman 2008). Large communities may increase the risk of living in deprived areas with low-quality housing (Becares, Nazroo, and Stafford 2009). High migrant concentration in regions is associated with poor health among migrants (Wiking, Johansson, and Sundquist 2004; Van Tubergen 2006). Bridging contacts, instead, tend to be associated with positive SC; integration and social mobility (Nannestad, Svenden, and Svenden 2008). However, the two types of SC are not mutually exclusive (Ryan 2011). In Ryan's (2011) qualitative work about Polish migrants in London, migrants had, in some cases, established "weak ties" with other Poles, creating bridging SC within the same ethnic community. Both bonding and bridging SC appear to have quite complex relationships within ethnicity, and not all weak ties are equally valuable. The value may depend upon the resources flowing through connections. Thus emerges the importance of differentiating between vertical and horizontal weak ties (Putnam 1993): a dyadic relationship with a supportive manager or professional can prove extremely useful in facilitating new opportunities (Ryan 2011).

2.2.4 Migrants, Social Capital, Health, and Well-Being: Conclusion and Limits

In sum, also among the (older) migrant population, SC exercises a positive effect on health and well-being. However, bonding SC (ties with family or the high migrant concentration in the area) appears to have both negative and positive impact on health; bridging SC, instead, seen as integration into the general society, has mainly positive effects. However, other aspects can have an impact on these associations. Firstly, not all migrants are the same. As underlined in the literature, country of birth is relevant to both for health and SC; and, reasonably, it will also have an impact on the relationship between these two variables.

Secondly, the context appears to have an impact on the relationship between SC, health, and well-being. In conclusion, more studies about SC and health among the migrant older population are needed. Studies of this kind are very few, and most of them are qualitative (Ryan 2011; Ciobanu, Fokkema, and Nedelcu 2017) and performed at the country level (Amit and Litwin 2010).

2.3 Conclusions and Remarks

In sum, the review of the literature shows that most of the research on SC, health and well-being is carried out at the country level, in Western countries, or in Japan. SC is mainly conceptualized as multidimensional and is often distinguished as cognitive or structural, or as bonding, bridging or linking SC. Today, few works use a longitudinal approach. A relevant number of studies focus on aging and older people, or make some comparison between the younger and older population. In research about cognitive and structural SC, the cognitive component emerges as the one with the stronger effect on health and well-being. However, especially among older people, structural SC is also important. Most of the time, bonding SC appears to be unrelated or negatively associated with good health or well-being. Instead, bridging SC is often positively related with health and well-being, which is especially true in lower income countries or impoverished communities. In Japan, some authors underline differences between men and women: bridging SC appears to be more important for men's health, whereas bonding for women's health. In conclusion, evidences points to the direction of the importance of both kinds of SC.

SN is an effective way of measuring SC. Network size, family and presence of a partner are often positively related with good health and well-being. Diverse networks or networks characterized by greater SC are the ones with a greater impact on health. Also SN satisfaction appears to be a protective factor against poor or fair health. By contrast, frequency of contact with family or friends, as well as social support received, lead to ambiguous results. Furthermore, perceived social support seems to be more effective in improving health and well-being than actually received social support. Social support is especially related with mental health, and the association appears to grow stronger with age. Nevertheless, this variable results as more important for older people's health and well-being, because it positively affects their role identity in society. In particular, participation in religious associations seems to be particularly effective. Most of the evidence shows that individual SC has a stronger impact on health and well-being than collective SC. The interaction between individual and collective SC often produces often different results. Age, gender, economic situation, and context are three variables intervening in the main

association of interest. The association appears to be stronger among older people than among the general population, and economic variables are often more important than SC for men. SN variables are more protective for women, whereas, social participation is particularly important for men and older men managing life during retirement. Research about SC and health underline differences in the association between Western and Asian contexts, but also among European countries. Eastern and Southern European countries register the lower levels of SC. Papers found evidences supporting both the "crowding out" and "crowding in" hypotheses. Finally, some longitudinal studies found reverse causation between health and SC, or reciprocal effects between the two variables.

When the relationship between SC and heath is studied among migrant people, it is necessary to take into consideration country of study, country of origin, gender, age of arrival, and length of residence in the host society. Being from a non-European and poor country, arriving in adulthood in the host society, and having experienced socio-economic deprivation are all factors negatively related with good health. Some evidence underlines the transitory nature of the "healthy migrant effect". Among migrants, depression is especially related to socio-economic status, and the acculturation process, and the consequent increasing level of stress. Socio-economic status is often more important than ethnic origin. The "immigrant health" paradox is also a relevant phenomenon and is unpacked by both mechanisms identified in the literature, i.e., "ethnic maintenance" and "racial and ethnic discrimination". Furthermore, migration can lead to loss or reduction of social and family ties. In general, migrants report lower levels of generalised trust and participate less in social activities. However, the country of origin and the country of residence are both important intervening variables. Some researchers look at the relationships between SC and health among the migrant population. A balance between bonding and bridging SC appears to be beneficial for migrant older people.

2.3.1 Limits and My Contribution

In conclusion, the studies carried out so far have some limits. Firstly, most of them refer to the general older population, and do not make any distinctions between the native population and the migrant population. Secondly, most of the works performed an operationalization of SC that does not covering many of the salient dimensions identified in the literature. In doing so, these studies do not take into account the multidimensionality of the SC concept. Thirdly, very few works take into consideration the context (e.g., country, policies) in which the study is carried out, and the differences in it. Some of them take into consideration the welfare regime. However, this is a very wide dimension that does not take into consideration

specific populations (e.g., older or migrant people). Finally, most of them are cross-sectional and unable to check for reverse causation between health and SC.

Thus, the work presented in this thesis attempts to contribute to overcoming these limitations. The overall aim of my research is comparing the effect of SC on health and well-being, among native and non-native populations in Europe. Firstly, using European survey data, I was able to carry out a study comparing the native older population with migrant older people (intended as non-natives), with the purpose of bringing to light the effect of migration on the relationship between SC, health and well-being. I also distinguished between non-natives from high-income countries (HIC) and non-natives from low- and middle-income countries (LMIC), accordingly to the GNI of the country of origin. In this way it is possible to take into consideration country of birth and make some assumptions about the level of socio-economic deprivation and, in particular, about health and well-being[22]. Secondly, I performed a wide operationalization of the SC concept (i.e., using a broad number of variables), including many variables, such as participation, SN variables and social support variables. In this way, I was able to treat the concept as multidimensional and stress the different effects that different measures of SC have on health and well-being. Furthermore, I distinguished between bonding and bridging SC; a fundamental distinction when the focus of the research is on the migrant population, as underlined in the literature review. Thirdly, I considered the macro aspects, clustering European countries according to spending (*Purchasing Power Standard* per inhabitant) on social protection of older people; particularly important policies for my population of interest (EUROSTAT 2015b); and according to the Migrant Integration Policy Index (MIPEX) (Huddleston et al. 2015) [23]. I tried, finally, to implement a longitudinal analysis, but I had to desist due to many reasons, which I will explain in the next chapter.

[22] I will explain these choices in depth when I present my aims in the next chapter (Chapter 3 – Research Design).
[23] I will explain these choices in depth when I present my aims in the next chapter (Chapter 3 – Research Design).

3 Research Design

As a result of the theories presented in the first chapter, and thanks to the identification of gaps and limits during the literature review, I present the aims and methods of this project. In the first part, I present my aims. There are three principal research objectives, and the literature review helped me to formulate some hypotheses. In the second part, I describe the dataset I'm using to answer the research questions, the Survey of Health Ageing and Retirement in Europe (SHARE); the variables and the sample. Finally, I present the techniques used to analyse these data: tests of significance and regression models.

3.1 Aims and Hypotheses

The overall aim of this research is to explore the relationship between SC, health and well-being. In particular, the purpose is to compare the effect of SC on health and well-being, among the native and non-native populations in Europe. I, therefore, formulate three aims, structured as a number of hypotheses.

3.1.1 Aim 1: Social Capital of Older Migrants

This study's preliminary objective is to analyse the structure of older (50 and over) people's SC and to underline the differences between the native and non-native population. Therefore, the interest lies in finding out whether individuals have large or small networks, whether they are equipped with an adequate support network, whether they are involved in care, whether they have close ties with family members and whether they are active participants in social life. The goal here is, firstly, to contribute to the knowledge about SC differences between native and non-native older people, in Europe. Secondly, an answer to this question will increase the knowledge about the SC of the migrant population and the differences between migrants from high-income countries and migrants from low- and middle-income countries. The literature review shows how migration may implicate a reduction or loss of social ties, and a decline in social support (Silveira et al. 2002; Park et al. 2015), coherently with the interpretation of the convoy model. Furthermore, non-natives reported lower levels of trust and have a lower propensity to take part in social activities, with respect to the native population (Kazemipur 2004; Aleksynska 2011). In general, they have less SC (Berchet and Sirven 2014).

In this scenario, the migrant's country of origin is also important. I, therefore, distinguish between non-natives from high-income countries (HIC) and non-natives from low- and middle-income countries (LMIC), accordingly to the GNI of the country of origin.

This distinction allows me to introduce also an "economic aspect" in the analysis and, furthermore, it could be a proxy for distinguish between types of migrants (e.g., for pull factors or push factors). As underlined in the literature, country of birth is very important for understanding the socio-economic situation (Malmusi, Borrell, and Benach 2010), health and well-being (Khlat and Courbage 1996; Solé-Auró and Crimmins 2008; Sand and Gruber 2016) that migrants have in the host countries. In particular, according to the literature, migrants with more disadvantages in terms of health and socio-economic status are migrants from poor or developing countries (Sand and Gruber 2016; Luthra, Nandi, and Benzeval 2018). For this reason, it is possible to speculate that the same is true for SC.

Hp. 1) *Migrants from low- and middle-income countries will have a lower level of both bonding and bridging SC than native older people.*

Given the lack of theories and empirical evidence, I was not able to formulate hypotheses about differences between migrants from HIC and native population.

3.1.2 Aim 2: Social Capital, Health and Well-Being

The main research question to be addressed links SC to health and well-being. Therefore, the question is what kind of SC (bonding or bridging) allows the older and aging migrant population (compared to the native population) to have the best outcomes in terms of health and well-being. The principal purpose here is to fill the knowledge gap about the association between SC and health among the aging and older migrant population. Furthermore, comparing the native with the non-native population, it is possible to isolate the "migrant effect" in the association. In other words, it is possible to discover whether, for the migrant population, SC is related to health in a different way. Finally, considering SC as being composed of both bonding and bridging is especially important for this specific population. In general, but even more among the aging and older population (Musick, House, and Williams 2004; Liu et al. 2016; Sirven and Debrand 2017), SC is positively related to good health and high levels of well-being. According to the literature, it is reasonable to expect that individuals with a large network and a strong support network, who are involved in social activities, will feel healthier and will have a higher level of well-being, than those who claim a limited network and receive little help.

Further evidence underlines how bonding SC is positively related with health and well-being (Kim, Subramanian, and Kawachi 2006; Meng and Chen 2014; Murayama et al. 2015). Close ties can play a role in social control over deviant types of health-related behaviours, and may help to circulate information about how to improve it (Subramanian, Kim, and Kawachi 2002). A cohesive community can also be effective in the formulation of

collective strategies for access to health (Kawachi, Kennedy, and Glass 1999). Bonding SC is also crucial in responding to local problems effectively (Guest 2000) and providing mutual help (Berkman, & Kawachi 2000; Cullen and Whiteford 2001). However, evidence shows that receiving support is often negatively related with health and well-being (Bolger, Zuckerman, and Kessler 2000). The need for informal help may imply poor health and loss of self-esteem.

Hp. 2a) *Among the whole older population, having a partner, a close network (and being satisfied with it), and giving support to others are positively associated with physical health, mental health and well-being. Receiving support from others, instead, is negatively related with the same dependent variables.*

Bridging SC is also positively associated with health and well-being. In particular, bridging SC is expected to facilitate the diffusion of information and knowledge about health, and access to a greater diversity of resources, and contribute to developing and maintaining self-efficacy (Steverink and Lindenberg 2006; Moore et al. 2011; Arezzo and Giudici 2017a). Whereas bonding SC may exclude outsiders, bridging SC may protect against the reproduction of a dominant social hierarchy (Whittaker and Holland-Smith 2016).

Hp. 2b) *Among the whole aging and older population, participation in social activities (bridging SC) is positively associated with physical health, mental health and well-being.*

Having bonding SC is definitely beneficial to the health and well-being of an aging person in a foreign country. Family ties, as well as the presence of a partner, protect an older individual from depression and provide him with an essential support network (Anson 2002; Pickett and Wilkinson 2008; Becares, Nazroo, and Stafford 2009). However, bridging SC structures can be even better. Non-native older people are a vulnerable population, that, consequently, form part of a disadvantaged social group. Family ties and ties in one's own community or, ties increasing, in some way, the homophily of the social environment, may increase individual disadvantages and may produce ethnic enclaves, excluded from information about the host society (Portes 1998; Anthias 2007; Crowley and Hickman 2008).

On the contrary, participating in social activities may link non-native older people with a resource-rich social group (Islam et al. 2006; Di Maggio and Garip 2012); understood, in this scenario, as the native population (Health and Yu 2005). Natives can be considered a resource-rich population thanks to their direct access to the cultural and economic resources of the host country. However, a distinction among migrants is necessary. As underlined in the previous aim, not all migrant populations can be considered vulnerable. In the literature, migrants from poor or developing countries are considered as the most vulnerable category of people. In particular, they can have a worse health status (Sand and Gruber 2016), or may have suffered drastic deterioration of their health during their years in the host country

(Stronks 2003; Luthra, Nandi, and Benzeval 2018). Against this background, it is reasonable to suppose that the bridging component of SC is especially important for the non-native population; and, in particular, for migrants arriving in Europe from low- and middle-income countries (i.e., non-Western countries).

Hp. 2c) *The positive association of bridging SC (participation in social activities) with the physical and mental health and well-being, is stronger among migrants from lower- and middle-income countries than among natives or migrants from high income countries.*

Given the very scant literature about the SC, health and well-being of the migrant (older) population, I have been unable to formulate precise hypotheses about the effect of bonding SC on dependent variables. However, I expect some differences between native and non-native (especially from LMIC) people also in the association between bonding SC and health and well-being. I do not have a hypothesis on the nature of this difference.

3.1.3 Aim 3: The Importance of Macro Aspects

An additional aim of this study is to explore the role of the macro aspect, or context, in the main association (relationship between SC and health and well-being). Context is an important dimension to consider. At the European level, the context is often represented by the welfare regime (Esping-Andersen 1990; Ferrera 1996). Here, I am interested in the specific macro aspect that could be promoting, in a more or less effective way, equality among the general population and older people, or among natives and migrants. For this reason, I choose to consider two different macro aspects: level of expenditure on social protection of old age function and migrant integration policies of the country. Given the population of this study, social policies about older people are particularly important for their health and well-being. Furthermore, considering spending on social protection of older people allows us to underline if a provision of formal care (e.g. level of expenditure on social protection) can, somehow, have an impact on the importance of informal care (e.g., provided by SC), for the health of older and aging people. Considering the policies for migrant integration, instead, is equally important for studying the principal population of my interest: migrant older people. These kinds of policies may have an impact on all aspect of migrants' lives, including SC, health, and well-being.

Comparative studies indicate cross-national variation in the association between SC and the health of older people (Kohli, Hank, and Künemund 2009; Hank 2011; Arezzo and Giudici 2017a; Pinillos-Franco and Kawachi 2018). These results suggest that SC is embedded in a larger social and cultural context (Deindl, Brandt, and Hank 2016) that must be considered. However, level of expenditure for social protection of old age has never been

considered in the literature, as a contextual factor. Therefore, in order to formulate a more precise hypothesis, I have to base my conjecture on literature referring to other types of contexts. The association between SC and health seems to be stronger in less egalitarian contexts (i.e., situations not favouring the equality of income and wealth across a population), or in those countries with high concentrations of inequalities (Islam et al. 2006). Similar results were found in Europe: the relevance of SC for health is weaker in comprehensive welfare states (i.e., possibly, more egalitarian contexts) (Koutsogeorgou et al. 2015). In this framework, it is reasonable to hypothesise that the same mechanism is triggered by expenditure on social protection of older people. A country where spending on the protection of older people is high can be considered more egalitarian than a county with a low expenditure. This reasoning follows the "crowding out" hypothesis (Oorschot, and Arts 2005), according to which, in a country with a universalistic welfare regime, SC is not relevant for the health and well-being of the population, because health and well-being are guaranteed by the welfare system. Similarly, in my case, where expenditure on social protection of older people is higher, SC (in all its components) could be less relevant for the health and well-being of older people. Finally, I expect that spending on social protection of older people will have the same impact on the health and well-being of natives and non-natives.

Hp. 3a) *In those countries where expenditure on social protection of old age function is higher, SC (in all its aspects) has a lower association with physical health, mental health, and well-being; compared to countries with a lower expenditure on social protection of old age function.*

MIPEX, like level of expenditure on social protection, has never been used to study the association between SC, health and well-being. Sand and Gruber (2016) underlined how in those countries where migrant family reunion policies are not favourable, the gap in well-being between the native and non-native population is higher. Furthermore, Brothers, Theou, and Rockwood (2014b) discovered how older migrants from LMIC have higher levels of frailty than both natives and migrants from HIC, in Northern and Western countries. Based on this evidence, it is conceivable that, in countries with unfavourable migrant integration policies, migrants (and especially migrants from poor or developing countries) will have worse health and well-being. For this reason, SC, in all its aspects, will be an important instrument for this population to improve health and well-being. In other words, in those countries where policies of integration are less favourable, SC will exercise a stronger effect on the health and well-being of migrants from LMIC.

Hp. 3b) *In those countries where the MIPEX score is lower, SC (in all its components) has a stronger association with physical health, mental health, and well-being among migrant older people from low- and middle-income countries; compared to countries with a higher score on the same index.*

3.2 Dataset and Variables

In this paragraph I describe the dataset I used for the analysis, and the variables used to answer my research questions.

My research subjects are migrants and natives of European countries, aged 50 and over. Migrant is defined as a person living in a country where he or she was not born[24]. To address the above-mentioned research aims, I used the Survey of Health Ageing and Retirement in Europe (SHARE). SHARE is a longitudinal study that collects data on older and aging people's lives (50 and over). 27 European countries and Israel have been involved since the first survey, which took place between 2004 and 2006. The last survey (*wave* 7) took place in 2017, and three more *waves* are planned to take place before 2024. The data are available to the entire research community free of charge. The strengths of SHARE derive from the panel design, which allows for an understanding of the dynamics of the aging process; and from the multidisciplinary approach, which allows us to define the general picture of social and individual aging. The data collected are related mainly to health, socio-economic status and social and family networks (Börsch-Supan et al. 2013). Data collection is based on computer-assisted personal interviewing (CAPI) (SHARE 2018).

I chose to use *wave 6* due to the fact that it is the most recent wave of SHARE containing questions about SN, which is necessary for the measurement of SC. The dataset is structured on modules and I mainly used data from six of them: the *social network* module, the *social support* module, the *activities* module, the *demographics* module, the *mental health* module and the *physical health* module. The aim of the *social network* module is to capture the magnitude and characteristics of the social network of the individual. Respondents are firstly asked to list the people (up to 7) with whom they discussed important things in the last 12 months. After that, they are asked to list some characteristics of these contacts, such as sex and age (see Appendix 3 for full questions and the full list of characteristics). Among the characteristics of the ties, I was interested in the kind of relationships (i.e., family member, friend …), frequency of contact, and emotional closeness. In the *social support* module, social support is intended as both providing and receiving help. The types of help (received or provided) are three: personal care (e.g., dressing, bathing or showering, eating, getting in or out of bed, using the toilet), practical household help (e.g., home repairs, gardening, transportation, shopping, household chores), and help with paperwork (e.g., filling out forms, settling financial or legal matters). Help provided is also intended as care for grandchildren (See Appendix 3 for full questions). Furthermore, through SHARE data, it is

[24] Discussion on the concept of migrant: see Introduction.

possible to determine who gives or receives which kind of help. In the *activities* module there are multiple questions about the activities performed by the respondent in the last twelve months, such as voluntary or charity work, educational or training courses, and going to a sport, social or other kind of club (see Appendix 3 for full questions).

Wave 6 was collected in 2015 in 17 European countries (Austria, Germany, France, Switzerland, Belgium, Luxembourg, Sweden, Denmark, Spain, Italy, Greece, Portugal, Czech Republic, Poland, Slovenia, Estonia, Croatia) and Israel. In this study, I excluded participants living in Israel, as the migration characteristics of the Israeli cohort were substantially different from those of other countries (50% of Israeli participants report being born outside of Israel). The same choice has also been made in previous studies (e.g., Brothers, Theou, and Rockwood 2014). Despite the longitudinal structure of the data, I performed a cross-sectional analysis because for reasons I will explain in paragraph 3.4. Furthermore, I also excluded multilevel analysis because the second level of analysis (represented by countries) has too few observations (Maas and Hox 2005).

3.2.1 Variables

In the following paragraphs I describe how I operationalized my concepts in order to answer my research questions. I divide my variables into dependent, "migrant status", control, explanatory, and contextual, and mainly use them in two ways. I firstly perform some descriptive analysis and tests of significance, in order to answer my first research question: Is the SC of older migrant people different from that of native older people? Secondly, I perform regression models in order to fulfil to the second and the third aims of this project: How does SC (*explanatory variables*) affect the health and well-being (*dependent variables*) of native and non-native older people, in Europe? How is the context (*contextual variables*) involved in these relationships?

3.2.1.1 Dependent Variables

Physical Health

Physical health is measured by ADL (Activities of Daily Living) and IADL (Instrumental Activities of Daily Living) indexes. ADL measures simple activities that occur within the home. It is composed of the following six items: dressing (0= no limitation; 1= limitation), walking across a room (0/1), eating and preparing food (0/1), getting in and out of bed (0/1), bathing or showering, using the toilet (0/1), getting up or down (0/1). ADL varies from 0 (no limitations) to 6 (limitations on all items). IADL refers to more difficult tasks that require interactions with the environment. It is composed of nine items: ability to use a map (0= no

limitation; 1= limitation), preparing a hot meal (0/1), shopping for groceries (0/1), making telephone calls (0/1), taking medications (0/1), doing work around the house or garden (0/1), managing money (0/1), leaving the house independently/accessing transportation (0/1), doing personal laundry (0/1). IADL varies from 0 (no limitations) to 9 (limitations on all items). Following Hank, Deindl, and Brandt (2013), in my analysis, I recoded the two indexes as binary variables: value 0 represents the absence of limitations on (instrumental) activities of daily living, whereas 1 represents the presence of one or more limitations.

Mental Health

Mental health is operationalized through the EURO-D scale (Prince et al. 1999; Guerra et al. 2015), that which was developed appositely for studies on older adults (Guerra et al. 2015). EURO-D is a measure of depression composed of twelve items: did you feel sad or depressed in the last month? (0= non-presence of the symptom, 1= presence of the symptom), do you have hopes for the future? (0/1), death wishes (0/1), guilty (0/1), trouble sleeping (0/1), lack of interest on things (0/1), irritability (0/1), appetite problems (0/1), fatigue (0/1), trouble concentrating on entertainment or on reading (0/1), lack of enjoyment (0/1), tearfulness (0/1). Consequently, the index varies from 0 (no symptoms / not depressed) to 12 (all symptoms / very depressed). I recoded it as a dummy variable, using a cut off score of 4 or greater to represent the presence of depression (Dewey and Prince 2005). The same choice was made by other authors (Aichberger et al. 2010; Croezen et al. 2015; Bashkin, Horne, and Bridevaux 2018).

Well-Being

The CASP-12 index is used to measure well-being. CASP-12 is a short version of the CASP-19 questionnaire (Hyde et al. 2003). The index is composed of four conceptual domains: control, autonomy, self-realization and pleasure. SHARE's short version is composed of twelve items, for which the frequencies of the actions are asked: my age prevents me from doing the things I would like to do, I feel that what happens to me is out of my control, I feel left out of things (*control*); I can do the things I want to do, family responsibilities prevent me from doing the things I want to do, shortage of money stops me from doing the things I want to do (*autonomy*); I look forward to each day, I feel that my life has meaning and balance, I look back on my life with a sense of happiness (*pleasure*); I feel full of energy these days, I feel that life is full of opportunities, I feel that the future looks good for me (*self-realization*) (Borrat-Besson, Ryser, and Goncalves 2015). The possible answers to the twelve items are: (1) often, (2) sometimes, (3) rarely, (4) never. All items are recoded in such a way that higher scores indicate a higher level of well-being. Consequently, the measure varies

from 12 to 48, with higher values indicating better quality of life. I kept the same range of values in my analysis.

3.2.1.2 Migrant Status

Following previous studies (e.g., Aichberger et al. 2010; Sole-Auro, Guillen, and Crimmins 2012; Brothers, Theou, and Rockwood 2014; Lanari, Bussini, and Minelli 2014), I identified migrants as older people who were not born in the country of the interview. As I noted in the aims of my research, it is my intention to distinguish between migrants from "poor" or developing countries and migrants from "rich" or developed countries, in order to take into account an "economic aspect" in addition to the relational one. In the literature review I showed how many works distinguished between these two types of migrants (Solé-Auró and Crimmins 2008; Litwin 2010; Sand and Gruber 2016). In SHARE, information about the country of origin is present. Echoing the distinction used by Brothers and colleagues (2014a), I decided to group the migrants according to the gross national income (GNI) per capita of the country of origin during the year of the survey (2015). However, the literature on the migrant population also underlines how year of arrival and age during migration are relevant to the study of migrant people in general, as well as for the study of migrant older people's health and SC (Solé-Auró and Crimmins 2008; Gubernskaya 2015; Lanari, Bussini, and Minelli 2018). I decided not to take into account this aspect of migration and to favour the country of birth for the following reasons.

First of all, most previous research has used country of birth to distinguish between typology of migrants, rather than year of arrival or other aspects. Secondly, there is evidence to suggest that country of birth is particularly important in determining whether the health of the migrant will worsening during the aging process (Malmusi, Borrell, and Benach 2010; Maskileyson 2019); as predicted by some mechanisms such as "ethnic maintenance" (Lara et al. 2005) and "racial and ethnic discrimination" (Geronimus 1992). Furthermore, country of birth may also interact with country of residence in determining health (Brothers, Theou, and Rockwood 2014b). Finally, I could have used both aspects to define my different migrant populations, but I had to desist because of the numerosity of the sample. I, therefore, had to choose one (and only one) criterion to distinguish my migrant population. This surely represents one limit of my study.

I obtained the information about the GNI of each country of origin from the World Bank dataset. I, therefore, clustered the migrants into two groups, following the guidelines of the World Bank: non-natives from high-income countries (HIC) and non-natives from low- and middle-income countries (LMIC) (see Appendix 1 for a complete list of the

countries of origin in the two clusters) (World Bank Data Team 2015). In particular, in 2015, HIC are define as countries with a GNI per capita of $12,736 or more (the year before); low-income are those with a GNI of $1,045 or less per capita; middle-income countries are those with a GNI per capita of more than $1,045 but less than $12,736. The World Bank also categorized LMIC as "developing" countries (Brothers, Theou, and Rockwood 2014a).

3.2.1.3 Control Variables

To explain differences in health and well-being among older natives and non-natives, various control variables were taken into account. As individual level variables, age, sex, education, employment situation, financial situation, and self-rated health were considered. These represent typical socio-economic control variables used in many studies, including those about SC, health and well-being (e.g., Litwin and Shiovitz-Ezra 2011; Arezzo and Giudici 2017a). Age is a continuous variable, calculated from the year and month of birth of the interviewee and the year and month of the interview. The age of the respondent corresponds to the year and month of the interview minus his month and year of birth[25]. Sex is a binary variable (0= male, 1= female). Education is operationalized by the International Standard Classification of Education 1997. ISCED was designed by UNESCO as a suitable instrument for comparing statistics of education at the international level (UNESCO 1997). The measure is composed of seven levels, from 0 to 6: pre-primary education (initial stage of organized instruction for introducing children to a school type environment); primary education or first stage of basic education; lower secondary or second stage of basic education; upper secondary education (it begins, typically, at the end of full-time compulsory education); post-secondary non tertiary education; first stage of tertiary education; second stage of tertiary education (leading to an advanced research qualification). For my analysis I merged levels 5 and 6 (because there are very few observations for level 6), so the variable has a range of 0-5. However, in table 3.1, I recoded the variable into three categories, for the sake of brevity: less than secondary education, secondary education, and other. Employment situation is coded as retired (1), employed or self-employed (2), unemployed (3), permanently sick or disabled (4), homemaker (5), and other (6) (see the Appendix 2 for the full question).

