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Assessing Needs of Care in European Nations

THE SUPPLY OF INFORMAL CARE IN EUROPE

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Abstract

This ANCIEN research report is concerned with the analysis of the supply of informal care provided by family and friends in Europe, using data on provision of informal care from the 2007 Eurobarometer survey, which includes all the countries in the ANCIEN study. The research uses multivariate analysis of the provision of informal help with personal care tasks in Europe, taking into account socio-demographic factors likely to affect the provision of informal care, including gender, age, marital status and education, and also taking into account differences in long-term systems.

The key conclusion of the report is that differences in informal care provision in European countries are affected, not only by differences in socio-demographic factors, but also by differences in long-term care systems between countries.



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The Supply of Informal Care in Europe

ENEPRI Research Report No. 94/September 2011

Linda Pickard*

Introduction

This report is concerned with the analysis of the supply of informal care across European countries. It examines the probability of providing informal care depending on individual and family circumstances. The report has been prepared as part of Work Package 3 of the ANCIEN Study (Assessing Needs of Care in European Nations) by the London School of Economics and Political Science, and is one component of a more general programme of work on informal care provision in Europe.

Informal care is very important in the supply of care to older people in Europe. As the original ANCIEN research proposal put it, the majority of older people receive the bulk of their support in daily living activities from informal or unpaid caregivers, primarily family or friends. However, the future supply of informal care is uncertain for a number of reasons, including the decline in co-residence of older people with their children; rising employment rates of mid-life women and rising old age dependency ratios (Jani Le-Bris, 1993; Salvage, 1995; OECD, 1996; EPC, 2001; Tomassini et al., 2004).

Informal care provision varies considerably across European countries (Haber Kern & Szydlik, 2010; Pickard et al., 2007). Work Package 1 of the ANCIEN study has captured the differences in the long-term care systems of European countries in a typology, an important component of which is the extent to which the long-term care system relies on informal care. The typology developed by Work Package 1 divides the EU member states in the ANCIEN study into four clusters according to their long-term care systems (Kraus et al., 2010). The composition of the four clusters is as follows: Cluster 1) Belgium, the Czech Republic, Germany, Estonia and Slovakia; Cluster 2) Denmark, the Netherlands and Sweden; Cluster 3) Spain, France, Austria, Slovenia, Finland and the UK; and Cluster 4) Italy, Hungary and Poland. Representative countries for each cluster have been identified, these being respectively: Germany, the Netherlands, Spain and Poland. The use of informal care varies across the clusters and representative countries, with informal care use being described as “low” in Cluster 2 (represented by the Netherlands) and ‘high’ in the other three clusters (represented by Germany, Spain and Poland). At the time of writing (January 2011), two alternative representative countries are being considered for inclusion in the ANCIEN study, these being the Czech Republic and Italy, and the present report therefore includes some preliminary analyses of these countries (included in Appendix A).

The aim of the present report is to analyse the provision of informal care across Europe by clusters and representative countries, controlling for key socio-demographic and socio-economic variables that are likely to affect informal care provision. A key question examined is how far differences in informal care provision between European countries are determined by differences in their social composition and how far they are determined by differences in their long-term care systems.

A key issue in the analysis of the supply of informal care in Europe for ANCIEN is the availability of comparative data across countries. Various data sources have been considered for

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the present analysis, including the European Community Household Panel (ECHP), the Survey of Health, Ageing and Retirement in Europe (SHARE) and the Eurobarometer data. However, the ECHP data do not include all the countries in the ANCIEN study and are somewhat dated, having been collected in the 1990s. The SHARE data allow for analysis of informal care provision by people aged 50 and over, and a supplementary report using SHARE data is included as Appendix B of this report. The main body of the report uses information on informal care provision from the Eurobarometer 67.3 survey (European Commission, 2007). A preliminary investigation showed that the Eurobarometer data would be useful for the descriptive analysis of the factors affecting informal care provision in the context of the ANCIEN study, albeit subject to some important limitations (Pickard, 2010a).

The present report has five parts. It begins with a methodological section describing the Eurobarometer data on informal care, the preliminary investigation into the usefulness of the Eurobarometer data for the ANCIEN study and the analysis of informal care undertaken for this report. The second part describes the results of the study of informal care provision in Europe using Eurobarometer data, reporting both bivariate and multivariate results. The third part looks at the potential impact of need for long-term care on provision of informal care. The fourth part of the report discusses the results using the Eurobarometer data and draws some conclusions. Finally, the fifth part looks at the implications of the report for further work on modelling the supply of informal care, drawing on the analysis of informal care provision using SHARE data reported in the appendix by FEDEA colleagues.

1. Methodology

1.1 The informal care variable in Eurobarometer 67.3

Eurobarometer 67.3 is a survey commissioned by the Directorate-General for Employment, Social Affairs and Equal Opportunities of the European Commission to examine public opinion about health care across Europe, focussing specifically on long-term care and care of the elderly (European Commission, 2007). Between 25th May and 30th June 2007, 28,660 Europeans aged 15 and over were interviewed. The survey covers the 27 European Union member states and the two candidate countries (Croatia and Turkey). Approximately 1,000 people in each country were interviewed. The survey includes all the countries participating in the ANCIEN study.

The survey includes a question on the provision of informal care. Respondents are first asked if they, or someone they are close to, have “ever been in need of any regular help and long-term care over the last ten years”. If so, they are asked to consider the experience “that affected [them] most” and to identify their relationship(s) to up to two people concerned (for example, their partner, parents or other relatives) (QA9). Respondents are identified as potential “informal carers” if they identify someone who has, or has had, a long-term care need and the person involved is or was a partner, parent, child, sibling, another relative, friend, acquaintance, colleague or neighbour (QA11). Potential informal carers, so defined, are then asked “do you or did you personally get involved in helping this person?”. A show card indicates a number of possible responses (with multiple answers possible), including: “you are/were not personally involved in helping this person”; visiting regularly to keep company; cooking and preparing meals; doing shopping; cleaning and household maintenance; taking care of finances and everyday administrative tasks; help with feeding; help with mobility; help with dressing; help with using the toilet; help in bathing or showering; organising professional care; none of these; and “others” (QA11).

In addition to the question on informal care, the survey includes information on a number of variables that may be associated with informal care provision, including age, gender, marital status and education.

Eurobarometer 67.3 therefore offers *recent* information on *informal care provision*, and potentially associated variables, in *all the countries* included in the ANCIEN project.

1.2 Preliminary investigation of Eurobarometer informal care data

In order to investigate the potential usefulness of the Eurobarometer data as a source of information on informal care provision for the ANCIEN project, a preliminary investigation (Pickard, 2010a) was undertaken, using analyses published in the report on the data by the European Commission, *Health and Long-term Care in the European Union: Report* (European Commission, 2007). The preliminary investigation was summarised in a presentation given by the author to the ANCIEN Workshop in Rome in March 2010 (Pickard, 2010b).

The preliminary investigation initially examined how far the published Eurobarometer data captured expected differences between ANCIEN clusters and representative countries. The results suggested that the data did indeed capture expected differences. As expected by the typology developed by Work Package 1 (described in the introduction to this report), provision of informal care in Cluster 2 countries (Denmark, the Netherlands and Sweden) was lower than in the other ANCIEN clusters, and provision of informal care in the Netherlands was lower than in the other representative countries (Germany, Spain and Poland).

The preliminary investigation then compared informal care provision using the Eurobarometer data with informal care provision using national survey data from one country in the ANCIEN study, the UK, which was chosen because this is a country with which the LSE research team is familiar. The probability of providing informal care using the 2007 Eurobarometer data was compared with national survey data relating to Britain, the British Household Panel Survey (BHPS) for 2007. The results of the comparison indicated that the probability of providing informal care in the UK using the Eurobarometer data (33%) was nearly twice as high as the probability using British survey data (17%) (Pickard et al., 2010). A likely reason for this is that the BHPS asks about the *present* provision of informal care, but the Eurobarometer survey asks about provision of informal care *over the last ten years*. In other words, the Eurobarometer survey includes *past*, as well as *present*, provision of informal care. It could be argued that past experience of informal care is important, to the extent that provision of informal care can affect employment and health, for example, beyond the period during which care is actually provided. Nevertheless, it is important to bear in mind in the analyses that follow that the definition of informal care, derived from the Eurobarometer data, includes past, as well as present, provision of informal care.

1.3 Re-analysis of Eurobarometer informal care data: sample size and variables

Having established the potential usefulness of the Eurobarometer data for the ANCIEN study, the next stage of the analysis has been to carry out a re-analysis of the original Eurobarometer data collected in 2007. This re-analysis is the main subject of the present report. The rest of this part of the report describes the methodology used in re-analysing the original Eurobarometer informal care data.

The analysis reported here uses *weighted* sample data. The weightings are derived from a variable included in the Eurobarometer dataset and weight the data according to the population size of the EU member states. The total weighted sample base of the EU27 countries (excluding the candidate countries) in the Eurobarometer survey is 26,659 respondents. The weighted sample size of the 21 states in the ANCIEN study is 25,224, which represent 94.6% of the weighted EU27 sample as a whole. In ANCIEN Cluster 1, there are 5,888 individuals in the weighted sample, including 4,367 in Germany (the representative country); in Cluster 2, there

are 1,691 people in the sample, with 884 in the Netherlands; in Cluster 3, there are 9,610 in the sample, with 2,512 in Spain and in Cluster 4, there are 6,063 in the sample, with 2,169 in Poland.¹ The weighted sample size in the representative countries is 9,931 and this represents 37.3% of the weighted EU27 sample as a whole.

In the analysis that follows, the numbers of people providing informal care are identified through responses to Questions QA9 and QA11 of the survey (described in Section 1.1 above). QA9 identifies potential carers and QA11 asks about help with a number of specific tasks. The percentages of the sample population providing informal care are here expressed in terms of the total weighted sample base. Missing data (item non-responses) relating to both QA9 and QA11 have been excluded, with the result that the underlying bases are somewhat lower than the total sample bases given in the preceding paragraph. The underlying weighted sample bases for each analysis are indicated in the tables of results in the next part of the report.

It should be noted that the percentages of people providing informal help, shown here, are lower than those shown in the tables in the published report (European Commission, 2007). This is because the published report expresses the number of respondents providing informal help as a percentage of the sample of 'potential carers', that is, as a percentage of respondents who said that they knew a family member, neighbour or friend with long-term care needs. In contrast, the percentage of respondents providing informal care is expressed in the present report in terms of the total weighted sample base (excluding missing data). This is comparable with practices in reporting data on informal care provision using national data (e.g. for England, see Pickard et al., 2010).

The analysis that follows focuses in particular on provision of informal help with *personal care tasks or Activities of Daily Living* (ADLs). There are a number of reasons for this focus. First, the definition of informal care in terms of help with ADL tasks reflects the definition of disability in Work Package 2 of the ANCIEN study, which defines disability in terms of an inability to perform one or more specific personal care tasks without help (the Katz definition of ADL disability) (Bonneux et al., 2010). The focus on informal help with ADL-disabilities is important in the context of the ANCIEN study because of the likely interaction between informal help with personal care tasks and the long-term care system, since many long-term care systems focus in particular on provision of formal support with ADL-tasks (Rothgang, 2002; Costa-Font & Patxot, 2005; Pickard et al., 2007). Other recent studies examining the relationship between formal and informal care in Europe have also focused on informal help with personal care tasks (Haber Kern & Szydlik, 2010). Second, informal help with personal care tasks is likely to reflect more intense forms of informal care, those likely to make the greatest demands on the care-giver and involve the longest hours of caring (Haber Kern & Szydlik, 2010). The focus on personal care tasks is particularly pertinent to the definition of the informal care when other measures of the intensity of care (such as hours of informal care) are unavailable, as in the Eurobarometer data. Finally, a definition of informal care in terms of personal care tasks is more likely to capture help given due to the disability of the cared-for person. This is because personal care tasks are tasks that non-disabled adults usually perform for themselves, whereas help with domestic tasks, such as shopping or cleaning, is often part of the domestic division of labour and may be provided to people who are not disabled.

In the present report, informal care with personal care tasks is defined in terms of help with a number of ADLs, including feeding, dressing, using the toilet and bathing or showering. The analysis draws on responses to the question on help with specific tasks included in the Eurobarometer survey (QA11, described in section 1.1 above). It would have been useful also to

¹ The cluster analysis based on the use and financing of long-term care includes 14 of the 21 ANCIEN countries, with three further countries assigned to clusters.

include help with transferring (moving in and out of bed or chair) but the Eurobarometer data does not include this information and only includes ‘help with mobility’, which is likely to capture a wider form of informal help. Two different measures of informal care are used here. First, informal care is measured by help with one or more ADLs and, second, informal care is measured by help with two or more ADLs. These measures reflect those used in Work Package 2 (Bonneux et al., 2010) and aim to capture differences in the intensity of caring, with the assumption being that provision of help with two or more ADLs is likely to be more ‘heavy duty’ than provision of help with one or more ADLs.

