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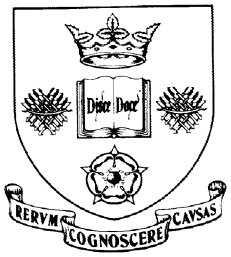

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Egalitarianism and altruism in health: to what extent are they related?

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ABSTRACT

The theoretical constructs of egalitarianism and altruism are different from each other, yet there may be associations between the two at the empirical level. This paper explores the empirical relationship between egalitarianism and altruism, in the context of health. A representative sample of the Spanish population was interviewed in 2004 (n=801). We specify a model that explains the propensity of an individual to be egalitarian in terms of altruism and other background characteristics. In this paper, individuals who prefer a hypothetical policy that reduces inequality in health outcomes over another that does not are regarded 'egalitarian'. 'Altruism' in the health context is captured by whether or not the same respondents are (or have been) regular blood donors, provided they are medically able to donate. Probit models are specified to estimate the relationship between egalitarianism and altruism, thus defined. Overall, 75% of respondents are found to be egalitarians, whilst 34% are found to be altruists. We find that, once controlled for background characteristics, there is a statistically significant empirical relationship between egalitarianism and altruism in the health context. In particular, altruist individuals have an 11% higher probability to be egalitarians than those who are not.

194 words

Key words: egalitarianism, altruism, health

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1. INTRODUCTION

Egalitarianism and altruism are both attitudes that go beyond immediate selfish concerns. Theoretically, the two concepts are not the same thing, but empirically, they may (or may not) be related. This paper explores empirically the relationship between egalitarianism and altruism, in the context of health. The first section presents the two concepts, and the second section then presents the methods of the empirical study. The third section reports the results and the final section concludes.

1.1 Altruism

Let us begin first with altruism, because this concerns the nature of individual preferences, and thus relates to a more fundamental level for economic theory than egalitarianism, which relates to an interpersonal and less fundamental level. Standard microeconomic theory begins by assuming that *homo economicus* is 'selfish' and 'rational'. This does not carry any judgmental implications (i.e. it does not imply that the economic agent is morally suspect), but simply means that economics aims to model individual choice by assuming that individuals will make decisions aiming to maximise their own individual utility subject to their personal budget constraints.

However, real humans are capable of unselfish behaviour, which creates a challenge for economics: for instance, a parent may forego food in order to feed their offspring. To explain these 'anomalies', economists can take several approaches. One is to re-define the self. If the self is defined very narrowly, the behaviour of the parent above does not support the assumption that individuals are selfish. But by re-defining the notion of self to include intimate others, decisions can be modelled at the level of households for example, and thus the difficulty can be avoided. Households can be selfish, but what goes on inside the household may remain a black box to economists.

Some unselfish behaviour go beyond the immediate family group, and at the extreme, the beneficiary could be a total stranger. To accommodate this, economists can take a closer look at the individual utility function, and introduce the concept of 'caring externalities' (Culyer, 1980; also see Becker, 1976). This is when the utility of an individual (*i*) is a function of (amongst other things such as *i*'s own consumption) the welfare of another individual (*j*). This welfare of the other can be in terms of achieved utility, achieved health, capabilities, income, or consumption of goods and services. Either way, it is unlikely that caring externalities would be satisfied by improving the welfare of somebody who is already well off, so *j* is likely to be somebody regarded by *i*

to be ‘in need’. There is a related literature on ‘interdependent utilities’, which is where the externalities are reciprocal (Boadway and Bruce, 1984; Johansson, 1991); but this also includes the case of envy (negative externality) and not just altruism (positive externality). Once a utility function with caring externalities is built, economists can model and predict the decisions of an individual with such a utility function (for instance, see Jones-Lee, 1991). In a way, the individual with caring externalities remains selfish and rational in the sense that they maximise their own utility. We may call this instrumental altruism: behaviour that benefits others, but is fundamentally motivated by selfishness (see for example McGuire et al, 1988; Mooney, 1992).

If society is made up of just two individuals *i* and *j*, then this framework works well to explain altruistic behaviour. However, when society is made up of three or more individuals, the concept of public goods becomes relevant, and alongside this, the possibility of free-riding (Culyer, 1973, 1980). If *i*’s utility is affected by *j*’s welfare, then *i*’s utility can be improved if some third party (say, *k*), also with caring externalities, took action to improve *j*’s welfare (unless the only way *i*’s utility improved from *j*’s welfare was when the improvement was due to *i*’s own action; see next paragraph). This means that, because *k* cannot stop *i* benefiting from *j*’s welfare improved by *k*, and vice versa, *j*’s welfare is now a public good. If this became common knowledge, then both *i* and *k* may not act to improve *j*’s welfare. Each may count on the other to act and try to free-ride, thus leading to an under-supply of the public good. The implication of this is that if individuals are fully rational and information is complete, then altruistic behaviour in a world with more than three individuals becomes increasingly difficult to explain, even with caring externalities.

