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Equity and equality in the use of GP services for elderly people: The Spanish case

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ABSTRACT

Objectives: To present new evidence both on the horizontal inequity in the delivery of primary health care and on the factors driving inequalities in the use of GP services for Spanish population aged 50 years and over.
Methods: Cross-sectional study based on the Spanish sample of the Survey of Health, Aging and Retirement in Europe (SHARE) for 2006–07. We use the index proposed by Wagstaff and van Doorslaer (HI_{WV}) to compute health care inequity. The concentration index measuring income related inequality in health care use is decomposed into the contribution of each determinant.
Results: Our results show the presence of pro-poor inequality in both the access and the frequency of use for GP services, which is mainly explained by unequal distribution of need factors. The contribution of non-need factors to income related inequality is quite higher for the conditional number of GP visits (48.13%) than for the probability of positive use (17.55%). We have also found significant pro-poor inequity in the probability of access to a GP and in the conditional number of visits for elderly people.
Conclusions: The relevance of social determinants of health is confirmed, and hence the need for wide-scoped public policies to reduce health inequalities. At equal levels of need, rich and poor elderly people are not treated equally. As much as appropriateness of care provided is unknown, we cannot conclude that inequity in GP services really favours the lower income individuals in terms of health gains.
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1. Introduction

Equity in the delivery of health care has been extensively studied in many European countries [1–11]. Some of these studies have found there to be a certain degree of pro-poor inequity related to the use of general practitioner (GP) services. While this pattern is known to hold specifically for the elderly sector of the population in some countries [12–16], for most health care systems there has been little research on this subject. Furthermore, although a number of scientific papers also explore the sources of inequality in health care utilization [1,4,5,8–11,17], there is no evidence about the decomposition of inequality for the elderly. However, elderly people represent a significant and growing percentage of the European population, and the aging phenomenon is especially strong in some Member States, including Spain. The 34% of Spanish population was aged 50 or over in year 2008, and this group concentrated 58% of public expenditure on health [18]. Even if determinants of medical use for Spanish elderly people have been studied on the base of these arguments [14], equity issues have been ignored. Nevertheless, equity in health care and the reduction of health inequalities rank high among the strategic goals of most European health care systems, and Spain is not an exception [19,20]. Additionally, the elderly are considered as a vulnerable group

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by the Spanish authorities and receive a special treatment from the National Health System (NHS). While medical visits are free of charge for all the Spaniards under public coverage (99.5% of the total population), as in many other EU countries, drugs prescribed by public-sector GPs are co-financed by users except if they are pensioners (being the vast majority of them retired people). In the EU context, only Spain and the United Kingdom totally exempt the elderly from participation in the cost of pharmaceutical products. Other countries apply exemptions to the elderly (Czech Republic, Estonia, Greece, Lithuania and Portugal), but they are partial exemptions and use to be conditioned to some requirements [21]. In Spain, the special concern on the elderly is also reflected on the approval, in 2006, of a public system of dependency care aimed at the old and disabled [22], which is now in development. Although family still acts as a strong support network for the elderly, social changes occurred in the last decades in an aging society, such as the reduction of households' size and the incorporation of women to the labour market, have fostered the role played by the public sector in the provision of care for aged people.

In this paper we address equity issues related to the provision of health care for Spanish elderly people. Specifically, we present new evidence both on the horizontal inequity in the delivery of primary health care and on the factors driving inequalities in the use of GP services for people aged 50 or over.

2. Material and methods

The study is based on the Spanish sample of the Survey of Health, Aging and Retirement in Europe (SHARE), created in 2004 as a response to a Communication by the European Commission to analyze the process of aging affecting most European countries. This survey considers only non-institutionalized people aged 50 or over, gathering information about their health and use of health services, personal characteristics, family situation and socioeconomic status. The data used in the present work are taken from the second wave of SHARE (2006–07) [23,24] and are representative of the Spanish population aged 50 or over.

