



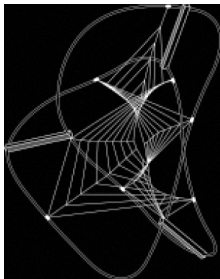
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Empirical Social Choice

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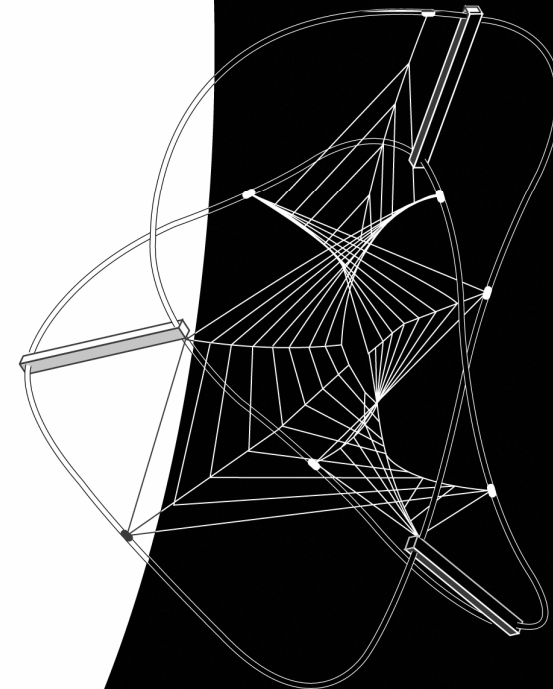
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1 Introduction

In his *Nicomachean Ethics*, Aristotle wrote that “both the unjust man and the unjust act are unfair or unequal, and clearly in each case of inequality there is something intermediate, viz., that which is equal. . . . Then if what is unjust is unequal, what is just is equal.” Aristotle continued saying that “a just act necessarily involves at least four terms: two persons for whom it is in fact just, and two shares in which its justice is exhibited. And there will be the same equality between the shares as between the persons, because the shares will be in the same ratio to one another as the persons; for if the persons are not equal, they will not have equal shares; and it is when equals have or are assigned unequal shares, or people who are not equal, equal shares, that quarrels and complaints break out” (1953, 1976; pp. 177-78).

Aristotle viewed justice as a kind of proportion. “What is just . . . is what is proportional, and what is unjust is what violates the proportion. So one share becomes too large and the other too small. This is exactly what happens in practice: the man who acts unjustly gets too much and the victim of injustice too little of what is good” (p. 179).

The proportionality idea was expressed quite formally by Homans (1961), a sociologist. He stated that “distributive justice involves a relationship between . . . two persons, P_1 and P_2 , one of whom can be assessed as higher than, equal to, or lower than, the other; and their two shares, or . . . rewards, R_1 and R_2 . The condition of distributive justice is satisfied when . . . $P_1/P_2 = R_1/R_2$ ” (1961, p. 249).

We shall see in the following sections that proportionality of some sort between giving and receiving or between contributions and rewards plays a role in formulations of distributive justice, at least in certain situations. Equality of something yet to be defined can be considered as an ideal. However, there are various reasons for a departure from equality. Yaari and Bar-Hillel (1984, p. 7) identify several broad categories, among them

1. differences in needs;
2. differences in tastes, or in the capacity to enjoy various goods;
3. differences in effort, productivity or in contribution;
4. differences in beliefs.

One can add other categories, such as aspects of responsibility and desert, and, for example, historical or legal claims. Would the proportionality principle be defensible in all these categories? Not necessarily. There is a fairly clear case for proportionality in category (3). Does the same hold if a person is responsible for “something”, her physical unfitness, let’s say? For category (4), an application of a proportionality rule does not appear obvious at all, since beliefs can be volatile, lacking substantiation.

Bar-Hillel and Yaari (1984, 1993) were probably the first to study the concept of justice or just distribution via “judgments of justice”, elicited from hypothetical questions. More concretely, the authors gave students hypothetical distribution problems and asked them “to solve them justly” (1993, p. 59). They emphasize that the focus of their research is the ethical notions in people’s minds, not their actual behaviour, keeping in mind that actual behaviour “is inevitably contaminated by political, strategic, and other considerations” (p. 59). They add that “it is people’s expressed sentiments (namely what they say ought to be done) rather than their revealed ones (namely what they actually do) that primarily guides the search for a *normative* theory of justice, as well as the rhetoric of public debate on issues of distributive justice” (p. 59). Clearly, intuitions about specific situations can mingle with theoretical conceptions but at the end of this process of deliberation, there hopefully is some state of equilibrium that Rawls (1971) referred to as a “reflective equilibrium”.

The general public has an opinion on issues of distributive justice. This view may sometimes be quite vague, it may depend, as we shall see in this survey, on the particular context into which the actual problem is embedded. It may also be culture-dependent and may change over time. But it definitely exists and should be taken into consideration in a political democracy. Schokkaert (1999) argues that if normative economics wants its analysis to have real influence on the decisions taken within a political system, it has to consider the opinions and preferences of its citizens. The political system itself has to explain its ideas towards justice and fair distribution to the members of society. Otherwise, public support for a particular distributive policy and its implementation is doubtful. Empirical research may help to find out what is going on in the minds of people.

Quite often it has been argued, particularly by scholars who do experimental game theory in laboratories, that answers from questionnaires cannot be taken very seriously since these answers have no monetary consequences at all for those who evaluate. Does this argument imply that probands in questionnaire-experimental situations tend to supply “any” answer? Why should this be the case? And couldn’t one turn this argument around and say that at least some of the probands in laboratory experiments where real money is involved are, perhaps, not so much interested in the underlying issues which the experimenter wishes to study, but primarily in the sum of money they can bring home? Recently Rubinstein (1999) said after having done questionnaire-experimental studies in an introductory course on game theory, that he would like to stress his doubts “as to the necessity of laboratory conditions and the use of real money in experimental game theory”.

Clearly, there are various problems when setting up questionnaire experiments. The phrasing, for example, has to be chosen very carefully. An extra word (e.g. luckily or

unfortunately, healthy or unhealthy, dangerous or safe) can easily achieve manipulative force which the experimenter should try to avoid. Admittedly, sometimes the manipulative power of a word is discovered only ex post, too late for this particular investigation. Should respondents be acquainted with an underlying theory? Perhaps not (and this is the case in our own questionnaire studies), because then there is the danger that the students see the experiment as a test to check whether they really understood the theory behind the questions, with the consequence that the whole study may turn into an IQ-test. And this is clearly not what the experimenter was looking for.

