HEDG

HEALTH, ECONOMETRICS AND DATA GROUP

WP 17/06

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March 2017

http://www.york.ac.uk/economics/postgrad/herc/hedg/wps/

Inequity in healthcare use among older people after 2008: The case of Southern European Countries

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ABSTRACT

Despite the sizeable cuts in public healthcare spending, part of the austerity measures recently undertaken in Southern European countries, little attention has been devoted to monitoring distributional aspects of healthcare usage. This study aims at measuring socioeconomic inequities in primary and secondary healthcare experienced some time after the crisis onset in Italy, Spain and Portugal. The analysis, based on data drawn from the Survey of Health, Ageing and Retirement in Europe (SHARE), focuses on older people, who generally face significantly higher healthcare needs, and whose health appeared to have worsened in the aftermath of the crisis. The Horizontal Inequity indexes reveal remarkable socioeconomic inequities in older people's access to secondary healthcare in all three countries. In Portugal, the one country facing most severe healthcare budget cuts and where user charges apply also to GP visits, even access to primary care exhibits a significant pro-rich concentration. If reducing inequities in older people's access to healthcare remains a policy objective, austerity measures maybe pulling the Olive belt countries further away from achieving it.

Keywords: Healthcare access, Older People, Horizontal Equity, Concentration Index

JEL Codes: I13, I14, H51

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Introduction

The cost of healthcare provision is expected to increase substantially due to population ageing. As aging is by definition a process of increasing morbidity (Harman 2006), the need for healthcare rises as individuals age; the associated epidemic of chronic diseases entails substantial long-term health and social care costs (OECD 2006; Prince et al. 2015). In recent years, this has been a major cause of policy concern in Europe (European Commission 2012). The economic crisis has strengthened the pressure for controlling public spending, particularly in the area of social expenditure, including limiting structural growth in the fiscal cost of healthcare provision. Several studies have already documented the detrimental effect of healthcare budget cuts on population health (e.g. Stuckler et al. 2011, Karanikolos et al. 2013). However, less attention has been devoted to monitoring the distributional consequences of these cuts in terms of healthcare use (Escolar-Pujolar et al. 2014), a key input into the health production function.

Older people represent a particularly vulnerable group, and not only due to higher healthcare needs. Older people's health appears to have worsened in the aftermath of the crisis in Europe (e.g. Bucher-Koenen and Mazzonna 2013, Costa-Font et al. 2016) - in contrast to evidence of a counter-cyclical health pattern found for the overall population (Ruhm 2016). This raises the concern that the consequences of the economic crisis could accentuate the socioeconomic gradient in 'compressed morbidity' (House et al. 2005), reducing even further the ability of less advantaged individuals to live healthily the extra-years of life gained from increased life-expectancy.

In Europe, the Southern countries have been those most severely hit by the crisis and most pressured to undertake austerity measures, despite offering the least generous welfare states when compared to the other European countries - also in terms of healthcare expenditure (Borsch-Supan 2006). A thorough assessment of the health and healthcare effect of austerity measures in hardly hit countries has been indeed already advocated (Busse 2012; Karanicolos et al. 2013; Simou and Koutsogeorgou 2014). In fact, although universal healthcare represents the prevailing model in Europe, the renowned right to public healthcare does not always materialize. On the one hand, there might be supply shortages. In Portugal, for example, 15% of those enrolled in primary care units in 2009 did not have a family doctor (Direcção Geral de Saúde 2012). On the other hand, entitlement to access does not necessarily translate into horizontal equity in healthcare use - which would be

achieved if individuals with the same healthcare needs were using the same amount of healthcare services, irrespective of non-need-related individual characteristics (Wagstaff and van Doorslaer 2000; Wagstaff, van Doorslaer, and Paci 1991), namely the capability to afford the co-payments required to access healthcare services or to purchase them privately, thereby avoiding the delays implied by public queue rationing.

While the study of horizontal equity in access to healthcare is undoubtedly not new in the literature (for example see Goddard and Smith 2001; Macinko and Starfield 2002), previous comparative studies including the Olive belt countries date back to pre-crisis times in terms of data coverage. These studies generally found either evidence of pro-poor inequity or no evidence of inequity in primary care (GP visits), and pro-rich inequity in secondary care (specialists visits) (e.g. van Doorslaer and Masseria 2004, van Doorslaer et al. 2004, van Doorslaer et al. 2006, Bago d'Uva et al. 2007, Devaux and Looper 2012). They show how the presence and extent of inequity depends on the type of care analysed, reflecting the specific access mechanisms applying to primary and secondary care. Whereas access to the GP is usually free of charge in the public system, secondary healthcare is either provided under co-payment schemes in the public system or bought privately possibly though private insurance schemes.

Motivated by the above-mentioned concerns, this study offers a picture of inequities in both primary and secondary healthcare use in three Olive-belt countries, Italy, Spain and Portugal, in the aftermath of the crisis. These three countries share many similarities in their healthcare systems: timing of creation, sizeable share of private expenditure and poorer perceived quality of public health services, when compared to northern countries (Toth 2010). In all three countries the GPs act as gatekeepers to secondary care, although in Portugal and Spain hospital emergency visits are very often used to bypass waiting lists for specialist consultations in the public sector and in Italy referral system is not strictly imposed (VanDoorslaer and Masseria 2004).

