

## ABSTRACT

Title of dissertation:       ESSAYS ON INEQUALITY, SOCIAL MOBILITY  
  AND REDISTRIBUTIVE PREFERENCES  
  IN TRANSITION ECONOMIES

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In this dissertation I rely on attitudinal and subjective well-being data from Transition Economies to examine several aspects of the relationship between inequality, social mobility and citizens' preferences for government involvement in redistributive policies. In the second chapter I suggest that if aversion to inequality is driven by social mobility considerations or by differences in status between self and relevant others, then aggregate statistical indices of inequality will be unable to capture in a meaningful way changes in status implicit in inequality dynamics. An alternative test of inequality aversion that derives from the experimental literature is adopted, that is better able to capture status driven aversion to inequality. The third chapter investigates empirically the link between the prospects of upward mobility (POUM) and preferences for redistribution. The POUM hypothesis is tested while directly accounting for other factors affecting preferences for redistribution such as risk aversion, beliefs regarding effort and luck as determinants of success, past economic mobility, or religious preferences. The chapter then looks at what shapes individuals' beliefs vis-a-vis future economic mobility. In particular, I examine the role of perceived inequality of opportunity, conceptualised in the spirit of John Rawls. The fourth chapter is concerned with

the body of literature that suggests that relative status is an important determinant of well-being by looking at the effect of one's income relative to some reference group on self-reported life satisfaction. In most of these studies the data come from developed countries, while the reference group of the individual is unknown, and thus imposed by the researcher. This essay looks instead at self-reported relative deprivation based on data from six countries from different parts of Eastern Europe and Former Soviet Union and which are at different levels of economic development. The relative salience of several reference groups is examined. Given the cross-sectional nature of the data, an instrumental variable strategy is employed to establish a causal link between relative deprivation and the level of satisfaction with the household's standard of living.

ESSAYS ON INEQUALITY, SOCIAL MOBILITY  
AND REDISTRIBUTIVE PREFERENCES IN TRANSITION ECONOMIES

by

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Dedication

To my family

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# 1 Introduction

*“All societies are inegalitarian. But what is the relation between the inequalities in a society and the feelings of acquiescence or resentment to which they give rise?”* (W.G. Runciman, 1972:3)

The countries of Eastern Europe and the Former Soviet Union have undergone a vast transformation – economic, political, and social – over the course of the past two decades. One of the important features of this transformation has been the considerable increase in economic inequality in the region since the beginning of transition. Inequality is also perceived to be excessive by the citizens in post-Socialist Europe – in a recent survey more than 70 percent of respondents either agreed or strongly agreed that the gap between the rich and the poor in their countries should be reduced. This dissertation tackles a number of issues pertaining to economic inequality, social mobility, and preferences for redistributive policy in Transition Economies. It focuses in particular on institutional factors like fairness and inequality of opportunity as key drivers of attitudes toward inequality and redistribution.

Yet, this dissertation is not merely concerned with the particular circumstances of post-Socialist Europe. It aims to contribute to several strands of literature that are not specific to any given geographic area. For instance, the first essay aims to contribute to the small literature concerned with the general question of whether preferences for fairness observed in laboratory experiments can be similarly found among “regular people” and addresses some of the methodological challenges in-

volved in testing for aversion to inequality with observational data. The second essay aims to contribute to the nascent literature on the measurement and implications of inequality of opportunity, and also to the broader literature concerned with the link between redistributive preferences and institutional factors life beliefs about the degree of fairness in the distribution of fortunes in society. The third essay adds empirical evidence to the emerging literature on the importance of relative status for well-being, particularly in developing countries, where the evidence remains sparse and the results – mixed. More generally, the dissertation relies on attitudinal and subjective well-being data from household surveys and comments on several methodological aspects pertaining to the use of such data to examine the importance of inequality and relative status for well-being.

If there is a common thread that unites the three essays, it is that all three are concerned with the importance of relative position within different reference groups. The first essay focuses on one’s position vis-a-vis neighbours, and, to a limited extent, one’s position relative to a salient point in the past (here the pre-transition level of welfare). The second essay looks into the future and examines the importance of expected future changes in the individual’s relative position in society. The third essay examines the salience of a number of different reference groups such as parents or grandparents, or local reference groups at different levels of geographic aggregation. To a large extent, reference points – both inter-temporal and inter-personal – are found to be salient for individuals’ assessments of well-being and for their policy preferences.

A second common thread that spans two of the three essays is the emphasis on

institutional aspects of the transition process, and in particular, on the individual beliefs about institutions (largely informal ones). Beliefs about the existence of inequality of opportunity (in a Rawlsian sense), and about the importance of effort and luck for success in society are found to influence the degree of tolerance for economic inequality, preferences over redistributive policy, as well as expectations of one's ability to progress up the socio-economic ladder in the future. These findings seem particularly relevant in light of the increasing concern in analytical and policy debates with the extent and the implications of inequality of opportunity.

## 2 Inequality and well-being: a non-experimental test of inequality aversion

### 2.1 Introduction

On October 15, 2011 *Occupy* protests that originated with the *Occupy Wall Street* movement in New York were planned in over 80 countries and 950 cities worldwide. These protests are perhaps the most vivid manifestation of the growing global concern with equity and inequality, also reflected in China's pledge to create a "harmonious society", or in the indicators underpinning European Union's "social inclusion agenda", or in the recommendation of the Sarkozy Commission (on the Measurement of Economic Performance and Social Progress) that "[q]uality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way." (Stiglitz, Sen and Fitoussi, 2009). This concern is driven in part by the oftentimes sharp increase in the gap between the rich and the poor over the past two decades in many OECD countries, in China, and in Eastern Europe. Yet, the mapping from a given statistical measure of inequality to preferences for redistribution, or to individual (social) welfare, and the importance of tradeoffs between the size of the pie and the inequality in its distribution will be influenced by the prevailing degree of inequality aversion in society.<sup>1</sup> The latter is the subject of this paper.

Some evidence of aversion to inequality can be inferred from the preferences for equity that have been observed in tightly controlled lab experiments, where individuals have been observed to have strong other-regarding preferences, to prefer equitable outcomes, and to engage in cooperation (see Fehr and Schmidt 2006 for

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<sup>1</sup> In the case of social welfare, the normative degree of inequality aversion in the social welfare function will also play a crucial role (Sen 1997 provides a detailed discussion).

a comprehensive review of the literature). These other-regarding preferences have been observed in a number of different games, such as ultimatum games (Thaler, 1988; Camerer and Thaler, 1995), public goods games with punishments (Fehr and Gächter, 1996), or gift exchange games (Fehr, Gächter, and Kirchsteiger, 1997), as well as in other contexts.

This paper investigates, rather, the degree of inequality aversion based on nationally representative household survey data. Evidence on this is more scarce and generally looks at associations between inequality, usually measured in terms of some statistical index like the Gini index, and subjective well-being using household survey data (Tomes 1986; Clark 2003; Alesina et al. 2004; Senik 2004; Graham and Felton 2006; Grosfeld and Senik 2010). A negative association between inequality and well-being is viewed as indicative of inequality being a welfare-relevant consideration in the population. The motivation behind this line of research stems from the argument that aversion to inequality, by its nature, offers only a limited scope for revealed choice analysis, but more progress could be made by analysing expressed preferences. These studies reach mixed conclusions, inequality having either a positive, a negative, or no statistically discernible effect on individual well-being.

This paper suggests that if aversion to inequality is driven by social mobility considerations or by differences in status between self and relevant others, then aggregate statistical indices of inequality will be unable to capture in a meaningful way changes in status implicit in inequality dynamics. An alternative test of inequality aversion is adopted, that is better able to capture, I believe, status-driven aversion to inequality. The test builds on the model of inequality aversion proposed in the

experimental literature by Fehr and Schmidt (1999), which is closely related to earlier work on relative deprivation by Yitzhaki (1979). The proposed specification, while intimately related to the Gini index, allows us to make progress in settings where aggregate measures of inequality are less appealing.

Several findings emerge from this study. First, individuals are found to exhibit aversion to inequality (in the sense of Fehr and Schmidt, 1999), and this result holds across a number of specifications, and also across regional subsets of countries. The Gini index, on the other hand, is unable to capture this negative effect of inequality on well-being. Second, inequality aversion does not appear to be intrinsic, but rather stems from a sense of fairness, as captured by opinions vis-a-vis the main determinants of success and economic need in society. As such, the findings are suggestive of inequality of opportunity being the factor that is driving the individuals' responses to economic inequality. Finally, perceiving inequality to be unfair is also associated with calls for strong government involvement in redistributive policies.

Section 2.2 reviews existing findings on inequality and subjective well-being, discusses the proposed methodology and addresses some of the difficulties of testing for inequality aversion with large household survey data. Section 2.3 describes the survey data employed in the empirical analysis. Section 2.4 presents the main findings, discusses the driving forces behind inequality aversion, and considers implications for social welfare and support of redistributive policies. Section 2.5 concludes.

## 2.2 Social evaluation, inequality aversion, and reference groups

### 2.2.1 Existing literature

The primary aim of this paper is to test for inequality aversion using nationally-representative survey data. In the existing literature there are two types of studies that share this goal, at least to some degree. First, there are several recent studies that run experiments on populations that go beyond the usual student setting. Guth, Schmidt and Sutter (2007) implement a three-person ultimatum game experiment through the German weekly *Die Zeit*. A total of 5,132 readers took part in the experiment, thus offering a much greater variation in socio-economic and demographic characteristics in the participant group. Their findings suggest considerable parallelism between student and non-student behaviour, and thus help address the common objection that university students who typically take part in laboratory experiments are not representative of the general population. Bellemare et al. (2008) implement an ultimatum game relying on a representative sample of the Dutch population drawn from the participants of the CentERpanel (2,000 households) and find that young and highly educated subjects have lower aversion to inequality than other groups.

Pirttila and Uusitalo (2010), using a representative survey of Finnish people, present survey respondents with a 'leaky bucket' experiment in which they probe the respondent's willingness to have the tax schedule adjusted to effect a transfer from the top income decile to the bottom income decile. In addition, the authors also ask respondents to compare the Finnish wage distribution to alternative distributions with a higher mean and dispersion of income. While they find evidence in support

of inequality averse preferences, the results also suggest differences between the two approaches - a large group of respondents who supported more narrow wage differences do not support costly progressive transfers.<sup>2</sup> The authors also find inequality aversion to be strongly associated with attitudes to increased tax progression, with increased unemployment insurance and unemployment assistance benefits, and with increased income support.

A somewhat larger, albeit still limited, literature looks at the association between individual well-being and statistical measures of income inequality. This question is apart from the larger literature that examines whether relative status concerns, such as those embodied in the relation of someone's income to mean (or median) reference group income, or in someone's rank in the income distribution, are relevant for individual well-being (Clark and Oswald 1996; McBride 2001; Ravallion and Lokshin 2002; Blanchflower and Oswald 2004; Ferrer-i-Carbonell 2005; Luttmer 2005; Graham and Felton 2006; see also Clark et al. 2008 for a recent review of the literature). The relevant question here is whether conditional on own income, and conditional on relative income, the degree of inequality in the distribution of incomes in a given group has an effect on individual well-being. Existing studies that explore the relationship between inequality and welfare based on household survey data generally model individual well-being – proxied by a measure of self-reported happiness or life satisfaction – as a function of the Gini index or some other composite inequality measure. As already noted, they arrive at mixed results.

Tomes (1986), using survey data from Canada, finds higher levels of inequality

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<sup>2</sup> The authors conclude that it is unclear why this is the case, but note that it is plausible that a smaller increase in the underlying latent preference for equality increases may trigger willingness to support an equal wage distribution, compared with the increase necessary to trigger support for costly transfers.



(as measured by the income share of the poorest 40 percent of the population) to be positively associated with life satisfaction among men, controlling for own income and average income in the district of residence. Clark (2003) similarly finds, using data from the British Household Panel Survey, that well-being is positively correlated with reference group income inequality measured by either the Gini coefficient or the 90th / 10th percentile ratio.

On the other hand, Alesina et al. (2004), relying on US GSS survey data from 1972-1997, and Eurobarometer data for 1975-1992, find that inequality (measured by the Gini coefficient) has a negative effect on happiness, controlling for own income and a number of socio-demographic characteristics, albeit the relationship is less precisely estimated in the US sample. They also find a strong negative effect of inequality on happiness among the poor and the political left in Europe, but not in the United States. A negative association between inequality and subjective evaluations of the economic situation is found in the Grosfeld and Senik (2010) study on Poland, but only for the second half of the transition period (1997-2005), whereas a positive association is found in the early years (1992-1996).

Graham and Felton (2006), relying on Latinobarometro data from 18 countries in Latin America find country-level inequality measured by the Gini index to not have a statistically significant effect on happiness. Senik (2004), relying on panel data from the Russian Longitudinal Monitoring Survey, finds that neither national level inequality (measured by either Gini or Stark indices), nor the regional or Primary Sampling Unit inequality, have a significant effect on reported life satisfaction in Russia.

## 2.2.2 Proposed methodology

Imagine an increase in the Gini index of income inequality for a given group from, say,  $G_1 = 0.22$  to  $G_2 = 0.29$ . Assume further that the group in question is the relevant reference group (more on this in Section 2.2.3.) and that the inequality in the income space is the relevant dimension for well-being evaluation (see Section 2.2.4.). Should we expect this sizable increase in the Gini index to have an effect on individual well-being? The answer to this question depends in part on whether individuals are averse to inequality, and if so, on the nature of this aversion. If aversion to inequality is based on its perception as a social evil (Alesina et al. 2004), then higher inequality should reduce the (individual) well-being of all irrespective of the underlying changes in the income distribution that precipitated the increase in inequality, or of the individuals' position in this income distribution. If, on the other hand, aversion to inequality is driven by perceptions of social mobility, aggregate national measures of inequality may be limited in their ability to capture the subtle effects of inequality on prospects of social mobility (Graham and Felton, 2006).

Similarly, if inequality aversion is driven by status considerations that are sensitive to the distribution of incomes in the group and not just the individual's position in the income distribution, then aggregate measures of income distribution will provide little useful information on implicit changes in status. Returning to the above increase in the Gini index, consider instead the income distribution  $A_1 = \{100, 200, 300\}$  that corresponds to  $G_1$  and  $A_2 = \{100, 200, 400\}$  that corresponds to  $G_2$ . For someone with the income equal to 100, for instance, the change in relative standing embodied in the income gaps between her and others in  $A_2$  relative

to the initial distribution  $A_1$  is much more explicit. The relative standing of the person whose income increases from 300 to 400 actually improves as inequality increases. It seems plausible for these bilateral differences between group members to be important factors determining well-being (if status considerations matter), even if composite inequality indices generated by these are not, in themselves, meaningful indicators of inequality of status.

These bilateral gaps form the basis of the relative deprivation measure proposed by Yitzhaki (1979). Given a range of incomes  $(0, y^*)$ , Yitzhaki defines the total deprivation of someone with income  $y_i$  is the sum inherent in all units of income the person is deprived of, or incomes in the interval  $(y_i, y^*)$ :

$$D(y_i) = \int_{y_i}^{y^*} (z - y_i) f(z) dz = \int_{y_i}^{y^*} [1 - F(z)] dz$$

where  $F(y) = \int_0^y f(z) dz$  is the cumulative income distribution. This definition is a formalisation of the concept of relative deprivation proposed by Runciman (1972). Yitzhaki further shows that the degree of relative deprivation within a given group is the product of the group's mean income and its Gini index of inequality ( $G$ ), such that:

$$G = \frac{1}{\mu} \int_0^{y^*} D(z) f(z) dz$$

A number of studies establish a negative relationship between Yitzhaki's measure of relative deprivation  $D(y_i)$  and individual well-being (D'Ambrosio and Frick, 2007) or health outcomes within groups (Deaton, 2001; Eibner and Evans, 2005). On the other hand, if one were to model individual well-being as a function of the Gini index of inequality, this implicitly assumes that an individual's utility (proxied

by the self-reported well-being score) depends not only on the relative deprivation of that individual, which may be a reasonable assumption, but also - and with equal weights - on the relative deprivation of all other individuals in a given reference group. The latter assumption is much more stringent.

In light of the above considerations, this paper adopts an empirical test of inequality aversion in individual preferences that is able to pick up inequality aversion driven by status considerations such as those consistent with Yitzhaki's relative deprivation measure. The analytical set-up follows the specification proposed in the experimental literature by Fehr and Schmidt (1999, hereafter FS), who introduce inequality aversion into individual preferences as follows (using Yitzhaki's notation):

$$U(y_i) = y_i + \alpha \int_{y_i}^{y^*} (z - y_i) f(z) dz + \beta \int_0^{y_i} (y_i - z) f(z) dz$$

where  $y = y_1, \dots, y_n$  is the vector of monetary payoffs,  $n$  is the number of players, and it is further assumed that  $-1 < \beta \leq 0$  and  $\alpha \leq \beta$  (i.e.  $\alpha$  is more negative than  $\beta$ ).<sup>3</sup> Thus, the individual's welfare depends on income comparisons with the incomes of all other individuals in the reference group. The second term on the right measures the utility loss associated with disadvantageous inequality, and the third term measures the utility loss from advantageous inequality. The assumption  $\alpha \leq \beta \leq 0$  implies that utility loss is greater from disadvantage.<sup>4</sup> In the context of this paper  $\beta < 0$  can indicate aversion to inequality due to the uncertainty of social mobility prospects (especially worries about possible downward mobility), and

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<sup>3</sup> Note a small change of notation from the FS formulation in order to make it easier to relate the structural parameters of the model to the estimates in Section 2.4. In Fehr and Schmidt (1999) the second and third terms are subtracted from  $y_i$ , and, respectively,  $0 \leq \beta < 1$ , and  $\alpha \geq \beta$ .

<sup>4</sup> While Fehr and Schmidt assume disutility from both disadvantageous and advantageous inequality, they note that allowing for  $\beta < 0$  (equivalent to  $\beta > 0$  in our notation) does not alter equilibrium behaviour in games they consider, albeit in principle, there is no reason why individuals cannot receive satisfaction over the domain of incomes lower than their own.

is also consistent with a preference for fairness with respect to the fortunes of the poor.

Fehr and Schmidt (1999) show that many of the manifestations of fair and cooperative behaviour in experimental studies, such as those observed in ultimatum games (Thaler, 1988; Camerer and Thaler, 1995), public goods games with punishments (Fehr and Gächter, 1996), or gift exchange games (Fehr, Gächter, and Kirchsteiger, 1997) can be explained if a fraction of subjects are inequality averse in the above sense. In particular, they note that “[t]his utility function can rationalize positive and negative actions towards other players. It is consistent with generosity in dictator games and kind behavior of responders in trust games and gift exchange games, *and at the same time* with the rejection of low offers in ultimatum games. It can explain voluntary contributions in public good games *and at the same time* costly punishments of free-riders.” (Fehr and Schmidt, 2006:640)

The advantage of using the FS specification is that the test for inequality aversion is based on a self-regarding utility function that only considers the relative deprivation of self, and not of all others in the reference group. It is also easily observed that the FS specification is intimately related to Yitzhaki’s concept of relative deprivation - the second term in the FS utility function is Yitzhaki’s measure of relative deprivation  $D(y_i)$ , and the last term is a similar measure of normalised aggregate income gap, but defined over incomes that are lower than the income of the individual  $i$ . If we take Yitzhaki’s measure of relative satisfaction  $S(y_i)$ , defined as:  $S(y_i) = \int_0^{y_i} [1 - F(z)] dz$ , then the third term in the FS utility function is  $\int_0^{y_i} (y_i - z) f(z) dz = y_i - S(y_i)$ . Thus, the FS utility function can be written as:

$$U(y_i) = y_i + \alpha D(y_i) + \beta(y_i - S(y_i))$$

As Yitzhaki's notes further,  $D(y_i) = \mu - S(y_i)$ , and substituting into the above equation, we can rewrite  $U(y_i)$  equivalently as a function of own income, relative income, and Yitzhaki's relative deprivation, which is the specification used in section 2.4 of this paper:

$$U(y_i) = y_i + \beta(y_i - \mu) + (\alpha + \beta)D(y_i)$$

A further advantage of using the FS specification in a cross-sectional setting stems from the fact that it allows us to investigate the relationship between inequality and well-being at the level of the individual. A regression of individual well-being on a group inequality measure (e.g. Gini or Theil index) in a cross-section essentially looks at the relationship between the mean well-being level in a group and the group's level of inequality because there is no within-group variation in the inequality measure. In principle, a negative association between life satisfaction and the group inequality index would be consistent with the "social evil" hypothesis. There is, however, an alternative explanation consistent with this negative relationship. Consider  $v(y_i)$ , which is a concave function of individual income alone. The concavity of the individual utility function will imply a negative relationship between mean group life satisfaction and group inequality (Atkinson, 1970), even though at the individual level inequality has no bearing on well-being.

The link between Yitzhaki's relative deprivation and inequality is established by Hey and Lambert (1980). In particular, fix mean group income  $\mu$  and consider

two income distributions  $F_1$  and  $F_2$  where  $F_1$  Lorenz dominates  $F_2$ , in other words  $F_2$  is more unequal than  $F_1$ . Hey and Lambert show that there will be more relative deprivation at every level of income under  $F_2$ . Since inequality averse preferences imply that  $\alpha + \beta < 0$ , higher inequality associated with  $F_2$  will have a negative effect on individual well-being at every level of income. If, on the other hand,  $\alpha + \beta = 0$  and there is no aversion to inequality, higher relative deprivation under  $F_2$  would have no effect on individual well-being (see also Deaton 2001).

A number of difficulties arise, however, when translating the FS specification to an empirical setting based on large household survey data, namely: (i) whether inequality in the general population could be expected to produce an evaluative response that could be captured in an empirical test; (ii) what is the relevant group over which the inequality measure is to be defined; and (iii) the nature of an appropriate welfare metric. These issues are discussed in more detail below. It is important to note, however, that these difficulties are not specific to the FS specification alone; all of them apply equally to any study that proposes to examine the relationship between individual life satisfaction and economic inequality defined for some chosen reference group.

### 2.2.3 Relevant reference groups

In laboratory experiments, the relevant reference group is obvious in games involving two subjects, and most theories of other-regarding preferences in  $n$ -person games assume the remaining  $n - 1$  actors to form the relevant reference group (Fehr and Schmidt, 2006). It is much less clear what the relevant reference groups are in the general population for purposes of social comparisons, and there is little

consensus in the literature on this issue. In Veblen's description of conspicuous consumption behaviour the reference level of consumption was set by the affluent (Veblen 1994, originally published in 1899). Duesenberry (1949) in formulating the *relative income hypothesis*<sup>5</sup> took the neighbours as the group against which relative status is being assessed. The *social comparison theory* proposed by Festinger (1954) suggested that individuals seek to compare their abilities/opinions with others who are perceived to be similar in relevant dimensions. In this spirit, Van de Stadt et al. (1985) rely on age, education and employment status as the relevant attributes for social comparison.

In more recent studies that investigate the effect of relative status on well-being, a number of different reference groups have been employed such as a first stage regression to predict reference income based on a set of characteristics like age, education, occupation and area of residence (Clark and Oswald 1996; Senik 2004), as well as reference groups based on age cohorts (Deaton 2001; McBride 2001), age, education, and region (Eibner and Evans 2005; Ferrer-i-Carbonell 2005), area of residence such as US state (Blanchflower and Oswald 2004) or the Public Use Microdata Areas from the US Census (Luttmer 2005), city of residence (Ravallion and Lokshin 2002), country (Graham and Felton 2006) or even adjacent countries (Diener et al. 1995).

Abundance of various approaches notwithstanding, the true reference groups are ultimately unobserved. This paper follows Frank and Levine (2007) in assuming that the inequality within a person's reference group varies directly with the amount

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<sup>5</sup> The hypothesis is that individual's attitude toward consumption and saving is motivated by his/her income and consumption relative to the income and consumption of others, rather than by some abstract standard of living.



of inequality within the respondent's place of residence. As Frank and Levine argue, 'the within-reference group level of inequality for an individual is likely to correspond more closely to the degree of inequality in the city in which [the person] lives than to the degree of inequality in his home country' (Frank and Levine 2007:13). Senik (2004) similarly suggests that people may be ignorant with regard to the distribution of income at the national level.

There is indeed some empirical evidence suggesting that reference groups are likely to be local. Graham and Felton (2006) find the effect of relative status in Latin America to be strongest at the city level as compared to the country level. Knight et al. (2009), in an unique study that actually asks respondents in rural China to define their reference groups, find that most respondents (68 percent) compare themselves to others within their village (including immediate neighbours), and only 11 percent of respondents report reference groups that stretch beyond village limits. Kuhn et al. (2011), relying on data from the Dutch postcode lottery, find exogenous income shocks to affect consumption behaviour only for immediate neighbours.

For these reasons, the empirical analysis relies on reference groups based on the Census Enumeration Areas (CEA) from which the household was drawn, which is the most localised reference group allowed by the data. While the primary sampling units vary in size across and within countries, they are rather local, sampled households representing a few thousand inhabitants on average (see Synovate 2006 for details of the LiTS sampling methodology).

