Do We Value Mobility?

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Abstract Is there a trade-off between people's preference for income equality and income mobility? Testing for the existence of such a trade-off is difficult because mobility is a multifaceted concept. We analyse results from a questionnaire experiment based on simple precise concepts of income inequality and income mobility. We find no direct trade-off in preference between mobility and equality, but an indirect trade-off, applying when more income mobility can only be obtained at the expense of some income inequality. Mobility preference – but not equality preference – appears to be driven by personal experience of mobility.

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1 Introduction

Do people value income mobility along with other apparently desirable economic objectives? In contrast to the extensive literature on simple distributional comparisons in connection with inequality, poverty and social welfare, the welfare-economic basis underlying preferences for income mobility is not clear. It may be that there is a connection between mobility and equality of opportunity and that greater income mobility is thus socially desirable, but there is no single accepted formal argument to establish this. Nevertheless there is, perhaps, an accepted consensus that greater mobility in society is a "good thing" and so it makes sense to see whether people do indeed value this good thing in the way that we suppose that they do. The contribution of this paper is to suggest a way of characterising a trade-off between mobility and other apparently desirable social objectives and of looking at the factors which may predispose people to value mobility particularly highly.

Income mobility is a topic that crosses disciplines which partly explains the difficulty of finding a way of appraising a unique formal notion of mobility (Van de gaer et al. 2001, Formby et al. 2004). While sociologists and statisticians are especially interested in measuring mobility in the abstract,[1] economists are often interested in judging and evaluating income mobility from a welfare-based perspective. In the theoretical literature this is done either using explicit welfare functions or axiomatic approaches.[2] Our analysis has both normative and empirical content: it is based on a questionnaire study and is rooted in empirical social choice.[3] Its premise is that in the debates about principles of social justice it is important to engage with the way people actually think, both in order to avoid becoming hostage of scientific conventions and because it is real people who bear the consequences of decisions based on untested normative principles.

Can we find a way of eliciting people's preferences for intergenerational mobility? We suggest that it is appropriate to try to find a context-free way of representing the problem similar to the way that is done when making inequality or welfare comparisons using principles of distributional dominance. However, we need to go carefully here because, although multidimensional versions of dominance principles are available, it is not clear that these formal results are particularly illuminating in terms of what is commonly understood by income mobility. Furthermore, if we want to understand whether people *value* mobility it is useful to have a representation of the problem that allows both for clear mobility comparisons and for a trade-off against some other

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[1] Prais (1955), Rogoff (1953), Duncan (1966), Goldthorpe (1980), Conlisk (1990).

[2] For welfare approaches see Atkinson (1981), Atkinson and Bourguignon (1982); Chakravarty et al. (1985), Dardanoni (1993), Gottschalk and Spolaore (2002), Markandya (1982); for axiomatic approaches see Shorrocks (1978), Cowell (1985), Cowell and Flachaire (2011), Fields and Ok (1996), Mitra and Ok (1998), D'Agostino and Dardanoni (2009).

[3] See Gaertner and Schokkaert (2012), the seminal articles by Yaari and Bar-Hillel (1984), Amiel and Cowell (1992) and the overviews in Amiel (1999) and Konow (2003). For complementary studies using the experimental method see e.g., Traub et al. (2005), Krawczyk (2010), and Cappelen et al. (2010),

social goal. In our questionnaire we focus on intergenerational income mobility and we suggest a method of investigating a possible trade-off between mobility and equality in people's preferences.

Intergenerational mobility is also a central issue in distributive justice debates: how should one account for accidents of birth when seeking a just distribution of final outcomes? Some argue that only income inequalities arising from differences at birth should be a cause for concern. In our approach we contrast the liberal position that all forms of income differences are equally unjustified unless they go the advantage of the least well-off people and also with intermediate positions. We identify meritocratic views that allow income inequality to the extent that it serves the purpose of rewarding talent or desert: this position does not necessarily imply an ethical substitution between income mobility and income equality.[4]

There is also a recent wave of empirical studies that analyse the way preferences for policies that equalize incomes are affected by factors related to mobility[5] and that are associated with the theoretical approaches in Hirschman (1973), Piketty (1995), Benabou and Ok (2001). This literature typically finds that support for an equalization of income expressed in social surveys is affected by belief in one's own prospects of upwards mobility and by trust in factors which are generally thought to promote mobility. So part of our analysis focuses on the possible effect of respondents' personal characteristics on their abstract preferences for mobility and for equality.

The paper is organised as follows. Section 2 discusses the main theoretical ideas analysed in the questionnaire. Section 3 explains the approach adopted to elicit people's views and perceptions of mobility and describes the samples used for our study. Sections 4 and 5 examine the results. Section 6 concludes.

2 Welfare economics, income distribution and mobility

Our approach involves hypothetical questions and judgments expressed from the standpoint of an uninvolved external observer.[6]. Using hypothetical questions without personal involvement encourages coherent thinking about social mobility comparisons in the abstract, which by their multidimensional nature are intrinsically more problematic than pure inequality comparisons.

We take a standard framework in which there are n dynasties in society, leaving for two periods: the parent of dynasty i is alive in period 0 and the child

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[4] Underlying the liberal position is the view that identifies income mobility with equality of opportunity (Stokey 1998, p.161). However "equality of opportunity" has a variety of interpretations: it is used in the egalitarian literature to describe a situation of procedural equality of opportunity (Rawls 1971) or to represent the ideal of an egalitarianism tempered by responsibility (Dworkin 1981, Roemer 1998).

[5] See for example, Fong (2001), Corneo and Grüner (2002), Alesina and La Ferrara (2005), Isaksson and Lindskog (2009).

