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Income Distribution and Subjective Happiness: A Survey

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SUMMARY

This survey summarises the insights that the new literature based on subjective data has shed on the issue of income inequality and income comparisons. It reviews the various channels that relate income distribution and subjective well-being. It considers the welfare effect of income gaps in general, both in terms of the difference between individual income and the income of some relevant other, and with regard to generic income distribution.

Concerning income comparisons, the general lesson is that it is useful to distinguish status effects from signal effects: income comparisons hurt, but they may also increase life satisfaction when they mean good news; this is all the more likely as the reference group is made of people who most likely share a common destiny.

Concerning income distribution in general, the relationship with subjective well-being is generally found to be negative, with higher societal inequality being associated with lower subjective well-being. There are many possible pathways which may lie behind such an empirical finding. The first type of aversion to income inequality derives from self-centred motives, such as risk-aversion and prospects for upward mobility (POUM). Both stem from a perception of the income distribution as a ladder that one risks falling from or has a chance to climb. Attitudes to inequality are also sometimes found to be based on other-regarding preferences such as fairness and reciprocity, which are generally independent of the income position of the individual himself. An important point is that subjective attitudes are the joint output of preferences and beliefs concerning income distribution in society. The demand for redistribution is higher whenever people have strong preferences for equal outcomes or opportunities but believe that in the society in which they live, outcomes or opportunities are actually not equal. As illustrated by several studies, preferences and beliefs concerning income distribution are context dependent and are thus heterogeneous across countries and groups of the population.

JEL Classification: C23, D61, D63, D64, H24, I31.

Keywords: income distribution, income comparisons, subjective well-being, demand for income redistribution.

RÉSUMÉ

Cet article présente une revue de la littérature consacrée au lien entre inégalités de revenu et bien-être subjectif. Elle résume les apports des études empiriques fondées sur l'exploitation des données subjectives disponibles dans les grandes enquêtes auprès de la population. Elle considère l'effet des écarts de revenu au sens étroit – comparaisons avec le revenu d'un groupe de référence – et au sens large – effet des inégalités de revenu en général.

Les études relatives aux comparaisons de revenu mettent en lumière deux phénomènes différents : les effets de statut (envie), dont l'impact sur le bien-être subjectif est négatif, et les effets de signal, dont l'impact est positif. L'effet de signal est lié au contenu informationnel du revenu d'autrui ; il est d'autant plus important que les membres du groupe de référence partagent un grand nombre de caractéristiques productives, donc des perspectives professionnelles communes.

Concernant la répartition générale des revenus dans la société, les travaux empiriques conduisent généralement à l'établissement d'une relation négative entre inégalité des revenus et bien-être subjectif. Les phénomènes en jeu sont multiples. Un premier type d'attitude vis-à-vis des inégalités de revenus relève de l'aversion au risque ou des perspectives de mobilité ascendante. Dans les deux cas, l'échelle des revenus est perçue par les individus d'un point de vue autocentré, en tant que chance d'ascension ou risque de chute. Cependant, un grand nombre de travaux empiriques suggère également l'existence de préférences concernant le revenu d'autrui. Plus précisément, l'attitude vis-à-vis des inégalités dépend de la conjonction entre les croyances et les préférences des agents concernant la formation des inégalités. La demande de redistribution est ainsi plus forte lorsque les agents expriment une préférence pour l'égalité des revenus ou des opportunités, mais estiment que cette égalité n'est pas réalisée dans les faits. Certaines études illustrent alors l'hétérogénéité des préférences et des croyances selon les pays et les groupes sociaux.

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1. Introduction

1. Welfare economists have struggled for years to define an axiomatically fair income distribution which would optimize general well-being (Fleurbaey, Shokkaert, Koen and Decancq, 2009). But recently, a new branch of economics has turned to the subjective appreciation of individuals themselves regarding the income distribution, which may cast new light on this quest.

2. This survey summarises the insights that this new literature, which is now in its teenage years, has shed on the issue of income inequality, income comparisons and the potential public interventions to improve subjective well-being by redistributing income. It reviews the various channels that relate income inequality and subjective well-being. It considers the welfare effect of income gaps in general, both in terms of the gap between individual income and the income of some relevant other, and with regard to generic income inequality.

3. The relevant empirical background to this literature includes a rise in within-country income inequality, including wage inequality, which started in the 1980s in many countries (Atkinson and Piketty, 2007). On the other hand, since the 1960s government transfers for the purpose of income redistribution have doubled in developed countries (Alesina and La Ferrara, 2005). It is thus important for economic research, including research considering subjective well-being as an outcome, to provide some information about the welfare gains or losses brought about by these developments.

4. The happiness literature considering income differences has tried to measure the extent of preferences for equal distributions of incomes and the degree of heterogeneity in these preferences. Additionally, it has addressed the impact of beliefs regarding the process of income distribution. In terms of theoretical challenges, one of the main issues is whether there is more in the individual utility function than one's own income (and leisure). Does one need to include other-regarding preferences, such as pure aversion to inequality as such, comparison concerns or fairness concerns?

5. Why use subjective data? Usually, economists prefer to rely on observable actions in order to infer unobservable preferences. But this is not feasible when no link from individual preferences to individual action can be traced. This is obviously the case for all phenomena which include externalities, as well as non-market social interactions (Manski and Straub, 2000). Income comparisons and income inequality are precisely among those, as other people's income and income distribution do not depend on individual action. Analyzing votes could help elucidate these preferences, but existing voting procedures are seldom fit to reveal such precise information, as people are usually asked to vote on a bundle of policy proposals that include income distribution among many other things. Hence subjective data can be usefully mobilized to elucidate the relationship between income distribution and well-being.

