

# 1 Introduction

Developed countries differ vastly in terms of the amount of taxation, social spending, and redistribution operated by their governments (Alesina and Glaeser, 2004). The US – and more generally Anglo-Saxon countries – epitomise socio-economic systems that rely heavily on free markets as allocative mechanisms, while continental European countries attribute a larger role to the State and to regulative mechanisms. These macroeconomic differences are mirrored by the dissimilar patterns of attitudes towards social mobility and opportunities that people hold (Alesina and Glaeser, 2004; Corneo and Gruner, 2002). In particular, most people in the US believe that an individual's success in their career is the result of hard work, whereas the majority of people in Europe hold the view that this is the upshot of luck or one's family economic and cultural background. A wide array of explanations has been offered to account for the differences in the amount of redistribution across countries (see Alesina and Glaeser, 2004, for a review). These take into account differences in basic preferences or attitudes towards inequality and towards the willingness to insure against the risk of income variability; cultural differences about the deservedness of individual merit; ideology-driven beliefs over the actual deservedness in reality of both the poor and the rich; ideological differences; historical and geographical factors. We review some of them in section 2. Thus far there is no consensus over which factor is dominant.

The goal of the paper is to examine some of the underlying psychological and cultural reasons of these differences within a comparative experimental study. Research on these topics has thus far drawn on large-scale attitudinal surveys – such as the General Social Survey and the World Value Survey (see e.g. Fong, 2001; Alesina and La Ferrara, 2005). Many investigators have voiced their concern over an exclusive reliance over these data. Several questions do not disentangle between important determinants of redistributive preferences, for instance whether inequality is the result of luck rather than merit. Some questions are imperfectly constructed because they give the responder non-mutually exclusive options. More generally, when answering survey questions over how much redistribution an individual wants in their country, it is likely that people mix their preferences over how much redistribution there *ought* to be in their country with their (often wrong) beliefs over how much inequality there actually *is* in the country. Therefore, survey questions cannot tell us if declaring low support for redistribution is due to a preference for low redistribution or to the belief that the country is already redistributing more than the responder's desired level.

Likewise, demand for redistribution is likely to be affected by the beliefs over the *deservedness* of citizens in being entitled to a certain income allocation. Deservedness can be seen as being dependent on two factors, that is, individual effort and opportunities. In a society characterised by lack of opportunities, the poor will be considered more deserving than in a society providing people with opportunity. Note that opportunity may be brought about either by the welfare state through redistribution or public provisions of goods and services, or by perfectly functioning markets. In a society where the poor are perceived as putting little effort in their quest for social mobility, and in which the rich are seen as having to provide high effort to achieve their condition, demand for redistribution will be low, and *vice versa*. That beliefs over deservedness (BOD) are an important component of demand for redistribution has been shown to be the case in the US (Alesina and La Ferrara, 2005). What matters for our investigation is that people living in different countries may hold different – BOD . This may be the case because opportunities and effort levels by the poor or by the rich are actually different in different countries but also because of other reasons. For instance, it has been claimed that politicians are able to manipulate BOD to further their own political agenda

(Glaser, 2005); in addition, culture-specific traits of different societies may affect BOD. Therefore, we do not know whether the higher number of US citizens declaring lower support for redistribution than European citizens is caused by a genuine preference for lower income redistribution, or to the more widespread belief that the poor are less deserving. Our research will try to shed light on this issue. Finally, the perplexity over the reliability of survey questions in revealing the interviewee's real preferences, rather than a praiseworthy image of one's self in the face of the interviewer, has been already pointed out (Bertrand and Mullainathan, 2001).

Our research turns to an experimental methodology to tackle some of these problems. Experiments allow studying the change in the demand for earnings redistribution upon variations in both the determinants of earnings and the individual information over her relative position in the earnings scale. Our experiments are adapted from the frameworks developed by Durante and Putterman (2008), and Esarey *et al.* (2006). Groups of 21 university students were assigned initial earnings, and were asked to state how much redistribution they wanted within their group. Earning levels were fixed and uniformly distributed on a scale, so that the earnings distribution was always symmetric in each location we run our research. One of such redistribution proposal was randomly selected and applied to the whole group. Methods to assign initial earnings were experimentally manipulated. They were: (A) an unbiased random procedure, (B) a biased random procedure such that participants coming from areas with higher per capita income were favoured with respect to others; (C) a test of ability in abstract reasoning; (D) an effort-based task. Thus, luck was the main determinant in (A) and (B) – with (B) seeking to measure the impact of luck induced by family background rather than sheer luck – whereas individual merit was the main determinant of (C) and (D). This enables us measuring the demand for redistribution due to luck vis-à-vis that due to individual merit, exploring an aspect that is impossible to address within existing surveys. Moreover, people made four choices that differed according to the level of information over their relative position in the earnings scale. Only in the last decision did participants know their exact position in the scale. This enables us telling apart the demand for redistribution due to other-regarding motivations (e.g. inequality aversion) – from that due to self-interested motivations (e.g. the willingness to ensure oneself against the risk of ending up in the poor segment of the population).

Some other aspects, like the influence of BOD, can at least in part be controlled for in an experimental setting. An anonymous post-experiment questionnaire enables us to measure BOD in detail. In this way we are able to observe the relationship between BOD and experimental choices. Second, our experiments created situations of social competitions guaranteeing genuine equality of opportunities to participants. Hence, the possibly distorted BOD that people hold in real life are less likely to affect people's experimental choices.<sup>1</sup>

Overall, our study enables the examination of the relationship between individual propensities to redistribute income and various attitudinal, sociological, and cultural characteristics. Perhaps most importantly, this is the first study that we are aware of conducting experimental investigations on redistributive preferences from a cross-

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<sup>1</sup> Clearly, this is only true in a “formal” sense. Participants may feel that the laboratory situation reproduces inequality of opportunities outside the laboratory. For instance, if people from a disadvantaged background are perceived as discriminated against in real life, it is possible that the same belief would hold within a laboratory setting as well. However, the fact that participants in this study were all university students is likely to have decreased the relevance of such beliefs. The very fact that a person is able to attend university means that she has taken advantage of the opportunities offered to her in real life, and that the person has given proof of deservedness, as access to university is normally subordinated to showing evidence of individual merit. Therefore, even if we cannot say we can fully control for distorted BOD having affected participants' experimental decisions, we believe the risk of beliefs “overshadowing” preferences is considerably lower than in surveys.

national perspective. This enables us to test directly some of the competing theories that have been put forward to account for institutional differences at the redistributive and economic level.

The three countries we selected for our study are the US, Italy, and Norway. According to the influential work by Esping-Andersen (1990), these countries can be deemed as representatives of three different systems of welfare state, i.e. the liberal, the corporatist- statist, and the social democratic.<sup>2</sup>

Table 1 below gives a sense of the extent to which these countries differ in terms of both their redistributive institutions and the views over society held by their citizens. The first two lines report OECD data on the Gini index before and after tax and transfers in the mid-2000s. It is apparent that these countries differ in both the amount of inequality-reducing redistribution brought about by their governments, and in their different start and end points. In particular, it is striking that Norway's Gini index *before* taxation is in line with the Gini index *after* taxation in the other two countries, and that all the same this is followed by a sizable reduction in inequality. Progressivity of the income tax is also markedly different in these countries, whereas the ratio of Taxes and Social Spending is much inferior in the US but rather similar in Norway and Italy. Finally, beliefs over determinants of success in life also differ widely, as brought out by responses to some World Value Survey questions. At one side of the spectrum there lie US citizens, where more than a quarter of respondents completely agree with the statement that "*Hard work brings success*" and more than a third believe that "*People living in need is due to laziness or lack of willpower*". At the other extreme there lies Norway, where these percentages drop, respectively, to around 7% and 11%, while Italy is located somewhere in between.

All in all, these three countries seem to offer a broad variety both in terms of redistributive institutions and attitudes of their citizens. Nevertheless, large countries such as Italy and the US are likely to be characterised by conspicuous within-country differences at the cultural and institutional level, which may impinge upon preferences and attitudes towards redistribution. Arguably, this is less the case for Norway because of its smaller population. For this reason we decided to run our research in two locations within Italy and the US. Such locations were selected with the goal of ensuring substantial cultural variability in the participant pool. In this way we shall be able to contrast between-country variations with within-country variations across our subject pools. We run our research with University students both because of logistics reasons and to keep the socio-economic characteristic of the country samples roughly comparable. This obviously prevents us from achieving any purpose of country representativeness, but this strategy is widely deemed as acceptable in comparative

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<sup>2</sup> The liberal models tends to link the demand for risk insurance to individual responsibility. In order to prevent moral hazard behaviour there is extensive use of means-tested conditionality of Welfare benefits (i.e. monetary transfers and in-kind services). Moreover, health care is only partially provided by public institutions and "quasi-markets" complement the functioning of the National health systems, and young workers are invited to self-insure by buying shares of private pension funds. The corporatist-statist model is characterised by the universalistic provision of social protection benefits, thus stressing the eligibility of all citizens to Welfare; accordingly, a share of the financing of these public institutions much larger than in the other two models comes from the overall fiscal revenues collected in the public budget. Labour market institutions, such as a light regulation and active labour policies, are oriented to maintain a high employment rate, while insurance and redistributive institutions are meant to control the dispersion across incomes. The social-democratic model is focused on the employed labour force of manufacturing and service sectors and the financing of a mutual risk insurance against microeconomic and macroeconomic risks is essentially provided by the workers' and the firms' social contributions. A centralised system of wage bargaining, which favours wage compression allows the market income distribution not to be too dispersed, so that the redistributive function of social protection could be limited. After the publication of his book in 1990, Esping-Andersen introduced the fourth category of a "Mediterranean" model of welfare. This was done to emphasize the role of the family as redistributive agent along with the state. Italy would belong to this group.

research (see e.g. Herrman *et al.*, 2008). Subjects' socio-economic background was also measured in the post-experiment questionnaire in order to have the possibility of studying its effect on experimental behaviour.