[6] This is consistent with David Hume and Adam Smith who argued that the sympathy and impartiality required to discuss distributive justice can only be obtained by putting some distance between the social decision maker and the persons whose welfare is to be evaluated (Bernasconi 2002, Bosmans and Schokkaert 2004, Amiel et al. 2009, Konow 2009)

	C_l	C_h	Parents' margins
P_l	n_{ll}	n_{lh}	$n_{l\cdot} = n_{ll} + n_{lh}$
P_h	n_{hl}	n_{hh}	$n_{h\cdot} = n_{hl} + n_{hh}$
Children's margins	$n_{\cdot l} = n_{ll} + n_{hl}$	$n_{\cdot h} = n_{lh} + n_{hh}$	

Fig. 1 A 2×2 mobility table

of dynasty i in period 1. The whole structure of the society can be represented by the joint distribution $H(P, C)$ of the pair of random variables P and C for, respectively, parents' and children's incomes. In particular, the joint distribution $H(P, C)$ contains all the relevant information to study inequality within each generation, mobility between generations and the interplay between the two.

Assume that within each generation income can take only two values: P_l and P_h for parents' low and high incomes, respectively; C_l and C_h for children's incomes. The joint distribution for this simple case can then be represented by the 2×2 mobility table in Figure 1. Here n_{ij} denotes the number of dynasties with parents belonging to category i and children to category j, with $\sum_i \sum_j n_{ij} = n$ and $i, j = l, h$. Dividing n_{ij} by n gives the relative frequency of children in class j with parents in class i, an estimate of the probability of transition from class i to class j. The row and column sums $n_{i\cdot}$ and $n_{\cdot j}$ give the absolute frequencies of the marginal distributions of parents' and children's incomes, respectively.

The marginal distributions of parents and children provide information of a static nature: they represent the basis for analysing inequality and welfare within generations. Take Figure 2 where parents have the same marginal distributions (therefore the same inequality) in mobility tables X and Y, while the marginal distribution for children in Y is obtained from X by widening the income gap, so that the child distribution in X Lorenz dominates that in Y. Judging the child marginal distributions on static income inequality, one can say that children's welfare is higher in X than in Y (Atkinson 1970). But how general are welfare judgments based only on static inequality comparisons? In tables W and Z of Figure 3 the marginal distributions for parents and for children are the same as in X and Y, respectively, but with a different association structure between parents' and children's positions. While the association structures in the tables of Figure 2 are characterised by complete rigidity, the formations of the social classes in the tables of Figure 3 are examples of statistical origin independence, characterised by full mixing with 50% of children in each income class coming from poor parents and 50% coming from rich parents.

Our questionnaire uses examples similar to those shown in these figures to study how the welfare that people assign to different societies depends on the extent of income inequality within the children's marginal distribution and

Society X

Parents		Children		
		$600	**$1000**	
	$200	10	0	*10*
	$600	0	10	*10*
		10	*10*	

Society Y

Parents		Children		
		$400	**$1200**	
	$200	10	0	*10*
	$600	0	10	*10*
		10	*10*	

Fig. 2 Two tables with different static inequality and the same rigidity

Society W

Parents		Children		
		$600	**$1000**	
	$200	5	5	*10*
	$600	5	5	*10*
		10	*10*	

Society Z

Parents		Children		
		$400	**$1200**	
	$200	5	5	*10*
	$600	5	5	*10*
		10	*10*	

Fig. 3 Two tables with different static inequality and origin independence

on the strength of intergenerational interdependence between parents' and children's positions.

In analysing a mobility table one has to consider two forms of interdependence occurring between the distributions P and C: *structural mobility* refers to the comparison between parents' and children's marginal distributions of incomes and is affected by the process of economic growth;[7] *exchange mobility* is only concerned with the process of class transition, namely the degree to which parents and children change their relative positions between income classes. The importance of keeping separate these two notions of mobility has been extensively documented (Rogoff 1953, Duncan 1966, Goldthorpe 1980) but, from a normative welfare perspective, the distinction between structural and exchange mobility is more problematic. In particular, while the distinction between the two is recognised conceptually (Markandya 1982), it is difficult to decompose their effects in specific welfare measures (Fields and Ok 1999, p.565). Welfare studies on intergenerational mobility typically focus on exchange mobility, while the effect of structural mobility has attracted less interest.

Here we limit the possible role of structural mobility on welfare judgments by comparing scenarios where marginal distributions can be different for at

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[7] For example, during an economic expansion, children experience an increase in the probability of obtaining a higher income than their parents; the opposite occurs during economic decline. The higher inequality of the children's marginal distributions in tables Y and Z may then be attributed to the different income growth rates of rich and poor families.

most a different amount of inequality in the children's generation (as between X and W, on the one side, and Y and Z, on the other). Moreover, we will consider scenarios which maintain the simple association structure of the above examples, namely with a symmetric configuration (that is, $n_{ij} = n_{ji}$ for $i \neq j$) and where both generations of parents and children are divided evenly between rich and poor ($n_{l.} = n_{h.}$ and $n_{.l} = n_{.h}$). With the latter restrictions the strength of association between parents and children in a 2×2 mobility table can be measured directly by the mixing parameter $m = 1 - n_{ii}/n_{i.}$ indicating the proportion of children which change their positions with respect to their parents.[8] In a rigid society such as Figure 2 $m = 0$; in a society with full mixing $m = 0.5$ (Figure 3); partial mixing (some positive association) has $0 < m < 1/2$.[9]

A change in intergenerational income dependence can have two opposing effects on welfare: an increase in independence reduces inequality between dynasties, but it also increases intertemporal fluctuations of incomes within dynasties (Atkinson 1981). Extending the theory of stochastic dominance to a multidimensional context, Atkinson and Bourguignon (1982) have shown that in a dynamic welfare framework which considers only these two effects of mobility, the social optimum (for a mobility table with fix marginal distributions) collapses either to a case of complete rigidity or to one with full reversal.

An important limitation of this type of framework is that it does not recognize any special value to the case of full mixing ($m = 0.5$) although, from a welfare perspective, this case has been taken as an indicator of equality of opportunity (Shorrocks 1978, Dardanoni 1993, Gottschalk and Spolaore 2002).[10] Although the relation between preferences for income mobility and for income equality has not received great attention in the welfare-measurement literature, within the general literature on distributive justice, the issue is a matter of lively debate. There are three main views:

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[8] While the parameter m and similar measures for the strength of intergenerational association in a mobility table are taken as measures of exchange mobility, they represent proper measures of the latter concept only when structural mobility is absent – in cases in which the marginal distributions of parents and children in a mobility table are equal. This is rarely the case, which is also why is so difficult to separate the two concepts in welfare analyses.

