

**FORMAL AND INFORMAL CARE ACCESS IN EUROPE.
¿HOW ARE THEY RELATED?
AN ANALISYS BASED ON SHARE SURVEY.**

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Abstract: Knowing the importance of informal care access in order to access formal care is vitally important for economic policies regarding the elderly population. Aging is a growing reality in Europe and the rest of the world, for which we are not properly prepared. This work tries to give some insights into the correlation among formal and informal care access and which other control variables are affecting to the possibilities of receiving formal care. A solid knowledge of this topic is not only important in order to foresee financial needs in public welfare systems, but also for guaranteeing the wellbeing of both dependent population and caregivers. Data from the SHARE survey is used to that end, jointly with a simple Probit model, and some surprising results are given.

Key words: dependence, formal care, informal care, probit model

JEL codes: J14, C01

1. Introduction

According to Eurostat (*Eurostat regional yearbook 2014: Population*) “the demographic shift towards an older population will result in the share of the EU-28’s population that is 65 or over rising from 18.2% at the start of 2013 to reach 28.1% by 2050” and also “The number of very old people (defined here as those aged 80 years and above) is projected to increase at an even more rapid pace, more than doubling to reach 57.3 million by 2050”. This data should be cause for joy, as they mean an increase in quality of life that allows constant growing of life expectancy, but rather than that it has been a reason of mayor concern in Europe and the rest of the world.

The reasons for this concern are widely known: the continuous increases in longevity, one of the most important social and medical achievements of latest times, comes with some withdraws due to the structure of life in developed countries and to the changes in family paths all around the globe.

On one hand, life in developed countries with a welfare system is structured around paid work and retirement in a way that implies that at a certain age people stop working and start receiving annuity proportional to factors related to their contribution to society through paid work. This means that, given a retirement age, any increase in life-expectancy implies a cost for the welfare system.

On the other hand, changes in family structures make care in old age no longer be guaranteed within the family, moreover even if they are, this has consequences for people well-being and for the economy: women no longer handle only reproductive work but they also participate in the paid workforce.

This introduces new tensions in the coverage of human needs that must be addressed from the public economy, and in order to do that, a good knowledge of the characteristics of people demanding care is necessary.

2. Formal & Informal care: heterogeneous commodities

When talking about formal or informal care, it is important to focus the discussion, because there is no broadly agreed definition. Firstly, there is no agreement in defining which kind of care is formal and

which is informal. Some authors define formal care as hospital care only, while others (Bolin et al, 2008) rely on the level formal education needed to perform it in order to draw the line between formal and informal care: if some professional accreditation is needed, it is defined as formal care; if not, as informal care.

Vast majority of authors discriminate among a number of formal and informal care, and try to compare those that are more similar (Jiménez and Vilaplana, 2011; Mentzakis et al, 2009) or compare them globally (Van Houtven and Norton, 2004)

There are many kinds of formal and informal care, and the only difference every definition has in common, is the fact that formal care is professionalized: so to say, it is payed. Of course, there are some forms of formal care that can not be provided by informal carers due to its technical or educational requirements. Also there are some kinds of informal care which very nature makes impossible to have a formal counterpart like emotional support from people that have an emotional bond to the person in need.

Also, both formal and informal care can be co-residential or not, depending on the intensity and the kind of needs. Despite, informal care is more likely to be co-residential, specially in the southern countries, where informal care of the elderly is mostly provided by wife, daughters or daughters-in-law, and where extended family is still a widespread reality.

Formal care

Taking all the above into account, we define formal care as the kind of care that involves a monetary interchange, and so people in need can receive different types of formal care: personal care (bathing, toileting, dressing, eating, companionship...), household help (cooking, laundry, groceries, small reparations, cleaning...), companion, and help with other tasks such as paperwork or formalities.

In the present paper, three kinds of formal care are included: personal care involving personal attention or nursing attention, help with home tasks and meals on wheels.