**Table 1: Differences in income redistribution and people's views of society in research country pool**

	US	Italy	Norway
Gini index BEFORE taxation & transfer	46	56	37
Gini index AFTER taxation & transfer	38	35	23
Marginal income tax rates	15, 25, 28, 33	23, 27, 38, 41	23, 28, 37, 49
Tax/GDP (2008)	26.9%	43.2%	42.1%
Public social expenditures/GDP (2005)	15.9%	25%	21.6%
Percentage of respondents who completely agree with statement that "Hard work brings success"	26.4%	14.6%	6.8%
Percentage of respondents who say that "People living in need is due to laziness or lack of willpower"	39,8%	26,3%	11,2%

**Sources:** OECD Indicators at a Glance, World Value Survey.  
Data refer to the most recent year when observations were available.

## 2 Theoretical Background and Hypotheses

### 2.1 A theoretical model of preferences for redistribution

As a basic theoretical framework of reference, we build on the conceptualisation offered by Alesina and Giuliano (2009):

$$U_i = \delta_i f_i(\tilde{y}_i; (x_i, L)) + \left\{ \left[ G - h_i \left( G_i^* (BOD_i(x_i, L); \tilde{y}_i) \right) \right]^2 \right\} \quad (1)$$

$y_i$  is individual income, and the tilde denotes expected variables.  $f_i$  is a function of self-interest, which boils down to expected earnings.  $f_i$  also incorporates individuals' degree of risk aversion. We assume that the shape of  $f_i$  may be affected by a set of demographic characteristics, such as gender, age, social background. These components are captured by the vector  $x_i$ . Moreover, the way individuals handle risk may be influenced by locality-specific cultural traits or social norms, whose influence is highlighted by the variable  $L$ . For instance, some localities may be characterised by an attitude of fatalism with respect to future events, and do little to insure themselves against the risk of bad outcomes in the future.<sup>3</sup> More generally, the parameter  $L$  captures the influence of all meso-level of macro-level characteristics on to the individual level. In particular, should within-country differences be absent whilst between-country differences are sizable,  $L$  should be interpreted as country-level cultural characteristics.

The parameter  $\delta_i$  measures the relative importance of such self-interested motivations vis-à-vis other-regarding motivations. The key argument of the second term of the utility function is  $G_i^*$ . In Alesina and Giuliano's words,  $G_i^*$  reflects an individual's views about "social justice", and determines their desired level of inequality. In our specification we view  $G_i^*$  as capturing essentially an individual's degree of inequality

<sup>3</sup> The idea that fatalism may be a specific characteristic of Southern Italy has been advanced by Glazer and Moynihan (1975).

aversion (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000). That is,  $G_i^*$  reflects individual preferences regarding the amount of inequality s/he is prepared to accept within a group of individuals. In real life  $G_i^*$  may be affected by a large variety of factors, such as the disincentivising effects over productivity associated with taxation, the consequences of inequality on criminality (see Alesina and Giuliano, 2009 for a review of these factors and discussion). In an experimental context all of these aspects are by construction eliminated, so we can safely assume that  $G_i^*$  reflects the “pure” distaste for inequality that individuals have (Thurow, 1971).

Crucially, we suppose that  $G_i^*$  is *not* necessarily context-independent. On the contrary, the amount of inequality that individuals are available to tolerate varies with the perceived degree of *deservedness* of others involved. A large body of empirical and survey evidence supports this view. For instance, when Ultimatum Game proposers earn their title to acquire such position, receivers’ rejection rates decrease. As reported above, when individuals believe that success in life is determined by causes beyond their control – such as luck, family wealth, social connections, *etc.*, people demand more redistribution. On the contrary if people believe that getting ahead in life depends on factor within one’s control, such as talent, hard work, willingness to take risks, then demand for redistribution decreases.

We model the context-dependence of such variable by making it a function of an individual’s BOD. Such beliefs are obviously variable among individuals. Individuals may have different information over the “true” level of deservedness that people have in real life. This may be the case because people may have differing information about the degree to which social mobility is possible in a society. People may have differing information over the amount of effort and dedication that other people, either at the top or at the bottom of the earnings scale, put into their work activity. To be sure, this information is hard to acquire, and it may be manipulated by politicians to make their political agenda attractive to voters Glaeser (2005).<sup>4</sup> People’s assessment of reality may be distorted, and driven by their own ideology. Moreover, it is well-known that such BODs may vary systematically across locations. As already mentioned, many more people in the USA than in Europe believe that the poor have opportunities to get out of their poverty condition. Location-specific cultural traits may also affect these views. The introduction of the indexes  $i$  and  $L$  highlights the dependency of BODs on individual’s personal characteristics and location.

In principle  $G_i^*$  may be thought of as an expression of an individual’s purely moral appraisal of reality. If this were the case,  $G_i^*$  should be independent of an individual’s current position in the earnings scale. Nevertheless, experimental and survey evidence support a different view. Fehr and Schmidt (1999) document the existence of a self-serving bias in social preferences. That is, people attach a larger weight to *disadvantageous* inequality than *advantageous* inequality. In other words, inequality aversion (and

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<sup>4</sup> Indeed, the relationship between beliefs and preferences is complex. A purely Humean approach would want that beliefs are independent from preferences. However, the thesis that there exist an interaction between preferences and beliefs is receiving growing attention. In the experimental literature, the idea of a “consensus effect” between beliefs and preferences has been advanced. According to this view, people form beliefs that are coherent with their own attitudes. For instance, in the two-stage game Prisoner’s Dilemma, there is a positive relationship between the cooperation rate by a person when acting as a first mover and when acting as a second mover. This would not be possible without the existence of some correlation between beliefs over others’ level of cooperation and one’s own propensity to cooperate (Blanco *et al.*, 2011). On the other hand, that beliefs affect individuals’ actions has been shown by Costa-Gomes *et al.* (2010) in a context where beliefs have been instrumented and so are not endogenous to preferences. In the specification we abstract away from the possible inter-dependence between preferences and beliefs, but we shall take this possibility into account when commenting our results.

consequently. the desire for redistribution) is lower (higher) when individuals are *above* (*below*) the average level of earnings.<sup>5</sup> More generally, people having above-average income may demand lower redistribution than people below average income *not* because of the monetary loss associated with redistribution as such (a self-interested motivation), but because of their ideological values. If the correlation between ideology and income level is positive, as is arguably the case,  $G_i^*$  may depend on one's income level. In our experiments participants are asked to make a purely *impersonal* choice – that is, one independent of their  $\tilde{y}_i$  – and others that instead do depend on  $\tilde{y}_i$ . We are thus able to measure the extent of such self-serving bias. We can also test the extent to which  $G_i^*$  varies with real-life household income.

We assume the existence of a positive relationship between  $G_i^*$  and  $BOD_i^L$ . That is, the lower the belief that people *deserve* their earnings, the lower the desired level of inequality. In particular, in situations where earnings are perceived to be determined by luck, most likely people will hold the belief that people have not deserved their earnings, so  $G_i^*$  will be lower than in situations where factors determining earnings are under one's direct control. In our experiments two treatments are only dependent on luck whereas two treatments are directly dependent on individual action, so we posit that demand for redistribution will be higher in the two luck-based treatments.

We also allow for another possible factor affecting such other-regarding motivations. Demand for redistribution in real life may be affected both by an individual's inequality aversion, that is the need to redistribute from the rich to the poor to obtain a more equal society, and *social* insurance. The latter is determined essentially by the willingness to reduce the risk of earning a low amount of income. This insurance is *social* both because it is funded by collective taxation, and because it covers all citizens. As noted by Alesina and Giuliano (2009) many aspects of the welfare state address both objectives, although one of the two components may be dominant. For instance, unemployment subsidies have primarily a social insurance character, although they also have the function to reduce income inequality. Income tax addresses both objectives, although its progressivity has a primarily redistributive component (Alesina and Giuliano, 2009). Thus, in real life it is hard to distinguish between the two components. Surveys make it difficult to tell these two aspects apart, too. With experiments it is instead possible to separate these two components, because it is possible to present individuals with both risky and risk-free choices over income distribution in a group. This is indeed the path we take in our experiments. The available experimental evidence shows that the social component of risk is indeed important in affecting individuals' choices (Linde and Sonneman, 2011; Krawczyk and Le Lec, 2010; Bault *et al.*, 2008).

For the purpose of our utility function specification, we represent the possible tension between social insurance and inequality aversion by multiplying  $G_i^*$  by the parameter  $b_i$ .<sup>6</sup>  $b_i$  may be greater, lower, or equal to 1, which would entail that demand for social insurance amplifies, reduces, or leaves unaffected the desired level of inequality. Also note that the desire for social insurance differs from risk aversion precisely because of its social character. Although social insurance can be expected to be correlated with risk

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<sup>5</sup> According to Bolton and Ockenfels (2000), individuals are only concerned with their distance from the average income with no self-serving bias operating should they be above the average income. Our experiments allow us contrasting the predictions of the two theories.

<sup>6</sup> We assume for simplicity that the way social insurance affects inequality aversion is linear, i.e. it can be represented by a constant multiplying  $G_i^*$ . Others more complex forms of this relationship may be possible, but for the purpose of keeping the form  $G_i^*$  as simple as possible we focus on a linear transformation.

aversion, in our research we have sought to have different experimental measures of these two components. Consistently with Alesina and Giuliano, we assume a quadratic disutility in the difference between the desired level of inequality  $h_i G_i^*$  and the realised level of inequality  $G$ . This entails that, should individuals be able to act as “dictators” of the level of inequality in their group, they should reveal their “true” desired level of inequality.

