

**Tracking demand and supply for  
Long Term Care in Europe 2007-2015:  
A cross-national intertemporal analysis using three  
waves of SHARE data**

*by:*

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**Thematic Panel 22:  
Macro comparative perspectives on care policies**

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## ABSTRACT

This paper uses internationally and intertemporally comparable data of the Survey of Health Ageing and Retirement in Europe (SHARE) for people aged 50+. The data cover 19 European countries and refer to Wave 2 (2007), Wave 5 (2013) and the recently released Wave 6 (2015). The focus is on two key indicators: the care gap -i.e. the extent to which acknowledged ADL needs are unmet- and the care mix -the mode used to serve these needs (as between formal and informal care). It aims at describing and characterizing stylized facts on (a) cross-country dispersion (b) changes over time (c) the longitudinal dimension – how the appearance of need translates into care in different contexts. Those findings are expected to feed into the discussion of the impact of the financial crisis but also the acceleration of ageing, which provides the backdrop to any discussion of Long Term care as a social investment (SI), which is the subject under examination of the SPRINT (Social Protection Innovative Investment in Long-Term Care) project.

## 1. INTRODUCTION

Social investment as a concept has received considerable attention in the European Union, in a sense as a successor to seeing social protection as a means of production, but adds a valuable time dimension – as all investment does. This concept has been introduced and loosely applied to social interventions that produce measurable economic results, such as child care or training. In the context of ageing societies, meeting needs closely associated with this process should be amenable to the same analysis, whilst bringing into focus more clearly the time dimension.

SPRINT is a collaborative project spanning the European Union, which aims to examine Long Term Care (**LTC**), as an instance of social investment, where Social Investment (SI) -within the context of SPRINT- is defined as:

*“Welfare expenditure and policies that generate equitable access to care to meet the needs of ageing populations, reduce current and future costs of care, improve quality of care and quality of life, increase capacities to participate in society and the economy, and promote sustainable and efficient resource allocation”.*

Given that social investment concept as perceived among countries is likely to vary, it is of importance to benchmark international variation and to anchor social investment differences on the national situations in both the demand and the supply of long term care.

Seen more simply, the SPRINT project attempts to show how the same need is met in different environments. This has both a temporal dimension – how things evolved and will evolve over time – as well as spatial one capturing national and geographical differences.

Long term care meets similar (often biologically-determined) needs in strikingly different institutional environments. Looking at long term care as an investment project, this is likely to affect all aspects that would enter an appraisal:

- › The stream of **benefits** – to the recipients of care, and to providers
- › The stream of **costs** – resources absorbed whether in public/private, or formal/informal modes
- › The **rate of discount** – Would differ according to who decides
- › The **distribution** of costs and benefits – across income classes (vertical), across need status (horizontal), across generations.

All aspects will differ according to the institutional set up. Identifying costs and benefits, evaluation, availability of data can all be very sensitive to institutions. We must be aware of differences to guard against undue generalizations between environments with differing mix of institutions.

The Paper is performed in order to answer the following three main research questions:

- In what extent persons of age 65+ in need of care, receive care?
- Do formal and informal care provisions act as substitutes or complements?
- Has the mix of formal and informal care provision changed over the years?

Following these research questions, the following sub-questions are addressed:

- Does the care gap decrease with intensity of need?

- Are there gender differences in the receipt of care?
- In what extend the care provided to those in need of care, cover their needs?
- Did care gap change over the years and what are the underlying reasons?
- In what extend the number of persons in need of care status has been changed over the years for persons more than 65 years old?

The paper is structured as follows. In the two first sections, a brief literature review and a brief description of methodology & data used are made. Next section concerns “Analysis and Discussion” and is divided into the following three sub-sections: i) Care Gap and Care Mix in Europe based on Wave 6 of SHARE, ii) Comparison of Wave 6 with Wave 2 and iii) Longitudinal dimension. The final section of the paper presents key findings and conclusions.

## 2. LITERATURE REVIEW

Researchers agree that with the ageing of populations, policy makers are faced with ever-increasing expectations from current and future long-term care (LTC) recipients to make high-quality long-term care services available (Murakambi and Colombo, 2013). In times of rapid demographic change the number of people in need of care is expected to increase (Kaschowitz and Brandt, 2017). Users of care services demand a greater voice and more control over their lives (Murakambi and Colombo, 2013). In terms of gender differences, women are the largest consumers, as well as the main producers, of long-term care (Bettio and Veraschagina, 2010). Disability rates tend to be higher for women, although this is not consistently the case.

The way that people “in need of care” receive care can be summarized in mainly 4 distinctive organizational settings as far as home care provisions are concerned: (i) comprehensive, publicly subsidized and administered home care packages typified by Sweden, (ii) employment of live-in untrained and mostly foreign workers typified by Italy (the migrant-in-the-family model), (iii) use of chèque services exemplified by France, and (iv) predominant reliance on family carers as in Poland. Each of these types can be considered broadly representative of a larger group of countries (Bettio and Veraschagina, 2010). Across countries, there are marked differences in the nature of social expectations about the role of the family and the community in supporting people in need (Fernandez et al., 2009).

All researchers agree that financing and funding of LTC services is a future challenge. The system in Netherlands is focusing in trying to keep the public LTC provider’s expenditures within a budget (Mot et al., 2010), while in Germany the LTCl covers almost the entire population. Members of the public health insurance system become members of the public LTCl scheme, and those who have private health insurance are obliged to buy private, mandatory LTCl providing the same benefit packages (Schultz, 2010).

### 3. METHODOLOGY AND DATA

The current paper uses SHARE data<sup>1</sup> (The Survey of Health Ageing and Retirement in Europe), to benchmark differences across countries, using the latest available data (Wave 6 - 2015) but also intertemporally. It tries to generate a set of empirical findings (stylised facts) about how LTC appears in Europe and how that may be changing over time. In doing so, it focuses on two key concepts: **(a)** the ***care gap***, that is the extent of *unmet* need for care, i.e. the extent to which demand for care exceeds supply under different definitions of demand and **(b)** the ***care mix*** -i.e. how the care offered is distributed between formal and informal, paid or unpaid. The two concepts are used to examine differences by large age group and gender. Information from older waves of SHARE is brought to bear on *attitudes* to care, to see whether these can account for observed difference. The paper presents evidence on the attitudes about care.

SHARE is a panel survey, that is one where the respondents are followed regularly after first being contacted until the end of their life. The first wave took place in 2004, and was followed by others in 2007, 2009, 2011, 2013. Wave 6 was conducted in 2015 and first data were released in February 2017. The panel nature of the survey means that the youngest person interviewed in 2004, entered the survey aged 50 and is now 62.

SHARE has four key characteristics use of which is made for this research:

- A. **The data are interdisciplinary**, using questions from the fields of economics, health care, psychology, sociology etc.
- B. **The data are internationally comparable**, and systemically independent. The questionnaire relies on generic wording, rather than using system-specific terminology. Consistency of translation is heavily tested and checked across countries and waves.
- C. **The data have a panel structure**. Individuals followed over time and hence we can distinguish the impact of age group and cohort. Certain key events are observed and reaction to them can be monitored: ADLs; Income changes; major illness leading to disability.
- D. **It is geared towards the problems of sampling an older population**. Proxy interviews and other devices are used to make sure that all eligible individuals in a household are surveyed. Though it is a survey of households, individuals, once surveyed are followed in old age homes etc in subsequent waves.