[9] Negative association, where $0.5 < m \leq 1$, is only of theoretical interest since real world mobility data never show complete reversal between parents and children's economic positions; see Dardanoni et al. (2012) who show that the hypothesis of nonnegative association cannot be rejected in almost all social mobility tables in 149 different countries and time periods.

[10] For example, Shorrocks (1978) developed an axiomatic approach to mobility measurement where an axiom is explicitly introduced which assigns maximum value to transition matrices (a reduced form of mobility tables; see footnote **??**) with "the least amount of predictability". Dardanoni (1993) presents a model where children coming from parents in lower economic positions receive a higher weight in the social evaluation than those coming from better positioned families: as he restricts attention to tables with non-negative dependence, it follows that welfare is maximised, *ceteris paribus*, by mobility tables with origin independence. Gottschalk and Spolaore (2002) also develop a framework where a specific form of inequality aversion restricted to the children's generation is shown to induce a strict preference for independence.

1. *The substitution view.*[11] Origin independence should be the main objective of a just society and a concern for income inequality should only receive social concern if partial or complete rigidities cannot be fully removed. According to this view, in the comparison between X and Y of Figure 2, X might be socially preferred, since the greater static inequality for the children marginal distribution in Y is inherited from parents; but in the comparison between W and Z of Figure 3, Z should be preferred since now, due to the condition of origin independence, the greater inequality of the latter table is considered a sign of better opportunities – a "land of opportunities".

2. *Priority for the worst off.* Equality of opportunity and of outcome should be considered on different ethical grounds and the degree of static inequality in a society should always be kept at the minimum compatible with the maximum level of income for the least well-off people (Rawls 1971). Under this approach, X is better than Y in Figure 2 *and* W is better than Z in Figure 3.

3. *Intermediate position.* In a well-organized society talents should be promoted and this requires equality of opportunity. Often this idea is linked to the role of incentives for economic efficiency (Loury 1981), but in addition there may be fairness considerations that do not imply a substitution between equality of opportunity and equality of outcome. One may support the idea that rewards gained by individuals should be related to their individual desert; but also that income inequality should be accepted only to the extent it serves such a purpose.

Consider a comparison between X and Z, in addition to those between X and Y and between W and Z. According to the substitution view, together with X preferred to Y and Z to W, Z should also be preferred to X. On the other hand, any theory which values equality but not mobility implies X preferred to Y, W to Z, and X to Z. Someone who values both mobility and equality may instead prefer X to Y, W to Z, but Z to X. The latter preferences in particular signify that there may be an ethic which values both equality of opportunities and equality of outcomes and which, therefore, entails a trade-off between the two notions only in cases where more of one type of equality necessitates less of the other.[12]

3 The Approach

Testing whether people value mobility in the abstract and whether is there a trade-off in preference for equality and mobility is not simple. Empirical analyses using field data meet the problem that preference can be inferred, but not directly tested. The same difficulty emerges with experimental investigations.

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[11] See Field and Ok's (1999) remark about Friedman (1962).

[12] There are views that value *neither* equality *nor* mobility: according to Nozick (1974), any inequality that has not been obtained by expropriation or exploitation can be justified.
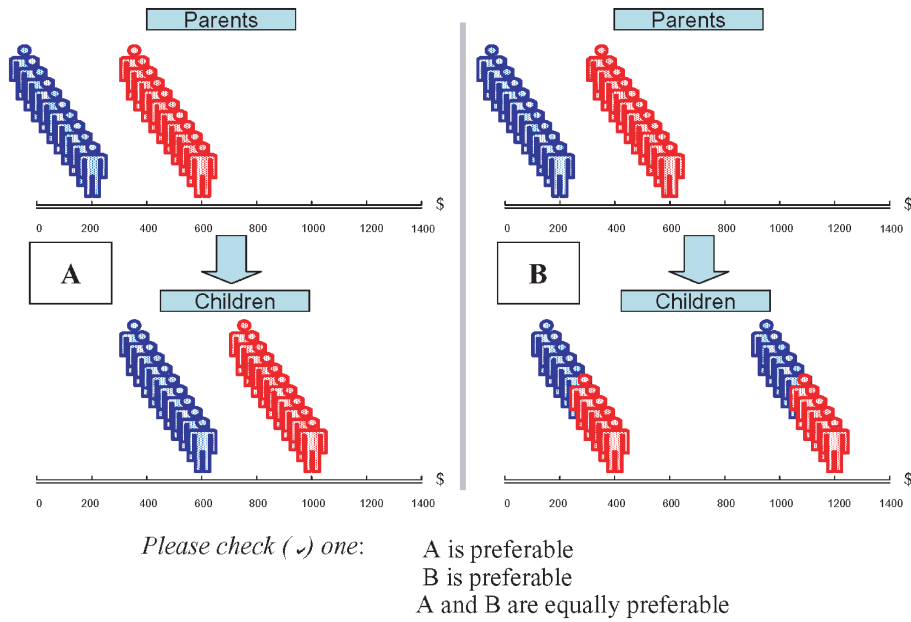
Fig. 4 Example of a question display

Studies based on general social surveys also have problems investigating pure
distributive principles because of the difficulty of maintaining control over the
various conceptual subtleties typically involved in distributional issues. A com-
plementary method, increasingly used in empirical social choice, is to conduct
focused questionnaires with selected samples of individuals. We use students
as subjects for our questionnaire: they are used to working with numerical
examples and to reasoning about logical propositions.[13] There is also expec-
tation that they are more open minded and less affected by prejudices than
other categories of people.

Designing a questionnaire presents several challenges. If the questionnaire
tasks are not clearly explained respondents may not answer or may give in-
accurate answers. The same may happen if the questionnaire is uninteresting,
too difficult or too long. A major problem for our design was also that of
finding an intuitive way to translate the technical notion of mobility tables in
terms of displays accessible to student respondents.[14]

The main part of the questionnaire consists of eight pair-wise comparisons
designed to investigate whether mobility is considered a desirable social ob-
jective in the abstract. Each comparison presents a pair of scenarios A and B
characterised by different income profiles as in the examples discussed in the

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[13] Students questionnaires have also been used to study policy relevant issues; see e.g.
Bosmans and Schokkaert (2009).