6. But can one really trust subjective data? Do subjective judgments and attitudes collected in surveys measure anything more than the noise of the daily changing mood of respondents? While economists were rather suspicious about this method 10 or 15 years ago, a variety of tests has now comforted the validity and reliability of subjective data, including cross-ratings by spouses and friends, test-retest experiments and neuro-psychological experiments with MRI (Frey and Stutzer, 2002; Di Tella and MacCulloch, 2006; Kahneman and Krueger, 2006; Clark *et al.*, .2006). In terms of the main correlates of self-declared satisfaction, the structure of satisfaction has proved to be stable across time and space (di Tella, MacCulloch and Oswald, 2003).

7. The analysis of subjective data typically consists of estimating an individual welfare function, using individual data from nationally representative surveys, which contain subjective questions such as the Life satisfaction question *("To what extent are you satisfied with your life in general at the present time?": fully satisfied / rather satisfied / both yes and no / less than satisfied / not at all satisfied), or the* Demand for redistribution (*"Do you agree that the government should take measures to reduce the difference in income levels?"*: *agree strongly … disagree strongly)*. These estimates control for the classical socio-demographic characteristics of the population (age, gender, marital status, size of household, occupation, labour market status, region, household and individual income and/or expenditures, etc.).

8. From attitudes to inequality and income comparisons, one is led naturally to re-examine the notion of relative poverty. Poverty can be defined in an absolute way, as living under a subsistence level, with less than a dollar per day for instance (World Bank), or being unable to afford a certain daily minimal consumption level (*e.g.* dietary intake). With this type of definition, there is no ambiguity about the welfare impact of poverty. By contrast, relative poverty is often defined as the fact of living with less than half of the median level of income in one's country of residence (OECD) or under the threshold of 60% of median income (European Union). These poverty levels obviously relate to a notion of relative income, where the income of individuals is compared to a reference income defined by the poverty threshold. What they measure is relative deprivation. On the other hand, it is clear that this notion of relative poverty is just another measure of skewness of income distribution. A society where all incomes would be about equal would not include any poor, in the sense of relative poverty. Hence, instead of addressing directly the literature about poverty, this paper will focus on relative income and income distribution and discuss the consequences of the findings on the notion of poverty.

9. The next section reviews the existing empirical papers dedicated to the relationship between income comparisons and well-being. Section 3 discusses the literature about income inequality and subjective welfare. Section 4 concludes.

2. Comparisons and subjective well-being

10. One explanations of Easterlin's paradox that *"raising the incomes of all does not increase the happiness of all"* is comparison effects. The idea is that if a general increase in national wealth does not make inhabitants of a country happier, it is because the latter only value the relative progress in their personal income, compared to some relevant reference group. This notion of comparison income, relative income, or relative deprivation, constitutes a specific case of the psychological discrepancy theory (Michalos, 1985) which postulates that satisfaction judgments depend on the gap between a person's situation and her comparison benchmarks (which in turn can be constituted by other persons, past situations, aspirations, needs and objectives).

11. There is by now a very substantial literature on relative utility and comparison effects. The best part of it is still theoretical, but the volume of empirical evidence about this conjecture is mounting. This survey presents the empirical evidence based on subjective data, leaving aside the experimental literature (see Clark *et al.*, 2009 on the latter body of work).

2.1 Comparison income and relative deprivation

12. The literature on relative income has started with the question "how do comparisons affect well-being" before asking "to whom do people actually compare themselves?". It is now focusing on a distinction between comparison versus information, or status versus signal effects (Senik, 2004). Essentially, the idea is that comparisons to a reference group can generate both relative deprivation (negative for the individual) and anticipatory feelings (positive for the individual) depending on the

informational content of reference income. Direct evidence about income comparisons has recently validated this distinction.

13. The empirical literature on relative income based on subjective data has started with a first series of papers providing evidence on the (negative) welfare effect of comparisons. In the absence of direct evidence, researchers made non-testable assumptions about the relevance of different reference groups for comparison purposes. Almost all empirical papers simply imposed an a priori plausible reference group. The method of these papers typically follows four steps: 1) Define a reference group; 2) Calculate its average or typical income and call it reference income; 3) Plug this constructed category into a happiness regression; 4) Look at the coefficient of reference income. Following this general method, researchers have hypothesized that the reference group was made of colleagues, neighbours or simply co-citizens. Most studies found a negative welfare impact of reference income. In many cases the magnitude of the effect of reference income and own income were found to be of the same magnitude (but with opposite sign), suggesting that the net benefit of higher income is zero (Clark and Oswald, 1996, Ferrer-i-Carbonnell, 2005, Helliwell and Huang, 2009).

Income comparisons on the job

14. A first group of studies are concerned with the relation between income gaps in the professional sphere and various notions of satisfaction, ranging from job to life satisfaction. The hypothetical reference group is then defined as being made of colleagues, or workers with same productive characteristics.