The total sample of Wave 6 is consisted of **68.231 persons** (age 50+) at **18 countries**, of which 31.142 are between 65-80 years old while 8.686 persons are older than 80 years old. **Compared to Wave 2** (2007), where 14 countries participated, only Ireland has withdrawn

<sup>1</sup> This paper uses data from SHARE Waves 2, 5 and 6 (DOIs: [10.6103/SHARE.w2.600](https://doi.org/10.6103/SHARE.w2.600), [10.6103/SHARE.w5.600](https://doi.org/10.6103/SHARE.w5.600), [10.6103/SHARE.w6.600](https://doi.org/10.6103/SHARE.w6.600)), see Börsch-Supan et al. (2013) for methodological details.(1)

The SHARE data collection has been primarily funded by the European Commission through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812) and FP7 (SHARE-PREP: N°211909, SHARE-LEAP: N°227822, SHARE M4: N°261982). Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01\_AG09740-13S2, P01\_AG005842, P01\_AG08291, P30\_AG12815, R21\_AG025169, Y1-AG-4553-01, IAG\_BSR06-11, OGHA\_04-064, HHSN271201300071C) and from various national funding sources is gratefully acknowledged (see [www.share-project.org](http://www.share-project.org)).

its participation. The analysis includes only **persons of age 65+** (see appendix: Table A: Sample Size)

The key starting point is that of demand – **the need for care**. That is determined by the answer of the standard ‘Activity of Daily Life’ Question, asking whether an individual can fulfill functions such as dressing, bathing, eating, etc<sup>2</sup>. We focus on a strict definition (>2 ADLs), though the analysis was conducted also with a looser definition (>1 ADL), and differences noted where substantial. Related to that is the **care gap** – those who are in need but do not appear to be receiving any kind of care. Also important is the **care mix**, how that care is provided.

More specifically “**The Care Gap**” is defined as the proportion of persons who are deemed to need care (with the 2 above mentioned definitions of care) but did *not* receive: either (i) ‘Any type of formal care/help’, such as 1. Help with personal care; 2. Help with domestic tasks; 3. Meals-on-wheels; 4. Help with other activities due to a physical, mental, emotional or memory problem, nor (ii) ‘Any type of informal care/help’ (personal care, practical help, help with paperwork) from persons outside the household on a daily/weekly basis and/or personal care received regularly from a person within the household”.

“**The Care Mix**” is defined as the **type of care received by the persons in need**. Type of care received can be either formal (professional or paid service) or informal (non-professional service). Informal care in its turn can either be provided by people outside the household or by people living in the household. Some people may receive both professional and informal care. More specifically, type of care in the care mix is defined as follows: **(1) ‘Formal’ care/help** includes receiving in own home any of the following professional or paid services (1. *Help with personal care*; 2. *Help with domestic tasks*; 3. *Meals-on-wheels*; 4. *Help with other activities*) due to a physical, mental, emotional or memory problem **(2) ‘Informal’ care/help** includes Informal care/help (personal care, practical help, help with paperwork) received either from person outside the household on a daily/weekly basis and/or personal care received regularly from a person within the household.

## 4. ANALYSIS & DISCUSSION

### 4.1. Care Gap and Care Mix in Europe based on Wave 6 of SHARE

In the current section we will present and interpret the findings for 19 European countries regarding the “in need of care status” and the care received to meet these needs for persons of age 65+ and for persons 80+.<sup>3</sup>

The main objectives are:

<sup>2</sup> ADLs include the following six Activities of Daily Living:

i) Dressing, including putting on shoes and socks; ii) Walking across a room; iii) Bathing or showering; iv) Eating, such as cutting up your food; v) Getting in and out of bed, vi) Using the toilet, including getting up or down.

<sup>3</sup> For all countries, the following data refer to Wave 6 (2015), except for the Netherlands which did not participate in wave 6, thus we are using data of Wave 5 (2013).

- To identify cross country differences in the “in need of care status” and how the needs of care are being increased with age
- To identify potential differences in demand and supply of long-term care services among countries
- To identify if different type of care provision (formal vs. informal) act as complements or substitutes

#### 4.1.1. The need for care ADL limitations, age 65+

The *need* for care is largely physiologically determined. We would thus expect little variation in comparable samples of relatively homogeneous individual. However, analysis of need shows some surprising variation.

After analyzing SHARE data and as far as it concerns the number of reported ADL limitations i) for persons of age 65+ and ii) for a more focused group of persons of age 80+, the findings differ substantially per country (Table 1). More specifically **Switzerland** is the country where less people reported such limitations (3.66% for 65+ and 6.8% for age 80+) followed by **Sweden** (4.3% and 9.4% respectively), **Netherlands** (5.8% and 16.7%), **Denmark** (6.9% and 15.5%) **Greece** (7.2% and 14.2%) while on the contrary **Portugal** (16.5% and 39.6%), **Poland** (13.4% and 25.8%) and **Israel** (13.5% and 31.8%) are the countries with largest percentage of reported ADL limitations. At the rest of the countries reported ADL limitations are found to be relatively close to the **Average** which is **10.32%** and **23.2%** respectively (Table 1).

What however seems to be approximately similar for all countries is the level of increase of number of ADLs reported from people of age 80+ compared to the general population of age 65+. This rate of increase is approximately 2 to 2.8 times higher for persons of age 80+ compared to the general population of age 65+, while the data are also more dispersed.

Table 1						
needs of care with definition 1, for i) age 65+ population and ii) age 80+ population, SHARE wave 6						
Country	2 or more ADL limitations for persons 65+			2 or more ADL limitations for persons 80+		
	Men	Women	Total	Men	Women	Total
SE	3.4	5.0	4.3	6.3	11.4	9.4
DK	6.4	7.3	6.9	15.8	15.4	15.5
NL* (wave 5)	2.5	8.5	5.8	8.5	21.1	16.7
DE	7.8	10.7	9.5	14.2	24.7	21.2
BE	7.0	13.1	10.4	16.1	25.3	22.1
LU	6.0	11.8	9.1	11.7	29.1	22.9
FR	8.6	9.4	9.1	22.2	22.2	22.2
CH	2.7	4.5	3.7	4.8	7.9	6.8
AT	7.4	10.4	9.1	17.3	27.4	24.0
IT	7.0	14.9	11.5	14.2	30.9	25.0
ES	9.3	14.3	12.1	20.3	32.0	27.7
GR	6.4	7.8	7.2	12.3	15.4	14.2



<b>PT</b>	<b>10.9</b>	<b>20.5</b>	<b>16.5</b>	<b>29.1</b>	<b>45.4</b>	<b>39.6</b>
<b>CZ</b>	7.2	11.2	9.5	13.1	25.9	21.8
<b>PL</b>	<b>11.0</b>	<b>14.9</b>	<b>13.4</b>	<b>19.0</b>	<b>28.9</b>	<b>25.8</b>
<b>SI</b>	9.3	10.8	10.2	15.0	21.5	19.6
<b>EE</b>	10.2	12.6	11.8	15.4	22.3	20.6
<b>HR</b>	5.6	12.9	10.0	10.5	31.0	24.7
<b>IL</b>	12.0	14.8	13.5	30.1	32.9	31.8
<b>Average (%)</b>	<b>8.0</b>	<b>12.1</b>	<b>10.3</b>	<b>17.0</b>	<b>26.5</b>	<b>23.2</b>
<i>st.dev</i>	2.7	3.9	3.2	6.6	8.6	7.5

Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017).