2 Needs

We said above that for departing from equality, reasons have to be given. Do differences in needs provide sufficient grounds for a departure from equal division? One may argue that needs bestow on recipients an entitlement that is, whenever feasible, proportionately responsive to their need.

Yaari and Bar–Hillel (1984, 1993) studied the following situation where they asked students to divide a bundle of goods between two persons in order for the division to be “just”.

Q 2.1 A shipment containing 12 grapefruit and 12 avocados is to be distributed between Jones and Smith. The following information is given, and is known also to the two recipients:

- Doctors have determined that Jones’s metabolism is such that his body derives 100 milligrammes of vitamin F from each grapefruit consumed, while it derives no vitamin F whatsoever from avocado.
- Doctors have also determined that Smith’s metabolism is such that his body derives 50 milligrammes of vitamin F from each grapefruit consumed and also from each avocado consumed.
- Both persons, Jones and Smith, are interested in the consumption of grapefruit and/or avocados only insofar as such consumption provides vitamin F – and the more the better. All the other traits of the two fruits (such as taste, calorie content, etc.) are of no consequence to them.
- No trades can be made after the division takes place.

How should the fruits be divided between Jones and Smith, if the division is to be just?

This problem of dividing grapefruit and avocados can be expressed more succinctly or more technically in the following way. Let ω be the bundle of fruits to be divided between Jones and Smith so that we have $\omega = (12, 12)$. Jones and Smith have different abilities to metabolize the fruits into vitamins. Therefore, we shall write $u_J(x, y) = 100x$ for Jones and $u_S(x, y) = 50x + 50y$ for Smith, with x and y being quantities

of grapefruit and avocados, respectively. The functions u_J and u_S can be interpreted purely technically. We shall, however, view them as utility functions of the two persons. Moreover, these functions can be interpreted as cardinal utility functions with the property that the units of measurement (milligrammes of vitamin) are comparable across the individuals.

How did the students divide the given bundle of 12 grapefruit and 12 avocados between Jones and Smith? Yaari and Bar-Hillel presented five different distributions to young male and female applicants for admission to Hebrew University of Jerusalem in the years 1978 – 1980. The respondents were confronted with two versions of question Q 2.1. One version asked the students to mark which of the five distributions *they* considered as the most just. The other version asked the respondents to assess how Jones and Smith would divide the shipment, ‘on the assumption that both recipients are committed to looking for a just division’ (1984, p. 10, footnote 10). The authors report that differences between the distributions of responses to these two versions were negligible.

Table 2.1 provides answers where (J : 9,0; S : 3,12), for example, means that Jones gets 9 grapefruit and no avocados, while Smith receives 3 grapefruit and 12 avocados.

Q 2.1 - n = 163

Distribution	% of respondents
J: 6,6 ; S: 6,6	8
J: 6,0 ; S: 6,12	0
J: 8,0 ; S: 4,12	82
J: 9,0 ; S: 3,12	8
J: 12,0 ; S: 0,12	2

Table 2.1

Strict equality of fruit is supported only by a minority. Equal split of the number of fruit is also Pareto-inefficient. A division which takes account of differing degrees of metabolic efficiency and yields an equal amount of vitamins, if possible, is favoured by a large majority. Actually, mechanisms as diverse as Rawlsian maximin (1971) and bargaining from zero according to Kalai and Smorodinsky (1975) “support” the distribution (J : 8,0; S : 4,12).

We now come to an issue that Yaari and Bar-Hillel have called tenability. The wording of the authors is extremely cautious. ‘We are prepared to interpret the numbers ... as saying, for example, that the distribution (J : 8,0; S : 4,12) is much more in agreement with moral intuition than, say, the distribution (J : 12,0; S : 0,12). ... Indeed, it would be hard to make a case for a distribution mechanism that picks the distribution (J : 12,0; S : 0,12) ... without explaining why this distribution should fare so badly in an experimental setting designed to trace out prevailing moral intuitions’ (1984, p. 10).

What happens when metabolic efficiency decreases considerably in one of the two persons? To answer this question, Yaari and Bar–Hillel modified the original situation Q 2.1 in the following way.

Substitute the third paragraph in Q 2.1 by

- Q 2.2: – Doctors have also determined that Smith’s metabolism is such that his body derives 20 milligrammes of vitamin F from each grapefruit consumed and also from each avocado consumed.

The ‘only’ change from Q 2.1 is that Smith’s metabolism is less effective than originally. In technical terms, the problem now reads:

$$\begin{aligned}\omega &= (12, 12) ; \\ u_J(x, y) &= 100x ; \\ u_S(x, y) &= 20x + 20y .\end{aligned}$$

Maximin supported as mentioned (J : 8,0; S : 4,12) in Q 2.1 and now advocates (J : 4,0; S : 8,12). The authors note that maximin compensates Smith for the deterioration in his metabolism. The results for Q 2.2 are as follows (the respondents were, of course, different from the ones who had answered Q 2.1):

Q 2.2 - n = 146

Distribution	% of respondents
J: 6,6 ; S: 6,6	4
J: 4,0 ; S: 8,12	82
J: 6,0 ; S: 6,12	4
J: 8,0 ; S: 4,12	7
J: 12,0 ; S: 0,12	3

Table 2.2

The students’ ‘vote’ in favour of a maximin–supported division is amazing, both in absolute terms and in relation to the other proposals. Yaari and Bar–Hillel remark that one might, perhaps, have expected this, given the fact that the problem presented to the students isolated the issue of needs and furthermore, needs were readily quantifiable.

A question that now arises is the following: ‘How long’ or to what extent would the respondents be willing to compensate Smith for any further deterioration in his metabolism, all the more because, simultaneously, Jones’s share of grapefruit is relentlessly cut down? Sooner or later, the issue of tenability would render further compensations questionable. Therefore, the authors conceived yet another variant of the same distribution problem, named Q 2.3. Everything is again the same as in Q 2.1, except that the third paragraph now reads:

- Q 2.3: – Doctors have also determined that Smith’s metabolism is such that his body derives 9.1 milligrammes of vitamin F from each grapefruit and also from each avocado consumed.