Many authors underline the importance of controlling for older people's financial situation, because it can have an interaction effect with SC and a strong impact on health and well-being (Ichida et al. 2009; Uphoff et al. 2013). Economic situation is captured through a subjective income measure, based on a question that asks whether the household has enough

[25] In some cases, information about month and year of the interview were missing. I replaced the missing value with the date "November 2015" date when the data collection was over (SHARE 2018).

money to make ends meet. The possible answers are four (1= with great difficulty, 2= with some difficulty, 3= fairly easily, 4= easily) (see the Appendix 2 for the wondering of the full question). I recoded the variable as 0 (fairly easily/easily) and 1 (with great difficulty/with some difficulty). The same choice to use this variable for measuring the economic situation was made by, among others, by Arezzo and Giudici (2017a). Finally, self-rated health is a self-reported measure of personal health, varying from 1 (excellent) to 5 (poor). So, here, a higher number coincides with a worse health (See the Appendix 2 for the full question). I recoded self-perceived health as a dummy variable (1 = good, very good, or excellent health; 0= fair or poor health). I used SPH as a control variable and not as a dependent variable because it is a contradictory way of measuring health, as shown by the discussion among scholars about the validity and reliability of this measurement[26] (Idler and Benyamini 1997; Jylhä 2009; Layes, Asada, and Kepart 2012; Au and Johnston 2014).

3.2.1.4 Explanatory Variables

The independent variable is represented by SC. In this project, the operationalization of SC follows the aforementioned theory and literature review. We must remember that, here, SC is defined as a concept representing the collection of resources (material and immaterial) owned by the members of an individual's personal social network, which may become available to the individual as a result of the history of those relationships (Van der Gaag and Snijder 2004). Furthermore, I interpret SC as a multidimensional concept (Szreter 2000); i.e., to be measured via a considerable number of variables. Lastly, my interpretation of SC distinguishes between bonding (characterized by closed, inward-looking networks) and bridging (distinguished by open networks across social cleavages and voluntary associations with open membership).

Bonding SC is operationalized by "partner", "SN satisfaction", "close network", "support received", and "support given". Bridging SC is composed of "voluntary work", "participation in organization", and "participation in club". This operationalization of bonding and bridging is based on the previous literature, described in chapter 2 (e.g., Islam et al. 2006; Kishimoto et al. 2013; Arezzo and Giudici 2017a). SN variables and social support, indeed, can be seen as indicator of close relationships, in which there is trust, and resources and support of different kinds are shared. Participating in social activities, instead, gives the individual the possibility to encounter new and diverse people, with whom to exchange new material and immaterial resources. Use of participation as an indicator of

[26] I had also considered using behavioural risks variables (drinking, smoking …), present in dataset SHARE. However, those variables present many missing observations.

bridging SC (or SC) is typical in the literature (e.g., Arezzo and Giudici 2017a). Following the dominant approach (e.g., Ramlagan, Peltzer, and Phaswana-Mafuya 2013; Pinillos-Franco and Kawachi 2018), I decided not to create a single index of SC, nor two indexes (i.e., one for bonding and one for bridging SC), but to use single variables. My purpose was to distinguish the different impact of each variable on health and well-being; since it had emerged from previous studies that some variables (e.g., receiving social support) may have a negative impact on health and well-being.

a. Bonding SC

The social relations asked about in SHARE, already, imply a sort of vicinity (i.e., people with whom you discuss important matters); however, for bonding SC, I decided to consider the closest contacts. I considered the number of family ties in the network (0-7), how many contacts the respondent meets weekly or more often (0-7), and how many contacts the respondent considers to be very or extremely close (emotionally) (0-7) (see Appendix 3 for the full list of options for these variables). Another variable links to SN is the SN satisfaction. This variable asks how much the respondent is satisfied with his/her own network. The scale varies from 0 (completely dissatisfied) to 10 (completely satisfied) (see Appendix 3 for full questions). Finally, the presence of a partner is asked (0= no partner, 1= partner). These variables are explanatory variables in my regression models. Furthermore, in the descriptive analysis (chapter 4), I also analyse the variable SN size (0-7) (the full number of contacts mentioned by the respondent) and the variable indicating the number of friends in the network (0-7).

I considered all types of help as bonding SC. Indeed, social support identified in SHARE is help that implies vicinity between the individual and the person who receives or gives the help. I decided not to use information about which help is given/received and who gives/receives the help because only 22% of the sample receives help and 40% of them give help. I, then, generated two variables: social support received (personal care, practical household help, and help with paperwork) (0= no; 1= yes) and social support give (+care for grandchildren) (0= no; 1= yes).

Although my intention was to use single variables and not to create one or two indexes for measuring bonding and bridging SC, I decided to perform Cronbach's alpha with SC variables in order to revealing problems of multicollinearity. All SC variables used measure different aspects of (bonding and bridging) SC; however, some variables may measure concepts that overlap in part. I made many attempts, but the only three variables with a high covariance are "family ties", "contacts who meet weekly", and "emotionally close contacts" (scale reliability coefficient: 0.9086). I performed a factor analysis identifying a

common factor that I call *close network*. Just one factor, in fact, had eigenvalues over Kaiser's criterion of 1 (2.215) (Field 2013). As a factor, it is a standardized variable with a mean of 0 and a standard deviation of 1. These three variables (i.e., "number of family ties", "number of contacts who meet weekly", and "number of emotionally close contacts") measure three different aspects of SNs. However, factor analysis reveals how family members, contacts who meet regularly, and contacts considered emotionally close are largely the same people for most of the older and aging people in this sample. Therefore, the three variables, all together, measure a common latent variable, which can be identified as very close contacts for the individual.

b. Bridging SC

As an indicator of bridging SC, I used participation in social activities. In SHARE there are multiple questions about the activities performed by the respondent (see Appendix 3 for full questions). Among these, I considered three activities: voluntary or charity work (0= not in the last twelve months; 1= yes in the last twelve months), participation in political or community-related organizations (0/1), and participation in sport, social or other kinds of work (0/1). I chose these three activities because participation in them implies getting in touch with other people, possibly with characteristics different from the respondent. I excluded forms of participation such as reading books, magazines or newspapers, doing word or number games such as crossword puzzles or Sudoku, and playing cards or games such as chess. Similar choices were made by other authors (Amit and Litwin 2010; Arezzo and Giudici 2017a). Furthermore, in the descriptive analysis (chapter 4), I also analysed the variable "Non-participation", which has the value "1" when the individual does not perform any of the three activities considered, and "0" when he/she performs at least one of these activities. The SC approach and operationalization described here have some limitations, which will be discussed in the conclusions.

3.2.1.5 Contextual Variables

To analyse and take into account the contextual factor, I decided to firstly consider expenditure on social protection of old age function and secondly the Migrant Integration Policy Index (MIPEX) of the country. I chose these two specific macro aspects because of the particular focus of my work: older people and the migrant population. Expenditure on social protection of old age function defines countries as more or less egalitarian, in terms of older people's formal care. MIPEX, instead, will define countries as more or less egalitarian, in terms of policies for migrant integration. Some previous studies about SC and the health of older people (Croezen et al. 2015; Arezzo and Giudici 2017a) used more generic criteria

for taking into account the macro aspects, such as distinguishing between Northern and Southern European countries. Some studies about SC and health among the general population (Oorschot and Arts 2005; Rostila 2013), instead, used the category of the welfare regime. However, the welfare regime is a concept that takes into consideration a number of policies of the country with an impact on the general population. Given my interest in specific populations, I concluded that this approach would have some limits, and that using macro aspects which take into account the older population and migrants would be more appropriate for my purpose.

I found the information about expenditure on social protection of old age function of each country involved in my analysis in the EUROSTAT dataset about social protection (*European System of Integrated Social PROtection Statistics*, ESSPROS) (EUROSTAT 2015c). The spending is referred to 2015, the same year of the collection of my dataset. Social protection of old age function refers to social benefits consisting of transfers, in cash or in kind, by social protection schemes to households or individuals, to relieve them of the burden of a defined set of risks or needs (EUROSTAT 2015b). My principal purpose is to understand if informal care (i.e., SC) has a different impact on health and well-being in contexts with different levels of formal care. I, therefore, clustered the countries into three groups, according to spending (*Purchasing Power Standard per inhabitant*) on social protection of older people in 2015 (year of the survey) (EUROSTAT 2015b) (see appendix 4 for the spending on social protection of older people for each country). I used Purchasing Power Standards (PPS), instead of regular measures of spending, because it eliminates the differences between countries inherent of GDP. It is a standardization intended for cross-country analysis (EUROSTAT 2015a). Furthermore, the calculations on a per inhabitant basis allow for the comparison of economies significantly different in absolute size (EUROSTAT 2019). The three groups are the following. I chose these cutting points in order to have more or less the same number of countries (and observations) in each cluster:

- More than 4,000 PPS (Austria, Luxemburg, Sweden, Switzerland, Denmark, France)
- Between 4,000 and 2,500 PPS (Italy, Belgium, Germany, Greece, Portugal)
- Under 2,500 PPS (Spain, Slovenia, Czech Republic, Poland, Estonia, Croatia).

Secondly, in order to take into account my focus on the migrant population, I decided to also consider another macro aspect. MIPEX is a multi-dimensional index introduced in 2004 to measure a wide range of immigration policies in 38 countries. It assigns scores from 0 to 100 in eight migration policy areas: family reunion, labour market mobility, education, political participation, access to nationality, long-term residence, health, and anti-discrimination (Huddleston et al. 2015). A higher score means a higher effectiveness of the

policies in integrating migrants into that country (Migrant Integration Policy Index 2015). Taking migration policies into account in studying the association between SC, health and well-being is especially important because immigration policies are very heterogeneous across Europe and because large debates on immigration control and integration policies have been on the political agenda in many countries (Sand and Gruber 2016). A similar choice has already been made by Sand and Gruber (2016), who studied the well-being of the older migrant population in Europe. I, again, clustered the 17 countries into three groups, according to MIPEX scores in 2015 (see appendix 4 for the score of each country). Again, the cutting points were chosen in order to have more or less the same number of countries (and observations) in each group:

- Between 100 and 60: Sweden, Portugal, Belgium, Germany, Spain
- Between 59 and 50: Denmark, Italy, Luxemburg, France, Austria
- Lower than 50: Switzerland, Estonia, Czech Republic, Greece, Slovenia, Croatia, Poland.

3.2.2 The Sample of My Study

The sample I used for the analysis (Tab. 3.2.1) is composed of 54,142[27] observations. Non-natives (non-natives from HIC and non-natives from LMIC) represent 9.27% of the sample. Approximately, 56% are female and the average age is 68 (with a standard deviation of 10). Most respondents have at least a secondary education (58%). This percentage is even higher among non-natives, especially from HIC (67%). Almost 60% of the sample is already retired, whereas among non-natives from LMIC this percentage represents only 50%. 34.37% of the population are able to make ends meet easily. Most migrants from HIC are in the same situation (43%), whereas more than 39% of migrants from LMIC make ends meet with some difficulties.

Among dependent variables, well-being (i.e., CASP) has an average of 37.2 among the whole older population, and the values for specific populations are not so different. On average, 27.4% of respondents declare having 4 symptoms of depression or more. The percentage is a little bit higher among non-natives from HIC (28.42%). The percentage of respondents with one or more limitations on (instrumental) activities of daily living is low (18.9%/12.2%). The highest percentages are registered among migrants from HIC (19.77%/13.48%), whereas the lowest are among migrants from LMIC (16.58%/10.83%). Differences in health variables are also very low across age groups[28].

[27] The total sample of wave 6 is composed of 64, 831 observations. For my analysis, however, I considered only respondents age 50 and over, living in European countries.

[28] I divided the population into three age groups: 50-65, 66-80, 80+. The percentage of observations of limitations on (instrumental) activities of daily living (about 19%/12%) or depression (about 27%) is more or less the same among groups. The mean of CASP is also not so different (about 37) across age groups.

The total and native population, as expected, are distributed almost homogeneously among the three clusters of countries defined by "social protection of the older population". Most of the migrants from HIC, instead, live in countries where expenditure on social protection is more than 4,000 (55%). On the contrary, 63% of the migrants from LMIC live in countries where the expenditure is less than 2,500. Focusing on MIPEX, migrants from HIC and natives are distributed homogeneously among the three clusters; whereas the majority of migrants from LMIC (62%) live in a country with a MIPEX score lower than 50.

Table 3.2.1 Descriptive statistic: socio-economic and dependent variables

Variables	Native	Non-native		All Population
		From HIC	From LMIC	
		Percentage %		
SEX				
Female	56.03	57.53	59.46	56.26
N	49,125	2,437	2,580	54,142
EDUCATION (ISCED-97)				
Less than secondary educ.	41.69	31.50	37.78	41.05
(Upper) secondary educ. And more	58.00	67.39	61.29	58.58
Other (still in school, other)	0.30	1.11	0.94	0.37
N	48,953	2,432	2,565	53,950
EMPLOYMENT SITUATION				
Retired	58.93	59.63	51.21	58.59
Employed	24.77	25.42	27.52	24.93
Unemployed	2.72	2.92	6.14	2.90
Homemaker	8.88	7.33	8.64	8.80
Other	4.70	4.71	6.49	4.78
N	48,433	2,400	2,558	53,391
ENDS MEET				
With great difficulty	12.42	7.77	22.59	12.69
With some difficulty	25.75	19.31	39.44	26.11
Fairly easily	26.90	29.51	22.79	26.82
Easily	34.93	43.41	15.18	34.37
N	47,778	2,382	2,523	52,683
EUROD				
4+ symptoms	27.39	28.42	26.49	27.39
N	45,559	2,280	2,473	51,321
ADL				
1+ limitations	12.25	13.48	10.83	12.24
N	49,004	2,433	2,575	54,012
IADL				
1+ limitations	18,90	19.77	16.58	18.83
N	49,004	2,433	2,575	54,012
S. PROTECTION OF OLDER P.				
>4,000	29.49	54.99	18.53	30.11
2,500 - 4,000	35.33	27.21	18.60	34.17
<2,500	35.18	17.81	62.87	35.72
N	49,125	2,437	2,580	54,142
MIPEX				
100-60	38.90	34.88	22.56	39.67
60-50	28.59	33.52	15.39	28.18
<50	38.90	31.60	62.05	39.67
N	49,125	2,437	2,580	54,142

Continued on next page

	Mean (SD)			
AGE				
Mean (SD)	67.80 (10.69)	68.03 (10.98)	67.35 (10.49)	67.78 (10.69)
N	49,125	2,437	2,580	54,142
CASP				
Mean (SD)	37.16 (6.32)	36.85 (6.51)	37.87 (6.06)	37.18 (6.31)
N	45,826	2,235	2,429	50,490

Note: SD= standard deviation
Source: SHARE data wave 6.

3.3 Techniques

In the following paragraphs I illustrate in depth the techniques I used to answer my research questions and test my hypotheses. In order to answer my first research question (*analyse the structure of older people's social capital and underline differences between natives and non-natives*) I performed a bivariate analysis and used tests of significance (Chi squared, ANOVA and Kruskal-Wallis test), to test the differences between natives and non-natives in SC variables. To address the second and the third research aims (*analyse the association between social capital, well-being and health, considering the wider context*) I used skew-normal and logistic regression models. For all my analyses I used STATA software, version 15.1. Aims, methods and variables used are summarized in table 3.3.1.

Table 3.3.1 Overview of the research design

RESEARCH OBJECTIVES	METHODS	VARIABLES
1. Analysis of the structure of SC	a. Bivariate analysis b. Chi-squared c. ANOVA d. Kruskal-Wallis test	Social Capital (bridging and bonding)

RESEARCH OBJECTIVES	METHODS	EXPLANATORY VARIABLES	DEPENDENT VARIABLES	CONTROL VARIABLES
2. Association between social capital, health and well-being	a. Skew-normal regression model b. Logistic regression model	a. Social Capital (bridging and bonding)	a. CASP-12 b. EURO-D c. IADL d. ADL	a. Sex b. Age c. Education d. Job e. Financial situation f. SPH
3. Macro-level variables on principal associations	a. Skew-normal regression model b. Logistic regression model c. Cross-equation coefficient tests	a. Social Capital (bridging and bonding) b. Spending (Purchasing Power Standard per inhabitant) on social protection of older people c. Migrant Integration Policies Index	a. CASP-12 b. EURO-D c. IADL d. ADL	a. Sex b. Age c. Education d. Job e. Financial situation f. SPH

3.3.1 Aim 1 – Bivariate Analyses and Tests of Significance

To test for differences in SC and dependent variables among natives and non-natives from high-income countries and non-native from middle- and low-income countries in SC, I used a set of tests according to the measurement properties of the variables. Specifically, I used analysis of variance, or ANOVA, to test for differences in the variables of SN size, weekly contacts, close contacts, family network, and friend network, which have equal-variance among groups and have three or more categories. ANOVA is a test for finding differences in mean, when there are three or more groups. In particular, I used a one-way ANOVA, which tests whether the means of Y differ across categories of X(in my case: native, non-native HIC, and non-native LMIC). One assumption of ANOVA is equal-variance among groups. Barlett's chi-squared can formally test this assumption: a low Barlett probability

implies that an equal-variance assumption is not plausible and that the F test should not be trusted (Hamilton 2012). In other words, if the Barlett test is significant, the hypothesis of unequal-variance can be accepted. However, the ANOVA test does not specify which pair of means is different. The Scheffé multiple-comparison test is able to show the differences between each pair of means. ANOVA uses the $F\ ratio$. If the $F\ ratio$ is significant, it is possible to conclude that the means of the dependent variable of the two or more groups are significantly different (Kabacoff 2011). The formula for $F\ ratio$ is the following (Cramer and Howitt 2004):

$$F\ ratio = \frac{effect\ variance}{error\ variance} \qquad (3.1)$$

Furthermore, I performed the Kruskal-Wallis test for the variables SN satisfaction and CASP-12, which do not have equal-variance. The Kruskal-Wallis test provides a nonparametric alternative to a one-way ANOVA. It tests the null hypothesis of equal population medians. It is safer if ANOVA's equal-variance and normality assumptions are not observed, or if there are suspicious outliers. This test makes the weaker assumption of similar-shaped rank distributions within each group (Hamilton 2012). The Kruskal-Wallis test is based on ranked data and has a distribution from the family of chi-square distributions. However, with only this test, it is not possible to know which groups differ (Field 2013). The Chi-squared formula is:

$$X^2 = \frac{(observed\ frequency - expected\ frequency)^2}{expected\ frequency} \qquad (3.2)$$

I used the Mann-Whitney U test (after the Kruskal-Wallis test) in order to identify the significantly different pairs of groups. The Mann-Whitney U test is a non-parametric test used to determine whether scores from two unrelated samples differ significantly from one another. It tests the number of times scores from one sample are ranked higher than scores from the other sample when the scores for both samples have been ranked in a single sample. If the two sets of scores are similar, the number of times this happens should be similar for the two groups (Cramer and Howitt 2004).

Finally, I performed the Pearson chi-squared for the SC and dependent variables with only two categories each: presence of a partner, participation in organization, participation in voluntary association, participation in clubs and other groups, non-participation, social support received, social support given, EURO-D, ADL, IADL. The purpose was always testing for differences in some variables among natives, non-natives from HIC and non-natives from LMIC. The Pearson chi-squared of independence tests the hypothesis of non-relationships between two categorical variables (Hamilton 2012). It compares the observed

frequencies with the frequencies expected by chance or according to a particular distribution across all the categories of one variable or all the combinations of categories of two variables. The greater the difference between the observed and the expected frequencies, the greater chi-squared will be and the more likely it is that the observed frequencies will differ significantly. Differences between observed and expected frequencies are squared so that chi-square is always positive. The greater the value of chi-square, the more likely it is that the two variables are related and not independent (Cramer and Howitt 2004). Chi-square is the sum of the squared differences between the observed and the expected frequency divided by the expected frequency for each of the cells (Cramer and Howitt 2004). The formula is the same chi-squared formula from before (3.2). I, furthermore, performed chi-squared to identifying the significantly different pairs of groups.

Table 3.3.2 Overview of the tests

TYPE OF VARIABLES AND TESTS	*Equal variance*	*Not equal variance*
Three or more categories	ANOVA Scheffé multiple-comparison	Kruskal-Wallis Mann-Whitney U
Two categories	Pearson chi-squared	

3.3.2 Aim 2 - Regression Models and Interaction Effects

With the aim of bringing to light the association between SC (X), and health (Y) and well-being (Y) among natives, non-natives from HIC, and non-natives from LMIC, I performed skew-normal and logistic regression models. The dependent variables are IADL, ADL (physical health), EURO-D (mental health), and CASP-12 (well-being). Explanatory variables are the following SC variables: presence of a partner, *close network*, SN satisfaction, social support received, social support given, participation in voluntary association, participation in political or community-related organization, and participation in club or other sport organization. Control variables are those listed in paragraph X: age (age^2), gender, education, employment situation, economic situation and self-rated health. For models with IADL and ADL as dependent variables, I also added CASP and EURO-D as control variables.

As a first step, I performed a factor analysis among three SC variables: "family ties", "contacts met weekly", and "emotionally close contacts". The general equation of factor analysis is the following (Field 2013):

$$X = \mu + \Lambda\xi + \delta \qquad (3.3)$$

In particular, I used principal axis factoring, which seeks the least number of factors that can account for the common variance of a set of variables. It focuses on explaining intervariable correlations, instead of variables' variance (Hamilton 2012). I, therefore, called the generated factor "close network".

I estimated three regression models for each dependent variable. In the first model, the only independent variables were control variables and bonding SC variables (model A). The second, instead, included control variables and bridging SC variables (model B). In this way, I was able to look separately at the effect of bridging SC and bonding SC on the dependent variables. The last model, instead, was composed of all the previous variables (model C). I estimated skew-normal regression models for CASP, and logistic regression models for the other dependent variables (EURO-D, IADL, ADL). For all the models, the method was the Maximum Likelihood (Azzalini 1985; Field 2013; Hamilton 2012; Marchenko and Genton 2010). To be able to show the differences between natives, non-natives from HIC, and non-natives from LMIC, in all regression models I performed the interaction effect among the "migrant status" and SC variables. This allowed me to underline the different effect performed by SC on health and well-being, among the three populations. In a regular regression model, we assume that effects are additive. An interaction, instead, is a situation in which the influence of two or more variables does not operate in a simple additive pattern. This occurs when the relationship between two variables changes markedly when the values of other variable(s) are taken into account (Cramer and Howitt 2004). Equation 3.4 shows a linear regression model with interaction:

$$Y = a_0 + b_1X_1 + b_2X_2 + b_3(X_1X_2) + e \qquad (3.4)$$

In the regression models shown in chapters 5 and 6, not all SC variables present interaction with the "migrant status" variable; and the SC variables with interactions are different for each dependent variable. I decided to report only the interaction terms able to show some differences among the three populations, for the dependent variable under consideration. The choice was made also considering the interaction terms relevant in the models of aim 3 (paragraph 3.3.3).

Well-Being

To estimate the effect of SC on CASP, I performed a skew-normal regression model. I chose this regression model after checking the fitness of both linear and skew-normal models, by plotting residuals[29].

The model to estimate well-being is the following:

[29] I will show the procedure in the fifth chapter.

$$CASP \sim^{iid} SN\ (\xi_i, \omega^2, \alpha)$$

Where

$$\xi_i = a_0 + b_1 X_1 + \cdots + b_p X_p + e \quad (3.5)$$

The results will be presented as regression's coefficients.

Mental Health and Physical Health

The logistic model to estimate EURO-D, ADL, and IADL is the following:

$$P(Y) = \frac{1}{1 + e^{-(a_o + b_1 x_1 + \cdots + b_p x_p)}} \quad (3.6)$$

The results will be presented as log-odds regression coefficients.

3.3.3 Aim 3 – Regression Models, Interaction Effects and Cross-Equation Tests

In order to achieve aim 3, I added the macro variables to the C models (i.e., with all variables) used for aim 2. I estimated six models for each dependent variable. In particular, considering expenditure on social protection of older people as a macro variable, I estimated three models for each dependent variable: one for countries with spending on social protection of older people less than 2,500, one for countries with spending between 2,500 and 4,000 and, finally, one for countries with spending higher or equal to 4,000. Considering the Migrant Integration Policies Index, I estimated another three models for CASP, EURO-D, ADL, and IADL: one for countries with a MIPEX lower than 50, one for countries with a MIPEX between 50 and 60 and, finally, one for countries with a MIPEX higher or equal to 60. In order to check the coefficient differences among the three clusters of countries I performed cross-equation coefficients tests.

A cross-equation test is a way to compare regression coefficients between models (Clogg 2015). It allows for testing the difference between two regression coefficients across independent samples. The test answers the question: "does b_1=b_2?"; where b_1 reflects the effect of the explanatory variable X_1 within group 1 and b_2 reflects the effect of the same variable within group 2. In other words, it tests the null hypothesis that the two regression coefficients are equal (Brame et al. 1998).

$$Z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}} \quad (3.7)$$

In this way, thanks to this formula, I was able to test whether the same SC variable had a different effect on health and well-being across the clusters of countries. If the test was

significant, it would be possible to reject the null hypothesis that the two coefficients in two different clusters were equal.

Well-Being

The models to estimate well-being are the following:

$$CASP \sim^{iid} SN\ (\xi_i, \omega^2, \alpha)$$

Where

$$\xi_i = under2{,}500|\ under50\ [a_0 + b_1X_1 + \cdots + b_pX_p + e] \quad (3.8)$$

$$= 2{,}500 - 4{,}000|\ 50 - 60\ [a_0 + b_1X_1 + \cdots + b_pX_p + e] \quad (3.9)$$

$$= over4{,}000|\ over60\ [a_0 + b_1X_1 + \cdots + b_pX_p + e] \quad (3.10)$$

The results will be presented as regression's coefficients.

Mental Health and Physical Health

The models to estimate EURO-D, ADL, and IADL are the following:

$$P(Y) = \frac{1}{1 + e^{-(a_o + b_1x_1 + \cdots + b_px_p)}}$$

Where the brackets' content is:

$$= under2{,}500|\ under50\ [a_0 + b_1X_1 + \cdots + b_pX_p + e] \quad (3.11)$$

$$= 2{,}500 - 4{,}000|\ 50 - 60\ [a_0 + b_1X_1 + \cdots + b_pX_p + e] \quad (3.12)$$

$$= over4{,}000|\ over60\ [a_0 + b_1X_1 + \cdots + b_pX_p + e] \quad (3.13)$$

The results will be presented as log-odds regression coefficients.

3.4 Why not a longitudinal analysis?

The *social network* module (i.e., the one containing information on SNs) is present also in *wave 4*, collected 4 years before *wave 6*. Having two *waves* with the same population and the same variables potentially allows for some kind of longitudinal analysis[30]. I was, however, forced to abandon the idea of a longitudinal analysis for many reasons. First of all, strictly speaking, just two waves do not allow for a longitudinal analysis. Many scholars agree that the minimum number of waves is three (Singer and Willet 1996; Frees 2004; Andreß, Golsch, and Schmidt 2013; Brusso, Cigularov, and Callan 2014). Without a real longitudinal design (i.e. without the possibility to determine causal relationship and not only statistical association), it is not possible to control reverse causality; one of the main research limits of the topics of my research. What I could have done with two waves was a *change score analysis*, which makes it possible to analyse differences between outcomes measured at two times (Garcia and Marder 2017), or to estimate fixed effect models. However, in order to do both

[30] Longitudinal data are repeated measurements of the same individuals over a time span long enough to encompass a detectable change in their development status" (Rajulton 2001).

analyses and use the balance panel (i.e., the dataset composed of all the individuals with observations in both waves), I would have lost a lot of observations[31].

As I underlined before, my focus is on the migrant population. In SHARE, migrants represent (about) 10% of the sample. In particular, in *wave 6*, there are 5,017 non-natives aged 50 or over, a small, but sufficient, number to perform my analyses. The balance panel between *waves 4* and *6*, is represented by 21,692 observations of people aged 50 and over, but just 2,065 of them are non-natives respondents (941 from HIC, 1,106 from LMIC). Given the big number of variables that I add to my models, approximately 2,000 observations are very few. One possible solution would be to estimate simpler models and drop some variables from them. However, my approach is based on the multidimensionality of SC and on the importance of taking into consideration the context. In other words, I cannot reduce variables used to measure SC without losing the main strength of my work: the possibility to operationalize SC as multidimensional. Furthermore, I cannot renounce taking into consideration the context (e.g., Europe is a too diversified region to consider it as a whole). I, therefore, prefer the multidimensionality of SC to the possibility of a longitudinal study. Furthermore, fixed effect models do not allow for estimation of the effect of variables that do not change in value over the two waves. Therefore, I will not be able to estimate the effect of being a migrant on health or well-being, all other variables held constant. However, I will try to estimate some fixed effects models. I will talk about the results and the problems in paragraph 5.1.4, chapter 5.

Finally, it may be possible to produce some descriptive analyses to reveal changes over time in some critical variables. However, seeing the change in SN variables or on in the health of the older population in Europe, over four years, is not an aim of my analysis. It might be of interest to disclose the changes in the SC (especially SN) of migrants from the time of migration to the present day; and compare it with the changes of the native population. However, SHARE data do not allow for this, containing only information on aging and older people.