## 2.2.4 Evaluative space and status observability

Even if we can agree on a definition of a relevant reference group, this still leaves two key questions: (i) what is the relevant space over which relative status is considered; and (ii) whether relative status of any given member of the reference group - however defined - is observable to other members of that group. In the ultimatum game or in the public goods game the relevant inequality is unambiguously defined over the sum of money that is being considered in the experiment. In our case, the relevant space for status considerations is less clear cut, and likely multidimensional. Relative deprivation concerns may involve not just wealth, but also education, political participation, etc. This is separate from the question “equality of what”, considered by Amartya Sen in the 1979 Tanner Lectures, which was concerned with the relevant space over which equality should be considered for purposes of justice (Sen, 1980). In the philosophical inequality literature it has been suggested that the relevant space over which inequalities matter (for justice) should be resources (Rawls 1971; Dworkin 1981), opportunity for welfare (Arneson 1989), access to advantage (G.A. Cohen 1989), opportunities for a good life (Arneson 2000); capabilities (Sen 1980), or opportunities (Roemer 2000).

In this paper the concern is not with a normative criterion of redistribution, but rather with the relationship between perceptions of relative deprivation based on status. The space over which relative deprivation is measured is that of per capita household expenditures. The choice is both pragmatic and is based on the need for status to be observable. This is because differences in objective well-being between an individual and other members of her reference group can only give rise

to a sense of relative deprivation if these differences are both observed and perceived to be relevant. If one's neighbours are better off, but the individual does not perceive them as such, then there is no obvious reason why she should feel relatively deprived. Status observability is thus required for an empirical test of inequality aversion to pick-up a non-spurious correlation between inequality and some measure of welfare. Inequalities in wealth, arguably a salient dimension for purposes of social comparisons, are also considerably easier to observe than inequalities in education or political participation. Whereas inequalities in wealth can in principle be captured by both income and expenditure data, the latter gets us much further along the observability spectrum than income data, particularly because income tends to be poorly measured in developing countries and, more importantly, because income is primarily observable when it is spent.

Finally, defining reference groups at the local level similarly makes it more likely that that distribution of wealth would be observed. As Lichtenberg (1996: 295) argues, "literal neighbors sometimes have a special significance because [...] one is confronted by their houses, their yards, and their cars."

### 2.2.5 Adaptation

Sen (2000) argues that individuals may come to terms with their deprivation, even report reasonable levels of life satisfaction. Thus, even if the level of inequality is observable, it still may not have a discernible effect on well-being, in the sense of inequality aversion, because of adaptive preferences. While this is indeed a valid critique, and while there is evidence of adaptive preferences (Frederick and Loewenstein 1999; Easterlin 2001; Stutzer 2004; Di Tella et al. 2010), adaptation is commonly

incomplete, and tends to be more prominent over gains than over losses (Arkes et al, 2006). Furthermore, Sen’s critique pertains primarily to chronic deprivation. With respect to inequality, this critique would be stronger in a region like Latin America, where a high degree of inequality has been a long-standing phenomenon, but less so in Eastern Europe, where inequality increased rapidly over a relatively short period of time. In Russia, for instance, the level of inequality, as measured by the Gini index, increased from 0.26 in 1990 to 0.41 in 2003, and a number of other transition economies (Armenia, Estonia, Latvia, and Moldova) experienced increases in inequality of similar magnitude (Mitra and Yemtsov, 2006). Milanovic similarly notes that over the past twenty years there has been a ‘dramatic shift in the role of Eastern European / Former Soviet Union (FSU) countries from an “inequality reducing” world middle class to an “inequality increasing” downwardly mobile group’ (Milanovic, 2005: 44).<sup>6</sup>

The rapid transformation after the collapse of the Soviet Union, and the increase in inequality that accompanied it make the experience of transition economies particularly conducive to the analysis undertaken in this paper, because it is in times of rapid change when inequality is most likely to elicit an evaluative response. Runciman similarly notes that relative deprivation is most likely to be heightened when things get sharply better or sharply worse, whereas ‘[i]t is only poverty which seems irremediable that is likely to keep relative deprivation low’ (Runciman 1972: 22, originally published in 1966).

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<sup>6</sup> Milanovic refers to the contribution of the Eastern European / FSU states to the international unweighted inequality measure, or what he calls *concept 1 inequality*.

## 2.2.6 Specifying a welfare metric

In order to empirically test for inequality aversion in the general population, a measure of utility is needed. Following a growing literature on relative status concerns and inequality, this study relies on self-reported life satisfaction (McBride 2001; Ravallion and Lokshin 2002, 2010; Blanchflower and Oswald 2004; Senik 2004; Ferrer-i-Carbonell 2005; Graham and Felton 2006; Luttmer 2006; Senik and Grosfeld 2010; see also Clark and Oswald 1996 for job satisfaction). While issues such as interpreting self-reported satisfaction scores, relating these scores to the concept of utility, or whether self-reported measures of subjective well-being are an adequate measure of human welfare are not trivial,<sup>7</sup> it is important to note that studies undertaken to date produce encouraging results in terms of the viability of subjective well-being measures.

For instance, Diener et al. (1995) examined four subjective well-being surveys in a total of 55 countries with a combined population of 4.1 billion people and a total survey sample of 100,000 respondents, and found “strong covariation among surveys, despite different years, sample populations, wording, and response formats.” The authors further conclude that at least with regard to self-reported measures of well-being, various scales for measuring subjective well-being tend to yield similar results across countries, a conclusion that is further strengthened by the finding that objective variables can predict measures of subjective well-being across countries.<sup>8</sup> Frey and Stutzer (2001) reach a similar conclusion.

Helliwell et al. (2009) examine data from the first three waves (2006-2008) of

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<sup>7</sup> On these issues, see Frey and Stutzer (2001); Kimball and Willis (2006); Di Tella and MacCulloch (2006); Kahneman and Krueger (2006); Clark et al. (2008). On the issue of whether happiness data can be viewed as useful indicators of human welfare, see Deaton (2007) for a dissenting view.

<sup>8</sup> Diener et al (1995).

the World Gallup Poll, which uses both the Cantril ladder question and the “satisfaction with life” question, yielding from 50,000 to 140,000 respondents in 125 countries. They find the structural parameters to be very similar across the different SWB measures, and, at the same time, that international differences in life evaluations are due to differences in life circumstances rather than differences in structural relations between circumstances and life evaluations. As they note, the “[a]pplication of the same well-being equation to 125 different national societies shows the same factors coming into play in much the same way and to much the same degree.” In other words, international differences in subjective well-being are found not to be driven by different approaches to the meaning of a good life.

A number of other studies have similarly found (i) strong positive associations between measures of subjective well-being and income, health, marriage and employment, and also between well-being reported by the respondent and assessments of the respondent’s well-being by friends, relatives, or the interviewer; and (ii) that current subjective well-being measures can predict future behaviour such as marital break-up, or job quits (for a detailed review of these studies see Clark et al. 2008).

The findings of aforementioned studies are encouraging since they provide support to the assumption of ordinal interpersonal comparability implicit in subjective well-being analysis, i.e. two individuals reporting similar answers to satisfaction questions can be presumed to enjoy similar levels of satisfaction (van Praag 2007). This assumption is further reinforced by other studies that find a correspondence between well-being reported by the respondent and assessments of the respondent’s well-being by friends, relatives, or the interviewer (Sandvik et al., 1993). Van Praag

(1991) also finds that individuals translate verbal labels such as “very bad” or “very good” into roughly the same numerical values.

Ferrer-i-Carbonell and Frijters (2005) examine the more stringent assumption of cardinality, i.e. that the difference between responses 2 and 3 on the satisfaction scale is the same, for instance, as the difference between 6 and 7. Relying on data from the German Socio-Economic Panel (GSOEP) they look at differences between ordinal and cardinal models of life satisfaction using the 11-step response to the following question: “How happy are you at present with your life as a whole? Please answer by using the following scale in which 0 means totally unhappy, and 10 means totally happy.” They find that results are largely unaffected by the choice of cardinal vs. ordinal specification.

### 2.3 Data

The analysis relies on data from the first round of the Life in Transition Survey (LiTS I), conducted jointly by the World Bank and the EBRD in 2006. The survey covers 27 transition economies, as well as Turkey and Mongolia. In each of the countries a nationally representative sample of 1,000 households was selected for face-to-face interviews. The advantage of the LiTS is that it builds on a consistent sampling methodology across countries. Within each household the head of household was interviewed about household expenditures and composition, and the “last birthday” rule was applied to randomly choose the household member (who could also be the household head) for the remaining modules of the survey.

The consumption aggregate recorded in the survey is based on household expenditures over a 30 day period on (i) food, beverages and tobacco; (ii) clothing and

Tab. 2.1: Summary statistics

Variables	Mean	SD
Life satisfaction	3.084	1.152
Age	48.514	17.574
Male	0.411	0.492
<i>Education</i>		
Compulsory or none	0.230	0.421
Secondary education	0.269	0.444
Professional / vocational	0.311	0.463
University education	0.191	0.393
HH size	3.188	1.826
Urban	0.570	0.495
Employed	0.469	0.499
Head of HH	0.554	0.497
Two respondents	0.384	0.486
<i>Religion</i>		
Agnostic / atheist / none	0.091	0.288
Christian	0.686	0.464
Muslim	0.205	0.404
Other	0.017	0.131
Economic rank (ladder) in 2006	4.267	1.754
<i>Economic mobility 1989-2006</i>		
Downward	0.595	0.491
Stable	0.204	0.403
Upward	0.201	0.401
Expenditures per capita (000)	1.861	1.840
Mean reference group expenditures (000)	1.881	1.231
Relative deprivation (000)	0.601	0.636
Minimum income per capita (000)	2.995	2.920
Mean reference group min income (000)	3.007	2.082
Relative deprivation in min income (000)	0.871	1.015
Gini index of inequality (CEA level)	0.303	0.076
Preference for government involvement in redistribution	0.692	0.461

Notes: Estimates based on the full sample of 27 countries.



footwear; (iii) transport and communication; and (iv) recreation, entertainment, meals outside the home, etc.; as well as (v) education; (vi) health; (vii) furnishings; (viii) household durable goods; and (ix) other expenditures, categories (v)-(ix) being recorded based on a 12 month recall period. These expenditures are recorded in US Dollars and expressed in terms of annual per capita expenditures. A common concern with consumption estimates based on a recall module (relative to the gold standard of a personal diary) has to do with accuracy (Beegle et al 2010; see also Deaton and Zaidi 1999). Zaidi et al. (2009) compare the welfare aggregate from the LiTS survey to the welfare aggregates constructed from more detailed Household Budget Surveys (HBS) and the Living Standards Measurement Study (LSMS) surveys used by the World Bank to compute official poverty estimates for the Europe and Central Asia (ECA) region. They conclude that the ‘LiTS consumption aggregate provides a credible welfare metric with which to paint the profile of variation in living conditions across ECA’ (Zaidi et al 2009: 39).

The survey also records the respondent’s opinion on the minimum amount of money required to make ends meet at the end of the month “living in this dwelling and doing what you do.” This measure of welfare, expressed in USD, is similarly converted to per-capita equivalents.

The measure of relative deprivation is constructed by computing the aggregate gap between the expenditures of a given individual and the expenditures of all others in the individual’s reference group, whose expenditures are higher than those of the individual in question. This aggregate expenditure gap is then normalised by the size of the reference group, which is chosen to be the individual’s Census Enumeration

Area. In the data, 98 percent of the observations are in clusters (reference groups) of 20 observations, the size of the reference group ranging from 14 to 25 observations. In terms of population represented by these reference groups, a CEA represents a few thousand individuals. Gini indices of local inequality are similarly computed at the CEA level.

Tab. 2.2: CEA level Gini index of inequality by country

Country	Mean	SD
Albania	0.287	0.061
Armenia	0.350	0.080
Azerbaijan	0.339	0.071
Belarus	0.295	0.074
Bosnia and Herzegovina	0.301	0.082
Bulgaria	0.291	0.074
Croatia	0.305	0.067
Czech Republic	0.246	0.060
Estonia	0.299	0.061
Macedonia, FYR	0.296	0.092
Georgia	0.348	0.066
Hungary	0.277	0.054
Kazakhstan	0.276	0.061
Kyrgyzstan	0.308	0.085
Latvia	0.335	0.074
Lithuania	0.313	0.068
Moldova	0.339	0.081
Montenegro	0.286	0.071
Poland	0.281	0.057
Romania	0.326	0.077
Russia	0.293	0.060
Serbia	0.314	0.069
Slovakia	0.268	0.068
Slovenia	0.267	0.056
Tajikistan	0.260	0.080
Ukraine	0.351	0.096
Uzbekistan	0.300	0.066

Notes: Estimates are averages of CEA level statistics within each country.

As a proxy for utility this analysis relies on the responses to an open-ended life satisfaction question “All things considered, I am satisfied with my life now.” Possible answers include “strongly disagree”, “disagree”, “neither disagree nor agree”,

“agree”, “strongly agree.”<sup>9</sup> In the overall sample 44 percent of respondents either agreed or strongly agreed with the above statement.

In addition, this study employs a number of other attitudinal questions from the survey, such as questions about the respondent’s opinion on factors that important for success in life, or on reasons why there is need in society today, or on state’s involvement in reducing the gap between the rich and the poor. Finally, the survey records a number of standard socio-demographic characteristics that are normally found to be important determinants of subjective well-being. Summary statistics the main variables are presented in Table 2.1. Estimates of the Gini indices of inequality at CEA level for all countries in the sample are presented in Table 2.2.

## 2.4 Empirical analysis of inequality aversion and well-being

The discussion in section 2.2.2. is operationalised by means of the following empirical specification:

$$h_{ijc}^* = \gamma y_{ijc} + \lambda D(y_{ijc}) + \beta y_{ijc}^{rel} + X'_{ijc} \delta + \varepsilon_{ijc}$$

where  $h_{ijc}^*$  is latent satisfaction,  $y_{ijc}$  is the per capita consumption of household  $i$  from Census Enumeration Area  $j$  in country  $c$ ,  $D(y_{ijc})$  is Yitzhaki’s measure of relative deprivation,  $y_{ijc}^{rel} = y_{ijc} - \mu_{jc}$ , and  $\mu_{jc}$  is the mean income of the reference group. This is the empirical counterpart of  $U(y_i) = y_i + \beta(y_i - \mu) + (\alpha + \beta)D(y_i)$  in Section 2.2.2, estimated conditional on a set of individual, household, and geographic covariates. The correspondence between the parameters  $\alpha$  and  $\beta$  of the theoretical model in section 2.2.2. and the coefficients of the empirical specification is as follows:

$\lambda = \alpha + \beta$ , where  $\beta$  captures, as before, aversion to advantageous inequality, and  $\alpha$

<sup>9</sup> Overall, 2 percent of the sample replied “don’t know” or “not applicable” and are excluded from the analysis.

captures aversion to disadvantageous inequality. The joint test of inequality aversion is the test of the null hypothesis  $\lambda = 0$ , and  $\lambda < 0$  (equivalent to  $\alpha + \beta < 0$ ) indicates inequality averse preferences based on this joint test. Moreover,  $\beta < 0$  indicates aversion to advantageous inequality, and  $\lambda - \beta < 0$  (equivalent to  $\alpha < 0$ ), indicates aversion to disadvantageous inequality.

To account for a number of confounding factors, the FS model is estimated conditional on a set  $X$  of variables (including a constant) that have been previously found to explain variation in life satisfaction. These include a second degree polynomial in age (to account for the well-known U-shaped relationship between age and life satisfaction), sex and education of the respondent, whether the respondent is the head of the household, household size, area of residence (rural vs urban), respondent's employment status and religious affiliation. A dummy for whether there were two respondents in the household is also included to account for imperfect knowledge of household expenditures by respondents who are not heads of household.<sup>10</sup> To account for differences in subjective well-being across countries, a set of country dummies is also included in the regressions, such that estimates are based on within-country variation.<sup>11</sup>

Regressions also include dummies indicating the nature of respondent's (self-reported) mobility during the 1989-2006 period, whether downward, upward or sta-

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<sup>10</sup> Note that in cases when there is only one respondent, the head of household and most knowledgeable adult are different household members in 15 percent of cases, which is why dummies for both household head and two respondents are included.

<sup>11</sup> Pischke (2010) investigates whether the correlation between income and life satisfaction in a cross-sectional setting can be viewed as causal, with causality running from income to satisfaction. Based on data from the US General Social Survey (GSS), the European Social Survey (ESS) and the German Socio Economic Panel (GSOEP), and relying on industry wage differentials as instruments for family income, he runs a number of tests, including comparisons of results based on life satisfaction with those based on job satisfaction, looking at the life satisfaction of the wives, using husbands industry as the instrument, as well as using individual fixed effects. His results are consistent with the conclusion that the cross-sectional relationship between income and life satisfaction is mostly causal, rather than being the outcome of unobservables or reverse causality.

ble (baseline). These mobility dummies are based on the answers to a ladder question that asks the respondent to place herself today (in 2006), and similarly in 1989, on a “ten-step ladder where on the bottom, the first step, stand the poorest people and on the highest step, the tenth, stand the richest.” The inclusion of these dummies allows also for an inter-temporal reference point, which has been found to be important in the literature on adaptation (Frederick and Loewenstein, 1999; Frey and Stutzer, 2001; Di Tella et al., 2003; Di Tella et al., 2010). Senik (2009), for instance, finds comparisons with own economic situation prior to 1989 to still be an important determinant of subjective well-being 15 years into the transition process in Eastern Europe. Since movements from the 1st step to the 2nd, and from the 5th step to the 6th, for instance, can be perceived as qualitatively different, and because those at the bottom (top) in 2006 are more likely to have experienced downward (upward) mobility in the past, the specification also controls for the respondent’s placement on the current (2006) economic ladder.

It should be noted, however, that the test of loss-aversion based on this inter-temporal reference point should be viewed as merely suggestive, since life satisfaction and the placement on the economic ladder can be jointly determined and it is difficult to rule out endogeneity completely in a cross-sectional setting with the data at hand. The influence of unobservable traits that may influence both the response to the life satisfaction question and to the economic ladder question is mitigated partly by the fact that the test of loss aversion is based on the difference between the 2006 ladder and the 1989 ladder and to the extent that the unobservable traits affect responses to both ladder questions in a similar way, the bias will be at least partly mitigated.

An alternative test is also provided in Section 2.4.3, where the dependent variable is preference for redistribution instead of satisfaction with life.

Given the ordinal nature of observed life satisfaction, it is assumed that  $h_i = k$  if  $\tau_{k-1} \leq h_i^* < \tau_k$ , where  $\tau_k$  are unknown cut points with  $\tau_0 = -\infty$  and  $\tau_5 = \infty$ . It is further assumed that  $Pr[h_i = k] = Pr[\tau_{k-1} \leq h_i^* < \tau_k] = F(\tau_k - \tilde{X}'_i \zeta) - F(\tau_{k-1} - \tilde{X}'_i \zeta)$ , where  $\varepsilon_{ijk}$  is assumed logistic distributed with cumulative distribution  $F(z) = e^z / (1 + e^z)$ .<sup>12</sup> Finally, errors are allowed to be correlated within primary sampling units.

The above model is the baseline FS specification for the empirical test of inequality aversion. Estimates from this model (Table 2.3), reveal that both for the full sample and for regional subsamples other than South-Eastern Europe<sup>13</sup> respondents are averse to inequality ( $\lambda < 0$ ), controlling for a number of characteristics commonly found to be important determinants of life satisfaction.<sup>14</sup> Moreover, estimates suggest aversion to both disadvantageous inequality and to advantageous inequality, as suggested by the Fehr and Schmidt (1999) model.<sup>15</sup> In practical terms, the estimates of the baseline model imply that a rank-preserving progressive transfer resulting in a 1 unit (USD 1,000/year/per person) increase in relative deprivation, holding own income and mean group income constant, would be associated with a

<sup>12</sup> Here  $\tilde{X}$  designates the full vector of covariates.

<sup>13</sup> The group of EU members comprises Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia; the group of non-EU South-Eastern European countries includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia, Montenegro, Romania and Serbia; the group of CIS countries is comprised of 11 countries, including all former Soviet Republics with the exception of the Baltic States (included in EU) and Turkmenistan, for which data were not available.

<sup>14</sup> In the case of South-Eastern Europe the results are similar, albeit less precisely estimated. Moreover, if Bulgaria and Romania, who were about to join the European Union when the LiTS survey was fielded, are grouped instead with the other EU member states, then  $\lambda < 0$  in the South-East European sub-sample as well.

<sup>15</sup> There is a large literature that looks at relative status effects by estimating equations like  $h_i = \rho y_i + \psi(y_i - \mu) + X'_i \zeta + v_i$ . It is commonly found that  $\psi > 0$  (for a review, see Clark et al., 2008), although Senik (2004) finds that  $\psi < 0$  based on data from Russia. The parameter  $\psi$  in such models should not be compared to the structural parameter  $\beta$  in the FS specification as they identify different things. Indeed, if Yitzhaki's RD is removed from the baseline model reported in table 2.3, the coefficient on the relative income variable becomes positive, albeit not statistically significant.

Tab. 2.3: Baseline FS model of inequality aversion, by region

	(1)	(2)	(3)	(4)
Own expenditures ( $\gamma$ )	0.017*** (0.004)	0.016** (0.005)	0.016* (0.008)	0.023* (0.010)
Relative expenditures ( $\beta$ )	-0.016** (0.005)	-0.018** (0.006)	-0.008 (0.010)	-0.025* (0.012)
Yitzhaki's RD ( $\lambda$ )	-0.030*** (0.006)	-0.030*** (0.007)	-0.022 (0.012)	-0.046*** (0.015)
Age	0.000 (0.000)	0.001*** (0.000)	0.000 (0.000)	-0.001** (0.000)
Male	0.008* (0.003)	0.002 (0.006)	0.008 (0.006)	0.012* (0.006)
Education level: secondary	ref.	ref.	ref.	ref.
Compulsory	-0.015** (0.005)	-0.014 (0.009)	-0.029** (0.010)	0.003 (0.008)
Vocational	-0.004 (0.005)	0.002 (0.008)	-0.017 (0.010)	-0.002 (0.007)
University	0.026*** (0.005)	0.039*** (0.008)	0.015 (0.010)	0.020** (0.007)
HH size	0.006*** (0.001)	0.010*** (0.003)	0.010*** (0.003)	0.004* (0.002)
Employed	0.019*** (0.004)	0.014 (0.007)	0.018* (0.008)	0.021** (0.007)
Head of HH	-0.008 (0.005)	-0.013 (0.008)	-0.002 (0.010)	-0.006 (0.009)
Two respondents	0.008 (0.005)	0.005 (0.008)	0.014 (0.010)	0.010 (0.009)
Current welfare ladder	0.043*** (0.002)	0.039*** (0.003)	0.046*** (0.003)	0.042*** (0.003)
Mobility during 1986-2006: stable	ref.	ref.	ref.	ref.
Downward mobility 1989-2006	-0.071*** (0.006)	-0.077*** (0.009)	-0.074*** (0.010)	-0.062*** (0.010)
Upward mobility 1989-2006	0.019** (0.006)	0.018* (0.007)	0.009 (0.015)	0.026* (0.011)
Religion: atheist/agnostic	ref.	ref.	ref.	ref.
Christian	0.002 (0.007)	-0.017* (0.008)	0.006 (0.017)	0.038** (0.015)
Muslim	0.004 (0.012)	-0.054 (0.044)	0.002 (0.020)	0.051** (0.019)
Other	-0.031* (0.014)	-0.045** (0.016)	0.045 (0.038)	-0.038 (0.033)
Urban	-0.003 (0.006)	-0.014 (0.008)	-0.003 (0.012)	0.007 (0.010)
Pseudo R-squared	0.109	0.098	0.091	0.116
Obs	23783	7117	7306	9360
$\alpha$	-0.014	-0.012	-0.014	-0.021
Prob>chi2	0.000	0.013	0.106	0.014

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable: life satisfaction. Column (1) - full sample; (2) - EU; (3) - SEB; (4) - CIS. Country dummies included but not reported. Baseline categories: education - secondary; mobility - none; religion - atheist/agnostic The structural parameter  $\alpha$  is calculated based on regression estimates. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

3 percentage points lower probability of reporting above average life satisfaction. A one standard deviation increase in relative deprivation (USD 620) would be associated with a 1.9 percentage points lower probability of reporting above neutral life satisfaction. For the CIS subsample a one standard deviation increase in relative deprivation would be associated with a 2.9 percentage points lower probability of reporting above neutral life satisfaction.

The other variables in the model have expected signs. Age and life satisfaction exhibit a U-shaped relationship with a minimum at around the age of 48, which is consistent with other studies in the happiness economics literature (Graham 2010).<sup>16</sup> Men report higher satisfaction levels in the overall sample and in the CIS sub-sample, which is again consistent with other findings from Transition Economies, although in Western Europe the opposite tends to be the case (Graham 2010). Satisfaction with life increases with the education level of the respondent, and is also higher for those who are employed and for those from larger households.