In technical terms, the situation now looks as follows:

$$\begin{aligned}\omega &= (12, 12) ; \\ u_J(x, y) &= 100x ; \\ u_S(x, y) &= 9.1x + 9.1y .\end{aligned}$$

Here are the answers:

Q 2.3 - n = 52

Distribution	% of respondents
J: 6,6 ; S: 6,6	17
J: 2,0 ; S: 10,12	38
J: 6,0 ; S: 6,12	27
J: 8,0 ; S: 4,12	6
J: 12,0 ; S: 0,12	12

Table 2.3

Maximin proposes the distribution (J : 2,0; S : 10,12) where the vitamin intake of the two persons is equalized. Table 2.3 shows that maximin has now lost much of its former attractiveness. It still receives the largest number of responses but other proposals such as (J : 6,0; S : 6,12) and even equal split which is totally insensitive to ‘the story behind’ gain much more support than before. Would maximin be abandoned altogether if Smith’s metabolic deficiency were enhanced even further? We do not know. Yaari and Bar–Hillel’s investigation, however, indicates that the criterion of equalizing the satisfaction of needs which maximin requires in the present case, may at some point collide with moral intuition. But also from the viewpoint of efficiency, an eyebrow should be raised. The distribution (J : 2,0; S : 10,12) considerably diminishes the combined amount of vitamin intake from the available fruit.

We now turn to an investigation run by the author of this survey. The focus is on an equity axiom that is fundamental for Rawls’s second principle of justice. The latter requires that economic and social inequalities be arranged such that they are to the greatest benefit of the least advantaged members of society. The reader will remember that the equity axiom makes a particular demand for a society of only two individuals or, more generally, for a society where only two individuals are affected by a change from one policy to another. Just to refresh our memories, let there be two policies x and y . We postulate that person 1 prefers x to y , person 2 prefers y to x , and independently

of whether x or y will eventually be the social outcome, person 2 is always better off than person 1. We know that in such a situation, the equity axiom requires x to be socially preferred to y .

Is there a possibility to check whether individuals follow this axiom in their judgments (check in an indirect way, of course; to ask people directly would be rather naive)? The question we wish to discuss is twofold. First of all, we would like to know whether people's evaluations satisfy the demands of the equity principle. In a second step, we will ask whether those who fulfil this axiom would follow it *unconditionally*, i.e., focus always exclusively on the worst-off members of society. This step is somewhat related to the last two variants within the Yaari and Bar-Hillel investigation, where Smith's metabolism became poorer and poorer.

How can we check for a fulfilment of the equity axiom?

In Gaertner (1992), we made the following suggestion. Let us consider the subsequent two-person profile of so-called extended orderings $\tilde{R}_i, i \in \{1, 2\}$, that we shall denote by E^1 .

$$\begin{aligned}\tilde{R}_1 &: (y, 2)(x, 2)(x, 1)(y, 1) \quad , \\ \tilde{R}_2 &: (y, 2)(x, 2)(x, 1)(y, 1) \quad .\end{aligned}$$

These lines should be read as follows. Both individuals agree that it is best to be person 2 under policy y . This is deemed better than being person 2 under policy x . This, again, is better than being person 1 under x which is better than being person 1 under y . The reader should verify that this two-person profile mirrors the structure of the equity axiom just stated. Both persons diverge in their evaluations of policies x and y as far as *their own position* is concerned, but they agree that it is person 2 who is always better off.

According to the equity axiom, x will be declared as preferable to y . We shall now enlarge this basic profile by adding the extended orderings of persons 3, 4, ..., thereby preserving the structure of E^1 . E^2 , for example, is:

$$\begin{aligned}\tilde{R}_1 &: (y, 3)(x, 3)(y, 2)(x, 2)(x, 1)(y, 1), \\ \tilde{R}_2 &: (y, 3)(x, 3)(y, 2)(x, 2)(x, 1)(y, 1), \\ \tilde{R}_3 &: (y, 3)(x, 3)(y, 2)(x, 2)(x, 1)(y, 1).\end{aligned}$$

We then ask all members of society how they would wish to resolve the situations E^1, E^2, \dots . All those individuals who accept the equity axiom will, of course, say that for E^1 alternative x should be the preferred state. For a moment, let us focus on just one member of the society. Will he or she find x also preferable in situation E^2 ? If 'yes', will the same verdict hold in E^3, E^4, \dots ? It is very well possible that at some point in this successive questioning the individual wishes to switch from 'x preferable to y' to 'now y should be preferred to x socially'. It could, however, also be the case that given the size of the society, the evaluating member of society would always want x to be socially preferred to y and thus follow the equity axiom unconditionally.

The situation that we shall present and discuss now can be found on the internet¹ together with several other cases. The structure of all situations is similar to the one in our E^1, E^2, \dots profiles above. There is always one (group of) person(s) who is worst off under both alternatives x and y and, therefore, needier than the others. That person is better off under x than under y whereas all the other (groups of) individuals who are introduced successively are better off under y than under x . This situation as well as the others was presented to classes of undergraduate students at the University of Osnabrück between 1989 and 2002. All students were enrolled in economics or business administration. At the time of the investigation the students had not yet had a course on welfare economics and theories of distributive justice, such as utilitarianism, Rawlsianism and game theoretical solutions.

Here is the situation we wish to focus on.

Q 2.4:

- (o) A small society has received a certain amount of money which can be used either to provide some help and assistance for a handicapped person or to further the education of an intelligent child. The child could receive a good education in languages and in natural sciences, let's say. Let the handicapped person be person 1; if the sum of money were used for her support (alternative x), she would be able to learn some very basic things, so that at least in certain areas of daily life she would no longer be totally dependent on the assistance from other people. Let the intelligent child be person 2; the investment into its education represents alternative y . The interpersonal welfare ranking reads:

$$(y, 2)(x, 2)(x, 1)(y, 1)$$

Which alternative should be realized in your view, x or y ?

- (a) Imagine that the sum of money which could be used to help the handicapped person, is so large that, on the other hand, this amount would suffice for the education of not only person 2 but also a second child (person 3) who is even somewhat more intelligent than person 2. Person 3 would, therefore, benefit even a bit more from the education so that the following interpersonal welfare ranking can be assumed:

$$(y, 3)(y, 2)(x, 3)(x, 2)(x, 1)(y, 1)$$

¹The internet address is <http://nts4.oec.uni-osnabrueck.de/mikro/darp.pdf>. All in all, we had given six different situations to the students. All these situations are fully reproduced in Gaertner and Jungeilges (2002). We should mention that in Osnabrück, we had two versions of our questionnaire, a technical and a non-technical version (the technical version is reproduced here and on the internet). The non-technical version did not use the specification in terms of extended orderings but provided a somewhat lengthier verbal description of the same 'facts' instead. Of course, each student only saw one version. Table 2.4 below gives the results from the non-technical version only. The Osnabrück results for the two versions did not show any difference on the basis of a two-sample nonparametric test, given an error probability of 5%.