[31] The loss of observations is even more consistent with logistic fixed effect models, which include in the model only observations that changed their value of the dependent variable (Longhi and Nandi 2015).

4 Results – Is Social Capital of Older Migrants Different from Social Capital of Older Natives?

In this chapter I address the first research aim: to analyse the structure of older (50 and over) people's SC and underline the differences between the native and non-native population. I recall the hypothesis: *migrants from low- and middle-income countries will have a lower level of both bonding and bridging SC than native older people.* The following tables show descriptive statistics, ANOVA, the Kruskal-Wallis test, the Mann-Whitney U-test, and the Pearson *chi-squared* test of the principal variables used in this project, separated by natives, non-natives from high-income countries (HIC) and non-natives from low- and middle-income countries (LMIC). Table 4.1.1 shows the distribution and tests of significance for all SN variables. Table 4.1.2, instead, shows the distribution and tests of significance for the remaining variables: social support given and received and social participation activities. The distribution of the variables is shown for natives, non-natives from HIC, non-natives from LMIC and all samples.

4.1 Social Capital of the Older Native and Non-Native Population in Europe

Table 4.1.1 presents the distribution of SN variables. On average, respondents have 2.6 contacts in their networks and few interviewees are completely isolated. In fact, only 2.6% of them reported having no contacts. Most of the network is composed of family members: on average they represent more than 2 contacts. Finally, 2.3 contacts are also very or extremely close and are people who the respondents meet weekly or more often. Social network satisfaction is very high. More than 95% of the respondents declare to be satisfied or completely satisfied with their own network (i.e., more than 95% of respondents indicate a level of satisfaction of 7 or more). The median is represented by the value 9, which is also almost the mean (8.9).

When analysing differences between natives, non-natives from HIC, and non-natives from LMIC, findings show that all differences are statistically significant, with the exception of number of friends in the network. However, these differences are minimal. In detail, analysis of variance (ANOVA) shows that almost all mean differences between groups are significant. For SN size and family members, the Scheffe test underlines that the significant pairs of means are natives and non-natives from HIC (SN size: -0.128, $p.$= 0.001; family: -0.105, $p.$=0.002) and non-natives from HIC and non-natives from LMIC (SN size: 1.148, $p.$= 0.008; family: 0.099, $p.$=0.047). Non-natives from HIC have, on average, fewer contacts than

respondents from the other two groups. There are no significant differences between native and aging people from LMIC. In weekly contact and closeness, there are differences only among natives and non-natives from HIC (weekly contact: -0.075, *p.*=0.047; close contacts: -0.083, *p.*=0.036). Also, in these cases, the means of non-native people from HIC are slightly lower than the means of native aging people. There are also differences between groups in the SN satisfaction variable (X^2=9.443, df.=2, *p.*=0.009). Again, the non-native from HIC group significantly differs from the others. Specifically, the Mann-Whitney U-test shows that the SN satisfaction of migrants from HIC is lower than the satisfaction of natives (z= 3.247, *p.*=0.0012) and the satisfaction of migrants from LMIC (z= -2.521, *p.*=0.0117). Differences in all these variables are, anyway, very low. Means differences in the variable "friend" are not significant. It is possible to conclude that migrants from HIC have, on average, a slightly different network compared to the other two population. In particular, they have a smaller network and they are less satisfied with it.

Table 4.1.1 Social Capital variables (I)

SN Variables	NATIVES		NON-NATIVES HIC		NON-NATIVES LMIC		ALL	
	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)
*SN SIZE***		2.624 (1.566)		2.495 (1.563)		2,643 (1,571)		2,619 (1,566)
0	2.6		3.2		2.5		2.6	
1	25.0		29.0		24.8		25.1	
2	25.8		24.3		26.1		25.7	
3	21.6		20.8		20.1		21.5	
4+	25.0		22.6		26.4		25.0	
N	43,593		2,140		2,250		47,983	
*Family N***		2.082 (1.309)		1.977 (1.319)		2.076 (1.324)		2.077 (1.311)
0	5.9		7.6		6.0		6.0	
1	33.4		36.1		34.3		33.6	
2	28.1		26.4		27.3		28.0	
3	19.1		17.8		18.1		19.0	
4+	13.5		12.1		14.3		13.5	
N	42,435		2,070		2,193		46,698	
Friend N		0.467 (0.872)		0.443 (0.893)		0.486 (0.874)		0.467 (0.873)
0	70.5		72.6		69.2		70.5	
1	18.2		16.9		18.6		18.2	
2	7.3		6.7		8.2		7.3	
3	2.7		2.4		2.9		2.7	
4+	1.3		1.4		1.1		1.3	
N	42,435		2,070		2,193		46,698	

Continued on next page

	NATIVES		NON-NATIVES HIC		NON-NATIVES LMIC		ALL	
	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)
*Number of Contacts MEET WEEKLY or more**		2.344 (1.346)		2.269 (1.367)		2.311 (1.320)		2.339 (1.346)
0	1.6		2.3		1.51		1.61	
1	30.3		33.0		31.20		30.49	
2	28.9		27.7		29.32		28.84	
3	21.4		20.5		20.17		21.32	
4+	17.8		16,4		17.79		17.74	
N	42,347		2,06		2,186		46,596	
*Number of Very or extrem. CLOSE***		2.327 (1.437)		2.243 (1.433)		2.272 (1.413)		2.321 (1.436)
0	4.1		3.97		4.58		4.16	
1	29.5		33.28		30.13		29.70	
2	27.4		26.56		28.39		27.38	
3	20.3		19.35		19.00		20.22	
4+	18.6		16.84		17.89		18.54	
N	42,352		2,067		2,184		46,603	
*SN SATISF.***		8.940 (1.336)		8.830 (1.472)		8.937 (1.380)		8.935 (1.345)
Completely dis. (0)	0.3		0.75		0.58		0.32	
1	0.1		0.00		0.00		0.08	
2	0.1		0.09		0.04		0.12	
3	0.2		0.24		0.13		0.18	
4	0.2		0.24		0.22		0.18	
5	1.7		2.17		1.66		1.76	
6	1.7		1.60		1.75		1.70	
7	5.7		6.26		4.70		5.72	
8	22.0		23.13		23.73		22.15	
9	22.3		23.36		21.00		22.29	
Completely s. (10)	45.65		42.16		46.17		45.51	
N	43,367		2,123		2,233		47,723	

Notes: Significance levels at *p <=.05, ** p<=.01, p<=.001. SN size, family network, friend network, number of network members contacted weekly or more frequently, number of contacts defined as very or extremely close vary between 0 to 7. For testing differences among groups, ANOVA was used in all variables, with the exception of SN satisfaction (Kruskal-Wallis test). SD= standard deviation. Source: SHARE data wave 6.

Table 4.1.2 shows occurrence and tests of significance of the variables "presence of a partner", participation in social activities and social support. We found a non-clear pattern of differences in only three of these variables. There are no significant differences in the first variable between the three populations: almost three-quarters of the sample have a partner (in or outside the household). Participation is rather low for the entire population (social organization: 6.5%, voluntary organization: 15.9%); except for participation in clubs or sport organizations, which reaches more than 25%. Furthermore, in the same variable, *chi-squared* shows a difference between the three groups (X^2=64.089, df.= 2, *p.*=0,000): on average, non-natives from LMIC participate more in clubs and sport organizations (33,4%), than natives

(26,4%; X^2= 58.930, df.=1, *p.*=0.000) and non-natives from HIC (24.7%; X^2= 44.212, df.=1, *p.*= 0.000). Also, in the variable "non-participation" there is a significant difference between groups population (X^2=37.510, df.=2, *p.*=0,000): again, non-natives from LMIC participate more than people from the other two groups (native: X^2= 36.707, df.=1, *p.*=0.000; HIC: X^2= 21.879, df.=1, *p.*=0.000). A higher percentage of the respondents provide help (39.9%), compared to those who receive help (22.36%). Therefore, more respondents are still care-givers, rather than receivers of care. And these percentages are approximately the same for all age groups[32] and for men and women[33]. The Chi-squared test displays a difference between natives and non-natives in the variable "given help" (X^2=7.299, df.=2, *p.*=0.026): 42% of non-natives from LMIC provided help in the last 12 months, while less than 40% of natives (X^2= 6.7575, df.=1, *p.*= 0.009) or non-natives from HIC (X^2= 5.2730, df.=1, *p.*= 0.022) did the same. There are no significant differences about help received among the groups. In conclusion, migrants from LMIC participate more in clubs and other sport organizations and they give more help, compared to native and non-natives from the "richest" countries.

Table 4.1.2 Social Capital variables (II)

Partner, participation, and social support	NATIVES	NON-NATIVES HIC	NON-NATIVES LMIC	ALL
	%	%	%	%
PARTNER	74.84	73.57	74.81	74.79
N	49,125	2,437	2,580	54,142
ORGANIZATION	6.51	6.05	7.36	6.53
N	46,542	2,282	2,485	51,309
VOLUNTARY	15.93	16.52	15.01	15.91
N	46,542	2,282	2,485	51,309
*CLUB***	26.44	24.67	33.44	26.70
N	46,542	2,282	2,485	51,309
*NON-PARTICIPATION****	63.68	64.29	57.67	63.41
N	46,542	2,282	2,485	51,309
RECEIVED HELP	22.44	22.28	20.95	22.36
N	49,044	2,433	2,577	54,054
*GIVEN HELP**	39.79	39.18	42.37	39.89
N	48,971	2,430	2,575	53,976

Notes: Significance levels at *p <=.05, ** p<=.01, p<=.001. For testing differences among groups was used chi-squared. Source: SHARE data wave 6.

[32] Social support received for age 50-65: 22.49%, age 65-80: 22.50%, age 80 and over: 21.63%. X^2= 2.98, *p.*= 0.22. Social support given for age 50-65: 39.58%, age 65-80: 40.26%, age 80 and over: 39.87%. X^2= 2.19, *p.*= 0.33.

[33] Social support received for men: 22.35%, for women: 22.37%. X^2= 0.01, *p.*= 0.943. Social support given for men: 39.53%, for women: 40.17. X^2= 2.22, *p.*= 0.136.

4.2 Discussion and Conclusions

Results about the structure of older people's SC and differences between natives, non-natives from HIC and non-natives from LMIC, are basically in contrast with the hypothesis formulated in the third chapter. In general, bonding aspects of SC appear to be prevalent for every group: the network is mainly composed of very close family ties, and people who the respondents meet weekly or more often. Finally, participation is rather low. My hypothesis was: *migrants from low- and middle-income countries will have a lower level of both bonding and bridging SC than native older people.* According to the data, there are no significant differences between migrants from LMIC and the native population in SN variables. However, they have a bigger network, with a higher number of family members, and are more satisfied with their network than migrants from HIC. Furthermore, migrants from LMIC participate more in social activities and give more social help than native and non-natives from the other group.

Non-natives from HIC present less network ties (and, in particular, less family ties), less network members contacted weekly or more frequently, and less very or extremely close contacts; and they are less satisfied with their SN, compared to the native population. However, these results are coherent with the assertion that migration can lead to a loss or reduction of social ties (Kauh 1997; Silveira et al. 2002). Instead, there are no significant differences between natives and non-natives from HIC in the presence of a partner, participation in a social activity or social support.

One possible explanation of these results is the argument of the immigrant selectivity theory (Feliciano 2005). As was underlined in the theoretical chapter, Feliciano (2005) theorized that migrants represent a positively selected group from the home country, because they are probably more ambitious than their counterparts who stayed behind. Considering that relative, not absolute, deprivation motivates individuals to migrate (Stark and Bloom 1985), non-natives could be social integrated as much, or more, than natives (Hamilton 2015). Furthermore, according to Lee (1966), migrants who face the greatest barriers in migrating will be the most positively selected (Lee 1966). This is probably the case for migrants from LMIC rather than migrants from HIC. Finally, it is important to remember that SHARE was not designed to be representative of European migrants, and so likely excludes more vulnerable migrants from the sampling frame (Brothers, Theou, and Rockwood 2014a) (e.g., undocumented migrants and seasonal workers or, more tritely, migrants who cannot speak the language of the country). All this can lead to an overestimation of social integration of the real migrant population. Furthermore, in SHARE, there are no questions about the motivations to migrate; non-natives in this dataset are born

in very different countries (all over the world) and they live in different countries (17 countries in Europe, e.g., they can be affected by different immigration policies, according to the country in which they are located).

Analysing some of the associations in greater depth[34], data show that the differences between the three populations changes slightly when taking into account expenditure on social protection of older people. As underlined in the literature, there can be some differences in the SC of migrants in different contexts (Berchet and Sirven 2014). In particular, in countries where expenditure on social protection of older people is lower than 2,500, non-natives from HIC participate significantly less than native older people[35]. Taking into account the cluster of countries also slightly changes the results on social support given. Migrants from LMIC gave help to others more readily than natives people in countries with an expenditure <2,500[36]; whereas non-natives from HIC gave help less readily than natives in countries with an expenditure >4,000[37]. However, these results from just two variables are not enough (and not unanimous enough) to formulate different conclusions on the differences in SC among native and non-native older people[38]. Furthermore, non-significant coefficients in some variables may be a result of the low number of observations of migrants, especially in some countries and clusters of countries.

However, taking into account MIPEX leads to more unanimous results. In particular, in countries where migrant integration policies are more favourable (score higher or equal to 60), differences among natives and non-natives (both from MLIC and HIC) in SN size, participation in clubs and social support given, are no more significant. It could be that more favourable integration policies lead to more equality in terms of SC, among native and non-native older people.

[34] To obtain these results, I ran three logistic or linear regressions (one for each cluster of countries) for some SC variables; with the variable "migrant status" as the independent variable.
[35] Coef.: -0.481, p. 0.000
[36] Coef.: 0.126, p. 0.017
[37] Coef.: -0.143, p. 0.016
[38] I did some tests on other variables (SN size, family ties, SN satisfaction), but the results were not remarkably different from the ones on all countries.

5 Results – Social Capital, Health and Well-Being of Older Migrants

In this chapter, I present the results of the regression models in order to answer the second question: *what kind of SC (bonding or bridging) allows the older and aging migrant population (compared to the native population) to have the best outcomes in terms of health and well-being.*

5.1 Aim 2: What Kind of SC is Associated with Better Health and Well-Being among Older and Aging Migrant People?

With the aim of finding out which kind of SC (bonding or bridging) allows the older and aging migrant population to have better health and well-being outcomes, I performed skew-normal and logistic regressions. As previously stated, I estimated three different models for each dependent variable. The first one is composed of control variables and bonding SC variables (model A); the second of bridging SC variables (model B); and the last model of all variables (model C). In this way, I was able to look separately at the effect of bridging SC and bonding SC on the dependent variables and underline any differences. In commenting on the models, I normally refer to the full model (model C). I refer to model A or B only if there are relevant differences between them and the full model. As underlined before, in these models I only report interaction effects if significant.

5.1.1 Modelling Well-Being: First Step

As a first step before running the model with CASP, I checked if the variable was normally distributed. Firstly, I plotted a histogram of the variable, to explore the shape of the data. Plotting a histogram was a rapid way to realize that, in my data, the variable CASP is non-normally distributed (Fig. 5.1.1). In particular, the variable is negatively skewed.

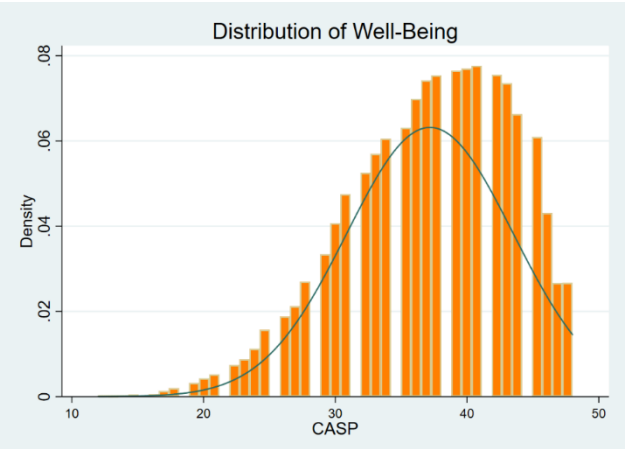

Figure 5.1.1 Distribution of variable CASP

In these cases, a transformation that makes the data more normal-like is needed. I adopted the solution of modelling a skew-normal distribution. Compared to the normal distribution, this distribution has a shape parameter regulating the asymmetry of the distribution (Azzalini 1985; Marchenko and Genton 2010). I, therefore, ran a skew-normal regression model without predictors, and the likelihood-ratio test (for the skew-normal regression versus the normal linear regression) demonstrated that this model fit the data better than a linear regression model[39]. I then plotted the skew-normal density estimate of the fitted values against the histogram of CASP. In figure 5.1.2, we can see that it closely follows the nonparametric density estimate and that it fits better than a normal distribution.

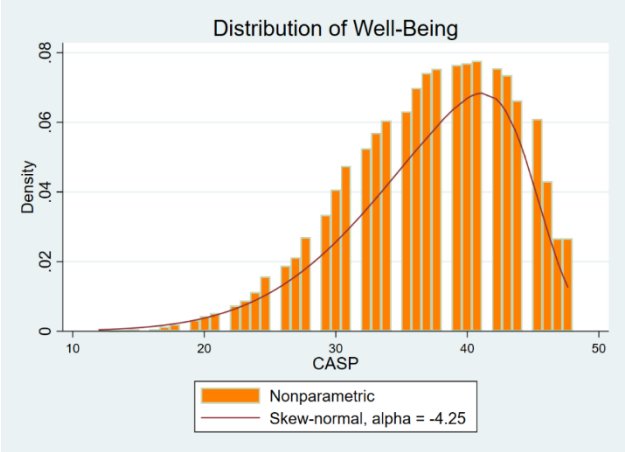

Figure 5.1.2 Distribution of variable CASP with skew-normal

As a final check, I estimated Model C (i.e., the model with all the variables) both with linear regression and skew-normal regression and plotted the residual density estimate obtained non-parametrically against the residuals obtained with the two regressions. Again, the results demonstrate that a skew-normal model (Fig. 5.1.4) fits better than a linear model (Fig. 5.1.3). This final proof convinced me to model a skew-normal regression.

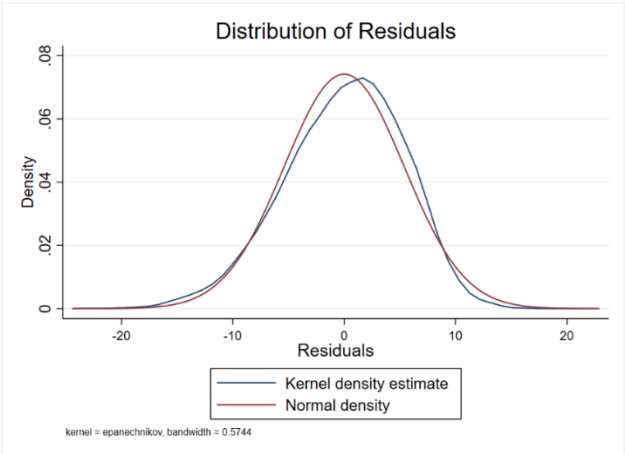

Figure 5.1.3 Distribution of residual with linear regression

[39] $Chi^2(1) = 3{,}902.92$; p.= 0.000

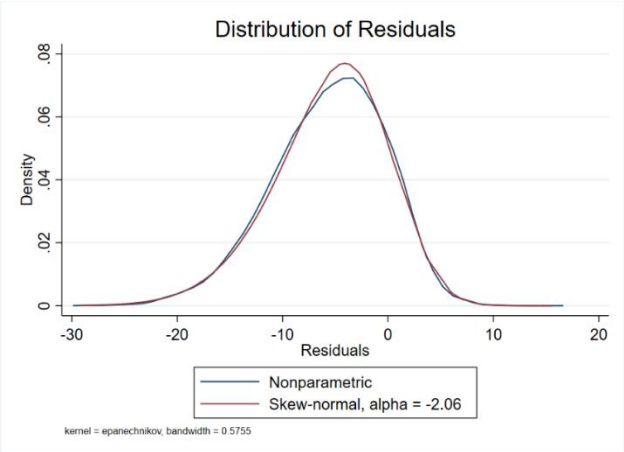

Figure 5.1.4 Distribution of residuals with skew-normal regression

5.1.2 Association Between Social Capital and Well-Being

The table below (tab. 5.1.1) shows the three models estimated with CASP as the dependent variable.

Table 5.1.1 Skew-normal regression - well-being

Outcome: CASP	Model A		Model B		Model C	
	Coef	(95% CI)	Coef	(95% CI)	Coef	(95% CI)
BONDING SC						
Partner	0.798***	(0.673, 0.922)			0.758***	(0.633, 0.883)
SN satisfaction (0-10)	0.794***	(0.751, 0.837)			0.816***	(0.774, 0.859)
Close Network	0.429***	(0.372, 0.485)			0.358***	(0.302, 0.414)
Close×HIC	0.203	(-0.065, 0.471)			0.229	(-0.040, 0.498)
Close×LMIC	-0.196	(-0.455, 0.063)			-0.177	(-0.435, 0.081)
Support received	-1.073***	(-1.201, -0.945)			-1.124***	(-1.252, -0.996)
Support given	0.943***	(0.837, 1.050)			0.638***	(0.531, 0.745)
Giv×HIC	-0.108	(-0.599, 0.383)			-0.071	(-0.569, 0.427)
Giv×LMIC	-0.607*	(-1.081, -0.134)			-0.582**	(-1.162, -0.101)
BRIDGING SC						
Voluntary			1.300***	(1.158, 1.441)	1.269***	(1.122, 1.414)
Organization			0.503***	(0.298, 0.707)	0.366**	(0.156, 0.576)
Club			1.925***	(1.807, 2.044)	1.839***	(1.717, 1.961)
CONTROL						
Age	0.119***	(0.065, 0.172)	0.097***	(0.045, 0.148)	0.103***	(0.050, 0.156)
Age^2	-0.001***	(-0.001, -0.000)	-0.001***	(-0.001, -0.000)	-0.001***	(-0.001, -0.000)
Female	-0.013	(-0.116, 0.089)	-0.012	(-0.111, 0.086)	-0.024	(-0.127, 0.078)
Job (Retired)						
Employed	0.074	(-0.045, 0.193)	0.039	(-0.077, 0.154)	0.048	(-0.071, 0.167)
Unemployed	0.228	(-0.070, 0.526)	0.237	(-0.047, 0.522)	0.202	(-0.095, 0.499)
Disabled	-0.422**	(-0.721, -0.125)	-0.480**	(-0.766, -0.195)	-0.490**	(-0.787, -0.193)
Homemaker	0.137	(-0.047, 0.321)	0.076	(-0.105, 0.258)	0.115	(-0.069, 0.300)
Other	0.073	(-0.299, 0.444)	0.014	(-0.343, 0.371)	0.029	(-0.342, 0.401)
Education (Pre-Prim)						
Primary	0.098	(-0.126, 0.321)	-0.050	(-0.270, 0.170)	-0.012	(-0.236, 0.211)
Lower secondary	0.028	(-0.196, 0.252)	-0.017	(-0.236, 0.203)	-0.037	(-0.261, 0.187)
Upper secondary	-0.152	(-0.365, 0.061)	-0.206	(-0.144, 0.003)	-0.178	(-0.391, 0.034)
Post-secondary	0.120	(-0.189, 0.429)	-0.044	(-0.347, 0.257)	0.017	(-0.292, 0.326)
Tertiary	-0.264*	(-0.489, -0.038)	-0.303**	(-0.524, -0.082)	-0.319**	(-0.544, -0.093)
SPH[a]	4.260***	(4.153, 4.367)	4.323***	(4.220, 4.426)	3.969***	(3.863, 4.076)
Make ends meet[b]	0.097	(-0.009, 0.203)	0.149**	(0.047, 0.251)	0.112*	(0.007, 0.218)
Non-natives						
High I.C.	-0.273	(-1.520, 2.067)	-0.172	(-0.452, 0.108)	0.629	(-1.173, 2.431)
Low-Middle I.C.	0.283	(-1.563, 2.128)	0.517***	(0.234, 0.800)	0.526	(-1.325, 2.377)
Constant	22.641***	(20.740, 24.542)	30.546***	(28.750, 32.342)	22.679***	(20.782, 24.576)
Observation	42,880		47,782		42,624	
Gamma	-0.544***		-0.517***		-0.469***	
Wald Test[c]					1,556.10***	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
a. 0= poor, fair; 1= from good to excellent
b. 0= easily; 1= with difficulty
c. chi-squared value generated by the Wald test on adding bridging SC variables to the model

In all three models, the Gamma parameter is significant and negative; i.e., the skew-normal model fits better than a linear regression model, and the distribution is skewed to the left. The Wald test underlines how model C (with both bonding and bridging SC) fits significantly better than model A (with bonding SC only).

Looking at model C, with respect to bonding SC, variables are generally positively associated with well-being; with the exception of support received (b = -1.124). The variable with the highest coefficient is SN satisfaction (b = 0.816, range 0-10). This result is consistent with hypothesis 2a): *Among the whole older population, having a partner, a close network (and being satisfied with it), and giving support to others are positively associated with physical health, mental health and well-being. Receiving support from others, instead, is negatively related with the same dependent variables.* For bridging SC, all kinds of participation are positively related with CASP, as predicted by hypothesis 2b).

Most of the interaction effects are not significant. In particular, there are not differences in bridging SC variables that can confirm hypothesis 2c): *The positive association of bridging SC (participation in social activities) with physical and mental health and well-being, is stronger among migrants from lower- and middle-income countries, rather than among natives or migrants from high-income countries.* However, there are some differences in bonding SC. For the factorial variable "close network", differences between native and non-natives are not statistically significant, even if for few points. I, therefore, ran another model with all the variables, but with non-natives from HIC as a reference category (instead of natives). It shows that the difference between the two migrant groups is statistically significant (b = -0.406*, (SD= -0.770, -0.042)). Having a close network is more relevant for the well-being of migrants from HIC. In order to better identify these differences, I plotted the predicted mean of well-being for each population (i.e., natives, non-natives from LMIC, non-natives from HIC), for the different values of close network[40]. In figure 5.1.5 we can see how a close network is related with well-being in different ways for the three populations. In particular, the positive relationship is stronger for migrants from HIC, compared to migrants from LMIC.

[40] *marginsplot*: it shows predicted means of the dependent variable at specific values of one or more independent variables; other independent variables at the mean (Hamilton 2012).

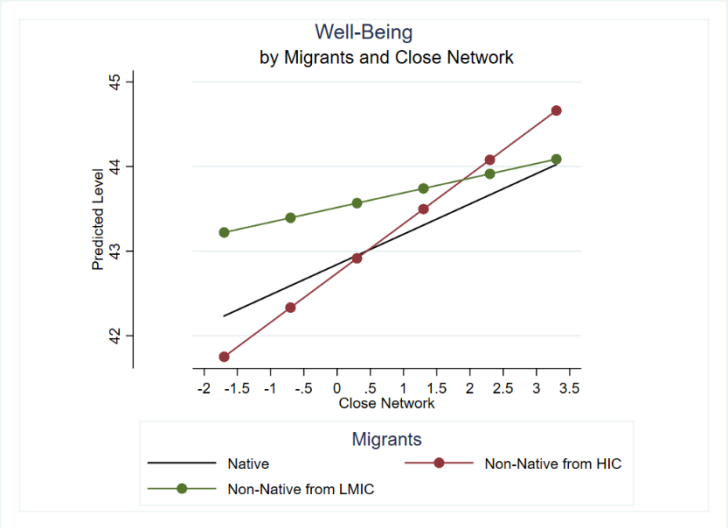

Figure 5.1.5 Predicted level of well-being: Close network

As underlined before, support given is positively associated with the dependent variable (b = 0.638). However, the coefficient is lower for migrants from LMIC and reaches almost zero for them in the full model (b = -0.582). I also plotted the predicted mean of well-being for each population, for social support give (Fig. 5.1.6). Here it is evident that support given has almost no effect on the well-being of migrants from LMIC.

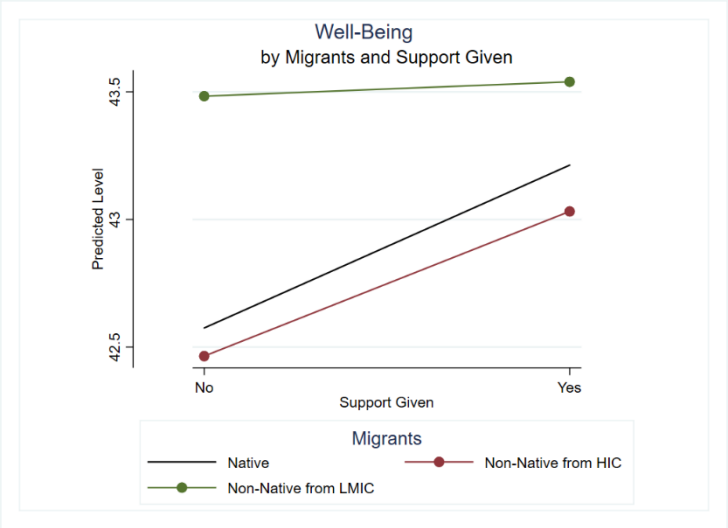

Figure 5.1.6 Predicted level of well-being: Support given

In conclusion, the hypotheses about the association between SC and well-being for the general population are confirmed. Contrary to expectations, bridging SC does not result as more important for migrants from "poor" or developing countries. However, I found some evidence that bonding SC (close network and giving support) is less important for the well-being of this population.