The analysis examines provision of informal care in the ANCIEN countries by clusters and representative countries using bivariate and multivariate techniques. In these analyses, key socio-demographic and socio-economic factors likely to affect provision of informal care are examined. These factors include age, gender, marital status and education (cf Parker & Lawton, 1994; Richards et al., 1996; Young et al., 2005). The factors included in the analysis of provision of care might also have included other factors, such as employment status, housing tenure and health (cf Leontaridi & Bell, 2001; Young et al., 2005). However, analytical and data limitations restrict the extent to which these variables can be included in an explanatory model of provision of informal care. For example, employment and health may be endogenously related to provision of care (Parker & Lawton, 1994; Richards et al., 1996) and therefore are not usually included in explanatory models of care provision, and similar problems are likely to arise in relation to housing tenure. The long-term care system is measured by the typology of clusters and representative countries, developed by Work Package 1, which capture important features of the long-term care system such as income- and needs-corrected spending on long-term care. A key issue is how far differences in informal care provision between clusters and representative countries remain, once socio-demographic factors are controlled for.

The definitions of the socio-demographic variables are as follows. Age is defined in terms of four age-bands, distinguishing those aged 15 to 29; 30 to 44; 45 to 64 and 65 and over.² Marital status distinguishes two categories: those who are married or cohabiting and those who are non-married or non-cohabiting (including those who have never had a partner and those who are divorced, separated or widowed). Education is defined in terms of the age at which education was completed and uses the categories adopted in the Eurobarometer report (European Commission, 2007), which distinguishes between those ending their education at ages 15; 16 to 19; and 20 or older. Those still studying are classified here as missing data.

In the analysis that follows, it should be remembered that *provision of informal care includes those providing care both in the present and in the recent past* (that is, those who have provided care in the previous ten years).

In addition to the analysis of informal care provision, there is also some analysis presented here of demand for long-term care. The data and methodology used in this analysis is described in the third part of the report.

² In the analysis of age, it would have been useful to subdivide the sample population aged 65 and over, to distinguish between the ‘young old’ and the ‘older old’. The young old are likely to be primarily informal care-givers, while the older old may be primarily informal care-receivers. However, the Eurobarometer data includes *past* provision of care and, as explained in the report, care-providers in the survey therefore tend to be somewhat older than in other surveys. In the Eurobarometer survey, the probability of older people providing informal care does not begin to decline until they are in their mid-80s. However, the weighted sample size of the oldest old is small. There are only 8 respondents aged 85 and over in the Netherlands; only 12 in Poland; and only 30 in Spain, the respective figure for Germany being 66. The sample size of the oldest old is therefore too small for multivariate analysis of informal care provision by key factors in the Eurobarometer survey. For this reason, no distinction is made here among the older population between the young old and the older old.

2. Results: provision of informal care in European countries

The purpose of the present analysis is to compare provision of informal care between clusters and representative countries through a re-analysis of the 2007 Eurobarometer data on long-term care. The aim is to examine how far the results are similar to those identified in the preliminary investigation, that is, how far there are expected differences between clusters and representative countries. As noted in the introduction, the results of Work Package 1 suggest that there is a distinction in informal care use between Cluster 2 (consisting of Denmark, the Netherlands and Sweden) and all the remaining clusters in the ANCIEN study. Cluster 2 has ‘low’ informal care use, whereas all the remaining clusters have ‘high’ informal care use. Assuming that differences in informal care use are reflected in differences in informal care provision, it would be expected that provision of informal care would be lower in Cluster 2 than in other clusters in the ANCIEN study. It would also be expected that the differences between clusters would be reflected in differences between countries representing the clusters and that there would therefore be a difference between the Netherlands (representing Cluster 2) and Germany, Spain and Poland (representing respectively Clusters 1, 3 and 4). How far are these distinctions captured in the results shown here?

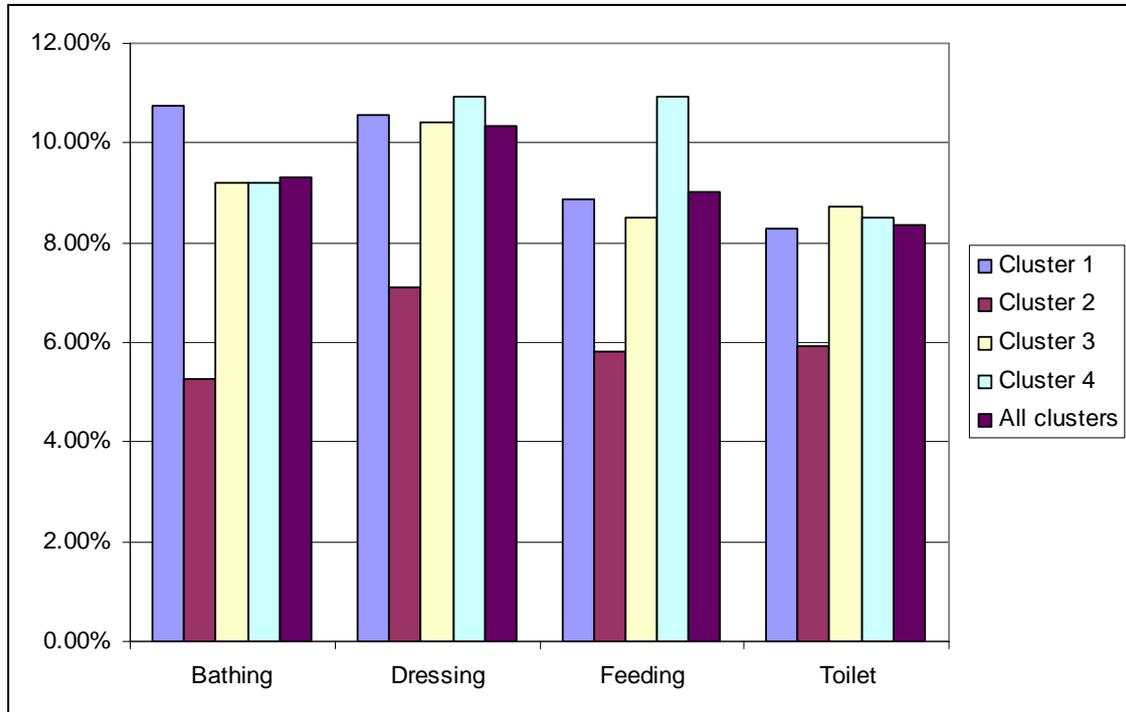
The analysis proceeds in a number of stages. The first stage looks at differences between clusters and representative countries in informal help with specific ADL tasks (Section 2.1). The second stage looks at differences between clusters and representative countries in informal help with combinations of tasks, that is, help with one or more ADLs and two or more ADLs (Section 2.2). The third stage looks at provision of informal help with ADLs by key socio-demographic factors, broken down by cluster and country (Section 2.3). The final stage carries out multivariate analyses of the provision of informal help with ADLs across clusters and representative countries, controlling for key socio-demographic factors.

2.1 Provision of help with specific tasks by clusters and representative countries

This section compares ANCIEN clusters and representative countries in terms of the provision of informal help with specific ADL tasks, that is, help with bathing, dressing, feeding and using the toilet. The numbers of respondents providing help with each task are expressed as a percentage of the total weighted sample base (excluding missing data).

Figure 1 shows the percentage of respondents in each ANCIEN cluster who provide or provided informal help with each ADL task, that is, bathing or showering, dressing, feeding and using the toilet. The figure shows that respondents in Cluster 2 are less likely to be involved in helping a relative or friend with an ADL task than those in the other three clusters. The figure therefore confirms the results of the preliminary investigation (Pickard, 2010a) which was based on the published tables in the Eurobarometer report (European Commission, 2007).

Figure 1. Informal help with specific ADL tasks in Europe by ANCIEN Cluster
(percent providing informal help, in answer to QA11)

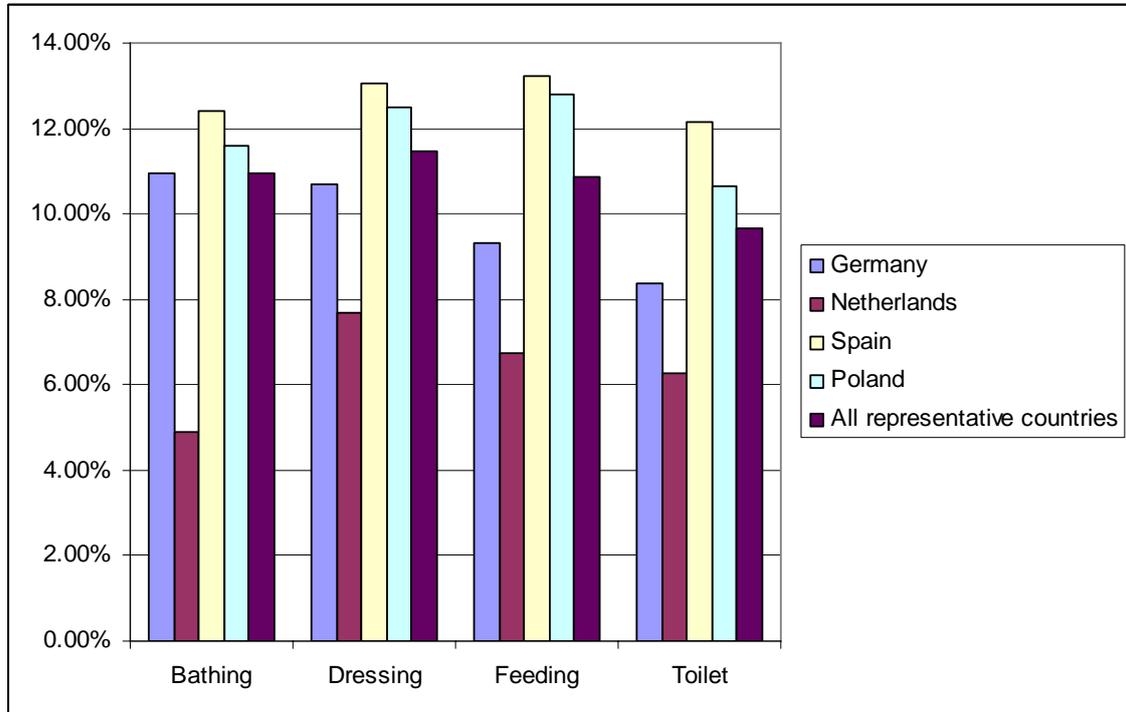


Source: Eurobarometer 67.3, QA11: “Thinking about this case of long-term care need you have just told me about, please tell me in what ways, if any, do you or did you personally get involved in helping this person?”

Notes: Underlying weighted sample bases (excluding missing data) are: Cluster 1, 5,748; Cluster 2, 1,651; Cluster 3, 9,411 and Cluster 4, 5,852.

Figure 2 shows the percentage of respondents in each ANCIEN *representative country* who provide or provided informal help with ADL tasks. The figure shows that respondents in the Netherlands (which represents Cluster 2) are less likely to be involved in helping a relative or friend with an ADL task than those in Germany, Spain or Poland. This figure therefore also confirms the results of the preliminary investigation.

Figure 2. Informal help with specific ADL tasks in Europe by ANCIEN representative countries: Germany, the Netherlands, Spain and Poland (percent providing informal help, in answer to QA11)



Source: Eurobarometer 67.3, QA11: “Thinking about this case of long-term care need you have just told me about, please tell me in what ways, if any, do you or did you personally get involved in helping this person?”

Notes: Underlying weighted sample bases (excluding missing data) are: Germany, 4,285; the Netherlands, 860; Spain, 2,436 and Poland, 2,101.

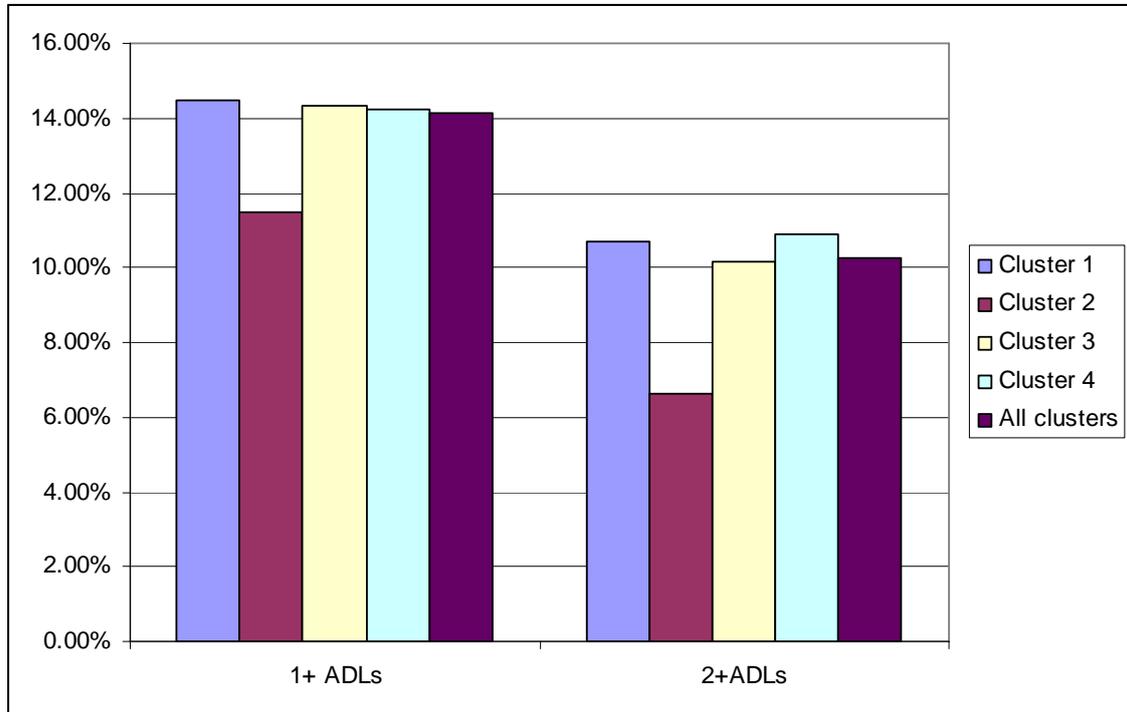
In summary, the 2007 Eurobarometer data suggest that respondents in Cluster 2 countries tend to be less likely to provide informal help with personal care tasks than those in any other cluster. The Netherlands, which represents Cluster 2, seems typical of this pattern.