15. The inaugural paper of this series is by Cappelli and Sherer (1988), who studied job satisfaction in a major American airline company. They found that the equivalent outside market wage, calculated for each of the 19 different jobs and seniority levels at the carrier, has a significantly negative effect on pay satisfaction, controlling for individual wage and other job characteristics. The extent to which workers make outside comparisons also proved to be a factor causing lesser pay satisfaction. Another seminal study by Clark and Oswald (1996) analyzed job satisfaction (*"all things considered, how satisfied or dissatisfied are you with your present job overall?"*) of workers, using the British Household Panel Survey (*BHPS,* 1991). They defined the comparison income of a worker as the income of employees of the same age and same level of qualification who occupy the same kind of job. The authors then estimated a job satisfaction equation and found that individual income and comparison income attract about the same coefficient, but with an opposite sign (comparison income attracted a negative coefficient). Similar regressions using the "satisfaction with pay" variable led to the same result. In a subsequent paper, Clark (2003) used 11 waves of the BHPS (1991-2001), and found that the mean income of one's reference group defined by sex, region and wave has a negative influence on the life satisfaction of full-time employed workers. In the same vein, Bygren (2004) combined several data sources (the *Swedish Survey Panel*, the Swedish level of living survey (LNU-1991), the *Swedish Establishment Study* (APU-1991), the Register data from the Swedish tax authorities, and other statistical sources), to construct several notions of reference income. He found that workers' satisfaction depends negatively on the typical income of others in the same occupation, and others in the labour market at large, rather than other co-workers in the same firm.

Local reference groups

16. Other papers have hypothesized that the reference group is made of average fellow-citizens. Ferrer-i-Carbonnel (2005) defined the reference group as people with same education level, age and region (East versus West Germany), using the German Socio-Economic Panel (*GSOEP,* 1992-1997). She showed that a person's satisfaction with life decreases with the income of this reference group. This effect is significant in West Germany, but unstable in East Germany. In West-Germany, the effect is asymmetric: the coefficient on reference income is only significantly negative for individuals whose own income is

smaller than the average income of their group, conforming Duesenberry's (1949) intuition that only upward comparisons matter.

17. McBride (2001) showed evidence of negative comparison effects within age cohorts. Using the 1994 wave of the American *General Social Survey,* he showed that a person's satisfaction decreases with the average income of her cohort (persons born five years before and after her), controlling for her own income. This relative income effect is stronger the higher the income of the individual, whereas the influence of own income is higher for low income groups.

18. Other authors used notions of spatially defined reference groups, *i.e.* people who are likely to have daily interactions. Luttmer (2005) calculated the average income in a respondent's locality (100 000 inhabitants), combining the American *National Survey of Families and Households* panel data, the *Current Population Survey* and the *Population Census* data. Helliwell and Huang (2009) used the census tract of Canadian *General Social Survey*. Both studies found a negative impact of the average local income.

19. An important question is whether comparisons are "*a universal trait or an artifact of a prosperous, market-oriented life-style*" (Fafchamps and Shilpi, 2008). A few studies based on data collected in developing countries suggest that relative concerns are important for the poor. Fafchamps and Shilpi (2008) showed evidence of relative income concerns using the *Nepalese Living Standard Measurement Survey*: mean ward consumption had a negative impact on subjective consumption adequacy, no matter whether respondents' living standard was below or above this mean. Kingdon and Knight (2004) used South African data (the 1993 national household survey) and calculated the average income of people of the same race in the cluster and district where respondents live. These space-based reference incomes turn out to have different impact on subjective well-being. The average income in the local cluster is positively associated with subjective happiness, whereas the coefficient on the average income in the larger district is statistically significantly negative. The study also shows that district-level relative income concerns only matter for the non-poor, *i.e.* those who live above the absolute poverty line required for basic subsistence. By contrast, Akay and Martinsson (2008) used data collected in rural areas of northern Ethiopia in 2004-2005, but concluded to the non-significance of relative income amongst the very poor people of their sample (using a definition of reference groups based on age, size of land holdings and geographical area).

Objective ranks

20. Beyond the impact of relative income, a few studies have shown evidence that self-reported well-being depends upon the objective ordinal rank of an individual's wage within a comparison group, such as her firm, her industry or society as a whole. Brown, Gardner, Oswald and Qian (2008), for instance, based on an analysis of a matched employer-employees data from the *British Workplace Employee Relations Survey*, showed that the normalized rank of an employee in the firm wage distribution was a powerful predictor of her satisfaction. Moreover, quits in a workplace were found to be correlated with pay distribution skewness.

21. Fafchamps and Shilpi (2008) also showed that the objective rank of an individual in the ward where she lives (in Nepal) has a statistically significant positive impact on her satisfaction concerning the adequacy of her consumption level. Finally, Corneo and Grüner (2000) exhibited concerns for relative status rather than relative income, using the ISSP, *Social Inequality II* module (1992), showing that individuals' demand for redistribution depends on how this measure is likely to modify their relative position in terms of prestige (as measured by their score on the *Standard International Occupational Prestige Score*).

22. This literature shows that income comparisons are associated with lower subjective well-being. The importance of relative deprivation advocates for the acknowledgement of relative poverty, aside with the absolute threshold levels of poverty. Another widely shared idea is that income comparisons induce a socially inefficient rat-race that leads status-minded individuals to work and consume more than their optimum levels. In order to attenuate these undesirable effects, the proposed policy is generally to tax high income or conspicuous consumption, *e.g.* in the form of progressive income tax (Frank, 1997). However, a recent paper by Arrow and Dasgupta (2009) questions the idea that conspicuous consumption necessarily implies socially inefficient rat race: this is because inter-temporal planning leads individuals to strike a balance between current and future conspicuous consumption. Weisbach (2008) also confronts the findings of happiness studies, in particular concerning status effects, with standard optimal tax models and finds a difficulty in making fiscal policy recommendations on the basis of the happiness literature.