\*Netherlands' data are from wave 5

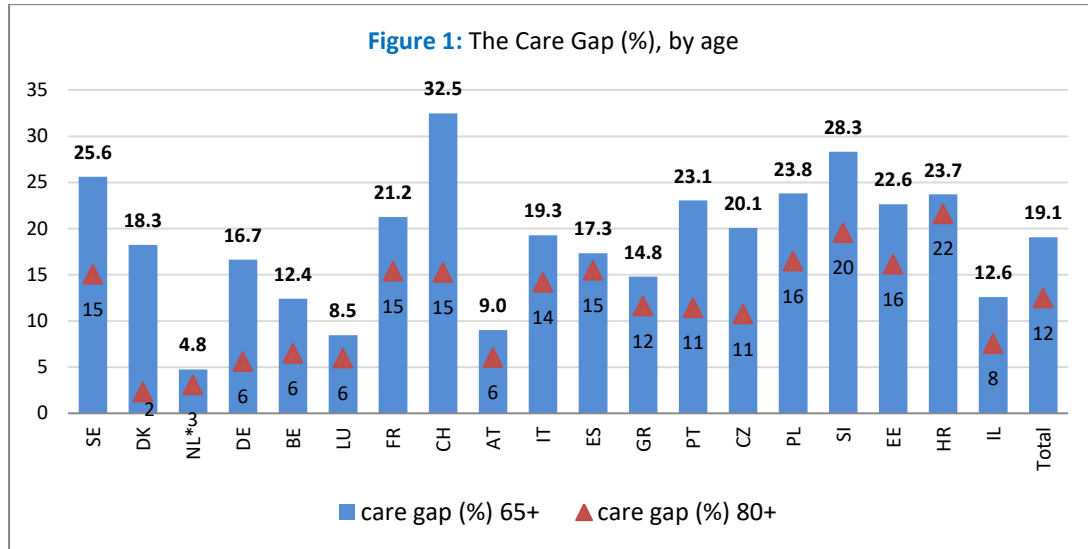
A question that derives from the above mentioned results is why persons of different countries but of similar magnitude of age seem to have different “in need of care status”? It cannot be easily interpreted, but it could mean that interviewees of countries reporting lower number of ADLs either are in better health than the respective interviewees of other countries or that due to cultural reasons or better LTC services provided or other unknown reasons, “light” limitations are not deemed as something serious and are not mentioned or even that due to more clear “bureaucratic” definitions for those countries, answers are more “objective” since for different countries the long-term care definition has different context.

In Germany for example, people are familiar with ADL and LTC concept, since there clearly defined criteria which are used in long term care insurance; people thus internalize what is ‘really’ in bureaucratic terms, an ADL. The entitlement to claim benefits is based on whether the individual needs help with carrying out at least two basic activities of daily living (ADL) and one additional instrumental activity of daily living (E. Schultz, 2010). In the Netherlands a system of public long-term care insurance has been in place since 1968 (Mot et al., 2010).

#### **4.1.2. The Care Gap for persons of age 65+ and 80+**

Having presented the “in need of care status”, in this section we examine in what extend persons in need of care, receive any type of care (formal or informal) in response to these needs. In other words, we put demand and supply together.

In the following [Figure 1](#), we can see that the care gap (persons in need of care that do not receive any care at all) differs significantly among countries. Highest care gap for persons 65+ occurs in Switzerland followed by Slovenia, Poland and Sweden while lowest care gap occurs in Luxemburg, Austria, Israel and Netherlands. When we eliminate the analysis in persons of age 80+, the care gap still differs among countries but it much lower for all of them. Especially for Sweden, Denmark, Switzerland, Germany and Belgium care gap for persons in need of care age 80+ decreases impressively, indicating that in those countries care provision might be more focused.

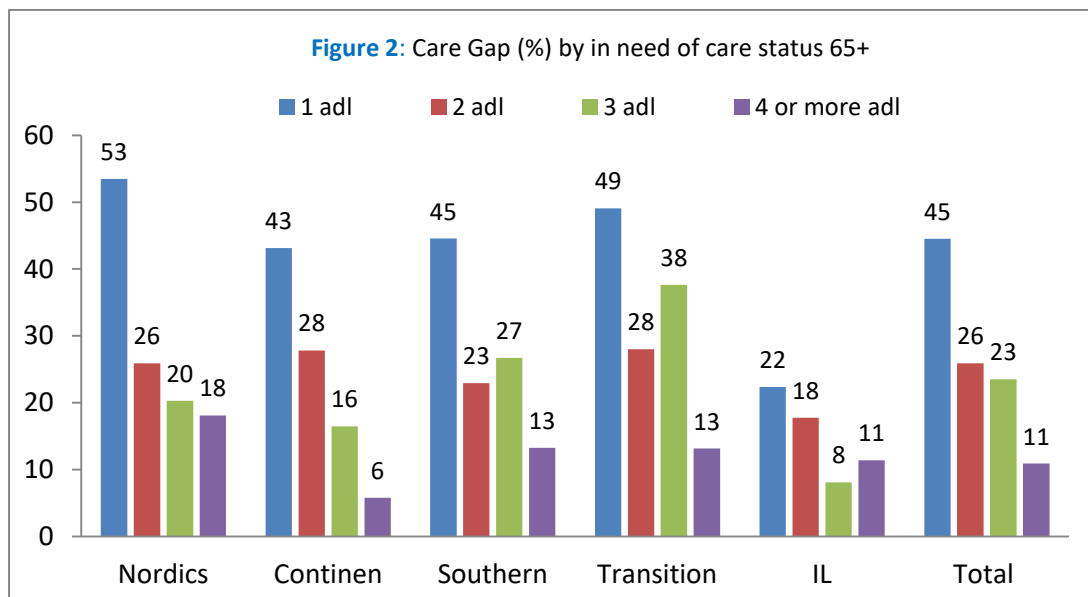


Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). \*Netherlands' data are from wave 5

When grouping the countries in their geographic categories (Figure 2) and try to exploit if care gap decrease with intensity of care, we can see that for all groups of countries the Care Gap is almost halved for those that have 2 ADLs compared to those having only 1 ADL.

For Nordic countries, the care gap for those having only one ADL is higher compared to the rest of the countries and decrease more roughly as number of ADLs increase. Similar trend is found for Continent countries, while for Southern countries and Transition countries it seems that persons having 2 or 3 ADLs are treated similar (see Appendix, Table B for care gap by in need of care status per country).

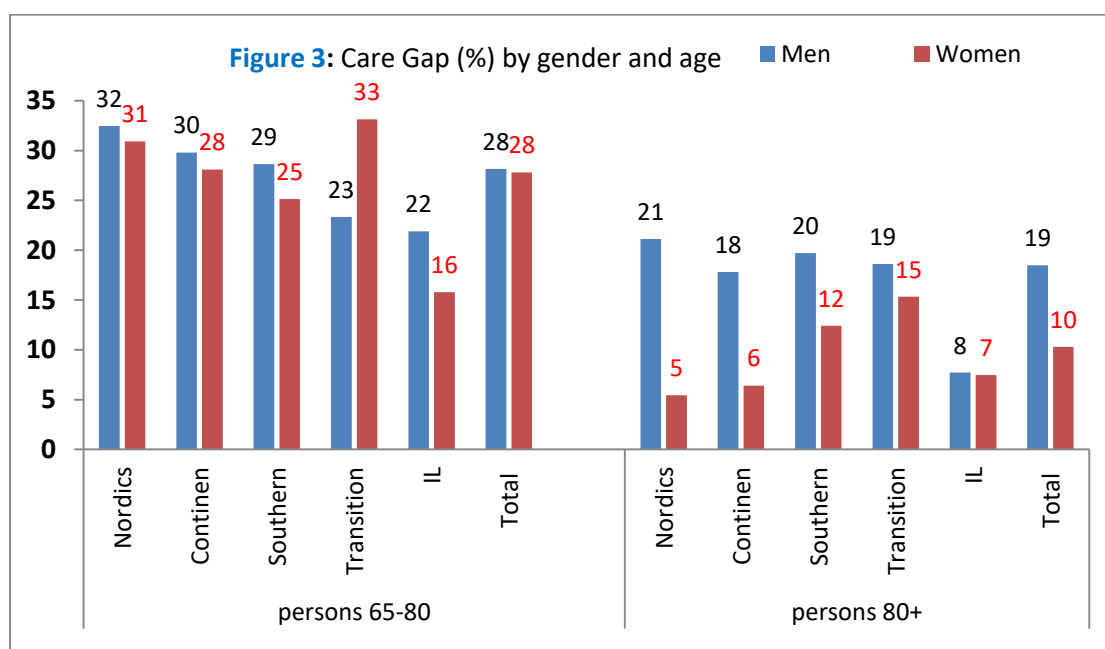
The interpretation of the above differences will be dealt in the following section, where we will analyze the type of care provision provided per country group and identify if it is related with the care gap.



Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). Note: Netherlands is not included.

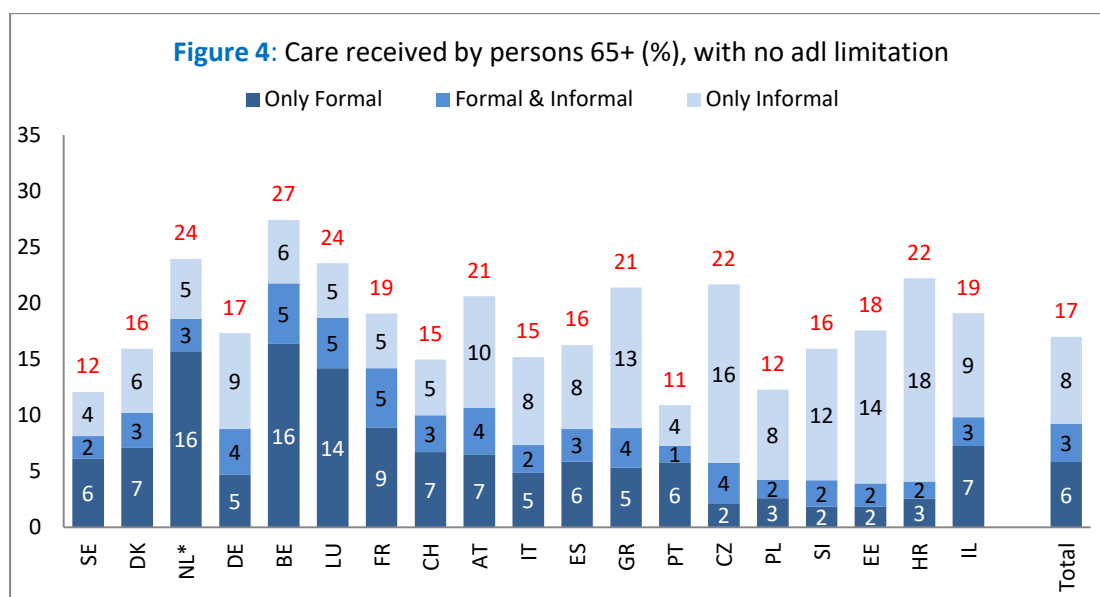
Regarding care gap by gender (Figure 3) it seems age plays a significant role, since for persons of age 65-80, the care gap is almost the same for men and women (except for transition countries where care gap for women is higher), while for persons of age 80+, the care gap for men is significantly higher than for women for all group of countries, something that is consistent with the literature (Bettio and Veraschagina, 2010). Overall, the care gap decreases as age increases and as number of ADLs increases, indicating that care is given towards the right direction focusing on those with the most serious issues.

In order to answer the question why there is difference of care gap between genders for persons of age 65+ further analysis is required, since it could be related with issues related to behavioral differences or the composition of household which makes more difficult for men living alone covering their needs as compared to women living alone.



Source: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). Note: Netherlands is not included.

The care gap is cases where stated need is not met; its flip side is the care surfeit – where care is received when no need is noted. As far as it concerns care Surfeit (Figure 4), where people that do not have any ADL limitations receive care, we can see that supply of formal care to those that are not in need care lies between 8% (Sweden) and 21% (Belgium), while the average for all countries in 9%. The large frequency of this – even in cases where care is formal – is difficult to explain....



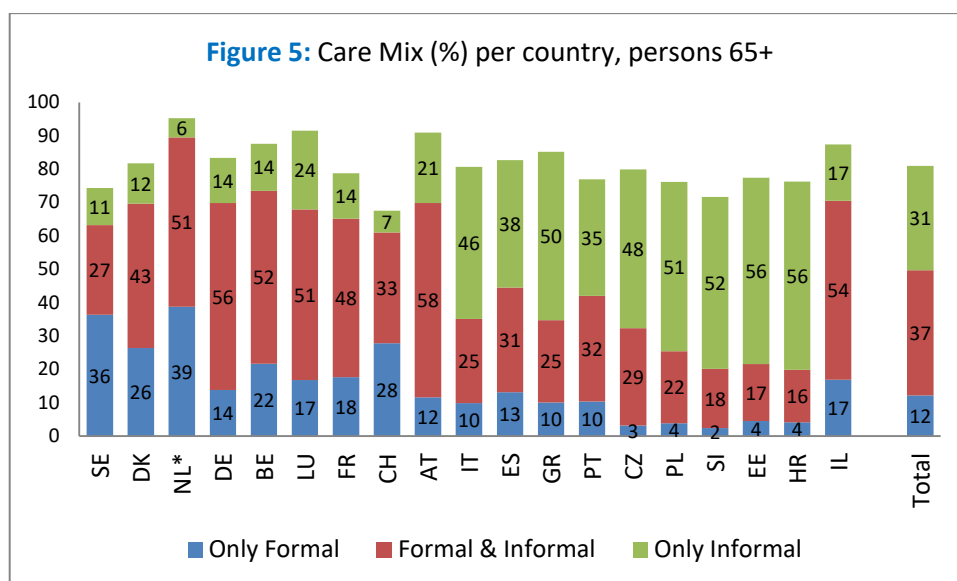
Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). \*Netherlands' data are from wave 5

#### 4.1.3. The Care Mix for persons of age 65+ and 80+

In the current section we examine in what extend formal and informal care provisions –as those have defined in the introduction- act as substitutes or complements.

In [Figure 5](#), we can see that there are three “groups” of countries as far as it concerns the percentage of persons in need of care aged 65+receiving formal care. The first group is consisted of countries where more than 60% of people in need of care receive formal care. This first group includes all Nordic (Sweden, Denmark) and Continental countries (Germany, Netherlands, Belgium, Austria, Luxemburg, France, Switzerland) as well as Israel. The second group is consisted of countries where 35% to 45%of people in need of care receive formal care. The second group includes all Southern European countries (Spain, Italy, Portugal, Greece). The third group is consisted of countries where less than 35% of people on need of care receive formal care, and includes all Transition countries (Czech Rep., Poland, Estonia, Slovenia, Croatia).

We should mention however that formal care has different context per country (e.g. in Switzerland private LTC insurance plays a main role, while in Germany public LTC insurance plays a key role, see appendix, Tables C.1. and C.2 )



Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). Netherlands' data are from wave 5

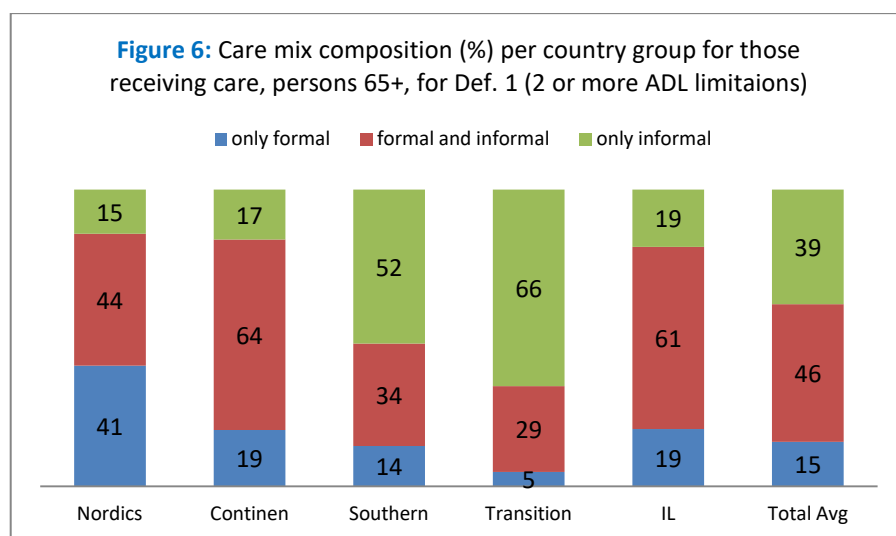
The picture regarding informal care received from those in need of care is almost the opposite if compared with formal care receipt. More specifically, Nordic Countries (Sweden, Denmark), Netherlands and Switzerland appear to have the lowest percentages in informal care receipt for those in need of care (between 39%-56%). On the other hand Czech Republic, Austria and Greece have more than 75% informal care receipt for those in need, while the rest of the countries lie between 62% to 70.