Would you choose x or y under these conditions?

- (b) Imagine that if the money were used to finance alternative y it would be possible to educate still another child (person 4). The reason may simply be ‘economies of scale’ or the fact that a talented teacher will be able to provide a good education for several children simultaneously. Let us assume that all the other characteristics of the situation remain as before. The interpersonal welfare ranking now reads:

$$(y, 4)(y, 3)(y, 2)(x, 4)(x, 3)(x, 2)(x, 1)(y, 1)$$

Which alternative should be picked in your view, x or y ?

- (c) Add another child to the situation (person 5), who could also receive an instruction in languages and the natural sciences out of the given budget. Everything else remains the same and the interpersonal welfare ranking reads:

$$(y, 5)(y, 4)(y, 3)(y, 2)(x, 5)(x, 4)(x, 3)(x, 2)(x, 1)(y, 1)$$

Would you want x or y to be realized?

The underlying issue apparently is to allocate a certain amount of money to provide some help for a handicapped person (alternative x) or to teach one (or several) intelligent child(ren). Clearly, the intelligent child(ren) is (are) always better off than the handicapped person whatever decision will be taken. When we compare the current situation with the various cases presented by Yaari and Bar-Hillel, we can with some justification argue that the present situation again reflects the needs aspect. But note that it also contains an aspect of productivity, since an investment in human capital usually leads to a general increase in efficiency, at least in the longer run.

Our students most likely played the role of an external judge. In other words, their identification with the position and the circumstances of a particular person was only of an indirect nature. On a second thought, however, this need not necessarily have been the case. Imagine that a student himself (herself) turned out to be handicapped or that one member within his (her) family or a close friend suffered from a handicap. We do not know this, of course, but had it been the case, it would certainly have mattered.

In Table 2.4, we give the results for the Osnabrück students during the period 1989–2002. Explaining the digits and numbers in this table, 0 always represents the choice of alternative x , 1 stands for the choice of alternative y . In order to be more explicit, the sequence 0000, for example, refers to those students who took a decision in favour of x in all cases, i.e., in the basic situation and in all of its variants. 0001, 0011, and 0111 represent the verdicts of those respondents who decided at one point to revise their original judgment. The numbers in the columns give the percentages of answers within each of the cohorts of undergraduates. Relative frequencies of a revision or ‘switch’ are contained in the lower part of the table. All those sequences which begin with 0 represent students who satisfied the equity axiom. Correspondingly, all those sequences which start with 1 hint at a violation of the equity axiom. The percentages of students who satisfied the equity axiom are given at the bottom of each table.

Q 2.4

sequence	year of investigation				
	1989 n=65	1990 n=93	1993 n=81	1994 n=63	2002 n=86
0 0 0 0	0.723	0.581	0.494	0.603	0.407
0 0 0 1	0.046	0.086	0.062	0.016	0.035
0 0 1 0	0.0	0.0	0.0	0.0	0.0
0 0 1 1	0.077	0.151	0.148	0.095	0.174
0 1 0 0	0.0	0.0	0.0	0.0	0.0
0 1 0 1	0.0	0.0	0.0	0.0	0.0
0 1 1 0	0.0	0.0	0.0	0.0	0.012
0 1 1 1	0.077	0.086	0.173	0.143	0.233
1 0 0 0	0.0	0.0	0.0	0.0	0.0
1 0 0 1	0.0	0.0	0.0	0.0	0.0
1 0 1 0	0.0	0.0	0.0	0.0	0.0
1 0 1 1	0.0	0.0	0.0	0.0	0.0
1 1 0 0	0.0	0.011	0.0	0.0	0.0
1 1 0 1	0.0	0.0	0.0	0.0	0.0
1 1 1 0	0.0	0.0	0.0	0.0	0.0
1 1 1 1	0.077	0.086	0.123	0.143	0.140

% of switch	19.8	32.1	38.3	25.4	44.2
% fulfilment of equity axiom	92.3	90.3	87.7	85.7	86.0

Table 2.4

Let us try to interpret our findings. We start with the year 1989. The decision to give the money to the handicapped person in all cases, i.e., unconditionally, was very strong indeed (72.3%). Only 7.7% of the respondents wanted the amount of money to go into the education of the intelligent child(ren) right away. Those who wished to revise their original decision which, at the outset, was in favour of helping the handicapped were 19.8% of the students. The percentages of those who wanted to revise their decision after the first or second ‘round’ were equally high (7.7%). All in all, the equity axiom was fulfilled by 92.3% of the respondents.

When we now examine the following years, we have to state that the percentages for an unconditional support of the handicapped have more or less continually gone down. At the same time, the unconditional support for an education of the child(ren) as well as the desire to switch already after the first round (the latter from 7.7% in 1989 to 23.3% in 2002) experienced a steady increase over the years. All these developments are reflected in a steady decline of the fulfilment of the equity axiom and in a considerable increase of the desire to revise an originally made decision (the latter from 19.8% in 1989 to 44.2% in 2002).

These tendencies or differences, rather, that evolved over time were checked statistically by using a chi-squared test with the H_o -hypothesis of an identical distribution of the responses between any two cohorts (years). The results of these tests are such that the H_o -hypothesis was rejected at the 5% significance level between the cohorts of 1989 and 1993 and between 1989 and 2002. Furthermore, the H_o -hypothesis was rejected at the 10% level between the years 1994 and 2002. So the statistical analysis confirms what has become apparent from a purely descriptive comparison: the respondents to a considerable degree turned away from an unconditional support of the worse-off and developed a greater concern for the better-off.

The situation depicted above was given to students in other countries. Gaertner et al. (2001) ran their questionnaire studies in Austria, the Baltics, Israel and Slovenia, among other countries. The Israeli results turned out to be quite close to the German figures, the results from the Baltic countries, however, were vastly different. Austria and Slovenia were somewhere “in between”. This means, but we say this with utmost caution, that the social, political and historical contexts seem to matter. This should be no surprise at all on second thoughts.