23. Finally, in presence of information effects, such as developed in the next section, it appears less clear that progressive income tax is unambiguously welfare-improving, as it would reduce the (positive) signal effect of high reference points.

2.2 Others as positives and the tunnel effect

24. In spite of the evidence on "others as negatives" (Luttmer, 2005), some researchers have considered the possibility that other people's income may exert a positive influence on individual well-being if they play the role of a signal, as underlined by Hirschman (1973). This signalling notion introduces a distinction between two types of comparisons, which can exert opposite effects on welfare. The first of these concerns the "standard" envy effect. The second is the positive value of the information about what happens to my reference group, as it may provide me with an indication about what will happen to me tomorrow. The net result of comparison may then be negative, zero or positive, depending on the relative size of these status and signal phenomena. Of course, for such informational effects to occur, people in one's reference group need to share some of the characteristics that are likely to influence one's own future trajectory. The information carried by the reference group also needs to have an important value.

25. Senik (2004 and 2008) provides evidence of these Hirschman-type informational effects in high mobility/uncertainty countries such as Russia, the new EU member countries (Hungary, Poland, the Baltic states) and the United States. She shows that in these countries, individual life satisfaction is positively related to the income of others with the same professional characteristics. This contrasts with a negative impact of reference income defined in the same way in 15 countries of the "Old Europe" (*European Community Household Panel* data, 1972-2002). Caporale, Georgellis, Tsitsianis and Yin (2009) found similar results using the *European Social Survey*: Information effects dominate comparison effects in Eastern Europe, whereas comparison effects are dominant in the Old Europe (they use two notions of reference income: the first one is defined by one's age group, as in McBride, 2001; the second contains all individuals with the same education level, living in the same country, like in Ferrer-i-Carbonnell, 2005).

26. Using linked employer-employee panel Danish data, Clark *et al*. (2009) provide evidence of signal effects outweighing status effects: Job satisfaction rises with co-workers' wages. The signal effect is particularly dominant for highly educated young males working in larger firms. The satisfaction of poorer workers is especially positively correlated with the firm average wage, which is consistent with the latter playing more of an information role for those with relatively low wages. As in Senik (2004, 2008), this paper considers professional reference groups.

27. Hence, the importance of the information effect seems to depend on 1) the degree to which reference income can be interpreted as a signal, 2) the value of this information, depending on the context. For instance, to the eyes of a business consultant, the average income of architects has little informational

value (it does not summarize future prospects in business consultancy). On the other hand, a rise in the income of colleague consultants is likely to create positive expectations. But this is all the more true as the future prospects of the consultants are uncertain and changing. If society structures are completely rigid, or if consultants know exactly what their future prospects are, they will at best remain indifferent to the careers of their colleagues.

2.3 Direct evidence on reference groups

28. As illustrated in the previous section, the literature on reference income has typically used reference groups seen as a priori plausible by the researcher. Only rarely have different reference groups been tested. Even scarcer is direct survey evidence on the groups to which individuals compare themselves. In this section, we review the few studies that tried to provide some direct evidence of income comparisons and their welfare effects.

29. A first attempt was made by Melenberg (1992), who used the 1985 and 1986 *Dutch Socio-Economic Panel* data, in which individuals were asked about their social environment, namely the "*people whom you meet frequently, like friends, neighbours, acquaintances or possibly people you meet at work*". Respondents were asked to indicate the average age, household size, income, education and labour force status in this group. Melenberg showed that the average income of this (respondent-defined) reference group is positively and significantly correlated with the level of self-reported income that they needed to live well.

30. In the survey used by McBride (2001), respondents were asked: "compared to your parents when they were the age you are now, do you think your own standard of living now is: much better, somewhat better, about the same, somewhat worse, or much worse?". Controlling for the person's own income, her satisfaction decreases as her living standard falls short of her parents.

31. Knight and Song (2006) appealed to a survey of Chinese households and showed that two-thirds of respondents report that their main comparison group consists of individuals in their own village, rather than to other people in one's county or other cities, or in China as a whole. The associations between self-declared happiness and comparison benchmarks show that "wider orbits of comparisons are associated with unhappiness", *i.e.* the more geographically distant the reference group, the less happy the individuals.

32. In a recent paper, Senik (2009) exploited a survey of 25 post-Transition countries (*Life in Transition Survey*, 2006), where people were explicitly asked to compare their current living standard with that of various groups of people (former colleagues, former school-mates, parents, and one's own standard of living) that they used to know before the transition started (*i.e.* before 1989). This enabled her to assess the impact of well-defined reference groups, as well as their relative importance in terms of welfare. She finds that the most important (negative) welfare impact comes from the deterioration of one's living standard and from under-performing relative to one's former schoolmates or colleagues, rather than from more general comparisons such as the individual's self-ranking on the social ladder. Comparisons which reduce satisfaction increase the demand for income redistribution (and vice-versa). A possible interpretation is that comparisons benchmarks are all the more significant as they are interpreted in terms of seized or lost opportunities.

33. Finally, a recent paper by Clark and Senik (2009) exploits new survey information from 18 European countries, which contains direct measures of the intensity and direction of income comparisons. This information from Wave 3 of the European Social Survey (ESS) shows that income comparisons are considered to be at least somewhat important by three-quarters of Europeans. They are associated with both lower levels of subjective well-being and a greater demand for income redistribution. The rich compare less and are more happy than average when they do, which is consistent with relative income

theory. With respect to the direction of comparisons, colleagues are the most frequently-cited reference group. Those who compare to colleagues are happier than those who compare to other benchmarks. This is consistent with information effects, as colleagues' income arguably contains more information about the individual's own future prospects than do the incomes of other reference groups such as friends or family members. The data also suggest that reference groups are endogenous, with individuals tending to compare to those with whom they interact the most often.