5.1.3 Association between Social Capital and Mental Health

To estimate the effect of SC on mental health, I performed logistic regression models. As stared in the third chapter, I recoded EURO-D as a binary variable, using a cut off score of 4 or greater to represent the presence of depression: 0, non-presence of depression; 1, presence of depression. Table 5.1.2 shows the three models.

Table 5.1.2 Logistic regression - depression

Outcome: EURO-D	Model A		Model B		Model C	
	Log-odds(95% CI)		Log-odds(95% CI)		Log-odds(95% CI)	
BONDING SC						
Partner	-0.349***	(-0.403, -0.294)			-0.336***	(-0.391, -0.281)
SN satisfaction (0-10)	-0.146***	(-0.165, -0.127)			-0.146***	(-0.166, -0.127)
Close Network	-0.019	(-0.007, 0.045)			0.036**	(0.010, 0.062)
Support received	0.422***	(0.366, 0.477)			0.427***	(0.370, 0.482)
Rec×HIC	-0.037	(-0.288, 0.214)			-0.063	(-0.325, 0.200)
Rec×LMIC	-0.231	(-0.484, 0.022)			-0.264*	(-0.525, -0.003)
Support given	-0.053*	(-0.102, -0.003)			0.003	(-0.047, 0.054)
Giv×HIC	0.265*	(0.040, 0.491)			0.249*	(0.018, 0.480)
Giv×LMIC	0.064	(-0.158, 0.285)			0.039	(-0.187, 0.265)
BRIDGING SC						
Voluntary			-0.064	(-0.132, 0.004)	-0.053	(-0126, 0.021)
Organization			-0.217***	(-0.320, -0.114)	-0.205***	(-0.314, -0.095)
Org×HIC			0.564*	(0.119, 1.009)	0.411	(-0.091, 0.912)
Org×LMIC			-0.093	(-0.539, 0.351)	0.017	(-0.441, 0.475)
Club			-0.346***	(-0.402, -0.289)	-0.354***	(-0.412, -0.296)
CONTROL						
Age	0.001	(-0.023, 0.026)	0.003	(-0.020, 0.026)	0.007	(-0.017, 0.032)
Age^2	0.000	(-0.000, 0.000)	-0.000	(-0.000, 0.000)	-0.000	(-0.000, 0.000)
Female	0.040	(-0.008, 0.087)	0.024	(-0.020, 0.069)	0.039	(-0.010, 0.086)
Job (Retired)						
Employed	-0.001	(-0.065, 0.045)	-0.017	(-0.069, 0.034)	-0.010	(-0.066, 0.045)
Unemployed	-0.216**	(-0.361, -0.072)	-0.192**	(-0.325, -0.060)	-0.217**	(-0.362, -0.072)
Disabled	0.020	(-0.118, 0.157)	0.042	(-0.086, 0.169)	0.019	(-0.119, 0.157)
Homemaker	-0.031	(-0.117, 0.056)	-0.021	(-0.103, 0.062)	-0.025	(-0.112, 0.062)
Other	-0.019	(-0.192, 0.154)	-0.066	(-0.229, 0.098)	-0.032	(-0.207, 0.144)
Education (Pre-Prim)						
Primary	0.058	(-0.049, 0.164)	0.090	(-0.011, 0.192)	0.070	(-0.037, 0.177)
Lower secondary	0.145**	(0.039, 0.252)	0.149**	(-0.047, 0.250)	0.155**	(0.047, 0.262)
Upper secondary	0.161**	(0.060, 0.263)	0.183***	(0.086, 0.279)	0.162**	(0.060, 0.264)
Post-secondary	0.119	(-0.027, 0.266)	0.155*	(0.017, 0.293)	0.150*	(0.003, 0.298)
Tertiary	0.139*	(0.032, 0.246)	0.171**	(0.069, 0.272)	0.138*	(0.030, 0.246)
SPH[a]	-1.435***	(-1.481, -1.389)	-1.446***	(-1.489, -1.403)	-1.379***	(-1.426, -1.332)
Make ends meet[b]	0.031	(-0.018, 0.080)	0.005	(-0.052, 0.041)	0.030	(-0.020, 0.079)
Non-natives						
High I.C.	0.586	(-0.209, 1.382)	0.076	(-0.043, 0.196)	0.550	(-0.259, 1.360)
Low-Middle I.C.	0.088	(-0.738, 0.914)	-0.034	(-0.158, 0.089)	0.081	(-0.753, 0.916)
Constant	1.101*	(0.137, 1.892)	-0.400	(-1.106, 0.405)	0.848	(-0.036, 1.733)
Observation	43,551		48,396		43,203	
Correctly-classified Rate	74.50%		72.78%		74.59%	
H-L Test (X^2)[c]					6.93	
Stukel's Score Test					15.94***	
Wald Test[d]					186.43***	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
a. 0= poor, fair; 1= from good to excellent
b. 0= easily; 1= with difficulty
c. Hosmer-Lemeshow goodness-of-fit test with 10 groups
d. chi-squared value generated by the Wald test on adding bridging SC variables to the model

The table above shows how, adding more variables to the model, increases the overall correctly-classified rate[41] from 72.8% to 74.6%. Furthermore, I tested the goodness-of-fit of model C, using both the Hosmer-Lemeshow goodness-of-fit test with 10 groups, and Stukel's Score Test (Hamilton 2012; Canary et al. 2017). I used both because there is no consensus on which test to use when some independent variables are continuous (Pulkstenis and Robinson 2002). The Hosmer-Lemeshow test is not significant, i.e., the null hypothesis that the observed frequencies of y=1 and the expected frequencies of y=1 are the same is not rejected. In other words, the test confirms that the model is correctly specified. However, Stukel's score test (which compares the assumed logistic model to a general logistic model with two additional parameters) is significant. The two tests contradict each other. Finally, the Wald test confirm that model C fits better than model A.

In the case of depression, hypothesis 2a) is partially confirmed. Among bonding SC variables, being satisfied with the network and having a partner increase the probability of having good mental health (i.e., non-depression); whereas support received and a "close network" are positively related with depression. Again, SN satisfaction is the coefficient with the highest impact (log-odds = -0.146). The positive effect of giving support to others is no more significant when bridging SC is also considered. Among bridging SC, participation in political and community-related organizations and clubs diminishes the probability of being depressed. Consequently, hypothesis 3b) is confirmed.

No interactions between bridging SC and "migrant status" are significant. For this reason, hypothesis 2c) is not confirmed: bridging SC is positively related with mental health, but there are no differences between natives and non-natives. However, some relevant differences among the native population and migrants are present. Firstly, receiving support is less deleterious to the mental health of migrants from LMIC, compared to native older people. Plotting the predicted probability makes this clear. Figure 5.1.7 shows that receiving support is deleterious to the mental health of all three populations, but that the effect is weaker for older migrants from LMIC.

[41] Percentage of observations correctly classified as y=1 or y=0, by the model (Hamilton 2012).

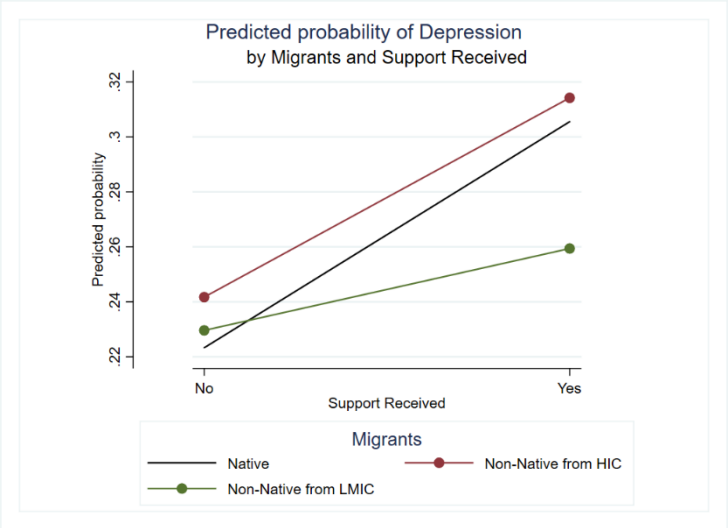

Figure 5.1.7 Predicted probability of depression: Support received

Furthermore, in model C, support given is significant only for HIC; and it increase the probability of being depressed for this population. Again, plotting the predicted probability of being depressed helps us to identify the differences between natives and non-natives (Fig. 5.1.8). The figure shows perfectly how social support given has no effect on the mental health of native people, and increases the probability of depression for migrants from HIC. The difference between the two migrant's populations is not significant.

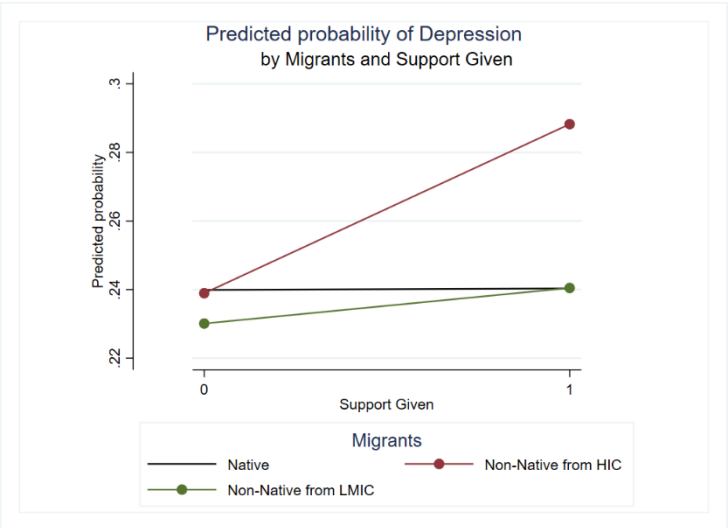

Figure 5.1.8 Predicted probability of depression: Support given

Finally, participation in political or community organizations seems to increase the probability of being depressed for migrants from HIC (log-odds = 0.564), but only when bonding SC is not taken into account (model B). In conclusion, hypotheses about the association between SC and mental health for the general population are partially confirmed. Some differences between natives and non-natives are present, but not between natives and migrants from LMIC with respect to bridging SC.

5.1.4 Association between Social Capital and Physical Health

To estimate the effect of SC on physical health, I performed logistic regression models. As stated in the methods' chapter, I recoded ADL and IADL as binary variables: value 0 represents the absence of limitations on the (instrumental) activity of daily living, whereas 1 represents the presence of one or more limitations. Table 5.1.3 shows the three models for ADL, and table 5.1.4 for IADL.

Table 5.1.3 Logistic regression - Activity of Daily Living

Outcome: ADL	Model A		Model B		Model C	
	Log-odds(95% CI)		Log-odds(95% CI)		Log-odds(95% CI)	
BONDING SC						
Partner	-0.297***	(-0.375, -0.220)			-0.248***	(-0.327, -0.169)
SN satisfaction (0-10)	0.021	(-0.006, 0.049)			0.021	(-0.007, 0.049)
Close Network	0.036	(-0.005, 0.076)			0.049*	(0.009, 0.090)
Support received	0.869***	(0.793, 0.945)			0.863***	(0.786, 0.940)
Rec×HIC	-0.167	(-0.525, 0.192)			-0.103	(-0.467, 0.261)
Rec×LMIC	-0.612**	(-0.982, -0.241)			-0.681***	(-1.061, 0.301)
Support given	-0.377***	(-0.456, -0.298)			-0.344***	(-0.424, -0.263)
BRIDGING SC						
Voluntary			-0.022	(-0.137, 0.093)	0.032	(-0.091, 0.156)
Organization			0.006	(-0.161, 0.174)	0.017	(-0.161, 0.195)
Club			-0.117*	(-0.213, -0.021)	-0.117*	(-0.219, -0.015)
CONTROL						
Age	0.020	(-0.018, 0.057)	0.024	(-0.017, 0.059)	0.019	(-0.019, 0.057)
Age^2	-0.000	(-0.000, 0.000)	-0.000	(-0.000, 0.000)	-0.000	(-0.000, 0.000)
Female	-0.003	(-0.074, 0.069)	-0.014	(-0.081, 0.054)	-0.002	(-0.074, 0.071)
Job (Retired)						
Employed	-0.035	(-0.118, 0.048)	-0.019	(-0.097, 0.060)	-0.047	(-0.131, 0.038)
Unemployed	0.015	(-0.198, 0.229)	0.037	(-0.161, 0.235)	0.016	(-0.199, 0.232)
Disabled	-0.126	(-0.342, 0.090)	-0.086	(-0.287, 0.115)	-0.102	(-0.319, 0.114)
Homemaker	0.035	(-0.097, 0.167)	0.063	(-0.063, 0.188)	0.046	(-0.087, 0.179)
Other	-0.050	(-0.316, 0.215)	-0.059	(-0311, 0.193)	-0.076	(0.347, 0.196)
Education (Pre-Prim)						
Primary	0.014	(-0.147, 0.175)	-0.004	(-0.160, 0.150)	0.017	(-0.147, 0.181)
Lower secondary	0.030	(-0.131, 0.192)	0.007	(-0.147, 0.162)	0.043	(-0.121, 0.207)
Upper secondary	0.043	(-0.110, 0.196)	0.037	(-0.109, 0.183)	0.057	(-0.098, 0.213)
Post-secondary	0.259*	(0.041, 0.476)	0.234*	(0.028, 0.440)	0.299**	(0.079, 0.519)
Tertiary	0.071	(-0.090, 0.233)	0.056	(-0.098, 0.211)	0.088	(-0.076, 0.251)
SPH[a]	-1.398***	(-1.481, -1.314)	-1.549***	(-1.629, -1.469)	-1.413***	(-1.499, -1.328)
Make ends meet[b]	0.022	(-0.052, 0.097)	-0.017	(-0.087, 0.053)	0.013	(-0.062, 0.090)
EURO-D[c]	0.577***	(0.500, 0.654)	0.631***	(0.558, 0.704)	0.580***	(0.501, 0.658)
CASP (12-48)	-0.060***	(-0.066, -0.054)	-0.065***	(-0.070, -0.059)	-0.059***	(-0.065, -0.053)
Non-natives						
High I.C.	-0.690	(-1.929, 0.548)	0.008	(-0.170, 0.186)	-0.622	(-1.888, 0.644)
Low-Middle I.C.	0.680	(-0.480, 1.839)	0.031	(-0.153, 0.216)	0.719	(-0.476, 1.915)
Constant	-0.513	(-1.851, 0.825)	-0.305	(-1.553, 0.943)	-0.557	(-1.910, 0.795)
Observation	42,561		47,360		42,314	
Correctly-classified Rate	90.00%		90.03%		90.21%	
H-L Test (X^2)[d]					14.10	
Stukel's Score Test					5.07	
Wald Test[e]					14.34	

Source: SHARE data, wave 6.
Notes. ×= interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
a. 0 = poor, fair; 1= from good to excellent
b. 0 = easily; 1= with difficulty
c. 0 = not depressed; 1= depressed
d. Hosmer-Lemeshow goodness-of-fit test with 10 groups
e. chi-squared value generated by the Wald test on adding bridging SC variables to the model

Models show that the highest correctly-classified model is the full model (90.21%). This time, the Hosmer-Lemeshow goodness-of-fit test and Stukel's Score Test agree about the goodness-of-fit of model C. The Wald test does not confirm that adding bridging SC

variables improves the fit of the full model. Looking at the coefficients, it is evident that only the variable "club" has a significant impact on the dependent variable.

For ADL, hypothesis 2a) is difficult to confirm or completely reject. Having a partner and giving support reduce the probability of having a limitation; whereas having a close network and receiving support increase it. Among bridging SC, the only significant (and negative) coefficient is "club". Therefore, hypothesis 2b) is partially confirmed, whereas it is not possible to confirm or reject the hypothesis about differences between natives and non-natives (2c). No interaction among bridging SC variables was significant. However, the negative effect of receiving social support is lower for migrants from LMIC (log-odds = -0.681). This difference is also significant between the two groups of migrants (log-odds = -0.648*, (SD= -1.146, -0.150)). The plot of predicted probability of ADL clearly shows the differences (Fig. 5.1.9).

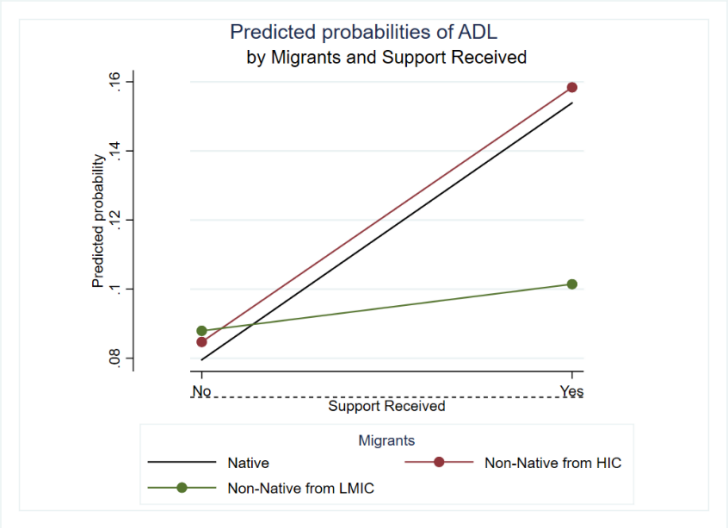

Figure 5.1.9 Predicted probability of ADL: Support received

Table 5.1.4 Logistic regression - Instrumental Activity of Daily Living

Outcome: IADL	Model A		Model B		Model C	
	Log-odds(95% CI)		Log-odds(95% CI)		Log-odds(95% CI)	
BONDING SC						
Partner	-0.517***	(-0.584, -0.451)			-0.475***	(-0.542, -0.407)
SN satisfaction (0-10)	0.024	(-0.001, 0.048)			0.021	(-0.002, 0.045)
Close Network	0.130***	(0.097, 0.164)			0.143***	(0.109, 0.177)
Support received	1.120***	(1.054, 1.186)			1.116***	(1.049, 1.183)
Support given	-0.585***	(-0.652, -0.518)			-0.545***	(-0.613, -0.476)
BRIDGING SC						
Voluntary			-0.200***	(-0.296, -0.102)	-0.121*	(-0.226, -0.017)
Organization			0.096	(-0.237, 0.044)	-0.065	(-0.215, 0.084)
Org×HIC			-0.592	(-1.424, 0.241)	-1.012*	(-1.951, -0.074)
Org×MLIC			0.329	(-0.248, 0.905)	0.186	(-0.442, 0.793)
Club			-0.114**	(-0.192, -0.037)	-0.132**	(-0.216, -0.048)
CONTROL						
Age	-0.019	(-0.051, 0.012)	-0.007	(-0.037, 0.022)	-0.018	(-0.050, 0.014)
Age^2	0.000	(-0.000, 0.000)	0.000	(-0.000, 0.000)	0.000	(-0.000, 0.000)
Female	-0.052	(-0.113, 0.009)	-0.057*	(-0.113, -0.000)	-0.055	(-0.117, 0.006)
Job (Retired)						
Employed	0.021	(-0.051, 0.092)	0.025	(-0.041, 0.091)	0.015	(-0.057, 0.087)
Unemployed	0.031	(-0.152, 0.217)	0.019	(-0.149, 0.187)	0.041	(-0.145, 0.226)
Disabled	0.032	(-0.148, 0.212)	0.041	(-0.123, 0.205)	0.045	(-0.135, 0.225)
Homemaker	0.156**	(0.045, 0.267)	0.141**	(0.035, 0.246)	0.158**	(0.046, 0.271)
Other	0.204	(-0.013, 0.421)	0.158	(-0.044, 0.361)	0.199	(-0.021, 0.418)
Education (Pre-Prim)						
Primary	-0.060	(-0.197, 0.076)	-0.030	(-0.158, 0.099)	-0.050	(-0.188, 0.087)
Lower secondary	-0.062	(-0.197, 0.075)	-0.064	(-0.192, 0.065)	-0.054	(-0.192, 0.084)
Upper secondary	-0.009	(-0.138, 0.120)	-0.018	(-0.140, 0.104)	0.008	(-0.123, 0.138)
Post-secondary	0.051	(-0.138, 0.240)	0.063	(0.113, 0.239)	0.063	(-0.128, 0.254)
Tertiary	0.017	(-0.119, 0.153)	0.033	(-0.095, 0.162)	0.034	(-0.104, 0.172)
SPH[a]	-1.206***	(-1.272, -1.141)	-1.371***	(-1.432, -1.309)	-1.207***	(-1.273, -1.141)
Make ends meet[b]	-0.038	(-0.102, 0.026)	-0.069*	(-0.128, -0.009)	-0.039	(-0.103, 0.026)
EURO-D[c]	0.517***	(0.451, 0.582)	0.578***	(0.517, 0.638)	0.517***	(0.450, 0.583)
CASP (12-48)	-0.079***	(-0.084, -0.074)	-0.080***	(-0.085, -0.075)	-0.077***	(-0.082, -0.071)
Non-natives						
High I.C.	-0.248	(-0.561, 0.065)	0.016	(-0.135, 0.168)	-0.289	(-1.363, 0.786)
Low-Middle I.C.	0.128	(-0.180, 0.437)	-0.054	(-0.212, 0.103)	0.352	(-0.701, 1.405)
Constant	2.279***	(1.145, 3.412)	1.971***	(0.935, 3.008)	2.153***	(1.009, 3.297)
Observation	42,561		47,360		42,314	
Correctly-classified Rate	85,62%		85.00%		85.85%	
H-L Test (X^2)[d]					19.90*	
Stukel's Score Test					1.35	
Wald Test[e]					29.45***	

Source: SHARE data, wave 6.
Notes. ×= interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
a. 0 = poor, fair; 1= from good to excellent
b. 0 = easily; 1= with difficulty
c. 0 = not depressed; 1= depressed
d. Hosmer-Lemeshow goodness-of-fit test with 10 groups
e. chi-squared value generated by the Wald test on adding bridging SC variables to the model

The tables show that the higher correctly-classified model is the full model (85.85%). Again, the Hosmer-Lemeshow goodness-of-fit test and Stukel's Score Test disagree about the goodness-of-fit of model C: the first one is significant whereas the second is not

significant. The Wald test confirms that adding bridging SC variables improves the fit of the full model.

Again, the hypothesis about bonding SC is difficult to confirm or reject. Having a partner and giving support reduce the probability of having a limitation on IADL. Having a close network and receiving support, instead, are negative for the physical health. Among bridging SC, participating in voluntary associations and clubs reduces the probability of having a limitation on IADL. "Organization" is not significant.

Differences between natives and non-natives are present. As stated before, participation in a political organization is not significantly associated with physical health for the native population. However, its interaction with migrants from HIC is significant (log-odds = -1.012). Running a model with non-natives from HIC as a reference category shows that "organization" is significant for this population (log-odds = -1.077*, (SD= -2.004, -0.151)). Again, plotting the predicted probability of having a limitation helps to identify differences among populations (Fig. 5.1.10). In conclusion, bridging SC is positively associated with good physical health for the entire older population, and especially for migrants from HIC. Hypothesis 2c) is, again, not confirmed.

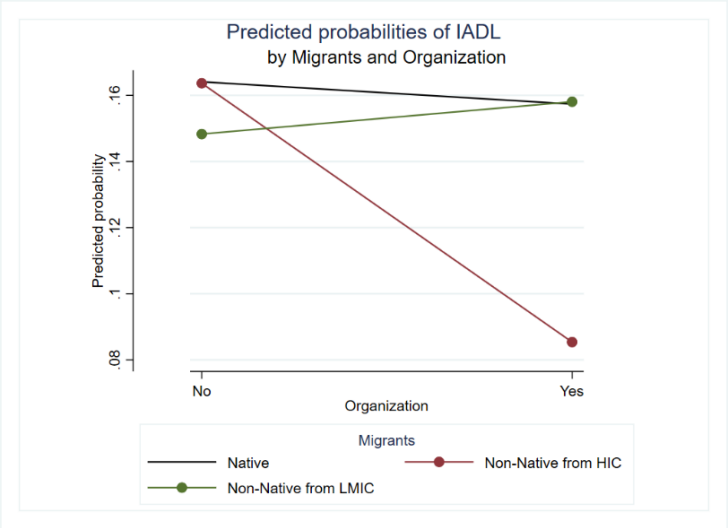

Figure 5.1.10 Predicted probability of IADL: Participation in political organization

5.1.5 Why Not a Longitudinal Analysis? Results and Problems

As stated before, my first intent was to perform a longitudinal analysis, using *wave 4* and *wave 6* of SHARE. As a first step I checked the two datasets. Variables of interest (i.e., the ones used in the models) were all present in both *waves*. I, therefore, combined the two datasets with all the variables I needed. My second step was to balance the panel, i.e., to drop all individuals with only one observation from the dataset. After that, my dataset was composed of 43,384 observations from 21,692 individuals. Among them, 2,065 where non-natives

(1,106 from LMIC and 941 from HIC). Observations came from 14 European countries. The third step was to try both random and fixed effects models[42]. The Hausman test confirms that α_i, i.e., time-invariant factors, are correlated with the explanatory variables and, so, a fixed effects estimator should be preferred (Longhi and Nandi 2015). I therefore estimated models, adding all of my control and explanatory variables for each of my dependent variables: CASP, EURO-D, ADL, and IADL. From the beginning, I ran into the following problems.

First of all, to my knowledge, STATA does not allow (at least, in a simple way) for the modelling of skewness in longitudinal analysis[43]. So, I could not model the negative skewness of the variable CASP and, therefore, estimated a linear regression model. As stated before, with a fixed effects model, variables not varying over time (e.g., sex) are dropped from the model. As a consequence, I could not estimate the effect of being a migrant on the dependent variable. Furthermore, only those individuals whose status for each explanatory variable changed over the period of analysis, contribute to the estimation of the regression coefficient of that independent variable. For this same reason, some variables, such as "level of education", with changes over time in few observations, are not dropped from the model, but the coefficients of these variables are estimated by a very small number of observations and may not be very reliable (Longhi and Nandi 2015). All these mechanisms contribute to the reduction of the sample size.

Finally, I estimated logistic regression models for the three dependent variables left. In these cases, the reduction of the sample size was even more consistent. The fixed effects logistic model, indeed, does not include observations wherein the dependent variable does not change over time (Longhi and Nandi 2015). For example, using EURO-D as the dependent variable, only 8,860 observations (of 4,430 individuals) where included in the model. In conclusion, in all four models no interactions between SC variables and migrant status were significant. All this is without taking into consideration the macro variables. Given the dataset, it is not possible to conclude whether the coefficients are not significant because of spurious effects not identified by a cross-sectional study or because the sample size for the longitudinal analysis is too small for such a study. I, therefore, chose to abandon the idea of a longitudinal analysis, in favour of a study about the older migrant population, using a multidimensional SC approach.

[42] First difference estimators and fixed effects estimators give the same results with two waves (Longhi and Nandi 2015).
[43] I did not find a command for longitudinal analysis, such as *skewnreg*.

5.1.6 Conclusions and Discussions

As I underlined at the end of the first chapter, in order to study the relationship between SC, health and well-being, I use a SC approach. My specific approach refers to the resources embedded within a personal network, and aligns itself more closely with Bourdieu and Lin's point of view (Kawachi, Subramanian, and Kim 2008). I treat SC as a multidimensional concept and consider it as an individual attribute. Finally, I focus my attention on the distinction between bonding and bridging SC, keeping all components separated.

The second aim of my dissertation is to find out which kind of SC (bonding or bridging) allows the older or aging population to have better health outcomes or a high level of well-being, and to compare the native and non-native population. In particular, I formulated three hypotheses.

Hp. 2a) *Among the whole older population, having a partner, a close network (and being satisfied with it), and giving support to others are positively associated with physical health, mental health and well-being. Receiving support from others, instead, is negatively related with the same dependent variables.*

This hypothesis is confirmed for well-being and partially confirmed for mental health. Results for physical health are less clear. All aspects of bonding SC are very important for the well-being of older people. However, results suggest that it could be less salient for the well-being of migrants from LMIC. In particular, regressions show that giving support and having a close network have significantly lower coefficients for migrants from LMIC, compared to the native population and non-natives from HIC. Bonding SC also appears to be very important in determing the probability of being depressed in old age. All these variables are significantly associated with the dependent variable. Again, being satisfied with one's own network reduces the probability of being depressed. However, having a close network could be harmful for the mental health of older people. This is also true for non-native older people (differences in the coefficients are not significant). Furthermore, giving social support increases the probability of being depressed for migrants from HIC, whereas receiving support is less deleterious for migrants from "poor" or developing countries.