Other possible motivating factors, such as the concern for efficiency, are not investigated in this research (see Durante and Putterman, 2009, for an analysis of this variable).

## 2.2 Hypotheses

Different accounts have been put forward to explain why some countries tax and redistribute significantly more than others. Some economists have concluded that the observed differences in income redistribution are a direct consequence of the differing views over economic mobility and opportunities for the poor held by citizens of different countries (see previous section). Their argument rests on the idea that deservedness is key in determining demand for income redistribution. If economic mobility is perceived as being determined by factors *under* individual control, then demand for redistribution will decrease because lack of success is deemed as falling within one’s sphere of responsibility. On the contrary, should economic mobility be perceived as being under factors *outside* individual control – such as luck or family background, then demand for redistribution will be higher. In terms of our utility function, the perception of economic mobility and opportunities for the poor affects individuals’ BOD and thus their  $G_i^*$ . It is then claimed that such perception of economic mobility and opportunities differ across countries because of diverging ideological and cultural traits (Alesina and Glaser, 2004). More specifically, US residents believe that poor people are less deserving much less frequently than what European residents believe about European poor.

Various studies have shown that people believing that hard work (luck) is the main reason for one’s success in life and that equal opportunities are (not) available to everyone, demand less (more) income redistribution (Fong, 2001; Corneo and Gruner, 2002; Alesina and La Ferrara, 2005). Such relationship between BOD and demand for redistribution has also offered the main argument for theoretical models of ‘multiple steady-states’ (Alesina and Angeletos, 2005; Benabou and Tirole, 2005), where BOD are consistent in equilibrium with the specific redistribution regime that originates with a steady state.<sup>7</sup> The relevance of fairness considerations in affecting distributive preferences has also received extensive experimental support (see e.g. Hoffman *et al.*, 1994; Konow, 2000; Krawczyk, 2010; Cappelen *et al.*, 2010).

Our research enables us to test the relevance and the scope of the explanation that BOD imply redistribution demand. We label it the BODIRD hypothesis. In our experimental situations the procedures chosen generally granted subjects equality of opportunity towards final earnings. In two of the treatments individual effort and ability were rewarded through an impartial mechanism. In another treatment subjects were faced with an unbiased lottery assigning earnings. Only in one treatment was an element of bias introduced, and this was clearly explained to subjects. As already argued in section 1, it is unlikely, at least in the first three treatments, that participants saw the same impediments that in real-life society may prevent economic mobility – e.g. social connections, family background, unfair reward of one’s work effort, gender

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<sup>7</sup> Contrary to this theoretical argument is the evidence coming from studies on economic mobility that differences in economic mobility are small in the different welfare state regimes (Checchi *et al.*, 1999; Gottschalk and Spolaore, 2002; Ayala and Sastre, 2002), thus it is necessary to assume that people’s beliefs can be easily manipulated by political leaders for this account to work (Glaser, 2005).

discrimination – as being relevant in the experimental setting. If the BODIRD hypothesis were the only explanation of cross-country differences in redistributive preferences, we should expect to find very small experimental differences across countries. We thus posit the following hypothesis:

H1: According to BODIRD, cross-country differences in redistribution are due to differences in BOD. Given that the relevance of BOD is by construction strongly reduced in an experimental setting, cross-country differences in preferences for redistribution should be minimal.

Our questionnaire also includes a set of questions concerning individuals' BOD, so we can further control in the econometric analysis for how BOD may influence individual choice at the individual level.

Another hypothesis accounting for institutional differences is again cultural in character, and refers to the idea that more 'meritocratic' norms have spread in the US as an effect of its history and the history of its political movements (Lipset, 1997). The diffusion of the "American dream" may lead people to reward individual merit more than in other countries. We call this the Meritocratic Hypothesis (MH), and we posit:

H2: According to MH, cross-country differences in redistribution are due to differences in the way individual merit is evaluated by society. The US sample is expected to reward individual merit more than the other two samples.

We can directly test for H2 by comparing samples behaviour in the Merit treatments vis-à-vis the Luck treatments. H2 implies that demand for redistribution in the US should be lower in the Merit treatments compared to the Luck treatments than what is the case in the two other countries.

Another set of explanations calls into question country-specific differences in demand for social insurance. Labour institutions in Nordic countries guarantee high level of social protection in the case of unemployment, sickness, and maternity leaves. High levels of redistribution guarantee against income fluctuations in case of downward mobility. The US are typically characterized as guaranteeing considerably lower levels of social protection, whereas Italy lie in between the other two countries. These institutional characteristics may be possibly put down to differences in basic individual preferences. That is, Scandinavians may simply prefer more social insurance than people from other countries. Conversely, US citizens may be more inclined to take risks and accept the more unequal outcomes that result – provided the process assigning the outcomes is deemed as fair. This may have to do with the very fact that more risk-loving people have 'self-selected' themselves to migrate abroad from their home countries. A related explanation is that immigrants to US settled in a "New World" where socio-economic distances initially looked much smaller than those of their home country; this feeling has lasted generation after generation, so that social preferences moulded by personal characteristics – more than beliefs over society - lead the US citizens' to think that the US social environment provides a fair "starting gate" for the life race. Overall, in the US the percentage of people who in the past have taken the risky choice of migrating is obviously higher than in other countries. This habit may have transmitted culturally – or even genetically – across generations, so that even now US citizens may be characterised by higher propensities to take risks. We label this the Social Insurance hypothesis (SIH), and we posit that:

H3: According to SIH, cross-country differences in redistribution are due to differences in propensity towards risk. US people should manifest a higher propensity to take risks than Norwegian people, with Italians ranking in the middle.

We are able to test H3 in two different ways. First, , we conducted monetary-incentivised tests of risk aversion and ambiguity aversion after the experimental decisions on redistribution took place. Second, one of our experimental decisions enables us a direct test of the so-called ‘Prospect of Upward Mobility’ (POUM) hypothesis. This is the case because at the beginning of the third decision participants are informed of their past initial earnings, and are thus able to assess their past position in the earnings ladder. At that point, it will be possible to compare the extent to which (a) individuals express different expectations of upward mobility across the three countries; (b) the extent to which different expectations translate into different demands for redistribution.

Another hypothesis we are able to test has to do with a possible basic individual (dis)taste for inequality. The idea that people may have different preferences towards inequality was first advanced by Thurow (1971). We call this the Distaste for Inequality Hypothesis (DFIH). We thus posit:

H4: According to DFIH, cross-country differences in redistribution are due to differences in basic preferences towards inequality. US people should manifest a lower basic distaste for inequality than other samples.

We are able to test for H4 by assessing in particular the outcome of our first decision, where individuals are placed in the position of a “benevolent dictator” taking an *impersonal* decision over the degree of earnings inequality in the group. Such decision does not affect the individual’s own earnings – this is why the decision is impersonal – but determines how much transfer from the “rich” to the “poor” will take place in the group. In this way we are able to elicit the “pure” taste for inequality that individuals living in different countries have, when self-interest is by construction taken out of the picture. Obviously, DFIH is likely to be the consequence of social norms, cultural characteristics, institutional settings, or ideological creeds, specific to different countries or regions. These may be partly unobservable, but we investigate how some of the cultural measures derived from the questionnaire are correlated with the experimental decision.

Another explanation that has received widespread attention calls into question a second order of ideological causes, that is, the aversion to ethnic and racial heterogeneity. It has been shown that racial/ethnic heterogeneity is negatively related with individual propensities to redistribute, and public goods provision, both across countries (Alesina and Glaser, 2004) and across different administrative areas within the same country (Alesina et al., 1999; Luttmer, 2001). The main claim is that in areas with high heterogeneity people from the richest ethnic/racial groups are not willing to benefit recipients belonging to other groups (Gilens, 1999). This hypothesis finds a theoretical rationale in what has been defined individual’s “ethnic psychology” (Richerson et al., 2003). Although empirical support for this hypothesis has been found (Fershtman and Gneezy, 2001; Bernhard et al., 2006), its actual incidence on institutional settings – especially in a cross-country perspective – still appears deserving extensive empirical analysis. We label this the “Ethnic Hypothesis” (EH), and we posit:

H5: According to EH, cross-country differences in redistribution are due to different levels of ethnic heterogeneity in the population.

Although our experiments were not specifically designed to test this hypothesis, we can all the same shed some light on it, by comparing the behaviour of participants from the ethnic majority vis-à-vis that of the minorities. Survey research reports that Black Americans are normally more supportive of redistribution, even when controlling for income and education. Our research enables us to say if this is true even in an experimental setting.

## 3 Experiment design

### 3.1 The Redistribution Decision

The key aspect we wanted to capture in our experiments was the propensity to redistribute earnings given different conditions whereby such earnings were determined and given different informational settings in which the choice was made. To this point we modified the redistribution game proposed by Durante and Putterman (DP henceforth) (2008). The essential elements of the experimental decisions were the following:

1. The *Initial earnings*. Each experimental session was made up of 21 University students. Initial earnings consisted of 21 different earning levels and could vary from a minimum of 1 token up to a maximum of 21 tokens. Every integer number from 1 to 21 was assigned to a different participant. This boils down to a uniform distribution of earnings, in which each subject in the interior of the scale earns one less (more) token than the subject next up (down) in the earnings scale. The monetary value of each token was adjusted in each location to equalize purchasing power parity. For instance, it was 1.30\$ in Washington State, so that initial earnings may have ranged from \$1.30 to \$27.30. We opted for a uniform earnings distribution to make the initial earnings distribution exactly the same across countries<sup>8</sup>. The four treatments of our design used four different methods to assign initial earnings. This will be illustrated in the following section.