A significant point to take home is that both formal and informal is a feature of all systems. It remains to be seen whether this argues for competition or for complementarity.

Generally speaking, Southern and Transition countries seem to offer more “generously” informal care even when it concerns persons in need of care with only one ADL limitation (the “loose” definition of “in need of care”) compared to Continental and Nordic countries.

Analyzing further, from those receiving care, the percentage of people receiving **only formal care** is significantly higher in Sweden, Denmark, the Netherlands and Switzerland compared to the rest of the countries, while on the other hand the percentage of people receiving **only informal care** is significantly higher in Spain, Italy, Greece, Portugal, Czech Republic, Poland, Slovenia, Estonia, Croatia. From those receiving care, receiving **both formal and informal** is more common in Germany, Belgium, Luxemburg, France, Austria and Israel.

When grouping the countries into geographic categories, we can see in [Figure 6](#) that in Nordic countries rely mainly on formal care (41% of persons receiving care, they receive only formal care) and on a combination of formal and informal care (44% of persons receiving care, they receive both types of care), while only 15% of those receiving care, rely solely on informal care. On the contrary Southern countries and Transition countries mainly rely on informal care (52% and 66% respectively of persons receiving care, they receive only informal care). Finally, In Continental Countries and Israel 64% and 61% respectively of persons receiving care, they receive both formal and informal.



Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). Note: Netherlands is not included.

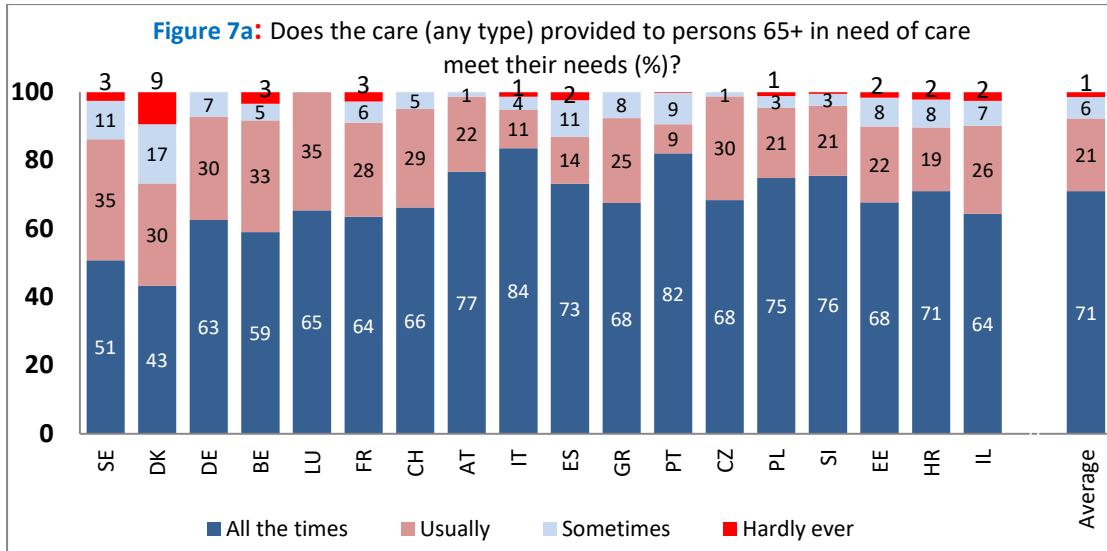
Thus, the answer of the question “if formal and informal care, act as substitutes or complements” is not the same everywhere. In Nordic, Southern and Transition countries formal and informal care act as substitutes, since the percentage of those receiving only formal care is in reverse proportion to the percentage of those receiving only informal care. On the contrary, in Continental countries and Israel act more than complements rather than substitutes.

Thus when dealing with the question of one type of care can substitute the other, “Substituting formal care provision with informal one is not a panacea” (Barbieri and Ghibelli, 2017). Neither the contrary -substituting informal care with formal one- is a panacea, we could conclude.

#### **4.1.4. Level of satisfaction of care receivers by the type of care they receive**

In the current section we examine in what extend the care provided to those receiving care, cover their needs.

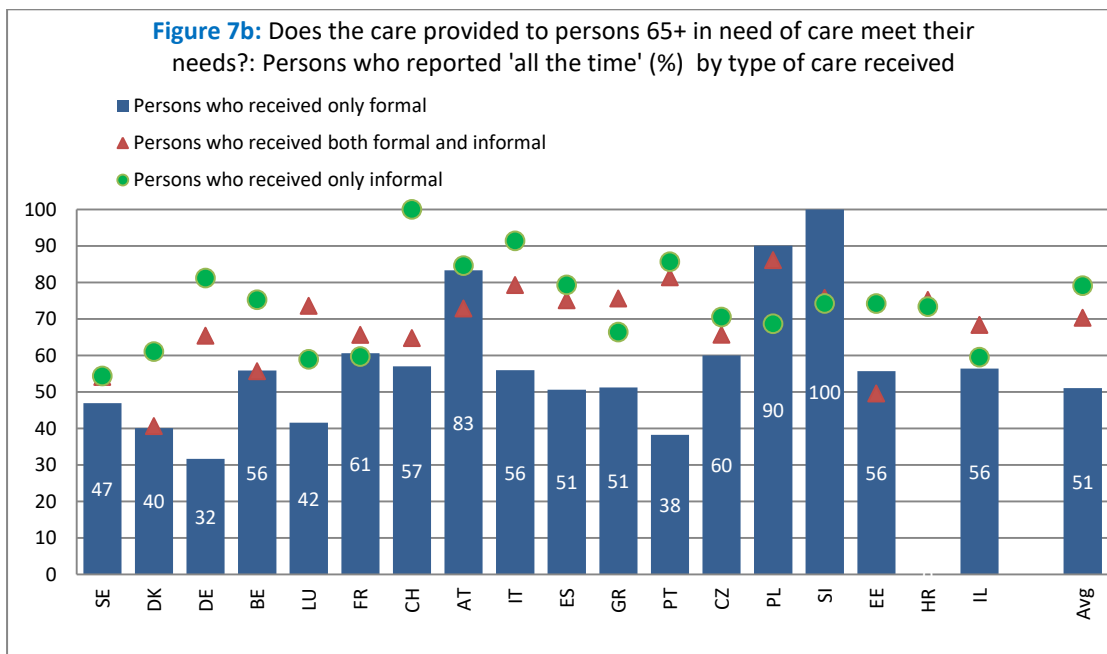
Interviewees receiving care were asked if the care they receive meets their needs. [Figure 7a](#) shows in what percentage the care -any type of care- provided to persons who receive care, meets their needs “All the times”, “Usually”, “Sometimes” or “Hardly ever”. Portugal, Italy, Austria and Slovenia are the countries with the highest percentages of interviewees answering “All the times” (between 76 and 84%) and at the same time had very lowest percentage (0% or 1%) answering “Hardly ever”, while Sweden and Denmark are the two countries with the lowest percentages answering “All the times” (51% and 43%) and the highest answering “Hardly ever” (3% and 9% respectively) or even “Sometimes” (11% and 17% respectively). It worth to mention that total average for “Hardly ever” is 1% and for “Sometimes” it is just 6%.



Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017).