In order to measure horizontal inequity in the delivery of primary health care and explain socioeconomic-related inequality in the use of the service, we follow the methodological approach proposed by Wagstaff and van Doorslaer [25] and Wagstaff et al. [26], based on the calculation of concentration indices.

Horizontal equity is defined as "equal use for equal medical need," irrespective of other characteristics. The inequity index proposed by Wagstaff and van Doorslaer (HI_{WV}) is calculated as the concentration index for actual use (C_M) minus the concentration index for need-predicted utilization (C_N), and positive (negative) values indicate pro-rich (pro-poor) inequity. According to this definition, to assess equity it is necessary to standardize for differences in need. Although the objective is to standardize only for need factors, the standardization procedure should include non-need regressors in order to avoid omitted-variables bias [8,27]. When the regression model is linearly additive, Schokkaert and van de Voorde [28] propose to neutralize the impact of non-need factors by holding these variables constant at their means in the need-predicted equation. Furthermore, if health care use (y) is specified as a linear function of need (x) and control (z) variables, its concentration index may be decomposed into the contribution of each determinant by using Eq. (1) [8]:

$$C_M = \sum_k \left(\frac{\beta_k \bar{x}_k}{\bar{y}}\right) C_k + \sum_j \left(\frac{\gamma_j \bar{z}_j}{\bar{y}}\right) C_j + \frac{GC\varepsilon}{\bar{y}} \quad (1)$$

where $\bar{y}$, $\bar{x}_k$ and $\bar{z}_j$ are, respectively, the means of y, x_k and z_j, C_k, C_j are the concentration indices for the need and non-need variables, and GC_ε is the generalised concentration index for the error term. Therefore, C_M is calculated as the weighted sum of the concentration indices of the regressors, where the weight is the elasticity of health care use with respect to each explanatory variable. The HI_{WV} index may also be derived from (1) by subtracting the concentration index of need-predicted use from the C_M.

However, health care demand is usually estimated by non-linear models. In this case, the decomposition analysis is possible only if some linear approximation to the non-linear model is made. It can be done by using estimates of the partial effects evaluated at the means [8]. Then, C_M would be given by (2):

$$C_M = \sum_k \left(\frac{\beta_k^m \bar{x}_k}{\bar{y}}\right) C_k + \sum_j \left(\frac{\gamma_j^m \bar{z}_j}{\bar{y}}\right) C_j + \frac{GC\varepsilon}{\bar{y}} \quad (2)$$

where β_k^m and γ_j^m are the partial effects (dy/dx_k and dy/dz_j) evaluated at sample means, and GC_ε is the generalised concentration index for the error term, which now includes the approximation error.

According to the model proposed by Andersen [29], the factors that determine the demand for health services may be classified into three groups: (1) predisposing factors such as age and sex; (2) need factors related to aspects of individuals' health status; and (3) enabling factors with influence on the access and use of health care, such as income level and health insurance. Educational level and occupation are included by Andersen as components of the predisposing characteristics (demographic, social structure and health beliefs), although they can also be seen as influential enabling variables. Furthermore, age and sex can be treated as need variables. In summary, factors determining the demand for health care may be reclassified into two groups: need and enabling factors or, said in other words, into need and non-need variables. This is the scope adopted in the paper.

In the estimation of health care demand, we used count data models, which are appropriate when the dependent variable takes nonnegative integer values [30,31]. This is our case, where use of GP services is measured by the number of visits. Several tests were carried out to check the adequacy of different estimation alternatives. Results of overdispersion test showed that negative binomial distribution is preferred to the Poisson model. The Voung test showed that the hypothesis of use of GP services following a two-step process cannot be rejected. Therefore, the hurdle count data model proposed by Mullahy [32] is used in

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this paper. We first estimate the probability of making at least one contact with a GP by using a probit. Then we use a negative binomial model truncated at zero to estimate the frequency of visits conditioned to a former contact. Similar specifications have been applied to GP use data in previous studies [6,17,33–36].