2.2 Provision of help with ADLs by clusters and representative countries

The next stage of the analysis looks at differences between clusters and representative countries in informal help with combinations of tasks, that is, help with one or more ADLs and two or more ADLs.

Figure 3 shows the percentage of respondents in each ANCIEN cluster who provide or provided informal help with ADLs. The figure shows that respondents in Cluster 2 countries are less likely to provide help either with one or more ADLs or with two or more ADLs than those in any other cluster. This is particularly the case with regard to provision of help with two or more ADLs. Only around 6.5% of respondents in Cluster 2 provide or provided help with two or more ADLs, compared to between 10 and 11% in the other three clusters (Figure 3).

Figure 3. Informal help with one or more and two or more ADL tasks in Europe by ANCIEN Cluster (percent providing informal help, in answer to Q11)

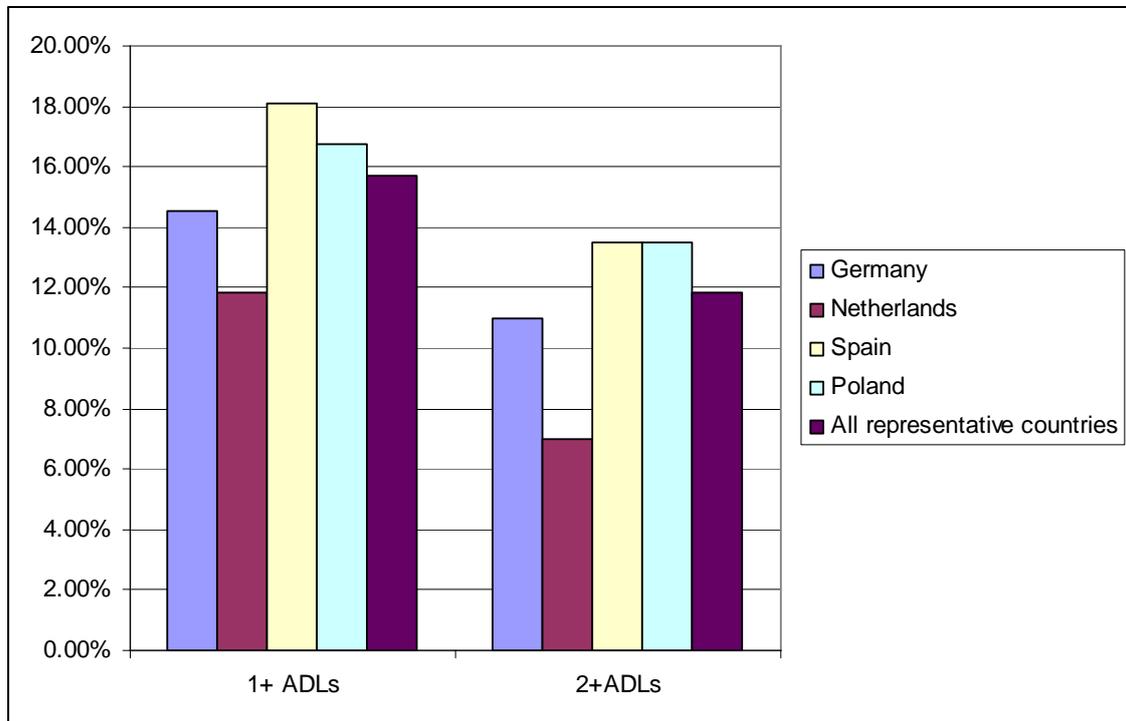


Source: Eurobarometer 67.3.

Notes: see Figure 1.

Figure 4 shows the same information with respect to provision of informal help with ADLs in each *representative country*. The figure shows similar patterns as those in the previous figure. Respondents in the Netherlands, which represents Cluster 2, are less likely to provide help either with one or more ADLs or with two or more ADLs than those in the other representative countries.

Figure 4. Informal help with one or more and two or more ADL tasks in Europe by ANCIEN representative countries (percent providing informal help, in answer to Q411)

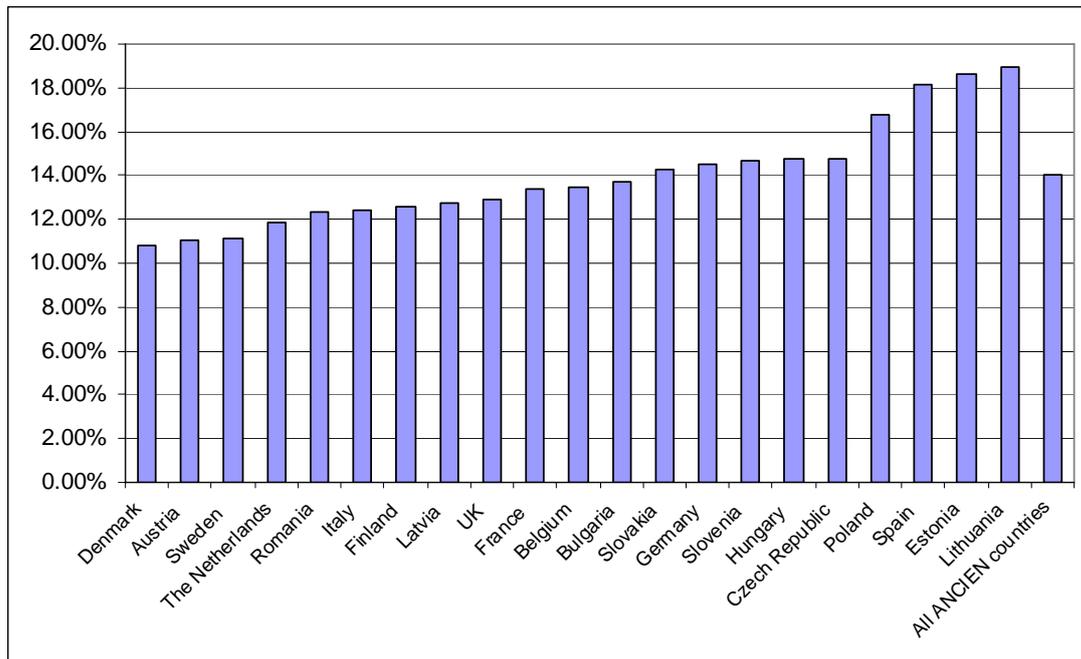


Source: Eurobarometer 67.3.

Notes: see Figure 2.

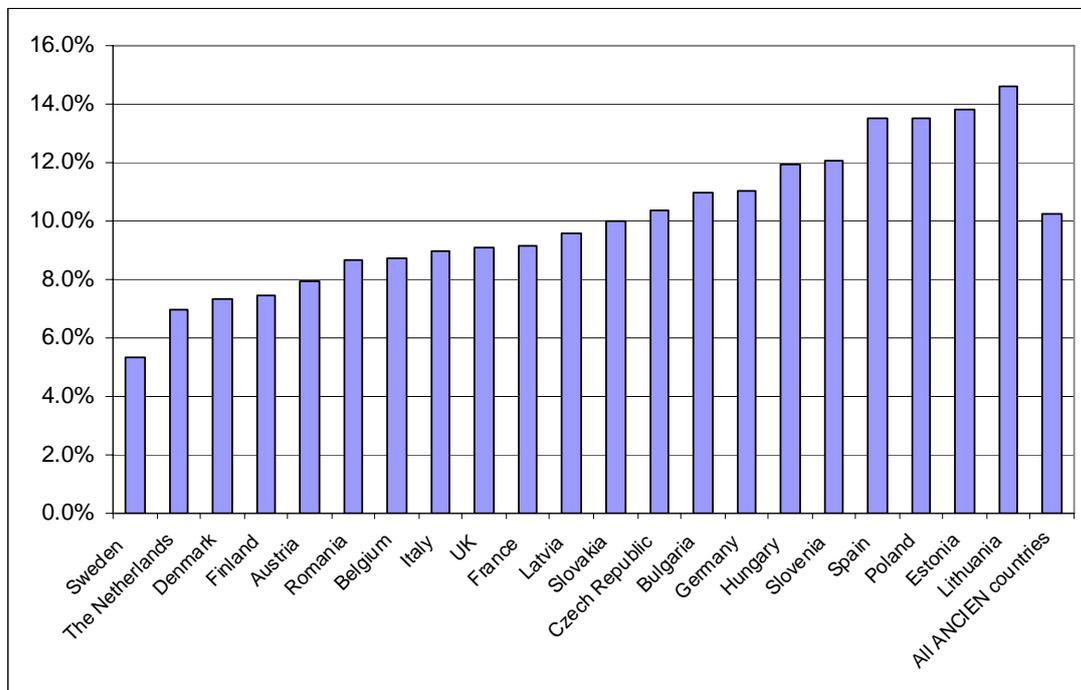
Confirmation that the countries in Cluster 2 (Denmark, the Netherlands and Sweden) have relatively low provision of informal care also comes from an examination of the provision of care in each of the ANCIEN countries. Figures 5 and 6 respectively show the proportion of respondents in each ANCIEN country providing care with one or more ADLs and two or more ADLs. Figure 5 shows that provision of informal help with one or more ADLs in the Cluster 2 countries is among the lowest in the European countries in the ANCIEN study, although Austria also has a relatively low level of provision of this type of care. Figure 6 shows that provision of informal help with two or more ADLs in the Cluster 2 countries is the lowest in the European countries in ANCIEN.

Figure 5. Informal help with one or more ADL tasks in Europe by ANCIEN country



Source: Eurobarometer 67.3.

Figure 6. Informal help with two or more ADL tasks in Europe by ANCIEN country



Source: Eurobarometer 67.3.

Although Figures 5 and 6 confirm that the Cluster 2 countries have a relatively low provision of informal care, they also suggest that there is considerable variation in the provision of informal care in the other countries in the ANCIEN study. For example, provision of help with two or more ADLs is below 7.5% in all the Cluster 2 countries, but it varies elsewhere from 7.5%

(Finland) to nearly 15% (Lithuania) (Figure 6). Nevertheless, the variation in the other countries in the ANCIEN study also serves to distinguish the Cluster 2 countries. In terms of the present analysis, what appears to characterise the three countries in Cluster 2 is that they have the lowest provision of the most ‘heavy duty’ informal care in Europe.

In summary, the analysis suggests that provision of informal help with personal care tasks or ADLs is, on average, lower in the Cluster 2 countries than in the other countries in the study and is lower in the Netherlands than in the other representative countries. These relationships are particularly strong in relation to the most demanding forms of care, that is, help with two or more ADLs. The results suggest that the Cluster 2 countries, Denmark, the Netherlands and Sweden, have the lowest provision of informal help with two or more ADLs in Europe.

2.3 Provision of informal help with ADLs by key socio-demographic factors

The third stage of the analysis looks at provision of informal help with ADLs *by key socio-demographic factors*, broken down by cluster and representative country. The analysis in this section is a bivariate analysis, which prepares the way for the multivariate analysis of the provision of informal care in the next section.

Tables 1 and 2 show the proportion of respondents in each ANCIEN cluster who provide or provided informal help with, respectively, one or more ADLs and two or more ADLs, by key socio-demographic characteristics. The same information is repeated for the representative countries in two further tables (Tables 3 and 4). The socio-demographic characteristics shown in the tables are gender, age, marital status and education. Following Tables 1 to 4 below, there are four sub-sections describing the bivariate relationships between provision of informal care with ADLs and each socio-demographic factor in turn.

Table 1. Informal care with one or more ADLs in Europe by socio-demographic characteristics: ANCIEN clusters (percent providing informal help with one or more ADLs)

Variables/Categories	Cluster 1	Cluster 2	Cluster 3	Cluster 4	All clusters	Weighted Sample Base
All	14.5	11.5	14.3	14.2	14.1	22,662
Gender						
Men	9.8	9.1	10.3	11.1	10.3	10,881
Women	18.8	13.8	18.1	17.0	17.7	11,780
Age						
15-29	5.6	7.2	8.5	7.6	7.5	5,166
30-44	10.7	10.3	11.7	10.7	11.1	5,966
45-64	19.1	14.5	17.8	18.8	18.2	7,002
65+	20.6	13.1	19.5	20.0	19.5	4,528
Marital status						
Married	15.3	11.6	14.8	14.6	14.6	13,427
Not married	12.5	11.3	13.9	14.1	13.4	8,987
Education (end of)						
15	20.2	12.6	19.1	17.1	18.7	5,546
16-19	12.8	12.5	12.5	14.6	13.1	9,171
20+	15.0	12.1	13.4	16.8	14.2	5,208

Source: Eurobarometer 67.3.

Notes: Marital status refers to de facto status and includes legal and cohabiting partners.