There are other approaches that aspire to go beyond instrumental altruism, and assume that human beings are capable of going above oneself and of behaving in line with another’s welfare completely disregarding selfish interests because it is intrinsically ‘the right thing to do’. The debate at this point becomes somewhat semantic. If the individual gains any satisfaction from knowing one is doing the right thing (or, if the individual is to suffer regret for not doing the right thing), then it becomes difficult to distinguish this from instrumental altruism. However, it may be noted that unlike its instrumental version, intrinsic altruism here is not affected by the public good scenario above, because for the positive externality to arise for *i*, it is not enough to simply know *j*’s welfare has been improved; the improvement has to be attributed to *i*. Then, improving *j*’s welfare becomes a means to a more fundamental end, to do good, and in this respect, again, altruism can be regarded as being something instrumental rather than intrinsic (but at a different level).

For practical purposes, it seems to make sense to define altruism as behaviour that aims to benefit another individual in need. It seems unnecessary to require altruism to be incompatible with self-interest, or to demand that altruism involves bringing net loss to oneself. Just like the technical term 'selfish' does not carry any moral connotation, the technical term 'instrumental altruism' need not carry any implication that it is morally less worthy than an act of intrinsic value. Thus, we regard altruism as something that goes beyond immediate selfish concerns, but not necessarily something that goes against immediate selfish concerns, or something that is incompatible with wider selfish concerns.

In this paper we will consider blood donation as a proxy for altruism in the health context. Donating blood for transfusion to total strangers has featured in the literature as a classic example of altruistic behaviour (Titmuss, 1970; Culyer, 1976; Collard, 1978, Healy 2000, Wildman and Hollingsworth 2009). However, blood donation is a peculiar case because of its own nature. There is limited supply of blood, and since every unit of blood transfused to a particular patient is a unit of blood that cannot be used for another patient, there is opportunity cost associated with its use. It is a highly perishable good with a strict 'use by' date beyond which it should not be put to therapeutic use, so effective management of its stocks is important. In addition, it is a resource that can only be procured by drawing it from another human being; modern biotechnology has not yet achieved the synthesis of artificial blood. While blood donation entails some time costs, very mild pain, no health benefits, and possibly some self-satisfaction to the donor, it can have substantial health benefits to the recipient. One complication associated with analysing blood donation is that not everybody is medically eligible to donate. However, accounting for this is arguably less problematic than devising an appropriate way to adjust for variation in budget constraints when analysing monetary donations.

Moreover, there was a debate in the 1970s concerning the nature of the commodity blood or indeed whether blood could be regarded as an economic good; how offering financial incentives to give blood would or would not lead to 'crowding out' voluntary donors; or even lead to the erosion of other-regarding altruistic values and social cohesion; and how commercialised blood may be of poorer quality (see for example, Titmuss, 1970; Arrow, 1972; Singer, 1973; Johnson, 1976).

1.2 Egalitarianism

Egalitarianism implies equality of something (i.e. the 'equalisand'), and thus involves comparing across at least two parties. The key issue in any debate of egalitarianism concerns the question, equality of what? (Sen, 1979) It has been demonstrated that

different definitions of this equalisand will lead to different policy prescriptions (for an example in health care resource allocation, see Culyer and Wagstaff, 1993). The objective of this paper is not to argue for a specific definition of egalitarianism, and we will start by simply taking 'equality of outcomes' as the relevant definition.

Even then, this may lead to some confusion, if egalitarianism is defined with respect to resulting distributions of outcomes alone, independently of the mechanism behind it. For instance, a distribution-neutral linear social welfare function (SWF) can lead to egalitarian outcomes if individuals share the same risk averse utility function. This is because such a utility function has diminishing marginal utility, and social welfare will be maximised if the marginal good is distributed to the person with the largest marginal utility, which is the least well off person. Over time, this set up will result in everybody achieving an equal distribution of the equalisand, and thus an unintended egalitarian outcome.

A somewhat less powerful but similar example is a distribution-neutral linear SWF combined with individuals with caring externalities towards those with low welfare. Then again, under certain conditions, social welfare maximisation and inequality reduction will coincide, and over time an egalitarian distribution will be achieved, without anybody being egalitarian. However, trying to base egalitarianism on individual-level preferences such as caring-based positive externalities seems contrived, because it is not clear why the type of externality should be restricted to those that are caring. A group of individuals with envy-based negative externalities would also achieve an egalitarian distribution in the long run without intending to.