In the estimation procedure, we define two dependent variables: *GP* is a dummy which takes value one when the respondent declares having visited a GP, whether public or private, in the preceding year; and *FreqGP* indicates the total number of visits. The age of the respondent is represented by three dummies: 50–64 (*Age*1), 65–74 (*Age*2), and 75 and over (*Age*3, reference category). Sex is represented by the variable *Female*, taking value one for women and zero for men. Other need factors are associated to both physical and mental health and try to measure several dimensions of health status. The dummies *Longillness* and *Symptom* indicate, respectively, the presence of long-term illness and whether or not the individual has suffered some kind of symptom during the preceding six months. Comorbidity is represented by dummies *Chronic*2 and *Symptom*2, which indicate, respectively, the presence of two or more chronic diseases in the last year and the presence of two or more symptoms in the last six months. *Limitation* indicates if the respondent has a health problem or disability that limits the kind or amount of paid work he/she can perform. Mental health problems are represented by *Depression*, which equals one if the individual declares he/she felt depressed. We also introduce a dummy related not to perceived but to evaluated health (*Badorient*, indicating if the respondent has a problem identifying the date). Restrictions in daily activities are proxied by *Resadl* and *Resiadl*, which indicate the number of limitations in activities of daily life and the number of limitations in instrumental activities of daily life, respectively. The respondent's own perception of their health status is represented by the dummy variable *Phealth*, which takes value one if the perception is fair or poor health, and zero if good, very good or excellent. Finally, we introduce the dummy *Physicactiv* (taking value one if the respondent does not do any physical activity), as a proxy of lifestyles influencing final health. While the most commonly used indicators of life habits are smoking and alcohol consumption, the high number of missing values in the survey made us decide not to consider these variables.

The first set of enabling factors includes educational level, employment status, health coverage and income level. Educational level is categorized by means of five dummies: no formal studies (*Ed1*, reference category), primary education (*Ed2*), compulsory secondary education (*Ed3*), non-compulsory and pre-university secondary education (*Ed4*) and university graduate (*Ed5*). Employment status is represented by five dummies: being employed in a paid work (*Employed*, reference category), being unemployed and looking for a job (*Unemployed)*, being retired (*Retired*), being partially disabled or incapable (*Invalid*) and other inactive situations, (*Otherinact*). Health coverage is proxied by the dummy *Insurance*, which takes value one when GP visits are mostly or entirely paid by the respondent and zero if the insurance plan (public or private) is mostly or entirely responsible for the payment. Finally, (the log of) equivalent household income (*Eqhincome*) reflects the individual's socioeconomic status. This variable was constructed from the annual net household income in the year preceding the interview together with information on household composition. The modified OECD equivalence scale was used to calculate equivalent income.

Two final enabling factors are considered, reflecting family situation and external home help received. These factors may be particularly important for the elderly in influencing their consumption of GP visits. Regardless of their clinical circumstances, individuals might use health care services to partially obtain the care needed and not provided by family members or social services. Thus, affective or other needs may be reflected in the form of increased consumption of GP visits [37]. We therefore include two final dummies, *Alone* and *Homecare*. The variable *Alone* indicates if the respondent lives alone at home and zero otherwise. It has been found that those living alone show a higher marginal propensity to use health services [38]. *Homecare* represents whether or not the respondent receives assistance at home because of limitations in her/his ability to perform daily activities.

As non-linear models are estimated, the decomposition of inequality in health care use will be derived from Eq. (2), which also allows calculating the HI_{WV} index. Specifically, as we estimate a two-part model, we will compute the inequity index for both the probability of a positive use of the GP service and the number of conditional visits. We will also show the results obtained from the decomposition of inequality approach for both parts of the health care use process.