Digging further, and given the fact that the two Nordic countries are the ones relying more on formal care and less in informal care, we examined the level of satisfaction in of persons receiving care based on the type of care their receive (Figure 7b). Two are the main conclusions: a) Practically in every country, informal care meets the needs of people “in need of care in higher percentages” than formal care and b) Formal care in Nordic countries and Germany meets the needs of persons “in need of care” in lowest percentages than in other countries.

In other words, the findings imply that more people have access in formal care in Sweden Denmark and Germany compared to the other countries but the level of satisfaction of those receiving the care is lower than in other countries. That **enhances the argument that Formal care and Informal care can better act as complements rather than as substitutes.**



Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017).

## **4.2. Comparison of Care Gap and Care Mix findings in Wave 6 (2015) compared to Wave 2 (2007)**

In this section we compare the findings for 12 countries that participated in the survey both in 2007 and after 2013. More specifically, the comparison is between the Wave 2 (2007) and Wave 6 (2015), except for the Netherlands that did not participate in wave 6, thus its comparison is between Wave 2 (2007) and Wave 5 (2013).

This comparison is important in order to identify in what extent, potential changes in care gap and/or care mix during the years are related to changes in population age, macroeconomic figures or policies.

### **4.2.1. The Care Gap and the Care Mix comparison, age 65+**

In the current section we will examine to what extent the care gap and care mix have changed over the years and try to identify what are the underlying reasons.

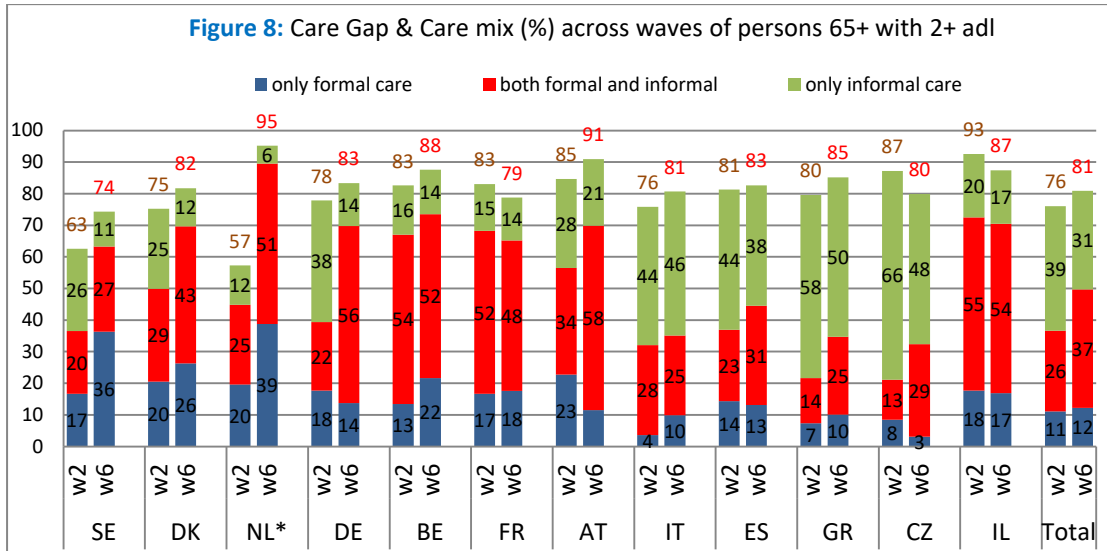
In [Figure 8](#) we can see the type of care provisions per country across waves and implicitly the care gap (100% minus the percentage of cumulative care provided). For the vast majority of countries care gap has decreased among waves, with a maximum decrease of 38% in percentage points for the Netherlands and a minimum decrease of 2% in percentage points for Spain.

This **means that care gap has decreased** and that care coverage has been improved for the vast majority of the countries except France, Czech Republic and Israel. In addition care gap changes analysis, we also analyzed whether the proportion of people in need of care has changes (Appendix, Figure A). No significant changes have been found.

Regarding formal care, we note that in all countries, except France, formal care received from person in need of care 65+ has been significantly increased across waves. Especially for Sweden, Denmark, Germany and Netherlands, formal care provision has a large increase during the last 8 years, reaching countries such as France, Belgium, Austria and Israel that were more adequate in formal care. This increase in formal care does not mean the same thing for all countries, since in some countries it increases in parallel with informal care while in other countries it increases in reverse proportion to informal care.

More specifically, in Sweden and the Netherlands we see sharp increase of persons in need of care of age 65+ that receive only **formal** care, while in Denmark, Germany and Austria we see a sharp increase in receiving **both formal and informal** care. In almost every country, persons receiving **only** informal care declines. This is in line with conclusions of researchers that imply that a shortage of unpaid care-providers is likely to happen in the next future (Barbieri and Ghibelli, 2017).



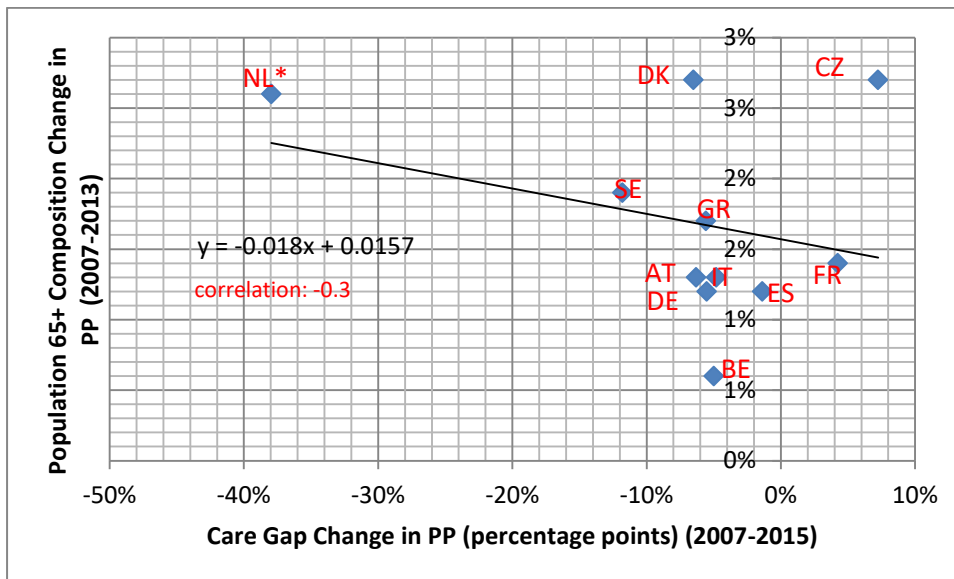


Source of primary data: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017). \*Netherlands' data are from wave 5.

**4.2.2. Correlation of care gap with macro indicators**

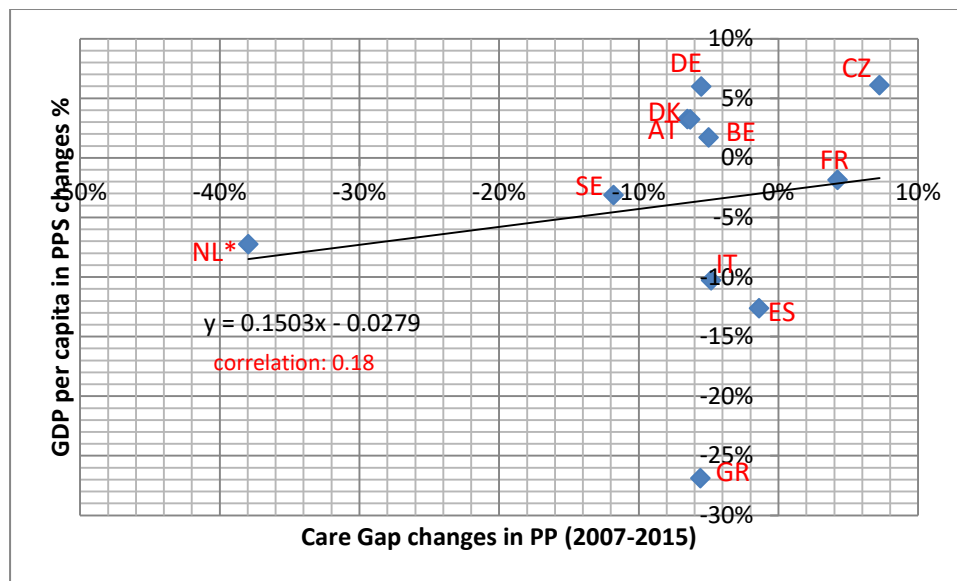
In this section, we are trying to find potential correlations between Care Gap changes and macroeconomic changes per country. The research questions are whether composition of age change or change in GDP per capita are related to changes in care gap. In Figures 9 and 10, we see that there is no correlation between care gap changes and age composition. No correlation was found either between care gap changes and GDP per capita changes. In order to find potential correlations, further analysis on new research questions is needed, which however is out of the scope of the current paper.