Among the three countries, Portugal calls for special attention. The crisis is bearing a particularly grave impact in the country, the only one among the three that was under an EU/IMF Financial Assistance Programme. As discussed by Reeves et al. (2014), countries under assistance were more likely to face healthcare budget cuts than other countries affected by the economic crisis. Indeed, the Portuguese Financial Assistance Programme

targeted the healthcare sector as one of the main intervention areas (Barros 2012). Although less pronounced than in Greece or Ireland, the decrease in the annual average growth rate in per capita health expenditure between 2009 and 2011 was bigger in Portugal (2.2%) than in Spain or Italy (0.5 and 0.4 %, respectively) (OECD 2013). Great part of this decrease resulted from cuts in healthcare budgets, which increased even further the private share of total health expenditure - 11 p.p. higher than the EU15 average (23.4 %), and higher than in Spain (27.1%) and Italy (22.2%) (OECD 2013). As a result, the possibility of incurring catastrophic healthcare expenditure represents a considerable issue in Portugal, especially for older people (Kronenberg and Pita Barros 2014).

Our analysis exploits data from the Survey of Health, Ageing and Retirement in Europe (SHARE) whose strength, with respect to data employed in previous comparative studies, is the very detailed set of health and healthcare usage information collected under a cross-country comparable framework. As Portugal only joined the survey in wave four, and this is the only wave currently available for that country, the analysis uses only the fourth wave. As such the analysis is cross sectional. Rather than aiming at measuring the consequences of the crisis per se, we study and compare the case of the three Olive belt countries as of 2011, i.e. at a time when they were still struggling to overcome the crisis.

The rest of the paper is organized as follows. The next section describes in more detail the SHARE survey and the variables used in the analysis. The following one presents the methodology used to measure and explain inequity in health care utilization, and describes its implementation. The fourth section presents the results, covering both inequity indices and the analysis of specific factors' contributions to the observed inequity. The final section provides a discussion and concludes.

Data

The Survey of Health, Ageing and Retirement in Europe (SHARE) is a multidisciplinary cross-national panel study representative of individuals aged 50 and over and their partners in Europe (Börsch-Supan and Jürges, 2005). The survey collects information on a wide range of topics, including socio-demographic characteristics, labour market activity, family composition, social networks, income and assets held, health, as well as information on healthcare use and health behaviours. While Italy and Spain took part in the survey since its onset in 2004, Portugal joined only since the fourth wave of data collection. For this

reason, we use data from that wave, with interviews carried out in 2011. This precludes including Greece in this study as it did not participate in the fourth wave. The sample for analysis includes all individuals aged 50 or older in the three countries covered, leading to a total sample of 9,049 individuals, of which 3,521 Italian, 2,022 Portuguese and 3,506 Spanish.

The variables we use to measure the use of healthcare services (in the last 12 months) are the number of GP contacts and the number of different specialists consulted from a list of 14 categories (specialist for heart disease, pulmonary, gastroenterology, diabetes or endocrine diseases; dermatologist; neurologist; ophthalmologist; ear, nose and throat specialist; rheumatologist or physiatrist; orthopaedist; surgeon; psychiatrist; gynaecologist; urologist; oncologist; geriatrician; or other specialist).

Table 1 – Descriptive statistics (population weighted)

	SPAIN		ITALY		PORTUGAL	
	mean	*sd*	*mean*	*sd*	*mean*	*sd*
OUTCOME						
number of contacts with GP	4.915	6.754	6.571	9.624	3.252	7.025
range of specialists consulted	0.804	1.160	0.919	1.320	0.509	0.969
NEED						
Age	66.637	11.026	66.850	10.781	66.032	10.322
Male	0.456	0.498	0.446	0.497	0.447	0.497
number of chronic conditions	1.949	1.615	1.574	1.438	1.779	1.581
number of symphtoms	2.023	2.159	1.823	2.007	2.157	2.230
has a long standing illness	0.539	0.499	0.408	0.491	0.394	0.489
has health-limitations in activities	0.382	0.486	0.407	0.491	0.462	0.499
poor mental health (Euro-d)	2.980	2.732	2.863	2.585	3.159	2.558
NON-NEED						
whether inactive (exercise)	0.171	0.376	0.223	0.416	0.312	0.463
single person household	0.183	0.387	0.220	0.414	0.123	0.329
number of children	2.284	1.524	1.870	1.268	2.225	1.623
whether labour market active	0.317	0.465	0.275	0.447	0.190	0.392
whether home_owner	0.917	0.276	0.798	0.401	0.782	0.413
years_of _education	7.968	5.037	8.315	4.277	5.781	4.059
make ends meet (1-4)	2.420	0.946	2.442	0.929	2.335	0.930
N	3506		3521		2022	

Source: SHARE, wave 4, Release 1.1.1.