34. The general lesson of the literature dedicated to the welfare impact of income comparisons is the following: income comparisons hurt, but they may also increase life satisfaction when they mean good news; this is all the more likely as the reference group is made of people who most likely share a common destiny.

35. This literature bears important implications, in particular concerning the notion of poverty, strengthening the case for social inclusion of the poor. Indeed, integration into the labour market makes it more likely that relative deprivation can be partly compensated by prospects for improvement. It is clear that the latter effect cannot play if the poor are excluded from many stances of society, including paid work, as this makes them unable to share the prospects created by general economic trends. Accordingly, any notion of relative poverty should take into account the degree of social exclusion of the poor.

36. This literature has put in evidence cases of preferences interdependence (direct and informational). Thus far, these preferences are self-regarding. As will be shown in the next section, the literature between income distribution at large and subjective well-being is full of evidence of other-regarding preferences.

3. Income distribution and subjective well-being

37. Beyond the gap between individual income and some relevant other's income, how does income distribution in general affect subjective well-being? The relationship is generally hypothesized to be negative, with higher societal inequality being associated with lower subjective well-being. There are many possible pathways which may lie behind such an empirical finding.

38. The first and probably most commonly postulated relationship is the concavity of income utility. If, as generally assumed, the marginal utility of income is decreasing, then the more unequal the distribution of income, the lower the average level of well-being. Income inequality – and extreme poverty – can also be disliked because of the negative social externalities that they exert, *e.g.* through crime and violence (see Alesina and Giuliano (2009) for a discussion). Although these latter motives would lead to an apparent negative correlation between average happiness and measures of income inequality, they do not imply that individuals have a pure aversion for inequality, in the sense of income inequality per se being an argument of individual utility.

39. The first type of genuine aversion to income inequality derives from self-centred motives. Individuals can have a preference for more or less equal distributions because of the consequences that it bears on their own situation and prospects. Among these channels, the most common motives considered are risk-aversion and prospects for upward mobility (POUM). These relationships derive from a perception of the income distribution as a ladder that one risks falling from or has a chance to climb. These links between individual mobility prospects and attitudes to inequality are in the spirit of the Hirschman's tunnel effect evoked in section 2.2.

40. Attitudes to inequality can also be based on other-regarding preferences such as fairness and reciprocity which are generally independent of the income position of the individual himself (Fong, Bowles and Gintis, 2004). Essentially, the idea is that individuals are made unhappy by income inequality

when they judge that it is not grounded in a fair process. Fairness usually refers to the functioning of society as a whole, but it can also concern the behaviour of participants in society, *e.g.* the morale of reciprocity or limited altruism.

41. Fairness concerns can imply that people have preferences for outcomes. Distributive justice, for instance, refers to the relation between individual outcomes and individual needs (needs principle), or between individual inputs and outputs (equity principle). Another notion of fairness is procedural fairness, *e.g.* voice for everybody, neutrality of decision-makers and transparent and consistent procedures (see Bischoff, Heinemann and Hennighausen, 2008).

42. In summary, attitudes to income inequality and the demand for income redistribution can stem from self-regarding motives or other-regarding motives. Beyond this distinction, an important point is that these attitudes are the joint output of preferences and beliefs concerning income distribution in society. The demand for redistribution is expected to be strong whenever people have strong preferences for equal outcomes or opportunities but believe that in the society in which they live, outcomes or opportunities are actually not equal, as in the lower left panel of Table 1.

Table 1. The expected demand for income redistribution, depending on beliefs and preferences

Preferences for equal opportunities → Beliefs that opportunities are equal ↓	Yes	No
Yes	Low	Low
No	**High** demand for income redistribution	Low

43. De facto, the existing empirical literature on attitudes to inequality has seldom allowed both dimensions (preferences and beliefs) to vary at the same time. A few papers have explored the idea that attitudes to inequality were "cultural", *i.e.* heterogeneous across countries. But most studies have hypothesized that preferences for equality are universal, while there is an important degree of heterogeneity in beliefs about the sources of income inequality or the return to individual efforts. This heterogeneity is then taken to be context dependent. The main theoretical sources of the empirical literature are provided in Piketty (1995) and in Alesina, Benabou, and their co-authors, whose models suggest that different countries present different types of equilibrium constellations of context, preferences and beliefs.

44. Alesina and Angeletos (2005), for instance, have shown that depending on the popular beliefs about the factors of social success, societies choose different level of taxes and redistribution levels, which in turn affect the effort made by workers. This creates the possibility of multiple effort/beliefs/taxes equilibria. Of course, the distribution of talents and taste for effort are themselves in a way the result of luck, so that, "*behind the veil of ignorance, a high tax regime may dominate when the variation in innate talent is sufficiently high*" (Alesina and Angeletos, 2005, p. 3).

45. This review of the empirical literature shows how different types of preferences and beliefs have been illustrated in different studies using the typology laid down in Table 2. Happiness studies have analyzed the relationship between self-declared happiness and measures of income inequality such as Gini coefficients or, alternatively, have exploited the self-declared demand for income redistribution or subjective judgments about the appropriateness of income inequality.