3 Tastes

Are goods that are priced for the pleasure one derives from their consumption, their hedonic value so to speak, viewed differently than goods valued for their importance to one's health? Yaari and Bar-Hillel (1984, 1993) rewrote the situation that we discussed in the first half of section 2 in such a way that the underlying issue was not needs but tastes. More concretely, Jones and Smith now differ in their tastes for grapefruit and avocados which immediately affects their willingness to pay. Consider the following situation:

Q 3.1: A shipment containing 12 grapefruit and 12 avocados is to be distributed between Jones and Smith. The following information is given, and is known also to the two recipients:

- Jones likes grapefruit very much, and is willing to buy any number of them, provided that the price does not exceed \$ 1.00 per pound. He detests avocados, so he never buys them.
- Smith likes grapefruit and avocados equally well, and is willing to buy both grapefruit and avocado in any number, provided that the price does not exceed \$ 0.50 per pound.
- Jones and Smith are in the same income-tax bracket.
- No trades can be made after the division takes place.

How should the fruits be divided between Jones and Smith, if the division is to be just?

This situation can be described technically in the following way:

$$\begin{aligned}\omega &= (12, 12) ; \\ u_J(x, y) &= 100x ; \\ u_S(x, y) &= 50x + 50y ,\end{aligned}$$

where the two functions u_J and u_S now describe the willingness to pay of the two individuals who are in the same income–tax bracket. It is important to notice that the present formalization and the one given at the outset in section 2 (Q 2.1) are *exactly* the same. The information, however, that is conveyed now is information about the tastes of Jones and Smith, while previously, the two functions contained information about the respective needs of the two individuals. From the standpoint of welfarism, these differences should only matter if they resulted in different utility information. Other information such as the interpretation of the individuals’ utilities should be irrelevant. Since the utility information is identical in situations Q 2.1 and Q 3.1, a ‘welfarist respondent’ should take the same decision in both cases. Table 3.1 shows that the Israeli students did not react this way. It obviously mattered a lot to them whether the underlying issue referred to needs or to tastes. Here are their answers:

Q 3.1 - n = 122

Distribution	% of respondents
J: 6,6 ; S: 6,6	9
J: 6,0 ; S: 6,12	4
J: 8,0 ; S: 4,12	28
J: 9,0 ; S: 3,12	24
J: 12,0 ; S: 0,12	35

Table 3.1

When we compare Table 3.1 with Table 2.1, we see that the distributions of answers to the two problems are quite different from each other (the authors mention that under a chi–squared test, the difference between the distributions is significant at the 1% level). The distribution (J : 8,0; S : 4,12) still receives a relatively high percentage of support (much less, however, than under Q 2.1), but it is surpassed by (J : 12,0; S : 0,12) which is supported, for example, by utilitarianism.

Let us now alter Smith’s willingness to pay in such a way that the technical description becomes identical to the one in problem Q 2.2. Yaari and Bar–Hillel change the text of Q 3.1 so that the third paragraph now reads:

- Q 3.2: – Smith likes grapefruit and avocado equally well, and is willing to buy both grapefruit and avocado in any number, provided that the price does not exceed \$ 0.20 per pound.

As just indicated, the formalization is now given by

$$\begin{aligned}\omega &= (12, 12) ; \\ u_J(x, y) &= 100x ; \\ u_S(x, y) &= 20x + 20y .\end{aligned}$$

The results are depicted in Table 3.2.

Q 3.2 - n = 102

Distribution	% of respondents
J: 6,6 ; S: 6,6	12
J: 4,0 ; S: 8,12	6
J: 6,0 ; S: 6,12	7
J: 8,0 ; S: 4,12	28
J: 12,0 ; S: 0,12	47

Table 3.2

This outcome is very interesting. While a very large number of students wanted to compensate Smith for the setback in his metabolism in situation Q 2.2 (and cutting Jones's share simultaneously), nothing of this kind happens in the case of tastes. The considerable decline in responses consistent with maximin (from 28% in Q 3.1 to 6% in Q 3.2) and the clear increase in answers consistent with utilitarianism (from 35% in Q 3.1 to 47% in Q 3.2) appear to penalize Smith for a drop in his willingness to pay.

Let us come back to the question with which we began this section. Apparently, necessities are divided in a compensatory way, even at the cost that the aggregate value is diminished. If one extracts more pleasure, then one receives more fruit than if one were less efficient in eliciting pleasure. Compensation is not a guiding principle in the latter case. It seems as if the Israeli students had a distinct liking for the maximin criterion in cases of needs but tended toward utilitarianism in situations where the focus was on tastes without, of course, knowing details about either distribution rule.

4 Effort, Productivity and Pareto Efficiency

In sections 2 and 3, the issue was to distribute a given bundle of goods or a certain amount of financial resources among a group of people (two or more than two (groups of) persons). In the first half of this section, we wish to consider what happens in the context of production where individuals make contributions and exercise effort to a smaller or higher degree depending on their physical and mental abilities. So there are perceived inputs and perceived outputs. What would be a “just” or “fair” allocation

of produced commodities? Konow (2001) argued that one should distinguish between discretionary and exogenous variables. A discretionary variable affects production and can be controlled or influenced by the person considered (like work effort). An exogenous variable can have an influence on the amount or quality of output but cannot, under normal circumstances, be influenced by the person (e.g. some physical disability). Konow proposed an accountability principle in this context, calling for allocations to be in proportion to volitional contributions, meaning that “a worker who is twice as productive as another should be paid twice as much if the higher productivity is due to greater work effort but not if it is due to innate aptitude” (Konow (2001), p. 138). Thus, Konow argues, “individuals are only held accountable for factors they may reasonably control” (p. 142).

Do respondents share this view? Konow gave the following question plus variations to students at his university.

- Q 4.1 Bob and John are identical in terms of physical and mental abilities. They become shipwrecked on an uninhabited island where the only food is bananas. They can collect as many bananas as they want by climbing up a tree, picking them before they fall into the ocean and throwing them into a pile. In this way, Bob picks 12 bananas per day and John picks 8 per day. Bob takes from the pile the 12 bananas he picked leaving John with the 8 that John picked. Please rate this as:

Q 4.1 - n = 76

	% of respondents
fair	74 %
unfair	26 %

- Q 4.2 Same background. However:

Bob and John are identical in terms of physical and mental abilities except that Bob was born with one hand and John with two. Together they pick a total of 20 bananas per day, but because of his condition Bob picks fewer bananas per day than John. John takes 12 bananas from the pile leaving 8 for Bob. Please rate this as:

Q 4.2 - n = 78

	% of respondents
fair	19 %
unfair	81 %

- Q 4.3 Same background as in Q 4.2. However: John takes 10 bananas from the pile leaving 10 for Bob. Please rate this as:

Q 4.3 - n = 78

	% of respondents
fair	90 %
unfair	10 %

In the initial situation, i.e. Q 4.1, there are no explicit exogenous differences between the two persons, the only difference is of a discretionary type, i.e. harvesting bananas. So, according to accountability, Bob should get 12, John should receive 8 bananas. There is a wide agreement among the respondents to support this view.