Table 2. Informal care with two or more ADLs in Europe by socio-demographic characteristics: ANCIEN clusters (percent providing informal help with two or more ADLs)

Variables/Categories	Cluster 1	Cluster 2	Cluster 3	Cluster 4	All clusters	Weighted Sample Base
All	10.7	6.6	10.2	10.9	10.2	22,662
Gender						
Men	6.2	4.7	7.4	7.5	6.9	10,881
Women	14.9	8.4	12.8	14.0	13.3	11,780
Age						
15-29	4.1	3.2	4.7	5.3	4.6	5,166
30-44	7.3	6.5	8.9	8.5	8.2	5,966
45-64	13.6	7.9	13.0	14.1	13.1	7,002
65+	16.8	8.1	14.2	16.1	15.0	4,528
Marital status						
Married	10.8	6.4	10.2	11.8	10.5	13,427
Not married	10.0	6.9	10.2	10.0	9.9	8,987
Education (end of)						
15	16.1	8.9	14.5	13.9	14.6	5,546
16-19	8.5	6.2	8.8	11.3	9.2	9,171
20+	11.8	7.4	9.1	11.2	9.9	5,208

Source: Eurobarometer 67.3.

Notes: see Table 1.

Table 3. Informal care with one or more ADLs in Europe by socio-demographic characteristics: ANCIEN representative countries (percent providing informal help with one or more ADLs)

Variables/Categories	Germany	The Netherlands	Spain	Poland	All representative countries	Weighted Sample Base
All	14.5	11.9	18.1	16.8	15.7	9,681
Gender						
Men	10.3	10.0	12.8	14.2	11.7	4,651
Women	18.5	13.8	23.2	19.1	19.4	5,030
Age						
15-29	5.6	5.1	11.3	9.4	8.0	2,190
30-44	10.7	10.9	13.4	13.0	11.9	2,494
45-64	18.7	15.5	22.3	24.1	20.5	3,046
65+	20.6	15.0	26.5	20.4	21.6	1,948
Marital status						
Married	15.4	11.3	16.9	16.9	15.8	6,012
Not married	12.1	12.4	20.0	16.6	15.2	3,608
Education (end of)						
15	19.8	14.1	22.8	19.7	20.8	2,644
16-19	11.8	12.2	12.2	19.0	13.7	3,782
20+	15.7	13.2	16.3	16.8	15.6	2,128

Source: Eurobarometer 67.3.

Notes: see Table 1.

Table 4. Informal care with two or More ADLs in Europe by socio-demographic characteristics: ANCIEN representative countries (percent providing informal help with two or more ADLs)

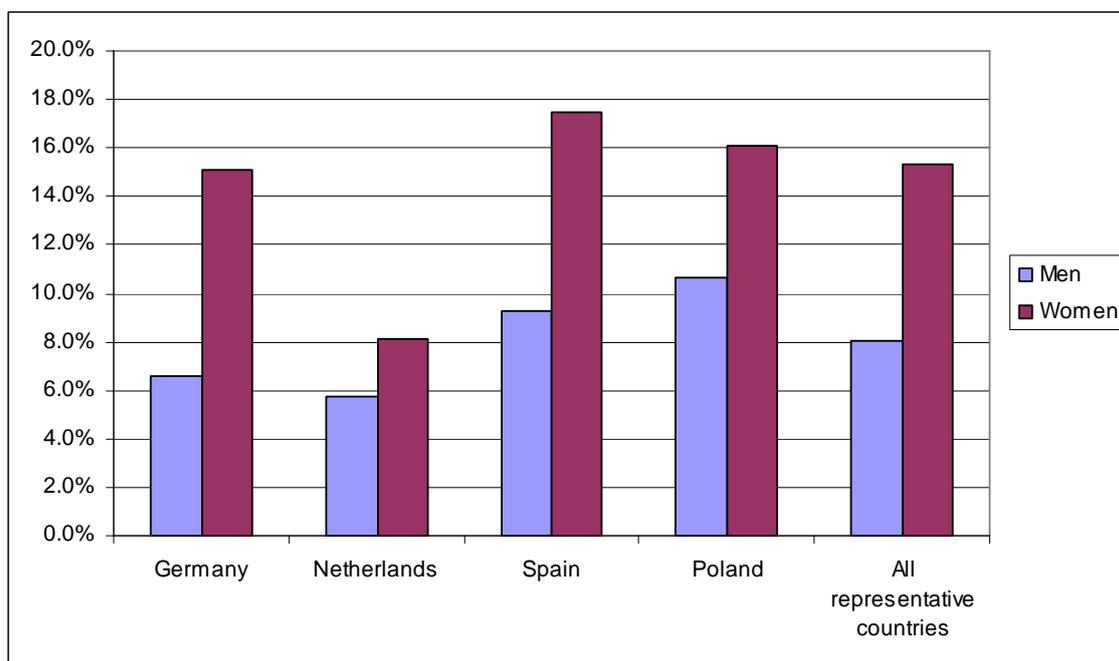
Variables/Categories	Germany	The Netherlands	Spain	Poland	All representative countries	Weighted Sample Base
All	11.0	7.0	13.5	13.5	11.8	9,681
Gender						
Men	6.6	5.7	9.3	10.7	8.1	4,651
Women	15.1	8.1	17.5	16.1	15.3	5,030
Age						
15-29	4.3	2.3	4.3	8.3	5.3	2,190
30-44	7.4	6.8	10.6	10.8	8.9	2,494
45-64	13.9	8.7	17.7	18.2	15.3	3,046
65+	16.6	10.0	21.9	17.3	17.6	1,948
Marital status						
Married	11.2	6.3	12.8	13.7	11.7	6,012
Not married	9.8	7.7	14.7	13.1	11.6	3,608
Education (end of)						
15	15.8	9.9	18.1	16.9	16.6	2,644
16-19	7.8	6.6	9.6	15.3	9.9	3,782
20+	13.3	7.8	9.5	13.0	11.5	2,128

Source: Eurobarometer 67.3.

Notes: see Table 1.

Gender: Tables 1 to 4 show that, in each cluster and representative country, women are more likely than men to provide informal help with both one or more ADLs and two or more ADLs. The proportion of women providing both types of informal help is lower in Cluster 2 than in the other clusters and lower in the Netherlands than in the other representative countries. The relationship between gender and provision of informal help with ADL tasks is illustrated in Figure 7, which shows the percentage of men and women providing informal help with two or more ADLs by representative country. The figure shows that women in the Netherlands are considerably less likely to provide informal help with two or more ADLs than women in the other representative countries (Germany, Spain and Poland) (Figure 7). Indeed, the proportion of women providing help with two or more ADLs in the Netherlands is lower than the proportion of men providing this form of help in either Spain or Poland.

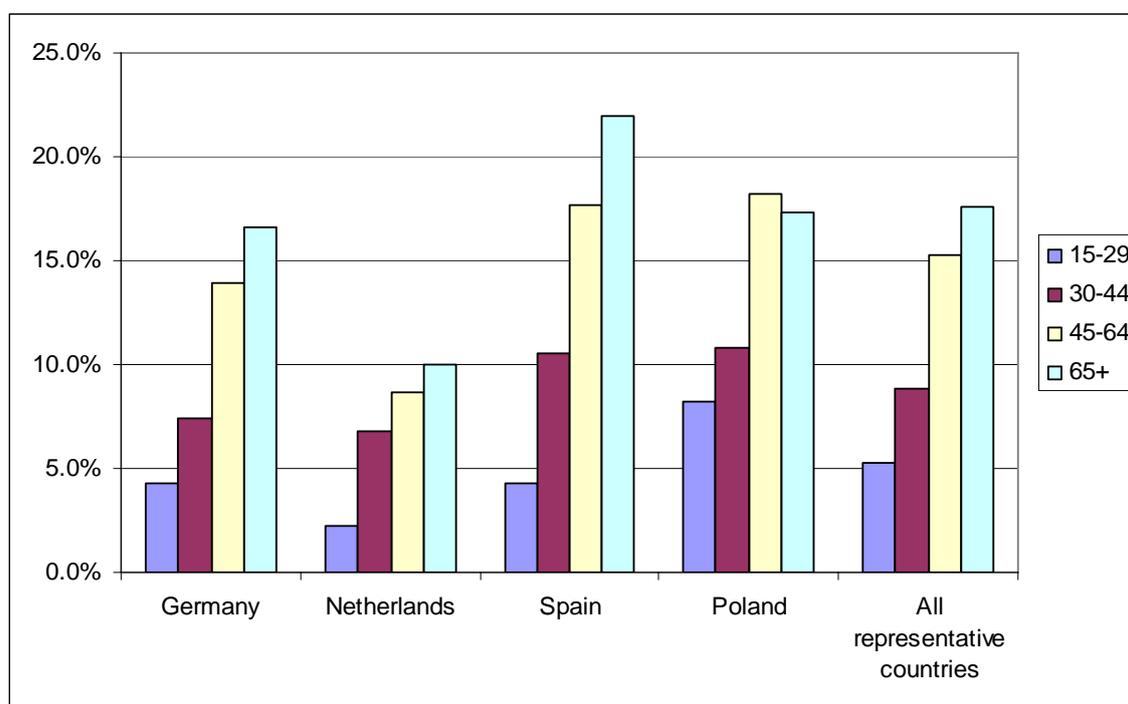
Figure 7. Informal care with two or more ADLs in Europe by gender: ANCIEN representative countries (percent providing informal help with two or more ADLs)



Source: Eurobarometer 67.3.

Age: Tables 1 to 4 show that the peak years for provision of informal help with ADLs tends to be among those aged 65 and over. The peak period of caring in the Eurobarometer data seems somewhat later than in other survey data and may partly reflect the fact that the data includes *past* caring as well as caring in the present. However, the tables also show that, among people aged under 65, that is, broadly people of ‘working age’, the peak years for helping with ADLs is in mid-life, that is aged 45 to 64, in all the clusters and all the representative countries, and this accords with the informal care literature more generally. The proportion of people in mid-life providing informal care with ADL tasks is lower in Cluster 2 than in the other clusters and lower in the Netherlands than in the other representative countries. The relationship between age and provision of informal help with ADL tasks is illustrated in Figure 8, which shows the percentage of people providing informal help with two or more ADLs by age and representative country. The figure shows that the proportion of people in mid-life providing help with two or more ADLs in the Netherlands is lower than it is for people aged in their thirties or early forties in either Spain or Poland (Figure 8).

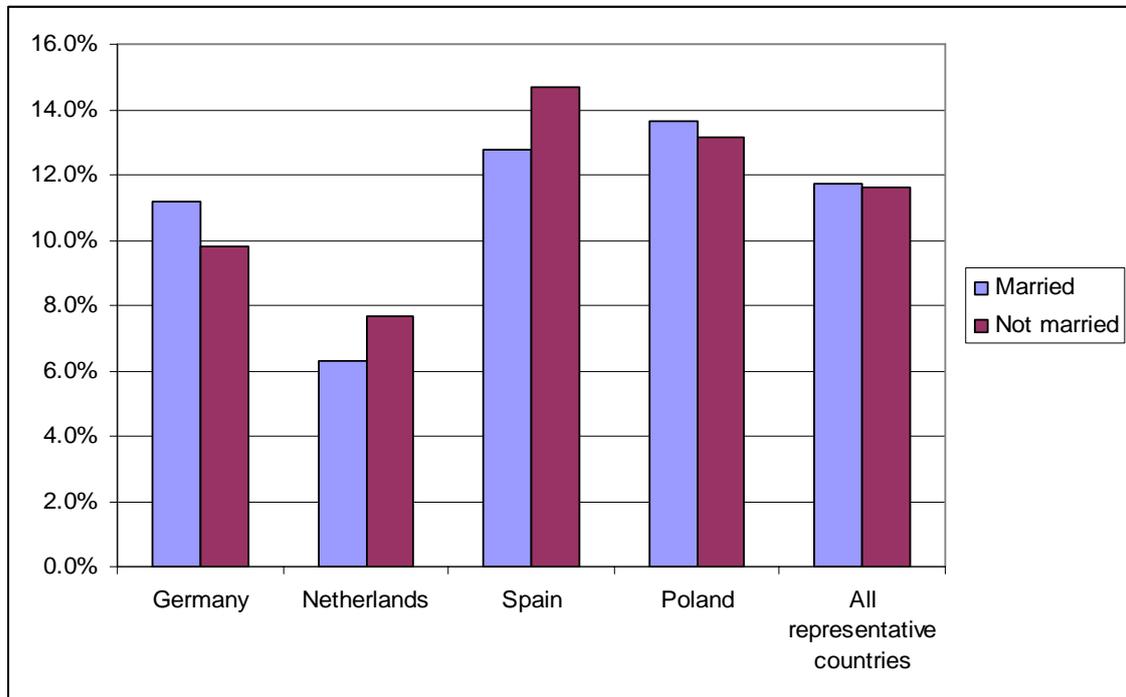
Figure 8. Informal care with two or more ADLs in Europe by age: ANCIEN representative countries (percent providing informal help with two or more ADLs)



Source: Eurobarometer 67.3.

