Fairness and the unselfish demand for redistribution by taxpayers and welfare recipients

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Fairness and the unselfish demand for redistribution by taxpayers and welfare recipients[*]

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Abstract

We illustrate how the desire to live in a fair society that rewards individual effort and hard work triggers an unselfish though rational demand for redistribution. This leads the well off to prefer higher taxes and the poor to reject extreme progressivity. We then provide evidence of these behaviors using a nationally representative survey from Italy. Our empirical analysis confirms that a stronger aversion to unfair distributive outcomes is associated with a higher support for redistribution by individuals with high income and to a lower demand for redistribution by those with low income.

Keywords: fairness, income distribution, inequalities, taxation, welfare, redistribution, free-riding, civic capital, social capital.

JEL Classification: H10, H53, D63, D69, Z1.

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1 Introduction

The demand for redistribution has complex motives that transcend self-interest. The literature has shown that the belief that everyone has the right to fully enjoy the fruits of her work leads to a lower support for progressivity. The effect of this principle, however, can be mitigated by the belief that market competition generates unfair outcomes. If the opinion prevails that one's position on the social ladder mostly depends on luck or unworthy activities such as free-riding and rent seeking, a society will demand a greater redistribution to correct income disparities that do not reflect differences in talent and effort (Alesina and Angeletos, 2005; Alesina and La Ferrara, 2005; Bénabou and Tirole, 2006).

Following Alesina and Angeletos (2005) we assume that social injustice can cause disutility according to a subjective sensitivity to fairness. The aversion to unfair welfare allocations prompts an unselfish demand for redistribution that contributes to determining the optimal tax rate of individuals along with the selfish motives. In line with the previous studies, we first illustrate how the desire to live in a fair society that rewards effort and talent instead of luck and dishonesty leads individuals to unselfishly demand redistribution. By extending the model used in Alesina and Angeletos (2005), we then show that an increase in the individual aversion to unfairness prompts opposing reactions in those with high and low incomes. The desire to live in a fair society that rewards individual effort and hard work triggers an unselfish although rational demand for redistribution and this then leads the well off to prefer higher taxes and the poor to reject extreme progressivity.[1]

We provide evidence of these behaviors based on micro data collected by the Bank of Italy in its Survey on Household Income and Wealth. This survey includes information about people's opinions and beliefs concerning public spirit, taxation and redistribution. Following the literature on civic capital and redistributive attitudes, we operationalize individuals' sensitivity to unfair allocations via indicators of the aversion to free-riding, one of the unworthy activities that generates distributive injustice by enabling agents to improve their position at the expense of society (see for example Alesina and Angeletos, 2005; Guiso et al., 2006; Guiso et al., 2010; Algan et al., 2016).

To provide consistent estimates despite the endogeneity issues related to the study of individual preferences in a section of data, we use a proce-

[1] For the sake of readability, we will use the terms 'aversion to unfairness' and 'sensitivity to fairness' as synonyms throughout the paper.

dure proposed by Wooldridge (2002) that copes with the absence of external identifying information by exploiting instruments derived from a nonlinear first-stage. This strategy of identification is not as straightforward and transparent as a random natural experiment. However, it is preferable to a simple OLS-based approach as it uses the same estimator as conventional IV strategies, which is proved to be consistent; that is, given the validity of instruments, the two procedures provide the same result in large samples (Wooldridge, 2002). Even if this strategy does not hold a theory for explaining causality, it at least helps to correct the endogeneity bias of the estimates.

Our empirical analysis shows that an increase in the aversion to unfair allocations caused by free-riding is associated with opposing attitudes towards redistribution depending on income: high income individuals, in fact, tend to demand more redistribution despite knowing they will bear its cost without enjoying the benefits, while those with low income tend to demand less redistribution even if they would benefit from it without bearing its cost.

Our work bridges two strands of literature. The first examines how the desire for fairness and beliefs in the equality of opportunities influence individual preferences for redistribution (Piketty, 1995; Alesina and Angeletos, 2005; Alesina and La Ferrara, 2005; Bénabou and Tirole, 2006; Dahlberg et al., 2012; Gualtieri et al., 2017). The second strand investigates how tax morale and the demand for redistribution are affected by various dimensions of social capital such as trust (Bjørnskov and Svendsen, 2013; Bergh and Bjørnskov, 2014; Daniele and Geys, 2015), civic-mindedness (Algan et al., 2016; Cerqueti et al., 2016), social participation (Sabatini, 2008; Yamamura, 2012; Andriani, 2016) and culture (Alm and Torgler, 2006; Guiso et al., 2006).