The top panel of Table 1 reports descriptive statistics for the outcome variables. Average use is remarkably lower in Portugal than in the two other countries: the average number of older people's contacts with the GP in Portugal (3.2 times in the past 12 months) is lower than in Spain (4.9) and less than half that of in Italy (6.6). Striking differences arise also in the range of specialist consulted, 80% and 60% higher in Italy and Spain, respectively, than in Portugal. Lower levels of healthcare use could simply reflect lower healthcare needs stemming from country-specific patterns of prevalence for specific health conditions. Indeed, a crucial step in the assessment of inequity in access to healthcare requires accounting for the 'legitimate' drivers of differences in healthcare use, i.e. differential need (Morris et al. 2005) rather than differential chances of access. In empirical studies, need for healthcare is typically proxied by age, sex and a set of health indicators (O'Donnell et al. 2008). The use of insufficient health indicators in the need measurement may lead to an underestimation of pro-rich inequity and an overestimation of pro-poor inequity (van Doorslaer and Masseria 2004). In this study though we can rely on a rich set of physical and mental health variables. We use some of the so-called quasi-objective measures of health such as diagnosed conditions and functional indicators (Costa-Font and Hernández-Quevedo 2012). This limits the chance of downward biases that may result from socioeconomic inequalities in self-perceived health (Kunst et al. 2001; Butler et al. 1987; Sutton et al., 1999; Thomas and Frankenberg 2002; Sen 2002). In more detail, we use the number of diagnosed chronic conditions (up to 11), the number of symptoms (up to 13), binary indicators for whether the respondent reports having a long standing illness and experiencing limitations in activities of daily living, such as functional limitations in self-care or mobility. Finally, non-physical aspects of health are captured by the euro-d depression measure, a 12 points scale indicator constructed from a battery of questions related to mental health (Prince et al. 1999). Other potentially available health indicators (grip strength, body mass index, cognitive indicators concerning orientation and numeracy) have not been used due to the non-trivial proportion of missing values. Their inclusion would have resulted in significant reductions in sample size, threatening representativeness for inequity measurement purposes.

Descriptive statistics for the "need" variables are reported in the mid panel of Table 1. Clearly, on average, the lower use of healthcare services in Portugal does not arise from lower healthcare needs. On the contrary, some health indicators (number of symptoms, experiencing functional limitations, and the depression score) hint at higher needs of the older Portuguese, when compared to older Italian and Spanish people. Interestingly, a

lower proportion of older Portuguese reports a long standing illness and they also have a lower number of chronic conditions diagnosed. This might in itself be a consequence of lower healthcare use resulting in limited awareness about one´s own health condition.

Finally, the bottom panel of Table 1 reports descriptive statistics for the "non-need" variables that are used further in the analysis to explain healthcare inequities. These include demographic variables (whether the individual lives alone and the number of children) possibly capturing the availability of informal care; socioeconomic indicators, including labour market participation, home ownership, years of education and an indicator for 'ability to make ends meet' measured on a 4-points scale ranging from 'with great difficulty' to 'easily'; finally, an indicator of physical inactivity meant to capture health related behaviours. Again, other potentially available non-need indicators have not be included due to the large proportion of missing values (smoking and drinking, receipt of informal help); or, as in the case of assets and income, because of grounded concerns with survey measurement error, in particular with respect to data collected in Portugal, undergoing the first SHARE data collection exercise.

Methods and Implementation

A convenient way of measuring and comparing the magnitude of socioeconomic inequity in different countries is to use synthetic indexes such as the concentration index (CI) (Kakwani 1977, 1980), which has been widely used in health and healthcare inequity measurement (e.g. Kakwani, Wagstaff, and van Doorslaer 1997; Wagstaff, van Doorslaer, and Paci 1989; Gwatkin et al. 2003; van Doorslaer et al. 2006; Costa-Font and Quevedo 2012). The CI relates to the concentration curve that is obtained plotting the cumulative share of healthcare use against the cumulative proportion of individuals in the population of interest, ranked by increasing levels of a socioeconomic status indicator. The CI measures twice the area between the concentration curve and the 45 degrees line, which represents the situation where each individual has the same healthcare use. The index, which varies between -1 and 1, can be conveniently computed as

$$CI = \frac{2}{\bar{h}} Cov(h_i R_i)$$

where h denotes the healthcare variable of interest (and $\bar{h}$ its mean), R the fractional socioeconomic rank and the pedix i indexes individuals in the population of interest. A positive CI reflects a situation where healthcare use is more concentrated among the higher

socioeconomic status individuals, while a negative CI reflects a situation where healthcare is more concentrated among the lower socioeconomic status individuals.

To account for the fact that differences in healthcare use arising from differential needs should not be regarded as inequities, but rather as legitimate sources of heterogeneity, the concentration index can be computed on need-standardized healthcare utilization. The needs-standardization procedure yields a modified healthcare use indicator h^{ns} calculated as the difference between actual use and needs-expected use; the CI computed on needs standardised healthcare h^{ns} is then referred to as the Horizontal Inequity (HI) index (Wagstaff and van Doorslaer 2000). The needs standardization procedure entails estimating a regression model for healthcare use as

$$h_i = F(\alpha + \sum_j \beta_j x_{ji} + \sum_k \gamma_k z_{ki}) + \varepsilon_i$$

where F denotes the specific (typically non linear) functional form adopted for modelling h, x indicates a set of j need-related explanatory variables and z indicates a set of k non-need-related explanatory variables. These are included as controls to avoid biased estimates of the need-related variables coefficients β_j. Following estimation, needs standardised use can be computed as

$$\hat{h}_i^{ns} = h_i - F(\hat{\alpha} + \sum_j \hat{\beta}_j x_{ji} + \sum_k \hat{\gamma}_k \bar{z}_k) + \frac{1}{n}\sum_{i=1}^{n} F(\hat{\alpha} + \sum_j \hat{\beta}_j x_{ji} + \sum_k \hat{\gamma}_k \bar{z}_k)$$

where n indicates the sample size and $\bar{z}$ the mean of non-need-related variables. Any residual variation in needs standardised healthcare use $\hat{h}_i^{ns}$, as captured by the HI, is then interpreted as inequity attributable to the role of non-need-related individual characteristics.