Marital status: Tables 1 to 4 show that de facto married or cohabiting people tend to have higher rates of informal care provision than de facto non-married people (that is, people who are single or previously married/cohabiting). However, this relationship is not true of all clusters and/or representative countries. The relationship between marital status and informal care provision in the Eurobarometer data appears weaker than in other survey data, where married/cohabiting people have higher rates of informal care provision than single people (e.g. for Britain, see Maher & Green, 2002). However, the weaker relationship between marital status and informal care provision in the Eurobarometer data may, again, partly reflect the fact that the data includes *past* caring. Respondents may have provided care, for example, to a spouse, but at the time of the survey (up to ten years later) may be widowed. Tables 1 to 4 also show that the proportion of married/cohabiting people providing informal care with ADL tasks is lower in Cluster 2 than in the other clusters and lower in the Netherlands than in the other representative countries. The relationship between marital status and provision of informal help with ADL tasks is illustrated in Figure 9. The figure shows that the relationship between marital status and provision of help with two or more ADLs is not particularly strong but that the percentages providing care, whether married or non-married, are considerably lower in the Netherlands than in any of the other representative countries.

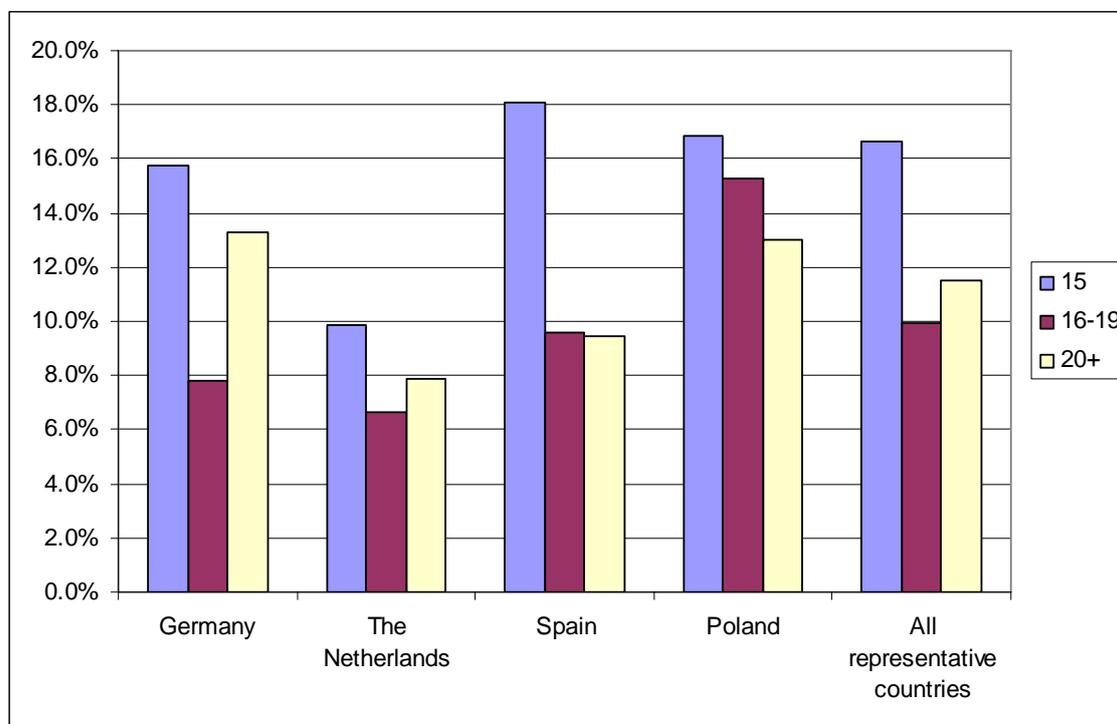
Figure 9. Informal care with two or more ADLs in Europe by marital status: ANCIEN representative countries (percent providing informal help with two or more ADLs)



Source: Eurobarometer 67.3.

Education: Tables 1 to 4 show that, with some exceptions, the probability of providing help with ADLs is greatest for those with least education, that is, those who had completed their education by the age of 15. The relationship is less clear where longer years of education are concerned and varies by cluster and representative country. The proportion of those with least education providing informal care with ADL tasks is lower in Cluster 2 than in the other clusters and lower in the Netherlands than in the other representative countries (Tables 1-4). The relationship between education and provision of informal help with ADL tasks is illustrated in Figure 10, which shows the percentage of people providing informal help with two or more ADLs by education and representative country. The probability of providing help with two or more ADLs in the Netherlands by people with the least years of education is lower than it is for people with greater years of education in the other representative countries taken together.

Figure 10. Informal care with two or more ADLs in Europe by education (terminal education age): ANCIEN representative countries (percent providing informal help with two or more ADLs)



Source: Eurobarometer 67.3.

In summary, provision of informal help with personal care tasks varies not just between European countries but also by key socio-demographic factors. Provision of informal care is greater for women than for men; greater for people in mid-life and older age groups than for younger age-groups; and greatest for those with the least education. In bivariate analysis, there was not a strong relationship between provision of informal care and marital status.

2.4 Provision of informal help with ADLs in Europe: multivariate analysis

The final part of the analysis comprises multivariate analyses examining the factors associated with provision of informal help with ADLs in Europe by key socio-demographic variables, ANCIEN clusters and ANCIEN representative countries.

The multivariate analyses are in two stages. In the first stage, the socio-demographic factors associated with informal care provision in each representative country are examined. Eight logistic regression models were constructed, two for each of the four countries, examining the factors associated with, first, help with one or more ADLs and, second, help with two or more ADLs. The second stage of the analysis pools the data for a number of countries and includes as independent variables, not just socio-demographic factors, but also variables indicating long-term care systems, that is, variables for the ANCIEN clusters and ANCIEN representative countries. Four separate logistic regression models were constructed. In the first, the dependent variable is provision of help with one or more ADLs and the independent variables include socio-demographic factors and clusters. In the second, the dependent variable is provision of help with one or more ADLs and the independent variables include socio-demographic factors and representative countries. In the third model, the dependent variable is provision of help with

two or more ADLs and the independent variables include socio-demographic factors and clusters. Finally, in the fourth model, the dependent variable is provision of help with two or more ADLs and the independent variables include socio-demographic factors and representative countries.

The first stage of the multivariate analyses examines the socio-demographic factors associated with informal care provision in each of the representative countries. The results are shown in Table 5. The table shows that, controlling for other socio-demographic variables, each of the socio-demographic variables included in the models is significantly associated with provision of informal help with ADLs in at least one of the representative countries (Table 5). Thus, age is significantly associated with informal care provision in all four countries; gender is significantly associated with informal care provision in all the countries except the Netherlands; and education and marital status are significantly associated with informal care provision in Germany and Spain. This suggests that the logistic regression models in the next stage of the analysis should include all four socio-demographic variables.

The direction of the relationships between the socio-demographic variables and provision of informal help with ADLs is generally as would be expected. Controlling for other variables, those in mid-life are consistently much more likely to provide informal help with ADLs than those in the youngest age-group (aged 16 to 29) (Table 5). Women are more likely to provide informal help with ADLs than men. Where education is significantly associated with informal care provision, those with longer years of education are less likely to provide informal care than those with the least education, who completed their education by the age of 15. With regard to marital status, which is significantly associated with informal care provision in Germany and Spain, the direction of the relationship varies between the countries. In Germany those who are not married are less likely to provide informal care than those who are married, whereas in Spain, those who are not married are more likely to provide informal care than those who are married. As noted earlier, however, the relationship between marital status and informal care provision may be affected by the use of Eurobarometer data because the data include past, as well as present, provision of care.

Multivariate analyses of informal care provision in two alternative representative countries, the Czech Republic and Italy, are examined in Appendix A. The results suggest that, in relation to the factors associated with informal care provision in each country, the conclusions derived from the results would not be very different if alternative representative countries were used.

Table 5. Results (odds ratios) from logistic regression models of the proportion of the population aged 15 and over providing help with one or more ADLs and two or more ADLs in Europe, by ANCIEN representative country, odds ratios and significance levels

Variables/Categories	Germany	The Netherlands	Spain	Poland
Provision of help with 1 or more ADLs	Model 1	Model 2	Model 3	Model 4
Gender				
Men	1.00	1.00	1.00	1.00
Women	***2.31	(ns)1.35	***1.85	**1.46
Age				
15-29	1.00	1.00	1.00	1.00
30-44	**2.31	(ns)2.24	(ns)1.23	(ns)1.18
45-64	***4.68	*3.38	**1.98	***2.58
65+	***4.64	*3.28	**1.32	**2.02
Marital status				
Married	1.00	1.00	1.00	1.00
Not married	*0.80	(ns)1.44	*1.32	(ns)1.22
Education (end of)				
15	1.00	1.00	1.00	1.00
16-19	**0.68	(ns)1.08	**0.60	(ns)1.26
20+	(ns)1.01	(ns)1.34	(ns)0.85	(ns)1.22
Provision of help with 2 or more ADLs	Model 5	Model 6	Model 7	Model 8
Gender				
Men	1.00	1.00	1.00	1.00
Women	***3.03	(ns)1.42	***1.84	***1.68
Age				
15-29	1.00	1.00	1.00	1.00
30-44	*1.82	(ns)4.32	**2.60	(ns)1.00
45-64	***4.01	*5.73	***3.89	**1.83
65+	***4.14	*6.08	**3.64	(ns)1.62
Marital status				
Married	1.00	1.00	1.00	1.00
Not married	(ns)0.87	(ns)1.65	**1.48	(ns)1.17
Education (end of)				
15	1.00	1.00	1.00	1.00
16-19	***0.58	(ns)0.81	**0.65	(ns)1.20
20+	(ns)1.18	(ns)1.09	*0.65	(ns)1.04

Source: Eurobarometer 67.3.

Notes: Asterix indicates association at *(5%), ** (1%) and ***(less than 1%); ns indicates no significant association. For definition of variables, see text.

The second stage of the multivariate analyses pools the data from several countries in order to explore the potential role of differences in long-term care systems. A key issue examined in this stage of the analysis is the extent to which differences between ANCIEN clusters and representative countries remain, once socio-demographic factors are taken into account. In other words, controlling for key socio-demographic factors, is provision of informal care lower in Cluster 2 than in the other clusters in the study? And again, controlling for key socio-demographic variables, is informal care provision lower in the Netherlands than in the other representative countries? Given the centrality of this issue, in the logistic regression models, the reference category for the clusters is Cluster 2 and the reference category for the representative countries is the Netherlands. In this way, the logistic regression analysis allows for a comparison to be made between the cluster/representative country with low informal care and the other clusters/representative countries in the ANCIEN study.³

The results of the models are shown in Table 6. Looking first at the socio-demographic variables, the table shows that gender, age and education are all significantly associated with provision of help with ADL tasks in Europe, but that marital status is not significantly associated with provision of help with ADL tasks. The direction of the relationships is generally as would be expected from the multivariate analyses, described above. The lack of a significant association between marital status and provision of informal care may be due to differences in the direction of the relationship in different countries (shown in Table 5) which, as indicated earlier, could be associated with the inclusion of past caring in the measure of informal care used here.

Looking next at the results relating specifically to provision of informal help with one or more ADLs, the results show that, controlling for key socio-demographic factors, provision of informal help is significantly higher in Clusters 1, 3 and 4 than in Cluster 2 (Table 6, Models 1 and 2). People in clusters other than Cluster 2 have between 28% and 38% higher odds of providing help with one or more ADLs than those in Cluster 2 (Table 6). Controlling for socio-demographic variables, provision of informal help is also higher in Germany, Spain and Poland than in the Netherlands, (the representative country for Cluster 2) (Table 6). The difference between the Netherlands and two of the other representative countries, Spain and Poland, is significant, but the difference between the Netherlands and Germany is not significant.

Differences in provision of informal care between clusters and between representative countries are stronger where provision of help with two or more ADLs is concerned (Table 6, Models 3 and 4). Controlling for socio-demographic factors, people in Clusters 1, 3 and 4 are significantly more likely to provide informal help with two or more ADLs than those in Cluster 2 (Table 6, Models 3 and 4). People in clusters other than Cluster 2 have between 56% and 79% higher odds of providing help with two or more ADLs than those in Cluster 2 (Table 6). Moreover, controlling for other variables in the model, provision of informal help with two or more ADLs is significantly higher in Germany, Spain and Poland than in the Netherlands (Table 6). People in Germany have over 50% higher odds of providing help with two or more ADLs than those in the Netherlands, while people in Spain and Poland are approximately twice as likely to provide this form of care as those in the Netherlands (Table 6).