Table 2. Attitudes to inequality depending on beliefs and preferences

	Self-centred	Community (children)	Other-regarding
Preferences (influenced by context)	Concern for own income, risk aversion, preference for progression	Limited altruism ← →	Equality of outcomes Equality of opportunities Fairness of procedures Fairness of behaviour (reciprocity)
Beliefs (influenced by context)	Risk POUM Equality of opportunities Role of luck /circumstances /effort/corruption in social success or failure	Reciprocity Cooperative behaviour of people in the same community ← →	Risk POUM Equality of opportunities Role of luck /circumstances /effort/corruption in social success or failure

3.1 Self-centred preferences for equal outcomes

46. The first, most obvious basis of inequality aversion and the ensuing desire for redistribution is self-interest and self-serving biases. All studies based on survey data show that certain socio-demographic variables are systematically correlated with less tolerance for income inequality (see Alesina and Giuliano, 2009, for a survey). These include age (being older), gender (women), race (poorer minorities), income levels (poor) and marital status (singles). This finding is possibly because depending on these modalities, respondents are more likely to be recipients of income transfers, or to be particularly exposed to the higher income-risk implied by higher inequality.

Risk aversion

47. To a large extent, support for income redistribution is a demand for social insurance against income-risk (Alesina and Giuliano, 2009). This risk-aversion motive is largely confirmed by empirical evidence. Ravallion and Lokshin (2000), for instance, report that in 1996, in Russia, 63% of the individuals who belonged to the richest consumption decile were in favour of "restricting the income of the rich": those were essentially individuals who expected their personal material situation to deteriorate in the coming year. Hence, "*the fear of falling welfare promotes a desire for redistribution even amongst the currently well-off*" (Ravallion and Lokshin, p. 16).

48. Risk aversion can differ across people depending on their experience. Alesina and Giuliano (2009) suggest that negative experiences can change the beliefs of people, making them more risk-averse or less optimistic about upward mobility. For instance, they show that having experienced personal trauma (death of a relative, divorce, unemployment or hospitalization) positively affects the desire for income redistribution by the state. By contrast, Alesina and La Ferrara (2005) showed that self-employed people, who are less risk-averse than the average (being self-employed is seen as taking on considerable income risk), are much less in favour of redistribution, even after controlling for income and other individual characteristics.

49. Finally, risk aversion is a strong argument for reducing poverty, both absolute and relative. Indeed, reducing the share of the population in the extreme ends of the income distribution is a means to reduce the expected variance of individual income.

Prospects for upward mobility

50. People may desire more redistribution because they fear falling down on the income scale, but they may also desire less redistribution when they expect to climb the same social ladder. Accordingly, Benabou and Ok (2001), using the American *Panel Study of Income Dynamics*, have shown that the prospect for upward mobility (POUM) is likely to be taken into consideration by individuals, when they chose or vote for a redistribution policy. Alesina and la Ferrara (2001) have provided additional evidence of the POUM hypothesis, showing that individuals with greater expected income growth are more likely to oppose redistribution. Using the American *General Social Survey* and the *Panel Study of Income Dynamics* (1978-1991), they analyzed the answers to the question whether "*the government should reduce the income gap between poor and rich people*". It turned out that the answers depend on individuals' actual mobility, *i.e.* their position as compared to their parents' position and their objective mobility probability calculated with American mobility matrices. In the same vein, Alesina, Glaeser and Sacerdote (2001) used the *General Social Survey* and defined mobility as the difference in the occupational prestige score of respondents and their fathers: They found a significant negative effect of actual mobility on the support for more welfare spending.

51. Alesina, di Tella and MacCulloch (2001) stressed the importance of perceived – instead of actual – mobility: *"… in the U.S., the poor see inequality as a ladder that, although steep, may be climbed, while in Europe the poor see that ladder as more difficult to ascend"*. This would explain why Europeans are more averse to income inequality than Americans as a consequence of their differences in belief.

52. Risk-aversion and POUM are self-centred motives, corresponding to the lower left panel of Table 2. Their impact on attitudes to inequality depends on individuals' calculation about their own chances and possible direction of mobility. It reflects a demand of risk-insurance by the rich and a demand for mobility by the poor. Such self-centred motives do not imply modelling income inequality as an argument that would appear directly in the individual utility function. By contrast, some papers have tried to assess the existence of such a parameter (which would correspond to the upper right cell of Table 2).

3.2 Pure "other regarding" preferences for equality

53. One of the first attempts at verifying the existence of a hypothetical "preference for income equality" was made by Morawetz *et al.* (1977). The authors compare the reported satisfaction of the members of two small Israeli communities (Moshavims) composed of 40 to 50 households, located next to each other and differing only by their degree of income inequality. Regressions showed that living in the most equalitarian community has a positive and significant influence on life satisfaction, controlling for age, sex, number of years spent in the Moshav, country of origin, etc. The authors concluded that there was a taste for equality. However, generalizing these results is difficult as the very fact of living in such communities certainly constitutes a selection bias.

54. Schwarze and Härpfer (2002) have addressed the same question using the *German Socio-Economic Panel* (1985-1998). They computed Gini inequality indices for each of the 75 regions of West Germany and related this indicator to self-declared life satisfaction. They found that inequality reduces life satisfaction, *ceteris paribus*. However, this result is not robust, as many other studies have failed to identify a significantly negative association between the Gini index and life satisfaction using different data sets and spatially defined measures of income inequality (Blanchflower and Oswald, 2004, Wolfers and Stevenson, 2008).

Heterogeneous preferences for income equality

55. The unstable relationship between inequality and happiness has led some researchers to hypothesize that attitudes to inequality could be cultural, in the sense that they are persistent in time and transmitted from generation to generation. If preferences for inequality are part of national culture, they should naturally differ across countries.