3. Results

According to our data, 84% of the population aged 50 and over declares having visited the GP during the preceding year, being the mean number of visits 7.2. The prevalence of any symptom is quite high (70%) and more than half the total sample suffers from a long-term illness. Comorbidity, measured by dummies *Chronic2* and *Symptom2*, affects more than 40% of the population. Depression affects 37% of the sample, a proportion much higher than the 8.4% corresponding to the Spanish adult population [39]. It suggests that special attention should be provided to mental health for the elderly. A relatively high concentration of health problems in the elderly population is reflected by the proportion of individuals declaring fair or poor health (47%). This percentage is significantly higher than that observed in the Spanish National Health Survey for people in the age group 16–49 (22.7% in 2006) [40]. Finally, only 9% of elderly people live alone, and a percentage even lower (6%) receive formal care at home.

Table 1 shows the C_M for both the probability of a visit and the conditional number of visits. The contribution of need and non-need factors is also summarized in the table, as well as the contribution of the residual (GC_ε) and the inequity index. The negative concentration indices for actual use indicate the presence of pro-poor inequality, meaning that lower income individuals are more likely to contact a GP and that they do it more frequently than higher income individuals. Inequality in the use of primary health

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Table 1
Decomposition of concentration index for use of GP services.

	Probability of any GP use		Conditional number of GP visits	
	Contribution to C_M	% Contribution	Contribution to C_M	% Contribution
$C_{\text{Need factors}}$	−0.0105	−68.72	−0.0387	−56.54
$C_{\text{Non-need factors}}$	−0.0027	−17.55	−0.0330	−48.13
GC (residual)	−0.0021	−13.73	0.0032	4.67
Total (C_M)	−0.0153	−100.00	−0.0685	−100.00
$HI_{WV} = C_M - C_{\text{Need}}$	−0.0048***		−0.0298***	

*** $p < 0.01$.

care is mainly due to differences in need factors, which also show a pro-poor distribution. However, the influence of need and non-need variables is significantly different for the probability of making at least one contact with a GP and for the frequency of use. Particularly, 68.72% of inequality in the probit model is attributed to differences in predisposing factors and health indicators (17.55% to non-need variables), while in the negative binomial model only 56.55% of total inequality is explained by need (and 48.13% by enabling factors). Moreover, the residual contribution to inequality is negative (pro-poor) in the probit model, but positive (although small) when number of visits is estimated. Finally, the HI_{WV} index shows that, after controlling for the unequal need distributions, inequity in the delivery of primary health care is significantly pro-poor, and higher for the conditional number of visits than for the probability of access to the GP.

Tables 2 and 3 report the total C_M decomposition for the probit and truncated negative binomial models, respectively. They first show the mean values for the explanatory variables and the partial effects evaluated at their means. The third column indicates the demand elasticity for each determinant of health care use. The fourth column displays the partial concentration index for each of these determinants. A negative (positive) sign indicates that the variable has a pro-poor (pro-rich) distribution. Finally, the last two columns of both tables report, respectively, the absolute and percentage contributions to total income-related inequality. The absolute contribution is the product of the elasticity and the partial concentration index for each factor, so it will depend both on the impact of each variable on health care demand and on its unequal distribution by income. A negative (positive) absolute contribution implies that, if utilization was determined by that variable alone, then it would be pro-poor (pro-rich).

Results from Table 2 show that use elasticity is positive for most of need factors, although only significant for the dummies *Female*, *Symptom*, *Chronic2* and *Depression*. All the ill-health indicators present a negative concentration index, thus pointing out the greatest needs of the poor. As resulting from the combination of positive elasticities and negative concentration indices, most of need variables contribute to pro-poor inequality. The dummy representing the presence of two or more chronic diseases (*Chronic2*) shows a high contribution to inequality in the access to GPs (19.44%). The presence of any illness symptom also contributes remarkably to pro-poor inequality (10.41%), as much as suffering health problems limiting the kind or amount of paid work (10.2%) and somewhat more than the presence of long-term illness (7.67%). For the *Limitation* dummy, contribution to inequality is mainly due to the impact of the concentration index. The unequal distribution favouring the better-off is also observed for the two proxies of restrictions in daily activities, although their final contribution to income-related inequality is quite lower.