The computation of CI and HI builds on the availability of an indicator of socioeconomic status for population ranking purposes. While most of the literature chooses income, other alternatives considered have been assets and education (Jurges, 2009, 2010). Here, we opt for years of education (whose country-specific distribution is available in the Supplemetary Material, table A1), for several reasons. First, as Maurer (2007, p. 5) points out "income might represent a rather poor marker [of SES] in a population in which only a fraction of respondents works and earns any labour income". As older people living standards are crucially affected by accumulated wealth, using a proxy for permanent income, such as education, seems more appropriate than using current income. Second, conditional on age, education has a stronger partial correlation with health than income or occupation (Grossman and Kaestner 1997; Grossman 2005). Education is particularly relevant to health and healthcare access because it allows individuals to more easily access information

and use it more efficiently, and it is positively associated with healthy lifestyles (Grossman and Kaestner 1997; Mirowsky and Ross 2003). Last but not least, severe measurement error are known to affect income and wealth variables, and in particular appeared to affect the income variable collected in SHARE for Portugal.

The CI can also be conveniently decomposed to describe the role of different factors (covering both need and non-need determinants of healthcare use) in contributing to the overall observed inequality (Wagstaff, van Doorslaer and Watanabe 2003). In a linear setting, the CI can be re-written as

$$CI = \sum_j (\beta_j \bar{x}_j / \bar{h}) CI_j + \sum_k (\gamma_k \bar{z}_k / \bar{h}) CI_k + GC_\varepsilon / \bar{h}$$

where CI_j and CI_k represent the CI of each need and non-need factor, and GC_ε indicates the generalised concentration index on the error term, capturing any residual socioeconomic inequality not explained by systematic variation in need and non-need factors by socio-economic status. Through this decomposition, the overall inequality measured by CI can be

described as a sum of each factor contribution, which is given by the product of the healthcare outcome elasticity with respect to that factor ($(\beta_j \bar{x}_j / \bar{h})$ or $(\gamma_j \bar{z}_j / \bar{h})$ - for need and non-need factors respectively- and each factor concentration index.

In our setting, the standardization procedure is based on a nonlinear count data regression model, reflecting the nature of the outcome variables, which can take only non negative integer values. Because of overdispersion (i.e. conditional mean lower than conditional variance) found for both healthcare variables, we adopt a Negative Binomial, rather than Posisson specification (with estimation results available in the Supplementary Material, tables A2 and A3) and use the need and non-need indicators reported in the mid and bottom panel of table 1. For the decomposition analysis, as the equation reported above applies to linear settings only, we follow the linear approximation procedure proposed by van Doorslaer, Koolman, and Jones (2004). Finally, standard errors are obtained through a 100 repetitions non parametric bootstrap procedure.

Results

Before need-standardization, more disadvantaged individuals result significantly more intensive GP users in Spain and Italy (CI =-.143 and CI=-.193 respectively in Table 2), where primary care can be accessed free of charge at the point of use. In Portugal instead, CI is not significant. After needs-standardization, pro-poor inequity in GP visits is

confirmed, although reduced in size, for Spain and Italy (HI=-.043 and HI=-.073 respectively). Instead, remarkable evidence of significant pro-rich inequity in primary care access emerges for Portugal (HI =.085). Such results appear in line with those from comparable studies covering these three countries in earlier periods i.e. Van Doorslaer and Masseria (2004), VanDoorslaer, Koolman and Jones (2004) and Bago d'Uva et al. (2007), all of which based on the European Community Household Panel (ECHP). VanDoorslaer and Masseria (2004) also find pro-poor bias in GP for Spain and Italy and, although they find no evidence of inequity in the number of visits in Portugal, they do find a pro-rich bias in the probability of visiting a GP. Also Bago d'Uva et al. (2007) corroborate findings by VanDoorslaer and Masseria (2004) but are closer to ours as they also find pro-rich inequity in the number of GP visits in Portugal.

In the light of the underlying methodological differences (i.e. data source, timing frame, target population, health variables, to mention a few), caution should be used in comparing CI and HI values across different studies. However, the fact that for Italy and Portugal we do find higher HI absolute values (more than double in Italy and four times larger in Portugal) suggest that inequity in GP visits may have increased, becoming more pro-poor in Italy, and pro-rich in Portugal. For Spain, the HI are quite aligned around -0.04, although Crespo-Cebada and Urbanos-Garrido (2012), find a smaller HI absolute value for the probability of GP use and the number of visits by older people in Spain in years preceding the crisis (2006-2007). Again, this cautiously hints at the possibility that inequity might have increased since those times.

Looking at the range of specialists consulted, before need-standardization no statistically significant evidence of inequality is registered in Portugal and Spain, while pro-poor inequality emerges in Italy, although reduced in size with respect to GP visits (CI=-.044). However, after need-standardization, in all the three countries statistically significant pro-rich inequity emerges (HI=.067, HI=.096 and HI=.114 in Spain, Italy and Portugal respectively). Despite consulting as many specialists as the more advantaged (or even more in the case of Italy), horizontal equity would require the less advantaged to use an even wider specialists range than they do, given their healthcare needs. Such results are in line, also in terms of HI sizes, with evidence from pre-crisis times for Italy and Spain. As to Portugal, VanDoorslaer and Masseria (2004), VanDoorslaer, Koolman and Jones (2004) and Bago d'Uva et al. (2007) all report higher HI values, although confirming that Portugal exhibits the highest pro-rich inequity, with respect to the other two countries. Overall,

evidence suggests that a possible reduction of pro-rich inequity in secondary care use might have occurred in Portugal.