The estimates also suggest an important inter-temporal reference point - downward mobility during the 1989-2006 period is associated with lower satisfaction with life, holding current position on the income ladder constant. The coefficient on the upward mobility variable is positive, but smaller in magnitude, and the difference is statistically significant in all four cases. Even though 15 years elapsed between the collapse of the Soviet Union and the LiTS survey, the pre-transition standard of living still looms large in people's memories (see also Senik 2009). These results are consistent with loss aversion (Kahneman and Tversky, 1979) and with adaptation

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<sup>16</sup> Note that while both age and age squared are included in the regression, the average marginal effect for age is reported, which account for the fact that age enters as a second degree polynomial. The small average marginal effect is consistent with the U-shaped relationship between age and life satisfaction.



being more complete in the domain of gains from the reference point relative to the domain of losses (Arkes et al, 2006).

A modified version of the above model is estimated next, where  $D(y_{ijc})$  is substituted with  $G_{jc}$ , the Gini coefficient of inequality defined at the reference group level. This specification aims to test whether inequality aversion can also be captured by looking at the relationship between an aggregate index of inequality and individual life satisfaction, conditional on the same set of control variables. There are two main reasons for choosing the Gini index in favour of some other aggregate index of inequality as, for instance, Theil. First, the Gini index is most commonly used index to measure inequality, and it is also the index that is generally employed in the studies that estimate a relationship between the individual satisfaction and the level of inequality. More importantly, Gini is the theoretically relevant index of inequality, implied by the FS model. To see this, note that given no within group variation in the Gini index, a regression of individual satisfaction on the Gini index essentially looks at the relationship between mean group satisfaction and the group's index of inequality. Aggregating the FS utility specification to group level gives group satisfaction as a function of mean group income and the group's Gini index of inequality (see section 2.4.2).

The results are reported in Table 2.4.<sup>17</sup> The Gini coefficient has no association with life satisfaction at conventional significance levels, which is in line with the earlier results by Senik (2004) and Graham and Felton (2006) who similarly find no relationship between inequality and well-being. As the discussion in section 2.2.2.

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<sup>17</sup> In this and all of the tables that follow the conditioning vector remains the same as in Table 3, but the estimates are omitted to conserve space.

Tab. 2.4: Model with the Gini measure of inequality, by region

	(1)	(2)	(3)	(4)
Own expenditures	0.006 (0.003)	0.006 (0.004)	0.009 (0.007)	0.004 (0.007)
Relative expenditures	0.003 (0.003)	-0.000 (0.004)	0.005 (0.007)	0.004 (0.007)
Gini	-0.003 (0.037)	-0.072 (0.066)	0.014 (0.063)	0.019 (0.061)
Pseudo R-squared	0.109	0.098	0.091	0.115
Obs	23783	7117	7306	9360

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable: life satisfaction. Column (1) - full sample; (2) - EU; (3) - SEB; (4) - CIS. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

suggested, the difference between the results in Tables 2.3 and 2.4, namely the fact that inequality aversion is captured by the FS specification, but not reflected in the relationship between individual life satisfaction and the Gini index of inequality, can be due to the fact that the latter, unlike the FS specification, is not adept at capturing inequality aversion driven by relative status or mobility concerns.

One of the immediate concerns with the results in Table 2.3 is that we may not be accounting for all unobserved heterogeneity across reference groups, which may bias the estimates. Accounting for all unobserved heterogeneity across reference groups by means of reference group fixed effects is not possible with the FS specification for reasons of exact multicollinearity between the reference group fixed effect and the mean of the reference group income. However, sources of possible bias are not clear. Yitzhaki's measure of relative deprivation could be higher either because of higher mean expenditures, or due to higher inequality within the group. The effect of differences in mean expenditures across reference groups within countries is captured by the relative expenditures variable, such that the relative deprivation measure is capturing the degree of expenditure inequality, which is the

Tab. 2.5: Specification with reference group fixed effects

	(1)	(2)	(3)	(4)
Expenditures ( $\gamma + \beta$ )	0.001 (0.005)	-0.013 (0.007)	0.020* (0.008)	-0.002 (0.007)
RD ( $\lambda$ )	-0.057*** (0.013)	-0.069*** (0.018)	-0.049 (0.025)	-0.058* (0.028)
Pseudo R-squared	0.122	0.126	0.127	0.121
Obs	22815	7023	6962	8830

Notes: Conditional fixed effects logistic regressions. Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable equals 1 if respondent *agrees* or *strongly agrees* with *All things considered, I am satisfied with my life now*, and zero if the respondent *strongly disagrees*, *disagrees* or *neither disagrees nor agrees*. Column (1) - full sample; (2) - EU; (3) - SEB; (4) - CIS. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

primary interest of this analysis. The estimates could be biased however if, for instance, a particular characteristic were more (less) common within groups with higher inequality, and also negatively (positively) associated with subjective well-being in ways that are not captured by mean expenditure differences across groups or other control variables.

To account for all unobserved heterogeneity across reference groups a conditional fixed effects logit model is estimated (Table 2.5) in which matching is done within reference groups.<sup>18</sup> This is similar to the analysis of Eibner and Evans (2005), although they rely on a linear specification. In this specification  $\lambda$  is identified out of within reference group variation, accounting for all heterogeneity in unobserved reference group characteristics. The test for inequality aversion is the joint test of the null hypothesis  $\lambda = 0$ . The estimates in Table 2.5 confirm the presence of inequality aversion in individual preferences, both in the overall sample and in the EU and CIS regional sub-samples. In this specification a one standard deviation increase in relative deprivation is associated with a 3.6 percentage points lower probability of

<sup>18</sup> Since this model is binary, the dependent variable is transformed into a dummy ( $h^b$ ) that evaluates to 1 if the respondent either agrees or strongly agrees with the life satisfaction statement, and zero otherwise. The matching here is  $m_j : n_j$ , i.e. generally in group  $j$  (strictly, at least in 1 group) there are  $m_j > 1$  observations where  $h^b = 1$  and  $n_j$  observations for which  $h^b = 0$ . Note also that the coefficient on the own expenditures variable in Table 2.5 is the counterpart of the  $(\gamma + \beta)$  in Table 2.4 and not of  $\gamma$  alone.

Tab. 2.6: Further robustness checks

	(1)	(2)
Minimum income ( $\gamma$ )	-0.001 (0.003)	
Relative min income ( $\beta$ )	0.002 (0.003)	
RD (minimum income) ( $\lambda$ )	-0.001 (0.004)	
Own expenditures ( $\gamma$ )		0.968*** (0.126)
Relative expenditures ( $\beta$ )		-0.300* (0.152)
Yitzhaki's RD ( $\lambda$ )		-0.136 (0.148)
R-squared		0.556
Pseudo R-squared	0.108	
Obs	23730	24199
$\alpha$	-0.003	0.164
Prob>F	0.214	0.005

Notes: Average marginal effects in (1) OLS estimates in (2). Robust standard errors, clustered at reference group level in parentheses. Dependent variable in column (1): life satisfaction. Dependent variable in (2) is the reported minimum amount of money per capita needed to make ends meet. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

reporting above neutral life satisfaction in the overall sample, and an 5.3 percentage points lower probability in the EU subsample.

As a further robustness check, in column (1) of Table 2.6 the same regression as above is run with relative deprivation defined in terms of minimum income instead of actual household expenditures. Minimum income is reported in response to the question ‘Living in the dwelling and doing what you do, what would be the minimum amount of money that this household would need to make ends meet at the end of each month.’<sup>19</sup> The estimates suggest that inequality in perceived necessary minimum income does not have an effect on utility. Upon reflection, this is not surprising. The income that is perceived as being the necessary minimum is likely to already reflect the relative status concerns that may be present. Indeed, as the estimates in column (2) suggest,  $\alpha < 0$  and  $\beta > 0$  such that disadvantageous

<sup>19</sup> Minimum income is converted to per capita units.

(advantageous) inequality in expenditures has a positive (negative) effect on the amount of money deemed to be the necessary minimum.

#### 2.4.1 What is driving inequality aversion?

What could be the source of inequality aversion? One possibility is that individuals are intrinsically averse to inequality in outcomes, such that inequality is utility-decreasing even when it can be considered as just from the social justice perspective. Another possibility is that inequality aversion is the outcome of perceptions of unfairness with regard to the processes that determine the distribution of fortunes. With regard to the results of laboratory experiments, the World Development Report 2006 notes that “it is possible to speculate that the aversion to very unequal payoff distributions in the Ultimatum Game arises from the arbitrary and unequal nature of the endowments (or power) implicit in the initial allocation of the roles of Proposer and Responder” (World Bank 2005: 81). Graham and Felton (2006) argue that inequality exhibits a negative impact on happiness in Latin America because it signals persistent unfairness. Alesina, DiTella and MacCulloch (2004) similarly argue that the strong inequality aversion in Europe is due to a lower degree of mobility in the society, whereas Americans believe that poverty can be escaped through hard work. Runciman (1972:22) notes that relative deprivation is brought about by the upsetting of expectations, such as for instance, when stable expectations are disappointed. The transition period certainly can be described as the time when stable expectations of many individuals had been disappointed.

An empirical test of this hypothesis is possible with the LiTS data. Respondents were asked the following question: “In your opinion, what is the main reason

Tab. 2.7: Injustice vs laziness

	(1)	(2)
Own expenditures ( $\gamma$ )	0.016** (0.005)	0.020** (0.007)
Relative expenditures ( $\beta$ )	-0.015* (0.007)	-0.021** (0.008)
Yitzhaki's RD ( $\lambda$ )	-0.017 (0.010)	-0.039*** (0.010)
Pseudo R-squared	0.094	0.094
Obs	5195	10788
$\alpha$	-0.002	-0.018
Prob>chi2	0.734	0.002

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable: life satisfaction. Column (1) - sample restricted to respondents who believe that need is the result of *laziness and lack of willpower*; (2) - sample consists of respondents who believe need in society to be the result of *injustice*. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

why there are some people in need in our country today?”, the possible answers being “because they have been unlucky”, “because of laziness and lack of willpower”, “because of injustice in our society”, “it is an inevitable part of modern life” and “other”. Given the widespread complaints of corruption and the illegally acquired wealth during the early transition years, as well as the collapse of the social safety nets, it is perhaps not surprising that more than 40 percent of respondents in the sample reported injustice to be the main source of need in society. At the same time, more than 20 percent of the sample say that need is the result of laziness. The baseline FS specification is re-estimated for these two groups of respondents.

If inequality aversion is indeed brought about by perceptions of unfairness, then it would be expected to be stronger among those who believe that people are stuck in bad outcomes because of injustice. At the same time, the skyrocketing inequality should have less of an effect on those who believe that need is due to laziness, since, as in the American case, their deprivation need not be unfair. The estimates are reported in Table 2.7. Indeed, inequality aversion is heightened by the

Tab. 2.8: Hard work vs political and criminal connections

	(1)	(2)	(3)	(4)
Own expenditures ( $\gamma$ )	0.019** (0.007)	0.018** (0.007)	0.021*** (0.006)	0.005 (0.006)
Relative expenditures ( $\beta$ )	-0.014 (0.009)	-0.020* (0.008)	-0.023** (0.007)	0.003 (0.008)
Yitzhaki's RD ( $\lambda$ )	-0.025* (0.011)	-0.043*** (0.010)	-0.036*** (0.009)	-0.005 (0.011)
Pseudo R-squared	0.111	0.103	0.109	0.111
Obs	9070	7288	12845	4839
$\alpha$	-0.011	-0.023	-0.014	-0.008
Prob>chi2	0.091	0.001	0.016	0.175

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable: life satisfaction. Column (1) - Sample restricted to respondents who believe that *effort and hard work are the most important factor to succeed in life now*; (2) - respondents who believe *political or criminal ties to be the most important factor to succeed in life now*; (3) - respondents who state that *effort and hard work were the most important factor to succeed in 1989*; (4) - respondents who believe *political, criminal ties* to have been the main determinant of success in 1989. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

perception of unfairness. Respondents who believe that need is caused by laziness do not exhibit inequality averse preferences, unlike respondents who believe that need is caused by injustice.

Respondents were additionally asked about the factors that are important to succeed in life today, and also about factors important for success prior to 1989. Here the focus is on those who reported the main factor for success to be ‘effort and hard work’ on the one hand, and ‘political connections / criminal and corrupt ties’ on the other hand. Estimates reported in Table 2.8 suggest aversion to inequality among those who believe success today to be determined by political connections or criminal ties to be more prominent than among those who believe that hard work is the main determinant of success.

When similar regressions are run for attitudes toward success prior to 1989, the results are reversed. Inequality averse preferences are observed among those who believe that prior to 1989 hard work was the main factor of success, but not

among respondents who believed that before the transition period started political connections were important. In other words, it seems that those who believed in the importance of hard work in the past associate the inequality in the distribution today as not being the result of hard work, but rather of corruption, which is why it has a negative effect on utility. Those who think that political / criminal connections were important even before 1989 were perhaps less disturbed by the rampant corruption during the transition years. Why should there be a difference between the results in columns (2) and (4) if inequality is corruption-driven? Recall Runciman's argument that relative deprivation is heightened when expectations are being disappointed. It is likely that for the subgroup in column (4) the expectations were not disappointed, if they already saw connections as the main key to success even before 1989.

It should be noted that it is possible for perceptions of the main drivers of success or need in society to be systematically linked, through some unobservables, with life satisfaction. With the existing data it is difficult to eliminate this possibility, such that the estimates in Tables 2.7 and 2.8 should be viewed as suggestive. In section 2.4.3 I re-estimate the model with the preference for inequality as the dependent variable instead of life satisfaction. The results are consistent with those in tables 2.7 and 2.8. While this alone does not resolve the possible endogeneity, it is somewhat reassuring that the estimates are robust to alternative specifications of the dependent variable.

In addition to institutional factors, it may also be the case that aversion to inequality is driven by the personal fortunes throughout the turbulent transition years. As suggested by estimates in Table 2.3, lower status on the socio-economic



Tab. 2.9: Winners and losers of the transition process

	(1)	(2)
Own expenditures ( $\gamma$ )	0.025*** (0.006)	0.005 (0.005)
Relative expenditures ( $\beta$ )	-0.025*** (0.007)	-0.004 (0.006)
Yitzhaki's RD ( $\lambda$ )	-0.039*** (0.009)	-0.017* (0.007)
Pseudo R-squared	0.088	0.063
Obs	14147	4786
$\alpha$	-0.014	-0.014
Prob>chi2	0.014	0.002

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable: life satisfaction. Column (1) - downwardly mobile sample; (2) - upwardly mobile sample. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

ladder today relative to 1989 is negatively associated with reported life satisfaction. One could hypothesize, as do Graham and Felton (2006), that attitudes toward inequality will be coloured by one's own mobility trajectory during the transition period. Aversion to inequality may be higher, in particular, among those who moved down the socio-economic ladder during the 1989-2006 period, according to their own perceptions, and, correspondingly, lower among the upwardly mobile group. Estimates in Table 2.9 do not necessarily bear out this hypothesis, however. The FS specification is re-estimated separately among those who reported being on a lower ladder step in 2006 than in 1989 (column 1), and those who either stayed in place or moved up the socio-economic ladder (column 2). In particular in both cases  $\alpha < 0$ , and  $\lambda < 0$ .

Future mobility prospects can also influence one's preferences for the degree of inequality in society. Benabou and Ok (2001) propose a model in which it can be rational for poor individuals today to oppose redistribution because they expect to move up the economic ladder in the future (known as the *prospect of upward mobility hypothesis*). This hypothesis is explored in detail in Chapter 3 of this dissertation,

Tab. 2.10: Inequality aversion among young and old respondents

	(1)	(2)	(3)
Own expenditures ( $\gamma$ )	0.010 (0.006)	0.013* (0.006)	0.024*** (0.006)
Relative expenditures ( $\beta$ )	-0.006 (0.007)	-0.014 (0.007)	-0.023** (0.008)
Yitzhaki's RD ( $\lambda$ )	-0.016 (0.008)	-0.030** (0.010)	-0.038*** (0.010)
Pseudo R-squared	0.096	0.110	0.099
Obs	9022	8324	8656
$\alpha$	-0.010	-0.016	-0.014
Prob>chi2	0.077	0.010	0.016

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable: life satisfaction. Column (1) - bottom age tertile (respondents aged 37 or younger); (2) - middle age tertile (38-56); (3) top tertile (57+ age group). Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

as respondents' mobility aspirations are not available in the data LiTS 2006 data used in this analysis.

It is still possible to hypothesise that younger cohorts may be more optimistic about future economic mobility, and hence less averse to inequality, because it may be easier for them to develop or adapt their skill set to match the changing requirements of the labour market. To test this empirically I split the sample into three groups based on age tertiles, which corresponds to the following groups: respondents aged 37 or under, respondents in the 38-55 age group, and respondents aged 56 or higher) and re-estimate the FS model for each of these age groups. This split is arbitrary, but it ensures that the first group was 21 or younger in 1989, such that they completed their tertiary education and entered the labour market after the start of transition. The results are consistent with the above reasoning - inequality averse preferences are largely absent in the under 35 age group, whereas in the other two groups the joint test of no inequality aversion rejects the null of  $\lambda = 0$ . These results are also consistent with the findings of Bellemare et al. (2008).

## 2.4.2 Implications for social welfare

Consider an additive social welfare function of the form  $W(y) = \int_0^{y^*} u(z)dF(z)$ .

Aggregating to the level of reference groups, we obtain:

$$W_j(y) = \mu_j(1 - \theta G_j)$$

where  $\mu_j$  denotes mean expenditures in cluster  $j$ ,  $G_j$  is the group's Gini index of inequality, and  $\theta = -(\alpha + \beta)$ . Note that in the case of inequality averse preferences  $\theta > 0$ , as confirmed by the estimates in section 2.4.1, such that higher within-group inequality lowers social welfare. Note also that  $W(y)$  resembles Atkinson's formulation  $W = \mu(1 - I)$ , where  $\mu$  is mean group income and  $I$  is the group's measure of inequality. However, it is important to note that Atkinson's social welfare function is normative in character and has inequality aversion built into it, such that it allows for reductions in mean income for purposes of greater equality. The social welfare function adopted here, on the other hand, is utilitarian in nature, and is not *per se* concerned with inequality. The fact that the social welfare function allows for tradeoffs between the size of the pie and the degree of inequality in its distribution stems from inequality aversion in individual preferences. It is clear from this formulation that a redistribution of income via a rank-preserving Pigou-Dalton transfer that decreases inequality will lead to an increase in social welfare, whereas a regressive transfer that increases inequality would reduce social welfare.

This result is confirmed in Table 2.11, which presents estimates of CEA-level OLS regressions of mean CEA life satisfaction on mean CEA expenditures, CEA Gini index of inequality, as well as mean values of control variables collapsed to the

Tab. 2.11: Inequality and well-being across groups

	(1)	(2)	(3)	(4)
Mean group expenditures	0.108*** (0.013)	0.113*** (0.017)	0.072*** (0.019)	0.033 (0.017)
Group Gini	-1.362*** (0.206)	-0.594** (0.182)	-0.409* (0.186)	-0.252 (0.160)
Country dummies	no	yes	yes	yes
Socio-demographic controls	no	no	yes	yes
Mobility controls	no	no	no	yes
R-squared	0.078	0.457	0.476	0.567
Obs	1350	1350	1350	1349

Notes: OLS estimates. Robust standard errors in parentheses. Dependent variable is mean reference group life satisfaction. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

level of CEAs. Group level life satisfaction is positively associated with the average group expenditures and negatively associated with the group Gini (column 1). The negative association between average life satisfaction and inequality is maintained if country dummies are added to the specification, such that the estimates draw only on within-country variation (column 2), and when mean values of other covariates other than the mobility and current economic rank are accounted for (column 3). The relationship between inequality and life satisfaction becomes insignificant when we control for the 1989-2006 mobility experience (column 4). This latter result is not surprising once it is noted that movements up and down the socio-economic ladder since 1989 (and in particular wage losses as the result of the post-1989 economic contraction) are likely among the key determinants of the level of inequality today.

### 2.4.3 Inequality aversion and support for redistribution

Since inequality aversion is inherent in individual preferences, and since these preferences imply that redistributive policies have a positive effect on social welfare, it should be the case that inequality averse individuals should favour redistributive policies. Indeed, Alesina et al. (2004) argue that Europeans, whom they find to be

averse to inequality, should favour redistributive policies since they believe that the poor are stuck in poverty and are thus worthy of help. It is possible to test for this using LiTS data, since respondents are asked whether the state should be involved in reducing the gap between the rich and the poor, possible answers being “[the state should be] not involved”, “moderately involved” and “strongly involved”. From these answers a binary variable is created which evaluates to 1 if the response was “strongly involved”, and zero otherwise. The regressions with this measure as the dependent variable are run for the same subgroups as in Tables 2.7 and 2.8 (columns 1 and 2). We would expect inequality aversion, which was found not to be intrinsic but rather linked to a sense of fairness, to be associated with a favourable attitude toward the redistribution of income. Likewise, if need is perceived as an outcome of laziness, or success is perceived to be the product of hard work, inequality need not lead to concerns for the needy and calls for a stronger involvement of the state in redistributing income.

The estimates in Table 2.12 confirm this intuition. Higher inequality among those who view need in society today as the product of injustice or success in society as the product of political or criminal connections has a positive and statistically significant effect on the desire for strong state involvement in bridging the gap between the rich and the poor ( $\lambda > 0$ ). Among those who report need as the product of laziness, and success - the product of hard work, however, inequality has no discernible effect on preferences for redistribution.

Tab. 2.12: Institutions and attitudes toward redistribution

	(1)	(2)	(3)	(4)
Own expenditures ( $\gamma$ )	-0.018 (0.017)	-0.024* (0.010)	0.013 (0.015)	-0.041*** (0.012)
Relative expenditures ( $\beta$ )	0.010 (0.020)	0.033* (0.014)	-0.019 (0.018)	0.043** (0.015)
Yitzhaki's RD ( $\lambda$ )	-0.002 (0.025)	0.034* (0.016)	-0.002 (0.022)	0.038* (0.018)
Pseudo R-squared	0.061	0.066	0.070	0.080
Obs	5303	10969	9272	7405
$\alpha$	-0.012	0.001	0.017	-0.005
Prob>chi2	0.504	0.936	0.245	0.616

Notes: Average marginal effects. Robust standard errors, clustered at reference group level in parentheses. Dependent variable equals 1 if respondent states *strongly involved* in response to the question *Do you think the state should be involved in reducing the gap between the rich and the poor?* Column (1) - respondents who believe that need is the result of *laziness and lack of willpower*; (2) - respondents who believe need in society to be the result of *injustice*; (3) - respondents who believe that success is the result of *hard work*; (4) - respondents who believe that success is due to *political / criminal connections*. Significance: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

## 2.5 Concluding remarks

Since 1989 the countries of Eastern Europe have undergone major transformations along a number of political, economic and social dimensions. One notable outcome of the transition period has been a considerable increase in economic inequality in the region. With the help of recent survey data for 27 transition economies, the aim of this paper has been to investigate the degree of tolerance for inequality in this region. This is a first account of the relationship between inequality and well-being in Eastern Europe using consistent survey data for a large number of transition economies. The paper also contributes to the related literature that looks at whether concerns with equity commonly noted in laboratory experiments can also be observed in the general population. Whether or not individuals are averse to inequality is likely to be mirrored in preferences over redistributive policies and individual well-being.

A test of inequality aversion borrowed from Fehr and Schmidt (1999) finds

considerable support for aversion to inequality in individual preferences, and this result holds across a number of specifications, and also across regional subsets of countries. The benefit of this model is that it can detect aversion to inequality that is driven by status and mobility considerations, a setting where aggregate inequality measures provide little help. Indeed, this study found that the Gini index was unable to capture this negative effect of inequality on well-being. The results in this chapter thus caution against the common practice of looking at the effect of economic inequality on well-being by means of the empirical relationship between individual well-being and aggregate inequality indices calculated over some geographic space.

Building on the work by Roemer (2000) and earlier philosophical studies (Sen 1980; Dworkin 1981; Arneson 1989; Cohen 1989), a number of recent papers distinguish between overall inequality and inequality of opportunity. (Bourguignon et al. 2003; Roemer et al. 2003; Ooghe et al. 2007; Checchi and Peragine 2009; Cogneau and Mesple-Somps 2008; Ferreira and Gignoux 2008; Ferreira et al. 2008, 2010; Lefranc et al. 2008, 2009). These studies stress that it is inequality of opportunity that is morally objectionable, as opposed to inequalities generated by differences in effort. While I do not formalise a concept of inequality of opportunity in this study, the evidence this paper presents is suggestive of inequality of opportunity driving attitudes toward overall economic inequality in transition economies. Aversion to inequality is found not to be intrinsic, but rather tied to a concern with fairness in the institutions underlying the distribution of fortunes in society. The relationship between redistributive preferences (and expectations of social mobility), and a Rawlsian concept of inequality of opportunity is also examined in Chapter 3 of this

dissertation.