The results for physical health are taken from ADL and IADL's regressions. The results for both dependent variables are congruent, but they are "stronger" for IADL (i.e., the coefficients are higher and more often significant). Having a partner is still protective against limitations, as well as being able to give support to others. However, having a close network (and receiving support) increases the probability of having a limitation. In summary, bonding SC seems to be more negative than positive for the physical health of older people. Receiving support is also less deleterious to the physical health of migrants from LMIC.

Bridging SC, instead, is more important for the physical health of migrants from HIC, in particular participation in political or community organizations.

Receiving support is confirmed to be negative for the health and well-being of the whole aging and older population. This result has been repeatedly found in the existing literature (Lakey and Lutz 1996; Berkman et al. 2000; Reinhardt, Boerner, and Horowitz 2006; Deindl, Brandt, and Hank 2016). However, results underline that it is less harmful to the mental and physical health of non-natives from LMIC.

Hp. 2b) *Among the whole aging and older population, participation in social activities (bridging SC) is positively associated with physical health, mental health and well-being.*

This hypothesis is confirmed for all three dependent variables: well-being, mental health, and physical health. Participating in social activities is important, especially activities such as club and other sport organizations, where one of the purposes of participating is getting in contact with other people. Regarding physical health, "organization", which does not have any significant effect for the native population, reduces the probability of limitations for migrants from HIC.

Hp. 2c) *The positive association of bridging SC (participation in social activities) with the physical and mental health and well-being, is stronger for migrants from lower- and middle-income countries than for natives or migrants from high-income countries.*

This last hypothesis could not be confirmed by any of results. The only differences in bridging SC are between natives and migrants from "rich" or developed countries. For migrants from LMIC, bridging SC is as positive as it is for native older people.

Some of these results are coherent with previous evidences found in the literature. Family ties and the presence of the partner seem to dominate the network of older adults (Cornwell et al. 2009; Litwin and Stoeckel 2014) and protect against depression, and are indicators of a higher quality of life (Seeman and Berkman 1988; Craveiro 2017). Ambivalent results about close networks were also registered also in previous research. In particular, high frequency of interaction with the members of the network can signify availability of protection but also constant need for support (Zunzunegui et al. 2003; Rafnsson, Shankar, and Steptoe 2015; Deindl, Brandt, and Hank 2016). A similar situation is underlined by the negative effect of receiving help (Lakey and Lutz 1996; Berkman et al. 2000; Reinhardt, Boerner, and Horowitz 2006; Deindl, Brandt, and Hank 2016). These negative associations could also be caused by the consequent loss of sense of self-esteem, resulting from the constant need for support (Bolger, Zuckerman, and Kessler 2000). SN satisfaction already emerged as the network component with the strongest association with well-being, and, especially, mental health (Ellwardt et al. 2015; Litwin, Stoeckel, and Schwartz 2015).

Social participation is another dimension often positively associated with good health and well-being, especially for older people (Smith, McCullough, and Poll 2003; Yu et al. 2015; Ang 2018). According to Erikson (1950), during middle to late adulthood, individuals have an innate need to contribute to society, in various forms: being productive at work, raising children, and being involved in community activities and organizations. For this reason, participating in social activities has a strong impact on the health and well-being of this population. However, participation in political activities does not always turn out to be positive. Some authors underline that it is beneficial for health only when reciprocity is expected (Wahrendorf, von dem Knesebeck, and Siegrist 2006). Over time, political participation may lead to higher effort and lower reward, which may trigger depressive symptoms (Croezen et al. 2015). "Organization", indeed, is not always positively associated with health and well-being. Giving help to network members was found to be positively associated with health and well-being (Chen and Silverstein 2000).

Bonding SC appears to be less salient for the well-being of non-natives from LMIC (compared to the native population). The same kind of SC is, in some part (giving support), more detrimental to the mental health of migrants from HIC. Bridging SC, instead, is, in general, positive for the health and well-being of the whole aging and older population of Europe, especially for migrants from HIC.

In summary, bonding SC can represent an important factor in the health and well-being of the whole older population, and a survival mechanism for individuals of disadvantaged communities (such as migrants). However, at the same time, it can represent a burden, implying obligation towards others (Bankston III 2014). It may lead to mechanisms such as the exclusion of outsiders, the restriction of freedom and downward levelling norms, which have negative effects on health (Portes 1998; Kabayama et al. 2017). This became evident in some of the results of this research, such as the perverse effects of having close networks and giving support. Finally, these results show how bridging SC could be one of the sources of SC that Warren (2008) described as lacking the capacity to function as bad SC. This kind of SC is based on the disposition of generalized trust and reciprocity (Warren 2008). Bridging SC generates generalized trust – a value that is predicated upon the belief that many others are part of your moral community, and brings people to trust above and beyond what their rational calculations tell them is appropriate (Mansbridge 1999; Svenden and Svenden 2009). Generalized reciprocity is the basic norm of social exchange. It means obligations between one person and everyone else.

6 Results – Macro Aspects

In this chapter, I present the results of regression models in order to fulfil to the third aim of this project: *to explore the role of context in the main association (association between SC and health and well-being)*. This chapter is divided into two main parts. In the first part, I present the results of the level of spending on social protection of older people as context; whereas in the second part, I the present results of the MIPEX index.

6.1 Aim 3: The Importance of the Context: Social Protection of Older People

With the aim of exploring the role of the first macro aspect in the main association, I performed skew-normal and logistic regressions. As previously stated, I estimated three models (models C) for each dependent variable. In particular, the three models are: one for countries with spending on social protection of older people lower than 2,500 PPS (cluster 1), one for countries with spending between 2,500 and 4,000 PPS (cluster 2) and, one for countries with spending higher or equal to 4,000 PPS (cluster 3). In order to check for coefficient differences among the three clusters of countries I performed cross-equation coefficient tests. In the tables shown here I omit the coefficients of control variables for space reasons. Control variables are the same as those used in the models in chapter 5.

6.1.1 Association between Social Capital and Well-Being

To estimate the effect of SC on well-being, I performed skew-normal regression models (Tab. 6.1.1).

Table 6.1.1 Skew-normal regression - well-being

Outcome: CASP	Cluster 1		Cluster 2		Cluster 3	
	Coef(95% CI)		Coef(95% CI)		Coef(95% CI)	
BONDING SC						
Partner	0.894***	(0.676, 1.113)	0.803***	(0.586, 1.021)	0.680***	(0.469, 0.891)
SN satisfaction (0-10)	0.818***	(0.745, 0.891)	0.775***	(0.703, 0.848)	0.802***	(0.726, 0.877)
Close Network§#	0.281***	(0.184, 0.378)	0.271***	(0.176, 0.366)	0.565***	(0.463, 0.666)
Close×HIC	0.334	(-0.311, 1.000)	0.010	(-0.521, 0.542)	0.142	(-0.214, 0.497)
Close×LMIC	-0.032	(-0.366, 0.301)	-0.121	(-0.707, 0.465)	-0.577	(-1.157, 0.003)
Support received°#	-1.373***	(-1.597, -1.150)	-0.843***	(-1.071, -0.615)	-1.378***	(-1.592, -1.164)
Support given°	0.489***	(0.308, 0.668)	0.782***	(0.596, 0.967)	0.604***	(0.413, 0.795)
BRIDGING SC						
Voluntary	1.199***	(0.940, 1.459)	1.429***	(1.184, 0.921)	1.131***	(0.874, 1.389)
Vol×HIC§	-0.986	(-2.808, 0.836)	0.063	(-1.257, 1.383)	1.081*	(0.207, 1.955)
Vol×LMIC	-0.768	(-1.634, 0.099)	0.660	(-0.792, 2.111)	0.604	(-0.876, 2.084)
Organization	0.408*	(0.040, 0.776)	0.569**	(0.218, 0.894)	0.161	(-0.209, 0.530)
Club°#	1.697***	(1.488, 1.906)	2.062***	(1.850, 2.275)	1.558***	(1.347, 1.770)
Club×HIC	0.523	(-0.941, 1.987)	-0.084	(-1.286, 0.934)	-0.513	(-1.252, 0.225)
Club×LMIC§	-0.772**	(-1.405, -0.139)	-0.076	(-1.372, 1.205)	1.160*	(0.055, 2.264)
CONTROL						
	Control coefficients are omitted					
Constant	23.927***	(20.836, 27.017)	22.155***	(18.789, 25.522)	23.728***	(20.253, 27.204)
Observation	14,734		15,074		12,816	
Gamma	-0.447		-0.461		-0.422	
Wald Test[a]	447.32***		659.28***		416.81***	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: spending (Purchasing Power Standard per inhabitant) on social protection of older people < 2,500
Cluster 2: spending (Purchasing Power Standard per inhabitant) on social protection of older people 2,500-4,000
Cluster 3: spending (Purchasing Power Standard per inhabitant) on social protection of older people > 4,000

In all three models, the Gamma parameter is significant and negative; i.e., the skew-normal model fits better than a linear regression model, and the distribution is skewed to the left. Wald tests underline how the models with both bonding and bridging SC fit better than a model with only bonding SC variables, for all clusters of countries.

All bonding SC variables (without interaction), in all clusters, are positively associated with well-being, with the exclusion of support received (which is negatively related). The result is similar to the one obtained in chapter 5. Significant differences in bonding SC variables are present among the three clusters of countries. However, the coefficients always have the same direction and there is not a clear pattern of differences among clusters. In particular, "close network" has the highest coefficient in cluster 3. "Support received", instead, is lowest in cluster 2. The coefficient of support given, instead, is lower in cluster 1, but only lower than the that of cluster 2. Therefore, regarding bonding SC, hypothesis 3a) is not confirmed: *in those countries where expenditure on social protection of old age function is higher, SC (in all its aspects) has a lower association with physical health, mental health, and well-being; comparde to*

countries with a lower expenditure on social protection of old age function. All bridging SC variables are positively associated with CASP, in all clusters; with the exclusion of "organization" in countries with high levels of spending on social protection. The coefficient for "club" is significantly higher in cluster 2 (compared to the other two). Differences among coefficients are not always significant and, for this reason, hypothesis 3a) cannot be strictly confirmed for bridging SC. However, for natives, the effect of bridging SC on well-being seems to be lower in countries with high level of spending on social protection of older people (compared to other countries). The situation is not the same for migrants.

In clusters 1 and 3, interactions between "club" and migrants from LMIC are significant; however, the coefficients have opposite signs. In countries with low spending on social protection (cluster 1), migrants from LMIC have a lower coefficient compared to native people (b = -0.772); whereas, in cluster 3 this population has a higher coefficient than the other two groups (b = 1.160). However, the effect of "club" on well-being is always positive. Figure 6.1.1 and figure 6.1.2 show these differences. Hypothesis 3a) is strongly rejected for this population.

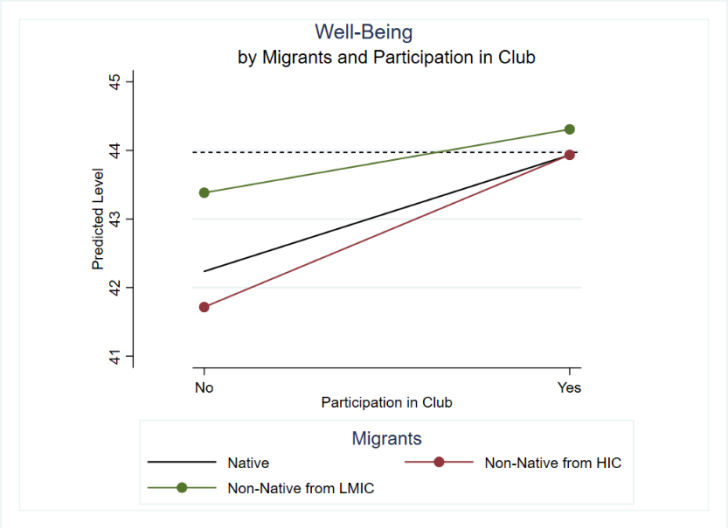

Figure 6.1.1 Predicted level of well-being: Participation in clubs and other sport organizations, Cluster 1

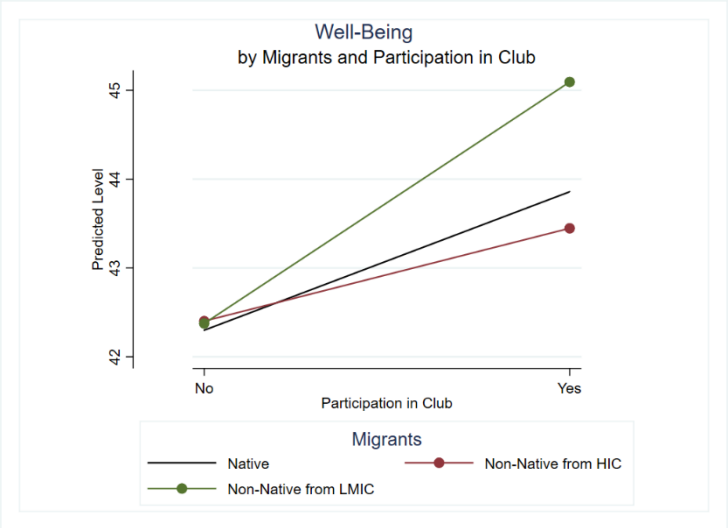

Figure 6.1.2 Predicted level of well-being: Participation in clubs and other sport organizations, Cluster 3

In cluster 3, the coefficient for "voluntary" is higher for migrants from HIC, compared to the native population. Plotting the predicted means of CASP for each population, for participating in voluntary work, allows us to see this difference (Fig. 6.1.3).

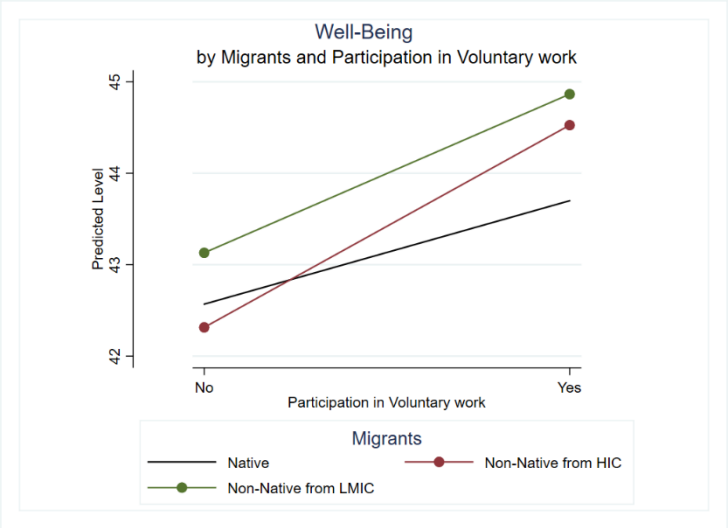

Figure 6.1.3 Predicted level of well-being: Participation in voluntary work, Cluster 3

Finally, among bonding SC, a close network seems to be less relevant for migrants from LMIC in cluster 3. In particular, the coefficient is significantly different from that of migrants from HIC (*b* = -0.717*, (SD= -1.384, -0.053)). Figure 6.1.4 shows how having a close network has a very different effect on the well-being of migrants from LMIC and migrants from HIC, in countries where the social protection of older people is granted.

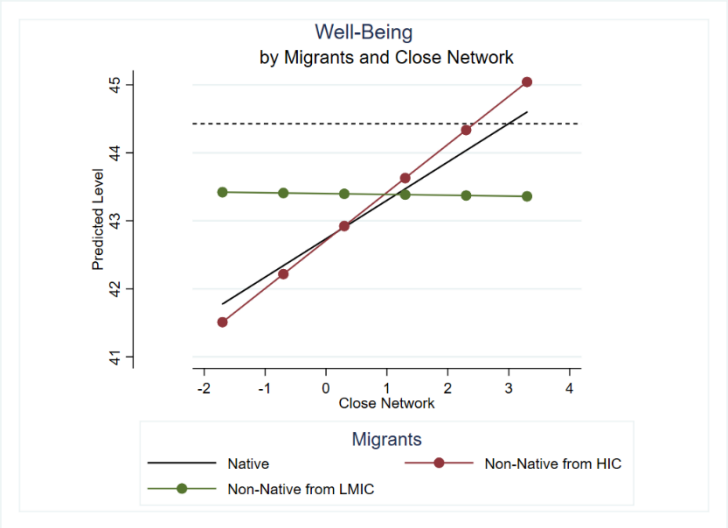

Figure 6.1.4 Predicted level of well-being: Close network, Cluster 3

6.1.2 Association between Social Capital and Mental Health

To estimate the effect of SC on mental health, I performed logistic regression models (Tab. 6.1.2).

Table 6.1.2 Logistic regression - depression

Outcome: EURO-D	Cluster 1		Cluster 2		Cluster 3	
	Log-odds(95% CI)		Log-odds (95% CI)		Log-odds (95% CI)	
BONDING SC						
Partner	-0.383***	(-0.482, -0.284)	-0.349***	(-0.440, -0.257)	-0.302***	(-0.400, -0.204)
SN satisfaction (0-10)§	-0.110***	(-0.144, -0.076)	-0.149***	(-0.181, -0.118)	-0.173***	(-0.208, -0.138)
Close Network°§	0.109***	(0.063, 0.156)	-0.001	(-0.043, 0.042)	0.006	(-0.043, 0.057)
Close×HIC°§	-0.348*	(-0.666, -0.031)	0.150	(-0.075, 0.375)	0.080	(-0.098, 0.256)
Close×LMIC	-0.012	(-0.177, 0.152)	0.125	(-0.107, 0.126)	0.255	(-0.029, 0.540)
Support received§#	0.405***	(0.304, 0.505)	0.391***	(0.297, 0.486)	0.544***	(0.446, 0.642)
Support given°#	-0.087*	(-0.175, -0.000)	0.149***	(0.066, 0.233)	-0.083	(-0.178, 0.011)
Giv×HIC	0.193	(-0.366, 0.753)	0.509*	(0.093, 0.925)	0.104	(-0.229, 0.438)
Giv×LMIC	0.159	(-0.140, 0.458)	0.033	(-0.444, 0.511)	-0.249	(-0.813, 0.316)
BRIDGING SC						
Voluntary	-0.062	(-0.197, 0.073)	-0.041	(-0.156, 0.074)	-0.099	(-0.238, 0.039)
Organization	-0.080	(-0.275, 0.116)	-0.208**	(-0.378, -0.038)	-0.361**	(-0.576, -0.146)
Club§	-0.452***	(-0.562, 0.342)	-0.321***	(-0.421, 0.221)	-0.257***	(-0.367, -0.147)
CONTROL						
	Control coefficients are omitted					
Constant	0.904	(-0.564, 2.372)	1.752*	(0.265, 3.239)	-0.661	(-2.386, 1.065)
Observation	14,881		15,315		13,007	
Correctly-classified Rate	75.14%		74.10%		75.30%	
H-L Test (X^2)[a]	4.35		16.34**		11.05	
Stukel's Score Test	2.30		4.10		1.68	
Wald Test[b]	82.55***		57.77***		49.86***	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. Hosmer-Lemeshow goodness-of-fit test with 10 groups
b. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: spending (Purchasing Power Standard per inhabitant) on social protection of older people < 2,500
Cluster 2: spending (Purchasing Power Standard per inhabitant) on social protection of older people 2,500-4,000
Cluster 3: spending (Purchasing Power Standard per inhabitant) on social protection of older people > 4,000

Overall correctly-classified rates are similar for all three models. The Hosmer-Lemeshow test and Stukel's score test always agree on the goodness-of-fit of the models, with the exception of cluster 2's model, where the Hosmer-Lemeshow test is significant. Finally, Wald tests confirm that the models with both bonding and bridging SC fit better than a model with only bonding SC variables, for all clusters of countries.

Hypothesis 3a) is partially confirmed for mental health. In countries with high levels of spending on social protection of older people, in fact, the only significant bonding SC variables are the three that are significant in all clusters ("SN satisfaction", "partner", and "support received"). The other two ("close network" and "support given") are not significant. "Close network" has a significant positive coefficient only in cluster 1 (log-odds= 0.109). Having a close network increases the probability of depression in countries where spending on social protection is lower. Giving support, instead, reduces the probability of being depressed in cluster 1, whereas it increases the probability in cluster 2 (log-odds=

0.149). However, support received is higher in cluster 3, compared to the other two clusters. In conclusion, a number of variables are not significant in countries with a high expenditure on social protection, but support received is particularly negative for mental health in these countries. Among bridging SC variables, the situation is less straightforward. There are not specific patterns of differences among clusters. Participation in voluntary associations is not significantly associated with EUROD. Participation in political organization reduces the probability of depression in cluster 2 and 3. "Club" is significant in all clusters; however, the coefficient in cluster 3 (log-odds= -0.257) is significantly lower than the one in cluster 1 (log-odds= -0.452).

Some differences between natives and non-natives are worth noticing. In cluster 2, the coefficient for "close network" becomes negative for migrants from HIC (log-odds= -0.348). Figure 6.1.5 shows that having a closest network reduces the probability of being depressed for non-natives from HIC, but increases it for the other groups.

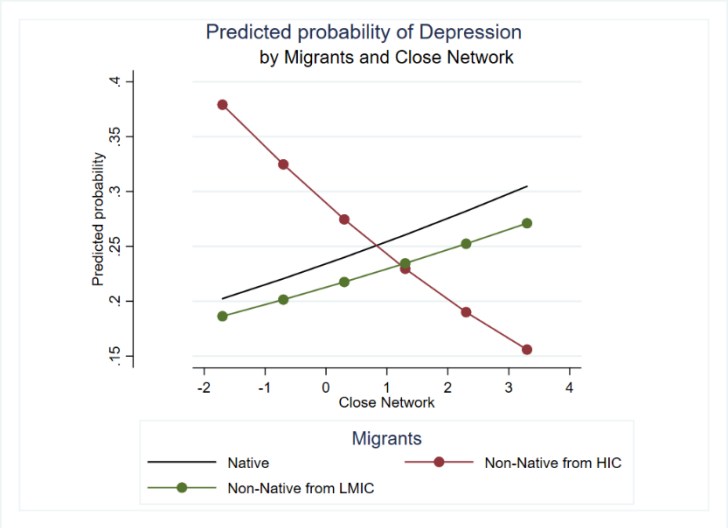

Figure 6.1.5 Predicted probability of depression: Close network, Cluster 1

As underlined before, giving support reduces the probability of being depressed in cluster 1, whereas it increases it in cluster 2. In countries with a middle level of spending on social protection, the coefficient is even higher for migrants from HIC (log-odds= 0.509). Figures 6.1.6 and 6.1.7 show the differences in "support given" between the first and second clusters. Figure 6.1.6 displays how, with all other variables at the mean, "support given" reduces the chance of depression for older people (coefficients for migrants are not significant). Figure 6.1.7, instead, shows a black line (native people) going up, and a red line (migrants from HIC) bent upwards.

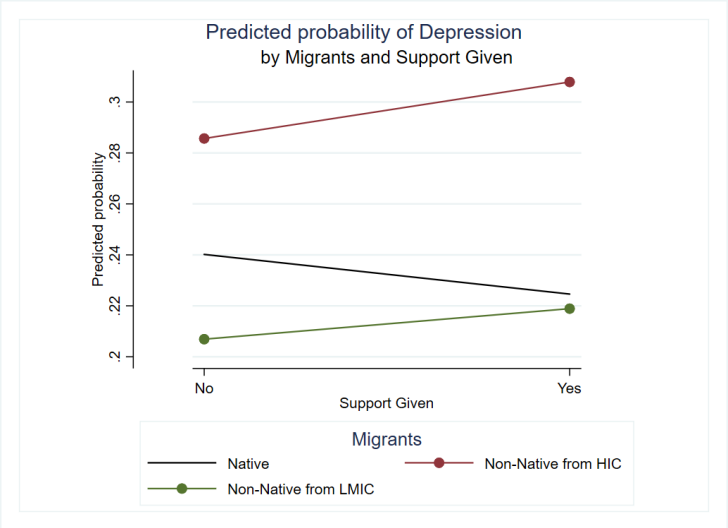

Figure 6.1.6 Predicted probability of depression: Support given, Cluster 1

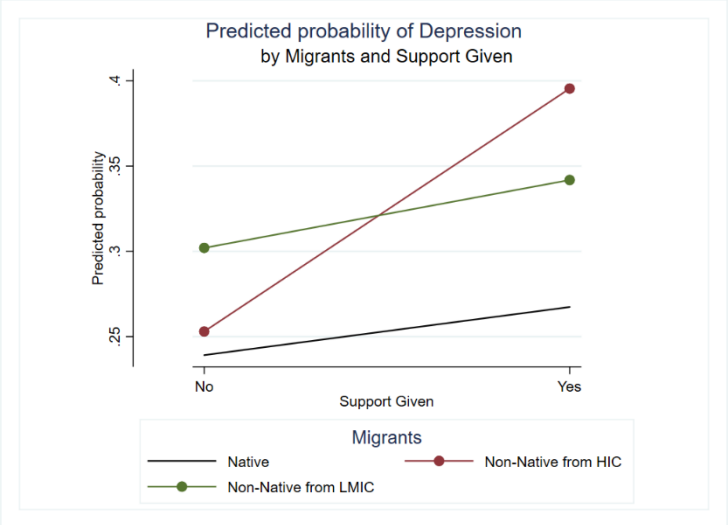

Figure 6.1.7 Predicted probability of depression: Support given, Cluster 2

6.1.3 Association between Social Capital and Physical Health

To estimate the effect of SC on physical health, I performed logistic regression models (Tab. 6.1.3 and 6.1.4).

Table 6.1.3 Logistic regression - Activity of Daily Living

Outcome: ADL	Cluster 1		Cluster 2		Cluster 3	
	Log-odds(95% CI)		Log-odds (95% CI)		Log-odds (95% CI)	
BONDING SC						
Partner	-0.162*	(-0.306, -0.017)	-0.325***	(-0.457, -0.193)	-0.243***	(-0.381, -0.104)
Part×HIC°§	-1.531**	(-2.425, -0.638)	0.172	(-0.511, 0.856)	-0.285	(-0.796, 0.225)
Part ×LMIC	0.210	(-0.287, 0.706)	-0.442	(-1.244, 0.359)	-0.030	(-0.953, 0.894)
SN satisfaction (0-10)	0.002	(-0.051, 0.047)	0.016	(-0.031, 0.063)	0.058*	(0.007, 0.109)
SN sat×HIC°	0.530*	(0.120, 0.940)	-0.071	(-0.312, 0.169)	0.110	(-0.083, 0.303)
SN sat×LMIC	0.018	(-0.158, 0.195)	-0.254	(-0.545, 0.037)	-0.088	(-0.356, 0.181)
Close Network§#	0.020	(-0.053, 0.093)	0.019	(-0.047, 0.085)	0.139***	(0.065, 0.213)
Support received	0.784***	(0.645, 0.922)	0.942***	(0.814, 1.071)	0.840***	(0.703, 0.976)
Rec×HIC	-0.428	(-1.365, 0.509)	0.225	(-0.468, 0.918)	-0.212	(-0.793, 1.09)
Rec×LMIC	-0.642**	(-1.145, -0.139)	-1.197**	(-2.116, -0.279)	0.151	(-0.811, 0.868)
Support given	-0.320***	(-0.461, -0.179)	-0.305***	(-0.438, -0.171)	-0.431***	(-0.576, -0.286)
BRIDGING SC						
Voluntary	0.007	(-0.240, 0.226)	0.028	(-0.163, 0.219)	0.019	(-0.209, 0.248)
Vol×HIC	-0.357	(-1.978, 1.263)	0.504	(-0.376, 1.383)	0.311	(-0.382, 1.003)
Vol×LMIC	0.700*	(0.055, 1.346)	-0.039	(-1.144, 1.066)	-0.345	(-1.965, 1.275)
Organization	0.244	(-0.066, 0.553)	-0.158	(-0.448, 0.131)	-0.034	(-0.369, 0.300)
Club	-0.103	(-0.292, 0.086)	-0.085	(-0.250, 0.081)	-0.179	(-0.359, 0.003)
CONTROL						
	Control coefficients are omitted					
Constant	-0.047	(-2.216, 2.31)	-1.547	(-3.872, 0.779)	0.280	(-2.269, 2.828)
Observation	14,619		14,961		12,734	
Correctly-classified Rate	90.52%		90.18%		89.88%	
H-L Test (X^2)[a]	4.43		13.92		9.96	
Stukel's Score Test	2.21		3.89		7.33	
Wald Test[b]	12.49		6.25		5.76	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. Hosmer-Lemeshow goodness-of-fit test with 10 groups
b. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: spending (Purchasing Power Standard per inhabitant) on social protection of older people < 2,500
Cluster 2: spending (Purchasing Power Standard per inhabitant) on social protection of older people 2,500-4,000
Cluster 3: spending (Purchasing Power Standard per inhabitant) on social protection of older people > 4,000

Overall correctly-classified rates are similar for all three models. The Hosmer-Lemeshow test and Stukel's score test always agree on the goodness-of-fit of the models. Finally, Wald tests underline how models with only bonding SC fit as well as models with both bonding and bridging SC. In other words, adding bridging SC does not improve the fitness of the models for any of the clusters.