Such an apparent paradox where a distribution-neutral social welfare function leads to egalitarian distributions can be avoided if the concept of egalitarianism is reserved for the aggregate level. Then, egalitarianism will be about the functional form of the SWF, and not about the functional form of individual utility functions (e.g. diminishing marginal utility) or what is included in these (e.g. caring externalities). Then, there are two paths to take. One is to say because the above distribution-neutral SWF gives equal weight to everybody's welfare, it is itself egalitarian, and thus there is no paradox in the first place. However, taking this route is not compatible with egalitarianism defined as equality of outcomes. The other is to define egalitarianism as explicit efficiency-equality trade-offs, and to require preferences with diminishing marginal rate of social substitution (MRSS). This is the definition used in this paper.

The next issue then is the mechanism for determining the MRSS. One approach would be to base it on revealed (collective) preference. If data are available where analysts can compare numerous actual policy decisions made in the real world, then a SWF may be fitted to the data and an estimate of MRSS obtained. If successful, this would allow the

identification of the SWF in the descriptive sense. Another approach is to base it on stated or expressed preferences of individuals using hypothetical states of the world, involving different distributions of outcomes, and asking the individuals to indicate their choices. Individuals faced with such an ex**e**rcise may approach it in two ways.

One would be to form a view regarding which position one may find oneself in, and to choose from this 'private or personal perspective' in line with what would be to one's own benefit (with or without caring externalities as may be the case). This is what happens under the Rawlsian setup of the veil of ignorance with extreme risk aversion (Rawls, 1972). However, this does not involve any reference to a SWF. In other words, the maximin rule is not derived from the so-called Rawlsian SWF. It is the other way round, and it is the Rawlsian SWF that is a product of maximin, which in turn is the rational choice of extremely risk averse individuals behind the veil of ignorance. Thus in our terminology, the egalitarianism of the maximin rule is unintended. If individuals are completely risk neutral, then the veil of ignorance will lead to a distribution-neutral (and therefore non-egalitarian) SWF.

If we require egalitarianism to be defined by a SWF with diminishing MRSS and we wish to elicit this through stated preference, then we need respondents to engage in the exercise with reference to the 'societal or citizens perspective', in line with how, in their judgment, society should allocate resources. In other words, the parameters of an egalitarian SWF cannot be derived by looking at the individual's own utility function, but can only be captured by some meta-level preference along the lines of Sen's 'meta-ranking' (1978), or Hare's 'critical thinking' (1981).

In the context of health, defining egalitarianism in terms of equal outcomes means equalising health outcomes. There can be further variations to this: equalising health across individuals, or across population groups? And if across population groups, which groups? Or, what is the measure of health used? Is it inequality in health at any point in time, or in lifetime health? For the purpose of this paper, we will use reducing inequality in life expectancy at birth across socio-economic groups as the working example of egalitarianism in health.

1.3 Altruism and egalitarianism

Thus, we define both altruism and egalitarianism as something that go beyond immediate selfish concerns. The objective of this paper is to examine empirically how these two are related. At a theoretical level, there is no reason to assume that the two are associated with each other, since while altruism is about the nature of one's own utility function, egalitarianism is about the kind of SWF one has a meta-level preference

for. However, the two concepts may be supported by the same people in the real world. One reason why this may happen is because both concepts are associated with social norms and practices. There are established social norms that prescribe individuals should be helpful to others and that equality should be promoted: indifference is regarded as disgraceful and inequality as reprehensible. More specifically, in the context of health, the supply of blood in many places is based on voluntary donations with no financial reward, and thus on altruism. On the other hand, publicly funded health systems in many places hold as an important policy goal the reduction of health inequalities, and thus are egalitarian. At the same time, it has been shown that for example, in Spain, while the majority of the general public support egalitarianism (Abásolo and Tsuchiya, 2004), only a much lower proportion of the population donate blood regularly (Abásolo and Tsuchiya, 2012). So how would these two be related? More precisely, in the health context, are altruist people more likely to be egalitarian? And if so, to what extent? The majority of studies on attitudes towards egalitarianism falls outside the health context and refers to income inequalities. In the health context, the association of both sex and political affiliation with equity in health is explored by Lindholm et al. (1997), finding that amongst Swedish politicians, women and those left wing have relatively more sympathies towards equity. The relationship between self-interest attitudes and a preference for redistributive policies in health is also studied by Hudson and Jones (2002), showing that self-interest have a significant impact on preferences related to redistributive health policies; they also find that the impact of age and education is such that as people get older and/or more educated they are les less averse to higher taxes for health policy purposes. In addition, Abásolo and Tsuchiya (2008) find that age, per capita income of region of residence and the way the question is administered to respondents have an effect on the propensity to choose an egalitarian policy; while gender and socioeconomic status (proxied by education level and household income) have no significant effect.

To the best of our knowledge, none of the previous studies have explicitly considered and measured the effect of altruism on the preference for egalitarian policies in the health context, which is the main objective of this paper.