Inequality averse preferences imply a negative relationship between inequality and social welfare, even when the underlying social welfare function is utilitarian in character and is not intrinsically concerned with inequality. This suggests that inequality aversion should be associated with demands for redistributive policies. Consistent with this intuition, the LiTS data confirm the association between inequality and demands for strong government involvement in bridging the gap between the rich and the poor, but only when inequality is perceived to be unfair.



### 3 Prospects of upward mobility, inequality of opportunity and preferences for redistribution

#### 3.1 Introduction

The extent to which the brunt of the austerity measures implemented in response to the recent financial crisis should fall on the wealthy is at the forefront of policy debates on both sides of the Atlantic. The arguments in favour of taxing the rich stem partly from the fact that they have benefited disproportionately from globalisation. Indeed, income inequality increased considerably in many European countries and in the United States over the past two decades, especially on account of rapidly rising incomes at the top of the income distribution (Piketty and Saez 2003; OECD 2008). The increase in income inequality has been especially rapid in Transition Economies since the early 1990s. It is thus not surprising that in these countries more than 70 percent of adults believed that the gap between the rich and the poor should be reduced, according the 2010 round of the Life in Transition Survey (LiTS II). Even among those who placed themselves in the top three rungs of a ten-step economic ladder more than 60 percent shared this view.

Yet, the link between high inequality and calls for redistribution is not automatic. European governments have traditionally been more redistributive than that of the United States despite lower levels of income inequality in Europe. Alesina, DiTella and MacCulloch (2004) found that higher income inequality has a negative effect on life satisfaction in Europe but not in the United States, and suggested that the difference is due to perceptions of higher social mobility in the United States. Notably, such perceptions of social mobility are not matched by reality - social mo-

bility in the United States is in fact lower than in European countries (OECD 2010) - but it is precisely *perceived* social mobility that matters for life satisfaction and preferences for redistribution at any given point in time.

Benabou and Ok (2001) propose a theoretical model in which the prospect of upward mobility (POUM) for individuals who are poorer than average, and in particular the expectation of being richer than average in the future, can under certain conditions lead them to oppose lasting redistribution. These conditions include requirements that voters have a reasonably low level of risk aversion, be reasonably farsighted, and that fiscal policy set today can be expected to persist into future periods.

This paper aims to empirically assess the POUM hypothesis based on comparable data for all Transition Economies and a number of Western European countries. It contributes to, and aims to improve upon, the existing empirical literature on social mobility and preferences for redistribution. To my knowledge this is the first study to investigate the relationship between social mobility and redistributive preferences for a large set of Eastern European countries. Ravallion and Lokshin (2000) provide some evidence based on Russian data from the mid-1990s.

The results from the overall sample of countries suggest that the prospects of upward mobility are indeed associated with a lower preference for redistribution, but only if the degree of risk aversion is low. The POUM hypothesis is then confirmed for the sub-sample of countries that are EU members, whereas it does not hold in the non-EU Transition Economies. The paper then looks in more detail at the determinants of perceived future social mobility. The main question is whether mobility

aspirations are affected by inequality of opportunity in key dimensions of life such as getting a university education or getting a job. The results suggest that inequality of opportunity does indeed dampen aspirations of future upward mobility, but only for the disadvantaged segments of the population - those who cannot overcome the obstacles of an uneven playing field through personal connections.

The rest of the paper is structured as follows: section 3.2 briefly describes the existing empirical studies that test the POUM hypothesis. Section 3.3 describes the proposed empirical model. Section 3.4 discusses the data used in the analysis. Main results are presented in section 3.5. Section 3.6 examines the link between social mobility and inequality of opportunity. Section 3.7 concludes.

## 3.2 Empirical strategy

### 3.2.1 Data requirements and existing studies

The aim of this paper is to test empirically whether individuals who are poorer than average in the present, but who expect to be richer than average in the future exhibit a reduced level of support for redistributive policies. This claim, known as the POUM hypothesis, rests on three premises: “The first is that policies chosen today will, to some extent, persist into future periods. Some degree of inertia or commitment power in the setting of fiscal policy seems quite reasonable. The second assumption is that agents are not too risk averse, for otherwise they must realize that redistribution provides valuable insurance against the fact that their income may go down as well as up. The third and key premise is that individuals or families who are currently *poorer than average*—for instance, the median voter—expect to become *richer than average*.” (Benabou and Ok, 2001: p.448, italics in original).

Only a few of the existing studies implement empirical tests of the POUM hypothesis. This is primarily due to the limitations of existing data. Checchi and Filippin (2003) suggest that it is difficult to implement a test of the POUM hypothesis based on observational data because one needs to have data for a number of components including (i) the degree of risk aversion; (ii) the current (income) position of the respondent; (iii) expectations of future (income) position; (iv) expectations vis-a-vis the persistence of distributive policy. Piketty (1995) points to the need also to account for factors like past mobility and beliefs about effort and luck as determinants of success. Alesina and Angeletos (2005) note that beliefs about the fairness of social competition and determinants of income inequality can play an important role. A number of recent empirical studies find that redistributive preferences are influenced by factors such as beliefs about hard work and luck, perceptions of fairness, past mobility, religion, political ideology or cultural norms (Corneo and Gruner 2001; Fong 2001; Alesina and La Ferrara 2005; Alesina and Guiliano 2009; Luttmer 2010). Checchi and Filippin overcome these difficulties by testing the POUM in an experimental setting in which they experimentally vary the concavity of the mobility process, the degree of social mobility, the knowledge of personal income and the degree of inequality, while controlling for the degree of risk aversion and inequality aversion. They find that preferred taxation level declines when transition matrices are characterised by POUM, that is when an individual below average income has an above average expected income for the next period.

Several studies that use observational data to explore the relationship between social mobility and redistributive preferences exist, although none benefit from data

that make it possible to meet all of the requirements pointed out by Checchi and Filippin (2003). Alesina and La Ferrara (2005), who find support for the POUM hypothesis based on US data, are able to account for the beliefs vis-a-vis the importance of effort and luck for success, but not for the degree of risk aversion of the respondents. Furthermore, expectations of future mobility are constructed from objective transition probabilities imputed into their data from the PSID survey. The reliance on objective mobility matrices to relate prospects of upward mobility to redistribution preferences is problematic, however, since high objective probability of upward mobility need not lead to aversion to redistribution if this probability is not perceived as such.<sup>1</sup> When there are such discrepancies between perceptions of mobility and objective reality, it is the former that will be crucial in shaping redistributive preferences (see also Benabou and Tirole 2006). While Alesina and La Ferrara (2005) also have a measure of whether the respondents believe that people like them have a good chance of improving their standard of living,<sup>2</sup> this measure only gives a rather general and imprecise sense of future expectations. Furthermore, this question is only available for one year of the GSS survey (1987), such that the core of the analysis, including specifications that control for beliefs about luck / effort, rely on mobility expectations based on transition matrices.

Subjective accounts of future social mobility are exploited by Ravallion and Lokshin (2000), who analyse redistributive preferences in Russia, but the data provide only a very general sense of the expectation of being better off or worse off

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<sup>1</sup> As already noted, the lack of inequality aversion in the United States is commonly attributed to the perceptions of high degree of social mobility among Americans (Alesina et al. 2004), despite the divergence between these beliefs and reality - recent research finds social mobility in the United States to be quite low by international standards, it is lower than in many other European countries, as well as Canada and Australia (OECD 2010).

<sup>2</sup> The exact phrasing of the question is as follows: "The way things are in America, people like me and my family have a good chance of improving our standard of living—do you agree or disagree?" (for details, see Alesina and La Ferrara, 2005).

relative to the present, without quantifying either of those two subjective assessments in any precise way, i.e. we do not know whether someone who currently places herself on the 7th rung of the subjective welfare ladder and states that she expects to be worse off in the future means that that she will be marginally worse off but still on the 7th rung, or considerably worse off, say, on the 3rd rung. Ravallion and Lokshin (2000) are also not able to account for the degree of risk aversion of the individuals, or their beliefs about the importance of luck and effort for economic success.

Gaviria (2007) also relies on subjective mobility prospects in his analysis of preferences for redistribution in Latin America, but he focuses on inter-generational mobility prospects - whether children will have better opportunities to improve their level of well-being. This does not provide a direct test of the POUM hypothesis, which is intra-generational in character. Alesina and Guiliano (2009) examine the various determinants of redistribution, including the POUM hypothesis, based on General Social Survey data for the period 1972-2004. They note, however, that the data only allows for very rough POUM proxies such as the education of the respondent's father or the income of the family when the respondent was 16 years old. They find that having a highly educated father, as well as a higher family income during youth, reduce the desire for redistribution, although their effect is modest relative to the respondent's own education level. However, it is not clear how these findings test the POUM hypothesis in any direct sense.

### 3.2.2 Empirical model

The (latent) support for redistribution of individual  $i$  is assumed to be characterised by the following relationship:

$$R_i^* = \beta_1 Group_i^1 + \beta_2 Group_i^2 + \beta_3 Group_i^3 + X_i' \gamma + \varepsilon_i,$$

where  $Group_i^k$  are dummies capturing the subjective expectations of future mobility, namely whether the individual is currently (i) poorer than average and expects to remain so in the future (group 1); (ii) poorer than average but expects to be above average in the future (group 2 - POUM); or (iii) above average but expects to be poorer than average in the future (group 3). The omitted reference category is composed of individuals who are above average presently and expect to remain so in the future (group 4).

The four mobility groups are based on the assessment of current economic status on a 10-step ladder and an assessment of the expected economic status on the same ladder four years hence, derived from the respondent's answers to the following questions: "Please imagine a ten-step ladder where on the bottom, the first step, stand the poorest 10% people in our country, and on the highest step, the tenth, stand the richest 10% of people in our country. On which step of the ten is your household today? And where on the ladder do you believe your household will be 4 years from now?" I compute the average ladder score for the current and the future welfare ladder, and construct four mobility groups based on whether respondents are below or above the average today and in the future.

Redistributive preferences of the individual are elicited by means of the following question: "The gap between the rich and the poor in our country should

be reduced”, the possible answers ranging on an ordinal scale from “strongly disagree” to “strongly agree”. Given the ordinal nature of observed preference for redistribution, it is assumed that  $R_i = k$  if  $\mu_{k-1} \leq R_i^* < \mu_k$ , where  $\mu_k$  are unknown cut points with  $\mu_0 = -\infty$  and  $\mu_5 = \infty$ . It is further assumed that  $Pr[R_i = k] = Pr[\mu_{k-1} \leq R_i^* < \mu_k] = F(\mu_k - \tilde{X}_i' \zeta) - F(\mu_{k-1} - \tilde{X}_i' \zeta)$ , where  $\varepsilon_i$  is assumed logistic distributed with cumulative distribution  $F(z) = e^z / (1 + e^z)$ .<sup>3</sup>

The proxy for redistributive preferences used in this paper is similar to the one used by Alesina and La Ferrara (2005), where the respondents are asked whether the government should reduce income differences between the rich and the poor, and the responses are based on an ordinal scale that ranges from 1 (should) to 7 (should not). Gaviria (2007) similarly infers redistributive preferences from respondent’ opinions on whether the gap between the rich and the poor should be reduced. In section 3.4.2 I also look at an alternative survey question that aims to elicit the respondent’s preference of the degree of inequality in their country.

Based on this formulation, if the only relevant consideration for redistributive preferences is one’s current economic standing, irrespective of it’s expected future dynamics, then it has to be the case that  $\beta_1, \beta_2 > 0$ , since the current position of  $Group_i^1$  and  $Group_i^2$  is lower by construction than that of the omitted category ( $Group_i^4$ ). It should similarly be the case (for the same reasons) that  $\beta_1, \beta_2 > \beta_3$ .

The POUM model claims, on the other hand, that future mobility expectations, and not only current economic standing determine redistributive preferences. If this is true, then respondents in Group 2 should have lower preferences for redistribution in light of their expected upward mobility. The notion of ‘lower’ here

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<sup>3</sup> Here  $\tilde{X}$  designates the full vector of covariates.



is relative, based on the test of the difference in redistributive preferences between Group 1 and Group 2, and similarly between Group 2 and Group 4 (the omitted category). The POUM hypothesis would be consistent with  $\beta_1 - \beta_2 > 0$ , together with  $\beta_2 = 0$ , i.e. preferences for redistribution in the POUM group are lower than among those who do not expect to be above average in the future welfare distribution, but not lower than among those who are currently above average and expect to remain so in the future. Both conditions need to hold simultaneously, since the mean of the current welfare ladder in Group 1 is lower than in Group 2, such that  $\beta_1 > \beta_2$  can simply reflect that fact that poorer individuals have higher preferences for redistribution today, regardless of future mobility. The second condition ( $\beta_2 = 0$ ) is needed to guard against this alternative interpretation, since Group 2 is currently strictly poorer than Group 4 by construction, and it would have to be the case that  $\beta_2 > 0$  if preferences for redistribution are based on current wealth alone. Strictly speaking, the preferences of the POUM group need not be statistically indistinguishable from those of Group 4 for the POUM hypothesis to hold (i.e.  $\beta_2 > 0$  can be consistent with the POUM hypothesis), such that  $\beta_2 = 0$  is required in light of the fact that  $\beta_2 > 0$  can be indicative of purely static considerations.

The test of the POUM hypothesis is conditional on the vector  $X$  that contains a number of characteristics (including a constant) that have been previously found to affect preferences for redistribution. Unlike in the previous studies, I am able to account for a wide range of such factors, including: (i) beliefs about the factors influencing success in life, including effort, intelligence and connections; (ii) beliefs about the factors influencing need in society, including luck, injustice, and laziness;

(iii) religious preferences of the individual; (iv) past mobility experience of the individual; (v) political ideology (preferences for market economy vs. the state); (vi) the objective welfare of the individual's household based on household expenditures; (vii) the impact of the recent financial crisis; and (viii) a set of personal characteristics including age, sex, marital status, education, employment status, household size, household composition, and area of residence. The vector  $X$  also includes a set of country dummies, such that estimates rely on within-country variation. Finally, errors are allowed to be correlated within the Primary Sampling Units.

A crucial issue for the empirical model is the degree of risk aversion of the individuals. Benabou and Ok (2001) note that “[w]hen agents are risk averse, the fact that redistributive policies provide insurance against idiosyncratic shocks increases the breadth of their political support.” In the LiTS respondents are asked to respond to the following hypothetical: “I will now ask you another hypothetical question. Imagine that you are a farmer. If all goes well, you expect to sell your harvest for [insert country specific amount] in a few more months. However, there is a risk: If there is a drought the harvest will be lost – this has happened to your neighbors in half of the recent years. You consider installing an irrigation system which would protect your crop in case of a drought, but it costs [insert country specific amount] and you would need to sell your car to buy it. Which of the following is more likely to be your decision? (a) I would take the risk and hope there is no drought; (b) I would sell my car and buy an irrigation system.” I split the sample into two groups based on responses to this question and estimate separate regression for each group, where group (a) captures those who are not averse to idiosyncratic shocks, and group

(b) capture those who are risk averse. The POUM hypothesis would suggest a lower preference for redistribution in (a), but not necessarily in (b).

This paper aims to improve on the above studies in a number of respects. While previous studies either rely on mobility concepts that are not explicitly linked to respondent expectations, or only provide a coarse expectation for the future (e.g. better or worse), the Life in Transition II Survey (LiTS II) data allows for a precise subjective account of expectations of upward mobility based on the respondent's placement on today's and future economic ladder. Second, the model accounts explicitly for the individual's degree of risk aversion – a key aspect of the POUM model.

One limitation of the analysis in this paper, which also affects previous studies, has to do with the fact that the data is cross-sectional in nature, and it is possible that there are unobserved variables that can drive both expectations of future mobility and redistributive preferences. While it is not possible to rule this out completely, it should be noted that the existing studies suggest that preferences for redistribution are a function of (i) objective welfare; (ii) beliefs about the importance luck or effort; (iii) degree of risk aversion; (iv) religious beliefs; (v) political beliefs; and (vi) past mobility. Here all of the above factors can be accounted for, such that the key structural determinants of redistributive preferences are not part of the error term.

### 3.3 Data description

The analysis relies on data from the second round of the Life in Transition Survey (LiTS II), run jointly by the World Bank and the European Bank for Recon-

struction and Development (EBRD) in the Fall of 2010. LiTS II provides data from a unified survey for the entire set of Transition Economies,<sup>4</sup> and a number of Western European countries (France, Germany, Italy, Sweden, and United Kingdom).<sup>5</sup> In each of the countries in the LiTS survey a nationally-representative sample of households was drawn, and in each of the selected households one face-to-face interview was conducted with a randomly-selected member of the household.<sup>6</sup> In the empirical analysis in Sections 3.4 and 3.5 in addition to estimating pooled models over the whole LiTS sample I also contrast European Union member countries against non-EU countries to see whether patterns differ between these two groups of countries.

According to the survey data, the preference for reducing the gap between the rich and the poor is widespread in the region. Overall, more than three quarters of adults either agree or strongly agree with the statement “the gap between the rich and the poor in your country should be reduced” and this share ranges from 59 percent in Azerbaijan and Belarus to 91 percent in Georgia.

Table 3.1 shows the distribution of responses to the current and future welfare ladder questions. There is clustering in the middle of the scale both in the case of the current ladder and the future ladder. About 60 percent of respondents in the sample place themselves on the 4th, 5th, or 6th step of the current ladder, and more than 50 percent place themselves on one of these three steps on the future welfare ladder. This higher density in the middle of the welfare ladder is observed not only

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<sup>4</sup> The only exception is Turkmenistan, for which no data are available.

<sup>5</sup> Western European countries were added in the second round of the LiTS, and are not available in the initial 2006 round of the survey. Data for Mongolia and Turkey are also available in the LiTS, but are not included in the empirical analysis here, given the focus on Transition Economies.

<sup>6</sup> The details of the sampling methodology can be found on the EBRD website at <http://www.ebrd.com/downloads/research/surveys/LiTS2eh.pdf>

in the overall sample, but in the individual country samples as well.

Tab. 3.1: Current and future welfare ladder placement

Current ladder	Future ladder										Total
	1	2	3	4	5	6	7	8	9	10	
1	730	154	90	30	37	19	8	8	1	8	1,085
2	406	865	323	156	110	43	25	16	8	4	1,956
3	293	675	1,673	877	565	224	111	50	19	15	4,502
4	85	314	743	1,932	1,353	743	336	152	32	26	5,716
5	60	148	412	918	3,189	1,591	1,013	467	101	76	7,975
6	6	14	62	192	501	1,483	942	513	133	63	3,909
7	2	4	18	41	102	252	973	529	196	69	2,186
8	2	0	5	13	23	39	92	347	159	95	775
9	1	0	0	1	3	2	10	20	73	40	150
10	2	0	0	0	2	2	2	3	8	77	96
Total	1,587	2,174	3,326	4,160	5,885	4,398	3,512	2,105	730	473	28,350

Notes: Eestimates for the full sample.

The composition of each country's population in terms of the four mobility groups is presented in Table 3.2. The largest two groups are those exhibiting no mobility in terms of the coarse categorisation adopted here: more than one third of the respondents in the overall sample are below average both on the current and the future welfare ladders, and 40 percent of respondents are above average today and in the future. The POUM group (Group 2) that is the main focus in this paper is comprised of 9 percent of respondents in the overall sample and tends to be smaller in Western European countries and larger in the Transition Economies, particularly in the Balkans. The group formed by those who are above average today but expect to be below average in the future accounts for 13 percent of the overall sample.

Summary statistics by region (EU and non-EU) for the variables used in the empirical analysis in this paper are presented in Table 3.3. Several observations can be made vis-a-vis average differences between group of EU countries and the non-EU countries. In the non-EU countries a higher share of adults believe that success in life is determined by political connections, while need is a product of injustice. A

Tab. 3.2: Future mobility categories by country

	Group1	Group2	Group3	Group4
Albania	0.45	0.16	0.08	0.32
Armenia	0.38	0.03	0.20	0.39
Azerbaijan	0.41	0.10	0.11	0.38
Belarus	0.39	0.06	0.16	0.39
BiH	0.33	0.12	0.06	0.49
Bulgaria	0.37	0.04	0.18	0.42
Croatia	0.37	0.08	0.12	0.42
Czech	0.54	0.11	0.08	0.28
Estonia	0.40	0.12	0.08	0.40
FYROM	0.35	0.17	0.07	0.40
France	0.34	0.08	0.11	0.47
Georgia	0.36	0.05	0.19	0.40
Germany	0.56	0.06	0.03	0.35
Hungary	0.33	0.07	0.11	0.49
Italy	0.49	0.06	0.08	0.37
Kazakhstan	0.38	0.12	0.10	0.39
Kosovo	0.37	0.24	0.04	0.35
Kyrgyzstan	0.32	0.16	0.12	0.40
Latvia	0.40	0.03	0.19	0.37
Lithuania	0.45	0.12	0.10	0.33
Moldova	0.32	0.15	0.05	0.47
Montenegro	0.27	0.07	0.30	0.36
Poland	0.29	0.05	0.26	0.40
Romania	0.31	0.06	0.14	0.48
Russia	0.36	0.05	0.12	0.47
Serbia	0.35	0.05	0.20	0.40
Slovakia	0.46	0.12	0.06	0.36
Slovenia	0.36	0.07	0.14	0.42
Sweden	0.37	0.13	0.08	0.43
Tajikistan	0.31	0.09	0.23	0.37
UK	0.38	0.14	0.06	0.42
Ukraine	0.44	0.06	0.16	0.34
Uzbekistan	0.33	0.06	0.20	0.40
Total	0.38	0.09	0.13	0.40

Notes: Estimates for the full sample.

similar share of adults think that success can be obtained by hard work. In non-EU countries a smaller (higher) share of respondents claim to have occupied a higher (lower) step on the welfare ladder four years ago compared to their position today. The expectations of upward mobility over the course of the next four years also appear to be higher outside of the EU. In terms of the impact of the financial crisis, while a smaller share of adults in the EU report not to have been affected by the recent financial crisis, the perceived severity of the impact appears to be milder in the EU compared to the non-EU group of countries in the LiTS sample. Europeans also appear to be more risk averse, on average.

In terms of their core socio-demographic characteristics, the non-EU population is somewhat younger, with a higher share of married, and rural population, as well as larger household sizes. While the share of adults with post-secondary education is broadly similar, a lower share of adults outside of the EU report that they worked during the past 12 months.

Tab. 3.3: Summary statistics by region

	EU		Non-EU		Total	
<i>The gap between rich and poor should be reduced</i>						
Strongly disagree	0.0251	(0.157)	0.0348	(0.183)	0.0301	(0.171)
Disagree	0.0582	(0.234)	0.0716	(0.258)	0.0651	(0.247)
Neither agree nor disagree	0.130	(0.336)	0.138	(0.345)	0.134	(0.341)
Agree	0.416	(0.493)	0.445	(0.497)	0.431	(0.495)
Strongly agree	0.371	(0.483)	0.310	(0.463)	0.340	(0.474)
Inequality preference (1-10)	6.565	(2.680)	6.353	(3.078)	6.455	(2.895)
Welfare ladder (current)	4.654	(1.669)	4.420	(1.619)	4.533	(1.647)
Welfare ladder (future)	4.758	(1.967)	5.181	(2.170)	4.977	(2.086)
Ln(HH expenditures)	5.634	(1.263)	4.603	(1.148)	5.100	(1.310)
<i>Main determinant of success today</i>						
Effort and hard work	0.443	(0.497)	0.434	(0.496)	0.438	(0.496)
Intelligence and skills	0.283	(0.450)	0.233	(0.423)	0.257	(0.437)
Political connections	0.158	(0.365)	0.217	(0.412)	0.189	(0.391)
Breaking the law	0.0654	(0.247)	0.0670	(0.250)	0.0662	(0.249)
Other	0.0510	(0.220)	0.0484	(0.215)	0.0496	(0.217)
<i>Main determinant of need in society today</i>						
Unlucky	0.104	(0.305)	0.0915	(0.288)	0.0975	(0.297)
Laziness	0.224	(0.417)	0.207	(0.405)	0.216	(0.411)
Injustice	0.407	(0.491)	0.487	(0.500)	0.448	(0.497)
Inevitable part of life	0.197	(0.398)	0.141	(0.348)	0.168	(0.374)
Other	0.0681	(0.252)	0.0729	(0.260)	0.0706	(0.256)
<i>Mobility over the past 4 years</i>						
Downward past mobility	0.389	(0.487)	0.313	(0.464)	0.349	(0.477)

No past mobility	0.418	(0.493)	0.422	(0.494)	0.420	(0.494)
Upward past mobility	0.193	(0.395)	0.265	(0.442)	0.231	(0.421)
<i>How much were you impacted by the financial crisis?</i>						
A great deal	0.139	(0.346)	0.197	(0.398)	0.169	(0.375)
A fair amount	0.267	(0.443)	0.269	(0.443)	0.268	(0.443)
Just a little	0.308	(0.462)	0.174	(0.379)	0.239	(0.426)
Not at all	0.261	(0.439)	0.291	(0.454)	0.276	(0.447)
Don't know	0.0248	(0.155)	0.0694	(0.254)	0.0479	(0.213)
<i>Risk aversion hypothetical</i>						
Would take the risk	0.339	(0.473)	0.354	(0.478)	0.347	(0.476)
Would not take the risk	0.570	(0.495)	0.473	(0.499)	0.520	(0.500)
Don't know	0.0917	(0.289)	0.173	(0.378)	0.134	(0.341)
Age	49.03	(17.15)	43.18	(16.72)	46.01	(17.18)
Female	0.586	(0.493)	0.605	(0.489)	0.596	(0.491)
University education	0.216	(0.412)	0.198	(0.398)	0.207	(0.405)
Employed	0.557	(0.497)	0.477	(0.499)	0.515	(0.500)
Ln(HH size)	0.752	(0.536)	1.107	(0.574)	0.936	(0.584)
<i>Household composition</i>						
Children's share in HH	0.115	(0.197)	0.165	(0.212)	0.141	(0.207)
Female share in HH	0.538	(0.295)	0.530	(0.242)	0.534	(0.269)
Elderly share in HH	0.144	(0.314)	0.0736	(0.231)	0.108	(0.277)
Market is preferred	0.343	(0.475)	0.380	(0.485)	0.362	(0.481)
Non-Orthodox	0.856	(0.351)	0.516	(0.500)	0.680	(0.466)
Not married	0.465	(0.499)	0.363	(0.481)	0.412	(0.492)
Rural	0.343	(0.475)	0.447	(0.497)	0.396	(0.489)
Observations	13679		14671		28350	

Note: Mean of each variable with standard deviation in parentheses.