Among bonding SC variables, having a partner and giving help to others reduces the probability of having limitations on ADL for all clusters. Receiving help, instead, increases the probability of having a limitation on activities. In countries with a high level of spending on social protection of older people, having a close network, and being satisfied with it increases the probability of the dependent variable. These results about bonding SC do not

allow us to confirm hypothesis 3a). However, it is evident that bonding SC is particularly negative for physical health in countries with high levels of spending on social protection. As anticipated by the Wald tests, no bridging SC variables is significantly associated with the dependent variable[44]. However, the coefficient for "voluntary" is significant and positive in cluster 1, for migrants from LMIC (log-odds= 0.700). Plotting the predicted probability of having a limitation on activities of daily living (Fig. 6.1.8) shows that participating in voluntary work is negative for the physical health of migrants from LMIC living in countries where spending on social protection of older people is low.

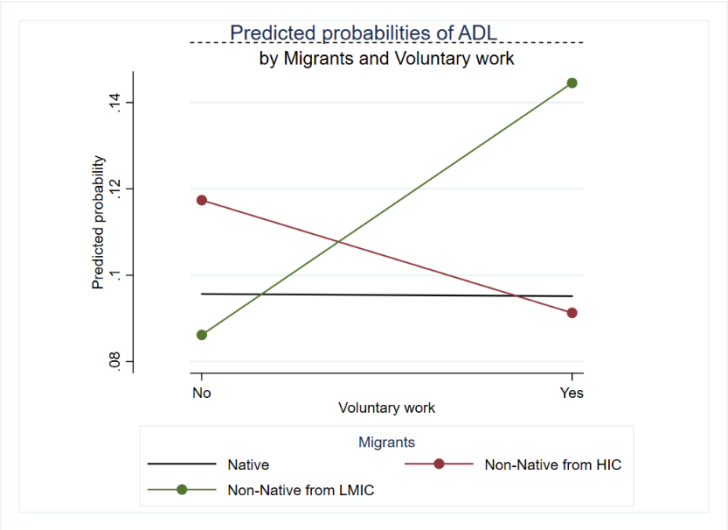

Figure 6.1.8 Predicted probability of ADL: Participation in voluntary work, Cluster 1

Support receive also has a different effect on the physical health of migrants from LMIC. In cluster 1 the coefficient for receiving support is lower for migrants from LMIC; and become negative for this population in cluster 2. Here, their coefficient is also significantly different from that of migrants from HIC (log-odds= -1.422* (SD= -2.559, -0.286) for LMIC). Figure 6.1.9 clearly shows that the coefficient for migrants from LMIC is almost zero in countries with low levels of spending on social protection. Figure 6.1.10 displays how, in cluster 2, the coefficient for this population becomes negative: in countries with a middle level of spending on social protection of older people, receiving support reduces the probability of having a limitation on activities of daily living for migrants from LMIC. Therefore, bonding SC is even more negative for migrants from LMIC in countries with high levels of spending on social protection, compared with the other clusters.

[44] In the model with all countries ("model C"), "club" was significant and reduced the probability of limitations.

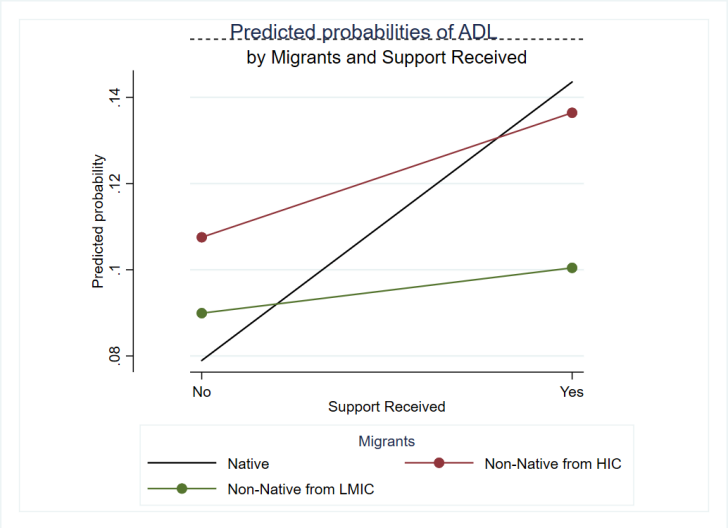

Figure 6.1.9 Predicted probability of ADL: Support received, Cluster 1

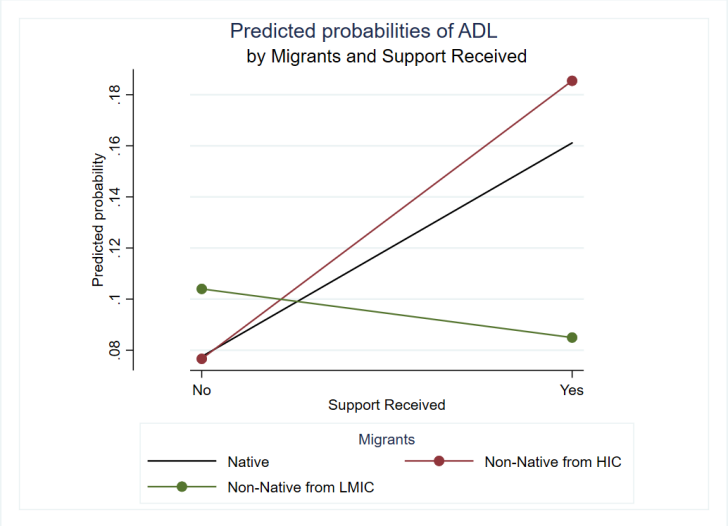

Figure 6.1.10 Predicted probability of ADL: Support received, Cluster 2

Furthermore, in cluster 1, the coefficients for "partner" and "SN satisfaction" are different for migrants from HIC. In particular, having a partner is more relevant for the physical health of this population (log-odds= -1.531). Fig. 6.1.11 shows how having a partner reduces the probability of having a limitation for older people, even more for older migrants from HIC.

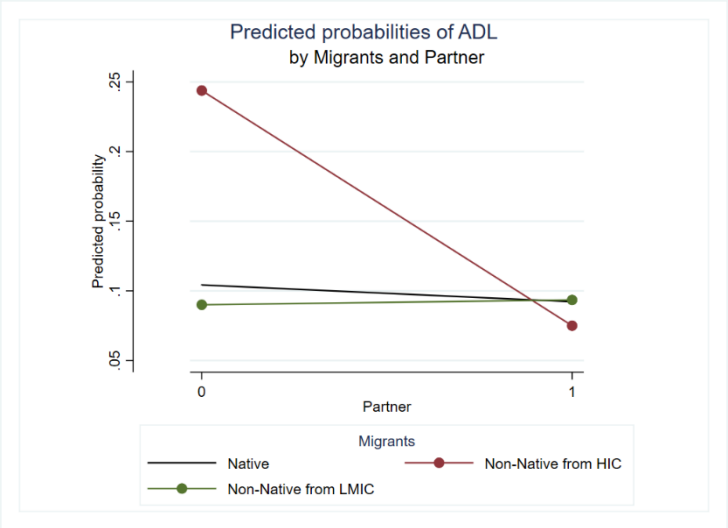

Figure 6.1.11 Predicted probability of ADL: Partner, Cluster 1

Being satisfied with one's network, instead, has a negative effect on the physical health of migrants from HIC (log-odds= 0.530), whereas it has no effect for natives and non-natives from LMIC (Fig. 6.1.12).

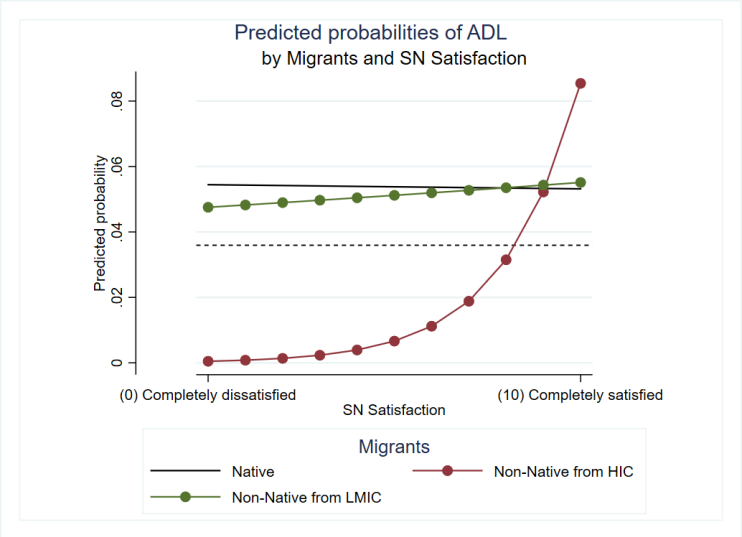

Figure 6.1.12 Predicted probability of ADL: SN satisfaction, Cluster 1

Finally, looking at "migrant status", in countries with a middle level of spending on social protection, being a migrant from LMIC increases the probability of having a limitation to log-odds= 2.760* (SD= 0.963, 5.424).

Table 6.1.4 Logistic regression - Instrumental Activity of Daily Living

Outcome: IADL	Cluster 1		Cluster 2		Cluster 3	
	Log-odds(95% CI)		Log-odds (95% CI)		Log-odds (95% CI)	
BONDING SC						
Partner§	-0.546***	(-0.670, -0.423)	-0.514***	(-0.628, -0.400)	-0.330***	(-0.446, -0.214)
Part×HIC°#	-0.853*	(-1.671, -0.035)	0.629*	(0.005, 1.253)	-0.735**	(-1.174, -0.296)
Part×LMIC	0.224	(-0.192, 0.640)	-0.309	(-0.988, 0.369)	0.091	(-0.627, 0.810)
SN satisfaction (0-10)	0.026	(-0.019, 0.065)	0.046*	(0.005, 0.088)	0.009	(-0.034, 0.051)
Close Network§	0.089**	(0.025, 0.152)	0.157***	(0.102, 0.213)	0.180***	(0.119, 0.241)
Support received	1.094***	(0.973, 1.216)	1.172***	(1.059, 1.286)	1.060***	(0.946, 1.175)
Support given#	-0.508***	(-0.632, -0.384)	-0.469***	(-0.583, -0.355)	-0.663***	(-0.783, -0.544)
BRIDGING SC						
Voluntary°§	0.081	(-0.114, 0.275)	-0.210*	(-0.378, -0.041)	-0.258**	(-0.444, -0.071)
Organization	0.067	(-0.209, 0.344)	-0.143	(-0.387, 0.101)	-0.106	(-0.372, 0.159)
Club§	-0.256**	(-0.418, -0.094)	-0.181*	(-0.323, -0.039)	-0.029	(-0.168, 0.111)
Club×HIC§	1.207*	(0.181, 2.234)	-0.332	(-1.169, 0.505)	-0.641*	(-1.233, -0.050)
Club×LMIC	0.222	(-0.225, 0.669)	0.115	(-0.702, 0.932)	0.163	(-0.607, 0.933)
CONTROL	*Control coefficients are omitted*					
Constant	2.477*	(0.525, 4.229)	1.927	(-0.046, 3.900)	2.092	(-0.011, 4.195)
Observation	14,603		14,961		12,734	
Correctly-classified Rate	87.26%		85.91%		84.38%	
H-L Test (X^2)[a]	8.96		13.15		7.06	
Stukel's Score Test	0.02		0.03		4.07	
Wald Test[b]	14.40		23.15**		17.72*	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. Hosmer-Lemeshow goodness-of-fit test with 10 groups
b. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: spending (Purchasing Power Standard per inhabitant) on social protection of older people < 2,500
Cluster 2: spending (Purchasing Power Standard per inhabitant) on social protection of older people 2,500-4,000
Cluster 3: spending (Purchasing Power Standard per inhabitant) on social protection of older people > 4,000

Overall correctly-classified rates are similar for all three models. The Hosmer-Lemeshow test and Stukel's score test always agree on the goodness-of-fit of the models. Finally, Wald tests confirm that the model with both bonding and bridging SC fits better than a model with only bonding SC variables, for the second and third cluster. The test is not significant for cluster 1.

Among bonding SC variables, the results are even less clear than they are for ADL. It is not possible to confirm hypothesis 3a). In general, having a closest network and receiving help increase the probability of having a limitation; whereas having a partner and giving help decrease it. Furthermore, in the in the middle cluster, being satisfied with one's network also increases the probability of limitations on IADL (log-odds= 0.046). The coefficient for "partner" is lower in cluster 3, compared to the coefficient in countries with a low level of spending. The coefficient for "close network", instead, is higher in cluster 3, compared to cluster 1. Finally, the negative coefficient of "support given" is higher in cluster 3, compared

to cluster 2. In conclusion, it is not possible to confirm that in countries with a high expenditure on social protection of old age function, bonding SC is less relevant for physical health. However, some results show that bonding SC could be more negative for physical health in countries in cluster 2, especially for migrants from HIC. In particular, in clusters 1 and 3, having a partner reduces the probability of having a limitation for the entire older population, even more so for migrants from HIC. In countries such as Germany and Italy, instead, having a partner increases the probability of having a limitation for non-natives born in developed countries (log-odds= 0.629). Fig. 6.1.13 shows these relations clearly.

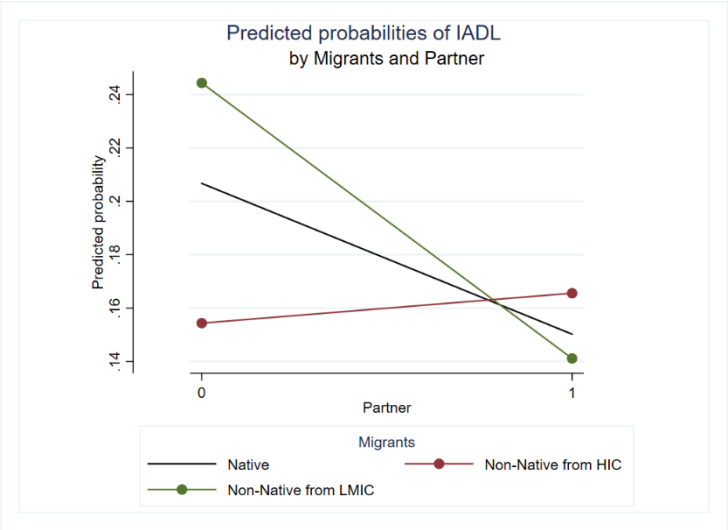

Figure 6.1.13 Predicted probability of IADL: Partner, Cluster 2

Among bridging SC variables, the hypothesis is again not confirmed. However, some differences between natives and non-natives are relevant. The coefficient for "club" is not significant for native older people in the cluster with the highest spending on social protection. However, it is for migrants from HIC (log-odds= -0.641): participating in clubs and other sport organizations reduces the probability of having a limitation for them. Finally, in cluster 1, the relationship between "club" and the dependent variable is the opposite for migrants from HIC (i.e., it increases the probability of limitations) (log-odds= 1.207). Figure 6.1.14 shows the predicted probability of IADL in cluster 1, looking at the "club" variable. At the mean level of all other variables, participating in a club seems to increase the probability of limitations for migrants from HIC. Figure 6.1.15, instead, clearly displays that, in the third cluster, the association between "club" and IADL is almost zero for native and non-natives from LMIC, and that the same variable reduces the probability of limitations for migrants from HIC. In conclusion, the effect of bridging SC on physical health is higher in countries with high levels of spending on social protection, but only for older migrants from HIC.

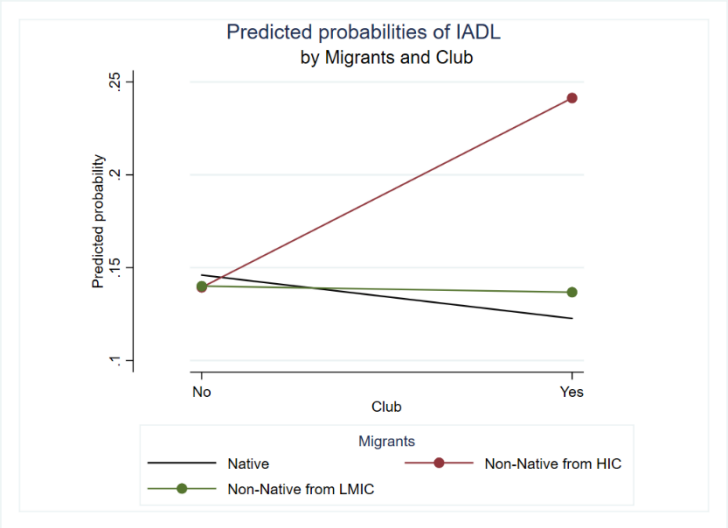

Figure 6.1.14 Predicted probability of IADL: Participation in clubs and other sport organizations, Cluster 1

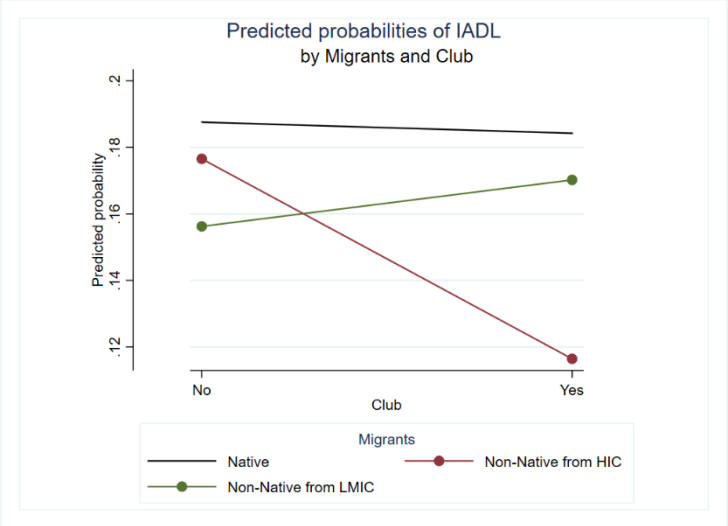

Figure 6.1.15 Predicted probability of IADL: Participation in clubs and other sport organizations, Cluster 3

6.1.4 Conclusions and Discussions

Expenditure on social protection of old age function shapes the relationship between SC, health and well-being. Some aspects of SC, such as having a partner or participating in some social activities are almost always positive for the health or well-being of the aging and older population, in all countries taken into consideration. However, the association between these and other aspects of SC and the dependent variable often changes according to cluster of countries. For some aspects of the explanatory variable, the association has the opposite sign among different clusters or different populations. The hypothesis I formulated at the beginning of the third chapter is the following:

Hp. 3a) *In those countries where expenditure on social protection of old age function is higher, SC has a lower association with physical health, mental health, and well-being; compared to countries with a lower expenditure on social protection of old age function.*

This hypothesis was inferred from the crowding-out theory (Oorschot, and Arts 2005; Rostila 2013). It refers to the fact that in countries where policies are more favourable to the population of interest (in this case, older people), SC will be less important for the health and well-being of this population. Results cannot confirm this hypothesis. However, neither do they show contrary. The opposite view of the crowding-out theory is the crowding-in theory, according to which more egalitarian policies will allow the individual more free time to foster social relationships, which in turn become for health and well-being. However, some results are remarkable and can be ascribed in these two frameworks.

With well-being as the dependent variable, this hypothesis is not confirmed for bonding SC. On the contrary, in countries with a high level of expenditure on social protection of older people, the association between close network and the dependent variable is stronger (than in the other countries). In this cluster there are countries such as Sweden and Denmark, where expectations regarding social relationships are lower compared to, for example, Mediterranean countries (Van Tilburg et al. 1998; Litwin 2010). Social relationships, especially family-based support, are less taken for granted and so, probably, become more important for the well-being of the individual (Hank 2007; Olofsson, Padyab, and Malmberg 2018). At the same time, in these countries, receiving support is especially deleterious. In countries where social protection is granted, receiving informal support could lead to a loss of self-esteem (Bolger, Zuckerman, and Kessler 2000). However, it is also very deleterious in countries with low levels of spending on social protection.

For bridging SC, (for native older people) hypothesis 3a) is confirmed: bridging SC has a lower association with well-being where spending on social protection of older people is higher. The situation is different for migrants. Firstly, where the expenditure on social protection is high, having a close network has almost no effect for non-natives from LMIC. In countries where social protection is granted, migrant older people do not need to rely on family or close network as much as they do in places where older people are not well protected by policies. In these same countries, bridging SC, instead, is very relevant for the well-being of migrants, both from developed and developing countries. The effect is grater compared to the effect of the native population and compared to the effect in the other clusters of countries. One explanation could be that, in these countries, where the protection of older people is granted, migrants have more free time to dedicate to social participation in order to increase their bridging SC and increase their well-being (Rostila 2013). In conclusion, in countries with high levels of spending on social protection of older people, bridging SC becomes more important than bonding SC for the well-being of this part of the population.

In the association between SC and depression, hypothesis 3a) is partially confirmed for bonding SC. In countries where the levels of spending is higher, in fact, few variables of bonding SC are significantly related with mental health. However, just as with well-being, in these countries receiving social support is particularly harmful for mental health. Furthermore, in the association between SC and mental health, there are differences between natives and HIC. Whereas having a close network is harmful for natives and non-natives from LMIC (low spending), it is positive for migrants from HIC. Family and close ties here could represent obligations towards others and restrictions of freedom for a part of the population (Portes 1998; Bankston III 2014); but an important source of support and information for the other part (Ebrahim 1996; Gardner 2002). In countries such as Germany and Italy (with a middle level of expenditure on social protection of older people), giving support increases the probability of being depressed for natives and migrants from LMIC, and even more for migrants from HIC. Bridging SC is important for the well-being of the entire population in all clusters. The hypothesis is non-confirmed for this part of the SC.

In the association between SC and physical health it is not possible to confirm hypothesis 3a). However, findings show that bonding SC is negative for the physical health in countries such as Germany and Italy (cluster 2), especially for migrants from HIC. However, having a close network and being satisfied with it are also mainly negative for physical health in countries where the spending on social protection is higher. In some cases, a close network can mean seeing contacts more often and this might reveal a greater need for help. Furthermore, need for informal help in countries where formal help is granted might mean poor physical health. On the contrary, in the other countries, receiving support is less detrimental, or even positive, for the physical health of migrants from LMIC. The pattern for bridging SC is less clear, but some kinds of participation result as negative for migrants (both from HIC and LMIC) in countries with low levels of spending on social protection of older people.

In conclusion, as underlined before, expenditure on social protection of old age function does not have a clear role in the association between SC, health and well-being. However, I found some results coherent with the existing literature and theories on SC. For well-being, close ties are more relevant in those countries where social relationships are less taken for granted; and receiving support is more deleterious. This hypothesis is confirmed by the relationship between bridging SC and well-being, and bonding SC and mental health. For physical health, findings show that bonding SC is particularly deleterious where levels of spending are high. Regarding differences between the native and non-native population, the situation is even more varied. Bridging SC can be negative for migrants' health in countries

where social protection of older people is not granted; whereas it is more relevant for their health and well-being in countries where levels of spending on social protection of older people are higher.

6.2 Aim 3: The Importance of the Context: MIPEX Index

With the aim of taking into consideration the macro aspects relevant to the migrant population, I performed skew-normal and logistic regressions, considering the migrant integration policies of European countries. I estimated, again, three models for each dependent variable (CASP, EURO-D, ADL, and IADL): one for countries with a MIPEX score lower than 50, one for countries with a MIPEX score between 50 and 60 and, finally, one for countries with a MIPEX score higher or equal to 60. I performed cross-equation coefficients tests in order to check for coefficient differences among regressions.

6.2.1 Association between Social Capital and Well-Being

To estimate the effect of SC on well-being, I performed skew-normal regression models (Tab. 6.2.1).

Table 6.2.1 Skew-normal regression - well-being

Outcome: CASP	Cluster 1		Cluster 2		Cluster 3	
	Coef(95% CI)		Coef(95% CI)		Coef(95% CI)	
BONDING SC						
Partner°§	1.097***	(0.885, 1.309)	0.634***	(0.429, 0.838)	0.608***	(0.384, 0.832)
SN satisfaction (0-10)°§	0.869***	(0.800, 0.939)	0.726***	(0.657, 0.795)	0.713***	(0.629, 0.796)
SN Sat×HIC	-0.262	(-0.614, 0.090)	-0.057	(-0.356, 0.242)	0.126	(-0.232, 0.484)
SN Sat×LMIC°#§	0.009	(-0.250, 0.267)	0.548*	(0.126, 0.970)	-0.600**	(-1.047, -0.153)
Close Network°§	0.226***	(0.135, 0.317)	0.419***	(0.323, 0.515)	0.430***	(0.327, 0.534)
Support received°#	-1.426***	(-1.664, -1.189)	-0.949***	(-1.148, -0.750)	-1.409***	(-1.636, -1.183)
Support given	0.615***	(0.433, 0.797)	0.630***	(0.452, 0.809)	0.557***	(0.364, 0.749)
BRIDGING SC						
Voluntary#	1.229***	(0.946, 1.510)	0.885***	(0.659, 1.111)	1.527***	(1.286, 1.768)
Vol×HIC#	0.815	(-0.487, 2.118)	1.366*	(0.307, 2.425)	-0.542	(-1.679, 0.595)
Vol×LMIC§	-0.791	(-1.712, 0.129)	-0.296	(-1.671, 1.079)	1.039	(-0.339, 2.416)
Organization	0.597**	(0.212, 0.982)	0.177	(-0.174, 0.528)	0.547**	(0.201, 0.894)
Club°#	1.896***	(1.681, 2.112)	1.291***	(1.100, 1.481)	1.801***	(1.578, 2.024)
Club×HIC	-0.299	(-1.445, 0.847)	-0.116	(-0.879, 0.847)	-0.109	(-1.071, 0.854)
Club×LMIC°	-0.798*	(-1.460, -0.136)	1.004	(-0.094, 2.102)	-0.260	(-1.394, 0.875)
CONTROL						
	Control coefficients are omitted					
Constant	23.788***	(20.854, 26.723)	24.059***	(20.555, 27.563)	26.756***	(23.254, 30.259)
Observation	16,414		12,462		13,748	
Gamma	-0.379***		-0.542***		-0.396***	
Wald Test[a]	508.05***		334.67***		555.08***	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: MIPEX score lower than 50
Cluster 2: MIPEX score between 50 and 60
Cluster 3: MIPEX score higher or equal than 60

In all three models, the Gamma parameter is significant and negative; i.e., a skew-normal model fits better than a linear regression model, and the distribution is skewed to the left. Wald tests underline that the models with both bonding and bridging SC fit better than a model with only bonding SC variables, for all clusters of countries.

Among bonding SC, all variables are positively related with the dependent variable, with the exclusion of support received (negatively related). Among these variables there is some evidence in favour of hypothesis 3b): *in those countries where MIPEX scores are lower, SC (in all its components) has a stronger association with physical health, mental health, and well-being among migrant older people from low- and middle-income countries; compared to countries with a higher score on the same index*. Being satisfied with the network, in fact, is more important for the well-being of migrants from LMIC (compared to natives), in cluster 2 (b = 0.548); whereas it is less important for them in countries where the MIPEX score is high (b = -0.600). The coefficient is also significantly lower than it is in the other two clusters. The following figures show these differences. Figure 6.2.1 shows how, in cluster 2, being satisfied with the network increases

the well-being of migrants from LMIC slightly more, compared to the other two populations. Figure 6.2.2, instead, shows the opposite situation.

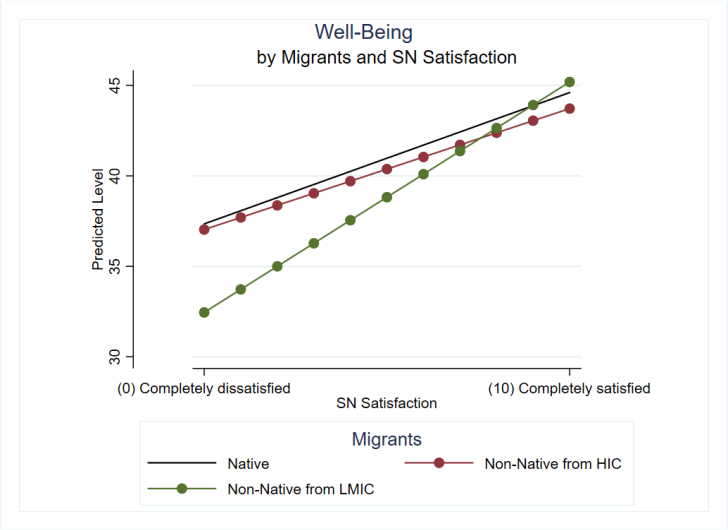

Figure 6.2.1 Predicted level of well-being: SN satisfaction, Cluster 2

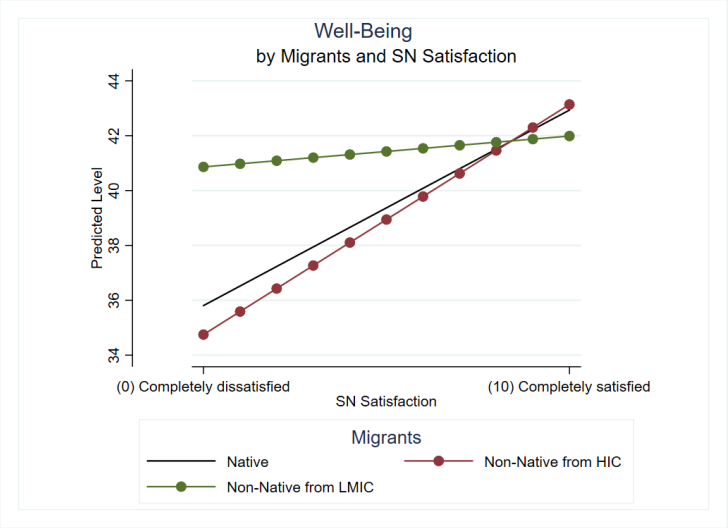

Figure 6.2.2 Predicted level of well-being: SN satisfaction, Cluster 3

Some differences between clusters are also in favour of my hypothesis. The coefficient for "partner" is significantly higher in cluster 1 (differences between natives and non-natives are not significant), compared to the other clusters. The same is true for the "SN satisfaction" coefficient. However, the coefficient for "close network" is higher in cluster 3. The coefficient for "support received" is lower in cluster 2, compared with the other two clusters. In conclusion, two aspect of bonding SC have a lower impact on well-being, especially for migrants from LMIC, in countries with high MIPEX score.