2. METHOD AND DATA

2.1. Method

We specify a model that explains the propensity for an individual to be egalitarian in the above sense. An underlying (or latent) variable (E^*) represents an individual's propensity to choose, or not choose, an *egalitarian* health policy that reduces inequality in outcomes as opposed to a policy that does not. We examine the association between

this propensity for egalitarianism and *altruism* (*A*), controlling for a series of observable background characteristics. As a proxy for altruism, we consider whether the individual is or has ever been a regular blood donor (provided they are/were medically capable of doing so). This is not the only way in which altruism could be captured but we believe that this should be a reasonable proxy, particularly in the health context[1].

In line with previous evidence outlined above, we hypothesise that people's attitudes towards egalitarianism will be explained by their demographic, socioeconomic, ideological, together with religious characteristics. Particularly, starting with demographic factors, sex (*S*) and age (*G*) are considered. Secondly, since we are dealing with attitudes regarding socio-economic health inequalities, we may expect there to be some pattern by the respondent's socio-economic status: proxies used[2] to explore this possibility are education (*N*), whether the individual is unemployed (*W*) and per capita income of the region of residence (*C*). Thirdly, we consider that people's attitude towards egalitarianism can be affected by both political affiliation or ideology (*I*) and religious practice (*R*).

Thus, the model can be written as:

$$E_i^* = E(A_i, S_i, G_i, N_i, W_i, C_i, I_i, R_i) + \varepsilon_i \qquad \text{[eq. 1]}$$

In model [eq.1], the *i* subscripts represent individual respondents, and ε_i captures unobserved influences, which are assumed to have a standard normal distribution with zero mean and constant variance.

In practice, E^* is unobserved. Instead, we observe E_i, which is a dummy variable representing whether or not the individual actually chooses the egalitarian policy. Therefore, it is the realization of a binomial process defined by:

$$E_i = 1 \text{ if } [E_i^* > 0]$$

So, if the individual's propensity to be egalitarian is positive ($E_i^* > 0$) s/he will choose the egalitarian policy ($E_i = 1$), and if otherwise ($E_i^* \leq 0$) s/he will not ($E_i = 0$).

The estimation process will be undertaken through probit regressions. Likelihood ratio (LR) tests and Reset specification tests will be carried out to appraise the appropriateness of the different functional forms.

[1] Information on whether the individual was registered as a potential organ donor was also available in the survey. However, we consider that blood donation is a better proxy for altruism than organ donation for two reasons. First, it represents actual altruistic behaviour as opposed to an intention. Second, it involves a higher opportunity cost to the individual (as organ donation refers to cadaver organs).

[2] Household income was also available but given the high rate of missing cases of this variable (40%) and the resulting final sample size, it is not used in the analysis.

We have information to distinguish individuals who are (or have been) regular blood donors from those who are not (or have not been). Furthermore, we can identify those individuals who are not blood donors due to medical or health reasons. It would be inappropriate to classify this latter group as non-altruists, since we have incomplete information regarding whether they would have been blood donors if their medical/health restriction did not exist. Therefore we treat them as missing the altruism variable and exclude them from the analysis. If such medical restrictions on blood donation applied at random, then amongst this sub-population the proportion of those who would otherwise have donated blood would be the same as the proportion of those who donate blood amongst the rest of the population; and the effect of *altruism* and the rest of covariates on *egalitarianism* would not be significantly different. Therefore, excluding them from the analysis would not introduce a bias.

However, if this is not at random, then regression analyses that exclude these respondents will be biased (i.e. selection bias would occur). Tests for selection bias and correction, if necessary, are undertaken estimating a probit with sample selection (Greene, 1997). The probit with sample selection works in a manner very similar to the Heckman model (Heckman 1979) except that the response variable is binary. For this selection model, let us assume an underlying (unobserved) variable D_i^* that determines the selection of individuals into groups, i.e. $P_i = 1$ when D_i^* > threshold, and $P_i = 0$ when $D_i^* \leq$ threshold. D_i^* represents the probability of the individual to be able to donate blood. It is assumed that D_i^* is a linear function of some of the exogenous variables in model [eq.1], in addition to some identifying variables:

$$D_i^* = D(S_i, G_i, N_i, R_i, H_i, M_i, P_i) + u_i \qquad \text{[eq. 2]}$$

The identifying variables include H_i representing the health state of the individual, M_i representing whether the individual is resident in a rural area, and P_i representing whether the individual has private insurance (in addition to public health insurance). The main criteria used here for proposing this set of identifying variables is that the variables have an impact on the probability to be able to donate blood but are unrelated to the individual's preference for egalitarian policies. u_i is a random error term normally distributed with zero mean and constant variance. Selection bias occurs when there is correlation between D and ε (and therefore between ε and u); in other words, when unobservable factors that influence the eligibility to be a blood donor are also influencing the probability to choose the egalitarian option. If so, selection bias will be corrected. To check whether selection bias is absent we will test, firstly, whether ρ (the correlation of residuals) is significantly different from zero: if the covariance between ε

and *u* is significantly different from zero, then we cannot reject that there is no selection bias. In addition, a comparison of the estimates of the main egalitarian model with and without the blood donor selection model is undertaken: a large change in the coefficients, a change of the sign of the coefficients, or a change in the statistical significance of the coefficients between the models with and without selection will indicate the existence of selection bias.