In Q 4.2, the greater productivity of two-handed John is not viewed as sufficient ground for granting him 12 bananas from the pile, leaving only 8 to disabled Bob. 81% of the respondents view the larger share of John as unfair. Since Bob is in no way responsible for his disability, an equal split of the harvest, as suggested in Q 4.3, is seen as fair by an overwhelming majority of the respondents (90%). Since in Q 4.2 and Q 4.3, there are no differences in the perceived discretionary variables, an unequal allocation is deemed highly unfair and an equal split as truly fair.

Let us now introduce a twist towards larger differences in productivity. The background story is the same as above, but the productivity of one of the two persons is going up sharply, while the second person's productivity is constantly decreasing. This questionnaire study is based on telephone interviews that Konow undertook in the L.A. area.

Q 4.4 Bob and John become shipwrecked on an uninhabited island. The only food is bananas which the castaways collect and throw into a pile daily. Bob and John are identical in terms of abilities and work effort except that Bob was born with only one hand and John with two. John picks 14 bananas per day while Bob can pick only 6 because of his condition. John takes 12 bananas from the pile leaving 8 bananas for Bob. Please rate this as:

Q 4.4 - n = 117

	% of respondents
fair	17 %
unfair	83 %

Q 4.5 Same as in Q 4.4. However: John picks 16 bananas per day while Bob can pick only 4 because of his condition ... Please rate this as:

Q 4.5 - n = 121

	% of respondents
fair	28 %
unfair	72 %

Q 4.6 Same as in Q 4.4. However: John picks 18 bananas per day while Bob can pick only 2 because of his condition ... Please rate this as:

Q 4.6 - n = 109

	% of respondents
fair	39 %
unfair	61 %

Note that in all three situations, the total size of the allocable resource is the same. The results are in conformity with the accountability principle in so far as a vast majority in Q 4.4 and still a large majority in Q 4.5 and Q 4.6 deemed the exogenous differences between Bob and John as irrelevant. However, with John's productivity rising, the opposition against the unequal allocation of 12 bananas for John and 8 for Bob is getting less pronounced. In an indirect sense, the widening productivity gap is being honoured. This observation is to some degree reminiscent of the Yaari and Bar-Hillel results in Q 2.3 where students were not willing to compensate Smith for his declining metabolism "ad infinitum". Konow makes the conjecture that respondents were, perhaps, worried that if John were not appropriately rewarded for his higher productivity, he might be prompted to scale down his effort which would then reduce the total to be distributed among the two, a Pareto efficiency argument.

Pareto efficiency gets more pronounced in the following situation also considered in Konow (2001).

Q 4.7

A: A small newly independent island nation is considering how to allocate its one banana plantation and its one sugar plantation. There are only two farmers in the island interested in these plantations. The government chooses among the following two plans either of which would result in the same total production of both bananas and sugar.

Plan X: Both farmers receive one-half of each plantation. Each farmer earns an average profit of US\$ 100 per day from bananas and sugar combined. Therefore, the total of both farmers' profits is US\$ 200 per day.

Plan Y: One farmer receives the banana plantation and the other farmer receives the sugar plantation. The average daily profit of the banana farmer is US\$ 150 and that of the sugar farmer is also US\$ 150. At US\$ 300 per day, combined profits are greater under this plan because specialization reduces production costs.

Please circle the plan that you consider more fair:

Q 4.7. A - n = 147

	% of respondents
Plan X	20 %
Plan Y	80 %

B: A variation of Plan Y. The first sentence is the same. However: The farmers' profits are unequal since the sugar plantation is more profitable than the banana plantation: average daily profit of the banana farmer is US\$ 100 and that of the sugar farmer is US\$ 200. At US\$ 300 per day, combined profits are ... (same text as under A).

Please circle the plan that you consider more fair:

Q 4.7. B - n = 132

	% of respondents
Plan X	57 %
Plan Y	43 %

Note that while there is the same total production in variants A and B, the profits of the farmers differ. They differ both between Plan X and Plan Y and between Plan Y in version A and Plan Y in version B.

In version A, there is a clear efficiency gain for farmers due to a specialization in production, and this is widely acknowledged by the respondents, again university students in this investigation. In both Plans X and Y, the farmers seem equally accountable, and since the profits are equal under the Pareto superior Plan Y, the accountability principle wins the day. In version B, the total daily profits under Plan Y are still the same as in version A, but the profits of the two farmers have become unequal, thus violating the accountability principle. So, obviously, a conflict between accountability and Pareto efficiency arises. A majority of the students is now in favour of Plan X which is Pareto inefficient but satisfies the accountability principle. The sharp fall in support of Plan Y is stunning. Konow's results show that the rather intuitive (as economists often say) Pareto efficiency criterion is not that cherished after all.

We shall say more about this finding when we come to the next investigation in this section. We would just like to mention that Konow was also designing modifications of the current situations in such a way that he could check for an acceptance of the Kaldor–Hicks compensation principle vis-à-vis the accountability criterion. The results indicate that the idea of hypothetical compensation does not get much support from the students.

Finally, before going to the next paper, and this is somewhat in contrast to Konow's results in relation to Q 4.7, we would like to mention that the continual decline of unconditional support for the worst-off in Q 2.4 and the simultaneous increase in support of an education of talented children can, at least to some degree, be explained by a growing attention to aspects of efficiency. This became clear when the author of this survey went through the verbal explanations that his students were invited to give while filling out their questionnaires.