Among bridging SC, hypothesis 3b) is rejected: in cluster 1 the association between bridging SC and well-being is lower for migrants from LMIC compared to the other two clusters of countries and to the rest of population. In particular, the coefficient for "club" is lower for migrants from LMIC in cluster 1 (b = -0.798) and "clubXLMIC" is significantly

different between cluster 1 and cluster 2 (b = 1.004), where the coefficient, however, is not significant. Figure 6.2.3 displays how, for countries in cluster 1, participating in clubs or other sport organizations involves a minor increase in well-being for older migrants from LMIC, compared to the increase for native older people, in countries in cluster 1.

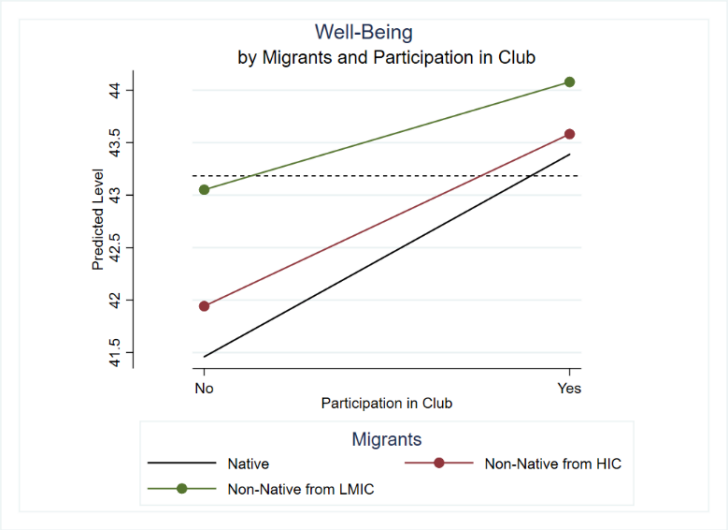

Figure 6.2.3 Predicted level of well-being: Participation in clubs and other sport organizations, Cluster 1

The last relevant difference between natives and non-natives is present in the variable "voluntary" in cluster 2. In countries such as Denmark, but also Italy and France, participation in voluntary work is more relevant for the well-being of migrants from HIC (b = 1.366).

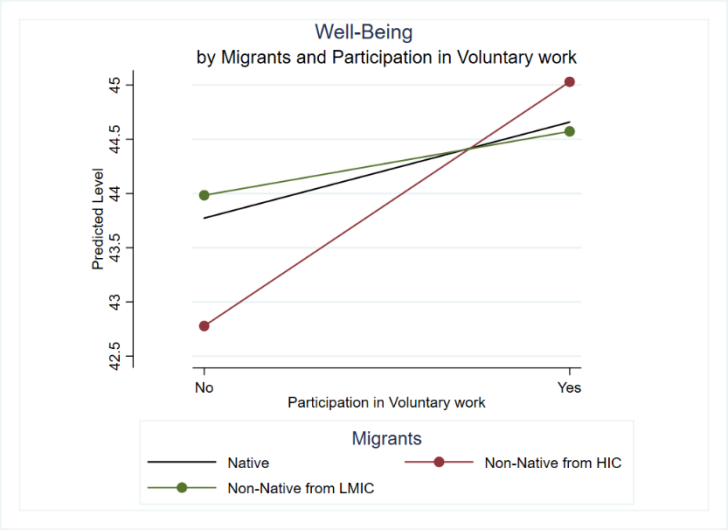

Figure 6.2.4 Predicted level of well-being: Participation in voluntary work, Cluster 2

Differences among clusters are also present for bridging SC. "Organization" increases well-being only in clusters 1 and 3. The coefficient for "voluntary" is significantly higher cluster 3, compared with cluster 2. "Club" has a lower coefficient in cluster 2, compared with the other two clusters.

Finally, being a migrant has a very different impact on well-being in the three clusters. In cluster 1, migrants from HIC have a higher level of well-being than native older people (*b* = 3.343* (SD= 0.052, 6.633)). In cluster 2, instead, migrants from LMIC have a lower level of well-being than natives (*b* = -4.563* (SD= -8.528, -0.597)). Finally, in cluster 3, the same population has a higher level of well-being (*b* = 4.452* (SD= 0.285, 8.620)), all variables, included in the model held constant.

6.2.2 Association between Social Capital and Mental Health

To estimate the effect of SC on mental health, I performed logistic regression models (Tab. 6.2.2).

Table 6.2.2 Logistic regression - depression

Outcome: EURO-D	Cluster 1		Cluster 2		Cluster 3	
	Log-odds(95% CI)		Log-odds (95% CI)		Log-odds (95% CI)	
BONDING SC						
Partner°§	-0.494***	(-0.585, -0.402)	-0.222***	(-0.324, -0.120)	-0.291***	(-0.386, -0.222)
SN satisfaction (0-10)§	-0.112***	(-0.143, 0.081)	-0.157***	(-0.191, -0.123)	-0.166***	(-0.202, -0.130)
SN Sat×HIC°#	-0.162*	(-0.317, -0.006)	0.133	(-0.022, 0.288)	-0.120	(-0.278, 0.038)
SN Sat×LMIC	0.021	(-0.098, 0.140)	-0.186	(-0.415, 0.044)	0.062	(-0.120, 0.245)
Close Network	0.046*	(0.004, 0.087)	0.022	(-0.029, 0.073)	0.039	(-0.008, 0.086)
Support received§	0.530***	(0.430, 0.630)	0.493***	(0.395, 0.592)	0.361***	(0.265, 0.456)
Support given	0.039	(-0.045, 0.124)	-0.071	(-0.167, 0.024)	0.043	(-0.043, 0.130)
Giv×HIC#	0.206	(-0.221, 0.633)	-0.005	(-0.441, 0.430)	0.420*	(0.049, 0.792)
Giv×LMIC	0.118	(-0.184, 0.420)	-0.461	(-1.097, 0.175)	-0.101	(-0.539, 0.337)
BRIDGING SC						
Voluntary	-0.011	(-0.149, 0.127)	-0.087	(-0.217, 0.044)	-0.031	(-0.149, 0.088)
Organization	-0.303**	(-0.502, -0.103)	-0.204	(-0.418, 0.011)	-0.178*	(-0.345, -0.011)
Club	-0.392***	(-0.500, -0.285)	-0.319***	(-0.426, -0.212)	-0.255***	(-0.361, -0.150)
Club×HIC	0.179	(-0.375, 0.732)	-0.501	(-1.031, 0.030)	-0.121	(-0.569, 0.328)
Club×LMIC	0.093	(-0.239, 0.425)	0.660*	(0.036, 1.282)	-0.022	(-0.531, 0.486)
CONTROL						
	Control coefficients are omitted					
Constant	1.013	(-0.326, 2.351)	0.273	(-1.583, 2.130)	0.081	(-1.481, 1.643)
Observation	16,561		12,634		14,008	
Correctly-classified Rate	74.36%		76.33%		74.84%	
H-L Test (X^2)[a]	8.11		7.56		9.62	
Stukel's Score Test	1.74		0.83		0.24	
Wald Test[b]	75.89***		60.95***		39.90***	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. Hosmer-Lemeshow goodness-of-fit test with 10 groups
b. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: MIPEX score lower than 50
Cluster 2: MIPEX score between 50 and 60
Cluster 3: MIPEX score higher or equal than 60

Overall correctly-classified rates are similar in all three models. The Hosmer-Lemeshow test and Stukel's score test always agree on the goodness-of-fit of the models.

Finally, Wald tests confirm that the models with both bonding and bridging SC fit better than a model with only bonding SC variables, for all clusters of countries.

Results about both bonding and bridging SC and mental health do not point in the direction of hypothesis 3b). In particular, among bonding SC variables, there are not significant differences between non-natives from LMIC and the other two populations. The only differences are among natives and non-natives from HIC. In cluster 1, being satisfied with the network reduces the probability of being depressed for the whole population and, in particular, for migrants from HIC. Figure 6.2.5 shows it in detail.

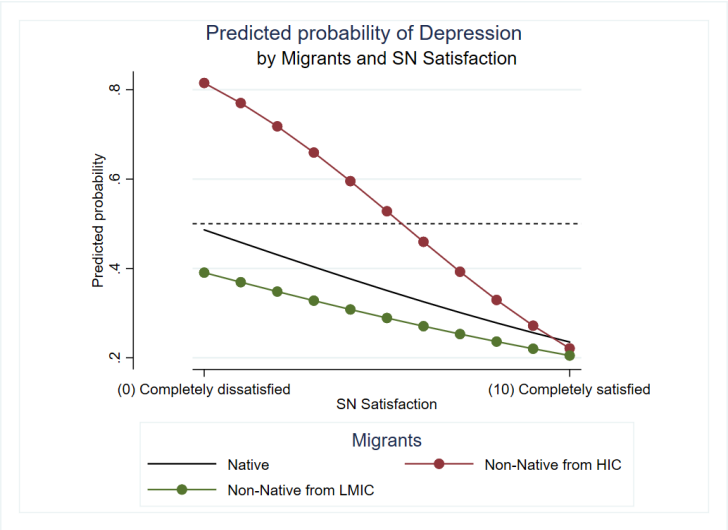

Figure 6.2.5 Predicted probability of depression: SN Satisfaction, Cluster 1

Furthermore, in countries where policies are more favourable giving support increase the probability of being depressed for migrants from HIC (log-odds= 0.420). Figure 6.2.6 shows how the lines for natives and non-natives from LMIC are almost straight, whereas the red line for migrants from HIC displays an increase in the probability of depression.

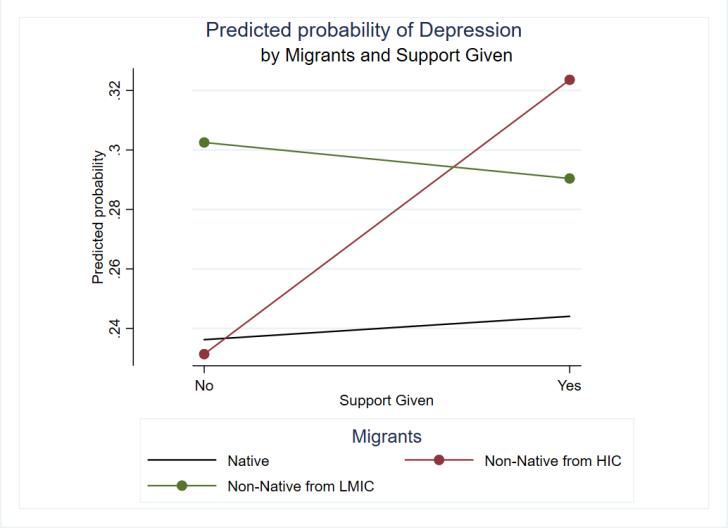

Figure 6.2.6 Predicted probability of depression: Support given, Cluster 3

There are some differences in coefficients among clusters, too. The "partner" coefficient is higher in countries with MIPEX scores lower than 50, compared with the other two clusters of countries. The coefficient for "SN satisfaction" is higher in cluster 3, compared with cluster 1 (but not for migrants from HIC). Finally, the coefficient for "support received" is lower in countries with the highest MIPEX scores, compared with the other two clusters. Among bridging SC variables, instead, there are some differences between natives and non-natives from LMIC; however, they are not useful to confirm hypothesis 3b). In particular, participation in a club becomes negative for the mental health of migrants from LMIC, in countries with a middle level of MIPEX. Figure 6.2.7 shows how the green line for migrants from the LMIC goes up (i.e., increase in probability of depression), while the others go down.

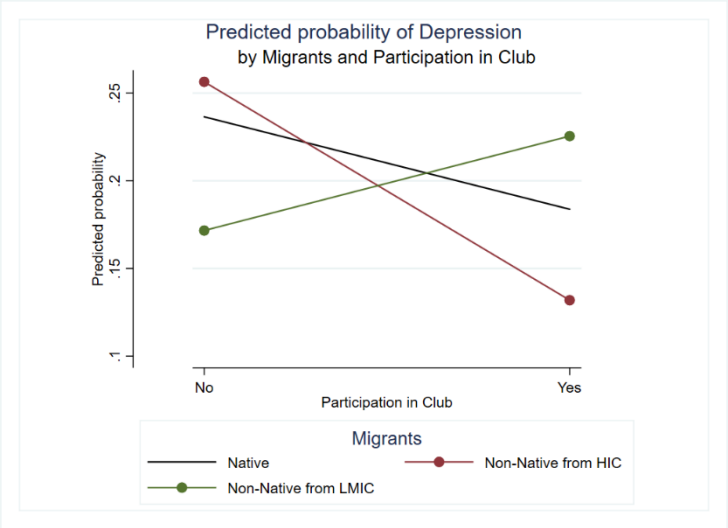

Figure 6.2.7 Predicted probability of depression: Participation in clubs and other sport organizations, Cluster 2

While the association between bridging SC and well-being appears to be stronger in countries with less favourable migrant integration policies, but, in these countries, there are not significant differences between natives and non-natives.

Finally, in cluster 1, migrants from HIC have a lower probability of being depressed than natives (log-odds= 1.519* (SD= 0.059, 2.978)), all other variables held constant.

6.2.3 Association between Social Capital and Physical Health

To estimate the effect of SC on physical health, I performed logistic regression models (Tab. 6.2.3 and 6.2.4).

Table 6.2.3 Logistic regression - Activity of Daily Living

Outcome: ADL	Cluster 1		Cluster 2		Cluster 3	
	Log-odds(95% CI)		Log-odds (95% CI)		Log-odds (95% CI)	
BONDING SC						
Partner§	-0.158*	(-0.293, -0.024)	-0.195**	(-0.340, -0.050)	-0.365***	(-0.500, -0.230)
Part×HIC§	-1.013**	(-1.699, -0.326)	-0.428	(-1.077, 0.222)	-0.165	(-0.426, 0.757)
Part×LMIC	0.142	(-0.360, 0.643)	-0.091	(-1.128, 0.947)	-0.215	(-0.932, 0.502)
SN satisfaction (0-10)	0.026	(-0.020, 0.072)	0.042	(-0.008, 0.092)	-0.003	(-0.048, 0.054)
SN Sat×HIC	0.315*	(0.031, 0.599)	0.183	(-0.079, 0.445)	-0.044	(-0.252, 0.164)
SN Sat×LMIC	0.009	(-0.168, 0.184)	-0.083	(-0.367, 0.202)	-0.226	(-0.493, 0.041)
Close Network#	0.052	(-0.012, 0.116)	0.142***	(0.065, 0.219)	-0.024	(-0.098, 0.050)
Support received	0.898***	(0.764, 1.031)	0.899***	(0.760, 1.038)	0.772***	(0.639, 0.905)
Rec×HIC	-0.665	(-1.408, 0.078)	-0.133	(-0.786, 0.520)	0.253	(-0.322, 0.827)
Rec×LMIC	-0.648*	(-1.168, -0.128)	0.191	(-0.883, 1.266)	-0.961**	(-1.695, -0.227)
Support given§	-0.244**	(-0.382, -0.107)	-0.387***	(-0.535, -0.240)	-0.442***	(-0.577, -0.308)
BRIDGING SC						
Voluntary	0.061	(-0.172, 0.294)	-0.109	(-0.333, 0.114)	0.085	(-0.063, 0.302)
Organization	0.130	(-0.181, 0.441)	-0.278	(-0.662, 0.105)	-0.046	(-0.221, 0.313)
Club§	0.046	(-0.134, 0.227)	-0.160	(-0.336, 0.015)	-0.228*	(-0.405, -0.050)
CONTROL						
	Control coefficients are omitted					
Constant	-0.931	(-3.048, 1.185)	0.074	(-2.690, 2.837)	-0.503	(-2.856, 1.851)
Observation	16,282		12,383		13,649	
Correctly-classified Rate	90.40%		90.34%		89.87%	
H-L Test (X^2)[a]	6.74		5.69		9.41	
Stukel's Score Test	7.45*		0.37		2.50	
Wald Test[b]	8.02		8.23		6.13	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. Hosmer-Lemeshow goodness-of-fit test with 10 groups
b. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Cluster 1: MIPEX score lower than 50
Cluster 2: MIPEX score between 50 and 60
Cluster 3: MIPEX score higher or equal than 60

Overall correctly-classified rates are similar in all three models. The Hosmer-Lemeshow test and Stukel's score test always agree on the goodness-of-fit of the models, with the exclusion of cluster 1, where Stukel's test is significant. Finally, Wald tests underline that models with only bonding SC fit as well as models with both bonding and bridging SC. In other words, adding bridging SC does not improve the fitness of the models, in all clusters.

No results with ADL as the dependent variable support my hypothesis about differences among migrants from LMIC and natives. In particular, only receiving support presents some differences between migrants from LMIC and the other populations, and this difference is in contrast with hypothesis 3b). The coefficient for "support received" for migrants from LMIC is lower (compared to natives) in cluster 1 and becomes negative in cluster 3. The following figures make this clear. Figure 6.2.8 shows the predicted probability of limitations on ADL for cluster 1; and figure 6.2.9 displays how the green line for migrants

from LMIC changes direction, compared to cluster 1 and compared to natives and non-natives from HIC. In countries with favourable migrant integration policies, receiving support reduces the probability of having a limitation for migrants from LMIC.

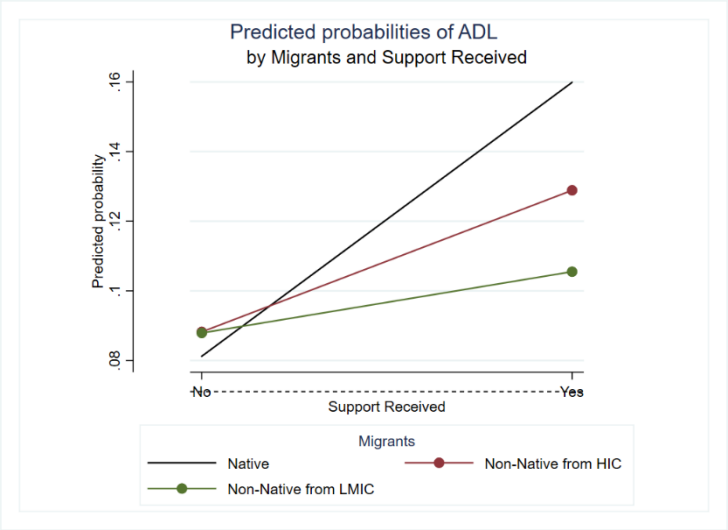

Figure 6.2.8 Predicted probability of ADL: Support received, Cluster 1

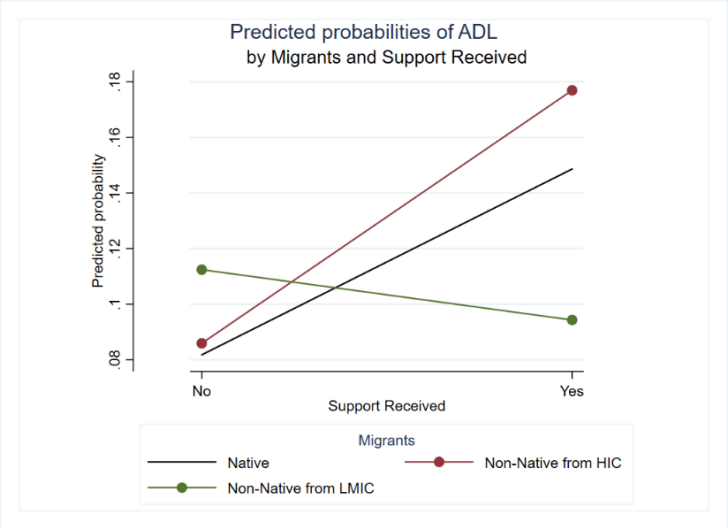

Figure 6.2.9 Predicted probability of ADL: Support received, Cluster 3

Some differences are also present between natives and non-natives from HIC. Bonding SC has a stronger impact on the dependent variable for migrants from HIC, in countries with low MIPEX scores. In particular, having a partner decreases the probability of having a limitation on ADL for the whole population, but especially for migrants from HIC in countries where migrant integration policies are less favourable (log-odds= -1.013). Figure 6.2.10 shows this graphically.

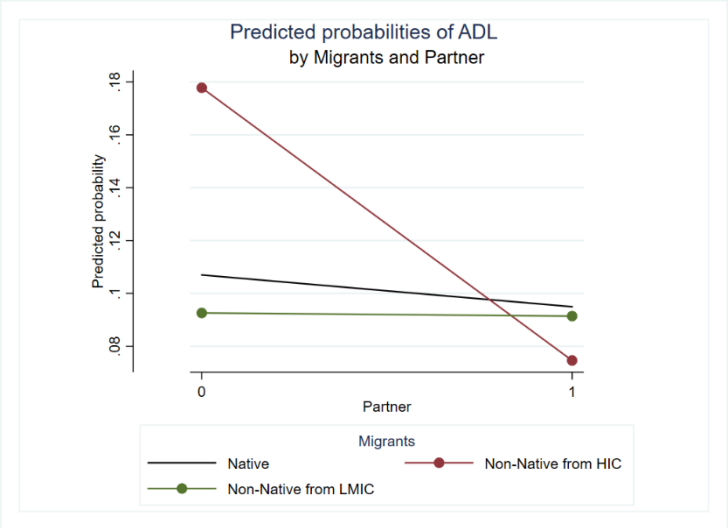

Figure 6.2.10 Predicted probability of ADL: Partner, Cluster 1

"SN satisfaction", instead, increases the probability of limitations, with a stronger effect for migrants from HIC in these same countries (log-odds= 0.315) (Fig. 6.2.11).

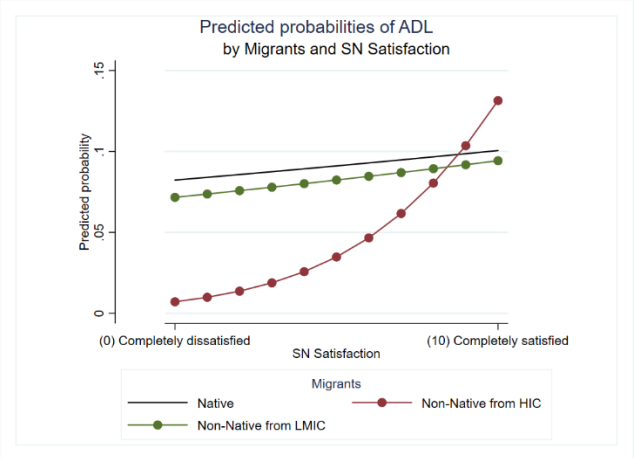

Figure 6.2.11 Predicted probability of ADL: SN satisfaction, Cluster 1

Three variables present differences between clusters. In particular, having a partner and giving support have a higher impact on physical health in cluster 3, compared with cluster 1. The only significant coefficient for bridging SC is "club" in cluster 3. No differences between natives and non-natives are present.

Table 6.2.4 Logistic regression - Instrumental Activity of Daily Living

Outcome: IADL	Cluster 1		Cluster 2		Cluster 3	
	Log-odds(95% CI)		Log-odds (95% CI)		Log-odds (95% CI)	
BONDING SC						
Partner°#	-0.578***	(-0.695, -0.461)	-0.296***	(-0.418, -0.173)	-0.506***	(-0.621, -0.391)
Part×HIC#	-0.404	(-1.032, 0.224)	-0.955**	(-1.496, -0.414)	0.377	(-0.161, 0.915)
Part×LMIC	0.234	(-0.189, 0.657)	0.349	(-0.411, 1.110)	-0.340	(-0.967, 0.287)
SN satisfaction (0-10)	0.036	(-0.005, 0.078)	0.031	(-0.013, 0.073)	0.013	(-0.031, 0.058)
Close Network	0.118***	(0.061, 0.174)	0.167***	(0.103, 0.230)	0.156***	(0.096, 0.216)
Close×HIC	-0.088	(-0.431, 0.255)	-0.416**	(-0.738, -0.093)	0.019	(-0.277, 0.314)
Close×LMIC	-0.038	(-0.261, 0.185)	0.024	(-0.350, 0.399)	0.150	(0.174, 0.475)
Support received°§	1.208***	(1.088, 1.328)	1.018***	(0.900, 1.136)	1.041***	(0.929, 1.154)
Support given°#	-0.480***	(-0.603, -0.357)	-0.754***	(-0.874, -0.635)	-0.498***	(-0.611, -0.386)
BRIDGING SC						
Voluntary°	0.008	(-0.199, 0.216)	-0.278**	(-0.459, -0.098)	0.154	(-0.319, 0.010)
Organization	0.052	(-0.229, 0.333)	-0.092	(-0.378, 0.193)	-0.172	(-0.402, 0.056)
Club	-0.173*	(-0.334, -0.011)	-0.074	(-0.213, 0.065)	-0.200**	(-0.344, -0.056)
CONTROL						
	Control coefficients are omitted					
Constant	2.869**	(1.057, 4.682)	2.091	(-0.204, 4.386)	1.704	(-0.295, 3.704)
Observation	16,253		12,383		13,649	
Correctly-classified Rate	87.17%		85.42%		84.90%	
H-L Test (X^2)[a]	15.37		10.04		12.24	
Stukel's Score Test	0.98		3.36		0.46	
Wald Test[b]	6.97		15.99*		24.86**	

Source: SHARE data, wave 6.
Notes. × = interaction between variables; *p <= .05, ** p<= .01, ***p<=.000.
Significant cross-equation test ° cluster 1≠2, # cluster 2≠3, § cluster 1≠3
a. Hosmer-Lemeshow goodness-of-fit test with 10 groups
b. chi-squared value generated by the Wald test on adding bridging SC variables to the model
Coefficient omitted: predicted failure perfectly.
Cluster 1: MIPEX score lower than 50
Cluster 2: MIPEX score between 50 and 60
Cluster 3: MIPEX score higher or equal than 60

Overall correctly-classified rates are similar in all three models. The Hosmer-Lemeshow test and Stukel's score test always agree on the goodness-of-fit of the models, with the exception of cluster 1's model, where the Hosmer-Lemeshow test is significant. Finally, Wald tests confirm that a model with both bonding and bridging SC fits better than a model with only bonding SC variables, in the second and third cluster. The test is not significant for cluster 1.

With IADL as the dependent variable, there are no significant differences between migrants from LMIC and the native population that allow us to confirm or reject hypothesis 3b). Differences are mainly between natives and non-natives from HIC. In particular, among bonding SC variables, the coefficient for "partner" of this population is higher in cluster 2. Having a partner reduces the probability of having a limitation on IADL even more for

migrants from HIC in countries with a middle level of MIPEX (log-odds= -0.955) (Fig. 6.2.12).

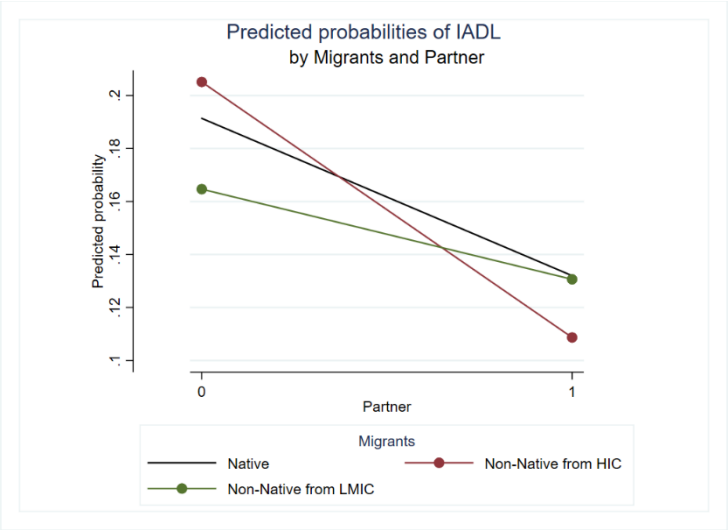

Figure 6.2.12 Predicted probability of IADL: Partner, Cluster 2

Furthermore, the coefficient for "close network" (positive for the native population) becomes negative for migrants from HIC in cluster 2 (log-odds= -0.416). Figure 6.2.13 shows the change in direction of the red line: having a close network decreases the probability of having a limitation on IADL for migrants from HIC.