2. A *tax rate* ( $\tau$  henceforth). Every student was asked to put forward a choice of a tax rate, which may have implemented a redistribution of the initial earnings the group of 21 participants. Tax rates could vary from 0% (no redistribution) to 100% (full redistribution).

3. The *final earnings*. One among the tax rates proposed by participants was randomly drawn and applied to everyone's initial earnings. This determined everyone's final earnings. The person whose tax rate was randomly drawn was called the "decisive individual". Every participant had the same probability of being selected as the decisive individual. Different rules applied to the decisive individual in the different decisions.

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<sup>8</sup> In DP 21 students were assigned 21 earning levels that reproduced the real income distribution in the US. Since we wanted to study differences in earnings redistribution across countries, this approach would have entailed that participants from different countries would have faced different earnings distribution in our experiments.

Figure 1



Figure 1 depicts the impact of various tax rates on the relationship between initial and final earnings. A similar chart was showed to students. It was highlighted that a 0% tax rate left final earnings equal to initial earnings, whilst a 100% tax rate entailed that all participants ended up with the same final amount (11 tokens). It was also pointed out that as the tax rate increased, the difference between the highest earnings and the lowest earnings would go down, as well as the differences in earnings of all other individuals at intermediate levels of earnings. Note that given that median and mean income coincide in a symmetric distribution, the individual with initial earnings of 11 tokens always receives the same final earnings whatever the tax rate that is chosen.

### 3.2 The four treatments

We used four different devices to assign initial earnings within a between-subject design. Hence, unlike DP, participants only faced *one* method to determine their earnings, rather than four. The baseline case is what we call the SHEER LUCK condition. Initial earnings were here assigned in a purely random manner, by means of a computer-run lottery. Each individual was assigned an integer from 1 to 21. All integers from 1 to 21 were assigned, so each position in the earnings scale was filled by one individual. In this way we can single out how preferences for redistribution are affected by the purely luck component, leaving aside individual merit.

The first treatment is what we call the BACKGROUND condition. The assignment of initial earnings was still random, but this time the lottery was *not* unbiased as it favoured the ten subjects whose families resided in areas with a higher per capita income than the remaining 11 subjects. Subjects had to indicate the ZIP-code of the area where their family lived when registering to the session. We used that information to assign subjects to groups called ‘group A’ and ‘group B’. The former was made up of subjects coming from the ten richest areas among those where session participants’ families lived, the latter by the remaining 11 subjects. In this way we were able to assign subjects to computer stations that our programme recognized as either belonging to group A or group B when subjects checked in the session. The assignment to either group A or group B was not revealed to subjects. Subjects were informed Group A subjects had twice as high a probability as Group B subjects to be assigned in the above-the-median bracket of the earnings scale. More details can be found in the experiment script in the Appendix.

The BACKGROUND treatment was designed to capture how much an element of unfairness introduced in the earnings-assigning device affected people's decision compared to the pure element of luck. Alike DP who had a similar condition in their experiment, we thought that deriving such an element of unfairness from real-life income inequality was the best way to ensure that the decision was salient to them. We thus conjecture that in the BACKGROUND treatment  $\tau$  should be higher than in the SHEER LUCK condition. In the analysis that will follow we will sometimes merge observations coming from the SHEER LUCK and BACKGROUND conditions into what we name the LUCK treatments.

In the other two treatments the earnings-assigning device did not depend on the outcome of a lottery, but rather by individual relative merit within contests involving the 21 participants in the session. In the ABILITY treatment, the contest consisted of answering a series of ten questions modelled on Raven's IQ test. These were presented as questions requiring 'ability in abstract reasoning', and it was stressed that the better an individual's performance in answering the questions, the higher his/her initial earnings. Three different sets of questions were given in the three parts of the session. This treatment was designed to capture how demand for redistribution was affected compared to the baseline by a type of ability that is, at least to some extent, similar to a "natural talent" for individuals.

In the EFFORT treatment initial earnings were determined on the basis of individual relative performance in a series of ten tasks. These, as it was put to subjects, were "*extremely simple and did not require specific skills or ability*", but rather "*concentration and some effort*". These tasks were drawn from Azar (2009) and consisted in identifying the letter lying at the intersection of a certain line and column within an unjustified panel of letters. An example of such a panel can be seen in the Appendix. Even in this case it was stressed that the better one's performance in such tasks, the higher the initial earnings.

The EFFORT treatment was constructed to attach salience to the element of individual effort by individuals, as opposed to that of natural ability – or of course luck.

In some of the subsequent analyses we will merge the ABILITY and EFFORT treatments into what we name MERIT treatments. We conjecture that (a) demand for redistribution should be higher in the two MERIT treatments – i.e. the ABILITY and EFFORT treatments – than the other two treatments. It can also be conjectured, following the line of enquiry of Roemer (2000) and Dworkin (2002) that demand for redistribution should be higher in the EFFORT treatment compared to the ABILITY treatment. These theories posit that individuals are to be held responsible for the actions within their own control, but not (or in a minor degree) for those outside their own control. Since natural talent can be thought of as being inherited through genetic transmission or family socialization, individuals should not be held responsible for their performance in the ABILITY treatment. Conversely, performance in the EFFORT treatment is largely dependent on factors under one's control, of which individuals are more directly responsible than in the ABILITY treatment. Of course the extent to which the experimental situation and the tasks used are able to capture these aspect is open to question. We shall comment on this below.

### **3.3 The four decisions**

Participants made four different decisions in the experiment. These differed for the rules applying to the decisive individual or for the amount of information in people's possession.

The key characteristic of the first decision was that the decisive individual was assigned *as a matter of course* the median position in the earnings scale. That is the case, the individual selected as the decisive individual was transferred to the median position so that her final earnings were 11 tokens whatever her decision on  $\tau$ . Hence their choice of

$\tau$  only affected others' final earnings, leaving their own final earnings unchanged to 11 tokens. In the instructions it was stressed that the participant selected as the decisive individual would have acted as the "umpire" of the group earnings distribution. This construction is very similar to DP's first experimental decision, although the assignment to the median position was marginally different in their experiment.

Since the decisive individual's final earnings remain fixed at 11 tokens, self-interest cannot affect individuals' decision over  $\tau$ . This decision is indeed designed to measure differences in inequality aversion across countries – and across locations within countries – when individuals take on the role of a "benevolent dictator". In terms of the utility function (1), this decision is equivalent to eliciting the desired level of inequality  $G_i^*$  in different locations, when self-interest is by construction irrelevant, and when the individual has no need to insure herself against risk because the outcomes is known with certainty<sup>9</sup>. We can thus directly test for H4, which posits that individuals in different countries may have different basic tastes for inequality. The fact that the decisive individual makes his decision from the median position is instrumental to capturing the "pure" taste for inequality when advantageous inequality and disadvantageous inequality cancel each other out. Note that in principle risk aversion should not affect this decision. Given that individuals have no uncertainty over their final payoffs, risk is nil. However, there is an important strand of literature affirming that individual's preferences over group inequality may be connected with individual risk aversion (see e.g. Hörisch, 2010). We shall investigate if this was indeed this case in the following sections.

The second decision has the same structure as the first decision, but it dispenses with assigning the decisive individual the median position. Hence, the person randomly drawn as the decisive individual keeps her initial earnings, and her own choice of the tax rate affects both *her own* earnings as well as others'. Such second decision is thus no longer impartial because the individual has now a stake in it. If the individual expects to be in the upper side of the earnings redistribution, self-interest will command to propose a lower tax rate than if the individual expects to be in the lower bracket of the distribution. Moreover, risk aversion should also matter. More risk-averse individuals should demand higher tax rate to protect themselves against the risk of ending up in the lower ranks of the distribution. Therefore, the second decision adds to the possible motivational factors both self-interest and risk-aversion. The comparison between the second and the first decision should thus allow us to measure how much these two components affect people's decisions in comparison to the pure distaste for inequality.

The third decision has an identical structure to the second decision. The only difference lies in that *before* making their decision over the tax rate, individuals are informed of their initial earnings assigned before the first and second decision. This piece of information is important in particular in the MERIT treatments, because this information is tantamount to receiving a signal over their level of ability relative to others'. Supposedly, it is for them possible to form more precise expectations over their actual initial earnings compared to others'. We think that this decision shares several elements with choices that individuals have to make in real life. It also resembles the experimental setting of Esarey *et al.* (2006). When people are called to elect their leaders and thus indirectly express a choice over the size of redistribution for the years to come, it is likely that they will have received signals over their relative level of ability. At the same time uncertainty over income fluctuations or unemployment remains, thus calling for some demand for social insurance affecting their own choice. Hence, this decision will enable us testing H3.

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<sup>9</sup> It is all the same possible that individuals tried to act as "benevolent dictators" and internalises the perceived preferences of the other group members over inequality. If this was true, rather than expressing their own  $G_i^*$  the experimental choice would measure an individual's belief over the  $G_i^*$  held by others.

The last decision in fact is a revision over the third decision. People are informed of their *actual* initial earnings which they have just been assigned after the third round of earning-assigning devices. This revision had not been announced earlier. Individuals had the choice of either to leave their previous choice – i.e. the third decision – unaltered, or to modify it. In the latter case the new decision would have been applied to everyone's earnings had the individual been selected as the decisive individual.

The last decision tests the Meltzer and Richards (1981) hypothesis of self-interested behaviour in tax rate voting by communicating an individual's actual position in the ranking. In this case uncertainty is removed so risk aversion and the social insurance motive are by construction irrelevant. Since there is no efficiency loss due to taxation, self-interest simply calls for demanding a  $\tau$  equal to 100% or 0% depending on whether an individual is below or above the median position. Any choice departing from the corner solutions may thus be construed in terms of (A1) a positive willingness to redistribute (for those above the median who do not demand zero redistribution), (A2) acquiescing with the presence of some inequality (for those below the median who do not demand full redistribution), presumably out of some recognition of the high earners' entitlement to earn more; (B) confusion, or choice dictated by randomness. We can in part control for confusion, as we explain below.