We add to these studies by showing that a stronger aspiration to live in a fair society can induce opposing and counter-intuitive changes in the demand for redistribution depending on the individual's position on the income ladder. To the best of our knowledge, these relationships have not been previously theorized and tested in the literature Our results also add to the social capital literature by extending our knowledge of the possible economic consequences of civic-mindedness, addressed by numerous studies after the seminal work of Putnam et al. (1993).

The paper proceeds as follows: section 2 presents the theoretical framework. Section 3 describes the data, the empirical strategy and the results of our empirical analysis. Section 4 draws some concluding remarks.

2 Theoretical framework

We use a simplified version of the set up developed by Alesina and Angeletos (2005) to analyze how the aversion to unfair welfare allocations affects the individual demand for redistribution.

Let us assume a continuum of agents indexed by $i \in [0,1]$. The individual income of agent i is

$$y_i = A_i + \eta_i,$$

where y_i is the income of agent i, A_i summarizes agent i's individual features, such as talent and effort, and η_i is a zero-mean i.i.d. shock to the individual income. This can be interpreted either as random luck or as the outcome of unworthy activities such as corruption and free-riding. Agents live for one period and consume their whole income. We assume that individual features and unworthy activities are uncorrelated, so that $Cov(A_i, \eta_i) = 0$.

Following Meltzer and Richard (1981), the public sector implements a redistributive scheme where incomes are taxed at rate t, and tax revenues are redistributed evenly among agents. Accordingly, disposable income is given by

$$c_i = (1-t)y_i + G, \tag{1}$$

where $G = t\overline{y}$, and $\overline{y} = \int_0^1 y_i di$.

Individual preferences are given by

$$U_i = c_i - \omega_i \Omega,$$

where Ω measures the disutility caused by social allocations perceived as 'unfair'. The parameter ω_i can be interpreted as the individual aversion to 'unfairness'. A social allocation is unfair when it deviates from what agents should get based on their individual talent and effort $\hat{y}_i = A_i$; in line with Alesina and Angeletos (2005) we assume

$$\Omega = \int_0^1 (c_i - \hat{y}_i)^2 \, di.$$

Given (1), the definition of G, and $Cov(A_i, \eta_i) = 0$, after some manipulation we find

$$\Omega = (1-t)^2 \sigma_\eta + t^2 \sigma_A,$$

where $\sigma_\eta \equiv Var(\eta)$ and $\sigma_A \equiv Var(A)$.

The desired individual tax rate maximizes the agent's expected utility

$$E[U_i] = E(c_i) - \omega_i \Omega = (1-t)A_i + t\overline{y} - \omega_i \left((1-t)^2 \sigma_\eta + t^2 \sigma_A\right). \quad (2)$$

The tax rate affects individual expected utility in two ways. First, it determines the expected disposable income. Agents gain from a positive tax rate as long as their expected income is less than the mean income: this is the 'selfish' motive for desiring redistribution. Expected disposable income is maximized by $t = 1$ when $A_i < \overline{y}$, and by $t = 0$ otherwise. Second, individuals who care about social outcomes may desire a positive tax rate to reduce the 'unfairness' of the market allocation. Furthermore Ω is minimized by $t_\Omega = \sigma_\eta/(\sigma_\eta + \sigma_A)$, which is an increasing function of σ_η. To reduce unfairness, agents demand redistribution as long as it reduces the component of outcomes variability dependent on luck or free-riding. In contrast, a higher σ_A, by contrast, reduces the desired tax rate as agents do not want to reduce income dispersion when it is due to talent or effort.

The optimal individual tax rate t^* balances the 'selfish' and 'fairness' motives for redistribution. By maximizing (2) with respect to t, t^* can be readily found as

$$t^* = \frac{\overline{y} - A_i + 2\omega_i \sigma_\eta}{2\omega_i(\sigma_\eta + \sigma_A)}. \quad (3)$$

Agents will demand positive redistribution, $t^* > 0$, if $\overline{y} - A_i + 2\omega_i\sigma_\eta > 0$. There will always be a positive demand for redistribution arising from the aversion to unfair outcomes, as long as there is a possibility of free-riding ($\sigma_\eta > 0$). However, a selfish demand for redistribution is positive only for agents with below-average expected income ($A_i < \overline{y}$). Agents with an above average expected income will demand redistribution if the fairness motive is stronger than the selfish one; that is $2\omega_i\sigma_\eta > A_i - \overline{y}$.