The reason for including these types is twofold: first, because they are, to our knowledge, the most used kinds of help among dependent people, and second, because they are the three types of care explicitly included in the SHARE questionnaire.

Informal care

As it happens with formal care, there are endless types of informal care, and their common characteristic is that they are provided for free, or in exchange for other intangible goods such as other care work performed in the past (addressed to the carers themselves in other periods of time like childhood, or to the carers family -mostly children-).

In the present work, we only consider non co-residential informal care due to technical problems related to the structure of the survey. This implies that only the care provided by informal caregivers that live in a different residence than the dependent person is captured in the model, which has important implications for the interpretation of the results, specially when the data is broke down by country.

Taking non co-residential care, provided by family members, friends or neighbors, the following kinds of activities are included in the model presented below: personal care such as getting dressed, bathing or showering, feeding, getting in and out of bed, or toileting; house care such as domestic help as home repairs, gardening, transportation, buy groceries or housework. Finally, it is also included help with administrative tasks such as filling out forms, or solving financial or legal matters.

3. Dependent population: towards a definition

As it happens with formal and informal care, the “dependent population” label includes a number of different circumstances. The most general consensus is that a person suffers from a dependence situation if they have difficulties with one or many of the “Daily Living Activities”, or the “Basic Daily Living Activities”, depending on the authors. The problem comes with the definition of which activities are to be considered as BDLA: some authors only include very basic activities, such as toileting or eating, while some others also take into account others like speaking on the phone or being able to take care of paperwork and formalities. In a number of criteria a differentiation is made between “basic” DLA and “instrumental” DLA. As there are many ways of measuring dependence, there also are many indexes that materialize those ways. Among all known possibilities, the Barthel Index is used in this paper because of its wide use in medical studies which deal with dependence issues, and because of it's accurate fit with the data in the survey. We consider, as it is usual in literature, that one person suffers from dependency when has troubles with at least one of the items in the Barthel Index.

For a better understanding of the Barthel criteria and the decisions made in this work, in the text below we capture the exact items that constitute the Barthel Index and the items in the survey with which each one of them is matched:

Barthel Item	SHARE Item	SHARE question
Feeding	Eating	PH049_HeADLb_4
Transfer from wheelchair to bed and back	Getting in and out of bed	PH049_HeADLb_5
Grooming	<i>no match</i>	<i>no match</i>
Toileting (getting on and off, manage clothes...)	Using the toilet, including getting up or down	PH049_HeADLb_6
Bathing	Bathing or showering	PH049_HeADLb_3
Dressing and undressing	Dressing, including shoes and socks	PH049_HeADLb_1
Bowel continence	Stomach or intestine problems	PH010_10
Bladder continence	Incontinence or involuntary loss of urine	PH010_11
Walking on a level	Walking 100 metres	PH048_HeADLa_1
Propelling a wheelchair	Pulling or pushing large objects like a living room chair	PH048_HeADLa_8
Ascending or descending stairs	Climbing one or several flights of stairs	PH048_HeADLa_4 PH048_HeADLa_5

Fuente: Elaboración Propia

4. SHARE-project: the data

The Survey of Health, AgEing and Retirement in Europe (SHARE) is a multidisciplinary and cross-national panel database of micro data on health, socio-economic status and social and family networks of more than 85,000 individuals from 20 European countries plus Israel, aged 50 or over.

In this paper, waves 1 and 2 of the survey are used as pool data, and all the countries participating in those two waves are maintained in the model in order to maximize the size of the sample.

The data in this survey is specially valuable because of its aim to be longitudinal and periodic (every two years), and to include every European country. It is also comparable with similar surveys made in the UK and in the USA, which makes it a very useful and valuable resource for research purposes, specially in a complex field as it is aging. One of the biggest challenges on research on aging is that the kind of life in their old ages that current working people will have is very difficult to approximate since the characteristics of the population have undergone drastic changes in education, health, work, family, hobbies. Current elders had totally different lives from working-age population today, so it is difficult to foresee how future old age could be. This survey allows us to approach this reality under a new light: as it follows european population over 50 and whatch them age, we can take a closer look to the future of ageing than we were never able to.