[14] The problem of finding an intuitive display to represent mobility scenarios in a ques-
tionnaire has been discussed by Bernasconi and Dardanoni (2005).

previous section; we use "bus queue" pictures (Amiel and Cowell 1999) to represent the two income groups within each generation of parents and children; dynasties are identified by colour – see Figure 4. (In the example scenario A corresponds to mobility table X of Section 2 B corresponds to mobility table Z). This combines intuitively information about income inequality within each generation and intergenerational mobility. Participants were asked to indicate which scenario they considered socially preferable from an impartial position.[15]

3.1 The structure of the questionnaire

Table 1 summarises the pair-wise comparisons of the questionnaire. For each scenario the two numbers in round brackets give the ratios between parents' and children's incomes for the group of poor and rich, respectively: so $(2, 2)$ means that both the poor group and the rich group double their incomes from the fix parents' levels of \$200 and \$600, respectively. All the scenarios of the questionnaire are based either on $(2, 2)$ or on $(3, 1.67)$. Clearly, the scenarios using $(2, 2)$ are characterised by a widening of the inequality between the poor and the rich. The number in square brackets is the parameter m of Section 2: the higher is m the more mixing there is in society and the greater is the degree of intergenerational mobility. The the questionnaire uses three values for m: 50% (full mixing), 20% (partial mixing) and 0% (rigidity).

Comparing scenarios with different combinations of parameters can be used to draw inferences on the various principles and ideas discussed above. Q1 shows two scenarios with the same inequality (no widening), but with mobility higher in A. Q4 and Q7 have a similar structure, but different values for the mixing parameter. Thus, the three questions can be used to investigate whether people value mobility as such, namely when mobility does not interfere with static inequality. The answers to the three questions will show whether more mobility induces stronger preference. In Q2, Q5 and Q8, mobility is the same in both scenarios, but there is widening in the B scenarios; mobility of the scenarios is higher in Q2, than Q5 and Q8. Therefore, the answers to each individual question can be used to infer people attitude towards static income inequality; whereas comparing the distributions of answers across questions will be used to investigate the substitution view: whether more mobility induces a lower support for income equality *per se*. Q3 and Q6 present scenarios where both mobility and inequality are different: in Q3, A is a scenario with rigidity and less inequality than in B, which is characterised by full mixing and

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[15] "Impartial position" means that the individual whose preferences are considered "is not directly involved in the distributions of income in the society". This was explained in the introduction to the questionnaire, which also explained other features, including the fact that the questionnaire is about "social preferences for the distributions of incomes in hypothetical societies of two generations, the generation of the parents and the generation of the children"; the fact "there are different dimensions which may be involved in considering income distributions"; the way in which displays have to be looked at and interpreted. The full questionnaire is available at http://darp.lse.ac.uk/resources/questionnaires/MobilityQuestionnaireWelfare.pdf

Table 1 Summary of the mobility scenarios on the questionnaire

	Scenario A	Scenario B	
Question 1	(3, 1.67)	(3, 1.67)	full mix. v. rigidity
	[50%]	[0%]	
Question 2	(3, 1.67)	(2, 2)	full mix. v. full mix.+widening
	[50%]	[50%]	
Question 3	(3, 1.67)	(2, 2)	rigidity v. full mix.+widening
	[0%]	[50%]	
Question 4	(3, 1.67)	(3, 1.67)	partial mix. v. rigidity
	[20%]	[0%]	
Question 5	(3, 1.67)	(2, 2)	partial mix. v. partial mix.+widening
	[20%]	[20%]	
Question 6	(3, 1.67)	(2, 2)	rigidity v. partial mix.+widening
	[0%]	[20%]	
Question 7	(3, 1.67)	(3, 1.67)	full mix. v. partial mix.
	[50%]	[20%]	
Question 8	(3, 1.67)	(2, 2)	rigidity v. rigidity+widening
	[0%]	[0%]	

widening; Q6 is similar (B has partial mixing). Comparing the distributions of answers between the two questions can provide evidence on people willingness to sacrifice some income equality in order to obtain more income mobility, an idea that we have suggested may be consistent with an ethic of meritocracy. Evidence on the same notion can also be obtained comparing the answers to Q3 and Q6 with those in Q8, which compares two rigid scenarios and B has more inequality (widening). By contrast, persistent preferences for A in the three questions would be consistent with a strict egalitarianism.

3.2 The samples

The questionnaires were completed in 2009 and 2010 by a total of 356 university students. They were from the University of Venice (Italy), LSE (UK), and Ruppin Academic Center (Israel): 120, 89 and 147 participants, respectively. All students were upper-level undergraduates, in most cases with main training in economics, but with no specific teaching in the theory of income mobility. Using as respondents students at about the similar stage in education but from different countries allows one to address the question of the impact of cultural background on perception and evaluation of mobility. The questionnaire was administered during lectures or classes. Answering the full questionnaire required about 20 minutes.

4 Results

Here we present the preferences expressed by participants in the pair-wise comparisons, focusing on five major issues.

Table 2 Results in Q1, Q4, Q7

	Valid resp.	Preference for A	Preference for B	Indif./ not comp.	d-test	χ^2-test
Q1			Percentages			
Italy	120	60.8%	22.5%	16.7%	4.50***	11.05*
UK	89	77.5%	7.9%	14.6%	7.00***	
Israel	147	70.1%	19.7%	10.2%	6.53***	
ALL	*356*	*68.8%*	*17.7%*	*13.5%*	*10.31****	
Q4						
Italy	120	56.7%	31.7%	11.7%	2.82**	20.64***
UK	89	84.3%	7.9%	7.9%	7.40***	
Israel	146	66.7%	20.4%	12.9%	6.10***	
ALL	*355*	*67.7%*	*21.1%*	*11.0%*	*9.28****	
Q7						
Italy	119	68.3%	22.5%	9.2%	5.17***	4.87
UK	89	68.5%	16.9%	14.6%	5.162***	
Israel	147	70.1%	15.0%	15.0%	7.33***	
ALL	*356*	*69.1%*	*18.0.7%*	*12.6%*	*10.28****	

Notes: d-test is a difference-of-proportion test for $H_0 : p(A) = p(B)$, based on the standard normal approximation of the binomial distribution. χ^2-test is for the null hypothesis that answers in Italy, UK, and Israel can be viewed as if drawn from the same population. *, **, ***, denote rejection at, 10%, 5%, and 1% significance levels.