Finally, our model [eq. 1] is built to analyse the effect of *altruism* on *egalitarian* attitudes of individuals, and relies on the assumption of exogeneity of the right-hand-side variables, including *altruism*. However, it could be the case that egalitarian attitudes also have an effect on altruism. If this is the case, we would have an endogeneity problem caused by simultaneity, where conventional estimators will be biased and inconsistent. Exogeneity of the covariate *altruist* is tested through the Smith and Blundell test. This involves a two-stage procedure where *altruist* is first modelled using instruments and the residuals from this regression are entered in the second regression modelling *egalitarian*. The test examines whether these residuals are significant in the second regression. If not, then the null hypothesis that *altruist* is exogenous cannot be rejected, and the model specified as [eq.1] is accepted. However, if the test result is significant, this means the null is rejected so that there is an endogeneity problem. As identifying binary variables we consider whether the individual is an organ donor (O_i) and marital status (T_i). To be valid the instruments should be correlated with *altruism* (individually and jointly significance tests are undertaken) and uncorrelated with the error term of the egalitarian equation. If the Smith and Blundell test statistic is not significant then it would suggest that the estimations are consistent and unbiased. Otherwise, simultaneity should be addressed by constructing instrumental variables for this endogenous regressor.

2.2. Data and variables definition

The data were collected during 2004 by a commercial survey company in Spain, a country with a National Health Care System characterised by universal coverage and tax funding. A survey of 801 individuals over 18 years of age was undertaken. Face to face interviews were assigned across the 17 “Comunidades Autónomas” (“Regions” for short), reflecting the local resident population proportionally. Within each of the Regions, interviews were randomly allocated so that the achieved sample will be representative of the general Spanish population in terms of socio-demographic characteristics. In general, 49% of the individuals were male, with average age of 45 (SD 17.9); and 51% female, with average age of 48 (SD 18.6).

Regarding egalitarianism, the interview questionnaire included one question in which the respondent is asked to think as if s/he was a decision maker who has to choose between two alternative health programmes. Figure 1 reproduces the visual aid used in the interviews. Initially, the respondent is presented with a 5-year difference in life expectancy at birth between higher and lower socioeconomic classes (78 and 73 years respectively). Social class is defined on the basis of occupation: high social class is represented by professions like doctors or lawyers, whilst low social class is represented by road sweepers or cleaners. Programme A would increase the life expectancy of both classes by 2 years each (and therefore maintain the current 5-year gap in life expectancy); whereas programme B would increase the life expectancy of the worse-off class by 4 years (and reduce the current inequality). The respondents are informed that both programmes have exactly the same cost. Respondents can choose Programme A, Programme B, or indicate indifference. The dependent variable *egalitarian* takes the value 1 if the individual prefers the programme that reduces health inequality, and 0 if the individual does not.

With respect to the approach to altruism, the respondent is asked whether s/he is, or has been, a regular blood donor. Those who reply "no" are asked for the main reason from a short list. Those who select "because of medical reasons" at this stage are excluded from the analysis as explained above. The binary independent variable *altruist* takes the value 1 if individual *i* is or has been a regular blood donor, 0 if otherwise. Note that in Spain, blood donations have always been voluntary with no monetary (or in-kind) remunerations. Regarding the rest of factors that we have controlled for, age has been categorised in four dummy variables: *age (18-35)* (baseline category), *age (36-45)*, *age (46-55)*, *age (56-65),* and *age (66+).* The binary variable *female* indicates whether the individual is female or not. Regarding the socioeconomic variables, education is recorded by level of schooling and has been categorised in three dummy variables *primary education* those with primary school education or less (baseline category), *secondary education*, and *university education*. Per capita income in the region of residence is captured by three dummies: *high income region* (Madrid, Navarra or País Vasco), *low income region* (Andalucia or Extremadura) and *middle income region* (the rest of Spain, the omitted category). Political affiliation is recorded by two categorical indicators, *left wing* (those who report themselves being centre-left, left or extreme left wing) and *centre-right wing* (those who report themselves being centre, centre-right, right or extreme right wing, the baseline category). Finally, the binary variable *no religion* indicates that the respondent does not practice a religion.