Tables 3 and 4 present inequality decomposition results for primary and secondary care. In all three countries great part of the pro-poor inequality in GP visits is explained by healthcare needs being more concentrated in the less educated part of the population (negative CI on health variables), and positively related to GP use (elasticity). The contribution of non-need variables remains generally minor, especially in Spain and Italy, except for education, which plays a sizeable role. In these two countries, the less educated use the GP more (negative elasticity). On the contrary, in Portugal, where the contribution of education is remarkable in size with respect to that of needs factors, the less educated use less primary care, which motivates the pro-rich inequity in GP visits found for Portugal.

In Table 4, needs are also confirmed as a sizeable determinant of inequality in the range of specialists consulted. However, in this case non-need variables play a prominent role, particularly in Portugal. Comparing Spain and Italy, a bigger share of inequality is explained by non-need variables in the latter, where inequity is higher. In all the three countries, education is positively correlated to the range of specialist consulted, with a higher correlation found for Portugal. Education represents the non-need factor that most shapes inequality, scoring a contribution higher than each of the other need or non-need factors. Also other non-need variables, for example the household ability to 'make ends meet' contribute to explaining the pro-rich concentration of secondary healthcare use.

Table 2: Concentration index (CI), inequity index (HI) and Contribution of need and non-need factors

	SPAIN			ITALY			PORTUGAL		
GP visits	*Coef.*	*St. Er.*	*P>z*	*Coef.*	*St. E..*	*P>z*	*Coef.*	*St. Er.*	*P>z*
CI	**-0.143**	0.006	0.000	**-0.193**	0.006	0.000	-0.014	0.010	0.161
Contribution need factors	**-0.100**	0.004	0.000	**-0.120**	0.004	0.000	**-0.099**	0.006	0.000
Contribution non-need factors	**-0.017**	0.006	0.003	**-0.049**	0.004	0.000	**0.054**	0.009	0.000
HI	**-0.043**	0.006	0.000	**-0.073**	0.005	0.000	**0.085**	0.011	0.000
Residual	**-0.026**	0.003	0.000	**-0.024**	0.003	0.000	**0.031**	0.006	0.000
Range specialists	*Coef.*	*St. Er.*	*P>z*	*Coef.*	*St. Er.*	*P>z*	*Coef.*	*St. Er.*	*P>z*
CI	-0.005	0.007	0.484	**-0.044**	0.010	0.000	-0.028	0.017	0.100
Contribution need factors	**-0.072**	0.005	0.000	**-0.140**	0.006	0.000	**-0.142**	0.007	0.000
Contribution non-need factors	**0.057**	0.007	0.000	**0.086**	0.005	0.000	**0.140**	0.009	0.000
HI	**0.067**	0.008	0.000	**0.096**	0.008	0.000	**0.114**	0.017	0.000
Residual	**0.010**	0.003	0.000	**0.010**	0.005	0.036	**-0.025**	0.011	0.021

Source: SHARE, wave 4, release 1.1.1. Note: CI is the unstandardized concentration index and HI is the standardized concentration index; significant results in bold ($p<0.001$).

Table 3 : Number of contacts with GP: inequality decomposition

	SPAIN					
	Elasticity		CI		Contribution	
	Coef.	*P>z*	*Coef.*	*P>z*	*Coef.*	*P>z*
number of chronic conditions	0.115	0.000	-0.125	0.000	-0.014	0.000
number of symphtoms	0.122	0.000	-0.176	0.000	-0.021	0.000
has a long standing illness	0.206	0.000	-0.091	0.000	-0.019	0.000
health-limitations in activities	0.056	0.000	-0.197	0.000	-0.011	0.000
poor mental health (Euro-d)	0.108	0.000	-0.125	0.000	-0.013	0.000
whether inactive (exercise)	-0.008	0.037	-0.297	0.000	0.002	0.037
single person household	-0.016	0.000	-0.063	0.000	0.001	0.000
number of children	0.092	0.000	-0.077	0.000	-0.007	0.000
whether labour market active	0.026	0.005	0.263	0.000	0.007	0.003
whether home_owner	-0.011	0.557	0.002	0.327	0.000	0.758
years_of _education	-0.051	0.001	0.352	0.000	-0.018	0.001
make ends meet (1-4)	-0.040	0.221	0.054	0.000	-0.002	0.229
	ITALY					
	Elasticity		CI		Contribution	
	Coef.	*P>z*	*Coef.*	*P>z*	*Coef.*	*P>z*
number of chronic conditions	0.250	0.000	-0.164	0.000	-0.041	0.000
number of symphtoms	0.072	0.000	-0.223	0.000	-0.016	0.000
has a long standing illness	0.065	0.000	-0.157	0.000	-0.010	0.000
health-limitations in activities	0.063	0.000	-0.252	0.000	-0.016	0.000
poor mental health (Euro-d)	0.087	0.000	-0.136	0.000	-0.012	0.000
whether inactive (exercise)	-0.018	0.000	-0.273	0.000	0.005	0.000
single person household	0.017	0.000	-0.219	0.000	-0.004	0.000
number of children	0.055	0.000	-0.075	0.000	-0.004	0.000
whether labour market active	-0.008	0.051	0.351	0.000	-0.003	0.046
whether home_owner	0.030	0.097	0.036	0.000	0.001	0.073
years_of _education	-0.135	0.000	0.283	0.000	-0.038	0.000
make ends meet (1-4)	-0.117	0.000	0.057	0.000	-0.007	0.000
	PT					
	Elasticity		CI		Contribution	
	Coef.	*P>z*	*Coef.*	*P>z*	*Coef.*	*P>z*
number of chronic conditions	0.152	0.000	-0.165	0.000	-0.025	0.000
number of symphtoms	0.060	0.042	-0.189	0.000	-0.011	0.022
has a long standing illness	0.113	0.000	-0.158	0.000	-0.018	0.000
health-limitations in activities	0.027	0.320	-0.148	0.000	-0.004	0.272
poor mental health (Euro-d)	0.090	0.000	-0.137	0.000	-0.012	0.000
whether inactive (exercise)	0.006	0.691	-0.088	0.000	-0.001	0.490
single person household	-0.004	0.549	-0.150	0.000	0.001	0.600
number of children	0.197	0.000	-0.078	0.000	-0.015	0.000
whether labour market active	-0.051	0.000	0.237	0.000	-0.012	0.000
whether home_owner	0.232	0.000	0.049	0.000	0.011	0.000
years_of _education	0.186	0.000	0.359	0.000	0.067	0.000
make ends meet (1-4)	0.041	0.548	0.083	0.000	0.003	0.520