Among the enabling factors, we observe that retired and other inactive people (not invalid or unemployed) are significantly more likely to seek care than the employed. The rest of non-need determinants remain non-significant in the probit model. All the variables representing inactive status present a pro-poor distribution. The main contribution to inequality (23.82%) is attributed to "other inactive", and it is pro-poor.

Interestingly, the variable *Insurance* shows a negative partial concentration index, indicating that direct payments to general practitioners have a pro-poor distribution, which may reflect the composition of the population not covered by the National Health System. Home care is also unequally distributed and concentrated on the poor. However, the contributions of these enabling factors are quite lower, and lie mostly below 2%. The rest of non-need variables show also minor contributions to inequality.

Table 3 shows that, among the need factors, use of GP services is significantly determined by the presence of one or more chronic diseases, the number of limitations in instrumental activities of daily life, suffering two or more symptoms in the last six months, feeling depressed and the perception of a fair or poor health status. The concentration indices are quite similar to those collected in Table 2, as the sample used in the estimation of the negative binomial model represents the 84% of the total sample. Again, some of illness-related indicators contribute remarkably to pro-poor inequality. The main contribution corresponds to the presence of two or more illness symptoms (13.21%), followed by self-assessed health (12.43%) and the dummies representing chronic diseases (9.18% attributed to *Chronic2* and 8.53% to *Longillness*).

Moreover, the contribution of non-need factors to health care demand and inequality in use has now widened. According to our results, some of the education and labour status dummies have a significant influence on the number of GP visits, indicating that lower educated and inactive elderly use primary health care more frequently than the rest of population aged 50 or over. The educational level variables together contribute to pro-poor inequality up to the 16.17%. The contribution of labour status dummies is also negative and reaches 7.53%, although the only remarkable partial contribution corresponds to the

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Table 2
Contributions to inequality in the GP visit probability ($n = 1860$).

Variable	Mean	Partial effect	Elasticity	Conc. index	Contribution	% Contribution
Age1	0.4392	−0.0402	−0.0209	0.1058	−0.0022	−14.46%
Age2	0.3054	−0.0034	−0.0012	−0.0185	0.0000	0.15%
Female*	0.5387	0.0362	0.0231	−0.0174	−0.0004	−2.63%
Longillness	0.5581	0.0263	0.0174	−0.0674	−0.0012	−7.67%
Symptom**	0.6952	0.0474	0.0390	−0.0408	−0.0016	−10.41%
Chronic2***	0.4823	0.0905	0.0517	−0.0575	−0.0030	−19.44%
Symptom2	0.4210	−0.0008	−0.0004	−0.0938	0.0000	0.25%
Limitation	0.3210	0.0305	0.0116	−0.1345	−0.0016	−10.20%
Depression**	0.3677	0.0405	0.0177	−0.0384	−0.0007	−4.44%
Badorient	0.0532	−0.0203	−0.0013	−0.2073	0.0003	1.76%
Resadl	0.2823	−0.0090	−0.0030	−0.1795	0.0005	3.52%
Resiadl	0.4849	0.0086	0.0050	−0.1605	−0.0008	−5.25%
Phhealth	0.4747	0.0066	0.0037	−0.0951	−0.0004	−2.30%
Physicactiv	0.1538	−0.0192	−0.0035	−0.1054	0.0004	2.41%
Ed2	0.4855	−0.0057	−0.0033	−0.0698	0.0002	1.51%
Ed3	0.2172	0.0055	0.0014	0.0979	0.0001	0.90%
Ed4	0.0871	0.0167	0.0017	0.2829	0.0005	3.15%
Ed5	0.0710	−0.0090	−0.0008	0.4062	−0.0003	−2.13%
Unemployed	0.0317	−0.0128	−0.0005	−0.0684	0.0000	0.22%
Retired*	0.3957	0.0504	0.0236	−0.0022	−0.0001	−0.34%
Invalid	0.0473	0.0228	0.0013	−0.1280	−0.0002	−1.09%
Otherinact**	0.3269	0.0717	0.0278	−0.1310	−0.0036	−23.82%
Insurance	0.0156	−0.0752	−0.0014	−0.1761	0.0002	1.61%
(ln)Eqhincome	8.9813	0.0003	0.0032	0.0403	0.0001	0.84%
Alone	0.0935	0.0285	0.0032	0.0152	0.0000	0.32%
Homecare	0.0591	−0.0238	−0.0017	−0.1147	0.0002	1.28%
Residual					−0.0021	−13.73%
Total					−0.0153	

* $p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.