In summary, the multivariate analysis shows that, controlling for key socio-demographic factors, provision of informal help with one or more ADL tasks is significantly higher in clusters other than in Cluster 2 and significantly higher in Spain and Poland than in the Netherlands. Provision of informal help with one or more ADLs is higher in Germany than in the Netherlands but the difference is not statistically significant. The differences in informal

³ Multivariate analyses, using pooled data for *alternative* representative countries, are discussed in Appendix A.

care provision are more pronounced where provision of the most intense form of care is concerned, that is, in relation to provision of informal help with two or more ADL tasks. Controlling for key socio-demographic factors, provision of informal help with two or more ADL tasks is significantly higher in clusters other than Cluster 2 and significantly higher in Germany, Spain and Poland than in the Netherlands.³

Table 6. Results (odds ratios) from pooled logistic regression models of the proportion of the population aged 15 and over providing help with one or more ADLs and two or more ADLs in Europe by gender, age, marital status, education, ANCIEN clusters and ANCIEN representative countries, odds ratios and significance levels

Variables/Categories	Model 1	Model 2	Model 3	Model 4
	Provision of help with 1 or more ADLs (Clusters)	Provision of help with 1 or more ADLs (Representative Countries)	Provision of help with 2 or more ADLs (Clusters)	Provision of help with 2 or more ADLs (Representative Countries)
Gender				
Men	1.00	1.00	1.00	1.00
Women	***1.83	***1.84	***2.00	***2.10
Age				
15-29	1.00	1.00	1.00	1.00
30-44	***1.41	***1.49	***1.64	***1.65
45-64	***2.55	***2.87	***2.76	***3.05
65+	***2.43	***2.63	***2.66	***2.96
Marital status				
Married	1.00	1.00	1.00	1.00
Not married	(ns)1.00	(ns)1.06	(ns)1.05	(ns)1.12
Education (end of)				
15	1.00	1.00	1.00	1.00
16-19	***0.83	***0.78	***0.83	***0.83
20+	(ns)0.98	(ns)1.01	(ns)0.89	(ns)0.97
Clusters				
Cluster 2	1.00	n/a	1.00	n/a
Cluster 1	**1.28	n/a	***1.62	n/a
Cluster 3	***1.28	n/a	***1.56	n/a
Cluster 4	***1.38	n/a	***1.79	n/a
Representative Countries				
The Netherlands	n/a	1.00	n/a	1.00
Germany	n/a	(ns)1.19	n/a	**1.51
Spain	n/a	**1.56	n/a	***1.95
Poland	n/a	***1.61	n/a	***2.20

Source: Eurobarometer 67.3.

Notes: Asterix indicates association at *(5%), ** (1%) and ***(less than 1%); ns indicates no significant association; n/a indicates not applicable. For definition of variables, see text.

3. Potential impact of need for long-term care on provision of informal care

The previous part found that, controlling for key socio-demographic factors, provision of informal help with personal care tasks varies by clusters and representative countries. These differences are particularly marked where provision of the most demanding type of informal care is concerned, that is, provision of help with two or more personal care tasks. The analysis suggests that differences in informal care provision may be determined, not only by differences in socio-demographic factors, but also by difference in long-term care systems between countries. However, it is also possible that variations in provision of informal care between clusters and countries may reflect variations in need for long-term care. Thus, it is possible to hypothesise that the reason why informal provision of help with personal care tasks is lower in Cluster 2 countries, in particular the Netherlands, than elsewhere is because there is a smaller proportion of people with personal care needs in these countries.

In order to explore this hypothesis, an analysis was undertaken to examine variations in the proportions of people with personal care disabilities in the different clusters and representative countries. The Eurobarometer survey allows for such an analysis to be undertaken because it contains questions about the functional disability of respondents. In particular, Question QA2 asks respondents if, “not counting any temporary problems”, they “experience significant difficulty” carrying out a number of IADLs and ADLs by themselves “because of [their] physical or mental health condition”. The analysis undertaken here is intended to reflect that conducted in the previous part of the paper and focuses on identifying the proportions of respondents with difficulty with ADLs, including bathing or showering, feeding, using the toilet and dressing or undressing. The analysis examines the likelihood of having difficulty with both one or more ADLs and two or more ADLs, with comparisons made between clusters and representative countries. The analysis focuses on disability rates in the household population aged 15 and over, rather than specifically in the older population. This is because provision of informal care in the Eurobarometer data relates, not just to care for older people, but to care for people with long-term care needs more generally. Missing data are excluded, with sample sizes given in the notes to the figures. The results focus on bivariate analysis.⁴

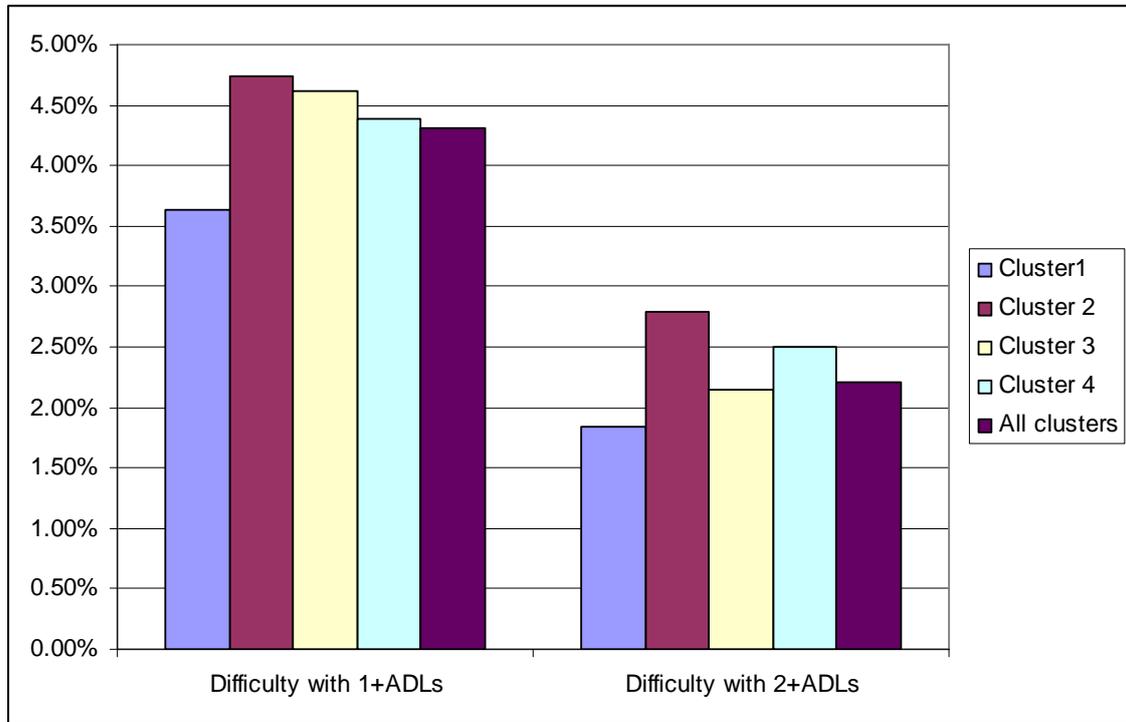
Figure 11 shows the proportion of the household population with difficulty carrying out one or more ADLs, and two or more ADLs, by ANCIEN cluster. Figure 12 shows the same information by ANCIEN representative countries. The figures show that the proportion of respondents with long-term care needs is higher in Cluster 2 than in the other clusters and higher in the Netherlands than in the other representative countries (a result discussed further later in the paper). The differences shown in the figures are statistically significant at least at, as a minimum, the 5% level.

Figure 11 shows that nearly 5% of the household population in Cluster 2 has difficulty with one or more ADLs, compared to just over 4% in all the clusters considered together. The figure also

⁴ The measure of long-term care needs is intended to be an indicator of demand for care by potential care-receivers. If disability were to be included in the multivariate modelling of informal care provision, it would be likely to measure the disability of care-providers, not care-receivers. One option might have been to include a variable identifying whether respondents know someone with long-term care needs, using QA9 of the Eurobarometer survey. However, because only those answering positively to question QA9 were subsequently asked about informal care provision, the two variables are likely to be closely associated by definition. This would imply that an indicator of long-term care need based on QA9 would not be an ‘independent’ variable and therefore would not be suitable for inclusion in the multivariate modelling of the determinants of informal care provision.

shows that nearly 3% of the household population has difficulty with two or more ADLs in Cluster 2, compared to approximately 2% in all the clusters taken together.

Figure 11. Household population aged 15 and over with difficulty carrying out one or more ADLs and two or more ADLs: ANCIEN cluster (percent of respondents with difficulty with 1 or more and 2 or more ADLs)

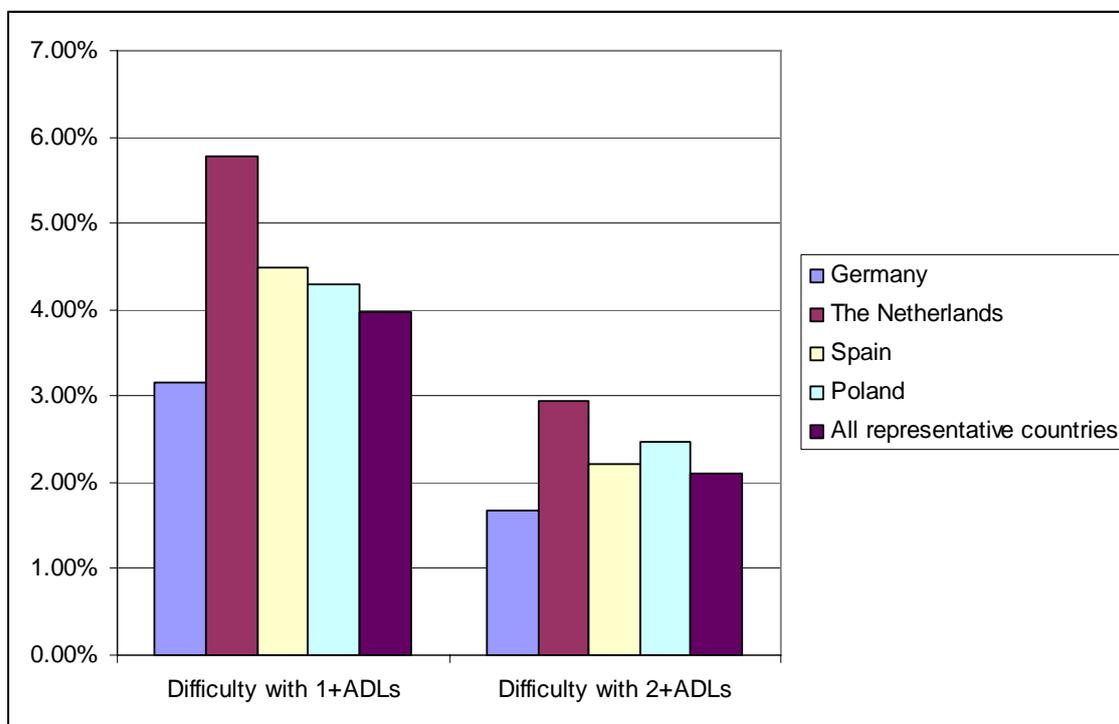


Source: Eurobarometer 67, QA2: “Now I am going to read you a list of some household activities and everyday personal care activities. Not counting any temporary problems you may be having, do you usually experience significant difficulty doing any of the following by yourself because of your physical or mental health condition?”

Notes: Underlying weighted sample bases (excluding missing data) are: Cluster 1, 5,814; Cluster 2, 1,687; Cluster 3, 9,525 and Cluster 4, 6015.

Figure 12 shows similar results. It shows that nearly 6% of the household population in the Netherlands has difficulty with one or more ADLs, compared to approximately 4% in all the representative countries considered together. The figure also shows that approximately 3% of the household population has difficulty with two or more ADLs in the Netherlands, compared to approximately 2% in all the representative countries taken together. (These results are discussed further later in the paper.)

Figure 12. Household population aged 15 and over with difficulty carrying out one or more ADLs and two or more ADLs: ANCIEN representative countries (percent of respondents with difficulty with 1 or more and 2 or more ADLs)



Sources: Eurobarometer 67, QA2 (see sources of Figure 10).

Notes: Underlying weighted sample bases (excluding missing data) are: Germany, 4,317; the Netherlands, 883; Spain, 2,492 and Poland 2,147.

These results suggest that the proportion of the household population with long-term care needs is higher in the Cluster 2 countries, and in particular the Netherlands, than elsewhere. Therefore, the results suggest that the reason why informal help with personal care tasks is lower in Cluster 2 countries and the Netherlands than elsewhere does not appear to be because there is a smaller proportion of people with long-term care needs in these countries. There are, however, some limitations to the analysis reported here, which are discussed in the conclusions below.

4. Discussion and conclusions

This report has carried out an analysis of the provision of informal care in the ANCIEN countries using the 2007 Eurobarometer 67.3 survey. The analysis has employed the typology of long-term care systems that was developed by Work Package 1 of the ANCIEN study, which divides the European countries in the study into clusters and representative countries.

Consistent with Work Package 2 of the ANCIEN study, the emphasis in the present report has been on provision of help with personal care tasks or ADLs, including help with bathing or showering, dressing, feeding and using the toilet. The research has carried out multivariate analyses of the provision of informal help with personal care tasks in Europe, taking into account socio-demographic factors likely to affect the provision of informal care, including gender, age, marital status and education, and also taking into account ANCIEN clusters and representative countries.

The results suggest that differences in informal care provision in European countries are affected, not only by differences in socio-demographic factors, but also by differences in long-term care systems between the countries. The multivariate analyses reported here have shown that, controlling for key socio-demographic factors affecting the provision of informal care, there are significant differences in informal care provision between countries with different long-term care systems. The differences between the countries are particularly marked where provision of the most demanding type of informal care is concerned, that is, provision of help with two or more personal care tasks. Controlling for key socio-demographic factors, ANCIEN Cluster 2 countries, comprising Denmark, the Netherlands and Sweden, are characterised by lower provision of informal help with two or more ADLs than other clusters of countries in the study. Controlling for socio-demographic factors, the country representing Cluster 2, the Netherlands, is characterised by lower provision of informal help with two or more ADLs than the countries representing the other clusters, that is, Germany, Spain and Poland.