56. Alesina *et al.* (2004) have indeed pointed to international differences in attitudes towards inequality. They analyzed the declared satisfaction available in the *Eurobarometer* survey (1975-1991) and the *General Social Survey* (1972-1994) and found that inequality measures (Gini indices) calculated at the State level do not affect the well-being of Americans, no matter whether they are right or left-wing, or poorer or richer than the median person. By contrast, Europeans' satisfaction decreases with the degree of inequality in their country, in particular for both poor and left-wing people. Europeans thus seem to have a pure "other-regarding" preference for income equality, independently of their personal situation. Di Tella and MacCulloch (2003) reached a similar conclusion with longer series of the same data.

57. Exploring further the same cultural hypothesis, Alesina and Fuchs-Schündeln **(**2007) exploited the "experiment" of the German separation and reunification in order to establish a causal link running from the prevalent ideology to individual preferences. At the outset of reunification, East Germans were more in favour of redistribution and state intervention than West Germans, even after controlling for economic incentives. This effect was especially strong for older cohorts, who lived under Communism for a longer time period. However, with time, East Germans' preferences have partially and slowly converged towards those of West Germans. The authors estimate that it will take one or two generations for preferences to converge completely. They interpret this as evidence of the impact of ideology ("indoctrination") or habit, as Easterners may have "become used to an intrusive public sector".

58. In the same vein Luttmer and Singhal (2009), using the three first rounds of the *European Social Survey*, showed that the demand for income redistribution and voting behaviour of immigrants are strongly correlated with the average attitude in their country of birth. This cultural effect persists into the second generation. Similar results were obtained by Alesina and Giuliano (2009) using the *World Values Survey*.

59. Other types of "cultural" attitudes to income inequality have been found. For instance, Giuliano and Spilimbergo (2008) have shown that having experienced episodes of high macroeconomic volatility during youth can lead to permanent higher preferences for redistribution. These results are replicated in Alesina and Giuliano (2009) using the *General Social Survey*.

3.3 Heterogeneous beliefs about income inequality

60. Holding preferences constant, the role of beliefs in determining attitudes towards inequality and the actual extent of state intervention has been documented in a number of papers. These phenomena are summarized in the lower right cell of Table 2.

61. Alesina and Angeletos (2002) have shown that, in the United States, actual state spending depends positively on the extent of the mean state belief that luck determines income. Along the same lines, using the *General Social Survey* and the *Panel Study of Income Dynamics* (1978-1991) Alesina and La Ferrara (2005) have shown that a person's attitude towards redistribution depends on her opinion concerning the determinants of income. Individuals who think that income is determined by luck, social acquaintances, family history, etc. rather than individual effort, education, ability, are more favourable to government redistribution, even after controlling for all their personal circumstances. In the words of the authors: *"People who believe that the American society offers equal opportunities to all are more averse to redistribution in the face of increased mobility. On the other hand, those who see the social rat race as a*

biased process do not see social mobility as an alternative to redistributive policies […] The impact of mobility on attitudes towards redistribution is affected by individual perceptions of fairness in the mobility process."

62. This sheds additional light on the difference between Europe and the United States: Americans believe not only in a potentially higher mobility but also in a more equitable mobility, which makes them less favourable to income redistribution than Europeans. According to the *World Values Survey*, 71% of Americans believe that the poor have a chance of going out of poverty, whereas this proportion is only 40% in Europe; 70% of West-Germans believe that poverty is due to society and not idleness, whereas 60% of Americans think that poor people are lazy. Concerning the factors of success, 25% of Europeans believe that income and success are mostly due to luck, against 16% of Americans (Alesina, di Tella and MacCulloch, 2001). Concerning Germany, Alesina and Fuchs-Schündeln (2007) showed that Easterners, who are more in favour of an active state role, more often declare that "*social conditions determine individual possibilities in life*" rather than individual luck or effort.

63. These papers could be interpreted as evidence that the demand for redistribution is a demand for social insurance aimed at reducing the role of luck (Alesina and Angeletos, 2002). In this sense, a fair income distribution would be one in which the role of accidents is reduced. But beyond this opposition between individual (endogenous) effort and (exogenous) luck, individual outcomes can also be the fruit of corruption, social connections, fraud, etc. The demand for redistribution is then based on beliefs about the procedures which create income inequality.

64. An observation of this type is made by Grosfeld and Senik (2009). The authors provide evidence of the emergence of inequality aversion in Poland. Using repeated cross-section surveys of the Polish population, they identify a structural break in the relationship between income inequality and subjective well-being. Inequality, initially perceived as a positive signal of increased opportunities, starts to undermine satisfaction after a couple of years when individuals apparently become skeptical about the legitimacy of the enrichment of reform winners. Various public opinion surveys confirm the changing popular opinions about the degree of corruption in the country and the desirability of high pay-offs in certain professions.

65. These studies suggest that self-centred motives such as risk-aversion and the POUM may not be sufficient to explain attitudes to income inequality. The tolerance to inequality depends not only on personal mobility prospects, but also on the perception that mobility is a fair process, in that return to effort, opportunities or procedures are the same for all members of society.

Beliefs about social groups, reciprocity and limited altruism

66. Fairness of income distribution also applies to the behaviour of co-citizens. The "moral of reciprocity" postulates that people are concerned by others, conditional on the latter not free-riding on the system (whether this is a form of altruism or an implicit contract of mutual insurance is not clear). Fong, Bowles and Gintis (2004, p. 1) define reciprocity as "*the propensity to cooperate and share with others similarly disposed, even at personal cost, and a willingness to punish those who violate cooperative and other social norms, even when punishing is personally costly and cannot be expected to entail net personal gains in the future*". In their view, concerns about the "undeserving poor" could explain why people are reluctant to redistribute income when they believe that "the poor are lazy".