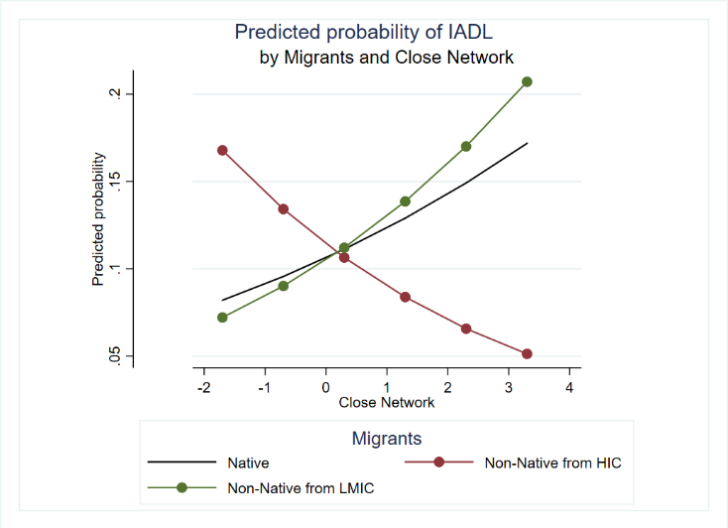

Figure 6.2.13 Predicted probability of IADL: Close network, Cluster 2

Bonding SC is particularly protective against limitations on IADL for this population in countries such as Denmark, Italy, and France. Some significant differences among clusters are also present. The coefficient for "partner" is lower for the countries in cluster 2, compared with the countries in the other clusters. The coefficient for "support received" is higher in the cluster with a low MIPEX score, compared with the other two. In countries with less favourable migrant integration policies, receiving support is particularly detrimental

to physical health. The Coefficient for "support given" is higher in cluster 2, compared with the other clusters.

Again, among bridging SC, there are not significant differences between natives and non-natives which allow us to confirm or reject hypothesis 3b).

6.2.4 Conclusions and Discussions

Migrant integration policies of the country shape the relationship between SC, health and well-being; especially for migrant older people. Again, some aspects of SC, such as having a partner or participating in social activities are almost always positive for the health or well-being of the aging and older population, in all countries taken into consideration. However, this association may change, and in the case for other aspects of SC, such as close network or support give, the association may have the opposite sign.

The hypothesis to confirm was:

Hp. 3b) *In those countries where the MIPEX score is lower, SC has a stronger association with physical health, mental health, and well-being among migrant older people from low- and middle-income countries; compared to countries with a higher score on the same index.*

Just as hypothesis 3a), this hypothesis was inferred from the crowding-out theory: in countries where policies are more favourable to the population of interest (i.e., migrants aging and older people), SC will be less important for the health and well-being of this population; and vice versa. The results cannot confirm this hypothesis. However, some results are worth emphasising.

Considering models with well-being as dependent variables, results confirm the hypothesis for bonding SC. Findings show that in countries where migrant integration policies are more favourable, bonding SC is less relevant for migrants from LMIC, compared to the other countries and to the rest of population. In particular, being satisfied with their own network is less relevant for the well-being of migrants from LMIC in these countries; and having a partner is less relevant for the whole older population. For bridging SC, instead, results point in the opposite direction. Participation in clubs and other sport organizations, in fact, is less relevant for the well-being of migrants from LMIC in those countries where the integration of migrants is not a priority. In countries where migrants are in greater difficulty (i.e., less favourable integration policies), it is difficult for them to use this kind of SC in favour of their well-being. They are forced to rely on their partners and closest contacts. Finally, it is interesting how, in countries where migrant integration policies are more favourable, migrants from "poor" or developing countries claim to have a higher level of well-being, compared to native older people. Policies of integration seem to have an impact

on migrants' well-being. In the association between SC and mental health, I did not find any results in open agreement or disagreement with my hypothesis.

Among bonding SC variables, the only differences are between native older people and migrants from HIC. Among bridging SC, instead, in some countries such as Denmark, Italy, and France, participating in clubs or sport activities is negative for the mental health of migrants from LMIC. In the association between SC and physical health, results do not confirm my hypothesis. More relevant differences in bonding SC are among natives and non-natives from HIC. In particular, bonding SC is more relevant (both in a negative and in a positive way) for their physical health in countries with a low or middle level of MIPEX. Receiving support, instead, is positive for migrants from LMIC in those countries where integration policies are favourable. Where equality is almost guaranteed, having the possibility to receive informal support could be a plus, and it results as positive for their physical health.

In sum, some differences among natives and non-natives are worth underlining. Bonding SC is particularly relevant for the health and well-being of older migrants in countries where integration policies are less favourable. In countries such as Switzerland, Estonia, and Czech Republic, having a strong, close and trustworthy network is important for migrant older people, regardless of country of birth; it protects them against the lack of migrant integration policies. Furthermore, in these same countries, having a partner results as strongly protective against physical limitations or depression, for the whole older population. Migrants, instead, cannot take advantage of bridging SC to the same degree than native older people do. Bridging SC is sometimes less relevant or even deleterious to the health and well-being of this population.

7 Conclusions and Remarks

In this final chapter I summarize some discussions and present some remarks about my results, drawing on theory and the existing literature. I, therefore, explore possible implications for policies and suggest available pathways for future research. I recall that the principal aim of this study is to explore the relationship between SC, health and well-being; with a focus on migrant older and aging people (50+) in Europe. The purpose is to fill two important gaps in the literature: knowledge about the migrant aging population, and comparative analyses among countries and regions in Europe.

7.1 The Relative Advantage of Migrants in Social Capital

My first explorative aim was to describe and analyse the composition of older migrants' SC. My hypothesis was that migrants from low- and middle-income countries would have a lower level of both bonding and bridging SC than native older people. In chapter 4, I showed how, contrary to my hypothesis, migrant older people coming from "poor" or developing countries (LMIC) appear to have the same or higher level of SC, compared to older native people. In fact, they have a SN of a similar dimension to that of native people, and they are similarly satisfied with it. Furthermore, migrants from LMIC participate more in social activities and give more social help than natives. The immigrant selectivity theory, applied in the past mainly to characteristics such as health or education, provides a perfect explanation of this situation (Feliciano 2005). Migrants are positively selected on many characteristics in their country of origin, and this leads them to have some advantage in the host society. They are often high educated, healthy (Cho et al. 2004; T. G. Hamilton 2015), and socially integrated. While the vision of migrants as the poorest and most desperate is still in vogue in the press and social media, this vision was abandoned by scholars studying migration a long time ago. However, it is also true that, due to mechanisms linked to discrimination and deleterious jobs, many advantages migrant people possess will be lost with the aging process. This has been found for health: migrant's health advantages on health have a transitory nature (T. G. Hamilton 2015; Sand and Gruber 2016). However, according to my findings, this is not true for SC. Time, in fact, can worsen the health of individual; but, at the same time, it may increase the social relations and social integration of individuals into a community.

My interpretation of the convoy model, instead, is not supported. Migrants older people from "poor" or developing countries, in fact, may have experienced in the past specific life circumstances preventing them from maintaining a strong support network.

However, a long period in the host country made them similar, in terms of social relationships, to the native population. In other words, also migrants from LMIC can maintain a solid core network and may use it as a protective tool for health and well-being, just as effectively as native older people.

The situation is different for migrants from "rich" or developed countries. In fact, they declared a lower level of SC, compared to their counterparts from developing countries and do not present any advantage compared to older people born in the countries of interview. This confirms that country of origin is surely an important aspect when studying social aspects; a concept already underlined by Feliciano (2005) in his discussion about advantages in education. Lee, in his "A Theory of Migration" (1966), also mentions the matter of country of origin; and his theory is, in part, coherent with my result. As mentioned before, according to Lee (1966), migrants who face the greatest barriers in migrating will be the most positively selected. This definition surely fits better for migrants from LMIC. However, another part of his theory goes against my results. The author distinguishes between migration resulting from pull or push factors (E. S. Lee 1966). Migrants from "poor" countries are probably migrating due to push factors from the sending society: congested job market, low possibility to overcome poverty, and war. Accordingly, they should be negatively selected. The opposite should be true for migrants from "rich" countries (i.e., migrating due to pull factors in the destination). In conclusion, knowledge of the reasons leading these people to migrate is essential to opening the "black box" of this mechanism.

A final interesting result is that differences in SC, both positive and negative, disappear in those countries where migrant integration policies are more favourable. In countries such as Sweden, Portugal, Belgium, Germany, and Spain, there is more equality among migrants (of both types) and native older people in terms of SC.

7.2 The Bright and Dark Sides of Social Capital

My second aim was to show the relationship between SC, health and well-being; and underline differences between natives and non-natives. My first hypothesis was that both bonding and bridging SC would be positively associated with higher levels of well-being, and better mental and physical health. Results confirmed the hypothesis for well-being, but revealed that some aspects of bonding SC are negative for the physical and mental health of older people. Bridging SC, instead, is always positive for the health of this population. Thus, these findings brought to light both the bright and dark sides of the SC. Bonding SC represents an important factor for the health and well-being of the entire older population, and a survival mechanism for individuals of disadvantaged communities (such as migrants).

However, at the same time, it represents a burden, implying obligations towards others (Bankston III 2014). This evidence reflects one of the reasons why SC effects are not always positive: more SC can involve excessive demands to support others (Portes 1998). This became evident in some of the results of this research, such as the perverse effects of close networks and giving support. Among bonding SC aspects, the case of support received is different. In the literature, the negative association between receiving support, health and well-being is mainly explained in two ways: loss of sense of self-esteem, resulting from the need to receive informal support (Bolger, Zuckerman, and Kessler 2000); and reverse causation (i.e., individuals that reported receiving help are the ones with the poorest health) (Islam et al. 2006; Sirven and Debrand 2012; Younsi and Chakroun 2016). Some other authors (i.e., social cognition approach) point out how the knowledge that support providers are available if needed is positive for health, rather than the actual use of social support (Bolger, Zuckerman, and Kessler 2000; Reinhardt, Boerner, and Horowitz 2006). This interpretation could also be valid for my results. Having a close network is (sometimes) positive, because it allows the person to believe that he or she is cared for and loved, and that he/she belongs to a network of mutual obligations. However, actual need for informal help is negative for health and well-being. Given the nature of my data, it is not possible to conclude whether this is caused by depression resulting from loss of self-esteem, or by reverse causality.

Furthermore, the results of this research (i.e., bridging SC is always positively associated with health and well-being) show that bridging SC could be one of those sources of SC that Warren (2008) described as lacking the capacity to function as bad SC. Bridging SC generates generalized trust and reciprocity. Generalized trust is predicated upon the belief that many others are part of your moral community, and bring people to trust above and beyond what their rational calculations tell them is appropriate (Mansbridge 1999; Svenden and Svenden 2009). Generalized reciprocity is the basic norm of social exchange, which implies obligations between one person and everyone else. Bonding SC, instead, generates the other type of these values: particular trust and reciprocity. Particular trust is represented by thick trust within families, kinship groups and networks of close friends. Particular reciprocity is represented by the obligations linking two specific persons. The exchange is exclusive: it serves to mark the boundary between those who are part of the relationship, and those who are excluded from it (Warren 2008). This kind of SC does have the capacity to function as bad SC.

Finally, my hypothesis about differences between natives and non-natives was not confirmed: *the positive association of bridging SC (participation in social activities) with physical and*

mental health and well-being is stronger among migrants from lower- and middle-income countries, rather than among natives or migrants from high-income countries. Although this hypothesis was not confirmed, results showed relevant differences among the three populations studied. Bonding SC components appear to be less salient (both in positive and negative terms) for the well-being of non-natives from LMIC (compared to the native population); in particular having a close network and giving support to others. Bridging SC, instead, is, in general, positive for the health and well-being of the whole aging and older population of Europe.

However, providing an explanation for these results about the migrant population, without taking into account the macro aspect, is rather difficult. Considering the more or less favourable context is essential to understanding the ability of this doubly vulnerable population to use SC to improve their health and well-being.

7.3 The (Imprecise) Role of the Context

My final aim was to explore the role of the macro aspect, or context, in the main association. Both macro aspects used in my research, social protection of older people and migrant integration policies, did not give conclusive results. They do not have a precise and straightforward role in the association between SC, heath, and well-being. My hypotheses were formulated on the basis of a reformulation of other theories regarding SC (i.e., crowding-out theory), and were not totally confirmed. However, these macro aspects do have some kind of impact on the relationships described above, and I was able to isolate some differences among countries.

Regarding expenditure on social protection of old age function, my hypothesis was that in those countries where expenditure on social protection on old age function is higher, SC has a lower association with health and well-being (compared to countries with a lower expenditure on social protection of old age function). Results confirmed this hypothesis in two cases: in the relationship between bridging SC and well-being and in the relationship between bonding SC and mental health. In these cases, in countries where social spending on social protection of older people is the highest, the relationship between SC and the dependent variable is lower (compared to other countries). These results are coherent with my argument, according to which, where social protection is granted, SC is not a salient resource for the health and well-being of older people. Furthermore, I found some results already explained by previous literature and existing theories of SC. For well-being, close ties are more relevant in some countries where social relationships are less taken for granted, such as Nordic countries (Van Tilburg et al. 1998; Litwin 2010). In these same countries receiving support is more deleterious, probably because it represents an even heavier burden

for self-esteem here, where formal support is already granted. Regarding the differences between natives and non-natives, bridging SC appears to be, sometimes, negative for older migrants in countries with low levels of spending on social protection of older people. On the contrary, the same SC is more relevant for the same population in countries with high spending. Where the context is more favourable for older people, more vulnerable persons, such as older migrants, are freer to engage in social activities, and more able to use those activities to improve their health and well-being.

Keeping under control the level of migrant integration policies brought to light some interesting mechanisms. In particular, it showed how, in countries where migrant integration policies are lacking, migrants from LMIC and, especially, from HIC, rely mostly on bonding SC to improve their health and well-being. Therefore, my hypothesis is, in part, confirmed: where migrant integration policies are less favourable, bonding SC is more important for the health and well-being of migrant older people (compared to natives and compared to other countries). However, in countries with low and middle levels of integration policies, migrant older people benefit less from bridging SC, compared to native older people. Again, results show that migrant older people need a favourable context to engage in social activities and use them in their favour. Otherwise, they exclusively trust their partner or close network.

In conclusion, the results of this study carry some policies implications. Policy interventions should be targeted at improving, primarily, conditions that make the context more favourable to vulnerable groups of people. Results show that migrant older people are particularly sensitive to the context in which they live. Furthermore, policy makers should be receptive to the differences between native and non-native older people when they plan interventions to improve social relations. It is important to promote social participation in activities putting migrant people in contact with the whole society and, therefore, with new information and informal help for dealing with the host society; rather than social activities connecting only migrants and creating ethnic enclaves. More generally, intervention strategies are likely to require a combination of programs targeting the general population and initiatives directed to high-risk groups. Furthermore, in the creation of health policy and community health promotion programs, it is important to consider both the positive and negative effects of SC. In particular, results underline that increased informal social support does not provide a solution to reduce the deterioration of physical and mental health. Policies in this sense (e.g., monetary incentives to stay home and take care of a relative) should not be pursued. Finally, the implementation of a SC agenda must account for differences in environmental contexts (e.g., policies in other fields), as well as differences in the population.

7.4 Limitations of the Present Study

This study has several limitations that need to be addressed. The first limits are related to the definition and operationalization of the concepts. I defined migrants as non-native people, following previous research. However, this definition is not the only possible one. Other possible definitions are related to nationality (i.e., different from the place of residence), length of stay in the host country (i.e., one year or more), or ethnicity (i.e., different from the predominant one in the country). Sometimes the nationality of the parents is also considered in determining migration status (Schenk et al. 2006). Furthermore, as underlined before, the choice of considering country of birth and not taking into consideration the year of migration is questionable. Knowing the year of arrival in the host country could be important for making assumptions about integration and social relations. However, given the small number of migrants in this survey, I had to choose between "country of origin" and "year of migration".

Another limitation is related to the definition of older people. In this dissertation I considered people aged 50 and older as aging and older people, whereas most studies on aging consider older people as people 65 years and older (Moody and Sasser 2012). The definition and measurement of health and well-being are also issues. All measures I used (i.e., CASP-12, EURO-D, ADL, IADL) are self-reported and are not the only ones present in SHARE. However, these measures are the most used in the social science studies employing SHARE (von dem Knesebeck et al. 2007; Litwin, Stoeckel, and Schwartz 2015; Micheli et al. 2018), with the exclusion of self-perceived health.

Finally, the most important limitation related to the definition of concepts is the operationalization of SC. As I pointed out throughout my dissertation, there is no agreement on the definition and operationalization of this concept; the one implemented in this work is one of many. In particular, my measurement of bonding and bridging SC could be questionable. I decided to measure these two concepts with very different aspects (also due to the constraints given by the data): bonding SC with SN and social support variables; and bridging SC with participation in social activities. Another possible solution could be to identify bonding and bridging SC by the homogeneity or heterogeneity of the SN, related to some characteristics (e.g., age, sex, status). Finally, I did not take into consideration macro-level SC (e.g., aggregated SC at country or regional level).

However, some of these limitations are linked to limitations of the dataset. SHARE is a very powerful dataset for studying the social environment, health and well-being of aging and older people. However, it has some limits. First of all, it is not designed for studying the

migrant population. As stressed in chapter 4, SHARE was not designed to be representative of European migrants, and so likely excludes more vulnerable migrants from the sample, such as undocumented migrants or migrants who cannot speak the language of the country. Furthermore, SHARE lacks other information considered important for studying the migrant population (e.g., motivation of migration). Secondly, as explained before, it was impossible to perform a longitudinal analysis using the previous waves, due to reasons of both variables and sample size. Another important limitation results from the countries taking part in the survey. In wave 6, 18 countries participated in SHARE. With the exclusion of Israel, all of them are European countries, but they are not representative of all the countries present in Europe or in the European Union. In my study I do not consider a lot of countries, such as Norway or the UK; and the low number of countries (17) does not allow me to perform a multilevel analysis. Wave 7 collected information on more countries (28), but does not contain information about the SN of participants.

Limitations about the measurement of SC can also be traced back to the limitations of SHARE. In this dataset there are a lot of variables for measuring SC. However, there is not much information about contacts in the SN. In particular, there is no information about relationships among contacts, useful for measuring some other characteristics of the network (e.g., closeness of the whole network). Furthermore, there is no question regarding the nationality of contacts. For this reason, it is not possible to say how homogeneous in terms of nationality the network is. Finally, due to the formulation of the question (i.e., people with whom you discuss important matters), networks are almost exclusively composed of family members.

A final limitation, related to both design of my research and the characteristics of the dataset, is the choice to not focus on socio-demographic aspects such as gender or age group (i.e., "younger old", "old-old", etc). Because of my focus on a tiny portion of the population (i.e., migrant older people are 5,017 in my sample), I had to renounce taking into account many other aspects that probably have an impact on the association between SC, health and well-being. However, I saw that there are not so many differences between women and men or between age groups for variables such as SC or health (as I reported in paragraph 3.2.2 and 4.1). Furthermore, I ran models of the four dependent variables with all SC variables and interactions with gender (without considering the "migrant status"). I did not find any significant differences between men and women in the association between SC, health, and well-being.

I performed a secondary data analysis. I do not register any ethical issue during my research.

7.5 Further Research

Starting from these limitations, there remains room for further research. First of all, the implementation of a longitudinal study is essential to determine causal relationships rather than mere statistical associations, and to solve some enigmas about the mechanisms linking SC to health and well-being. A longitudinal design will be useful also for analyse the changing of the *convoy* which surround the individual during the lifetime. To the best of my knowledge, there are no longitudinal studies of SC and health among the older migrant population. Secondly, a more systematic study of Europe is needed. Furthermore, in order to further investigate the role of bonding and bridging SC with the migrant population, studies focusing more on the ethnic composition of older migrant networks are essential. Studying the ethnic composition of SNs and groups and associations is essential for knowing the real composition of the SC. Finally, there remains a knowledge gap about the differences between migrants and their fellow countrymen who stay behind. In order to comprehend the real advantage migrant people have on some characteristics, such as health and the ability to use SC to improve their health, they need to be compared directly with people of their own country.

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Appendix

Acronyms

SC = social capital

SN = social network

SRH = self-rated health

SPH = self-perceived health

LMIC = low and middle income countries

HIC = high income countries

Appendix 1: Classification Non-Natives

- High income countries:
    - Australia, Austria, Belgium, Canada, Chile, Croatia, Cyprus, Czechoslovakia, Czech Republic, Curacao, Denmark, Estonia, Faroe Islands, Finland, France, French Polynesia, Germany (+ Former Territories of German Reich and Former Eastern Territories of German Reich), Greece, Greenland, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea (Republic of), Latvia, Liechtenstein, Lithuania, Luxembourg, Netherland, New Zealand, Norway, Poland, Portugal, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Kingdom, United States of America, Uruguay.
- Low and middle income countries:
    - Africa, Albania, Algeria, Angola, Azerbaijan, Argentina, Armenia, Belarus, Benin, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Burundi, Cambodia, Cameroon, Cape Verde, China, Colombia, Congo (Democratic Republic of), Costa Rica, Cote d'Ivore, Cuba, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Guinea-Bissau, Ethiopia (+ before Eritrea broke away), Eritrea, French Guiana, Gabon, Georgia, Gambia, Ghana, Guadeloupe, Guinea, Haiti, Honduras, India, Indonesia, Iran (Islamic Republic of), Iraq, Kazakhstan, Kenia, Kosovo, Kyrgyzstan, Jordan, Lao's People Democratic Republic, Lebanon, Liberia, Libyan Arab Jamahiriya, Macedonia (The Former Yugoslav Republic), Madagascar, Malaysia, Mali, Martinique, Mauritania, Mauritius, Mexico, Minor Asia, Moldova (Republic of), Montenegro, Morocco, Mozambique, Nicaragua,

Nigeria, Pakistan, Palestinian Territory, Paraguay, Peru, Philippines, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Senegal, Serbia, Somalia, South Africa, Sri Lanka, Sudan, Suriname, Syrian Arab Republic, Tajikistan, Thailand, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, U.R.S.S., Uzbekistan, Venezuela, Vietnam, Yugoslavia (Socialist Federal Republic of), Zambia.

Appendix 2: Control Variables

Employment situation is based on variable *ep005_* (Employment and Pensions module):

Please look at card 7. In general, which of the following best describes your current employment situation:

1. Retired
2. Employed or self-employed (including working for family business)
3. Unemployed
4. Permanently sick or disabled
5. Homemaker
6. Other

Economic situation is based on variable *co007_* (Consumption module): Thinking on your household's total monthly income, would you say that your household is able to make ends meet…

1. With great difficulty
2. With some difficulty
3. Fairly easily
4. Easily

Self- perceived health is based on variable *ph003_* (Physical Health module):

Would you say your health is …

1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

Appendix 3: Social Capital Variables

"Name generator" (*SN001_*) of the SN:

Now I am going to ask some questions about your relationships with other people. Most people discuss with others the good or bad things that happen to them, problems they are having, or important concerns they may have. Looking back over the last 12 months, who are the people with whom you most often discussed important things? These people may include your family members, friends, neighbours, or other acquaintances. Please refer to those people by their first names.

List of questions about characteristics of each contact presents in the SN of the respondent:

- Sex (*SN005a_*):

  "Code sex of [contact]"

  1. Male,
  2. Female

- Kind of relationship (*SN005_*):

  "What is [contact]'s relationship to you?"

  1. Spouse/Partner,
  2. Mother,
  3. Father,
  4. Mother-in-law,
  5. Father-in-law,
  6. Stepmother,
  7. Stepfather,
  8. Brother,
  9. Sister,
  10. Child,
  11. Step-child/your current partner's child,
  12. Son-in-law,
  13. Daughter-in-law,
  14. Grandchild,
  15. Grandparent,
  16. Aunt,
  17. Uncle,
  18. Niece,
  19. Nephew,
  20. Other relative,
  21. Friend,
  22. (Ex-)colleague/co-worker,

23. Neighbour,
24. Ex-spouse/partner,
25. Minister, priest, or other clergy,
26. Therapist or other professional helper,
27. Housekeeper/Home health care provider,
96. None of these.

- Proximity (*SN006_*):
  "Where does [contact] live?"
  1. In the same household,
  2. In the same building,
  3. Less than 1 kilometres away,
  4. Between 1 and 5 kilometres away,
  5. Between 5 and 25 kilometres away,
  6. Between 25 to 100 kilometres away,
  7. Between 100 and 500 kilometres away,
  8. More than 500 kilometres away.
- Frequency of contact (*SN007_*)
  "During the past twelve months, how often did you have contact with [contact] either in person, by phone or mail, email or any other electronic means?"
  1. Daily,
  2. Several times a week,
  3. About once a week,
  4. About every two weeks,
  5. About once a month,
  6. Less than once a month,
  7. Never.
- Closeness (*SN009_*)
  "How close do you feel to [contact]?"
  1. Not very close,
  2. Somewhat close,
  3. Very close,
  4. Extremely close.
- Year of birth (*SN027_*)
  "In which year was [contact] born?"
- Occupational condition (*SN028_SNOcc*)

"Please look at card 6. What is [contact]'s employment status?"

1. Full-time employed,
2. Part-time employed,
3. Self-employed or working for own family business,
4. Unemployed,
5. In vocational training/retraining/education,
6. Parental leave,
7. In retirement or early retirement,
8. Permanent sick or disabled,
9. Looking after home or family,
97. Other.

- Relationship status (*SN029_*)

"What is [contact]'s relationship status?"

1. No partner,
2. Living with a partner,
3. Has a partner but not living with him/her.

Questions about network satisfaction (*SN017_ / SN012_*):

You indicated that there is no one with whom you discuss important matters, and no one who is important to you for some other reason. On a scale from 0-10, where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with this (situation)?

On a scale from 0-10, where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied, how satisfied are you with [relationship that you have with the person/relationships that you have with all the people] we have just talked about?

Social support provided (*SP002_*):

Now I would like to ask about the help you have given to others. Please look at card 27. In the last twelve months, have you personally given any kind of help listed on this card to a family member form outside the household, a friend or neighbour?

- Personal care, e.g., dressing, bathing or showering, eating, getting in or out of bed, using toilet
- Practical household help, e.g., with home repairs, gardening, transportation, shopping, household chores
- Help with paperwork, such as filling out forms, settling financial or legal matters.

Social support received (*SP008_*):

Please look at card 27. Thinking about the last twelve months, has any family member from outside the household, any friend or neighbour given you any kind of help listed on this card?

- Personal care, e.g., dressing, bathing or showering, eating, getting in or out of bed, using toilet

- Practical household help, e.g., with home repairs, gardening, transportation, shopping, household chores

- Help with paperwork, such as filling out forms, settling financial or legal matters.

Care for the grandchildren (*SP014_*):

During the last twelve months, have you regularly or occasionally looked after [your grandchild/ your grandchildren] without the presence of the parents?

In the Activities module, it is asked whether the individual performs at least one of the activities indicated in the last 12 months (*AC035_*):

Which of the activities listed on this card – if any – have you done in the last twelve months?

a. Done voluntary or charity work
b. Attended an educational or training course
c. Gone to a sport, social or other kind of club
d. Taken part in a political or community-related organization
e. Read books, magazines or newspapers
f. Did word or number games such as crossword puzzles or Sudoku
g. Played cards or games such as chess
h. None of these

Appendix 4: Contextual Variables

Spending on social protection of older people for each country in my analysis:

- Austria: 4,824.75
- Luxemburg: 4,525.02
- Switzerland: 4,700.82
- Sweden:4,303.95
- Denmark: 4,096.04
- France: 4,064.18
- Italy: 3,825.87
- Belgium: 3,730.93
- Germany: 3,380.85
- Greece: 2,892.61

- Portugal: 2,761.44
- Spain: 2,498.45
- Slovenia: 2,306.42
- Czech Republic: 2,212.17
- Poland: 1,909.78 (2014)
- Estonia: 1,576.08
- Croatia: 1,240.06

Score of each country on Migrant Integration Policy Index (MIPEX):

- Sweden: 78
- Portugal: 75
- Belgium: 67
- Germany: 61
- Spain: 60
- Denmark: 59
- Italy: 59
- Luxemburg: 57
- France: 54
- Austria: 50
- Switzerland: 49
- Estonia: 46
- Czech Republic: 45
- Greece: 44
- Slovenia: 44
- Croatia: 43
- Polonia: 41