We are interested in assessing the relation between the desired tax rate and aversion to unfair outcomes. We can state the following proposition.

Proposition 1. *An increase in the aversion to unfairness increases individual demand for redistribution if and only if $A_i > \overline{y}$.*

Proof. $\frac{dt^*}{d\omega_i} = \frac{A_i - \overline{y}}{2\omega_i^2(\sigma_\eta + \sigma_A)} > 0 \Leftrightarrow A_i > \overline{y}$. □

Relatively rich agents demand more redistribution the greater is their aversion to unfair allocations. The opposite is true for agents with below average income. The affluent have zero 'selfish' demand for redistribution while their demand for fairness yields the desired tax rate t_Ω. The overall desired tax rate t^* is a (weighted) average of the two effects. When ω_i increases, agents attach a higher weight to the fairness motive so that t^*, by moving closer to t_Ω, increases. In contrast, selfish demand for redistribution for relatively poor agents would require a 100% tax rate. An increase in ω_i increases the weight agents place on the fairness motive. Hence the overall desired tax rate t^* decreases because it moves closer to t_Ω.

People with above average realized income lose from redistribution. Still, their aversion to social outcomes they deem unfair makes them willing to accept a certain amount of redistribution because they realize that unworthy activities may undeservedly penalize some people. Therefore, an increase in the individual sensitivity to fairness (an increase in ω_i) will lead to a demand for a higher tax rate. In contrast, 'poor' agents gain from redistribution and high taxes. However, a strengthening of the belief that people should get what they deserve (again an increase in ω_i), will lead them to restrain their quest for redistribution from the rich and demand a lower tax rate.

3 Empirical evidence

To test the prediction established in Proposition 1, we use a two-stages least squares (TSLS) approach, where the dependent variable is an indicator of individual support for redistribution and the main explanatory variable is the individual sensitivity to fairness, ω_i. In the second stage, ω_i is instrumented with the fitted probability from a nonlinear first-stage, which, despite not relying on external information to identify the effect of ω_i, provides consistent estimates as explained in Wooldridge (2002). Our data and empirical strategy are described in detail in the following subsections.

3.1 Data

Data are taken from the 2004 wave of the Survey on Household Income and Wealth (SHIW), which is conducted every two years by the Bank of Italy. The sample includes approximately 8,000 households and is representative of the Italian population at the national and regional level. The sample was drawn in two stages (municipalities and households), with the stratification of the primary sampling units (municipalities) by region and demographic size. Within each stratum, the municipalities in which interviews would be conducted were selected to include all those with a population of more than 40,000 inhabitants (self-representing municipalities), while the smaller towns were selected on the basis of probability proportional to size. The individual households to be interviewed were then selected randomly. In the 2004 wave of the survey, a special section on "public spirit and taxation" was included in the questionnaire, in which respondents were asked to give their opinions about fairness and taxation.

The indicator of support for redistribution is built using the five point-scale with respondents asked to respond to the following statements "The more someone earns, the more (in percentage) he/she should contribute to government spending" and "The Government should levy higher taxes on income (personal and company) and lower taxes on consumption (VAT)". The point scale ranged from 1 ("Not at all") to 5 ("Very much"). Our dependent variable is the arithmetic mean of the two scores. Higher values measure a stronger support for redistribution.

This indicator has often been used to measure the individuals' support for redistribution (e.g. Alesina and La Ferrara, 2005; Guiso et al., 2006; Algan et al., 2016). Algan et al. (2016) model individuals' support for redistribution as the optimal ratio of consumption by low income individuals receiving welfare benefits over the consumption of high income individuals funding the welfare states with their taxes. In the empirical test of the model, the authors measure support for redistribution through the score given by World Values Survey (WVS) respondents to the following statements: "Incomes should be made more equal" versus "We need larger income differences as incentives". Alesina and La Ferrara (2005) model the level of redistribution desired by individuals as their optimal tax rate, decreasing in their current and future expected income. In their empirical analysis, support for redistribution is measured via the score given by General Social Survey respondents to the statement: "Should the government reduce income differences between rich and poor?". Similar measures were used, for example, in the empirical works of Corneo and Gruner (2002),Guiso et al. (2006), Luttmer and Singhal (2011) and Dahlberg et al. (2012).