Table 4 : Range of specialists consulted: inequality decomposition

	SPAIN					
	Elasticity		CI		Contribution	
	Coef.	*P>z*	*Coef.*	*P>z*	*Coef.*	*P>z*
number of chronic conditions	0.262	0.000	-0.125	0.000	-0.033	0.000
number of symphtoms	0.118	0.000	-0.176	0.000	-0.021	0.000
has a long standing illness	0.098	0.000	-0.091	0.000	-0.009	0.000
health-limitations in activities	0.073	0.000	-0.197	0.000	-0.014	0.000
poor mental health (Euro-d)	0.070	0.001	-0.125	0.000	-0.009	0.001
whether inactive (exercise)	-0.020	0.000	-0.297	0.000	0.006	0.001
single person household	0.001	0.932	-0.063	0.000	0.000	0.912
number of children	-0.012	0.539	-0.077	0.000	0.001	0.544
whether labour market active	-0.031	0.006	0.263	0.000	-0.008	0.004
whether home_owner	0.055	0.081	0.002	0.265	0.000	0.416
years_of _education	0.123	0.000	0.352	0.000	0.043	0.000
make ends meet (1-4)	0.269	0.000	0.054	0.000	0.015	0.000
	ITALY					
	Elasticity		CI		Contribution	
	Coef.	*P>z*	*Coef.*	*P>z*	*Coef.*	*P>z*
number of chronic conditions	0.244	0.000	-0.164	0.000	-0.040	0.000
number of symphtoms	0.209	0.000	-0.223	0.000	-0.046	0.000
has a long standing illness	0.082	0.000	-0.157	0.000	-0.013	0.000
health-limitations in activities	0.072	0.000	-0.252	0.000	-0.018	0.000
poor mental health (Euro-d)	0.096	0.000	-0.136	0.000	-0.013	0.000
whether inactive (exercise)	-0.042	0.000	-0.273	0.000	0.011	0.000
single person household	0.009	0.021	-0.219	0.000	-0.002	0.014
number of children	-0.108	0.000	-0.075	0.000	0.008	0.000
whether labour market active	-0.017	0.018	0.351	0.000	-0.006	0.018
whether home_owner	-0.074	0.001	0.036	0.000	-0.003	0.001
years_of _education	0.198	0.000	0.283	0.000	0.056	0.000
make ends meet (1-4)	0.367	0.000	0.057	0.000	0.021	0.000
	PT					
	Elasticity		CI		Contribution	
	Coef.	*P>z*	*Coef.*	*P>z*	*Coef.*	*P>z*
number of chronic conditions	0.251	0.000	-0.165	0.000	-0.041	0.000
number of symphtoms	0.093	0.000	-0.189	0.000	-0.018	0.000
has a long standing illness	0.098	0.000	-0.158	0.000	-0.015	0.000
health-limitations in activities	0.155	0.000	-0.148	0.000	-0.023	0.000
poor mental health (Euro-d)	0.200	0.000	-0.137	0.000	-0.027	0.000
whether inactive (exercise)	-0.093	0.000	-0.088	0.000	0.008	0.000
single person household	-0.008	0.237	-0.150	0.000	0.001	0.310
number of children	0.049	0.061	-0.078	0.000	-0.004	0.033
whether labour market active	0.041	0.000	0.237	0.000	0.010	0.000
whether home_owner	0.010	0.787	0.049	0.000	0.000	0.774
years_of _education	0.312	0.000	0.359	0.000	0.112	0.000
make ends meet (1-4)	0.145	0.001	0.083	0.000	0.012	0.001