**Figure 9: Correlation between Care Gap changes and Population 65+ composition changes**



Source of primary data: 1. SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017)  
2. The 2015 Ageing Report, 2015, European Commission

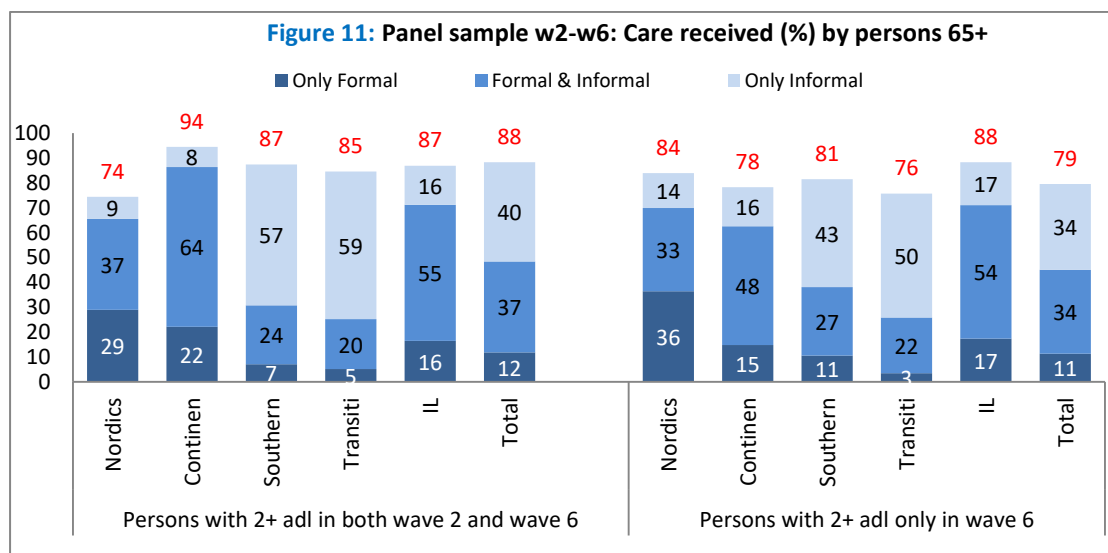
**Figure 10:** Correlation between Care Gap changes and GDP per capita changes



Source of primary data: 1. SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017), 2. Eurostat

### 4.3. The longitudinal dimension

In this section we are focusing on changes that might have taken place in those persons who participated in both waves, w2 and w6 which are seven years apart. More specifically, our research question focus on whether there are any differences in the type of care received for persons that were not in need of care in Wave 2 but found themselves in need of care in Wave 6, compared to those that were in need of care in both waves.



As expected, results differ among country groups. More specifically, in Nordic countries formal care for those in need of care only in wave 6 is higher than for those that were already in need of care from wave 2, confirming the increasing tendency of these countries in formal care. Moreover, Nordic countries are the only ones for which care gap for persons “in need of care” only in wave 6 is lower than for those that were in both waves in need of care. The opposite occurs in continent countries.

In Southern and Transition countries those that were in need of care for the first time in wave 6 rely less in “only informal care” as compared to the ones that were in need of care from wave 2. Israel shows a stable picture.

## 5. KEY FINDINGS & CONCLUSIONS

The extent of persons “in need of care”, receiving care seems to be directly related to number of ADLs and to age. The older is someone and the largest the number of ADL one has, the lowest the care gap is.

As far as it concerns the “country” dimension, highest care gap for persons 65+ occurs in Switzerland followed by Slovenia, Poland and Sweden. Given that Switzerland has high percentage of persons with mandatory private LTC insurance, Sweden has significant percentage of persons with public LTC insurance and both are relying significantly on formal care, while on the other hand Poland and Slovenia are mainly relying on informal care, we cannot see any relation of care gap with the type of care received. For countries however that have a combination of formal and informal care, care gap seem to be lower.

Regarding gender differentiations, there is clear a conclusion -which however needs more analysis in order to interpret it- that men, and especially men over 80 years old, find it more difficult to cover their care needs, since the care gap for them is significantly larger than for women.

As far as it concerns care mix, we can group the countries into the following categories: countries that rely more on formal care (Nordic countries), countries that rely more on informal care (Transition and partially Southern countries), and countries having a more balanced mix relying both on formal and informal care (Continental, partially Southern countries and Israel).

The answer of the question “if formal and informal care, act as substitutes or complements” is not the same everywhere. In Nordic, Southern and Transition countries formal and informal care act as substitutes, since the percentage of those receiving only formal care is in reverse proportion to the percentage of those receiving only informal care. On the contrary, in continental countries and Israel act more than complements rather than substitutes. It is significant though to note that informal care is deemed by care receivers to meet better their needs than formal care, and also that persons in need of care in Nordic countries have the lowest percentage in answering that the care they receive meets their needs “all the times”.

When comparing W6 (2015) data with W2 (2007) data in order to identify changes over time, we can see that the Care Gap for persons in need of care of age 65+ with 2 or more ADLs has significantly decreased, which practically means that care has been improved, for the vast majority of the countries. Regarding formal care, we note that almost in all countries formal care has been significantly increased across waves. This increase in formal care does not mean the same thing for all countries, since in some countries it increases in parallel with informal care while in other countries it increases in reverse proportion to informal care.

## 6. REFERENCES

- Barbieri D, Ghibelli L, (2017), "D.4.4.: Formal vs. informal long-term care: economic and social impact", Social Protection Investment in Long Term Care (SPRINT)
- Bettio F., Veraschagina A. (2010), EGGE – European Network of Experts on Employment and Gender Equality issues – VC/2009/1015 – Fondazione Giacomo Brodolini (2012), "Long-Term Care for the elderly. Provisions and providers in 33 European countries", Luxembourg: Publications Office of the European Union
- European Commission (2015), "The 2015 Ageing Report: Economic and budgetary projections for the 28 EU Member States (2016-2060)", Luxembourg: Publications Office of the European Union
- Fernandez J., Forder J., Trukeschitz B., Rokosva M., McDaid D. (2009), "How can European states design efficient, equitable and sustainable funding systems for long-term care for older people?", WHO Regional Office for Europe
- Kaschowitz J, Brandt M. (2017), "Health effects of informal caregiving across Europe: A longitudinal approach", Social Science & Medicine 173 (2017) 72-80
- Mot E., Aouragh A., De Groot M., Mannaerts H. (2010), "The long-term care system for the elderly in The Netherlands", ENERPI Research Report No.90 June 2010
- Murakambi Y., Colombo F. (2013), OECD/European Commission (2013), "A Good Life in Old Age? Monitoring and Improving Quality in Long-term Care", OECD Health Policy Studies, OECD Publishing, 2013
- Schulz E. (2010), "The long-term care system for the elderly in Germany", ENERPI Research Report No.78 June 2010 <http://www.ancien-longtermcare.eu/node/27>