The timing of the four decisions is reported in Figure 2. The session was divided in three parts and so were the instructions. Individuals were informed the session consisted of three parts, but no hint was given as to what would have come in the ensuing part(s). After having administered the first part of instructions, people were asked to propose  $\tau_1$ . Then, the first round of earning-assigning devices took place, and the decisive individual for the first part was selected. Then the second part of instructions was administered, people proposed  $\tau_2$ , then the second round of earning-assigning devices took place and the decisive individual for the second part was randomly selected. Finally, the third part of instructions was given, people chose  $\tau_3$ , and the third round earning-assigning devices was carried out. Subsequently, people were informed of their initial earnings just determined, and were given the faculty of revising their choices into what is  $\tau_4$ . The decisive individual for the third part was then randomly selected. Individuals were informed they would be paid for the outcome of just one of the three parts, which would have been randomly selected at the end of the decisions. This was done in order to avoid income effects.

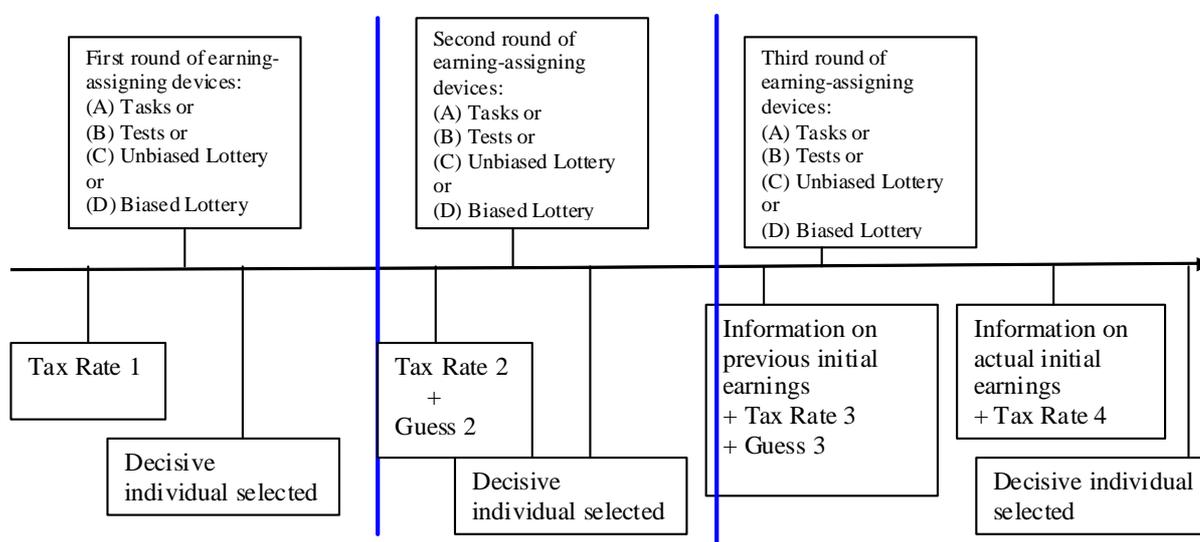
After the choice over the tax rate and before the start of the random-assigning device, people were asked to indicate their prediction over their *initial* earnings. This gives us a measure of the degree of confidence individuals had in ending up in the upper part of the earnings scale. It can thus be taken as a measure of the self-interested motivation that people had when making decisions. Predictions of ending up in higher positions in the ranking should be associated with lower levels of  $\tau$ . This prediction was not asked in the first part, because, as we noted, self-interest was irrelevant in that decision. Moreover, we thought asking people a prediction over their initial earnings would only be meaningful after they already had a go at the random-assigning devices. Comprehension was tested twice before Decision 1 and Decision 2 were taken. We left students answer a set of five and three questions respectively, and in case of mistakes the computer would prompt them to take all questions again. If mistakes persisted, the researchers went to the computer station to discuss with subjects what was not clear. This method allows us recording the number of questions students answered correctly at the first and second attempt, thus giving as a measure of the overall level of comprehension. The decision only started after all subjects demonstrated to have achieved full comprehension of the procedures.

Overall, the four experimental choices enable us to assess the relative importance of inequality aversion, social insurance, self-interest, and the POUM hypothesis, in driving

subjects' decisions over redistribution. Table 2 summarises whether these components should enter individuals' set of motivations.

The differences between decisions may also be appreciated by relating them to the construct of the veil of ignorance (VoI) (Rawls, 1971). The first decision is not a proper decision behind the VoI in spite of the uncertainty over an individual's position in the earnings scale, because individuals know they will be assigned the median position should they be selected as decisive individuals. Hence, this decision can be likened to that of a Smithian impersonal observer because someone's choice affects others' but not her own payoffs. The second and third decisions can instead be seen as decisions from behind a VoI because these decisions affect one's own earnings as well as others', and because there is uncertainty over which position will be occupied in the society.<sup>10</sup> However, the VoI is 'thick' in the second decision and 'thin' in the third decision, because of the information people receive over their own relative capacity in the ABILITY and EFFORT treatments, or the probability of belonging to Group A in the BACKGROUND treatment. The fourth decision is instead taken from *beyond* the VoI because people are then informed of their actual position in the earnings scale.

Figure 2: Timing of experimental decisions



### 3.4 Ambiguity and risk aversion tests and questionnaire

At the end of the four experimental decisions, we run monetary-incentivised ambiguity and risk aversion tests. Both were made up of three decisions, and subjects were informed they would be paid according to the outcome of one decision out of the six. In the ambiguity test individuals had to decide between participating in a random draw from two boxes. Both boxes contained 100 red or gray paper slips. The proportion of red and gray slips in 'Box 1' was announced to subjects, whereas that of 'Box 2' was unknown to subjects. They were told a random selection from a uniform distribution over the  $\{0...100\}$  support determined the number of red slips present in it, and the number of gray slips was the complement to 100 of such number. Conversely, 'Box 1' contained an equal number of red and gray slips in Decision 1, 45 red and 55 slips in Decision 2, and

<sup>10</sup> Strictly speaking this decision differs from Rawls's (1971) original formulation of a VoI because this would require individuals know neither their preferences nor their abilities. This is clear not the case in our (and probably in any) experiments. However, the experimental literature normally refers to a choice where an individual does not know her relative earnings compared to the rest of the group as one taken from behind a VoI.

40 red and 60 gray paper slips in Decision 3. A slip would be extracted by both boxes, subjects were told they would win 5 tokens were the slip extracted from the box they chose red, and 0 tokens if it was gray. In this way, the chance of winning decreases across the three decisions. Ambiguity indifferent subjects should be indifferent between Box 1 and Box 2 in the first decision, but prefer Box 2 in Decisions 2 and 3. Ambiguity averse subjects may instead still prefer Box 1 to Box 2 in Decision 2 and 3.

The risk aversion test had subjects choosing between participating in a random lottery with a 50% probability of winning either five tokens or zero tokens. The alternative was to receive a fixed and certain payment, which was 2.5 tokens in the first decision (Decision 4 of this second set of decisions), 2.1 tokens in Decision 5, and 1.7 tokens in Decision 6. Risk indifferent individuals should be indifferent between the lottery and the certainty equivalent in Decision 5, and then switch to the lottery in Decisions 5 and 6. Risk averse individuals may instead still prefer the certainty equivalent to the lottery in Decisions 5 and 6. At the end of these six decisions, a subject was asked to select the Decision according to which they would be paid in this second set of six decisions, and then some other subject(s) were asked to perform the random draw relative to the Decision that had been selected.

The experiment session was completed by a questionnaire measuring cultural and ethical values with respect to economic achievements, attitudes towards redistribution, and other demographic characteristics. Subjects earned an average of (or the equivalent of) \$26 and the sessions lasted around 1 hour and 45 minutes. Payments were made privately in cash at the end of the session.

Table 2 below summarises the relationship between our experimental design and our theoretical framework. In principle we would want each possible motivation to be uniquely identified by an experimental choice. Decision I should enable us to elicit  $G_i^*$  directly. Inequality aversion obviously enters into all other choices, but knowing the outcome of the first decision we can control for it in our econometric analysis. In particular, decision 4 can allow us capturing the impact of self-interested motivations. Then, Decisions 2 and 3 can measure the impact of social insurance/risk aversion and POUM. The use of independent measures of risk aversion helps us disentangle social insurance from risk aversion. Finally, the use of earnings expectation makes us able to identify the POUM.

Table 2

	Self-Interest	Inequality Aversion	Social insurance / Risk Aversion	POUM
Dec. I: Impartial	NO	YES	NO	NO
Dec. II: Thick VoI	YES	YES	YES, A LOT	YES, A BIT
Dec. III: Thin VoI	YES	YES	YES, A BIT	YES, A LOT
Dec. IV: Beyond VoI	YES	YES	NO	NO

### 3.5 Sample characteristics and experiment procedures

168 university students were sampled at Bicocca University (located in Milan, Northern Italy), Salerno University (located in Fisciano, Salerno, Southern Italy), Washington State University (Pullman, WA, North West of the USA), Mississippi University (Oxford, MS, South East of the USA) and Oslo University (Oslo, Norway). The two locations within each country were chosen to guarantee what appears *a priori* a substantial degree of within-country cultural variability. Analysis of questionnaire responses confirms this assumption (see below). In our recruitment we gave priority to national citizens of the country where the research was conducted, whose families were residents either of the region (in Italy) or the state (in the US) where the university was located or surrounding regions/states. The information over the family's ZIP-code that students entered at their registration was used for this purpose. The analysis reported below excludes students whose families come from areas outside the region/state where the research was conducted. In this manner we can say that the within-country comparison is meaningful across cultural lines.