## 3.4 Main results and robustness checks

### 3.4.1 Main results

The estimates for the baseline specification for the whole region are presented in Table 3.4. Column (1) reports estimates for the whole sample, column (2) reports the estimates for the same model estimated among those with a low degree of risk aversion (those who said that they would take the risk in the hypothetical scenario), and column (3) reports estimates for the risk averse sub-sample. Among those with a low degree of risk aversion and relative to the group of respondents who are above average today and expect to remain so four years hence (Group 4) the respondents who are below average today and expect to remain so in the future (Group 1) exhibit a higher preference for reducing the gap between the rich and the poor in their country, whereas the redistributive preferences of the POUM group are not statistically different from those of Group 4 (i.e. the null hypothesis  $\beta_2 = 0$  is not



rejected). It is also the case that  $\beta_1 - \beta_2 > 0$ , as required in the present setup for the POUM hypothesis not to be rejected. These findings are in contrast to the estimates for the risk-averse sample, where the POUM group together with the stable low group are more likely than the stable above average group to support a smaller gap between the rich and the poor. Furthermore,  $\beta_1 - \beta_2 = 0$  cannot be rejected in the risk-averse sub-sample. The estimates from the low risk aversion sub-sample and the high risk aversion sub-sample, viewed together, are consistent with the POUM hypothesis put forth by Benabou and Ok (2001). The fact that estimates in the overall sample that does not differentiate according to the degree of risk aversion reject the POUM hypothesis (on account of  $\beta_2 > 0$ ) highlights the importance of accounting for risk aversion in empirical tests of the POUM hypothesis, something existing studies based on observational data have been unable to do.

The other estimates in Table 3.4 are consistent with findings in existing studies. Consistent with the reasoning in Piketty (1995), beliefs about the importance of effort figure prominently into redistributive preferences irrespective of one's degree of risk aversion. Respondents who believe that success is mainly driven by political connections or by breaking the law (relative to the reference category of effort and hard work) are more supportive of reducing the gap between the rich and the poor, while those who believe success to be driven by intelligence and skills are less supportive. If need in society is perceived to be the result of injustice, this is associated with greater preference for redistribution, whereas the opposite is true when need is viewed as driven by laziness. Past upward mobility is negatively associated with the support for bridging the gap between the rich and the poor in the low risk

Tab. 3.4: POUM Hypothesis - Baseline

	Overall	Risk loving	Risk averse
Group 1 ( $\beta_1$ )	0.205*** (0.039)	0.269*** (0.059)	0.229*** (0.048)
Group 2 ( $\beta_2$ )	0.102** (0.049)	0.085 (0.076)	0.158*** (0.061)
Group 3 ( $\beta_3$ )	0.051 (0.044)	0.032 (0.072)	0.090 (0.056)
Success due to: effort and hard work	ref.	ref.	ref.
Intelligence and skills	-0.093*** (0.034)	-0.154*** (0.052)	-0.078* (0.044)
Political connections	0.179*** (0.051)	0.162** (0.073)	0.175*** (0.065)
Breaking the law	0.219*** (0.066)	0.229** (0.096)	0.201** (0.088)
Other	0.155** (0.064)	0.114 (0.109)	0.299*** (0.088)
Need due to: inevitable part of life	ref.	ref.	ref.
Unlucky	-0.059 (0.049)	-0.081 (0.078)	-0.011 (0.065)
Laziness	-0.099** (0.043)	-0.133** (0.067)	-0.080 (0.055)
Injustice	0.265*** (0.041)	0.196*** (0.064)	0.294*** (0.052)
Other	-0.058 (0.066)	-0.131 (0.107)	0.053 (0.079)
Market preferred	-0.144*** (0.034)	-0.094* (0.049)	-0.218*** (0.045)
No past mobility	ref.	ref.	ref.
Downward past mobility	0.042 (0.036)	0.010 (0.057)	0.076* (0.043)
Upward past mobility	-0.038 (0.038)	-0.117* (0.060)	0.006 (0.049)
Pseudo R-squared	0.031	0.036	0.037
Obs	28350	9826	14729
$\beta_1 - \beta_2$	0.103	0.183	0.071
Prob>chi2	0.039	0.017	0.269

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. Regressions also include the following set of controls: Ln(HH expenditures), crisis impact, age and age squared, sex, education, Ln(HH size), household composition, religion, marital status, area of residence and country dummies. Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

aversion sub-sample, but not among the risk averse respondents. For them it is past downward mobility that matters. Ideology also matters, confirming earlier results by Alesina and Giuliano (2009). Those who think that a market economy is always the preferred economic system are less supportive of reducing the gap between the rich and the poor, especially if they are also risk averse.

Other estimates, not reported to conserve space, suggest that the preference for redistribution increases concavely with age and is lower among those with a post-secondary level of education. Given that the data was collected in the aftermath of the recent financial crisis, it is not surprising that those who were affected more by the crisis are also more supportive of bridging the gap between the rich and the poor, irrespective of their degree of risk aversion.

The same empirical models are re-estimated separately for EU-member countries and non-EU countries in the sample to explore whether similar patterns can be found in both groups. In both cases estimates are presented separately for the low risk aversion respondents and the high risk aversion respondents (Table 3.5). In the European Union the results are substantively similar to those for the overall sample. The data again support the POUM hypothesis – prospects of upward mobility combined with a low degree of risk aversion are associated with a lower preference for bridging the gap between the rich and the poor, whereas a high degree of risk aversion makes redistributive preferences stronger, such that they are similar to those held by those who see themselves as being in the bottom half of the welfare distribution and expect to remain there in the future.

Beliefs about the determinants of success and need, and in particular the

Tab. 3.5: POUM Hypothesis: EU and non-EU countries

	EU		Non-EU	
	Risk loving	Risk averse	Risk loving	Risk averse
Group 1 ( $\beta_1$ )	0.368*** (0.085)	0.298*** (0.061)	0.157* (0.083)	0.117 (0.076)
Group 2 ( $\beta_2$ )	0.177 (0.117)	0.234*** (0.084)	0.026 (0.101)	0.067 (0.090)
Group 3 ( $\beta_3$ )	0.164* (0.096)	0.132* (0.079)	-0.103 (0.105)	0.033 (0.079)
Success due to: effort and hard work	ref.	ref.	ref.	ref.
Intelligence and skills	-0.197*** (0.072)	-0.029 (0.053)	-0.112 (0.075)	-0.138* (0.073)
Political connections	0.156 (0.108)	0.317*** (0.083)	0.148 (0.101)	0.047 (0.098)
Breaking the law	0.349*** (0.127)	0.309** (0.132)	0.097 (0.141)	0.085 (0.122)
Other	0.122 (0.157)	0.376*** (0.114)	0.091 (0.151)	0.219 (0.134)
Need due to: inevitable part of life	ref.	ref.	ref.	ref.
Unlucky	-0.054 (0.104)	-0.048 (0.083)	-0.110 (0.118)	-0.002 (0.104)
Laziness	-0.095 (0.090)	-0.170** (0.070)	-0.151 (0.101)	-0.019 (0.089)
Injustice	0.353*** (0.088)	0.440*** (0.067)	0.036 (0.093)	0.099 (0.079)
Other	0.110 (0.146)	0.083 (0.103)	-0.322** (0.152)	-0.011 (0.125)
Market preferred	-0.204*** (0.066)	-0.384*** (0.057)	0.007 (0.069)	-0.027 (0.067)
No past mobility	ref.	ref.	ref.	ref.
Downward past mobility	0.130* (0.079)	0.141** (0.056)	-0.135* (0.082)	-0.028 (0.068)
Upward past mobility	-0.082 (0.083)	0.016 (0.063)	-0.165** (0.084)	-0.032 (0.074)
Pseudo R-squared	0.048	0.047	0.027	0.033
Obs	4634	7791	5192	6938
$\beta_1 - \beta_2$	0.191	0.065	0.131	0.050
Prob>chi2	0.098	0.456	0.205	0.602

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. Regressions also include the following set of controls: Ln(HH expenditures), crisis impact, age and age squared, sex, education, Ln(HH size), household composition, religion, marital status, area of residence and country dummies. Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

importance of political connections for success and of injustice as a primary driver of need in society are associated with preferences for greater redistribution even when the degree of risk aversion is low. Ideological preferences, captured here by the belief in the superiority of the market economy in all circumstances, have the opposite effect. Unlike in the overall sample, downward past mobility is associated with stronger redistributive preferences in the EU countries.

The estimates from non-EU countries, on the other hand, stand in sharp contrast to the above findings. Here the POUM hypothesis is not borne out by the data. Whereas  $\beta_2 = 0$  cannot be rejected, the preference for reducing the gap between the rich and the poor in the POUM group does not appear to be statistically lower than in Group 1 in the low risk aversion sub-sample (the null hypothesis  $\beta_1 - \beta_2 = 0$  cannot be rejected).

Other drivers of redistributive preferences that proved to be important in the EU do not appear to matter in non-EU countries, although the relationship between redistributive preferences and variables such as age, sex and education are qualitatively similar. In particular, the perceived importance of political connections for success, or of injustice for poverty, are not associated with a stronger desire to reduce the gap between the rich and the poor, and the preference for markets is similarly not significant. In the low risk aversion sub-sample, both upward past mobility is negatively associated with preferences for more redistribution (perhaps to protect some of the gains). It is the case, however, that the stronger impact of the financial crisis is still associated with a preference for more redistribution, as was the case in the EU group.

Lack of dynamic considerations among determinants of redistributive preferences outside of the European Union is more general than the restricted sense of the prospects of upward mobility suggested by Benabou and Ok (2001) and tested above. If instead redistributive preferences are re-estimated as a function of the current economic ladder and of the future economic ladder (not reported to conserve space), a higher position on the current economic ladder is negatively associated with the preference for reducing the gap between the rich and the poor, whereas the position on the future economic ladder is insignificant both among the risk averse and the risk loving respondents. It is plausible that the greater political and economic uncertainty outside of the EU makes it more difficult to link current preferences with expectations of the future, or to believe in medium-term policy stability, as the POUM model requires.

The reasons why beliefs about whether effort or connections determine success (or whether luck or injustice determine need) in society are associated with greater preference for redistribution in the EU countries but not outside of the EU are similarly difficult to uncover with the LiTS data. One plausible explanation, however, is that outside of the European Union inequality of opportunity is more widespread and this leads people to adapt to it, which attenuates the link between perceptions of unfairness and preferences for redistribution. Graham (2010) suggests, for instance, that well-being effects of corruption have been found to be lower for those living in countries where corruption is the status quo and people are accustomed to it. Related to this, Graham and Chattopadhyay (2009) find that the wellbeing effects of crime are lower when crime is widespread. I return briefly to this question

in section 3.5.

### 3.4.2 Robustness analysis

As a robustness check, I re-estimate the baseline model with an alternative proxy for redistributive preferences. In addition to reporting their opinion on whether “the gap between the rich and the poor should be reduced” the survey questionnaire also elicits respondents’ views on inequality based on a 1-10 scale where 1 corresponds to the statement “incomes should be made more equal” and 10 corresponds to the statement “we need larger income differences as incentives for individual effort”. Respondents are asked to report 1 if they completely agree with the former statement, 10 if they completely agree with the latter statement, and to choose any number in between if their views fall somewhere in between the two statements. To make the estimates consistent with the earlier results, the scale is reversed such that complete agreement with the statement “we need larger income differences as incentives for individual effort” is recoded as 1, and complete agreement with the statement “incomes should be made more equal” is correspondingly recoded as 10, and a positive coefficient on an independent variable implies higher preference for redistribution associated with it. The estimates of the model with this alternative dependent variable (Table 3.6) confirm the predictions of the the POUM hypothesis for the group of European Union countries. In the non-EU countries the POUM hypothesis is not borne out by the data, similarly to the results of the baseline model.

A further robustness check could be performed by specifying an artificially low threshold that defines the future mobility groups. Table 3.7 reports the estimates for

Tab. 3.6: POUM Hypothesis - Alternative inequality preference

	EU		Non-EU	
	Risk loving	Risk averse	Risk loving	Risk averse
$\beta_1$	0.458*** (0.081)	0.322*** (0.064)	0.180** (0.081)	0.324*** (0.075)
$\beta_2$	0.053 (0.108)	0.197** (0.078)	0.025 (0.097)	0.130 (0.101)
$\beta_3$	0.251*** (0.097)	0.058 (0.084)	0.066 (0.098)	0.188** (0.089)
Pseudo R-squared	0.047	0.044	0.033	0.024
Obs	4634	7791	5192	6938
$\beta_1 - \beta_2$	0.405	0.125	0.154	0.193
Prob>chi2	0.000	0.114	0.125	0.062

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. Regressions include the same full set of controls like the baseline model. Significance: \* 0.05 \*\* 0.01 \*\*\* 0.001.

the the EU and non-EU groups of countries, where the rung 3 of the welfare ladder is taken as the threshold that separates the “above average” group from the “below average” group. Thus, the POUM group is composed of those who are on rung 1 or 2 of the welfare ladder currently but believe that they will be on rung 3 or above in the future. The other three groups are correspondingly defined as being on one side of this threshold in both years, or moving down across this threshold (Group 3). Arguably, moving up from rung 1 or 2 to rung 3 or even 4 is still far from being “above average”. Such respondents would still remain rather low on the welfare ladder, even if upwardly mobile, and as such, should still have strong redistributive preferences. As the result, one would not expect to find support for the POUM hypothesis with this artificially low threshold. This intuition is confirmed by the estimates in Table 3.7. Even in the EU sample, where support for the POUM hypothesis was found in the analysis above, the hypothesis  $\beta_1 - \beta_2 = 0$  can never be rejected, even in the low risk aversion sub-sample. Also,  $\beta_2 = 0$  in the high risk aversion group but not in the low risk aversion group, which is counter-intuitive.



Tab. 3.7: Falsification exercise - artificially low threshold

	EU		Non-EU	
	Risk loving	Risk averse	Risk loving	Risk averse
$\beta_1$	0.496** (0.193)	0.458*** (0.116)	0.300** (0.143)	0.306** (0.131)
$\beta_2$	0.388* (0.207)	0.236 (0.171)	0.119 (0.157)	0.207 (0.131)
$\beta_3$	0.652*** (0.140)	0.489*** (0.121)	0.417** (0.190)	0.078 (0.124)
Pseudo R-squared	0.049	0.048	0.027	0.034
Obs	4634	7791	5192	6938
$\beta_1 - \beta_2$	0.108	0.221	0.181	0.099
Prob>chi2	0.692	0.258	0.366	0.546

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. Regressions include the same full set of controls like the baseline model. Significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

### 3.5 Inequality of opportunity and perceptions of upward mobility

The results in the previous section confirm the importance not just of the current position, but also of expected future mobility in shaping current preferences over redistributive policy. This section looks at some of the factors that may influence individuals' expectations vis-a-vis their ability to move up the social ladder in the future. Multiple factors are likely at play (see EU 2010) and the analysis here focuses on inequality of opportunity as one possible factor. The 2006 World Development Report on Equity and Development provides a rich account of how political, social, and economic inequalities combine to stifle social mobility. Here the focus instead is on expectations of upward mobility, and the extent to which the existence of an uneven playing field dampens such expectations, particularly for the disadvantaged groups.

The motivation for looking into the link between inequality of opportunity and *expectations* vis-a-vis future mobility derives from the studies that show beliefs about inequality of opportunity may elicit behavioural responses such as resignation

and reduced ambition, which can lead to inequality traps (for a discussion, see World Bank 2005; Bourguignon et al. 2006). For instance, Appadurai (2004) argues that deprivation can reduce the “capacity to aspire” and, hence, effort. In the theoretical model proposed by Piketty (1995) prior beliefs about the existence of inequality of opportunity translate into low effort, which in turn leads to poor outcomes, but, due to dynastic learning, the bad outcomes only reinforce the prior beliefs. Experimental work in India suggests that children from low castes perform tasks such as solving a maze better when not reminded of their caste (Hoff and Pandey, 2006). One may be less determined to invest in education, when jobs are obtained primarily through connections.

To assess the extent to which a level playing field exists I rely on the respondents’ assessments of the importance of “having connections” in order to progress in a number of crucial dimensions of life, based on the following set of questions: “Some people, because of their job, position in the community or contacts, are asked by others to help influence decisions in their favour. In general, how important is it in our country to have the support of such people to influence decisions in the following situations?” The following domains of life are considered in the survey: (i) to get a good job in the government sector; (ii) to get a good job in the private sector; (iii) to get into university; (iv) to settle a dispute with a neighbour; (v) to obtain permits or official papers. The respondents could choose from the following options: not important at all, somewhat important, moderately important, very important, and essential. Only 3 percent of respondents in the pooled sample think that connections are not important at all, such that there appears to be a universal belief

that connections are at least somewhat important to get ahead in various domains of life. In the analysis that follows *inequality of opportunity* is defined as consistent with the belief that connections in any of the above areas are either very important or essential. This cutoff is arbitrary, but is consistent with the belief that fair access to government positions, or education etc. is severely constrained.

Tab. 3.8: Importance of having connections

	Gov	Private	Univ	Permits	Disputes	Opportunity
Albania	0.48	0.28	0.26	0.30	0.19	0.71
Armenia	0.69	0.52	0.46	0.36	0.19	0.77
Azerbaijan	0.55	0.39	0.23	0.15	0.11	0.68
Belarus	0.44	0.41	0.23	0.11	0.06	0.55
BiH	0.61	0.51	0.52	0.35	0.36	0.73
Bulgaria	0.79	0.72	0.40	0.60	0.42	0.85
Croatia	0.78	0.55	0.41	0.28	0.38	0.83
Czech	0.37	0.35	0.18	0.23	0.24	0.62
Estonia	0.32	0.36	0.06	0.06	0.08	0.47
FYROM	0.78	0.46	0.45	0.52	0.36	0.88
France	0.40	0.48	0.16	0.25	0.27	0.69
Georgia	0.44	0.38	0.13	0.11	0.09	0.54
Germany	0.48	0.43	0.13	0.09	0.13	0.60
Hungary	0.72	0.69	0.26	0.23	0.22	0.82
Italy	0.51	0.38	0.17	0.17	0.13	0.61
Kazakhstan	0.56	0.45	0.29	0.25	0.17	0.63
Kosovo	0.38	0.26	0.29	0.24	0.20	0.55
Kyrgyzstan	0.26	0.17	0.33	0.28	0.05	0.52
Latvia	0.71	0.69	0.04	0.08	0.06	0.77
Lithuania	0.51	0.42	0.13	0.12	0.10	0.60
Moldova	0.26	0.21	0.20	0.14	0.10	0.38
Montenegro	0.53	0.38	0.27	0.21	0.18	0.60
Poland	0.35	0.27	0.18	0.15	0.14	0.49
Romania	0.52	0.40	0.16	0.21	0.19	0.59
Russia	0.56	0.47	0.29	0.21	0.13	0.69
Serbia	0.83	0.65	0.37	0.38	0.36	0.87
Slovakia	0.51	0.42	0.29	0.23	0.27	0.74
Slovenia	0.63	0.47	0.15	0.18	0.24	0.75
Sweden	0.15	0.31	0.04	0.06	0.12	0.40
Tajikistan	0.33	0.30	0.40	0.36	0.31	0.69
UK	0.20	0.20	0.10	0.16	0.19	0.43
Ukraine	0.49	0.43	0.35	0.24	0.13	0.63
Uzbekistan	0.29	0.24	0.40	0.26	0.21	0.51
Total	0.49	0.41	0.25	0.23	0.20	0.64

Notes: Share of respondents who answered "very important" or "essential". Full sample.

Inequality of opportunity as defined here is thus in the spirit of John Rawls.

Recall that the second part of the Second Principle of Justice proposed by Rawls (1971) requires that offices and positions in society are open to all on a fair basis.<sup>7</sup> This is precisely what is queried by the above survey questions, since need for connections to get jobs in various sectors, or to get necessary permits for business activity is in direct contradiction of the Second Principle as it denies equal access to all.

The perceptions of inequality of opportunity are quite widespread in the region. For instance, almost half of the adults in the region believe that it is very important or essential to have connections to get a good government job, in Croatia and in FYROM the share exceeds three quarters, and in Serbia it is greater than 80 percent. On the other hand, in the UK and in Sweden no more than 20 percent of adults share this view. In some of the Transition countries the need for connections to get a good public sector job is also perceived to be low, such as in Estonia, Kyrgyzstan, Moldova, Tajikistan and Uzbekistan where less than one third of adults believe that connections are very important or essential for public sector jobs. The need for connections is generally perceived to be lower in other domains of life, although the share of adults who believe that connections are necessary in these other areas remains non-trivial in most countries (Table 3.8).<sup>8</sup>

The first part of Rawls's Second Principle of Justice allows for inequalities to exist to the extent that they are to the greatest benefit of the least advantaged. This is not the case in practice. In the LiTS survey the respondents are further

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<sup>7</sup> The two principles of justice proposed by Rawls are as follows: First Principle - "each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all"; and Second Principle - "Social and economic inequalities are to be arranged so that they are both: (a) to the greatest benefit of the least advantaged, consistent with the just savings principle, and (b) attached to offices and positions open to all under conditions of fair equality of opportunity." (Rawls, 1971: p.302).

<sup>8</sup> The last column in Table 3.8 is our measure of inequality of opportunity, which, for each individual evaluates to 1 if connections in any of the five areas are very important or essential, and zero otherwise.

asked if they knew of anyone (friends, relatives, classmates, local boss, etc.) who could influence decisions with respect to getting a good government job, or getting into university etc., should such influence be needed. Overall in the LiTS survey 32 percent of the adult population reported that they do not know any such person, but this share is generally higher for individuals who place themselves at the bottom of the welfare ladder, or those who (or whose parents) had low levels of education. It is perhaps not surprising that disadvantaged groups are least likely to thrive in the presence of inequality of opportunity. These two characteristics – the importance of connections to get ahead and lack of such connections – combine to create what Bourguignon et al. (2006) call “inequality traps” or the persistence of relative positions (and implicitly of poverty and vulnerability) over time.

### 3.5.1 Empirical strategy

In order to investigate whether inequality of opportunity dampens expectations of future mobility, a relationship similar to the one used to test the POUM hypothesis is estimated:

$$Status_i^{f*} = \delta_1 Conn_i^1 + \delta_2 Conn_i^2 + \delta_3 Conn_i^3 + X_i' \gamma + \varepsilon_i,$$

where  $Status_i^{f*}$  is the latent future economic status, it is assumed that the observed expected future economic status  $Status_i^f = k$  if  $\mu_{k-1} \leq Status_i^{f*} < \mu_k$ , where  $\mu_k$  are unknown cut points with  $\mu_0 = -\infty$  and  $\mu_{10} = \infty$ .  $Conn_i^j$  dummies represent the intersection of the respondent’s view on the importance of connections (either vital or not, where vital is defined as very important or essential) and whether the respondent has such connections or not. This interaction creates four categories, namely: (i)

connections are not vital but available (reference category); (ii) connections are not vital and not available ( $Conn_i^1$ ); (iii) connections are vital and available ( $Conn_i^2$ ); and (iv) connections are vital and not available ( $Conn_i^3$ ).

It is hypothesised that perceptions of an uneven playing field, when they are combined with lack of informal connections to overcome these, will have a dampening effect on expectations of future mobility, or  $\delta_3 < 0$ . Two additional hypotheses are tested:

- $\delta_2 - \delta_3 > 0$ , i.e. when the playing field is not even, connections improve prospects of future upward mobility;
- $\delta_1 - \delta_3 > 0$ , i.e. if connections are unavailable, inequality of opportunity dampens prospects of future upward mobility.