To measure individual sensitivity to unfair allocations, we use indicators of the aversion to free-riding, which Alesina and Angeletos (2005) consider one of the typical sources of unfairness in the distribution of income and wealth. As explained in Guiso et al. (2010), judgments on free-riding fully capture the individuals' sensitivity to fairness: "The common features across all these measure is that they are value judgments on activities that result in the appropriation of (possibly limited) private benefits at the expense of (possibly much larger) costs imposed on other members of society" (p. 17). In our empirical analysis, we use responses to the following questions: "Which of the following situations do you think are always justifiable, never justifiable, or justifiable to some extent? Please give your answer on a scale from 1 to 10, 1 being 'never justifiable' and 10 'always justifiable': i) Not paying for your ticket on public transport; ii) Keeping money you obtained by accident when it would be possible to return it to the rightful owner (for example, if you found a wallet with the owner's name and address, or if you were given too much change at the supermarket check-out); and iii) Not leaving your name for the owner of a car you accidentally scraped while parking." Given the wording of this questions, lower values capture a greater aversion to unfairness. Our indicator of the aversion to unfairness is the arithmetic mean of the (inverted) scores given by respondents to the three statements.

As in Alesina and La Ferrara (2005) and Algan et al. (2016) this indicator is appropriate for testing the relationships described in Proposition 1 in that it enables us to detect how support for the redistribution varies in relation to changes in the individuals' sensitivity to unfair allocations, i.e. driven by the appropriation of private benefits at the expenses of others.

Descriptive statistics are reported in Table 1. Income distribution is asymmetric and positively skewed (it has a long right tail), as the median value is lower than the mean. This is consistent with the empirical distribution of national households' income, as reported by the official statistics for Italy (see Istat, 2008). Regarding the preference for redistribution, its distribution is roughly symmetric. The mean value of 3.8 indicates a high preference for redistribution in the sample.

Table 1: Descriptive statistics

	Mean	St. Dev.
Preference for redistribution	3.839	0.908
Sensitivity to fairness	8.762	1.819
Age	50.60	20.51
Income	33.40	29.98
Gender	0.470	0.499
Married	0.589	0.492
Single	0.244	0.430
Separated	0.0379	0.191
Primary school	0.259	0.438
Middle school	0.266	0.442
Vocational secondary school	0.0578	0.233
High school	0.223	0.416
University diploma	0.00816	0.0900
Bachelor degree	0.0741	0.262
Postgraduate	0.00241	0.0491
Employee	0.328	0.470
Self-employed	0.0823	0.275
Unemployed	0.0545	0.227
Observations	8703	
Income: 1st quartile: 18.20, Median: 27.79, 3rd quartile: 40.91		

3.2 Empirical strategy

The study of individual behaviors and beliefs in a section of survey data entails relevant endogeneity problems. Sensitivity to unfairness and an individual support for redistribution may both be driven by common latent features of individuals such as unobservable attitudes and abilities. However, it was not possible to find appropriate instruments in the survey data, nor to retrieve the conditions for a natural experiment for us to identify the effect of the aversion to unfairness on the individual demand for redistribution.

To obtain consistent estimates despite these issues, we followed procedure 18.1 in Wooldridge (2002), known as probit-TSLS (Cerulli, 2004), which consists of three steps:

1. Estimate an ordered probit model regressing ω on the covariates x. Let us denote the latent individual aversion to unfairness as ω^* taking values in (-∞;∞). The observable variable we use to measure ω^* is

ω, which takes $J-1=10$ possible values. The latent variable can be modeled as:

$$\omega^* = \beta' x + \varepsilon$$

We observe $\omega = j$ if $\tau_{j-1} \leq \omega^* \leq \tau_j$, for $j = 1, ..., J-1$, and we assume $\tau_0 = -\infty$ and $\tau_j = \infty$. Thus the probability of $\tau_{j-1} \leq \omega^* \leq \tau_j$ is equal to the probability of $\omega = j$ and can be modeled as:

$$P(\omega = j|x) = \Phi\left(\tau_j - \beta' x\right) - \Phi\left(\tau_{j-1} - \beta' x\right)$$

Where $\Phi(\centerdot)$ is the cumulative normal density function of ε. The cut points τ_j and the coefficient vector β can be estimated by maximum likelihood.