The main controls to ensure between country (as well as within-country) comparability were taken, following Buchan *et al.* (2002). In particular, the experiment script was backtranslated from the original (in Italian) and discrepancies between the original version and the backtranslated version were checked with the translator. The token value was adjusted so as to take into account differences in the purchasing power values of the currencies. We used the Economist Big Mac index to adjust the parity between the locations of Milan, Pullman, WA, and Oslo. We then used a comparison between the price of a cup of espresso coffee - a very popular consumption item in Italy - to adjust the relative value between Milan and Salerno. The same could not be made in the US because large chains like Starbucks or Mc Donald's adopt a policy of setting the same price across different states. Therefore we used the average value of worker wages in the manufacturing sector to adjust the relative token value between Pullman, WA, and Oxford, MS. In both cases the token value in Salerno and Oxford was around 8% lower than in Milan and Pullman, WA.

Both authors organised the research sessions. To minimize the experimenter bias, Gianluca Grimalda (GG) conducted all the sessions in the lab. Sessions in Italy were conducted in Italian (of which GG is mother tongue speaker) and sessions in the USA and Norway were conducted in English (in which GG is fluent). In Norway the room

assistant was mother-tongue Norwegian in order to help with possible comprehension problems.<sup>11</sup> In all locations subjects were recruited through emails, posters, and leafleting. In all cases the research was presented as being organised by a local researcher in collaboration with a team of researchers including GG. Each session lasted around 1 hour and 40 minutes, though LUCK treatment sessions were a bit shorter given the absence of tasks or tests. However subjects were told to expect the same duration of 1 hour and 40 minutes in all sessions. Subjects in Milan were paid a show-up fee of 8 Euros and earned on average 22 Euros; subjects earned the PPP-equivalent (according to rules illustrated above) of these sums in the other locations.

## 4 Results

### 4.1 Questionnaire results

We first want to give a flavour of the between and within-country differences in terms of attitudinal views over society, BOD, and cultural characteristics. Descriptive statistics are reported in Table 3. The text of the question as they appeared in the questionnaire is reported in the Appendix. The first question, labelled MONEY AND WEALTH and taken from the World Value Survey, asked subjects if they felt that the distribution of money and wealth in their country was fair, or that money and wealth should be more evenly distributed. Alesina and Giuliano (2009) use a similar question in their multi-country analysis of determinants of preferences for redistribution. The percentage of people agreeing that money and wealth should be more evenly distributed is considerably higher in Italy (where the percentage of respondents agreeing is 82% in Milan and 90% in Salerno) than both the US (where it is 58% and 50% in WA and MS, respectively) and Norway (46%). The last three rows report the results of a Mann Whitney test over the null hypothesis that the observations come from the same distributions. We compare observations between countries and between locations within each country. Such difference is strongly significant at the 1% level between Italy and the other two countries respectively, whereas it is only weakly significant in Norway vis-à-vis the US. There is also strong evidence of some significant difference within Italy, but not within the US. The result about Norway is not entirely surprising if one thinks of the already very low levels of inequality existing in the country.

The second item is the response to the question about what determines poverty (we label this POVERTY). The two options given were “lack of effort on his or her part”, vis-a-vis “circumstances beyond his/her control”. As expected, significantly more US participants state that poverty is the result of lack of effort in comparison with Italian participants and Norwegian participants. There are no differences within US locations, and weak difference within Italy. Interestingly enough, there are no difference in our samples between Norway and Italy.

A similar pattern emerges for another set of questions pertaining to subjects attitudinal views over economic mobility. The questions asked participants to examine several reasons why some people get ahead and succeed in life and others do not, and they were asked to state (on a 1 to 5 scale) how important each factor was in this respect.

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<sup>11</sup> A question was added to the questionnaire in Norway inquiring as to whether (a) the experiment being conducted in English created comprehension problems, and (b) whether the subject would have acted differently had the research been conducted in Norwegian. Only 8 students (5% of the Norwegian sample) answered affirmatively to the first question, and only 1 subject answered affirmatively to the second question. S/he argued that the use of the English language made him/her think (and rightly so!) that the experiment had an international nature, and this affected her choice (though s/he did not state in which way). Overall, we think we should not be too worried by the use of English in Norway.

We classify these factors as those being under one's control and those outside one's control. Factors belonging to the first group are: willingness to take risks; hard work and initiative; ability or talent that a person is born with; dishonesty and willingness to take what they can get; money inherited from families. Factors belonging to the second group are: good luck, being in the right place at the right time; physical appearance and good looks; a person's gender. We reverse-scale the second set of factors, thus obtaining an index of how much an individual thinks success is the result of factors under one's control. We call this index LIFE\_SUCCESS. US participants stand out as those believing that success is under one's control significantly more than Norwegians and Italians. Even in this case, we find no difference between Norway and Italy, and no difference within the US. However, significantly more participants from Southern Italy believe (perhaps surprisingly) that success is under one's control than participants from Northern Italy. Overall, we conclude that beliefs over social mobility in our research conformed with the view that US citizens are significantly more inclined to think that success in life depends on factors about which a person is responsible for in comparison with European citizens. Conversely, unlike international surveys where some differences emerge between Norway and Italy (see for instance section 1), in our research observations in these two countries were not distinguishable from each other.

We also wanted to investigate some purely cultural views over society held by our samples. The next index we report seeks to capture how much people hold "conservative" values Vs. more "progressive" values with respect to some particularly culturally divisive issues. The question asked how justifiable were in subjects' opinion homosexuality, abortion, prostitution, and euthanasia. This yields what we call a CONSERVATIVE INDEX. Here we find a strong divide within the US, with the Mississippian sample being significant more "conservative" than the Washington State sample. On the other hand the two Italian samples are indistinguishable from each other, and overall the US sample results as significantly more conservative than the Italian one. Norwegian respondents are the least conservatives, and again between-country differences are strongly significant.

A variable that will be crucial in subsequent analysis is political ideology. Participants were asked to locate their political views on a 1-10 scale, where extreme left corresponded to 1 and extreme right to 10. Obviously this is an entirely subjective opinion. We call this variable RIGHT. Interestingly enough, there are some differences within Italy and within the US, but no appreciable differences between the US and Italy. On the contrary, Norwegian participants think of themselves as significantly more left-wing than participants in the other two States. Moreover, we have used some items from Hofstede's (2001) COLLECTIVISM/INDIVIDUALISM scale. Here we find some strong differences within Italy but no difference within the US, with the Italians being significantly less individualistic than participants from the other two countries. Where the differences between countries are probably most striking is the response to the standard question asking people whether to state whether "most people can be trusted or you couldn't be too careful in dealing with people" (TRUST). Here only 24% of the Italians answered that they can trust others, whereas this proportion rises to 35% for the US (although MS students are significantly less trusting than WA students), and rises to a staggering 84% in Norway.

Overall, country differences related to individual views over individual's economic mobility and success/failure in life seem to conform to the widely held view that US citizens are significantly more inclined to think of success as being under one's control. Interestingly enough, no such differences emerge between Italy and Norway with respect to these two variables. Other significant cultural differences, both within and between countries, seem to emerge, although their comprehensive pattern seems difficult to decipher.

## 4.2 Experimental results: Descriptive statistics and non-parametric tests

Table 4 reports descriptive statistics over the four experimental decisions and the ambiguity and risk aversion tests. The statistics merge data from different treatments, and offer a general overview of within-country and between-country differences. No sizable difference appears across Italian locations – apart from a weakly significant difference in Decision 1, whereas some significant differences emerge between MS and WA – all differences are significant except the last. Redistribution is generally lower in the Southern location within both countries – the only exception being Tax Rate 2 within Italy. Moreover, differences between Italy and the US are either small – i.e. in Decision 1 and in the ambiguity aversion score – or non-existent. Redistribution is instead significantly higher in Norway compared to each of the other two countries. Moreover, Norwegians show significantly *less* risk and ambiguity aversion than Italians and US students. This latter result is clearly in contrast with H3, but can be accounted for if, following Sinn (1995), one thinks that higher social insurance received from the state leads to higher propensity to take risks in “market-like” situations. These results may be due to the influence of exogenous factors that may differ across locations – for instance the results within the US may be due to the different ethnic composition of the two samples. The econometric analysis reported below will control for these factors.

Figure 3 reports the histograms of Decisions 1 through 4 for each country. They highlight that the distributions are most of the times skewed towards the extremes, and in many cases are bimodal on 0% and 100%. Second, demand for redistribution in the two merit treatments is lower than in the two luck treatments, as expected.

Figure 4 reports box plots for the four decisions, breaking down the results across locations within each country. This gives us the possibility of appreciating the general pattern of the differences across countries.

The box plot<sup>12</sup> of Decision 1 shows that the Norwegian sample is clearly more redistributive than the other two countries. There is no apparent difference between Italy and US samples as far as MERIT treatments are concerned, whereas there appear to be a small difference in the LUCK treatments. Overall, in each country redistribution is higher in LUCK treatments than in MERIT treatments. It seems to be the case that cross-country differences exist, thus supporting H4, although these are limited to the comparison of Norway with the other two countries.

Decision 2 shows a virtually unchanged picture for the US and Italy with respect to Decision 1, while Norwegians demand for redistribution drops. As a result, the Norwegian distribution is not any longer different from that of the other two countries in the Merit treatments. This, as we already stressed, is an interesting result. It can be interpreted in terms of risk-seeking behaviour by Norwegian subjects. When Norwegian subjects are given the possibility of social insurance in Decision 2, they actually decide to *decrease* their overall demand for redistribution in comparison to Decision 1, where the only relevant motive should have been inequality aversion. It is as if when Norwegians have to assess the fairness of the overall distribution from an impartial perspective they demand a high  $\tau$ . However, when they are part of the distribution, they seemingly do not want to give up the possibility of sizable earnings, thus decreasing, on average, their  $\tau$ . Again, this is in contrast with H3.