1. Do people show support for mobility? If a person values mobility as such then he should choose response A in Q1 (Full Mixing versus Rigidity), Q4 (Partial mixing v rigidity) and Q7 (Full v Partial Mixing). Table 2 reports the answers to the three questions as percentage of each country sub-sample and in the aggregate (*ALL*). The second column gives the number of valid responses for each question and in each country: there were very few non-responses. In all countries the majority of subjects report a preference for A in all three questions. A difference-of-proportion tests (column d-test) confirms that the differences are statistically significant in all the comparisons. Therefore, we conclude that participants indeed value mobility in all the three countries. χ^2-*tests* reject the null hypothesis of homogeneity in Q1 and Q4, while homogeneity is accepted in Q7. The results of the tests are consistent with the evidence that in Q1 and in Q4, there are higher proportions of choices for A, hence stronger preferences for mobility, in UK than in Israel and in Italy. This interesting piece of evidence will be examined in more detail studying the effect of personal factors.

2. Does more mobility elicit stronger preference? A second issue can be addressed by comparing the answers to Q1, Q4 and Q7: whether more mobility induces stronger preferences or whether preferences for mobility does not depend on the degree of mobility. In the former case, we should expect that the proportions of choice for A in Q1 are higher than in both Q4 and Q7. We do

not see any such systematic tendency: looking at simple percentages, A in Q1 is chosen more often than A in Q4 in Italy and Israel, but not in UK; and it is chosen more often than A in Q7 in UK, but not in Italy nor Israel (where A is Q1 is chosen as often as in Q7). To obtain further evidence on the issue, Table 3 shows the bivariate distributions of preferences expressed by participants in (Q1,Q4) and (Q1,Q7). Since we did not find any significant difference over the pairs across samples, here the reported percentages are for the full data set of the three countries. The percentages confirm that the majority of participants choosing A in Q1, also chose A in Q4 and Q7; moreover, the percentages for the other categories do not show any tendency to switch from A to B (or to indifference) between Q1 and Q4 and Q7.

Table 3 Distributions of answers in (Q1,Q4) and (Q1,Q7)

		Q4					Q7		
		A	B	Indiff.			A	B	Indiff.
Q1	A	53.8%	10.4%	4.5%	Q1	A	54.1%	9.3%	5.6%
	B	7.6%	8.5%	1.7%		B	7.6%	7.3%	2.5%
	Indiff.	6.5%	2.3%	4.8%		Indiff.	7.6%	1.4%	4.5%

3. Do people show support for income equality? Questionnaire experiments have been used before to investigate preferences for equality:[16] the difference here is that preference for static equality may conflict with preference for mobility. In our questionnaire a person who values equality should choose response A in Q2 (Full mixing and widening), Q5 (Partial mixing and widening) and Q8 (Rigidity v simple widening). The answers to the three questions reported in Table 4 show that in all three countries the majority of subjects do indeed value equality (they prefer A). Moreover, the differences in proportion between preferences for A and for B are highly significant *(d*-test) and the patterns are homogeneous across the three countries (χ^2-test).

4 Does mobility preference reduce support for equality? A person with the "substitution view" should switch preferences from A to B going from Q8 (zero mobility) to Q5 (partial mobility) and to Q2 (perfect mobility, where the B response should be strictly preferred). So the large proportion of A preferences for all three questions in Table 4 suggests that a majority of respondents reject the substitution view; however, there is a moderate tendency of the frequencies

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[16] In general, previous questionnaires conducted to investigate people's attitude towards income inequality took the form of a test of the classical Pigou-Dalton principle of transfers (Amiel and Cowell 1992; Amiel and Cowell 1998, Harrison and Seidl 1994, Bernasconi 2002, Traub and Schmidt 2009). Support for the principle depends on the range of the income distribution in which income transfers occur, on the type of verbal or numerical test conducted, on the frames adopted to test it (e.g. whether from a external observer viewpoint, under a condition similar to the "veil of ignorance", or under one of individual risk) – Amiel (1999), Gaertner and Schokkaert (2012). 13.

Table 4 Results in Q2, Q5, Q8

	Valid resp.	Preference for A	Preference for B	Indif./ not comp.	d-test	χ^2-test
Q2			Percentages			
Italy	120	67.5%	16.7%	15.8%	5.97***	2.64
UK	89	76.4%	14.6%	9.0%	6.00***	
Israel	147	71.4%	16.3%	12.2%	7.22***	
ALL	*356*	*71.3%*	*16.0%*	*12.6%*	*11.11******	
Q5						
Italy	120	68.3%	15.8%	15.8%	6.17***	2.66
UK	89	77.5%	13.5%	9.0%	6.21***	
Israel	147	72.8%	14.3%	12.9%	7.69***	
ALL	*356*	*72.5%*	*14.6%*	*12.9%*	*11.64******	
Q8						
Italy	120	70.8%	13.3%	15.8%	6.76***	4.47
UK	88	80.9%	10.1%	9.0%	6.89***	
Israel	147	78.9%	10.2%	10.9%	8.91***	
ALL	*355*	*76.7%*	*11.2%*	*11.8%*	*13.11******	

of B answers to increase moving from Q8, to Q5 and to Q2 in all the three samples. The difference-of-proportions test reveals some low significance only in the aggregate data for the difference between Q8 and Q2 (with the proportions of B answers increasing from 11.2% to 16.0%, $d = 1.625$, one-tailed $p < 10\%$), but not between Q8 and Q5, nor between Q5 and Q2. Table 5 shows the joint distributions of choices over (Q2,Q5), (Q2,Q8) and (Q5,Q8) which strengthen the evidence that the majority of subjects chose (A,A) over all the three pairs of questions, but confirm the moderate tendency of switching preferences from A to B in going from Q8 to Q2 and Q5.[17] The substitution view is rejected by the majority, but may hold for a small minority of respondents.