Table 3
Contributions to inequality in the conditional number of GP visits ($n = 1569$).

Variable	Mean	Partial effect	Elasticity	Conc. index	Contribution	% Contribution
Age1	0.4054	−0.6675	−0.0375	0.1057	−0.0040	−5.78%
Age2	0.3193	0.2891	0.0128	−0.0184	−0.0002	−0.34%
Female	0.5660	0.5416	0.0425	−0.0174	−0.0007	−1.08%
Longillness***	0.5997	1.0431	0.0867	−0.0674	−0.0058	−8.53%
Symptom	0.7374	0.0324	0.0033	−0.0409	−0.0001	−0.20%
Chronic2***	0.5328	1.4789	0.1092	−0.0576	−0.0063	−9.18%
Symptom2***	0.4583	1.5203	0.0965	−0.0938	−0.0091	−13.21%
Limitation	0.3518	0.6041	0.0295	−0.1344	−0.0040	−5.78%
Depression***	0.3971	1.0908	0.0600	−0.0385	−0.0023	−3.37%
Badorient	0.0574	1.1545	0.0092	−0.2070	−0.0019	−2.78%
Resadl	0.3091	−0.0213	−0.0009	−0.1792	0.0002	0.24%
Resiadl*	0.5354	−0.3150	−0.0234	−0.1604	0.0037	5.48%
Phhealth***	0.5131	1.2599	0.0896	−0.0951	−0.0085	−12.43%
Physicactiv	0.1619	−0.1257	−0.0028	−0.1057	0.0003	0.43%
Ed2	0.4971	−0.6796	−0.0468	−0.0697	0.0033	4.76%
Ed3	0.2091	−0.3857	−0.0112	0.0978	−0.0011	−1.60%
Ed4***	0.0816	−2.6069	−0.0295	0.2828	−0.0083	−12.17%
Ed5*	0.0637	−1.3730	−0.0121	0.4061	−0.0049	−7.17%
Unemployed**	0.0268	0.7881	0.0029	−0.0684	−0.0002	−0.29%
Retired*	0.4079	1.2256	0.0693	−0.0020	−0.0001	−0.20%
Invalid	0.0497	0.7543	0.0052	−0.1283	−0.0007	−0.97%
Otherinact	0.3518	0.6494	0.0317	−0.1312	−0.0042	−6.07%
Insurance	0.0140	1.2645	0.0025	−0.1762	−0.0004	−0.64%
(ln)Eqhincome	8.9682	−0.2992	−0.3719	0.0403	−0.0150	−21.87%
Alone*	0.0994	1.0802	0.0149	0.0153	0.0002	0.33%
Homecare*	0.0644	1.5003	0.0134	−0.1145	−0.0015	−2.24%
Residual					0.0032	4.67%
Total					−0.0685	

* $p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.

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category of "other inactive". However, the most relevant contribution to pro-poor inequality corresponds to the household income (21.87%), and it indicates that treatment patterns favour the worse-off. The relevance of this variable in the decomposition of inequality is mainly due to the high income elasticity of primary health care demand, which indicates that an increase of income is followed by a decrease of health care use. The rest of enabling factors show minor contributions to inequality in the use of GP services, although some of them are significant in the estimation of conditional number of visits, such as living alone and receiving formal help at home.