Discussion and Conclusions

Alongside the health divide between Eastern and Western Europe (WHO Regional Office for Europe 2013), there is a 'North-South' divide within Western Europe attributable to ingrained institutional, economic and cultural differences (Reher 1998). These differences, evident in Esping-Andersen's welfare regime typology (Esping-Andersen 1999), render common the clustering of the Southern European countries into the same group of Olive-belt countries. These countries were among the most severely affected by the Great Recession, and most pressured to undertake austerity measures involving a tighter control of public healthcare spending. Both in Portugal and Spain, the government share of total health expenditure decreased over the crisis period (2007-2014) from 68% to 65% and from 73% to 71% respectively. In Italy, although the public share stayed constant at 76% (WHO Global Expenditure Database), higher co-payments were introduced in 2011 as part of an expenditure containment programme. Clearly, to the extent that this implies more direct payments by households, and therefore inhibits access, socioeconomic inequity in healthcare use might have increased. This concern is strengthened by the evidence that some of these countries, namely Portugal and Spain, are placed at the top of economic inequality rankings (WHO Regional Office for Europe 2013).

This paper has offered novel evidence on where three Olive Belt countries stand in terms of horizontal equity in healthcare access, after the crisis onset. Results point at sizeable socio-economic inequities particularly in access to secondary healthcare, in all three countries. Lower SES individuals appear to be seeing a narrower range of specialists than their healthcare needs would require, with respect to higher SES subjects, indicating that lack of socioeconomic resources acts as a barrier to timely access to appropriate care.

As found in previous studies, Portugal fares worse than the other two Olive belt countries. Indeed, the Portuguese share of private expenditure is one of the highest in Europe; out-of-pocket payments, accounting for the 28.9% of total healthcare expenditure, were the second highest in all Europe in 2011 (OECD 2013), well above the threshold for high risk of catastrophic health costs (WHO 2010). Portugal is the country where a sizeable pro-rich horizontal inequity emerges even for primary care access. It is worth stressing that user charges, found to bear detrimental effects to healthcare use (Bíró 2013, Kiil and Houlberg 2014), apply even for GP visits in Portugal unlike in Spain or Italy. Although relevant groups (children under 12, the disabled, the unemployed, lower income individuals, people with chronic diseases, donors and fire-fighters), estimated as about 54% of population in

2014 (ACSS 2014), are exempted from paying them, user charges (for both GP visits and hospital outpatient visits) have been substantially increased in recent years and are now among the highest in Europe (Barros 2012). Evidence raising similar concerns has emerged from other studies (e.g. Legido-Quigley et al. 2016) relating the extent of unmet medical needs in Portugal in the years following the crisis onset with an increasing role of financial barriers.

The lack of a pre-crisis wave of data for Portugal challenges the assessment of whether and to what extent the crisis might have heightened inequity. Still, some reflections can be drawn in light of the findings from previous studies, covering the same countries in past pre-crisis years. Such comparisons are indeed flawed by several data and methodological differences, and thus require extreme caution. Bearing this in mind, the apparent increase in GP visits concentration among the worse-off in Italy and Spain, with respect to past studies, suggests an increased use of the 'free' healthcare service by lower SES individuals, possibly as a substitute for (or as a consequence of lack of) specialists visits. Indeed, Atella et al. (2004), found income to decreases the probability of consulting a GP and increase the probability of consulting a specialist in Italy. Relatedly, the evidence of an increased pro-rich inequity in GP visits in Portugal, with respect to previous studies, and a decrease in pro-rich inequity in specialists visits would be consistent with the hypothesis of increased substitution of specialists with GP visits by even more advantaged individuals in that country.

If reducing health inequalities, one of the main aims of the 'new health policy framework for Europe' (WHO 2013), remains a policy objective, austerity measures may be pulling the Olive belt countries further away from achieving it.

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Appendix/Supplemetary Material

Table A1 Country-specific distribution of years of education

	mean	sd	min	p25	p50	p75	max
SPAIN	7.968	5.037	0	5	8	10	25
ITALY	8.315	4.277	0	5	8	12	25
PORTUGAL	5.781	4.059	0	4	4	8	24

Source: SHARE, wave 4, release 1.1.1.

Table A.2. Number of contacts with GP: Marginal effects from Negative Binomial estimation