5 Are people willing to sacrifice some equality for more mobility? The acceptance of an equality-mobility trade-off may arise when some inequality is necessary for greater mobility, as in a meritocracy. The answers to Q3 (Rigidity v Mixing+Widening), Q6 (Rigidity v Partial Mixing+Widening), and Q8 (Rigidity v Simple widening) provide evidence here. The results are consistent with the trade-off if response B in Q3 is chosen more often than in Q6,

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[17] This can be verified comparing the proportions of answers of type (B,A) in (Q2,Q8) and (Q5,Q8), with those of type (A,B) which are consistent with an opposite tendency. While the proportions of the latter patterns are very small, the former are larger, with differences that are statistically significant. In particular, in (Q2,Q8) the proportion of answers (B,A) is 8.5% (30/355) and those of type (A,B) is 3.7% (13/355) ($d = 2.76$, one-tailed $p < 1\%$); in (Q5,Q8) the answers (B,A) are 5.9% (21/355) and those of type (A,B) is 2.3% (8/355) ($d = 2.6$, one-tailed $p < 1\%$). Instead, there is no significance difference in the frequencies of (A,B) and (B,A) answers in (Q2,Q5).

Table 5 Distributions of answers in (Q2,Q5), (Q2,Q8), (Q5,Q8)

	Q5					Q8			
		A	B	Indiff.			A	B	Indiff.
Q2	A	62.1%	5.3%	3.4%	Q2	A	63.4%	3.7%	4.2%
	B	5.9%	7.0%	3.1%		B	8.5%	5.6%	2.0%
	Indiff.	4.5%	2.3%	5.9%		Indiff.	5.1%	2.0%	5.6%
					Q5	A	65.6%	2.25%	4.5%
						B	5.9%	6.8%	2.0%
						Indiff.	5.4%	2.3%	5.4%

which in turn is chosen more often than in Q8.[18] The evidence in Table 6 is consistent with the trade-off: in all three samples, the response A decreases, while response B increases sharply moving from Q8 to Q6 and then to Q3. The difference of proportions of response B between the three questions are highly significant.[19] It is also interesting to remark that, while in Q8 and Q3 the majority of responses are for A (see the d-test), in Q3 (where there is full mixing in B) choices are divided evenly between A and B. The preference patterns are similar across countries (χ^2-test).

The trade-off evidence is supported by the joint distributions over (Q3,Q6), (Q3,Q8) and (Q6,Q8) in Table 7: while in all the three pairs the relative majorities of choices are for (A,A), there are also a substantial proportion of (B,A) responses.[20] Moreover, in (Q3,Q6) more than a quarter of the respondents choose (B,B), the scenarios with more mobility.

5 The role of personal factors

It is potentially interesting to know the personal traits that appear to predispose respondents to certain choices. Table 8 reports the actual personal information from the end of the questionnaire. In general we do not observe large differences in the average answers across the three country subsamples.

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[18] An alternative hypothesis here is that people do not switch preferences between the three questions, and in particular that they choose in Q3 and Q6 the same scenario A as in Q8. For example, a prediction of "no trade-off" would hold either for individuals who do not care about mobility, or for those who consider the greater inequality of scenario B in the three questions anyhow too high to be compensated for any amount of mobility (even when mobility is perfect as in B of Q3).

[19] For the aggregate sample the increases in response B are: +23.2% (35.4%-11.2%=126/353-40/355) between Q6 and Q8 ($d = 6.597$, one-tailed $p < 1\%$); +39.0% (49.2%-11.2%=159/356-40/355) between Q3 and Q8 ($d = 8.365$, one-tailed $p < 1\%$); +13.8% (49.2%-35.4%=159/356-126/353) between Q3 and Q6 ($d = 1.896$, one-tailed $p < 5\%$);

[20] As above, in order to determinate the statistical significance of patterns (BA), they can be contrasted with the symmetric patterns (A,B). The comparison show that: in (Q3,Q6), category (B,A) corresponds to 15.6% (55/352) versus 7.7% (27/352) of (A,B) ($d = 3.20$, one-tailed $p < 1\%$); in (Q3,Q8) answers (BA) are 31.9% (113/354) and those (A,B) are 3.1% (8/354) ($d = 9.25$, one-tailed $p < 1\%$); in (Q6,Q8), (BA) count for 22.1% (78/352) and (A,B) for 3.7% (13/352) ($d = 6.92$, one-tailed $p < 1\%$).

Table 6 Results in Q3, Q6, Q8

	Valid resp.	Preference for A	Preference for B	Indif. not comp.	d-test	χ^2-test
Q3		Percentages				
Italy	119	45.0%	49.2%	5.8%	-0.56	3.19
UK	89	50.6%	40.4%	9.0%	0.89	
Israel	147	46.9%	43.5%	9.5%	0.52	
ALL	*355*	*47.2%*	*44.7%*	*7.9%*	*0.44*	
Q6						
Italy	118	54.2%	35.8%	10.0%	2.02*	0.41
UK	88	57.3%	34.8%	7.9%	2.10*	
Israel	147	55.8%	35.4%	8.8%	2.68*	
ALL	*353*	*55.6%*	*35.4%*	*8.1%*	*3.94****	
Q8						
Italy	120	70.8%	13.3%	15.8%	6.76***	4.47
UK	88	80.9%	10.1%	9.0%	6.89***	
Israel	147	78.9%	10.2%	10.9%	8.91***	
ALL	*355*	*76.7%*	*11.2%*	*11.8%*	*13.11****	

Table 7 Distributions of answers in (Q3,Q6), (Q3,Q8), (Q6,Q8)

Q6		A	B	Indiff.
Q3	A	37.2%	7.7%	2.6%
	B	15.6%	25.6%	3.4%
	Indiff.	3.1%	2.3%	5.4%

Q8		A	B	Indiff.
Q3	A	39.6%	3.1%	4.5%
	B	31.9%	6.5%	6.5%
	Indiff.	5.7%	1.4%	0.9%
Q6	A	48.6%	3.7%	3.7%
	B	22.2%	6.8%	6.8%
	Indiff.	6.5%	0.6%	1.1%

One important difference is that, while all students in Israel and the majority in Italy are from their respective country, most students in UK are from abroad (A3). In all countries, most respondents perceive that their family income is high (F1) and just above the country average (F2) and the majority believe that they will improve their parents' economic (P1) and social positions (P2). When faced with values often attached to mobility, respondents generally agree that independence between parents' and children's income is a desirable property for society (V1) and that income independence is a sign of equality of opportunities (V2). There is slightly less clear evidence whether the majority support the view that the government's main duty to ensure equality of opportunities or rather that of reducing as much as possible income inequality (V3): on this issue respondents are typically half way between the extremes.