5. Formal Care determinants: a first approach

- **The sample**

In this first model, focus is put on the elderly population, considered as population over 65 years old. The reason is that, although dependence issues are spread among the population, there is a positive correlation among age and dependence, specially after certain age. From that point of view, there is an interest in observing how formal and informal care interacts within the total elderly population, and how other variables affect this relationship, so a comparison can be later made with the dependent population.

The sample consists of the population with 65 years old or more of fourteen European countries plus

Israel.

- **The variables and the model**

The dependent variable of the model is “formal care”, a binary variable reflecting whether or not the person has access to formal care in the terms before described.

The independent variables are as follow:

- Informal care: a binary variable reflecting whether or not the person receives informal care in the terms before described.
- Age groups: we define four age-groups: from 65 to 69, from 69 to 74, from 75 to 80 and over 80. We use the first group as a reference, as it is the one in which dependence prevalence is relatively low comparing to older ages.
- Femen: it is a binary variable defined as 1 for women and as 0 for men.
- Living alone: a binary variable defined as 1 for people living alone (regardless of their marital status), and 0 for those who live with someone else. The use of variables describing coexistence regime is supported by other studies such as García-Gómez, Jiménez-Martín and Vilaplana-Prieto (2010).
- No ends meet: this variable refers to the existence of economic difficulties. It is defined as one when the person claims to have problems making ends meet, and it is strongly related to socio-economic status, as it is widely justified and used in the literature (Gannon and Davin, 2010).
- Not having a child that lives less than 5km away: this variable refers to the potential access to informal care provided by children. It is defined as 1 when there are no children living less than 5km away from the interviewed person, and as 0 when there is at least one.
- Help doesn't meets needs: this variable is defined as 1 when the interviewed person claims that the informal help she receives is not enough to meet her needs (because of any reasons). And 0 in any other scenario.
- Does look after children: this variable tries to pick up the effect of reciprocity of care. It has been observed that the fact that the elderly people looks after their grandchildren has a positive correlation with their chances to receive informal care from their children.

The functional form of the model is defined as a simple probit model. Probit model is used because of the characteristics of the dependent variable: we deal with a binary dependent variable, defined as having or not access to formal care.

Also, a model with country dummy variables is ran, that intends to give a fist insight into country

differences in access to formal care for the elderly, in which Spain is taken as reference for the rest.

- **The results**

Formalcareyes	Over 65	Over 65 with countries
Informalcareyes	0.3035***	0.3112***
70-74	0.2733	0.3060*
75-80	0.4658***	0.4605***
Over80	0.7965***	0.8109***
Femen	0.0083	0.0289
Livingalone	0.4749***	0.4481***
Noendsmeet	-0.0233	0.1007
Nochildless5km	0.2979***	0.2146**
Femchild1	-0.0359	-0.0309
Helpmeetsneedsno	0.1706**	0.1306
Lookaftergrchldm	-0.2591**	-0.3445
Austria		0.0743
Germany		-0.2732
Sweden		0.0755
Netherlands		0.8405***
Italy		-0.3277
France		0.7273***
Denmark		0.7415***
Greece		-0.2442
Switzerland		0.2305
Belgium		0.8880***
Israel		0.5471***
Czechia		-0.4912**
Ireland		0.006
Num Obs	2181	2181
Pseudo R ²	0.1222	0.2116
Correctly classified	68.64%	73.09%

Fuente: Elaboración Propia

6. Formal Care determinants: improved approach

- **The sample**

Once the first approach is done as a reference, the sample is restricted to those that, being 65 or over, have difficulties performing BDLA according to the above mentioned Barthel Index. Obviously some observations get lost during the process, but the model accuracy respect to the aim of this investigation

increases.