The report has also explored the extent to which variations in the provision of informal care may be explained by variations in the extent of long-term care need. The results suggest that the proportion of the household population with long-term care needs seems higher in the Cluster 2 countries and, in particular the Netherlands, compared to elsewhere. At first sight, this finding appears to differ from previous research, which suggests that the Netherlands has a lower proportion of people with difficulty with ADLs than many other European countries (European Health Expectancy Monitoring Unit, 2006). However, the previous research relates to disability in the older population, whereas the analysis in the present report focuses on disability in the population aged 15 and over. The focus in the present report derives from the fact that the Eurobarometer data on informal care provision relates not just to care for older people, but to care for people with long-term care needs more generally. The disability rates for the population aged 15 and over, reported here, suggest that the reason why informal help with personal care tasks is lower in Cluster 2 countries and, in particular, the Netherlands, than elsewhere is not because there is a smaller proportion of people with long-term care needs in these countries. Looking at demand for long-term care, therefore, does not seem to alter the conclusion that differences in informal care provision in European countries are, controlling for socio-demographic differences, affected by differences in long-term care systems between countries. It seems plausible to suggest that, in the Cluster 2 countries, comparatively high demand for long-term care does not translate into high demand for informal care because of the relatively high use of formal long-term care services.⁵

The analysis reported here has a number of limitations. In particular, it should be noted that the definition of informal care used in this report, which was derived from the Eurobarometer data, includes past as well as present provision of care. This may have affected the results to some extent. In particular, the relationship between provision of informal care and some socio-demographic variables, such as age and marital status, may have been affected by the inclusion of past as well as present caring. Moreover, as indicated above, the Eurobarometer data on informal care provision do not relate specifically to care for older people, although this is the focus of the ANCIEN study.

In addition, the analysis of demand for long-term care has some limitations. The disability rates presented here relate to the household population, since the Eurobarometer data do not cover the population in long-stay residential care ('institutional' care) (European Commission, 2007, p. 117). However, disability rates in the household population in each country may be affected by

⁵ The implication is that the provision of informal care is related to the availability of alternative forms of care. The interaction between informal and formal care is examined in detail elsewhere in Work Package 3 of the ANCIEN study (Jimenez-Martin et al., 2011).

the long-term care system, particularly the extent to which there is access to long-stay residential care for the most disabled individuals. In order to examine fully the effects of both long-term care needs and the long-term care system on provision of informal care, the total population (household and non-household) would need to be considered in the analysis.

Nevertheless, a key advantage of the analysis reported here is that, based on the Eurobarometer data, it covers all of the countries included in the ANCIEN study and is probably the most inclusive study of informal care in Europe to have been undertaken to date.

5. Implications for further work on modelling of informal care supply

Further work on the modelling of informal care supply will utilise, not just Eurobarometer data, but also data derived from SHARE. Although the SHARE dataset is restricted to people aged 50 and over, it is anticipated that, by combining information from both Eurobarometer and SHARE, analyses suitable for the modelling of informal care supply in future can be undertaken.

Some analyses of informal care provision have already been undertaken using SHARE data in Work Package 3 of the ANCIEN study. Some of this analysis is appended to the present report as Appendix B, which has been written by colleagues from FEDEA.

At first glance, provision of informal care using SHARE data seems somewhat different from that based on Eurobarometer data. Thus, Table B.1 in Appendix B shows that provision of informal care is lower in Spain and Poland than in the other countries examined. This is not consistent with the analysis based on the Eurobarometer data, reported in the main body of the present report, nor with results expected from the cluster analysis in Work Package 1. However, the results based on SHARE data, shown in Table B.1, relate only to informal care provided to someone in another household and therefore exclude co-resident care. Moreover, care provided to someone in another household in SHARE does not relate specifically to help with personal care tasks but also includes practical household help and help with paperwork. The analysis of the Eurobarometer data, carried out here, on the other hand, focuses on help with personal care tasks, partly because of the likely interaction between informal help with personal care and the long-term care system, identified earlier. It seems likely that the results obtained using SHARE data would be more similar to those using Eurobarometer data if the analyses shared the same definition of informal care.

This interpretation is supported by the results reported in Table B.2 in Appendix B, which shows provision of informal help with personal care within the household. Here the results are much closer to those identified using the Eurobarometer data, where the focus is on provision of help with personal care. Table B.2 shows that, in Germany and Spain, provision of co-resident help with personal care tasks is higher than in any other country and this is consistent both with the analysis of the Eurobarometer data in the main body of this report and with the cluster analysis carried out in Work Package 1. Moreover, where socio-demographic variables are defined in a similar way in the analyses of both the SHARE and Eurobarometer data sets, similar results seem to be obtained. Thus, with regard to gender, the analyses using both SHARE (Table B.2) and Eurobarometer (Table 5) both show that women are significantly more likely than men to provide informal care in Germany and Spain, while there is no significant difference between men and women in provision of informal care in the Netherlands.

A key point to emerge from the analyses undertaken so far, therefore, is that informal care needs to be defined consistently in analyses of survey data. This point will be taken on board in further analyses of the Eurobarometer and SHARE data, to be undertaken to support the modelling of informal care supply in future years for the ANCIEN study.

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Appendices

Appendix A. Analysis of Alternative Representative Countries using Eurobarometer Data: Czech Republic and Italy

Linda Pickard (LSE)

Appendix B. Analysis of the Supply of Informal Care Using Share Data

Sergi Jiménez-Martin, Raquel Vegas Sánchez & Cristina Vilaplana Prieto (FEDEA)

Appendix A. Analysis of Alternative Representative Countries using Eurobarometer Data: Czech Republic and Italy

Linda Pickard, LSE

As indicated earlier, two alternative representative countries, the Czech Republic and Italy, are currently being considered for inclusion in the ANCIEN study. Therefore, this appendix includes some preliminary analysis of informal care provision in these countries. The Czech Republic is a Cluster 1 country and therefore is a potential alternative for Germany, while Italy is a Cluster 4 country and potentially an alternative for Poland. Alternative representative countries may be needed in the ANCIEN study due to possible data limitations in Poland and the desire to include at least one new accession state in the analysis. Other representative countries have been considered at earlier stages of the study and for this reason, Appendix B includes Sweden, an alternative Cluster 2 country. However, it seems fairly clear now that the Netherlands will be the representative country for Cluster 2 and so Sweden is not included in the analysis here.

A change in the choice of representative countries would not affect the Cluster analysis, reported in the main body of this paper, but would affect the analyses of the representative countries. The analysis presented here for the Czech Republic and Italy relates to the multivariate analyses of the socio-demographic factors associated with informal care provision in each of the representative countries. The results are shown in Table A.1, which represents an alternative to Table 5, shown earlier. The table shows results for the Czech Republic (in place of Germany), the Netherlands (unchanged), Spain (unchanged) and Italy (in place of Poland).

The table suggests that, in relation to the factors associated with informal care provision in each country, the results would not be very different if alternative representative countries were used. Table A.1 shows that each of the socio-demographic variables included in the models is significantly associated with provision of informal help with ADLs in at least one of the representative countries. Thus, age is significantly associated with informal care provision in all countries; gender is significantly associated with informal care provision in all countries except the Netherlands; marital status is significantly associated with informal care provision in Spain; and education is significantly associated with informal care provision in Spain and Italy. This suggests that, if alternative representative countries are included in the ANCIEN study, all four socio-demographic factors would need to be taken into account in subsequent modelling. This conclusion is similar to that based on analysis of the representative countries shown in Table 5.

Using the alternative representative countries, the direction of the relationships between the socio-demographic variables and provision of informal help with ADLs is also generally as would be expected (Table A.1). Controlling for other variables, those in mid-life and older age-groups are consistently more likely to provide informal help with ADLs than those in the youngest age-group (aged 15 to 29) (Table 5). Women are more likely to provide informal help with ADLs than men. In most instances, those with longer years of education are less likely to provide informal care than those with the least education, although in one case, Italy, those with the most education are significantly more likely to provide informal care than those with the least education. With regard to marital status, which is significantly associated with informal care provision in Spain, those who are not married are more likely to provide informal care than those who are married. The direction of this relationship would not have been expected from the literature (described in the main body of report) but, as noted earlier, the relationship between marital status and informal care provision may be rather different using the Eurobarometer survey because the data include *past*, as well as present, provision of care. Again, these conclusions are generally similar to those obtained using the representative countries shown in Table 5.

The next stage of the multivariate analyses, which includes variables representing the long-term care systems, has not yet been undertaken using the alternative representative countries, as it is not yet clear which countries such an analysis might include. In particular, it is not yet clear whether such an analysis would include both the Czech Republic (to represent Cluster 1) and Italy (to represent Cluster 4) or only Italy. Further multivariate analyses may therefore be necessary at a later stage of the study.

Table A.1 Results (odds ratios) from logistic regression models of the proportion of the population aged 15 and over providing help with one or more ADLs and two or more ADLs in Europe, by alternative ANCIEN representative countries (Czech Republic, the Netherlands, Spain, and Italy), odds ratios and significance levels

Variables/Categories	Czech Republic	The Netherlands	Spain	Italy
Provision of help with 1+ ADLs	Model 1	Model 2	Model 3	Model 4
Gender				
Men	1.00	1.00	1.00	1.00
Women	***2.97	(ns)1.35	***1.85	**1.48
Age				
15-29	1.00	1.00	1.00	1.00
30-44	(ns)3.08	(ns)2.24	(ns)1.23	(ns)1.17
45-64	**7.44	*3.38	**1.98	**2.26
65+	**7.64	*3.28	**1.32	***3.31
Marital status				
Married	1.00	1.00	1.00	1.00
Not married	(ns)1.11	(ns)1.44	*1.32	(ns)1.10
Education (end of)				
15	1.00	1.00	1.00	1.00
16-19	(ns)0.83	(ns)1.08	**0.60	(ns)1.03
20+	(ns)0.74	(ns)1.34	(ns)0.85	*1.49
Provision of help with 2+ ADLs	Model 5	Model 6	Model 7	Model 8
Gender				
Men	1.00	1.00	1.00	1.00
Women	***4.25	(ns)1.42	***1.84	***2.06
Age				
15-29	1.00	1.00	1.00	1.00
30-44	(ns)3.85	(ns)4.32	**2.60	**4.60
45-64	*8.95	*5.73	***3.89	***7.77
65+	**11.77	*6.08	**3.64	***11.79
Marital status				
Married	1.00	1.00	1.00	1.00
Not married	(ns)1.17	(ns)1.65	**1.48	(ns)0.81
Education (end of)				
15	1.00	1.00	1.00	1.00
16-19	(ns)0.66	(ns)0.81	**0.65	(ns)1.01
20+	(ns)0.61	(ns)1.09	*0.65	(ns)0.95

Source: Eurobarometer 67.3.

Notes: Asterix indicates association at *(5%), ** (1%) and ***(less than 1%); ns indicates no significant association. For definition of variables, see text. Weighted sample numbers (excluding missing values) in the Czech Republic and Italy are, respectively, 561 and 3,182 respondents.

Appendix B. Analysis of the Supply of Informal Care using Share Data

Sergi Jiménez-Martin, Raquel Vegas Sánchez and Cristina Vilaplana Prieto (FEDEA)

In this appendix, we analyse the provision of informal care, focusing on the factors that influence the probability of providing care. This is analysed in the main body of the report by the LSE using Eurobarometer data. Here, we aim to supplement the analysis using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), a cross-national panel database that contains information about health, socio-economic status and social and family related variables of more than 45,000 individuals aged 50 or over, who live in 14 countries in Europe. According to SHARE-2006, around 70% of respondents who define themselves as informal carers (using variable 'sp008', "given help since the last interview") are younger than 65. Therefore, the analysis of the characteristics of informal care-providers is conducted including all the observations in SHARE.

In recent decades, demographic changes associated with the increase in female labour force participation rates, such as the reduction of fertility rates and the subsequent declines in family size have limited families' ability to carry on the burden of caring for disabled people; a responsibility traditionally taken on by women, in particular, wives and daughters.

Regarding care responsibilities, the family members are usually the ones who decide the choice of care and the number of hours of care provided to dependants. This decision can be seen as a sequential process concerning the satisfaction of disabled people's needs. Firstly, family members decide to provide a particular type of care (extensive margin) and once they have done so, they decide the number of hours of this type of care that they are going to provide (intensive margin).

Obviously, their final decision about a particular type of care depends not only on family characteristics, the relationship with the dependent person, family income level and the type of disability or illness affecting the dependent person, but also on their decision (at the extensive and at the intensive margin) regarding other possible sources of care. In this appendix we examine the probability of providing informal care, independently of other available sources of care, as a first approach to the factors that characterise care provision.

The analysis initially looks at variations in the provision of informal care between countries and asks whether these variations are likely to be due to variations in disability rates between countries. Disability is defined in the question 'ph049' in the SHARE questionnaire: "Do you have difficulties with one or more Activities of Daily Living (ADLs)⁶ because of a physical, mental, emotional or memory problem?". The questionnaire stipulates that those having difficulties that are expected to last fewer than three months are excluded from being considered as disabled. The analysis regarding the probability of receiving informal care is restricted to older disabled people, since SHARE is confined to people aged 50 years and over.