67. Fong (2001) analyzed the 1998 *Gallup Poll Social Audit Survey,* "*Haves and have-not: perceptions of fairness and opportunities"*, a sample of 5 000 Americans. She shows that the desire to redistribute income is high in the sub-sample of wealthy individuals who expect their position to improve in the coming five years, who are confident about their financial perspectives, but who believe that social

success is due to exogenous factors. Symmetrically, amongst the poor who earn less than 30 000$ per year, do not expect to be better off in five years and "worry about bills", those who believe that lack of effort causes poverty oppose redistribution. Moreover, white people who believe that race determines the chance of success express a particularly high demand for redistribution.

68. This interplay between beliefs and social segmentation can also give rise to "limited altruism" or group-based preferences for equality. In particular, several studies have documented the phenomenon of "ethnic altruism", *i.e.* that "*people are more tolerant of redistribution within ethnic and racial categories than between*" (Fong *et al.*, 2004, p. 20). Luttmer (2001), for instance, matched 20 waves of the *General Social Survey* with information from the American decennial censuses including the level and composition of local welfare recipients (black versus white recipients). He found that the self-reported support of white people for welfare spending decreases as the proportion of black recipients in the local population increases. Luttmer also showed that 33% of the variation across states in the *Aid for Family with Dependent Children* is explained by the racial fragmentation of the states' population. He interprets this strong relationship as evidence for group loyalty, that is, solidarity being stronger towards members of one's own ethnic group than towards members of other ethnic groups. Alesina and Glaeser (2004) suggested that the degree of racial heterogeneity is an important factor explaining the difference between the generous European welfare systems and the less generous system of American states. In the same vein, Alesina, Glaeser and Sacerdote (2001) claimed that racial animosity makes redistribution to the poor, who are disproportionately black, unappealing to many white voters; this limits the political power of the poor and the actual extent of redistribution (see Lee and Roemer, 2006, for a similar argument). *De facto*, they observed a strong negative relationship between the generosity of redistribution programs and the share of black people in a state. Of course, it is difficult to disentangle whether this "limited altruism" is due to preferences (which would then be in the mid-way between self-centred and other-regarding preferences) or to beliefs about different groups (see the middle column of Table 2). Alesina, Baqir and Easterly (1999) also showed evidence that greater racial fractionalization in a jurisdiction is associated with less spending on public- non excludable- goods, and more spending on the public provision of private goods and public employment.

69. An interesting and related question is whether one should expect a setback of the generosity of social welfare programs in Europe, as immigration increases the heterogeneity of the population? Senik, Stichnoth and Van der Straeten (2009) suggest a more qualified relationship. Using the *European Social Survey*, they do not find a statistically significant correlation between the actual presence of immigrants and subjective attitudes to redistribution. They do find a negative but small association between the perceived share of immigrants in the population and the demand for income redistribution. But natives' attitudes towards immigrants are significantly related to their demand for income redistribution. This result is in line with the study by Soroka *et al.* (2004), who found that in Canada, the link between ethnic diversity and support for redistribution is very weak. Importantly, a difference between Luttmer's study and that of Senik *et al.* (2009) or Soroka *et al.* (2004) is that Luttmer exploits regional differences in the share of ethnic groups amongst welfare recipients, whereas the other authors look at the share of ethnic minorities in the entire population.

4. Conclusions

70. The empirical literature about inequality and subjective well-being shows that the impact of income inequality involves the vision that citizens have of the society in which they live, their preferences concerning this society and their beliefs about the way it functions and the groups that compose it. Social attitudes towards income inequality can be thought of in diverse ways. One is to distinguish preferences for outcomes versus preferences for procedures. Another one is to distinguish self-regarding preferences from other-regarding preferences. Preferences should also be distinguished from beliefs, and both are context dependent. These distinctions have been summarized in Table 2. Another open question is how much other-regarding preferences really refer to other people or can be seen as a form of risk-aversion (for oneself, for one's children, for one's relatives). The literature has pointed to the intermediate notion of limited altruism, where "others" are not complete strangers but are members of the same group or the same community.

71. What are the policy implications that can be derived from these findings? As formulated by Fong *et al.* (2004), beliefs about the causes of high and low incomes matter. People consider it unfair to free-ride on the contribution and efforts of others. According to this view, a pro-poor policy should try to design a system of income security and economic opportunity that would tap these motivations. "*Such a system would be generous towards the poor, rewarding those who perform socially valued work […] as well as those who are poor through accidents not of their own making, such as illness and job displacement*" (Fong *et al.*, 2004). This remark is consistent with Alesina, Glaeser and Sacerdote's (2001) observation that social security and Medicare are unquestioned in the United States because they meet the need to compensate for what is seen as exogenous shocks. Beyond such basic insurance mechanisms, principles of reciprocity are difficult to implement, because of the classical difficulty to separate exogenous shocks from endogenous choices.

72. More generally, policies can hinge on the interaction between preferences for income distribution and beliefs about the social making of the income scale. Income equality, equality of opportunities and fairness of the mobility process are all imperfect substitutes. However, as noticed by Benabou and Ok (2001), tolerance to income inequality will always be limited by risk-aversion, *i.e.* by the importance of relative deprivation and relative poverty.

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