In the following study undertaken by Beckman et al. (2002), we shall have another look at Pareto efficiency and its acceptance. As mentioned above, Pareto efficiency is a universally accepted criterion within (welfare)economics. If a movement from some given allocation to another provides more for at least one person while keeping everybody else on the existing level, this movement should be preferred. But is this really

so when people are involved and realize that some other person gets more while they themselves do not experience any improvement? Harsanyi (1953, 1955) argued in two well-known articles that economic decisions free of any personal bias can be obtained by placing decision makers in a position of ignorance where they do not know their own relative position in society. Since we are returning to Harsanyi's argument also later in this survey, we find it appropriate to give a longer quotation from his 1953 article (pp. 434-35): ... a value judgment on the distribution of income would show the required impersonality to the highest degree if the person who made this judgment had to choose a particular income distribution in complete ignorance of what his own relative position ... would be within the system chosen. This would be the case if he had exactly the same chance of obtaining the first position (corresponding to the highest income) or the second or the third, etc. up to the last position (corresponding to the lowest income) available within that scheme."

In the study by Beckman et al., the contrast between economic decisions made when positions in society are known and decisions taken under impersonal circumstances is exploited in order to isolate the impacts of what the authors call envy and malice. The authors argue that ignoring envy and malice neglects "significant factors motivating economic decisions involving more than one person" (p. 352).

The following experiment was run in the US, Russia, Taiwan and the People's Republic of China. There are four groups of 10 subjects each in all four countries, giving a total of 160 subjects. The 40 participants in China were asked to take part in the entire experiment twice, once at low and once at high pay levels.

Exp. 4.1

Students were randomly divided into two groups of five at the beginning of the experiment. There were seven rounds. In each round, the experimenter shuffles five cards, ace through five, fans them out face down and walks before each subject in the group of five who then points to a card which is placed face up in front of him or her. This card determines the position within the possible pay-off vectors.

A payoff table was provided to each participant before the experiment started. It is reproduced in Table 4.1. Vector B always represents a Pareto improvement. In the first 5 rounds, 30 points are added to position 5, then 4, 3, 2, and 1. Round 6 adds 300 points to position 5 and is used to test support for large increases in pay for the person in the highest position.

Round/Vote	<u>Position assigned by distributing five cards</u>				
	Ace	Two	Three	Four	Five
1A	40	80	120	160	200
B	40	80	120	160	230
2A	40	80	120	160	200
B	40	80	120	190	200
3A	40	80	120	160	200
B	40	80	150	160	200
4A	40	80	120	160	200
B	40	110	120	160	200
5A	40	80	120	160	200
B	70	80	120	160	200
6A	40	80	120	160	200
B	40	80	120	160	500
7A	40	80	120	160	200
B	45	85	125	165	480

Table 4.1

Round 7 redistributes income slightly compared to round 6 as 20 points are taken from the potential gain to position 5 and divided equally among the four remaining positions. Rounds 6 and 7 were used by the authors to determine whether allowing every participant to have at least a small gain will offset opposition to Pareto optimality that benefits only the highest position. All points gained were later converted at a particular rate into local currencies.

Let us come back to the experiment. With the card and position given, each participant votes for vector A or B or abstains. The experimenter registers the vote and announces the majority decision that determines which vector is used for payoffs. If there is a tie, a coin is tossed to determine the outcome. After registering all data, the next round begins.

In all experiments, the set of payoff vectors is used twice. The only difference between the two sets is whether voting occurs before or after cards have been distributed. Half the experiments begin with voting before cards are distributed and half with voting after cards are handed out. This allows to check for any personal bias to which Harsanyi was referring when he proposed his own set-up. The experiment was run four times in all locations.

Tables 4.2 and 4.3² present the overall statistics for the full sample of 2800 votes ($200 \times 7 \times 2$). Across nations, only 10.1% oppose Pareto improvements when positions are not known. Opposition to Pareto gains increases to 18.3% when the recipient of this gain is, income-wise, below the voter (a case of malice) and it is 28.8% when the recipient

²All the tables are taken from Beckman et al. (2002).

occupies a higher income position than the voter (a case of envy). There are large differences across countries. In the US, opposition to a Pareto gain is only 6.4%, in Taiwan 9.1%, in China and Russia, however, opposition lies between 20% and 21.4%.

Definition	% of Votes			% of Obs.
	Op- pose Pareto improvements	Sup- port	Ab- stain	
Full sample of 2,800 votes	15.4	78.6	6.0	100
Data collected in U.S.	6.4	91.0	2.5	20
Data collected in P.R. China	20.0	73.8	6.2	40
Data collected in Russia	21.4	73.8	4.8	20
Data collected in Taiwan	9.1	80.2	10.7	20
Data from the first half of the experiment	14.0	80.3	5.7	50
Data from the high pay exp. in P.R. China	19.1	75.7	5.2	20
Subjects know their position before voting	20.6	69.4	10.0	50
Subjects vote not knowing positions	10.1	87.7	2.1	50
Recipient's position is above the voter	28.8	59.3	11.9	26
Recipient's position is below the voter	18.3	69.2	12.5	14
Recipient of Pareto gain is the voter	3.2	95.4	1.4	10
Data from round 7 and positions known	10.0	87.0	3.0	7
Data from round 6 and positions known	30.5	61.0	8.5	7

Table 4.2

It is interesting to note that in China, the differences between “normal pay” and “high pay” level are only minor in the case where the positions are known. A comparison between the data from rounds 6 and 7 shows that in the case where positions are known, the overall opposition against a Pareto gain falls from 30.5% in round 6 to only 10% in round 7. This result should be of interest for politicians who have a particular redistributive policy in mind: A wide-spread participation in Pareto-gains, even if it is only of a minimal kind, generates broad support.

A multinomial logit model shows that knowing the position of who on the income scale receives the Pareto gain (the voter, an individual above, a person below) is highly significant (at 1% level). Support for a Pareto gain is stronger when the voter is the recipient, and it becomes weaker in the other case. Moreover, the support for gains going to someone higher in the distribution is less than support for gains to someone lower in the distribution. The difference between these two effects is statistically significant. Turned around, the evidence for envy appears to be stronger than that for malice. So the relative position matters.