Regarding the identifying variables for the probit with sample selection, the self-reported measures of health include a categorical indicator that records whether individual considered their general health during the twelve months prior to the survey

to be very poor, poor, fair, good and very good. So we have three dummies *fair health* (for those with very poor, poor or fair health, used as the baseline), *good health* and *very good health*. Population size of the area of residence is proxied by *small area* indicating whether the individual lives in an area of 10,000 or less inhabitants. Last, *private health insurance* records whether the survey respondent has private health insurance (in addition to the public health insurance). Finally, regarding the instruments to test for exogeneity of the covariate *altruist*, we have considered the binary variable *organ donor* indicating whether the respondent reports being registered as an organ donor; and marital status, indicated by three dummies, *single* (baseline), *married* and *divorced/widowed.*

3. RESULTS

Descriptive statistics are reported in Table 1. Out of the 801 respondents involved in the relevant questions, item non-response leads to 204 missing cases, which corresponds to 25% of the entire data, leaving 597 valid observations. As can be seen, the distribution of background characteristics across the whole sample and the sample used in the analysis are very similar. Of these, 157 individuals report that they cannot donate blood because of medical reasons, and are excluded from the analysis. Regarding the remaining 440 individuals, 75% are egalitarians (i.e. prefer the egalitarian policy) and 35% are altruists (i.e. report to be or have been regular blood donors). If we categorise the individuals in the sample according to these two variables of interest (see Table 2), most of the respondents are egalitarian and non-altruists (45%), followed by those who are egalitarian and altruists (28%), those who are neither egalitarian, nor altruists (18%) and finally those who are non-egalitarians but altruists (6%). The corresponding chi-squared test shows that the egalitarian and altruist characteristics are not independent, and there is a statistically significant relationship between both categorical variables ($p<0.05$).

Now, the question is whether this empirical relationship holds when we model egalitarianism as a function of altruism and other background characteristics. Probit estimations for the egalitarian model [eq. 1] are shown in the first column of Table 3. The reset test shows that there is no evidence of mis-specification: the *chi*-squared test statistic is 0.030 with a *p*-value above conventional levels (p=0.853). Overall, the model is statistically significant ($p<0.05$) but the McFadden R-squared statistic is just 0.0794; however, as is often the case when the probit is applied to cross-sectional data (with not huge sample size) the goodness of fit is low. Estimates indicate that altruism has a significant and positive effect on the propensity to support egalitarianism ($p<0.05$), once controlling for other factors.

The third column of table 3 shows the probit marginal effects. Given that all of the covariates are binary variables, the marginal effects are interpreted as the percentage point change in the probability of being an egalitarian resulting from a discrete change in the explanatory variable. Particularly, other things equal, the marginal effect of altruism on egalitarianism is 0.108 indicating that on average, the probability of an altruist individual supporting egalitarianism is 11% higher than for a non-altruist person. Regarding the other control variables, those living in high per capita income regions have a lower propensity to be egalitarian by about 17% compared to those living in middle income regions ($p<0.05$). On the other hand, as expected, those who are politically left wing have a significantly higher probability to be an egalitarian compared to those who are centre-right. In particular, the probability of a left wing individual being egalitarian is on average 16% higher than the reference individual, other things being equal ($p<0.05$). University graduates have a lower probability to be egalitarian by about 15% compared to those with primary or less schooling (but only at 10% significance level). Finally, gender, age, and religious practices do not have a significant association with the probability to be egalitarian.

Estimates for the egalitarian model with sample selection [eq.2] to accommodate medical restrictions on blood donation can be seen in Table 4. The correlation coefficient (*rho*) is not statistically different from zero (p=0.228), suggesting that we cannot reject the null hypothesis that there is no selection bias. In addition, the sign, the magnitude and the *t*-ratios of coefficients of this egalitarian model with selection are quite close to those of the initial egalitarian model without selection [eq.1]. Regarding the potential endogeneity of altruism, the Smith-Blundell test of exogeneity indicates that we cannot reject the null hypothesis that *altruist* is exogenous: the test statistic is 0.094 and the p-value is 0.759. The instruments appear to be valid: F-test shows that the instruments are jointly significant in the *altruist* equation ($p<0.05$); the instruments do not have (neither individually nor jointly) any significant effect on the probability of being egalitarian ($p>0.1$), and the Amemiya-Lee-Newey overidentification chi-squared test is 1.557 with a p-value of 0.459, showing that the instruments are uncorrelated with the error term of the egalitarian model.