A number of important confounding factors need to be accounted for in the model, and are included in the  $X_i$  vector. Factors such as the person's education and employment status have been shown to have a strong effect on social mobility (Bozeat et al. 2010). The respondent's age is included to account for the fact that there may be greater scope for younger individuals to move up the ladder in the future, compared to those who are nearing retirement. Similarly, the respondent's sex and religious affiliation are included to account for possible differences in ambition between men and women, or across religious denominations, which may lead to different aspirations for the future.

It is the case the respondents who are currently at the top of the current welfare ladder have less scope of moving up the ladder, and similarly those at the bottom are less likely to move lower still in the near future. Moreover, the current

position on the welfare ladder can be correlated with the person's assessment of the importance of having connections to succeed in the labour market or in terms of education. For this reason, I control for the respondent's current position on the welfare ladder in all specifications in this section. In addition, the individual's past mobility experience may influence future expectations. It is difficult to say a priori how past experience may translate into future expectations. It may be, for instance, that past upward (downward) mobility may indicate further upward (downward) mobility in the future. It is also possible, however, that upward (downward) mobility in the past leaves less scope for further upward (downward) mobility in the future. The direction of the effect is likely to depend on other characteristics of the individual and is investigated empirically by including dummies indicating either upward or downward past mobility (no past mobility being the reference category).

Expectations of future mobility may similarly be influenced by the recent financial crisis experience. Those who were affected by the crisis but believe its impact to be transitory may expect to move up the ladder in the next four years as part of regaining the lost status due to the crisis. It is similarly possible that those who were strongly affected by the crisis in a way that is not easy to recover from over the short term may have modest expectations of upward mobility in the future. To account for such confounding effects, I also control for the respondent's assessment of the degree to which she have been affected by the financial crisis.

As in the case of the POUM hypothesis, it is important to account for the individual's degree of risk aversion, since those who are less risk averse may be more likely to engage in risky projects and expect to to move up the ladder based on

their belief of their success. Risk averse individuals, on the other hand, may be more likely to prefer stability, which in turn may lead to expectations of the stable position on the society's welfare ladder in the future. To account for the individual's degree of risk aversion I include dummies based on the hypothetical drought scenario described in section 3.2.2.

The literature on inequality of opportunity generally distinguishes between inequality due to unequal opportunities, and inequality due to effort (Bourguignon et al. 2003; Roemer et al. 2003; Ooghe et al. 2007; Checchi and Peragine 2009; Cogneau and Mesple-Soms 2008; Ferreira and Gignoux 2008; Ferreira et al. 2008, 2010). However, as noted by Lefranc et al. (2009), luck is also an important factor, but generally gets bundled together with effort. In the LiTS survey it is possible to account for the influence of luck by conditioning on the individual's beliefs with regard to the reasons why there are people in need in society, whether it be luck, laziness, an inevitable part of modern life, or injustice in society.

Included in the  $X_i$  vector are also country dummies, such that estimates rely on within-country variation. The full set of controls, which also includes household size and composition, is listed in Table 3.3. As before, ordered logistic regressions are estimated, and errors are allowed to be correlated within primary sampling units.

### 3.5.2 Results

Column (1) of table 3.9 presents the estimates of ordered logistic regressions for the whole LiTS sample. First,  $\delta_3 < 0$ , such that inequality of opportunity coupled with lack of connections is negatively associated with prospects of future mobility. Second, when there is inequality of opportunity, connections matter ( $\delta_2 - \delta_3 > 0$ )



and lack thereof is associated with expectations of a lower position on the future social ladder. The reasons why  $\delta_2$  may be negative I return to below.

It is also the case that lack of connections matters  $\delta_1 < 0$ , even when they are not perceived to be vital. To understand why this may be the case, recall that here when connections are “not vital”, they need not be “not important at all”, rather, they can be somewhat or moderately important. Therefore, the distinction here is between severe inequality of opportunity and mild inequality of opportunity, since very few respondents perceive opportunities to be equal in the “connections are not important at all” sense. More importantly, however,  $\delta_1 - \delta_3 > 0$ , i.e. when connections are unavailable, the extent of IO matters.

The same specification is re-estimated for the European Union countries (column 2) and non-EU countries (column 3). In the non-EU sample the results are similar in the sense that when there is inequality of opportunity, it helps to have connections ( $\delta_2 - \delta_3 > 0$ ), and when connections are unavailable, it matters whether the playing field is level or not ( $\delta_1 - \delta_3 > 0$ ).

One of the key difference in the group of EU countries is that when there is inequality of opportunity, there appears to be no difference between having connections and not having connections ( $\delta_2 - \delta_3 = 0$  cannot be rejected). One possible reason for this difference could be due to the fact that it may be less common - and possibly less socially acceptable - to rely on informal connections in the European Union. One would certainly expect reliance on informal institutions to be more prevalent when formal institutions are weaker. There is some evidence in the LiTS survey that supports this reasoning. The respondents who claimed to have

Tab. 3.9: Inequality of opportunity

	Overall	EU	Non-EU
$\delta_1$	-0.152*** (0.043)	-0.178*** (0.053)	-0.146** (0.072)
$\delta_2$	-0.083** (0.037)	-0.145*** (0.048)	-0.057 (0.053)
$\delta_3$	-0.237*** (0.046)	-0.174*** (0.053)	-0.337*** (0.075)
Present welfare ladder	1.307*** (0.021)	1.459*** (0.031)	1.213*** (0.029)
Need due to: inevitable part of life	ref.	ref.	ref.
Unlucky	0.049 (0.049)	0.087 (0.060)	0.015 (0.080)
Laziness	0.094** (0.040)	0.111** (0.049)	0.067 (0.068)
Injustice	-0.185*** (0.037)	-0.220*** (0.043)	-0.159** (0.062)
Other	-0.074 (0.058)	-0.092 (0.079)	-0.078 (0.088)
I would sell my car and buy irrigation	ref.	ref.	ref.
I would take the risk	0.064** (0.030)	-0.024 (0.038)	0.148*** (0.045)
Don't know	-0.098* (0.053)	-0.159** (0.081)	-0.022 (0.066)
Crisis had no impact	ref.	ref.	ref.
A great deal	-0.502*** (0.054)	-0.525*** (0.079)	-0.472*** (0.070)
A fair amount	-0.210*** (0.039)	-0.255*** (0.048)	-0.168*** (0.057)
Just a little	-0.054 (0.033)	-0.084** (0.040)	-0.029 (0.055)
Don't know	-0.232*** (0.058)	-0.143 (0.092)	-0.251*** (0.068)
No past mobility	ref.	ref.	ref.
Downward past mobility	0.265*** (0.039)	-0.069 (0.047)	0.568*** (0.061)
Upward past mobility	0.346*** (0.038)	0.260*** (0.049)	0.418*** (0.054)
Pseudo R-squared	0.241	0.270	0.221
Obs	28328	13657	14671
$\delta_2 - \delta_3$	0.154	0.029	0.281
Prob>chi2	0.000	0.547	0.000
$\delta_1 - \delta_3$	0.085	-0.004	0.191
Prob>chi2	0.051	0.932	0.012

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses.  $\delta_1$ : no inequality of opportunity (IO) and no connections;  $\delta_2$ : IO, have connections;  $\delta_3$ : IO, no connections. Regressions also include the following set of controls: Ln(HH expenditures), crisis impact, age and age squared, sex, education, Ln(HH size), household composition, religion, marital status, area of residence and country dummies. Significance: \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

Tab. 3.10: Differentiating by likelihood of using connections

	Overall	EU	Non-EU
$\delta_1$	-0.151*** (0.043)	-0.178*** (0.053)	-0.145** (0.072)
$\delta_{21}$	0.040 (0.059)	-0.084 (0.082)	0.095 (0.080)
$\delta_{22}$	-0.109*** (0.038)	-0.157*** (0.050)	-0.091* (0.055)
$\delta_3$	-0.236*** (0.046)	-0.173*** (0.053)	-0.336*** (0.075)
Pseudo R-squared	0.241	0.270	0.221
Obs	28328	13657	14671

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses.  $\delta_1$ : no inequality of opportunity (IO) and no connections;  $\delta_{21}$ : IO, have connections, very likely or certain to use them;  $\delta_{22}$ : IO, have connections, less likely to use them;  $\delta_3$ : IO, no connections. Regressions include the same full set of controls like the baseline model. Significance: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

connections were asked how likely they would be to rely on these connections. In the EU sample 18 percent of respondents reported that it was “not at all likely” that they would resort to personal connections if they had them (29 percent in Western European countries), whereas in the non-EU Transition Economies only 10 percent of respondents reported that they would not resort to connections if they had them (8 percent in CIS countries).

To investigate this more formally, I split the group associated with  $\delta_2$  (i.e. those who think that connections are vital and report having them) into two categories – those who say that they will very likely or definitely use their connections ( $\delta_{21}$ ), and the rest, whose appeal to connections, even if available, is less certain ( $\delta_{22}$ ). Otherwise, the model is the same as in table 3.9. The estimates in table 3.10 are consistent with the above reasoning – connections are only important for prospects of upward mobility if one is very likely or certain to use them.

Returning to the estimates in Table 3.9, several other factors appear to be salient for expectations of future mobility. Upward mobility in the past is associated

with expectations of further upward mobility in the future. The same is true of past downward mobility in non-EU countries, but not in the EU countries, where the estimated coefficient on the downward past mobility is negative. One interpretation that is consistent with this difference is that perceptions of downward mobility in the EU are perceived to be of a less transitory nature. It could be that a more stable economic environment in the EU may leave less scope for those who perceive to have moved downward in the past to expect a reversal of their fortunes in the immediate future. It is not possible, however, to confirm this with the LiTS data. Willingness to take risks is also positively associated with future mobility expectations outside of the EU, whereas this is not the case in EU countries. On the other hand, the belief that need is the product of laziness is positively associated with future mobility expectations only in the EU.

Some other factors have similar effects in both country groupings. A stronger effect of the recent financial crisis dampens future mobility expectations. The belief that need in society is the product of injustice (the reference category being “inevitable part of modern life”) also lowers expectations vis-a-vis future upward mobility.

The estimates on other variables (not reported to conserve space) suggest that both in both groups of countries expectations of future upward mobility diminish with age, are higher in urban areas and for those who are not married. In the EU they are also higher at higher levels of education, whereas outside of the EU they are higher for those currently employed (whereas there are no differences across education levels). Men and women have similar aspirations of upward mobility once

Tab. 3.11: Inequality of opportunity and returns to education

	Overall	EU	Non-EU
$\delta_1$	0.145*** (0.045)	0.139** (0.059)	0.169** (0.069)
$\delta_2$	-0.072** (0.034)	-0.087** (0.041)	-0.064 (0.052)
$\delta_3$	0.051 (0.044)	0.082 (0.058)	0.017 (0.065)
Pseudo R-squared	0.241	0.270	0.220
Obs	28350	13679	14671
$\delta_2 - \delta_3$	-0.122	-0.170	-0.080
Prob>chi2	0.001	0.001	0.139
$\delta_1 - \delta_3$	0.095	0.057	0.152
Prob>chi2	0.054	0.370	0.042

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses.  $\delta_1$ : no inequality of opportunity (IO) and university education;  $\delta_2$ : IO, no university education;  $\delta_3$ : IO, university education. Regressions include the same full set of controls like the baseline model. Significance: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

other characteristics and held beliefs are held constant.

One could also ask whether inequality of opportunity reduces “returns to education” in terms of the ability of the latter to improve individual chances of upward mobility. In order to investigate this question similar specifications are estimated, except that the dummy variable indicating whether connections are vital is interacted instead with whether the respondent has tertiary education. The estimates are reported in Table 3.11. First, both in the EU countries and in non-EU countries tertiary education is associated with higher expectations of future upward mobility when there exists a level playing field ( $\delta_1 > 0$ ). Second, in the pooled sample and in the EU subsample expectations for the future are lower among those without university education when there is IO ( $\delta_2 < 0$ ), whereas this is not the case outside of the EU. Third, in the EU, but not outside of the EU, tertiary education is associated with higher expectations of future social position when there is IO ( $\delta_2 - \delta_3 < 0$ ). One possible explanation for this, albeit one that is not possible to test with the LiTS data, lies with the deterioration of the education system in Transition Economies

Tab. 3.12: Inequality of opportunity and redistributive preferences

	Overall	EU	Non-EU
$\delta_1$	0.127** (0.056)	0.185*** (0.068)	0.067 (0.094)
$\delta_2$	0.376*** (0.044)	0.413*** (0.057)	0.353*** (0.064)
$\delta_3$	0.441*** (0.053)	0.511*** (0.068)	0.378*** (0.082)
Pseudo R-squared	0.034	0.044	0.026
Obs	28328	13657	14671
$\delta_2 - \delta_3$	-0.065	-0.099	-0.025
Prob>chi2	0.173	0.124	0.725
$\delta_1 - \delta_3$	-0.314	-0.327	-0.311
Prob>chi2	0.000	0.000	0.001

Notes: Ordered logit regressions. Robust standard errors, clustered at primary sampling unit level in parentheses.  $\delta_1$ : no inequality of opportunity (IO) and no connections;  $\delta_2$ : IO, have connections;  $\delta_3$ : IO, no connections. Regressions include the same full set of controls like the baseline model. Significance: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

after 1989 and the considerable disconnect between the knowledge taught in the educational institutions in Transition Economies and the skills that are in demand in the labour market, as documented by World Bank (2011). Finally, IO is associated with lower returns to having university education outside of the EU ( $\delta_1 - \delta_3 > 0$ ), but not in the EU countries.

Finally, in Table 3.12 I explore whether this “Rawlsian” inequality of opportunity is associated with stronger redistributive preferences. The model is re-estimated with the preference for reducing the gap between the rich and the poor as the dependent variable, and the  $\delta$  vector corresponds to the intersection of beliefs about the importance of connections and whether one has such connections, as in the baseline model reported in table 3.9. The results suggest that both inside and outside of the EU the perceived existence of inequality of opportunity is associated with stronger redistributive preferences ( $\delta_2 < 0$  and  $\delta_3 < 0$ ). Also, ( $\delta_1 - \delta_3 < 0$ ) in both groups of countries, indicating that when connections are unavailable, IO is associated with a stronger preference for redistribution.

### 3.6 Concluding remarks

It is the case that people who are currently lower on the society's welfare ladder are more in favour of redistribution. The results in this paper suggest, however, that preferences for redistribution go beyond the present economic position of an individual. In the European Union individuals in the bottom half of the welfare ladder today who expect to be in the top half of the ladder in the future (and whose degree of risk aversion is low) have lower preferences for redistribution than those who expect to remain in the bottom half of society's welfare ladder. This finding supports the POUM hypothesis proposed by Benabou and Ok (2001). Outside of the EU, on the other hand, data do not support the POUM hypothesis. In these countries attitudes toward redistribution even among those currently in the bottom half of the welfare ladder and who expect to remain there are not that different from the attitudes of those who are currently – and expect to remain – in the top half of the welfare ladder. Since the POUM model relies on the expectations that policies set today will persist into future periods, it is plausible that greater policy volatility severs the link between expectations of future mobility and current policy preferences.

This paper also looked at the link between inequality of opportunity defined as the perceived need of connections and expectations of future upward mobility. Inequality of opportunity is perceived to be widespread outside of the EU, but less so in the EU countries. Furthermore, inequality of opportunity has a dampening effect on expectations of future mobility even when such connections are available in the European Union, if the respondent is reluctant to rely upon them. The data also

support the argument that existence of stronger formal institutions (as is the EU case) makes the reliance on informal institutions less socially acceptable, or in any case there is less willingness to tap into these informal institutions as compared to non-EU countries. Unlike informal connections, tertiary education does not appear to promote greater expectations of upward mobility in non-EU countries when there is inequality of opportunity, whereas it does so in the European Union. Finally, inequality of opportunity is also associated with stronger redistributive preferences in both groups of countries.



## 4 Does relative deprivation matter in developing countries?

### 4.1 Introduction

One of the prominent explanations for the existence of the *Easterlin paradox* - an observation by Easterlin (1974) that despite a strong correlation between income and happiness within a cross-section, real increases in per capita income over time do not generally translate into increases in reported levels of happiness - is that in addition to absolute income, relative income is also an important determinant of happiness or utility.<sup>1</sup> If this is the case, then overall increases in income need not translate into higher reported life satisfaction, if relative status remains unchanged. Indeed, a number of recent empirical studies, using data from both OECD and developing countries, have found reference group income to be an important predictor of well-being (Clark and Oswald 1996; McBride 2001; Ravallion and Lokshin 2002; Blanchflower and Oswald 2004; Luttmer 2005; Ferrer-i-Carbonell 2005; Graham and Felton 2006, Fafchamps and Shilpi 2008).

Preferences for status can have important welfare implications. In developed countries positional concerns have been shown to lead to longer work hours, reduced savings, higher indebtedness and bankruptcy rates, longer commutes, higher divorce rates, higher morbidity (Deaton 2001; Eibner and Evans 2005; Frank 2007 and references therein). If relative status is indeed a welfare-relevant concern even among the poor in developing countries, it may drive expenditure and savings patterns that could increase the longer-term poverty vulnerability of poor households.<sup>2</sup> For instance, positional concerns have been found to drive spending on weddings and

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<sup>1</sup> See Clark et al. (2008) for a comprehensive review of the literature.

<sup>2</sup> On relative status and well-being in developing countries see Clark and Senik (2011) and references therein.

funerals (Brown et al. 2011), with expenses oftentimes financed through blood donations that carry important health risks (Chen and Zhang, 2009).

In most of the studies that examine the importance of relative status the true reference group is unknown. Instead, researchers choose a reference group, guided by certain theoretical considerations, and accounting for data constraints, and then compute the mean or median income (or expenditures) of the chosen reference group. The importance of relative status for subjective well-being is then assessed based on a regression of a self-reported measure of life satisfaction or happiness on own income or expenditures, as well as on the mean or median income or expenditures of the reference group, conditional on a set of control variables. A non-zero coefficient on the reference group welfare variable in regressions of this type is taken to indicate that subjective well-being is not only a function of own welfare, but also of the individual's welfare relative to that of her reference group.

This paper takes advantage of the 2009 survey implemented by the United Nations Development Programme (UNDP) in six transition economies, in which the respondents are asked to evaluate their standard of living (whether worse, same or better) vis-a-vis the majority of people in their (i) settlement (town / village), (ii) district, (iii) country. They are also asked to rate their standard of living vis-a-vis their parents. This makes it possible to explore the importance of relative deprivation as reported directly by the respondent, rather than being imposed by the researcher. It also allows us to compare the relative salience of different reference groups.

A further advantage of the UNDP survey is the availability of the interviewer's

own assessment of the conditions of each respondent's property and of the respondent's neighbourhood, ranging from slum to elite in both cases. This is useful because using respondent-defined relative deprivation helps address issues of relative status observability and of relevance of a given reference groups, but it does not eliminate the potential endogeneity arising from the fact that assessments of relative deprivation and of the satisfaction with the standard of living can both be driven by unobserved cognitive biases. I rely on the interviewer's assessment of the relative deprivation to instrument for the respondent's self-reported relative deprivation.

The estimates from the pooled sample of all six countries, as well as from regressions estimated separately for each country, suggest that local relative deprivation has a strong negative effect on satisfaction with one's standard of living, even when we account for important determinants of satisfaction with the standard of living, including the respondent's wealth. This is true even among the poorest Transition Economies (Tajikistan and Moldova). Moreover, relative deprivation vis-a-vis neighbours appears to be more salient than relative deprivation vis-a-vis parents.

A brief overview of existing studies that look at the impact of relative status on well-being is provided in Section 4.2. Section 4.3 describes the data used in the analysis and provides some descriptive statistics. The salience of various reference groups is explored in Section 4.4.1, while local relative deprivation, including IV results are presented in Section 4.4.2. Section 4.5 concludes.

## 4.2 Existing studies of relative status

A number of different reference group definitions have been employed to date in the literature that examines the effect of relative status on well-being. Most rel-

evant to this analysis are inter-personal reference groups, i.e. groups of individuals who may be important for social comparisons. At the most general level such reference groups can be categorized into: (i) reference groups based on a set of 'likeness' attributes; and (ii) reference groups based on geographic proximity. Clearly, inter-personal comparisons need not be the only relevant dimension. This paper sidesteps inter-temporal reference points, which are dealt with in a large literature on adaptation (Frederick and Loewenstein, 1999; Frey and Stutzer, 2001; Di Tella et al., 2003; Di Tella et al., 2010). Senik (2009), for instance, finds comparisons with own economic situation prior to 1989 to still be an important determinant of subjective well-being 15 years into the transition process in Eastern Europe.

#### 4.2.1 Reference groups based on 'likeness'

Reference groups based on similar characteristics are grounded analytically in the *social comparison theory* proposed by Festinger (1954), who argued that individuals relied on reference groups to evaluate their abilities and opinions, and that individuals' tendency to compare with others was decreasing with the discrepancy between his/her opinions/abilities and those of others. In other words, individuals seek to compare their abilities/opinions with others who are perceived to be similar in relevant dimensions. Goethals and Darley (1977) later build on Festinger's earlier work to formulate the *related attributes hypothesis* that states that people compare themselves with others who are similar on attributes related to and predictive of the attribute that is under evaluation.<sup>3</sup>

Van de Stadt et al. (1985) rely explicitly on the related attributes hypothesis and construct reference groups on the basis of the education level, age and em-

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<sup>3</sup> For an overview of the history of the theory of social comparison, see Suls and Wheeler, 2000.

ployment status of individuals, using data for two waves of a panel survey of 775 households conducted by the Netherlands Central Bureau of Statistics in 1980 and 1981. Their underlying assumption is that age, education and employment status are important income generating attributes and as such would be the basis of social comparison.

McBride (2001), in a study based on 1994 General Social Survey data, constructs reference groups based on age cohorts of all those within +/- 5 years from the respondent. The reference group welfare is then calculated as the mean income for this group. McBride's choice of the reference group is based on the view that the individual "associates most with people of his own age and, as the result, compares his income to theirs."

Senik (2004), based on data from the Russian Longitudinal Monitoring Survey, constructs the reference group income by estimating a first stage regression of individual's income as a function of education, years of experience, region, branch, age, sex, and primary occupation type and then uses the predicted income as a proxy for the individual's reference group income. The rationale for this approach, which is similar to that of Clark and Oswald (1996), who looked at the impact of relative status on job satisfaction, is to construct an "average pay-off associated with the productive characteristics of a given individual." One thing to note about Senik (2004) is that, unlike most other studies that look at relative income, it finds reference group income to exert a positive effect on individual satisfaction, which the author interprets in the spirit of Hirschman's "tunnel effect" (Hirschman and Rothschild, 1973), i.e. the reference group income is treated more like an indication

of their own future income, rather than of their inferior relative status.

Ferrer-i-Carbonell (2005), using data from the German Socio-Economic Panel, defines reference groups as consisting of all individuals with a similar education level (based on 5 categories), age brackets (10 year cohorts), and regions (West Germany and East Germany), which amount to a total of 50 reference groups. The author also tests an alternative specification of the reference group, in which gender is added to the above characteristics. In both specifications the income of the reference group is found to have a negative effect on subjective well-being, and the magnitudes of this effect are not statistically different.

#### 4.2.2 Reference groups based on geographic proximity

Local reference groups based on place of residence are also rather intuitive. Indeed, your neighbours' bigger house or more expensive car can hardly be disregarded just because that neighbor has a different level of education from yours, or is in a different age cohort. As Lichtenberg (1996: 295) argues "literal neighbors sometimes have a special significance because [...] one is confronted by their houses, their yards, and their cars." In the context of inequality aversion, Frank and Levine (2007: 13) argue, 'the within-reference group level of inequality for an individual is likely to correspond more closely to the degree of inequality in the city in which [the person] lives than to the degree of inequality in his home country'.

Some of the geographically defined reference groups in the existing literature are not strictly local. Diener et al. (1995) take adjacent countries to be the relevant reference group. Graham and Felton (2006), relying on Latinobarometro data, calculate reference group income at the level of the country, but also test more narrow

reference groups at city level (in small cities this amounts to groups of roughly 5,000, on average). Blanchflower and Oswald (2004) define reference groups at the level of US State. Eibner and Evans (2005) also use the US State as the relevant reference group in their study of the effect of relative deprivation on mortality risk, but they also restrict their reference groups to a set of observable characteristics such as race, education and age. Luttmer (2005), based on data from the National Survey of Families and Households (NSFH), uses Public Use Microdata Areas (PUMAs) as the relevant reference group (PUMAs are about 150,000 inhabitants, on average).

Other studies rely on more localized reference groups. Ravallion and Lokshin (2002) define reference groups at the respondent's locality of residence in the Russian Federation. Fafchamps and Shilpi (2008), in their study of relative consumption in Nepal, define reference groups at the level of villages or wards. Ravallion and Lokshin (2010) calculated reference group consumption at the level of the Census Enumeration Area, using LSMS data from Malawi, which gives the reference group a rather local character.