2. Work out the fitted probabilities of the ordered probit model, $\hat{P}$, as:

$$\hat{P}(\omega = j|x) = \Phi\left(\hat{\tau}_j - \hat{\beta}' x\right) - \Phi\left(\hat{\tau}_{j-1} - \hat{\beta}' x\right) \tag{4}$$

3. Carry out a linear TSLS of the preference for redistribution on ω and x, using $\hat{P}_i$ as instrument. That is:

$$redistribution = \gamma' x + \lambda\omega + u \tag{5}$$

Where a consistent estimate of λ is obtained as:

$$\hat{\lambda} = \frac{cov\left(redistribution, \hat{P}\right)}{cov\left(\omega, \hat{P}\right)} \tag{6}$$

The intuition underpinning this procedure lies in the fact that $\hat{P}_i$ is a non-linear function of x, implying an imperfect correlation with it. However, it is clearly correlated with ω, so that it can be used as an instrument. The validity of the instrument is not affected by possible misspecification errors made in point (1), namely in the specification of the ordered probit model.

Steps (1)-(3) are implemented in Stata by the `ivtreatreg` command (Cerulli, 2004). The seminal work by Angrist (2001) showed that in cases like the one under scrutiny, with a discrete dependent variable, the coefficients estimated with a linear TSLS are equal to the marginal effects obtained by using more complex nonlinear instrumental variable models (e.g. biprobit models). In the first-stage we use Ordinary Least Squares (OLS) despite the endogenous variable is discrete, because only OLS estimates can generate residuals that are uncorrelated with fitted values and covariates, thus providing a valid instrumental variable. The same does not hold, instead, for nonlinear discrete models (see Angrist and Pishke, 2009).

We are aware that this identification strategy is not as straightforward and transparent as the exploitation of a natural experiment. However, we believe it is anyway preferable to a basic OLS approach because it uses the same estimator employed in experiment-based IV strategies, which at least has been proven to be consistent in large samples. Wooldridge (2002) showed that, given the validity of instruments probit-TSLS and the more conventional IV strategy provide the same result in large samples.

Once clarified the consistency of the estimates, two issues arise from the theoretical model. First, the whole econometric procedure must be repeated twice, once for the rich and once for the poor. Second, the model predicts the existence of a threshold, or cutoff, in the distribution of income, entailing that $\partial t * / \partial \omega_i$ is positive for incomes above the threshold and negative for incomes below the threshold. In the theoretical framework, the threshold is modeled as the mean value of income. People around the mean income, however, can hardly be aware of whether their income falls above or below the threshold. They do not know whether they will benefit from redistribution and they may not act according to our theoretical predictions because they cannot properly formulate their selfish demand for redistribution.

To put the theoretical prediction into empirical testing, we then defined the two categories of low and high income individuals as those agents whose income respectively falls below the lowest quartile and above the highest quartile of the income distribution. We then ran a series of robustness checks testing other possible definitions of low and high incomes. Results do not vary if we put in the low income group all those falling below the 75° percentile.

Regarding the other quality checks, we picked two of the generated instruments in order to make the computation of the Sargan-J test feasible without weakening the power of the test (Roodman, 2009). As reported in Table 2, it is not possible to reject the null of validity of the instruments at 10%. In addition, no significant differences are detected when the procedure is estimated using Limited Information Maximum Likelihood, LIML, which has the advantage of being less biased than TSLS in finite samples, though less precise. Diagnostics of under-identification have also been performed and it is not possible to accept the null of under-identification at the conventional levels.

3.3 Results

Table 2 reports the results based on different definitions of low and medium incomes. We controlled for region fixed effects in all of the regressions. Columns 1 and 2 report results when the 75th and the 25th percentiles are used as cut-offs, that is, individuals above the 75th are considered as having a high income (column 1) and those below the 25th are conventionally defined as low income individuals (column 2).