- **The variables and the model**

Same variables and functional form are used in this new approach to dependent elderly determinants to access formal care. The only difference between the two models is the sample.

The model with country-dummy variables is also ran, taking as reference Spain as in the previous model.

- **The results**

Formalcareyes	Over 65 + Barthel Index	Over 65 + Barthel Index + Countries
Informalcareyes	0.3360***	0.3353***
70-74	0.2389	0.2771
75-80	0.4322***	0.4355***
Over80	0.7161***	0.7415***
Femen	0.0007	0.0318
Livingalone	0.4836***	0.4556***
Noendsmeet	-0.0496	0.0804
Nochildless5km	0.3065***	0.2304**
Femchild1	-0.0336	-0.0347
Helpmeetsneedsno	0.1789***	0.1380
Lookaftergrchldm	-0.2597***	-0.3479***
Austria		0.0639
Germany		-0.2548
Sweden		0.0797
Netherlands		0.8209***
Italy		-0.3571
France		0.7072***
Denmark		0.7454***
Greece		-0.2119
Switzerland		0.2657
Belgium		0.8891***
Israel		0.5257***
Czechia		-0.4793**
Ireland		0.0539
Num Obs	Num Obs = 2015	Num Obs = 2015
Pseudo R ²	Pseudo R ² = 0.1182	Pseudo R ² = 0.2052
Correctly classified	Correctly classified = 67.79%	Correctly classified = 72.31%

Fuente: Elaboración Propia

7. Conclusions: what can we learn from comparing both models?

As it can be easily seen, both models are quite consistent: results in terms of magnitude and sign of the variable effects barely vary.

As general conclusions from both models, it can be said that formal and informal care are positively correlated, which contradict most of the literature in the field, but also is in line with some authors that consider similar definitions of care to the here given.

Both models also yield surprising results, such as the non-relevance of gender or socio-economic status measured as having problems making ends meet. And the even more surprising negative effect of looking after grandchildren, even though it is tempting to suggest that the ability to take care of grandchildren may be pointing out that the interviewed person does not need assistance, the second model, in which we include the Barthel Index as a measure of need denies this possibility.

As it is expected, age has a positive gradient with chances of receiving formal care: each group of age has a positive effect over receiving formal care respect to the youngest group considered (over 64 and under 69), and the oldest the group, the biggest the effect over the dependent variable.

Living alone and not having children living close to the interviewed residence have a big and positive impact over the dependent variable, as it was expected: both are markers for scarce availability of informal care. In this same line, informal care not being enough to cover needs also has an important and positive impact over the possibility of receiving formal care.

Having a female older children has no relevant effect over the possibility of receiving formal care, contrary to what is been said in the literature.

Finally, introducing country variables in the model makes an improvement in adjustment, and also gives us some ideas about the importance of differences among European countries in dealing with dependence issues once combined personal, institutional and family variables. It is remarkable that the only significant differences respect to Spain are from Netherlands, Denmark, France, Belgium, Israel and Czechia, while it doesn't seem to be any significant differences with countries such as Germany or

Austria.

8. Some unresolved issues

Many issues are still to be solved in this model, which is no more than an approach to the complexity of relationship between formal and informal care, and the variables that determine access to both of them.

Some of the most relevant limitations of the present work have already been expressed below, such as the surprising results (some of them contradicting literature and common sense). Others are related to the structure of the sample, which at the same time is linked to the limitations of the first waves of the SHARE survey: both first and second waves of the survey are used jointly as a pool data, in order to maximize the sample and being able to introduce more control variables. This has its methodological complications, but nothing better could have been done with the current data. We are waiting for the fifth wave to come out, because it is expected that the variables used in this paper, which disappeared from the survey during the fourth wave, will reappear in the forthcoming wave.

As it can be seen, this is a working paper and an on-going research, which makes it upgradeable, but the topics treated in it are of great importance and relevance to Economic Policy, and with the use of SHARE data a chance to dig deep in relations between different socio-demographic variables and different forms of dependency care is offered.

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