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<sup>12</sup> Box plots are a way to describe a distribution of observations giving a synthetic overview of its main characteristics, i.e. the median value, its variance, its range, and the presence of outliers. Each box extends from the 25<sup>th</sup> percentile up to the 75<sup>th</sup> percentile of the distribution. The horizontal line within the box represents the median value. The two segments drawn above and below the box are delimited by whiskers that are given by the upper and the lower “adjacent” values. For a value to be considered as “adjacent” there must not exist “large” gaps between observations. If this is instead the case, the box plot draws some circles below or above the whiskers.

**Table 3: Descriptive statistics of attitudinal/cultural variables**

Locations	1= Money & wealth in my country should be distributed more evenly; 0 = Fair distribution	1 = Poor b/c of bad luck;  0= poor b/c of lack of effort	1 = Success in life depends on factors under my control; 0 = otherwise	1 = Homosexuality, abortion, prostitution, euthanasia can never be justified;  0 = otherwise	1 = right-wing political ideology;  0 = left-wing	1="Collectivistic attitudes;  0 = "Individualistic" attitudes	1= Other people can be trusted.  0=otherwise
Milan	0.82 0.39	0.60 0.49	0.52 0.13	0.43 0.26	0.53 0.25	0.51 0.14	0.27 0.45
Salerno	0.90 0.29	0.49 0.50	0.56 0.12	0.44 0.24	0.47 0.30	0.56 0.14	0.21 0.41
WA	0.58 0.49	0.39 0.49	0.58 0.10	0.38 0.23	0.46 0.25	0.50 0.11	0.47 0.50
MS	0.50 0.50	0.38 0.49	0.59 0.11	0.54 0.29	0.51 0.24	0.50 0.12	0.30 0.46
Oslo	0.46 0.50	0.61 0.49	0.52 0.12	0.30 0.19	0.36 0.22	0.51 0.12	0.84 0.37
<i>WITHIN-COUNTRY DIFFERENCE: ITA</i>	-2.356***	1.860*	-3.622***	-1.127	2.241**	-2.877***	1.401
<i>WITHIN-COUNTRY DIFFERENCE: US</i>	1.538	0.18472222	-0.724	-5.468***	-1.750*	-0.732	3.304***
<i>BETWEEN-COUNTRY DIFF. US-IT</i>	-9.250***	-4.294***	4.912***	-4.999***	-0.150	-3.779***	3.926***
<i>BETWEEN-COUNTRY DIFF. US-NO</i>	1.649*	-4.848***	5.507***	6.578***	5.659***	-0.435	-9.741***
<i>BETWEEN-COUNTRY DIFF. IT-NO</i>	9.441***	-1.378	1.471	5.901***	5.186***	2.595***	-12.569***

**Table 4: Descriptive statistics of experimental variables**

Locations	Tax Rate 1	Tax Rate 2	Tax Rate 3	Tax Rate 4	Ambiguity Aversion	Risk Aversion
Bicocca	45,35 36,23	38,87 34,92	41,67 35,83	42,77 41,36	0,16 0,12	0,11 0,11
Salerno	39,51 33,2	40,3 34,94	40,59 35,08	36,35 36,72	0,17 0,12	0,12 0,11
WA	41,8 33,1	42,81 33,97	49,93 37,15	40,78 39,19	0,13 0,11	0,11 0,12
MS	33,95 31,98	34,52 33,36	34,8 34,27	34,57 37,38	0,16 0,13	0,11 0,11
Oslo	53,2 34,1	45,2 34,7	50,2 36,5	51,1 40,7	0,12 0,12	0,08 0,09
<i>WITHIN-COUNTRY DIFFERENCE: ITA</i>	1.265	-0.504	0.101	0.67	-0.396	-0.333
<i>WITHIN-COUNTRY DIFFERENCE: US</i>	2.429**	2.564**	3.933***	1.501	-2.005**	-0.695
<i>BETWEEN-COUNTRY DIFF. US-IT</i>	-1.748 *	-0.240	0,07	-0.748	-1.862*	-0.553
<i>BETWEEN-COUNTRY DIFF. US-NO</i>	-5,040***	-2,160**	-2,557**	-3,423***	2,044**	2,442**
<i>BETWEEN-COUNTRY DIFF. IT-NO</i>	-3.428***	-1.833*	-2.672***	-2,843***	3,605***	2,836***

Decision 3 seems to bring about some changes across countries, which are magnified in Decision 4. Thus we only analyse this last decision. It can be best appreciated by dividing the observations into the “rich” bracket and the “poor” bracket, where “rich” means being above the median earning level, and being “poor” means being below or equal to the median position. As mentioned above, if rich (poor) people were only motivated by self-interest, than they should propose  $\tau=0\%$  ( $\tau=100\%$ ). In this chart we can observe a clearly sizable difference between rich and poor, but all the same many subjects acted in part against their own self-interest. The most striking characteristic of this graph is probably the behaviour of the Norwegian poor. The amount of redistribution they demand is much higher than that demanded in the other countries. It suffices to consider that the median  $\tau$  is 100% in the Norwegian sample whereas it is 30% in the Italian sample and 70% in the US sample. Moreover, Norwegian poor do not appear to make any significant difference between the MERIT and LUCK treatments, though the demand is higher in the latter. According to a two-sided Mann-Whitney test, there is in fact no statistical difference between the two distributions in the Norwegian sample ( $z=-1.164$ ,  $p\text{-value}>0.1$ ,  $N=83$ ). On the contrary, Italian poor react very sharply to the determinant of the earnings distribution, rising their  $\tau$  considerably in the Luck

treatments ( $z=-2.727$ ,  $p<0.01$ ,  $N=168$ ). On the other hand, Norwegian “rich” are more redistributive than their US and their Italian counterparts, but this difference is only significant with respect to the US sample in the MERIT treatments ( $z=-2.133$ ,  $p<0.05$ ;  $N=130$ ). The difference is instead not statistically significant in the LUCK treatments. These results may tentatively be construed as an internalization by Norwegian subjects of a norm legitimating them “not to fall behind” in the earnings scale. This enables them to demand a high level of redistribution regardless of earnings determinant. Whether this conjecture is true and the extent to which it is the reflection of social norms, labour market practices, social upbringing, it is matter for further investigation.

Another surprising result is the very low demand of redistribution by the Italian poor in the MERIT treatments. This behaviour would seem typical of a strongly “meritocratic” society, where poor people respect the entitlement of richer people to earn a larger income precisely because merit is recognised as a fair method to assign income. Even in this case we find evidence contrary to our background hypotheses. This time it is H2 not receiving support. This result is more evident in the ABILITY treatment than in the EFFORT treatment, and it is stronger among Southern Italians than Northern Italians (results not shown here).

## **4.2.1 Results of the econometric analysis**

### **4.2.1.1 The econometric model**

We use a Tobit model censored at the two extremes  $\tau=0\%$  and  $\tau=100\%$ . For all the first three decisions we report results for four different models. All models include dummies identifying treatments, the benchmark category being the SHEER LUCK treatment. They also include the variables RIGHT and TRUST that have been illustrated above. The variable POVERTY is representative of a set of variables enquiring about a subject’s BOD, focusing on the deservedness of the poor. We use this variable because a subject’s views over the causes of poverty have been seen by many as revealing of their vision over opportunities in society (e.g. Alesina and Giuliano, 2009). Our results are robust to alternative specifications where POVERTY is substituted by the variables enquiring about the determinants of success in life (see discussion in section 4.1).

We also include our measure of individual risk aversion obtained from the independent risk aversion test. RISK AVER counts how many times the individual chose to participate in a lottery instead of receiving a fixed monetary payment out of the three decisions that were administered. The variable RISK\_CONSIST controls whether there were violations of the monotonicity assumption – that is, whether subjects were consistent in not “switching back” from choosing the risky choice to the non-risky one as the fixed monetary payment decreased along the three decisions they made. We do not include the ambiguity aversion score because this is never a significant predictor of experimental behaviour, neither individually nor when coupled with RISK AVER. Finally, we include a set of demographic controls that includes GENDER and AGE. The dummy variable ECONOMICS identifies whether a subject attends Economics or other business degrees. A set of dummy variables identify a subject’s religious confession. The benchmark category here is Catholic and Orthodox. PROTESTANT identifies all denominations classifiable as protestant. OTHER\_RELIGION identify all other religious denominations that do not fall into Catholic and Protestant, such as Muslim, Hindu, Sikh, *etc.* Given the paucity of observations for these confessions it was not possible to attribute dummies identifying each religious confession. Finally, ATHEIST identifies subjects declaring themselves as atheists, agnostics, or having no religion. As many subjects did not answer the question about their household’s overall income, we include the variable MOTHER\_EDU that measures the level of education of the subject’s mother. We interpret this as an admittedly imperfect measure of a subject’s family economic background. This is a dummy variable identifying whether the subject’s mother attained a university degree or a higher level of education. The results we report

are robust to introducing further educational levels of mother's education. ETHNIC\_MAJ is a dummy variable taking value of 1 if a subject belongs to the country's ethnic majority. COMPREHENSION counts how many incorrect answers the subject gave the first time she was asked to answer the comprehension quiz at the end of the first part of instructions. Although all subjects answered correctly the comprehension quiz after trying twice or finally asking the help of the experimenters, subjects who did not answer successfully at the first attempt may be thought of as possibly having a less clear comprehension of the problem at hand, or being more inclined to distraction.