Table 2: Sensitivity to fairness and preferences for redistribution

	Cut-offs = 25th and 75th percentiles		Cut-off = 75th percentile
	High income (> 75%)	Low income (< 25%)	Low income (<75%)
Fairness	0.249***	-0.143*	-0.213**
	(0.125)	(0.0818)	(0.0898)
Gender	0.0320	-0.0343	0.00154
	(0.0423)	(0.0462)	(0.0263)
Age	0.003	0.00242	0.00134
	(0.002)	(0.00160)	(0.00101)
Income	-0.002***	0.000506	0.00453*
	(4.82e-07)	(7.10e-06)	(2.59e-06)
Employee	0.150**	0.0829	-0.0512
	(0.0621)	(0.0687)	(0.0397)
Self-employed	-0.0774	-0.177	-0.240***
	(0.0749)	(0.122)	(0.0583)
Unemployed	0.147	0.104	-0.0752
	(0.146)	(0.0918)	(0.0639)
Constant	1.421	4.702***	5.457***
	(1.201)	(0.672)	(0.777)
Observations	2,175	2,178	6528
F	0	0	0
P (Sargan-J)	0.690	0.589	0.350

Robust standard errors in parentheses.
*p < 0.1, **p < 0.05, p*** < 0,01. Income coefficient * 1000.
Additional controls: regional dummies, education, civil status.

Sensitivity to fairness is a significant predictor of support for redistribution. For incomes above the 75th percentile, fairness is positively associated with preferences for redistribution, while for those below the 25th percentile fairness has a negative association, consistently with Proposition 1.

In a first robustness check, we used a different cut-off for splitting the sample into low- and high-income groups. In this case, the well off are still those above the third quartile-threshold, while all individuals below the threshold are conventionally defined as having a low income. Results (reported in column 3) still hold in the new specification, with the only difference being a slight increase in the significance of the fairness coefficient.

Regarding the other covariates, income is a significant and negative predictor of the individual demand for redistribution of the affluent. For those in the lowest quartile, the coefficient of income is positive but not significant. When we use the 75th percentile as cut-off, income also becomes significant for those below the threshold, and its sign is still positive. This result could be explained by the fact that low income individuals will likely continue to gain from redistribution without bearing its costs even after limited increases in their income (i.e. increases that are not high enough to enable a move to a higher percentile of the distribution). These results are consistent with the seminal work of Meltzer and Richard (1981), claiming that voters at the median of the income distribution should vote for higher levels of taxes and redistribution, and with previous empirical findings that, ceteris paribus, richer people are more likely to demand less redistribution and lower taxes (Corneo and Gruner, 2002, Alesina and La Ferrara, 2005 Powdthavee and Oswald, 2014, Yamamura, 2014).

The coefficients of the work status dummies also offer interesting insights. Self-employment is always negatively correlated to support for redistribution, whichever cut-off is chosen for distinguishing high and low incomes. When we use the 75th percentile as cut-off, the negative coefficient of self-employment also becomes statistically significant. Self-employment has traditionally been associated with greater economic individualism and concomitant resistance to the welfare state (see among others the seminal work of Wilensky, 1975 and the empirical evidence in Torgler, 2003; Alesina and La Ferrara 2005; Luttmer and Singhal, 2011; Guillaud, 2013). What is interesting in our empirical findings is that self-employed in the first three quartiles of the income ladder are also shown as being averse to redistribution. These individuals may oppose redistributive policies because they rationally expect to move to higher quartiles in the future, as suggested by Bénabou and Ok (2001).

Following Angrist (2001), we interpret the estimated coefficients with the linear TSLS as marginal effects. The association between sensitivity to fairness and preferences for redistribution has an economically relevant size that counterbalances the 'selfish' effect of income. In the baseline specification, a one-point strengthening of the sensitivity to fairness is associated with a 25 percentage points higher likelihood of supporting redistribution for the well off and with a 14 percentage points lower likelihood for the poor. A unitary increase in income (corresponding to €1,000) is significantly associated with a 2 percentage points lower likelihood to support redistribution for relatively rich agents.

When we use the 75th percentile as cut-off (column 3), the size of the association between low income individuals' sensitivity to fairness and their support for redistribution becomes bigger and comparable in size to the marginal effect of self-employment. A 1-point strengthening of sensitivity to fairness is associated with a 21 percentage point higher likelihood of supporting redistribution.

Overall, these results clearly illustrate how the aversion to unfair allocations is associated with unselfish attitudes towards redistribution: the well off tend to demand more redistribution even if they will bear its cost without enjoying its benefits, while individuals earning a low income tend to demand less redistribution even if they will benefit from it without bearing its cost.

A further robustness check shows that the coefficient of ω takes on the expected sign for every cut-off we chose for defining the low and high income groups (whether it is the 25th, the 50th, or the 75th). Consistent with the theoretical prediction, it is positive (negative) for those above (below) the threshold and it is statistically significant from the third quartile[2].