### 4.2.3 Intermediate approaches

Ravallion and Lokshin (2010) explore the importance of relative deprivation with the LSMS data from Malawi. In this survey respondents were also asked to “imagine a 6-step ladder where on the bottom, the first step, stand the poorest people and on the highest step, the sixth, stand the rich” and then to place their household's current situation on one of those steps. They were then asked to place their friends, and their neighbors, on the similar 6-step ladder. The placement on one's own household relative to the placement of the neighbors or friends then gives

a measure of relative deprivation vis-a-vis that group.

Senik (2009) relies on the first round of the Life in Transition (LiTS) survey, which offers several similar respondent-defined relative deprivation measures based on responses to the following statements: “I have done better in life than my parents”, “I have done better in life than most of my high school classmates”, and “I have done better in life than most of my colleagues I had around 1989”. It also offers an inter-temporal reference point, based on responses to the statement “My household lives better nowadays than around 1989”. Senik (2009) finds that one’s relative trajectory through the Transition years vis-a-vis old friends or colleagues is an important determinant of current well-being.

As Ravallion and Lokshin (2010) note, the use of such respondent-defined measures of relative deprivation avoids the need to impose rather restrictive assumptions that are required with researcher-chosen reference groups. In particular, they suggest that differences in objective well-being between an individual and her neighbors can only give rise to a sense of relative deprivation if these differences are both observed and perceived to be relevant. Thus, if one’s neighbors are better off (as measured by, say, household expenditures), but the individual does not perceive them as such, then there is no obvious reason why she should feel relatively deprived. Similarly, if the neighbors report similar levels of consumption, but are nevertheless perceived to be better off, then the individual will likely feel relatively worse off, despite similar objective levels of well-being. The measure of relative deprivation in the Malawi LSMS, on the other hand, gives an *unambiguous* assessment of perceived relative deprivation, which is precisely what is needed in the first place.



#### 4.2.4 Observed reference groups

Only a few studies observe reference groups directly. Melenberg (1992) asks the respondent about the characteristics of the people in their social circle, or “people whom you meet frequently, like friends, neighbors, acquaintances or possibly people you meet at work”, whose income turns out to be a significant determinant of whether the respondent finds her own income to be good or adequate.<sup>4</sup> Knight et al. (2009) rely on rural data from a 2002 national household survey of China, in which the respondents are asked directly to indicate who they compare themselves with. Their study supports the view that reference groups are local. Almost 30 percent of respondents report their reference group to be their neighbors, and a further 39 percent of respondents confine the reference group to their village. Within the village, they find relative status to be an important determinant of subjective well-being.

Clark and Senik (2010) employ the third round of the European Social Survey (ESS) to investigate the nature of social comparisons. According to their data, work colleagues are the most commonly invoked reference group (36 percent of respondents), followed by friends (15 percent of respondents).<sup>5</sup> They further find that the self-employed are more likely to claim family members as their reference group, whereas employees are more likely to compare themselves to work colleagues. Across countries, they find that Eastern Europeans compare less with family members (relative to work colleagues) than do residents of Western European countries. At the same time Clark and Senik do not have data on the incomes or consumption levels

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<sup>4</sup> Quoted in Clark et al. (2008:108).

<sup>5</sup> It should be noted, however, that ‘neighbours’ was not among the possible answers in the survey question ‘Whose income would you be most likely to compare your own with?’ Certainly there can be considerable overlap between neighbors and friends / co-workers.

of these reference groups, such that they are not able to directly test for the effect of the individual's status relative to her reference group on her well-being.

### 4.3 Data and descriptive statistics

This paper relies on data from the 2009 social inclusion survey administered by the UNDP in six transition economies: FYROM, Kazakhstan, Moldova, Serbia, Tajikistan and Ukraine. For each of these countries the survey offers a nationally-representative sample based on a multi-stage random sampling algorithm. One respondent in each of the selected households was interviewed, and this respondent was selected base on the “next birthdate” principle. The survey offers insights into a diverse group of Transition Economies that differ both geographically (West vs. East) or economically in terms per capita GDP.

Subjective well-being in the survey is based on a respondents' satisfaction or dissatisfaction with their standard of living. It is a 5-step Likert scale measure that ranges from “completely dissatisfied” to “completely satisfied”, where the middle category is “neither dissatisfied nor satisfied.” Satisfaction with the standard of living appears to be higher in Kazakhstan and Tajikistan, even though Tajikistan is the poorest country in the sample. This is consistent, however, with the higher levels of satisfaction reported in Central Asian countries in other surveys, such as the Life in Transition Survey (LiTS). Satisfaction is lowest in Serbia and Ukraine, and similarly complete dissatisfaction with the standard of living is considerably higher in these countries.

The UNDP survey does not have a reliable expenditure or income module. As the objective level of welfare is among the key determinants of subjective well-being

Tab. 4.1: Satisfaction with standard of living by country

	KAZ	MDA	MKD	SRB	TAJ	UKR	Pooled
Completely dissatisfied	0.05	0.07	0.07	0.13	0.03	0.13	0.08
Dissatisfied	0.22	0.23	0.22	0.30	0.12	0.34	0.24
Neutral	0.26	0.36	0.36	0.31	0.30	0.28	0.31
Satisfied	0.38	0.29	0.30	0.22	0.44	0.22	0.31
Completely satisfied	0.08	0.05	0.04	0.04	0.11	0.02	0.06

Notes: Share of respondents in each category.

(see Clark et al. 2008 for a review of the literature), an asset index is constructed based on principal components analysis, following Filmer and Pritchett (2001).<sup>6</sup> The asset index is based on the first principal component of the following set of assets: television set, computer, internet, cellular phone, satellite / cable TV, car, washing machine, freezer/refrigerator, fixed phone, radio, gas oven, electric oven, generator, electric iron, outdoor stove, sewing machine, electric room heater, microwave oven, bed for each household member, living room furniture, and vacuum cleaner. In addition, the index also includes the following housing characteristics: flushing indoor toilet, central heating, electricity, sewage, and central gas supply. The asset index is constructed separately for each country in the sample.

As expected, in all six countries the welfare level of the household, as proxied by the asset index, correlates positively with the self-reported satisfaction with the standard of living. Table 4.2 presents the mean of the asset index for each of the satisfaction categories and it can be seen that the mean of the asset index is higher in all countries for respondents reporting higher levels of satisfaction with the standard of living.

The other key component of the analysis is self-reported level of relative deprivation. In the survey the respondents are asked to evaluate whether their standard

<sup>6</sup> The results in Section 4.4. are not affected if the asset index is replaced with a set of assets that are used in its construction.

Tab. 4.2: Asset index by satisfaction level

	KAZ	MDA	MKD	SRB	TAJ	UKR	Pooled
Completely dissatisfied	-1.75	-0.89	-2.33	-1.72	-0.86	-0.82	-1.37
Dissatisfied	-0.84	-0.71	-0.59	-0.41	-0.76	-0.35	-0.57
Neutral	-0.27	-0.29	0.03	0.39	-0.65	0.24	-0.10
Satisfied	0.66	0.86	0.77	0.90	0.37	0.68	0.67
Completely satisfied	1.13	1.40	1.24	1.03	1.42	0.71	1.24

Notes: Mean asset index in each category. The asset index is centered around zero; negative values indicate lower welfare levels, positive values – higher welfare levels.

of living is better, same or worse than that of the majority of other people in (i) their settlement (town or village); (ii) district of residence; (iii) country of residence. In addition, the respondents are asked to state whether their parents and, separately, grandparents had a higher/same/lower position in society when they were the same age as the respondent.

Several observations can be made based on the distribution of responses to the relative deprivation questions. Across countries the patterns of perceived relative deprivation at local / regional and country levels appear to be broadly similar. Respondents in Serbia report the highest levels of relative deprivation at all three levels of geographic aggregation. This negativity echoes the greater levels of dissatisfaction with the standard of living reported in Serbia (see Table 4.1). Furthermore, the share of respondents who report a standard of living that is worse than that of the majority of people in the village/town of residence is smaller than a similar category at the district level, which in turn is lower than the country-level share of those reporting to be relatively deprived. To understand why this should be the case, note that since most of the respondents in a given country reside outside of the capital city, the prevalence of those residing in relatively poor towns or villages who are relatively deprived at the country level but not at the local level will be higher

than the prevalence of those residing in the capital, for instance, who are worse off than their neighbours, but still better off than most the country's citizens.

Tab. 4.3: Relative deprivation for various reference groups

	KAZ	MDA	MKD	SRB	TAJ	UKR	Pooled
<i>Standard of living relative to town</i>							
Worse	0.174	0.222	0.169	0.245	0.142	0.197	0.191
Same	0.649	0.573	0.598	0.554	0.599	0.655	0.605
Better	0.151	0.157	0.190	0.164	0.203	0.0970	0.160
N/A	0.00630	0.00407	0.00704	0.0146	0.0230	0.00815	0.0104
Don't know	0.0189	0.0448	0.0363	0.0229	0.0333	0.0426	0.0333
<i>Standard of living relative to district</i>							
Worse	0.234	0.305	0.206	0.358	0.301	0.239	0.272
Same	0.564	0.467	0.587	0.483	0.442	0.563	0.518
Better	0.152	0.116	0.146	0.0912	0.177	0.0807	0.128
N/A	0.0141	0.00667	0.00852	0.0308	0.0248	0.0174	0.0168
Don't know	0.0352	0.106	0.0522	0.0371	0.0548	0.100	0.0648
<i>Standard of living relative to country</i>							
Worse	0.375	0.396	0.311	0.468	0.415	0.308	0.377
Same	0.409	0.382	0.466	0.367	0.344	0.501	0.412
Better	0.139	0.104	0.138	0.0820	0.132	0.0596	0.110
N/A	0.0174	0.00741	0.0156	0.0333	0.0267	0.0174	0.0194
Don't know	0.0600	0.111	0.0696	0.0500	0.0826	0.114	0.0818
<i>Standard of living relative to parents</i>							
Worse	0.326	0.272	0.287	0.393	0.498	0.281	0.342
Same	0.396	0.317	0.233	0.283	0.342	0.345	0.320
Better	0.203	0.336	0.400	0.253	0.0900	0.310	0.266
N/A	0.0237	0.00778	0.0126	0.0292	0.0185	0.0100	0.0167
Don't know	0.0515	0.0667	0.0674	0.0421	0.0511	0.0537	0.0557
<i>Standard of living relative to grandparents</i>							
Worse	0.196	0.204	0.126	0.224	0.287	0.161	0.199
Same	0.264	0.186	0.120	0.205	0.264	0.188	0.204
Better	0.343	0.401	0.528	0.353	0.204	0.453	0.381
N/A	0.0396	0.0107	0.00926	0.0358	0.0315	0.0152	0.0235
Don't know	0.159	0.199	0.216	0.182	0.213	0.183	0.192

Note: Share of respondents in each category, by country.

One of the questions explored in the next section pertains to the relative salience of these various reference groups. Some insight into this question can be gained by looking at the share of respondents who could not evaluate their relative status at different levels of geographic proximity. This share increases in all countries as the group relative to which one's living standard is to be evaluated becomes less local. It is perhaps not surprising that respondents find it easier to evaluate their standard of living relative to a local – and thus more easily observable – reference group. As the level of observability decreases, it becomes more difficult to evaluate one's relative deprivation. This can be argued to be *prima facie* evidence in favour

of local reference groups, since relative status can only be a salient concern if it is observable. As the difficulty of relative comparisons increases, their importance should generally decrease. I return to this issue in the next section.

In the case of relative deprivation vis-a-vis parents or grandparents, the difficulty of making a comparison is much higher in the case of grandparents. The evaluations also tend to be more positive relative to grandparents than relative to parents. They are also considerably more positive than local level comparisons - whereas 16 percent of respondents in the overall sample viewed their standard of living as better than that of the majority of other people in their village or town, more than a quarter of respondents believe that their standard of living is higher than the one enjoyed by their parents at similar age, and 38 percent believe that it is higher than that of grandparents (more than half in FYROM).

Tab. 4.4: Relative status and household welfare (asset index)

	KAZ	MDA	MKD	SRB	TAJ	UKR	Pooled
<i>Standard of living relative to town</i>							
Worse	-1.06	-1.60	-1.53	-1.45	-1.12	-1.22	-1.35
Same	0.01	0.25	0.18	0.41	-0.19	0.22	0.14
Better	1.08	1.15	0.85	0.96	1.44	1.02	1.10
<i>Standard of living relative to district</i>							
Worse	-0.98	-1.47	-1.37	-1.02	-0.92	-1.15	-1.15
Same	0.14	0.56	0.25	0.65	0.09	0.31	0.32
Better	1.06	1.52	0.92	0.93	1.44	1.18	1.19
<i>Standard of living relative to country</i>							
Worse	-1.14	-1.08	-0.84	-0.64	-0.68	-0.88	-0.87
Same	0.90	0.70	0.30	0.72	0.51	0.40	0.57
Better	0.57	1.42	0.84	0.87	0.95	1.02	0.92
<i>Standard of living relative to parents</i>							
Worse	-0.47	0.26	-0.07	-0.12	-0.05	-0.06	-0.09
Same	-0.05	-0.27	-0.09	0.11	-0.07	0.15	-0.04
Better	0.63	-0.00	0.23	0.31	0.67	-0.06	0.21
<i>Standard of living relative to grandparents</i>							
Worse	-0.52	-0.10	-0.17	-0.21	-0.07	-0.16	-0.20
Same	-0.30	-0.57	-0.22	0.09	-0.34	-0.14	-0.26
Better	0.44	0.12	0.20	0.36	0.45	0.19	0.27

Notes: Mean asset index in each category.

Table 4.4 reports the mean of the asset index for each of the categories of relative deprivation for each of the reference groups available in the data. Encouragingly, the value of the asset index is generally lowest for those who report to be worse off vis-a-vis other groups, and highest for those who report to be better off. The gradient is steepest for local reference groups, but less pronounced in the case of comparisons vis-a-vis parents or grandparents.

Summary statistics for the variables used in the empirical analysis in the next section are reported in Table 4.5. There are several notable differences between the countries in the sample. For instance, in Tajikistan the share of heads of households among respondents is considerably lower than in the rest of the countries, consistent with the large-scale economic migration from Tajikistan to other countries in the region, primarily Russia. Tajikistan is also the youngest country in the sample, and has the highest share of population with primary education or less, which is consistent with the fact that it is also the poorest country. The share of respondents who are unemployed also varies considerably, from less than 10 percent in Moldova and Ukraine to More than 20 percent in Tajikistan and Macedonia. In Ukraine and in Macedonia the share of population residing in villages is roughly half the level reported in Moldova and in Tajikistan. The share of population residing in the country's capital ranges from under 5 percent in Kazakhstan to more than 20 percent in Macedonia.

Tab. 4.5: Summary statistics by country

	KAZ	MDA	MKD	SRB	TAJ	UKR	Pooled
Satisfaction	3.230 (1.038)	3.034 (0.996)	3.030 (0.977)	2.749 (1.059)	3.471 (0.946)	2.667 (1.033)	3.035 (1.044)
Age	42.43 (17.16)	43.24 (18.05)	43.04 (16.71)	43.51 (16.41)	36.35 (15.73)	45.03 (18.58)	42.24 (17.37)
Male	0.489	0.424	0.474	0.503	0.431	0.443	0.460

	(0.500)	(0.494)	(0.499)	(0.500)	(0.495)	(0.497)	(0.498)
Head of HH	0.524	0.491	0.409	0.495	0.286	0.541	0.457
	(0.499)	(0.500)	(0.492)	(0.500)	(0.452)	(0.498)	(0.498)
<i>Education</i>							
Primary or less	0.203	0.306	0.206	0.234	0.351	0.120	0.237
	(0.402)	(0.461)	(0.404)	(0.424)	(0.477)	(0.325)	(0.425)
Secondary	0.311	0.379	0.529	0.576	0.404	0.276	0.410
	(0.463)	(0.485)	(0.499)	(0.494)	(0.491)	(0.447)	(0.492)
Post-secondary	0.486	0.315	0.265	0.190	0.245	0.604	0.354
	(0.500)	(0.464)	(0.441)	(0.392)	(0.430)	(0.489)	(0.478)
Married	0.550	0.578	0.631	0.570	0.665	0.557	0.592
	(0.498)	(0.494)	(0.483)	(0.495)	(0.472)	(0.497)	(0.491)
<i>Labour force status</i>							
Private sector	0.247	0.134	0.246	0.267	0.0734	0.208	0.195
	(0.432)	(0.341)	(0.431)	(0.443)	(0.261)	(0.406)	(0.396)
Public sector	0.171	0.194	0.136	0.160	0.126	0.197	0.164
	(0.377)	(0.395)	(0.343)	(0.367)	(0.332)	(0.398)	(0.370)
Self-employed	0.0591	0.0586	0.0426	0.0677	0.0999	0.0332	0.0600
	(0.236)	(0.235)	(0.202)	(0.251)	(0.300)	(0.179)	(0.238)
Unemployed	0.114	0.0976	0.289	0.188	0.234	0.0786	0.166
	(0.318)	(0.297)	(0.454)	(0.390)	(0.423)	(0.269)	(0.372)
Retired	0.189	0.213	0.160	0.188	0.0999	0.293	0.191
	(0.392)	(0.409)	(0.367)	(0.390)	(0.300)	(0.455)	(0.393)
Other	0.219	0.303	0.126	0.130	0.367	0.190	0.224
	(0.414)	(0.460)	(0.332)	(0.336)	(0.482)	(0.393)	(0.417)
Ln(HH size)	1.072	0.905	1.184	1.027	1.625	0.956	1.130
	(0.586)	(0.514)	(0.461)	(0.518)	(0.473)	(0.490)	(0.563)
Asset index	0.00408	-0.00237	0.00999	0.0255	0.00398	0.00885	0.00801
	(2.430)	(2.458)	(2.027)	(2.246)	(2.349)	(2.179)	(2.287)
Rural area	0.520	0.600	0.304	0.474	0.693	0.309	0.484
	(0.500)	(0.490)	(0.460)	(0.499)	(0.461)	(0.462)	(0.500)
<i>Neighbourhood</i>							
Elite	0.0138	0.00593	0.0295	0.00961	0.00745	0.00298	0.0116
	(0.117)	(0.0768)	(0.169)	(0.0976)	(0.0860)	(0.0545)	(0.107)
Higher middle class	0.131	0.297	0.340	0.213	0.367	0.123	0.246
	(0.337)	(0.457)	(0.474)	(0.410)	(0.482)	(0.328)	(0.431)
Lower middle class	0.669	0.612	0.546	0.686	0.484	0.661	0.608
	(0.471)	(0.487)	(0.498)	(0.464)	(0.500)	(0.473)	(0.488)
Poor	0.172	0.0812	0.0747	0.0869	0.116	0.205	0.123
	(0.378)	(0.273)	(0.263)	(0.282)	(0.320)	(0.404)	(0.329)
Slum	0.0149	0.00371	0.00896	0.00460	0.0257	0.00820	0.0111
	(0.121)	(0.0608)	(0.0942)	(0.0677)	(0.158)	(0.0902)	(0.105)
<i>Property</i>							
Elite	0.00372	0.0182	0.0284	0.0242	0.0119	0.00745	0.0155
	(0.0609)	(0.134)	(0.166)	(0.154)	(0.109)	(0.0860)	(0.123)
Higher middle class	0.127	0.296	0.333	0.232	0.285	0.143	0.236
	(0.333)	(0.457)	(0.471)	(0.422)	(0.451)	(0.350)	(0.425)
Lower middle class	0.563	0.497	0.506	0.564	0.434	0.594	0.525
	(0.496)	(0.500)	(0.500)	(0.496)	(0.496)	(0.491)	(0.499)
Poor	0.222	0.143	0.105	0.132	0.168	0.218	0.165
	(0.415)	(0.350)	(0.306)	(0.338)	(0.374)	(0.413)	(0.371)
Slum	0.0305	0.0263	0.0175	0.0418	0.0667	0.0332	0.0359
	(0.172)	(0.160)	(0.131)	(0.200)	(0.250)	(0.179)	(0.186)
N/A	0.0543	0.0197	0.0105	0.00669	0.0350	0.00559	0.0222
	(0.227)	(0.139)	(0.102)	(0.0815)	(0.184)	(0.0746)	(0.147)

Note: Mean of each variable with standard deviation in parentheses.



## 4.4 Empirical analysis

### 4.4.1 Saliency of different reference groups

In investigating the relative saliency of different reference groups I follow the empirical setup in Senik (2009). Table 4.6 presents estimates of regressions which include the three geographic relative deprivation metrics (at local, district, and country levels) as well as the relative deprivation vis-a-vis the standard of living held by the parents. The comparison with grandparents is not considered due to the high share of respondents who were not able to rank their own standard of living vis-a-vis the one enjoyed by their grandparents, suggesting that it is not the most natural reference group. As in Senik (2009) OLS regressions are estimated for ease of interpretation.<sup>7</sup> The baseline category is composed by those who reported the same standard of living vis-a-vis all four reference categories (locality, district, country, and parents). Results for the pooled regression are in column (1) and columns (2)-(7) present separate regression for each of the countries in the sample. All regressions account account for the respondent's age, age squared, sex, education level, marital status, employment status, as well as household size, area of residence, the asset index and whether the respondent is the head of household. All regressions also include a set of district dummies.

Several observations can be made about the estimated coefficients. For all three geographic measures of relative deprivation considering your own standard of

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<sup>7</sup> Ferrer-i-Carbonell and Frijters (2005) examine the more stringent assumption of cardinality, i.e. that the difference between responses 2 and 3 on the satisfaction scale is the same, for instance, as the difference between 6 and 7. Relying on data from the German Socio-Economic Panel (GSOEP) they look at differences between ordinal and cardinal models of life satisfaction using the 11-step response to the following question: "How happy are you at present with your life as a whole? Please answer by using the following scale in which 0 means totally unhappy, and 10 means totally happy." They find that results are largely unaffected by the choice of cardinal vs. ordinal specification.

living as being worse than the majority of people in that group is negatively associated with reported satisfaction with the standard of well-being, and the opposite is true for those who assess their standard of living as being “better”. In the case of relative deprivation vis-a-vis parents, a negative assessment similarly has a negative association with reported satisfaction, whereas having a higher standard of living vis-a-vis parents does not appear to boost reported satisfaction, a result consistent with adaptive preferences (Frederick and Loewenstein 1999; Easterlin 2001; Stutzer 2004; Di Tella et al. 2010), and in particular with more prominent adaptation over the domain of gains (Arkes et al, 2006).

Table 4.6 also presents two sets of tests. First, across all reference groups there is an apparent asymmetry in the sense that the magnitude of the estimates associated with a negative assessment is larger than that for the positive assessment. This was also observed by Senik (2009). I perform formal tests which compare the magnitude of the negative coefficient associated with the “worse” relative status assessment in a given group and the positive coefficient associated with the “better” relative status (e.g. in the town case, I test the hypothesis  $H_0 : \beta_1 + \beta_3 = 0$ ). In the case of relative deprivation vis-a-vis parents the magnitude of the negative assessments is larger than that of the positive assessments. For geographic reference groups this is also the case in the pooled sample, albeit in the individual country regressions the null hypothesis cannot be rejected in 14 out of 18 tests.<sup>8</sup>

Secondly, I test the relative salience of different reference groups by comparing the magnitudes of the coefficients associated with perceived relative deprivation

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<sup>8</sup> The larger magnitudes associated with negative assessments is in the spirit of loss aversion (Kahneman and Tversky, 1979), although the evidence is merely suggestive, since income differences associated with “worse” and “better” need not be the same. I am grateful to Andrew Clark for pointing this out.