We constructed two individual preference indices: for any respondent *mobility preference* is the number of A responses on Q1, Q4 and Q7; for any

Table 8 Sample characteristics

	Italy	UK	Israel	All
Number of respondents	120	89	147	356
Personal attributes				
A1. Age	20.1	21.0	24.6	22.5
A2. Gender (0 male, 1 female)	0.54	0.40	0.46	0.47
A3. Nationality (1 if from country; 0 otherwise)	0.93	0.27	1.00	0.80
Family attributes				
F1. Family income (1 very low; ...; 5 very high)	2.9	3.4	3.2	3.2
F5. Family income relative to country average	3.2	3.7	3.4	3.4
(1 much lower;...; 5 much higher)				
Prospects				
P1. Prospective income relative to parental income (1 much lower;...; 5 much higher)	3.4	4.0	3.9	3.8
P2. Prospective social position relative to parental position (1 much lower;...; 5 much higher)	3.5	3.7	3.7	3.6
Values				
V1. Is independence of parents' and children's income levels desirable? (1 strongly agree;..; 5 strongly disagree)	2.3	2.0	2.2	2.2
V2. Is independence of parents' and children's income levels equivalent to equality of opportunity? (1 strongly agree;...; 5 strongly disagree)	2.2	1.9	1.8	1.9
V3. Should the government: a. provide equality of opportunity and not alter economic outcomes; or b. reduce income differences as much as possible? (1 strongly agree with a.; 10 strongly agree with b.)	4.8	3.5	5.2	4.6

Table 9 Mobility and equality preferences - distributions by category

	0A	**1A**	**2A**	**3A**	**0A**	**1A**	**2A**	**3A**
	\"**Mobility preference**\"				\"**Equality preference**\"			
Italy	10.8	24.2	33.3	31.7	16.7	10.0	23.3	50.0
UK	9.0	11.2	20.2	59.6	13.5	6.7	11.2	68.5
Israel	10.9	16.3	27.9	44.9	9.5	14.3	19.7	56.5
ALL	*10.4*	*17.7*	*27.8*	*44.1*	*12.9*	*11.0*	*18.8*	*57.3*

respondent *equality preference* is the number of A responses on Q2, Q5 and Q8. Table 9 shows the distributions of the variables across the four possible categories of response and confirms that the majority of respondents value both mobility and equality: for both variables, there are very few 0A; for mobility preference category 3A is the most favoured (although there are differences in pattern across the subsamples); equality preference category 3A commands an absolute majority in all the three subsamples. Table 10 presents the results of three specifications of an ordered probit regressions for each of the two preference variables with the personal factors of Table 9 as independent variables.

In the baseline mobility-preference regression only V1 (\"independence of parents and children's income in society\") is significant: as one would expect, those who agree that independence is desirable value mobility higher; but we do

Table 10 Ordered probit for the role of personal factors

	Mobility preference		Equality preference	
Baseline regression				
A1. Age	0.0062	(0.025)	0.0440	(0.027)
A2. Gender	-0.1638	(0.1257)	-0.1005	(0.131)
F1. Family income	0.0271	(0.117)	0.2514**	(0.125)
F2. Living standard	-0.0311	(0.111)	-0.0879	(0.117)
P1. Prospect on income	0.0212	(0.093)	0.0368	(0.099)
P2. Prospect. on soc. position	-0.0349	(0.103)	-0.2068*	(0.109)
V1. Indep. desirable	-0.3152***	(0.077)	-0.0130	(0.081)
V2. Indep. as equ. of opport.	-0.1148	(0.081)	0.0114	(0.085)
V3. Equ. opport. v. equ. income	0.0102	(0.026)	-0.0655**	(0.028)
Regression with nationality dummies				
A1. Age	0.0245	(0.036)	0.0784*	(0.039)
A2. Gender	-0.1267	(0.127)	-0.0729	(0.134)
F1. Family income	-0.0081	(0.119)	0.2592**	(0.127)
F2. Living standard	-0.0883	(0.113)	-0.0873	(0.118)
P1. Prospect on income	-0.0671	(0.101)	0.0524	(0.106)
P2. Prospect. on soc. position	-0.0162	(0.104)	-0.2086*	(0.110)
V1. Indep. desirable	-0.3220***	(0.077)	-0.0102	(0.081)
V2. Indep. as equ. of opport.	-0.1050	(0.081)	0.0033	(0.086)
V3. Equ. opport. v. equ. income	0.0214	(0.027)	-0.0605**	(0.028)
Italy	-0.1226	(0.209)	0.2367	(0.224)
UK	0.4862	(0.326)	0.2940	(0.337)
From abroad	0.4599**	(0.212)	0.2549	(0.224)

Legend: Standard errors in brackets. Stars *, **, ***, denote rejection at, 10%, 5%, and 1% levels.

not see any effect on mobility preference from the role of independence as equality of opportunities (V2) nor of the view regarding whether the government should provide equality of opportunities or reduce income differences (V3). In the baseline equality-preference regression family income has a positive effect, which may be consistent with an altruistic attitude of those perceiving themselves as better-off. Also, participants perceiving better prospects of moving upwards in the social parade are less inclined to value income equality higher than those who perceive to have lower prospects (P2). This result may be consistent with arguments sometimes used in the political economic literature to explain why the poor do not always support real world redistributive policy if they perceive that they can be in a better economic position in the future (Benabou and Ok 2001), but there may also be some deeper factors weakening preferences for income equality, independent of material interest.[21] The regression also shows that participants who value equality higher seem those who agree that government should care to equality of opportunities more than to equality of income (V3). The effect is small, but opposite to that expected by the substitution view.