[2] A finer grid search has been performed by repeating the procedure every five percentiles between the second and the third quartile. The signs of the coefficients are stable over all the iterations and we find statistical significance since the 70th percentile, with no virtual differences in the estimates between it and the 75th.

Table 3: Sensitivity to fairness and preferences for redistribution using LIML

	Cut-offs = 25th and 75th percentiles		Cut-off = 75th percentile
	High income (> 75%)	Low income (< 25%)	Low income (<75%)
Fairness	0.252**	-0.144*	-0.221**
	(0.127)	(0.0826)	(0.0929)
Gender	0.0320	-0.0345	0.00149
	(0.0424)	(0.0462)	(0.0264)
Age	0.00309	0.00242	0.00135
	(0.00196)	(0.00160)	(0.00101)
Income	-0.00198***	0.000579	0.00470*
	(4.82e-07)	(7.13e-06)	(2.65e-06)
Employee	0.150**	0.0826	-0.0526
	(0.0622)	(0.0688)	(0.0401)
Self-employed	-0.0772	-0.177	-0.240***
	(0.0750)	(0.122)	(0.0586)
Unemployed	0.147	0.103	-0.0770
	(0.147)	(0.0919)	(0.0645)
Constant	1.393	4.713***	5.520***
	(1.223)	(0.678)	(0.804)
Observations	2,175	2,178	6,528
F	0	0	0
P (Sargan-J)	0.691	0.590	0.353

Robust standard errors in parentheses.
*p < 0.1, **p < 0.05, p*** < 0,01. Income coefficient * 1000.
Additional controls: regional dummies, education, civil status.

To test the possible effect of small sample bias, we use the LIML estimator as a correction mechanism in a robustness check. LIML has the same large sample distribution as TSLS, but provides finite sample bias reduction. Results obtained by using the 25th and the 75th percentiles as cut-offs for low and high incomes are reported in Columns 1 and 2 of Table 3. Column 3 reports coefficients for low income individuals when the 75th percentile is used as cut-off. In all cases there is no significant difference in respect to the TSLS estimates.

As further checks, we also controlled for: 1) The characteristics of respondents' area of residence (e.g. whether it is urban or rural). 2) The perceived economic well-being of the household, as measured on a six-point scale with the question: "Is your household's disposable income enough for you to get through the month?". Ceteris paribus, individuals experiencing financial difficulties could be more favorable to welfare spending. 3) Respondents' time preferences, measured through responses to the question: "If you had a windfall equal to your household's net monthly income would you spend the lot", or "save a small part", "save about half", "save most of it", and "save the lot". Low time preferences could be related to a stronger willingness to pay higher taxes for having bigger public protection schemes in return. In all cases, the results do not change and the coefficients of the additional covariates are not statistically significant.

4 Conclusion

In this paper, we studied the interplay between sensitivity to fairness and the individual demand for redistribution. First, we theoretically illustrated how the desire to live in a fair society where people's income depends on merit instead of luck can trigger an unselfish support for redistribution. An increase in the aversion to unfairness can lead the affluent to demand more redistribution even if they will bear its cost without sharing its benefits, and the poor to desire less redistribution thereby renouncing to the advantages related to higher social spending.

We then found evidence of this behavior in a representative sample of Italian taxpayers. The empirical analysis confirmed that an increase in the aversion to unfair allocations is associated with opposing attitudes towards redistribution depending on income. The size of the marginal effects is economically relevant and overcomes that of income. Of course we do not intend to establish any normative presumption equating fairness with support for big governments and high welfare spending. Rather, we show that beliefs about fairness can interact with income in determining the individual preferences for redistribution in ways that were not previously theorized and tested in the literature.

Even if we controlled for the bias of the estimates using the procedure proposed by Wooldridge (2002), we lack a clear identification mechanism standing from external information. This suggests caution in the interpretation of the coefficients. Nonetheless, the empirical evidence was shown to be fully compatible with our theoretical reasoning and also revealed interesting insights concerning, for example, the size of the influence exerted by the selfish and unselfish motives for desiring redistribution. These results have relevant policy implications, as the share of people declaring support for redistribution has been found to be a strong predictor of welfare spending and of the size of government (Alesina and Angeletos, 2005; Guiso et al. 2006).

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