	Portougal			Spain			Italy		
	dy/dx	Std. Err.	P>z	dy/dx	Std. Err.	P>z	dy/dx	Std. Err.	P>z
age1	0.026	0.116	0.822	0.009	0.089	0.916	0.093	0.151	0.540
age2	-0.016	0.227	0.945	0.089	0.124	0.471	0.065	0.167	0.697
age3	0.027	0.222	0.903	0.151	0.110	0.171	-0.065	0.133	0.624
age4	0.303	0.192	0.115	-0.033	0.073	0.652	0.015	0.093	0.874
age5	-0.327	0.132	0.013	-0.077	0.045	0.087	-0.100	0.077	0.195
male*age1	-0.008	0.009	0.333	-0.008	0.008	0.287	-0.035	0.011	0.001
male*age2	0.109	0.252	0.664	0.015	0.156	0.924	0.207	0.224	0.355
male*age3	-0.055	0.262	0.835	-0.003	0.152	0.984	0.325	0.196	0.098
male*age4	-0.200	0.210	0.341	0.017	0.107	0.876	-0.066	0.139	0.635
male*age5	0.191	0.149	0.202	0.111	0.067	0.097	0.238	0.108	0.027
number of chronic condition	0.277	0.120	0.021	0.290	0.087	0.001	1.046	0.131	0.000
number of symphtoms	0.090	0.078	0.244	0.296	0.061	0.000	0.259	0.108	0.016
has a long standing illness	0.933	0.349	0.008	1.880	0.254	0.000	1.054	0.395	0.008
health-limitations in activitie	0.189	0.329	0.567	0.720	0.289	0.013	1.010	0.427	0.018
poor mental health (Euro-d)	0.092	0.056	0.098	0.178	0.049	0.000	0.200	0.070	0.004
whether inactive (exercise)	0.061	0.360	0.865	-0.235	0.253	0.354	-0.543	0.381	0.153
single person household	-0.099	0.394	0.801	-0.426	0.262	0.103	0.504	0.414	0.223
number of children	0.288	0.122	0.018	0.198	0.069	0.004	0.193	0.114	0.090
whether labour market activ	-0.879	0.280	0.002	0.396	0.292	0.176	-0.193	0.399	0.628
whether home_owner	0.965	0.358	0.007	-0.057	0.439	0.896	0.249	0.398	0.531
years_of _education	0.105	0.056	0.064	-0.031	0.025	0.209	-0.106	0.042	0.012
make ends meet (1-4)	0.058	0.180	0.748	-0.081	0.120	0.496	-0.316	0.180	0.080

Source: SHARE, wave 4, release 1.1.1.

Table A3. Range of specialists consulted: Marginal effects from Negative Binomial estimation

	Portougal			Spain			Italy		
	dy/dx	Std. Err.	P>z	dy/dx	Std. Err.	P>z	dy/dx	Std. Err.	P>z
age1	-0.047	0.024	0.051	-0.022	0.021	0.286	-0.005	0.038	0.904
age2	-0.023	0.025	0.362	-0.007	0.027	0.806	0.051	0.036	0.155
age3	0.051	0.022	0.020	0.003	0.024	0.909	-0.020	0.024	0.410
age4	-0.022	0.017	0.195	-0.021	0.015	0.161	-0.006	0.017	0.737
age5	0.011	0.025	0.664	-0.013	0.012	0.271	-0.016	0.014	0.261
male*age1	-0.004	0.002	0.026	-0.005	0.002	0.004	-0.003	0.003	0.293
male*age2	0.087	0.035	0.012	0.064	0.035	0.067	0.010	0.059	0.861
male*age3	-0.075	0.033	0.025	-0.014	0.032	0.674	0.011	0.050	0.831
male*age4	0.056	0.028	0.044	0.011	0.022	0.620	0.036	0.025	0.146
male*age5	-0.038	0.032	0.244	0.033	0.018	0.065	-0.032	0.021	0.125
number of chronic conditions	0.072	0.018	0.000	0.108	0.017	0.000	0.142	0.022	0.000
number of symphtoms	0.022	0.013	0.098	0.047	0.013	0.000	0.105	0.020	0.000
has a long standing illness	0.126	0.055	0.022	0.146	0.061	0.016	0.184	0.078	0.019
health-limitations in activities	0.171	0.061	0.005	0.153	0.065	0.018	0.162	0.080	0.043
poor mental health (Euro-d)	0.032	0.011	0.002	0.019	0.009	0.045	0.031	0.013	0.019
whether inactive (exercise)	-0.151	0.044	0.001	-0.094	0.055	0.089	-0.174	0.063	0.006
single person household	-0.034	0.071	0.629	0.002	0.068	0.971	0.037	0.082	0.650
number of children	0.011	0.014	0.434	-0.004	0.014	0.762	-0.053	0.022	0.015
whether labour market active	0.111	0.060	0.064	-0.078	0.060	0.192	-0.055	0.083	0.504
whether home_owner	0.006	0.059	0.915	0.049	0.075	0.517	-0.085	0.091	0.349
years_of _education	0.027	0.006	0.000	0.012	0.005	0.011	0.022	0.007	0.003
make ends meet (1-4)	0.032	0.028	0.252	0.089	0.024	0.000	0.138	0.041	0.001

Source: SHAE, wave 4, release 1.1.1.

Acknowledgments:

We are grateful to Cinzia Di Novi, Vincenzo Carrieri, Hendrik Jürges and to participants in the 4th International SHARE User Conference for useful comments. Financial support from the Ca' Foscari University of Venice and the Farmafactoring Foundation is gratefully acknowledged. The paper uses data from SHARE Wave 4 release 1.1.1, as of March 28th 2013 (DOI: 10.6103/SHARE.w4.111). The SHARE data collection has been primarily funded by the European Commission through the 5th Framework Programme (project QLK6-CT-2001-00360 in the thematic programme Quality of Life), through the 6th Framework Programme (projects SHARE-I3, RII-CT-2006-062193, COMPARE, CIT5- CT-2005-028857, and SHARELIFE, CIT4-CT-2006-028812) and through the 7th Framework Programme (SHARE-PREP, N° 211909, SHARE-LEAP, N° 227822 and SHARE M4, N° 261982). Additional funding from the U.S. National Institute on Aging (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, R21 AG025169, Y1-AG-4553-01, IAG BSR06-11 and OGHA 04-064) and the German Ministry of Education and Research as well as from various national sources is gratefully acknowledged (see www.share-project.org for a full list of funding institutions). All responsibility for the analysis and interpretation of the results lies with the authors.