Tab. 4.6: Relative status and satisfaction with living standards - different reference groups

	Pooled	KAZ	MDA	MKD	SRB	TAJ	UKR
Same as town	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Worse ( $\beta_{1t}$ )	-0.406*** (0.028)	-0.338*** (0.065)	-0.397*** (0.067)	-0.276*** (0.077)	-0.462*** (0.068)	-0.438*** (0.073)	-0.465*** (0.067)
Better ( $\beta_{3t}$ )	0.314*** (0.028)	0.236*** (0.060)	0.278*** (0.061)	0.285*** (0.074)	0.432*** (0.072)	0.194*** (0.057)	0.443*** (0.099)
Same as district	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Worse ( $\beta_{1d}$ )	-0.209*** (0.027)	-0.281*** (0.059)	-0.157** (0.064)	-0.343*** (0.077)	-0.264*** (0.063)	-0.134** (0.062)	-0.179** (0.086)
Better ( $\beta_{3d}$ )	0.125*** (0.033)	0.125* (0.065)	0.113 (0.079)	0.201** (0.092)	0.259*** (0.095)	-0.086 (0.067)	0.236** (0.103)
Same as country	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Worse ( $\beta_{1c}$ )	-0.226*** (0.024)	-0.344*** (0.059)	-0.177*** (0.054)	-0.155** (0.060)	-0.160*** (0.058)	-0.279*** (0.060)	-0.204*** (0.072)
Better ( $\beta_{3c}$ )	0.101*** (0.034)	-0.013 (0.066)	0.235*** (0.081)	0.085 (0.081)	0.007 (0.105)	0.201*** (0.076)	-0.115 (0.123)
Same as parents	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Worse ( $\beta_{1p}$ )	-0.245*** (0.020)	-0.210*** (0.047)	-0.154*** (0.050)	-0.291*** (0.048)	-0.256*** (0.049)	-0.151*** (0.045)	-0.360*** (0.050)
Better ( $\beta_{3p}$ )	0.019 (0.021)	-0.107** (0.049)	0.038 (0.047)	0.003 (0.046)	0.030 (0.054)	0.083 (0.060)	0.040 (0.051)
R-squared	0.428	0.482	0.335	0.435	0.467	0.334	0.342
Obs	13155	2295	2187	2264	2050	2215	2144

Tests of relative salience of different reference groups

$\beta_{1t} - \beta_{1d}$	-0.197	-0.057	-0.240	0.067	-0.198	-0.304	-0.285
Prob>chi2	0.000	0.579	0.031	0.627	0.073	0.007	0.032
$\beta_{1t} - \beta_{1c}$	-0.180	0.006	-0.220	-0.121	-0.302	-0.159	-0.261
Prob>chi2	0.000	0.952	0.014	0.250	0.002	0.081	0.010
$\beta_{1t} - \beta_{1p}$	-0.161	-0.128	-0.243	0.015	-0.206	-0.287	-0.105
Prob>chi2	0.000	0.143	0.004	0.867	0.018	0.001	0.203

Tests of relative salience of positive/negative assessments

$\beta_{1t} + \beta_{3t}$	-0.092	-0.103	-0.119	0.009	-0.031	-0.244	-0.022
Prob>chi2	0.023	0.264	0.209	0.934	0.762	0.012	0.845
$\beta_{1d} + \beta_{3d}$	-0.084	-0.156	-0.043	-0.142	-0.005	-0.220	0.057
Prob>chi2	0.061	0.112	0.674	0.236	0.967	0.024	0.679
$\beta_{1c} + \beta_{3c}$	-0.125	-0.357	0.058	-0.070	-0.153	-0.078	-0.319
Prob>chi2	0.005	0.000	0.581	0.518	0.202	0.470	0.028
$\beta_{1p} + \beta_{3p}$	-0.227	-0.317	-0.116	-0.288	-0.226	-0.068	-0.320
Prob>chi2	0.000	0.000	0.157	0.000	0.009	0.441	0.000

Notes: OLS regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. District dummies included in all regressions. Regressions also account for the respondent's age, age squared, sex, household head dummy education level, marital status, employment status, as well as household size, area of residence, and the asset index. Dummies for the don't know categories of relative deprivation also included but not reported. Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

across reference groups (e.g.  $H_0 : \beta_{1_t} - \beta_{1_d} = 0$  tests the relative salience of town-based vs district-based relative status comparisons). In five out of seven cases the negative coefficient associated with relative deprivation at the local (village / town) level is larger in magnitude than the coefficient associated with relative deprivation at the district level. Similarly in 5 out of 7 tests it is also larger than the coefficient associated with relative deprivation at the country level. This provides some support for the salience of localised relative deprivation in particular, and is consistent with the earlier results which suggested that relative deprivation at the local level was easiest for respondents to evaluate.

As Senik (2009) notes, one of the difficulties with the above results has to do with endogeneity resulting from the fact that perceptions of relative deprivation and satisfaction with standard of living can both be a function of unobserved traits. To account for this possibility, Senik proposes to look at respondents who are better off on one dimension, but worse off on another. The identifying assumption is that while those with universally positive (negative) assessments of their relative standard of living may be generally more optimistic (pessimistic) for reasons we do not observe, there is “[n]o obvious omitted variable or reverse causation available for these concomitant opposite variations.”

Following Senik (2009) I evaluate the salience of different reference groups by looking at the interactions of relative deprivation assessments for different groups that go in opposite directions. Thus, for relative deprivation at town level and relative deprivation at district level this interaction generates nine categories, two of which are of interest: (i) worse at town level and better at district level; and (ii)

Tab. 4.7: Relative status and satisfaction with living standards - interactions

	(1)	(2)	(3)	(4)	(5)	(6)
Below town, above district	-0.294** (0.128)					
Above town, below district	-0.114 (0.078)					
Below town, above country		-0.143 (0.106)				
Above town, below country		-0.001 (0.052)				
Below district, above country			-0.060 (0.101)			
Above district, below country			-0.131* (0.070)			
Below town, above parents				-0.741*** (0.040)		
Above town, below parents				0.183*** (0.043)		
Below district, above parents					-0.624*** (0.034)	
Above district, below parents					0.112** (0.045)	
Below country, above parents						-0.544*** (0.034)
Above country, below parents						0.042 (0.050)
R-squared	0.411	0.413	0.394	0.409	0.398	0.387
Obs	13155	13155	13155	13155	13155	13155

Notes: OLS regressions. Two interactions reported, but all interactions included in the regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. District dummies included in all regressions. Regressions also account for the respondent's age, age squared, sex, household head dummy education level, marital status, employment status, as well as household size, area of residence, and the asset index. Dummies for the don't know categories of relative deprivation also included but not reported. Significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

better at town level and worse at district level. Similar groups are constructed for town  $\times$  country, town  $\times$  parents, district  $\times$  country, district  $\times$  parents, and country  $\times$  parents pairs.

The estimates of regressions with reference group interactions are presented in Table 4.7. Only estimates of the worse/better interactions are reported, although all nine cross-categories are included in all regressions. The regressions also account for the full set of controls. Columns (1)-(3) look at local interactions of relative deprivation at town, district and country level, whereas columns (4)-(6) report the interaction of relative deprivation vis-a-vis parents with each of geographic reference

groups. From (1)-(3) it is not possible to infer any notable ranking of the importance of different geographic reference groups. On the other hand, estimates of models (4)-(6) suggest that relative deprivation defined in terms of geographic space is more salient than deprivation vis-a-vis parents. The sign of the coefficient in all of the cases is based on whether one reports to be worse or better than others in their locality/district/country of residence. Relative deprivation in this geographic sense is not fully compensated by an improved standard of living relative to the one enjoyed by parents. Having a standard of living higher than the majority of people in the town or district of residence still has a positive effect on overall satisfaction with the standard of living, even if this standard of living is perceived by the respondent to be below the level enjoyed by her parents. The patterns are again in line with loss aversion, estimates being larger in magnitude over the domain of losses. Finally, deprivation at the village/town level appears to be the most salient geographic reference group in terms of the magnitudes of impact.

#### 4.4.2 More on local relative deprivation - IV results

The results in section 4.4.1 suggested that relative deprivation defined in terms of geographic space is more salient for overall satisfaction with the standard of living compared with relative deprivation vis-a-vis one's parents. Furthermore, the results are consistent with previous evidence that reference groups are likely to be very local (Graham and Felton 2006; Knight et al. 2009; Kuhn et al. 2011). In this section I look more closely at local relative deprivation. In particular, I employ an instrumental variables approach to estimate a causal effect of relative deprivation on satisfaction with the standard of living.

I start by assuming that satisfaction with one's living standard is a function of the living standard itself (in an absolute sense), relative status considerations, and relevant characteristics of the respondent/household/area of residence, expressed as follows:

$$S_i = \beta_1 LS_i + \beta_2 RD_i^P + X_i' \gamma + \varepsilon_i,$$

where  $S_i$  is satisfaction with living standard,  $LS_i$  is objective living standard, measured by means of an asset index,  $RD_i^P$  is relative deprivation at the town level as perceived by individual  $i$ ,  $X_i$  is a set of personal and household characteristics that determine one's satisfaction as before. For the moment it is assumed that  $Cov(RD_i^P, \varepsilon_i) = 0$ . The relationship between satisfaction and local relative deprivation thus defined is reported in Table 4.8. As before, lower relative status is negatively associated with one's satisfaction with the standard of living both in the pooled sample and in each of the individual countries in the survey.<sup>9</sup>

It is possible, however, that the error term  $\varepsilon_i$  includes unobserved cognitive traits  $Cog_i$  that are correlated both with  $RD_i^P$  and with  $S_i$ , such that  $\varepsilon_i = \theta Cog_i + u_i$ , and  $Cov(RD_i^P, \varepsilon_i) \neq 0$ , while  $Cov(RD_i^P, u_i) = 0$ .<sup>10</sup> For instance, respondents who are better off than their neighbours may report instead that their standard of living is the same as that of their neighbours out of modesty or unwillingness to admit their superior relative standing. Modest individuals may, at the same time, be more content with their own standard of living due to the same unobservables.

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<sup>9</sup> Here relative deprivation is used as an index where higher values indicate better relative standing, in spite of the fact that this is an ordinal variable with no natural scale. For this reason of primary interest is the sign of the coefficient, and not its magnitude. Note, however, that the estimates in table 4.6 suggested that the effect of moving from "worse" to "same" and from "same" to "better" is of equal magnitude. The results are substantively the same when relative deprivation is defined instead as a dummy variable that equals 1 if the respondent stated that her standard of living is worse than that of the majority of people in her village/town of residence, and zero otherwise.

<sup>10</sup> Identification requires that  $Cog_i$  not be systematically correlated with  $LS_i$  and  $X_i$ , including (perhaps strongly) age, sex and education level.

Tab. 4.8: Relative status and satisfaction with living standards - OLS

	Pooled	KAZ	MDA	MKD	SRB	TAJ	UKR
RDP	0.583*** (0.016)	0.507*** (0.038)	0.514*** (0.039)	0.604*** (0.033)	0.718*** (0.038)	0.429*** (0.043)	0.667*** (0.048)
Age	-0.034*** (0.003)	-0.036*** (0.007)	-0.024*** (0.007)	-0.046*** (0.008)	-0.047*** (0.007)	-0.029*** (0.008)	-0.024*** (0.007)
Age squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Male	0.031 (0.019)	0.080* (0.045)	0.019 (0.050)	-0.029 (0.047)	-0.045 (0.045)	0.013 (0.046)	0.102** (0.048)
Head of HH	-0.022 (0.022)	-0.044 (0.053)	-0.098* (0.057)	0.024 (0.052)	0.061 (0.050)	-0.025 (0.055)	-0.022 (0.053)
Education: Secondary	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Primary or less	-0.001 (0.022)	0.013 (0.060)	0.001 (0.048)	-0.074 (0.046)	-0.019 (0.055)	-0.044 (0.047)	0.218*** (0.073)
Post-secondary	0.045** (0.019)	-0.002 (0.046)	-0.064 (0.047)	0.120*** (0.042)	0.109** (0.052)	0.035 (0.051)	0.053 (0.046)
Married	0.098*** (0.019)	0.073* (0.044)	0.074 (0.050)	0.050 (0.046)	0.217*** (0.050)	0.158*** (0.049)	0.067 (0.046)
Employment: Private sector	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Public sector	0.045* (0.026)	0.126** (0.062)	0.022 (0.063)	0.025 (0.056)	0.140** (0.063)	-0.021 (0.093)	-0.041 (0.061)
Self-employed	0.015 (0.036)	0.002 (0.077)	-0.081 (0.095)	0.262*** (0.083)	0.058 (0.088)	-0.060 (0.096)	-0.048 (0.132)
Unemployed	-0.192*** (0.027)	-0.200*** (0.071)	-0.191** (0.080)	-0.234*** (0.046)	-0.166*** (0.059)	-0.027 (0.093)	-0.331*** (0.083)
Retired	-0.034 (0.036)	0.071 (0.087)	-0.038 (0.087)	0.010 (0.077)	0.099 (0.088)	-0.285** (0.126)	-0.128 (0.085)
Other	0.012 (0.026)	0.005 (0.058)	-0.006 (0.064)	-0.025 (0.064)	0.086 (0.069)	0.001 (0.090)	0.060 (0.066)
Ln(HH size)	-0.057*** (0.020)	-0.089** (0.044)	-0.035 (0.048)	-0.021 (0.050)	-0.172*** (0.044)	0.084 (0.052)	-0.067 (0.054)
Asset index	0.106*** (0.005)	0.177*** (0.015)	0.119*** (0.013)	0.114*** (0.012)	0.065*** (0.011)	0.118*** (0.013)	0.083*** (0.015)
Rural area	0.111*** (0.026)	0.234** (0.095)	0.248*** (0.068)	0.111** (0.048)	-0.074 (0.050)	0.203*** (0.069)	0.115* (0.066)
R-squared	0.393	0.441	0.303	0.397	0.431	0.292	0.294
Obs	13155	2295	2187	2264	2050	2215	2144

Notes: OLS regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. District dummies included in all regressions. Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.



Furthermore, a large share of respondents report that their standard of living is the same as that of the majority of residents in their town (and similarly for district) of residence. Roh (2011) shows that the tendency of choosing the middle category, oftentimes observed in responses to attitudinal questions, will introduce non-classical measurement error into independent variables (here  $RD_i^P$ ) that will generally bias downward the regression coefficient on those variables.

In order to extract exogenous variation in the relative deprivation variable, I rely on the interviewer’s own assessment of the respondent’s relative deprivation. Specifically, the interviewer provides an evaluation of the conditions inside the respondent’s property, coded as one of the following: elite, higher middle class, lower middle class, poor, or slum. The interviewer is also asked to provide an assessment of the conditions of the neighbourhood where the respondent’s household is located, similarly ranging from elite to slum. Based on this I create an index defined as the difference between the neighbourhood score and the household score, where positive values indicate that the household conditions are better than those of the neighbourhood, and negative values indicate that the household’s conditions are worse than those of the neighbourhood where it is located.<sup>11</sup> The index ranges from -2 to +2.<sup>12</sup>

Perceptions of relative deprivation  $RD_i^P$  are assumed to be determined as follows:

$$RD_i^P = \delta RD_i^a + X_i' \zeta + v_i, \text{ where } RD_i^a \text{ is actual relative deprivation, } X_i \text{ is the}$$

same set of controls as before, and  $Cog_i$  is not observed and is part of a composite

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<sup>11</sup> Note that results do not change if instead  $RD_i^f$  is defined as a dummy variable which evaluates to 1 if the conditions of the neighbourhood are better than the conditions of the property, and zero otherwise.

<sup>12</sup> There are only few observations with an index of -3 (a total of 33 in the pooled sample, most from Tajikistan) or +3 (a total of 6 in the pooled sample), these are recoded as -2 and +2 respectively.

error term  $v_i = \varphi Cog_i + \vartheta_i$ .

Note that  $RD_i^a$  is not observed. Instead, we observe the interviewer's assessment of relative deprivation  $RD_i^I$ , which serves as a proxy for actual relative status, i.e.  $RD_i^I = \rho RD_i^a + \omega_i$ , where  $\omega_i$  is assumed uncorrelated with  $RD_i^a$ . Thus,  $RD_i^P = \psi RD_i^I + X_i' \zeta + \eta_i$ , where  $\psi = \frac{\delta}{\rho}$  and  $\eta_i = v_i - \frac{\delta}{\rho} \omega_i$ . It is assumed that  $Cov(RD_i^a, v_i) = 0$ , i.e. objective relative deprivation is not correlated with unobservable cognitive biases in the error term. It is similarly assumed that  $Cov(RD_i^I, v_i) = 0$ , i.e. any possible cognitive biases of the interviewer are not systematically linked with those of the respondent. It is plausible that  $RD_i^a$  and  $RD_i^I$  are reasonably well correlated.

In order for  $RD_i^I$  to serve as an instrument for relative deprivation the first requirement is that it has to be the case that  $\psi \neq 0$ , i.e.  $RD_i^I$  has to be partially correlated with  $RD_i^P$  conditional on all of the other exogenous variables (here  $LS_i$  and the vector  $X_i$ ). This assumption is testable. Table 4.10 reports the tests of weak identification based on the Kleibergen-Paap Wald F statistic (Kleibergen and Paap 2006). In all cases the F statistic exceeds the critical values for weak identification proposed in Stock and Yogo (2005).  $RD_i^I$  is strongly predictive of perceived relative deprivation both in the pooled sample and in the individual country sub-samples.

The second requirement is  $Cov(RD_i^I, \varepsilon_i) = 0$ . For this to hold it has to be the case that  $RD_i^I$  only affects satisfaction with one's living standard through perceptions of relative deprivation, which in turn affect  $S_i$ . As argued above, it seems plausible that the interviewer's  $RD_i^I$  is not correlated with the respondent's unobserved  $Cog_i$ .<sup>13</sup> It is plausible that perceived relative status affects satisfaction with

<sup>13</sup> One may worry that the interviewer's assessment of the respondent's relative deprivation may be influenced by

Tab. 4.9: Relative status and satisfaction with living standards - 2SLS

	Pooled	KAZ	MDA	MKD	SRB	TAJ	UKR
RDP	1.371*** (0.143)	2.348*** (0.627)	0.782*** (0.279)	1.432*** (0.404)	1.358*** (0.320)	1.518*** (0.377)	1.296*** (0.410)
Obs	12873	2174	2145	2237	2035	2146	2136
Endogeneity test	35.633	20.778	0.896	4.856	4.685	11.691	2.664
P-value	0.000	0.000	0.344	0.028	0.030	0.001	0.103
Kleibergen-Paap statistic	145.055	12.927	38.872	14.815	30.212	25.889	19.332

Notes: 2SLS regressions. Robust standard errors, clustered at primary sampling unit level in parentheses. Full set of controls. Interviewer’s assessment of the entrance of the property and of the property itself used as instruments. Significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

living standard. For  $Cov(RD_i^I, \varepsilon_i) = 0$  to hold it also has to be the case that the respondent’s relative deprivation *per se*, when the respondent is not aware that she is relatively deprived, does not have an effect on her standard of living satisfaction. It can be argued that relative deprivation can be negatively associated with satisfaction, even when unobserved, because it is a by-product of a low standard of living, which is negatively associated with satisfaction. The IV set-up thus implicitly requires that the observed  $LS_i$  capture one’s objective absolute standard of living in some complete sense, such that there is no unobserved living standard in  $\varepsilon_i$ . Finally, since  $RD_i^I$  is constructed as the difference between the property and the neighbourhood living standard assessments, the possibility of the middle response style affecting the interviewer as well will not be problematic as long as the response style is stable across the two questions, and it is difficult to think of reasons why this should not be the case.

The estimates for 2SLS regressions in which interviewer’s assessments are used to instrument relative deprivation are reported in Table 4.10. In addition to the

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the mood of the respondent. There are two factors mitigating this possibility. First, the interviewer is not asked to provide a direct assessment of relative deprivation, rather the assessment of the neighbourhood and the assessment of the property are provided separately, and these two questions are not consecutive. Secondly, in the questionnaire the respondent’s assessment of relative status is in the first half of the interview, whereas the respondent’s assessment is provided at the end of the interview, after attitudinal questions that do not probe the respondent’s welfare in either absolute or relative terms.

weak identification tests discussed above I also report the results of an endogeneity test, defined as the difference between two Sargan-Hansen statistics: one for the equation where the relative deprivation is treated as endogenous, and one for the equation with the larger set of instruments, where it is treated as exogenous. With the exception of Moldova and (marginally, Ukraine) the null hypothesis that the relative deprivation measure is exogenous is rejected at conventional levels. Subject to the validity of the IV approach, the 2SLS estimates confirm the negative effect of local relative deprivation on satisfaction with one's standard of living, both in the pooled sample, and in the individual country samples.

Notably, 2SLS estimates are larger than OLS estimates, particularly in the case of Kazakhstan, although here the estimate is very imprecise. The higher second stage estimates are consistent with the downward OLS bias due to the measurement error introduced by the middle response style. Reporting that one's living standard is no higher than of the majority of settlement residents due to unobserved traits such as modesty would also bias the OLS results downward. Finally, note that the positive (negative) effect on one's satisfaction with the standard of living of reporting a higher (lower) living standard vis-a-vis others in one's settlement increases (decreases) with the interviewer's assessment (i.e. the positive satisfaction effect of reporting a better living standard is greatest in magnitude when matched by an assessment of "better" by the interviewer, and decreases in magnitude when the interviewer's assessment is "same", or "lower"). Since the scale of worse/same/better is coarse, it is plausible that households with a very high standard of living will be more likely to be ranked as better than others by both the respondent and the interviewer, and similarly

household with a very low standard of living will be more likely to get a consistently negative assessment. This would also suggest higher second stage estimates.

## 4.5 Concluding remarks

The existing evidence of the importance of relative deprivation for well-being is generally (i) derived from data for OECD countries; (ii) based on relative deprivation metrics that are imposed by the researcher, an assumption the validity of which is difficult to test; and (iii) does not always fully address the potential endogeneity biases, especially in cross-sectional studies.

This study aimed to address all three of the above shortcomings. It found a negative effect of local relative deprivation on satisfaction with one's standard of living based on data from six Transition Economies, including Tajikistan and Moldova - the poorest countries in post-Socialist Europe. The estimates of the negative effect of relative deprivation were based on respondent-defined measures of relative deprivation that do not suffer from status observability or status salience concerns associated with researcher-imposed relative deprivation metrics. Finally, an instrumental variables empirical strategy was adopted in order to establish a causal effect of relative deprivation on well-being.

Several other findings emerge from this study. First, while the true reference groups are multidimensional and ultimately unobserved, the data suggest that relative deprivation based on geographic reference groups is more salient than that based on comparisons vis-a-vis parents, and within the category of geographic reference groups, local reference groups are more salient than broader country-wide assessments of relative status. Second, relative deprivation is a welfare-relevant concern

even at low income levels. This conclusion is in line with the recent findings by Fafchamps and Shilpi (2008) from Nepal, but contradict the Ravallion and Lokshin (2010) results from Malawi where relative deprivation mattered only for the well-off.

## 5 Overall conclusion

Amartya Sen's question "Equality of What?", posed in his 1979 Tanner Lectures and concerned with the relevant space over which equality should be considered for purposes of justice, is an important and highly contested subject in the distributive justice literature. A number of alternatives have been suggested, including equality of resources (Rawls 1971; Dworkin 1981), equality of opportunities for welfare (Arneson 1989), equality of opportunity for a good life (Arneson 2000), equality of access to advantage (G. A. Cohen 1989), or equality of capabilities (Sen 1980, 2000), among others. Meanwhile, at international development institutions like the World Bank, and in the current policy discourse that is increasingly concerned with the growing economic inequality in many countries, the main concept of inequality in use is that of income inequality. Until recently, the fields of distributive justice and development economics did not communicate effectively on this important issue. While the former identified inequalities that matter, these were difficult to measure, and hence difficult to use effectively in development policies. The latter provided us with precise magnitudes of inequality across space and time, but it is not clear that what was being measured was the relevant inequality space, or even the degree to which it approximated the relevant inequality space as described by political philosophers.

However, the extent and the implications of inequality of opportunity – and its relation to overall inequality – are becoming increasingly important in analytical and policy debates. The provision of equal opportunities for all is moving to the forefront

of social policy not only in the European Union but also in other parts of the world. In Latin America a number of countries track the evolution of the recently developed Human Opportunity Index (HOI) and in several countries (Mexico, Chile) policies aim directly at the improvement of the HOI.

To the extent that status concerns and inequality of opportunity trap development in low level equilibria, as was eloquently articulated by the World Development Report 2006 on Equity and Development, it is knowledge based on developing countries that is most vital for policy purposes. This dissertation aimed to contribute to our knowledge base in this area by adding an account of the importance of inequality of opportunity in post-Socialist Europe for preferences over redistributive policy and expectations of future social mobility. The concept of inequality of opportunity examined derived in part from Rawls's concept of fair equality of opportunity based on access to positions and offices in society, and in part it is based on beliefs about the importance of effort and luck for success. This is but one of many ways of looking at this issue. A growing literature that builds on the work of John Roemer examines inequality of opportunity by separating overall inequality into that due to effort and that due to pre-determined circumstances. This literature is in its early stage of development, and the findings of this dissertation support further analytical efforts aimed at capturing the various dimensions of inequality of opportunity both in developed and developing countries, understanding its drivers, and ways in which it can be alleviated through policy interventions.

This dissertation drew on data from Transition Economies, which, due to the rapid changes since 1989 over a very short period of time, provided an ideal setting



for investigating aspects of inequality aversion and relative deprivation. This is because the magnitude of the socio-economic transformation is large enough to upset prior stable expectations of the citizens of this region, while the speed of the transformation ensured that the effect of adaptive preferences is only partial. This raises a question, however, vis-a-vis the relevance of the findings of this dissertation for other developing countries such as those in Latin America, where high levels of inequality existed for much longer periods of time. While long-term deprivation and inequality may certainly give rise to adaptation, possibly weakening the link between inequality and life satisfaction, it should still be the case that expectations of one's future chances of mobility will suffer on account of inequality of opportunity. Furthermore, as suggested by Alesina and Angeletos (2005), preferences over redistributive policy will still be affected (and reinforced) by perceptions of persistent institutional unfairness, resulting in multiple equilibria. As the result, improvements of the formal institutions aimed at leveling the playing field and enlarging the opportunity set of all – and especially of those in the lower tail of the bottom to escape inequality traps.

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