4. Discussion

Our study has a number of limitations. Firstly, this is a cross-sectional study, so it is not possible to discuss its findings in terms of causal relationships. Secondly, it has to be noted that some relevant determinants of primary health care demand are excluded from the regressions. This is the case with health personnel and facilities, as well as organizational factors, which may enable or impede use of health care and may also be affecting equity in the delivery of GP services. However, as the sample from SHARE is not representative of different Spanish regions, supply variables could not be considered in the model. The proportion of missing values in the original sample may also bias our estimates.

Thirdly, the distinction between need and non-need factors may be discussed. Our results point out that receiving formal home care, even if reduces the probability of contacting a GP, tends to increase the conditional number of GP visits. If the early development of Spain's public system of dependency care is taken into account, this fact may reflect that individuals receiving formal help from social services probably are seriously dependent and hence show greater medical needs. If this is the case, the variable *Homecare* should be considered as a need factor and not as an enabling one, although our main results would not change significantly.

A fourth limitation is related to the differences in the type of insurance coverage among the Spaniards. As Spanish public-sector GPs act as gatekeepers, people with private insurance plans have direct access to specialists. This is also the case for the vast majority of Spanish civil servants, who have the right to choose between public or private providers even though medical care is publicly financed. Thus there may be a substitution between primary and specialized health care for these groups which would be reflected in a decrease in GP visits. However, data from SHARE do not allow us to test if this kind of effect exists.

Furthermore, the analysis only refers to differences in the amount of health care services received. Nevertheless, equity studies should include indicators of quality or effectiveness, and not only of quantities. Unfortunately, health surveys do not provide accurate measures of quality. Finally, our findings should be interpreted from a macro perspective. They could significantly vary if equity was addressed at the micro level (e.g., for particular diseases or geographic areas). These are some topics for further research.

5. Conclusions

In 2060, half of the Spanish population will be aged 50 or over [41]. Thus, the analysis of inequalities in the use of primary care for elderly people and the identification of horizontal inequity for this particular group are of great interest. This paper provides new evidence on both issues. Our results show the presence of pro-poor inequality in both the access and the frequency of use for GP services, which is mainly explained by unequal distribution of need factors. Ill-health indicators mostly show a pro-poor distribution, and some of them, such as comorbidity and chronicity, contribute significantly to pro-poor inequality in both parts of the health care demand process. The relevance of social determinants of health is thus confirmed, and hence the need for wide-scoped public policies to reduce health inequalities. The implementation of the strategy 'Health in All Policies', by effectively integrating the health dimension into all policies such as education, employment, transport, the environment or fiscal policies – among others – would contribute to this aim [42]. Although all those policies that could imply an increase of deficit are hampered by the financial crisis, some others (promoting new employments, improving occupational health and safety at work by specific legislation, etc.) are in line with the economic recovery.

The contribution of non-need factors to income related inequality is quite higher for the conditional number of GP visits (48.13%) than for the probability of positive use (17.55%). While non-active status shows the highest contribution in the probit model, reflecting that employed people is less likely to seek care than inactive population, income itself is the main driver of inequality when frequency of visits is estimated. The negative partial contribution of income indicates the presence of pro-poor treatment patterns, suggesting that GPs may be inducing more demand for lower income individuals. Variables representing education and labour status also contribute to pro-poor inequality in the conditional number of GP visits. Higher educated people tend to use less frequently GP services, perhaps reflecting taste or preference differences across income groups [8]. Our results are consistent with those reported by other authors for the Spanish case [8,10], which also show the influence of income, education and activity status on pro-poor inequality of primary health care utilization.

We have also found significant pro-poor inequity in the probability of access to a GP and in the conditional number of visits for elderly people. Similar results are obtained by other studies focusing on the Spanish adult population [8,10], although the relevance of inequity is reduced when the analysis is restricted to public medical services [6,10,11]. This fact could be explained because people with high education and income levels are more likely to have private insurance schemes and thus preferential access to the specialist.

At equal levels of need, rich and poor elderly people are not treated equally. However, as much as appropriateness of care provided is unknown, we cannot conclude

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that inequity in GP services really favours the lower income individuals in terms of health gains.

Conflicts of interest

None.

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