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[21] Supporting this interpretation note the negative effect of "prospect on social position" (P2) rather than the "prospect on income" (P1), which also has a negative effect. Removing P2 from the regression makes P1 not significant.

Table 11 Ordered probit for the role of personal factors

Baseline regression				
	Mobility preference		Equality preference	
A1. Age	0.0062	(0.025)	0.0440	(0.027)
A2. Gender	-0.1638	(0.1257)	-0.1005	(0.131)
F1. Family income	0.0271	(0.117)	0.2514**	(0.125)
F2. Living standard	-0.0311	(0.111)	-0.0879	(0.117)
P1. Prospect on income	0.0212	(0.093)	0.0368	(0.099)
P2. Prospect. on soc. position	-0.0349	(0.103)	-0.2068*	(0.109)
V1. Indep. desirable	-0.3152***	(0.077)	-0.0130	(0.081)
V2. Indep. as equ. of opport.	-0.1148	(0.081)	0.0114	(0.085)
V3. Equ. opport. v. equ. income	0.0102	(0.026)	-0.0655**	(0.028)
Regression with country dummies				
	Mobility preference		Equality preference	
A1. Age	-0.0164	(0.030)	0.0537	(0.032)
A2. Gender	-0.1607	(0.126)	-0.0960	(0.132)
F1. Family income	-0.0147	(0.119)	0.2566**	(0.127)
F2. Living standard	-0.0675	(0.113)	-0.0782	(0.188)
P1. Prospect on income	-0.0743	(0.100)	0.0499	(0.106)
P2. Prospect. on soc. position	-0.0172	(0.103)	-0.2077*	(0.109)
V1. Indep. desirable	-0.3201***	(0.077)	-0.0135	(0.081)
V2. Indep. as equ. of opport.	-0.0892	(0.081)	0.0050	(0.086)
V3. Equ. opport. v. equ. income	0.0125	(0.026)	-0.0648**	(0.028)
Italy	-0.3782**	(0.173)	0.0896	(0.183)
UK	0.1636	(0.290)	0.1115	(0.296)
Regression with nationality				
	Mobility preference		Equality preference	
A1. Age	0.0245	(0.036)	0.0784*	(0.039)
A2. Gender	-0.1267	(0.127)	-0.0729	(0.134)
A3. Nationality	-0.4599**	(0.212)	-0.2549	(0.224)
F1. Family income	-0.0081	(0.119)	0.2592**	(0.127)
F2. Living standard	-0.0883	(0.113)	-0.0873	(0.118)
P1. Prospect on income	-0.0671	(0.101)	0.0524	(0.106)
P2. Prospect. on soc. position	-0.0162	(0.104)	-0.2086*	(0.110)
V1. Indep. desirable	-0.3220***	(0.077)	-0.0102	(0.081)
V2. Indep. as equ. of opport.	-0.1050	(0.081)	0.0033	(0.086)
V3. Equ. opport. v. equ. income	0.0214	(0.027)	-0.0605**	(0.028)
Italy	-0.1226	(0.209)	0.2367	(0.224)
UK	0.4862	(0.326)	0.2940	(0.337)

Legend: Standard errors in brackets. Stars *, **, ***, denote rejection at, 10%, 5%, and 1% levels.

The second regression uses country dummies (Israel is the base case). The results for mobility preference show a negative impact of the dummy for Italy but there are no effects of the country dummy in the regression on equality preference. The results are perhaps not totally unexpected. For example, there is a very large literature indicating that Southern European cultures, and Italy in particular, are characterised by very strong family ties with various socioeconomic implications.[22] For example, among other things, they imply

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[22] See Esping-Andersen (1999) on the socioeconomic impact of different types of family organizations in post-industrial societies and Checchi et al. (1999) on intergenerational income mobility in Italy.

a tendency of individuals in these societies to rely on various forms of social insurance provided within the family which reduce social mobility. Also note that all respondents are students, who in Italy and Israel are mainly from their respective country, whereas in UK are mainly from abroad (Table 8).

The third regression includes a *nationality* dummy. This is constructed from the response to question 3 ("Do you consider yourself ...?" + multiple nationality categories); in effect it is coded as though the question were "do you consider yourself from round here?" taking value 1 ("Yes") or 0 ("No"). This is negative and highly significant for the mobility-preference regression but not for the equality-preference regression. Those who have literally moved from overseas to study are more likely to be in favour of mobility; but they are no more likely to be in favour of equality than their peers.

6 Concluding remarks

Do people value mobility? Clearly, yes. Is mobility enough? Clearly, no. According to our respondents, if there is greater mobility in society then that is a good thing; but it does not mean that you can forget about equality (Table 5). The evidence shows that the majority of our respondents value positively *both* mobility *and* equality: not only do they reject the extreme position that treats income equality as the only mandatory welfare objective, they also reject the position that considers income mobility as a primary social goal with income equality representing only a concern when the first objective cannot be fully achieved.

Why do people value mobility? When mobility is accompanied by income growth then they are prepared to sacrifice equality: this is evident from Table 6. Although there is no simple, direct trade-off between income mobility and income equality respondents express willingness to sacrifice some income equality to obtain more income mobility (or vice-versa) when this is necessary.

We found no evidence of personal factors that have both a positive effect in the evaluation of mobility and a negative effect on the evaluation of income equality (or vice-versa). Family income affects preferences for equality positively, while a prospect of social improvement affect them negatively. Mobility is valued highly by those participants who have experienced it – those who have moved to attend their course of study. There is some evidence of cross country differences in the evaluation of mobility: respondents in Italy value it the least; those in the UK value it the most.

Investigating values concerning intergenerational mobility presents a challenge because of the multidimensional nature of mobility and because individuals' responses in real-world contexts may be motivated by personal interest. The questionnaire approach to elicitation allows one to make the inequality-mobility tradeoff precise through a series of linked pair-wise comparisons. Further development of this approach on a larger scale may throw light on the important policy questions of how far income mobility is good for society and

how far income inequality may be accepted in society when this is necessary to have more mobility.

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