## APPENDIX

### The sample size

Country	Total 50+	Men	Women	50-64	65-80	80+
SE (Sweden)	3,906	1,787	2,119	1,081	2,239	586
DK (Denmark)	3,733	1,717	2,016	1,855	1,509	369
DE (Germany)	4,412	2,077	2,335	2,041	1,981	390
BE (Belgium)	5,823	2,578	3,245	2,792	2,266	764
LU (Luxemburg)	1,564	708	856	832	591	141
FR (France)	3,948	1,682	2,266	1,678	1,630	640
CH (Switzerland)	2,806	1,259	1,547	1,074	1,350	382
AT (Austria)	3,402	1,422	1,980	1,172	1,802	428
IT (Italy)	5,313	2,394	2,919	2,207	2,527	576
ES (Spain)	5,636	2,514	3,122	1,999	2,518	1,119
GR (Greece)	4,937	2,125	2,812	2,262	2,091	582
PT (Portugal)	1,676	752	924	663	844	169
CZ (Czech Rep.)	4,858	1,952	2,906	1,754	2,584	520
PL (Poland)	1,826	792	1,034	868	757	201
SI (Slovenia)	4,224	1,811	2,413	1,806	1,895	522
EE (Estonia)	5,638	2,211	3,427	2,306	2,552	780
HR (Croatia)	2,494	1,096	1,398	1,323	996	170
IL (Israel)	2,035	857	1,178	678	1,010	347
<b>Total</b>	<b>68,231</b>	<b>29,734</b>	<b>38,497</b>	<b>28,391</b>	<b>31,142</b>	<b>8,686</b>

Source: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017)

Notes:

- As far as it concerns the gender composition, the sample is consisted **56,4% of women** and **43,6% of men**. Regarding sample size per country, this lies in between 1.564 (Luxemburg) and 5.823 (Belgium) persons.
- **Compared to Wave 5** (2013), four more countries participated in the SHARE project Wave 6, namely Greece, Portugal, Poland and Croatia, while at the same time only the Netherlands withdrew its participation.

The “in need of Care” definition is directly linked **to the number of ADL limitations** reported from persons of age 65+<sup>4</sup>:

- **Definition 1** of need-of-care status: *The individual reported limitations in two or more of the above mentioned activities of daily living (2+ ADL).*

<sup>4</sup> ADLs include the following six Activities of Daily Living:

i) Dressing, including putting on shoes and socks; ii) Walking across a room; iii) Bathing or showering; iv) Eating, such as cutting up your food; v) Getting in and out of bed, vi) Using the toilet, including getting up or down.

## The care gap

**Table B: The Care Gap (%), persons 65+**

Country	1 adl	2 adl	3 adl	4 or more adl
SE	53.9	27.6	22.4	24.2
DK	52.3	23.8	18.9	10.2
NL*	37.4	5.1	3.3	5.2
DE	41.1	25.5	13.0	9.2
BE	40.3	19.3	7.5	2.8
LU	45.7	17.3	n.a.	4.2
FR	47.2	32.2	25.7	1.5
CH	42.3	41.3	36.8	8.2
AT	29.2	21.6	8.0	1.7
IT	41.5	23.5	23.6	15.1
ES	44.7	19.5	26.0	12.4
GR	30.9	16.1	26.4	10.4
PT	61.8	36.6	40.0	9.4
CZ	49.3	26.4	27.1	3.7
PL	51.8	26.5	42.7	14.7
SI	45.9	48.5	29.4	7.7
EE	42.9	30.7	24.7	11.7
HR	28.6	33.1	30.9	12.1
IL	22.4	17.8	8.1	11.4
<b>Total</b>	44.5	25.9	23.5	10.9

Source: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017)

## Coverage by public or private LTC Insurance

**Table C.1:** Coverage (%) by any public or private long-term care insurance, persons 65+

<b>Wave 6 Persons 65+</b>	<b>public</b>	<b>private mandatory</b>	<b>private voluntary</b>	<b>None</b>
SE	57.8		6.4	37.9
DK	27.0		0.8	71.9
DE	79.8	12.0	3.9	8.3
BE	11.8	4.8	24.7	60.7
LU	85.5	6.1	17.6	4.8
FR		2.9	21.9	74.8
CH	16.8	78.3	0.0	0.0
AT	0.0	0.0	1.1	98.8
IT	14.2	0.3	1.1	84.4
ES	36.2	1.0	3.2	61.2
GR	44.6	2.9	0.5	52.0
PT	59.7	5.5	11.8	32.0
CZ	36.0	0.2	2.4	61.9
PL	53.7	0.2	0.4	45.8
SI				
EE				
HR				
IL	0.0	50.7	30.5	31.4
<b>Total</b>	<b>43.6</b>	<b>6.3</b>	<b>6.9</b>	<b>50.9</b>

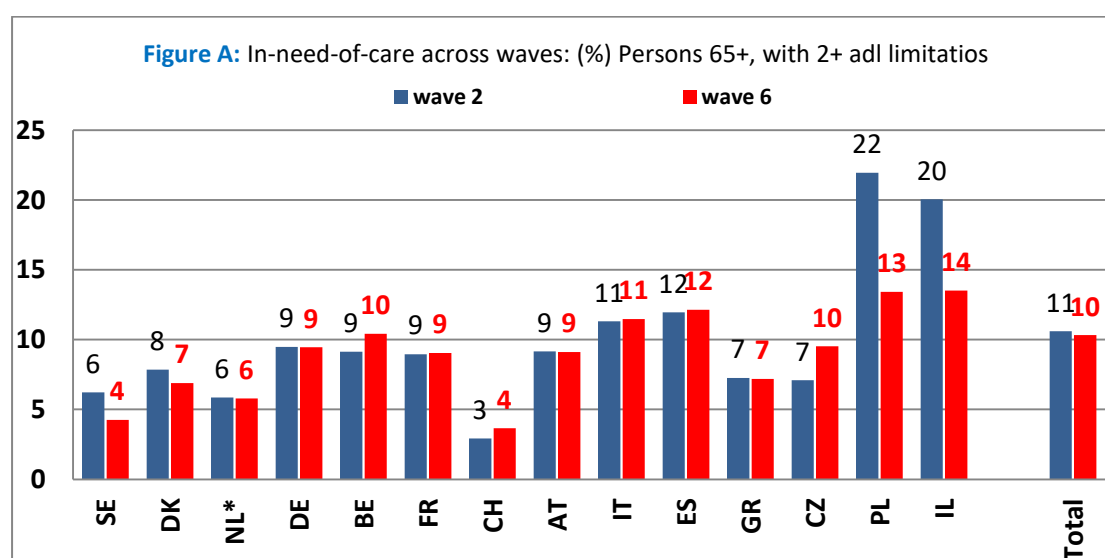
Source: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017)

**Table C.2:** Coverage (%) by any public or private long-term care insurance, persons 65+ with two or more adl limitations

Wave 6 Persons 65+ with 2+ adl	public	private mandatory	private voluntary	None
SE	46.1		3.8	50.4
DK	25.4		0.7	72.9
DE	78.3	8.5	2.1	12.6
BE	10.3	6.3	14.7	66.4
LU	83.8	10.0	18.5	1.1
FR		1.7	15.9	80.2
CH	14.5	76.2	0.0	0.0
AT	0.0	0.0	0.0	100.0
IT	11.0	0.0	0.0	89.0
ES	32.8	0.9	2.6	64.5
GR	56.4	4.4	0.0	39.2
PT	69.3	0.8	12.2	29.7
CZ	23.5	0.7	1.6	73.6
PL	48.8	0.0	0.0	51.2
SI				
EE				28.3
HR				1.4
IL	0.0	54.6	19.6	30.9
<b>Total</b>	<b>40.5</b>	<b>4.0</b>	<b>4.5</b>	<b>56.2</b>

Source: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017)

### In-need-of care across waves



Source: SHARE, wave 6, (release 6.0.0: March 31<sup>st</sup>, 2017)