4. DISCUSSION

Egalitarianism and altruism are both attitudes that go beyond immediate selfish concerns. However, the two theoretical constructs are different from each other, and yet, there may be associations between the two at the empirical level. This paper explored the empirical relationship between egalitarianism and altruism in the context of health,

using data from interviews of the general public in Spain. In particular, we aimed to understand egalitarianism in terms of altruism. This is because we consider that the individual utility function (including possible altruism) is more fundamental than meta-preferences that people hold over social welfare (including possible egalitarianism). On the one hand, egalitarianism was defined as a meta-level preference for equality of outcomes, and was measured by a question in the interview where respondents were asked to help policy makers to choose between two programmes. One programme improved the health of both the lower and the higher socio-economic groups and maintained the initial inequality in health, while the other programme improved the health of those from the lower socio-economic group. On the other hand, altruism was defined as behaviour that aims to benefit other individuals in need, and was captured by a question in the same questionnaire that asked whether or not the individual is or has been a regular blood donor. We acknowledge that blood donation is only one of several possible altruistic behaviours, and is not a perfect measure. However, it is a behaviour that has been used in the literature as an example of altruistic giving to total strangers in the context of health. There may be individuals who are altruists but do not donate blood because of medical reasons; we have excluded these cases from the analysis and undertaken analysis to check for potential sample selection. Other reasons for not donating such as aversion to needles, not having thought about it, or because others already do it have not been distinguished; rather, we decided simply to consider whether or not the individual is or has been a regular blood donor as a proxy for altruism, taken as a face value.

Would we expect that those who are egalitarian are also altruist? In this study we have found that in the context of health just under half the respondents are egalitarian but not altruist; over a quarter are both egalitarian and altruists; and a fifth are neither egalitarian, nor altruists. This relationship is confirmed through a model of egalitarianism: the probability of an altruist individual being an egalitarian as well is 11% higher than for a non-altruist person, controlling for other background characteristics. It would be interesting to see whether what is observed here in the context of health would also be observed for income.

Regarding other covariates of our egalitarian model, although the previous literature suggests that female respondents have a higher preference for egalitarian policies, gender was not found to have any statistically significant impact on the propensity to be egalitarian. Something similar was observed with respect to age, being unemployed and religious practice. On the other hand, living in a high per capita region is negatively associated with a preference for egalitarian policies, whilst those politically left wing are more likely to prefer egalitarian policies.

The sample selection model indicates that incomplete information on those who are not blood donors because of medical reasons does not introduce a significant bias. In addition, the exogeneity test rejects the possibility of biased and inconsistent estimators due to simultaneity between the altruist and egalitarian variables.

The data we have are based on an interview survey, and we only have what the respondent has told the interviewer. Egalitarianism is measured by responses to a question based on a hypothetical choice between two policy scenarios in health, and one may criticise its substance. However, it should be noted that we define egalitarianism as a meta-preference. This means that there is no real-world opportunity where true, or revealed, preferences can be revealed through observable behaviours. Altruism on the other hand is measured by response to a question on respondent behaviour, regarding blood donation. This may be more valid than the question on egalitarianism, but there may be issues of interpretation and/or recall. For example, we have not given the exact definition of 'regular'. If respondents were biased by social norms and were trying to appear pleasant to the interviewer, then this would affect the two key variables in the same way: social norms will inflate both egalitarian preferences and altruistic blood donation. Furthermore, the fact that the egalitarian question preceded the blood donation question in the interview may have influenced the responses to the latter.

Overall, the egalitarian model controlling for a series of background variables show that egalitarianism and altruism in health measured in these ways are indeed associated with each other. Those who are or have been regular blood donors appear to be 11% more likely to choose the egalitarian policy than another person who does not donate blood but who otherwise has the identical set of observed background characteristics.