The four specifications being presented differ as to whether data from different countries are merged or not. The first specification merges all the data and includes country dummies, with US as the benchmark category. This model is designed to test country differences and to study the general impact of our explanatory variables over the whole sample. The other three models only consider data from individual countries. Dummies identifying the Southern locations are used in models 2 and 3 to identify data from MS in the US sample and from SALERNO in the Italian sample. In this way we can test for the existence of relevant within-country differences even when controlling for the main demographic factors.

#### **4.2.1.2 Results from Decision 1**

Table 5 reports the results regarding Decision 1 (D1). We first look at country effects. Being US the omitted category, it is noticeable that no differences emerge between Italy and the US, whereas Norwegians' demand for redistribution is significantly higher. This is the case at the 0.01 level. Norwegians demand around 12 percentage points more than US subjects, and around 8,5 percentage points more than Italian subjects (this latter difference is not statistically significant). Hence the DFIH hypothesis only holds with respect to the comparison between the US sample and the Norwegian sample. That no difference emerges between the US and Italy is surprising in that both in surveys and in our own questionnaire Italian people seem to be demanding significantly more redistribution than US citizens in real life. Conversely, the pure "(dis)taste" for inequality, as measured by D1, seems to show that Italians are very much alike US respondents. This result may be due to a variety of factors. One possible explanation is that BOD is the driving force of demand for redistribution in Italy and the US. Since so many Italians believe that opportunities are scant for the poor in real life, and that factors beyond one's control determine people's success, demand for redistribution in real-life is high. In our experimental setting, where equal opportunity of success was – at least in a formal sense - accorded to everyone, aversion to inequality is not any different to the US one. This account would be consistent with the BODIRD hypothesis: pure preferences for inequality are virtually the same across countries, whereas what changes is the belief over how much social mobility is available to individuals.

However, the fact that the Norwegian demand for redistribution in our experiment differs so much from that of the other two countries tell us that this account cannot be exhaustive. One possible explanation is cultural difference. Many sociologists have debated whether the US is truly "exceptional" with respect to other countries in terms of attitudes of their citizens towards mobility in society, and have largely rejected this idea (Osberg and Smeeding, 2006). Using different database than the WVS, it seems that US citizens' views do not differ widely from those of other countries. On the contrary, it is the views held by citizens of the Nordic countries that really stand out as different from the rest. Hence, perhaps the results in our experiments are capturing a "Nordic exceptionalism" rather than an "American exceptionalism". Furthermore, it is possible that an inter-generational shift has taken place, with young Italians converging towards the views of young US citizens. However, this does not appear to be reflected in our questionnaire, where the views expressed by youngsters in Italy seem to be in line with those of their parents. Clearly these results call for further investigation.

Some (minor) differences across countries also emerge with respect to the way subjects reacted to the four different treatments they were presented with. Overall, differences across treatments are in line with expectations, with luck treatments triggering a higher demand for redistribution than those based on effort and ability (see DP, 2001). The differences between the two merit treatments and the two luck treatments is significant at  $p < 0.01$ . In addition, US students were the only ones demanding higher redistribution in the BACKGROUND treatment compared to the SHEER LUCK treatment, whereas both Italians and Norwegians did the opposite. However, these differences are only small and never reach conventional levels of significance. Furthermore, both Italians and Norwegians demand significantly less in the EFFORT treatment than in the baseline case. This is significant at less than the 5% level in Italy and the 1% level in Norway. Conversely, US participants do not call for more redistribution in this case. However, conducting a test over the difference between the coefficient for Norway and for the US yields only weak significance levels ( $\beta = -17.35$ ,  $p = 0.066$ ),<sup>13</sup> while the difference is not significant either between Italy and the US ( $\beta = -4.17$ ,  $p = 0.621$ ) or Norway and Italy ( $\beta = -13.18$ ,  $p = 0.18$ ). US participants reacted more to the ABILITY treatment, as they demanded about 10 percentage points less redistribution in this treatment compared to the baseline. However this difference is only significant at the 10% level. This difference is more pronounced in Italy ( $p = 0.044$ ), and is at the margins of significance in Norway ( $p = 16\%$ ). Overall, there do not seem to exist big differences across countries in the way merit and luck are judged in this first decision. If anything, European participants seem to react more to merit than their US counterparts. This is in contrast with MH. As for within-country effects, in both “Southern” locations in Italy and the US demand for redistribution is lower. However, the effect is not significant in the US ( $p = 0.118$ ), and is only weakly significant in Italy ( $p = 0.052$ ).

Among the other variables, RIGHT seems to exert a strong effect. Subjects positioning themselves on the extreme right of the political spectrum demand 26 percentage points of redistribution less than those positioning themselves to the extreme left of the political spectrum. This effect is persistent across countries and is largest in Norway (though the difference between countries is not statistically significant). This reassures that our experimental results have external validity. It also points to the large effect that political ideology has on individual choices. On the other hand, TRUST does not have any predictive power, and neither does POVERTY. The latter result is worth stressing. It indicates that BOD did not matter to subjects in the first experimental choice. This supports our conjecture that in our experimental situation subjects were not substantially influenced by the BOD they hold in real life.

Among the other individual variables, it is noteworthy that RISK\_AVERSION results as having a significant impact on demand for redistribution. In the regression merging all countries together, the coefficient indicates that subjects who are least risk-averse are prepared to demand 11 points more of redistribution than subjects who are most risk-averse. This is at first sight surprising because the decisive individual had no uncertainty over their earnings in D1, as these were fixed at 11 tokens. Hence, they had nothing to insure against. However, it has been argued that individual risk aversion does indeed influence one’s inequality aversion (Schildberg-Hörisch, 2010). As in D1 subjects are asked to act as dictators, they may have carried over their own degree of risk aversion when deciding over the redistribution for the whole group. Interestingly enough, this result is largest in the US, and it is the only country where this effect is statistically significant ( $p = 0.011$  in the US;  $p = 0.793$  in Italy;  $p = 0.511$  in Italy). However, the differences between the US and the other two countries does not reach statistically significant levels either vis-à-vis Italy ( $\beta = -13.70$ ,  $p = 0.21$ ) or Norway ( $\beta = -6.30$ ,  $p = 0.64$ ).

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<sup>13</sup> We test this by running a regression with the same specification as model 1, adding interaction effects between countries and individual treatments.

All the same, this result may point to a different way of conceiving inequality in the US, in that one's sense of justice is greatly influenced by her degree of risk aversion. That is, the less risk-averse a US participants, the lower the demand for redistribution.

There is no significant gender effect, though women appear to demand higher redistribution than men. Interestingly, and probably not surprisingly, Economics students demand less redistribution than students from other degrees. This is significantly the case in both the US and Italy, but not in Norway. The impact is overall only weakly significant. The dummies identifying religion are never significantly different from 0. In line with expectations, the sign of PROTESTANT is negative, which confirms survey results that demand for redistribution is higher among Catholics. The magnitude of this effect is however very far from significance levels ( $p=0.471$ ). Finally, MOTHER\_EDU does not have any predictive power. It is worth noting that COMPREHENSION has a significant predictive power ( $p=0.023$ ). Students who did not get the comprehension test right at the first attempt demand less redistribution. This result is interesting in itself, but it also carries an interesting interaction with the subject's ethnicity. At first sight, ETHNIC\_MAJ does not have predictive power, although it is not far from significance ( $p=0.17$ ). However, if we remove COMPREHENSION from the regressors, ETHNIC\_MAJ does turn out to be significant, although weakly ( $\beta=9.15$ ,  $p=0.057$ ). People from the ethnic majority demand *more* redistribution than others, and this is in contrast with survey evidence where people from ethnic minorities – typically Black Americans – demand *less* redistribution. Being these two effects confounded, we cannot be sure whether this is due to a real ethnic effect or to the fact that people from ethnic minorities had more comprehension problems. A Mann-Whitney test over the null hypothesis that the distribution of COMPREHENSION is the same for people from the ethnic majority and from the ethnic minority is soundly rejected ( $z=-6.160$ ,  $p<0.001$ ).

#### 4.2.1.3 Results from Decision 2

D1 was somehow a peculiar decision in that subjects had no stake in the game. In terms of our utility function (1), it was as if  $\delta$  had been set to 0 by construction. Subjects with weak other-regarding motivations should have been indifferent as to which  $\tau$  to propose. Decision 2 (D2) removed the assigning of the decisive individual to the median position, so that a direct self-interested motivation entered the frame. Moreover, subjects took their decisions after having already witnessed one occurrence of the earnings-assigning method. The results of the econometric analysis are reported in Table 6. The most striking result comparing D2 and D1 is the disappearance of either between country or within country effects. As already observed in the foregoing section, the  $\tau$  demanded by Norwegians is now on a par with that demanded by the Italians and the US participants. Moreover even the difference between the Southern location and the Northern location within Italy disappears. There is no difference between the redistribution demanded by Italians and US participants in D2 and D1. Conversely, Norwegians demand significantly *less*. As already argued in section 4.2, this can be construed as risk-seeking behaviour by the Norwegians. In terms of our model of individual preferences, the risk aversion motivation should add to inequality aversion. So, assuming that the D1 measured the level of inequality aversion, a negative difference between D2 and D1 means that the introduction of risk has *reduced* the overall demand for redistribution. As for D1, BACKGROUND\_TR is not different from the baseline, but both the ability treatment and the effort treatments demand lower levels of  $\tau$ . Interestingly enough, even in this case the drop in  $\tau$  is more sizable in Italy and Norway than the US, but the differences are not statistically significant.

The variable EXPECTED\_EARNINGS is derived from a subject's expectation over their expected earnings in D2. The expectation has not been monetarily incentivised to ensure that their declared expectation did not affect their behaviour in the merit





