Figure B.1 reports the percentage of people that, according to their answers, are defined as disabled. As can be seen, differences between countries regarding the incidence of disability are quite small. However, the percentage of people providing informal care differs rather more from country to country according to SHARE information (Figure B.2). These differences in the percentage of people providing informal care between countries reveal different propensities to

⁶ Dressing; walking; bathing or showering; eating; getting out of bed; using the toilet; using a map; preparing a hot meal; shopping; making phone calls; taking medication; doing housework and managing money.

provide informal care for people living in a particular country, which may be due to differences in preferences or as a consequence of the differences in individual and family circumstances.

Figure B.1 Percentage of people with one or more limitation on ADLs

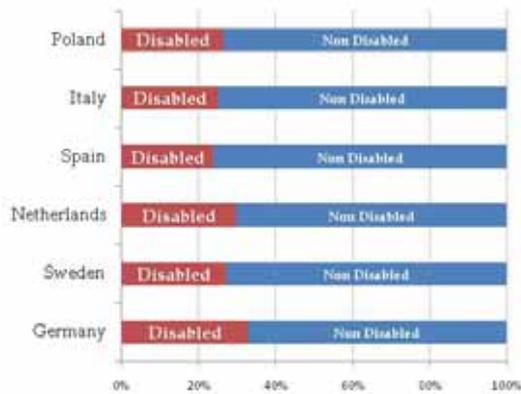
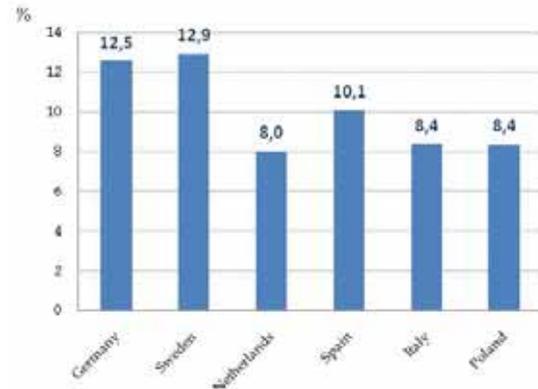


Figure B.2 Percentage of informal caregivers



Source: SHARE (analysis by Jimenez et al.).

Tables B.1 and B.2 report the probability of providing informal care, conditional on personal characteristics of the informal care providers, looking respectively at care outside and care inside the home.

Table B.1 shows the probability of providing informal care outside the household, based on SHARE data. The dependent variable, being an informal care giver, is constructed from the survey question ‘sp008’, which asks “In the last twelve months have you personally given any kind of help listed on this card to a family member from outside the household, a friend or neighbour?”. Information about illness and impairment has been grouped into two dummies: Not being Impaired (NBI, hereafter) and No ADLs.

The probability of being an informal caregiver outside the household is smaller in Spain and Poland than in the other countries. This may be because, in these countries, informal care provision is mainly within the household. Being male reduces the probability of being an informal caregiver in the Netherlands, Spain and Italy, with an impact ranging from 2.4 to 4.4 percentage points. Not being ill, NBI, has a positive effect on the probability of providing informal care for all countries considered. Caregivers are not affected by ADLs in all countries but the Netherlands. The older the person, the lower the probability of being an informal caregiver. In Germany and Sweden, the level of income has a strong effect on the probability of being an informal carer at all the intervals considered. Being divorced, and also being an active worker considerably increases the probability of providing informal care outside the household.

Table B.2 shows the probability of being an informal caregiver inside the household.⁷ The dependent variable is defined by question ‘sp018’, “Is there someone living in this household whom you have helped regularly during [the time since the last interview/the last twelve months] with personal care, such as washing, getting out of bed, or dressing?”. The countries with the highest predicted probability of receiving informal care from someone living in the household according to these data are Germany, Spain and Italy. However, the results should be

⁷ No coefficients indicate that there is no variation in the dependent variable over the set of independent variables corresponding to that group.

read with caution. The predicted probability of providing informal care is low given the characteristics of the sample - people aged 50 years and over, with an average age in the countries considered being around 61 years old. Being male reduces the probability of providing informal care within the household in Germany (1.1%), Sweden (0.9%) and Spain (1.5%). Likewise, being a widow reduces the probability of providing informal care in Germany (2.7%), Sweden (0.8 %), Italy (3.1%) and Poland (1%). Income seems not to have a big impact on the probability of providing informal care in Spain. Not suffering any illness increases the probability of providing informal care in Italy (1.6%) and Poland (3.9%).

Table B.1 Logit Estimation. Probability of being an informal caregiver (outside the household)

	<i>Germany</i>	<i>Sweden</i>	<i>Netherlands</i>	<i>Spain</i>	<i>Italy</i>	<i>Poland</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Predicted probability</i>	0.21	0.22	0.23	0.06	0.13	0.06
	mf	mf	mf	mf	mf	mf
Male	0.008	0.022	-0.024*	-0.035***	-0.044***	-0.009
	(-0.014)	(0.014)	(-0.014)	(-0.007)	(-0.009)	(-0.006)
Widow	-0.028	0.003	-0.020	-0.015	0.006	0.032**
	(-0.037)	(-0.047)	(0.042)	(0.017)	(0.030)	(0.016)
Single	-0.058	-0.005	-0.038	-0.009	0.022	0.116***
	(0.043)	(0.080)	(0.068)	(0.021)	(0.046)	(0.040)
Divorced	0.135***	-0.027	0.151**	-0.004	0.040	0.112***
	(0.052)	(0.045)	(0.063)	(0.031)	(0.056)	(0.030)
65-74 years old	0.145***	0.199***	0.185***	0.0525***	0.0586***	0.0743***
	(0.021)	(0.024)	(0.023)	(0.014)	(0.014)	(0.015)
75-84 years old	0.013	0.071**	0.025	0.007	-0.040***	0.018
	(0.027)	(0.029)	(0.028)	(0.015)	(0.015)	(0.016)
More than 85 years old	-0.151***	-0.056	-0.081*	-0.015	-0.099***	-0.037*
	(0.037)	(0.040)	(0.043)	(0.022)	(0.020)	(0.019)
Income: 1000-2000 €/month	0.177***	0.204***	0.203***	0.102***	0.174***	0.0290
	(0.026)	(0.027)	(0.024)	(0.024)	(0.023)	(0.027)
Income: 2001-3000 €/month	0.155***	0.226***	0.263***	0.149***	0.227***	0.025
	(0.0320)	(0.0269)	(0.0310)	(0.0507)	(0.035)	(0.0361)
Income: 3001-4000 €/month	0.218***	0.175***	0.234***	0.109	0.192***	0.047
	(0.048)	(0.032)	(0.045)	(0.070)	(0.058)	(0.042)
Income: 4001-5000 €/month	0.210***	0.160***	0.214***	0.125	0.181	-0.040
	(0.076)	(0.045)	(0.067)	(0.126)	(0.110)	(0.025)
Income: 5001-6000 €/month	0.238**	0.103	0.216**	-0.009	0.192	-0.045**
	(0.099)	(0.085)	(0.101)	(0.053)	(0.139)	(0.020)
Income: More than 6000 €/month	0.155***	0.195***	0.113***	0.099***	0.122***	0.071*
	(0.037)	(0.055)	(0.043)	(0.034)	(0.022)	(0.037)
Working	0.232***	0.333***	0.264***	0.107***	0.151***	0.219***
	(0.024)	(0.023)	(0.024)	(0.021)	(0.022)	(0.026)
NBI	0.079***	0.096***	0.088***	0.009	0.050***	0.026**
	(-0.018)	(0.019)	(0.018)	(0.011)	(0.015)	(0.012)
No ADLs			-0.008			
			(0.208)			
Observations	3733	4267	4241	3880	4984	5665

Standard errors in parentheses

Source: SHARE (analysis by Jimenez et al.).

Table B.2 Logit Estimation. Probability of being an informal caregiver (inside the household)

	<i>Germany</i>	<i>Sweden</i>	<i>Netherlands</i>	<i>Spain</i>	<i>Italy</i>	<i>Poland</i>
<i>Predicted probability</i>	0.294	0.014	0.018	0.042	0.040	0.025
	(1)	(2)	(3)	(4)	(5)	(6)
	mfX	mfX	mfX	mfX-	mfX-	mfX-
Male	-0.011** (0.005)	-0.009*** (0.003)	0.002 (0.004)	-0.015** (0.006)	-0.008 (0.005)	-0.003 (0.004)
Widow	-0.027*** (0.004)	-0.008* (0.005)		-0.010 (0.0108)	-0.031*** (0.006)	-0.010** (0.004)
Single	0.026 (0.029)	0.006 (0.020)		0.099** (0.040)	0.025 (0.030)	-0.0004 (0.011)
Divorced	0.008 (0.017)	-0.005 (0.008)		0.0518 (0.047)	-0.0207 (0.019)	0.0150 (0.011)
Age 65-74	0.026*** (0.009)	0.019** (0.008)	0.010 (0.007)	0.077*** (0.0153)	0.025*** (0.009)	0.027*** (0.009)
Age 75-84	0.032** (0.014)	0.027** (0.013)	0.018* (0.011)	0.107*** (0.022)	0.063*** (0.016)	0.043*** (0.013)
Age more than 85	0.028 (0.028)	0.064** (0.030)	0.030 (0.021)	0.047* (0.028)	0.047 (0.031)	0.030 (0.021)
Income 1001-2000	0.038*** (0.012)	0.021** (0.009)	0.0125 (0.007)	0.037** (0.016)	0.035*** (0.012)	0.009 (0.016)
Income 2001-3000	0.047** (0.018)	0.017* (0.009)	0.034** (0.014)	0.040 (0.0315)	0.033* (0.018)	0.003 (0.017)
Income 3001-4000	0.061* (0.031)	0.029** (0.014)	0.051** (0.023)	0.0313 (0.052)	0.025 (0.029)	0.0162 (0.022)
Income 4001-5000	0.128* (0.065)	0.033 (0.022)	-0.0002 (0.018)		0.143 (0.098)	0.015 (0.030)
Income 5001-6000	0.069 (0.067)		0.080 (0.068)	-0.003 (0.040)		0.0120 (0.029)
More than 6000	0.047** (0.021)	-0.003 (0.011)	0.007 (0.015)	0.025 (0.021)	0.012 (0.009)	-0.011 (0.011)
Working	-0.005 (0.007)	0.008 (0.006)	0.002 (0.006)	0.025* (0.015)	0.009 (0.011)	0.031** (0.012)
NBI	-0.008 (0.006)	0.003 (0.004)	-0.003 (0.004)	0.013 (0.011)	0.016* (0.009)	0.039*** (0.012)
No ADLs	-0.037*** (0.012)	-0.004 (0.005)	-0.035*** (0.012)	-0.039*** (0.012)	-0.049*** (0.012)	-0.081*** (0.014)
Observations	3743	4248	4047	3909	4987	5683

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: SHARE (analysis by Jimenez et al.).

ANCIEN

Assessing Needs of Care in European Nations



FP7 HEALTH-2007-3.2-2

L launched in January 2009, ANCIEN is a research project financed under the 7th EU Research Framework Programme. It runs for a 44-month period and involves 20 partners from EU member states. The project principally concerns the future of long-term care (LTC) for the elderly in Europe and addresses two questions in particular:

- 1) How will need, demand, supply and use of LTC develop?
- 2) How do different systems of LTC perform?

The project proceeds in consecutive steps of collecting and analysing information and projecting future scenarios on long term care needs, use, quality assurance and system performance. State-of-the-art demographic, epidemiologic and econometric modelling is used to interpret and project needs, supply and use of long-term care over future time periods for different LTC systems.

The project started with collecting information and data to portray long-term care in Europe (WP 1). After establishing a framework for individual country reports, including data templates, information was collected and typologies of LTC systems were created. The collected data will form the basis of estimates of actual and future long term care needs in selected countries (WP 2). WP 3 builds on the estimates of needs to characterise the response: the provision and determinants of formal and informal care across European long-term care systems. Special emphasis is put on identifying the impact of regulation on the choice of care and the supply of caregivers. WP 6 integrates the results of WPs 1, 2 and 3 using econometric micro and macro-modelling, translating the projected needs derived from WP2 into projected use by using the behavioral models developed in WP3, taking into account the availability and regulation of formal and informal care and the potential use of technological developments.

On the backbone of projected needs, provisions and use in European LTC systems, WP 4 addresses developing technology as a factor in the process of change occurring in long-term care. This project will work out general principles for coping with the role of evolving technology, considering the cultural, economic, regulatory and organisational conditions. WP 5 addresses quality assurance. Together with WP 1, WP 5 reviews the policies on LTC quality assurance and the quality indicators in the EU member states, and assesses strengths, weaknesses, opportunities and threats of the various quality assurance policies. Finally WP 7 analyses systems performance, identifying best practices and studying trade-offs between quality, accessibility and affordability.

The final result of all work packages is a comprehensive overview of the long term care systems of EU nations, a description and projection of needs, provision and use for selected countries combined with a description of systems, and of quality assurance and an analysis of systems performance. CEPS is responsible for administrative coordination and dissemination of the general results (WP 8 and 9). The Belgian Federal Planning Bureau (FPB) and the Netherlands Bureau for Economic Policy Analysis (CPB) are responsible for scientific coordination.

For more information, please visit the ANCIEN website (<http://www.ancien-longtermcare.eu>).