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FIGURE 1. THE VISUAL AID GIVEN TO RESPONDENTS

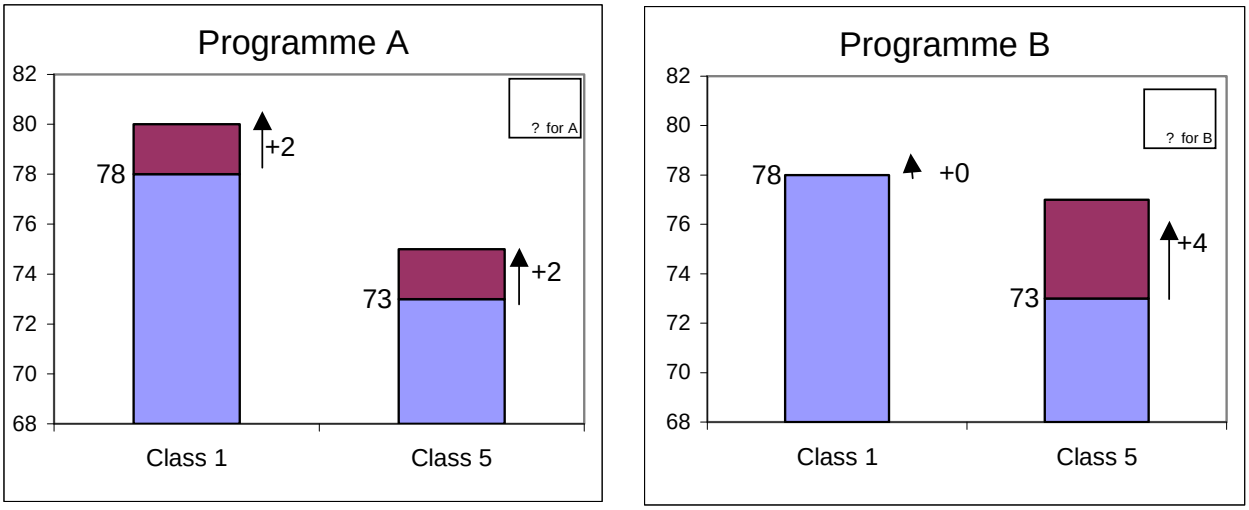

TABLE 1. SUMMARY STATISTICS

	whole sample		valid cases N=597	sample used in the probit N=440
Variable	**N**	**Mean**	**Mean**	**Mean**
Egalitarian	770	.735	.750	.752
Altruist	800	.244	.256	.348
male*	801	.494	.494	.534
Female	801	.506	.506	.466
age (18-35)*	801	.327	.323	.377
age (36-45)	801	.195	.206	.227
age (46-55)	801	.132	.136	.120
age (56-65)	801	.149	.147	.127
age (66+)	801	.197	.188	.148
primary education*	799	.343	.310	.266
secondary education	799	.538	.561	.598
university education	799	.119	.129	.136
Unemployed	799	.064	.064	.061
middle income region*	801	.605	.642	.641
high income region	801	.192	.179	.186
low income region	801	.202	.179	.173
centre-right wing*	654	.436	.444	.430
left wing	654	.564	.556	.570
no religion	764	.450	.461	.502
fair health*	801	.262	.229	.161
good health	801	.634	.662	.720
very good health	801	.102	.109	.118
small area	801	.242	.219	.230
private health insurance	796	.139	.164	.150
single*	800	.248	.231	.261
married	800	.618	.650	.648
divorced/widowed	800	.135	.119	.091
organ donor	791	.096	.104	.105

* denotes baseline category

TABLE 2. CROSS FREQUENCIES EGALITARIANS/ALTRUISTS (N=440)

	ALTRUIST	NON-ALTRUIST
EGALITARIAN	125 (28.4%)	206 (46.8%)
NON-EGALITARIAN	28 (6.4%)	81 (18.4%)

The four cells add up to 100%

Pearson chi2 (1)= 5.272; p= 0.022

TABLE 3. PROBIT RESULTS FOR EGALITARIAN

	Coeff.	Rob.std.Err.	Mg.effect
altruist	.372 (**)	.150	.108
female	-.047	.136	-.014
age (36-45)	.141	.181	.042
age (46-55)	-.181	.224	-.057
age (56-65)	.193	.239	.055
age (66+)	.246	.250	.070
secondary education	-.184	.188	-.055
university education	-.460 (*)	.244	-.155
unemployed	-.303	.284	-.100
high income region	-.509 (**)	.175	-.170
low income region	-.298	.186	-.097
left wing	.505 (**)	.143	.156
no religion	.200	.144	.061
constant	.511	.247	

N = 440;
Wald chi2(12)=36.43; Prob > chi2 = 0.000; McFadden's R2=0.079
Reset test:chi2(1) = 0.03; Prob > chi2 = 0.853
** p-value<0.05; * p-value<0.1
Dependent variable: egalitarian

TABLE 4. RESULTS ON PROBIT WITH SAMPLE SELECTION

Egalitarian (E)			Being able to donate blood (D)		
	Coeff.	**R.std.Err**		**Coeff.**	**R.std.Err.**
altruist	.367 (**)	.144	female	-.329 (**)	.121
female	.025	.140	age (36-45)	-.192	.183
age (36-45)	.169	.181	age (46-55)	-.672 (**)	.201
age (46-55)	-.027	.245	age (56-65)	- .576 (**)	.204
age (56- 65)	.309	.237	age (66+)	-.608 (**)	.210
age (66+)	.422	.267	secondary education	.057	.153
secondary education	-.167	.187	university education	.054	.222
university education	-.434(*)	.243	no religion	.114	.128
unemployed	-.298	.267	good health	.708 (**)	.140
high income region	-.488 (**)	.167	very good health	.494 (**)	.232
low income region	-.275	.184	small area	.237	.154
left wing	.473 (**)	.147	private health insurance	-.344 (**)	.157
no religion	.181	.152	constant	.604 (**)	.249
constant	.584 (**)	.255	/athrho	-.594	.528
			rho	-.532	.378

N = 597; censored=157
Wald chi2(13)=36.03; Prob > chi2 = 0.000
LR-test indep. eqns: rho=0; chi2(1) = 1.45; Prob > chi2 = 0.228
** p-value<0.05; * p-value<0.1