Percentage of opposition to Pareto optimality							
	China	High Pay	Russia	Taiwan	US	Part 2	All
<u>Rounds 1–5</u>							
Behind veil	14.0	6.0	21.5	5.5	8.0	9.4	11.0
Positions known	29.5	30.0	24.0	14.5	6.0	24.2	20.8
Self	2.5	7.5	7.5	0.0	0.0	4.0	3.5
Above	43.8	47.5	36.3	20.0	12.5	38.0	32.0
Below	28.8	23.8	20.0	16.3	2.5	20.5	18.3
<u>Round 6</u>							
Behind veil	12.5	7.5	20.0	5.0	2.5	9.0	9.5
Positions known	32.5	55.0	32.5	17.5	15.0	40.0	30.5
Self	0.0	12.5	12.5	0.0	0.0	10.00	5.0
Above	40.6	65.6	37.5	21.9	18.8	47.5	36.9
<u>Round 7</u>							
Behind veil	10.0	5.0	12.5	5.0	0.0	5.0	6.5
Positions known	20.0	20.0	7.5	0.0	2.5	13.0	10.0
Self	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Above	25.0	25.0	9.4	0.0	3.1	16.3	12.5
<u>All</u>							
Behind veil	13.2	6.1	20.0	5.4	6.1	8.7	10.1
Positions known	28.6	32.1	22.9	12.9	6.8	24.9	20.6

Table 4.3

It was already mentioned that China's and Russia's opposition to Pareto improvements is relatively high. It is extremely high, as Table 4.3 shows, when the gain goes to a person holding an income position above the voter's own position (36.3% in Russia and 43.8-47.5% in China). But opposition is even strong behind the Harsanyian veil of ignorance, at least in comparison with the figures for the US and Taiwan. These results support Mui's (1995) findings who argued that in former socialist countries with emerging democracies, opposition to economic efficiency, envy and malice may prove to be major obstacles to market reform and economic progress. This view is, at first sight, in contrast to questionnaire-experiments by Gaertner and Jungeilges (2002) who found a clear support for Pareto efficiency among students in the Baltics. However, these students were inscribed in the so-called Euro-Faculty of their school and probably considered themselves as the future elite of their country. In other words, they thought that because of their education and career plans, they would, in the not too distant future, belong to the top income receivers. So they anticipated their future position.

Amiel and Cowell (1994) also found large opposition to Pareto improvements in their questionnaire studies where the respondents were acting as impartial observers with no stake in the outcome. Klemisch-Ahlert (1992) has evidence for opposition against Pareto improvements in her bargaining experiments. She concluded that envy plays a

role in the distribution of money in her experimental studies; in other words, envy may generate payoff agreements that are not strongly Pareto-optimal.

5 Responsibility

Recent debates among philosophers and economists, social choice theorists in particular, introduced the notion of responsibility into welfare economic reasoning. It was proposed that one should distinguish between characteristics for which individuals are to be held responsible and those for which they should be compensated. Remember that we already discussed this issue in the context of production in the first half of the preceding section when we introduced Konow's concept of accountability. It was argued that the notion of control plays a major role in such a context. Given that a person is physically fit, her effort is largely under her direct influence. Natural talents hardly are under a person's control so that people with lower talents should be compensated for their disadvantage. But the dividing line between responsibility (i.e. non-compensation) and compensation is not so clear. Should a person, for example, be held responsible for her preferences? Schokkaert and Devooght (2003) studied these issues from an empirical perspective by doing questionnaire-experimental investigations in three different countries, viz. Belgium, Burkina Faso and Indonesia.

Fleurbaey (1995, 1998), Bossert (1995) and Bossert and Fleurbaey (1996) proposed two basic concepts. The first captures the idea of compensation and reflects an egalitarian perspective. Schokkaert and Devooght call it "full compensation": "If two persons are identical on all characteristics for which they can be held responsible, i.e. if they only differ with respect to characteristics for which they must be compensated – then the redistribution mechanism must assign these two persons the same post-tax income" (p. 210). The second notion focusses on the idea of responsibility and indicates boundaries to be imposed on egalitarianism. The authors call it "strict compensation": "If two persons have identical compensation characteristics, the differences in their pre-tax income will only reflect differences in their responsibility characteristics, and hence there is no reason why these differences should diminish through the redistribution process" (p. 210).

Do people support responsibility-sensitive egalitarianism? In order to answer this question properly, one has to make a distinction between personal characteristics that stand for "responsibility" and characteristics which elicit compensation, and as stated above, this is not an easy exercise. Do people, for example, find full compensation acceptable? And are there intercultural differences?

In the following paragraphs, we discuss only a small part of the investigations run by Schokkaert and Devooght. We shall cover the case of health care financing where compensation takes place through a vector of individual subsidies. Full compensation then means that two persons with the same responsibility characteristics should pay the same contribution. Strict compensation implies that two persons with the same compensation characteristics should receive the same subsidy. This means that if medical expenditures differ because of differences in the responsibility characteristics, then

these differences are to be fully reflected in the individuals' contributions.

In the cases which we analyse subsequently, respondents were confronted with a series of simple two-person situations where the two persons differed in only one characteristic. The students (they were first-year university students in economics) could pick from a list of possible distributions of hospital costs that particular distribution which they considered as "just". Along our previous discussion, the following four cases can be distinguished and are depicted in Table 5.1:

Health care		
	Preferences	Resources
controlled	Marks opts for a private room because it is more comfortable (CP)	Mark's treatment is more expensive because he is a confirmed smoker (CR)
involuntary	Mark opts for a private room because he has psychological problems in the presence of other people (IP)	Mark's treatment is more expensive because he has a genetic defect and his natural resistance is weaker (IR)

Table 5.1

The authors state that they expected little compensation in case CP (preferences under the person's control) and a large degree of compensation in case IR (resources which are not under the person's control). But they also ask the reader to add some question marks to their nicely structured table. It can, for example, be argued that a heavy smoker does not fully control his cigarette consumption, since his addiction may be due to influences in the past (his parents or friends, let's say, were heavy smokers) that are beyond his control.

In the following, we shall discuss the four health cases that the authors have given to students in Belgium (April 1996), Burkina Faso (May 1996) and Indonesia (August 1997). And we present the results to these four situations, based on a series of alternative proposals for government contribution and own contribution of the patient, respectively.

Q 5.1 – health case 1:

Luke and Mark are both suffering similar effects of lung cancer. They have the same financial wealth at their disposal and earn the same income. Luke and Mark have to be admitted to a hospital for treatment. We suppose that all treatments are effective. Luke chooses a *common room* which he shares with other patients. The costs of his treatment in the hospital are 250. Mark, on the other hand, opts for a private room in the hospital which gives him more comfort. Due to his choice of a *private room*, the costs of the treatment of Mark are 750. The government has to divide 500 as a financial contribution to the costs of the treatments of the two persons and is willing to divide

it completely. What would you consider to be a just division of this amount of money? Place an asterisk * in the box of your choice.

Proposals for division:

LUKE		MARK	
Contribution by the government	Own contribution of the patient	Contribution by the government	Own contribution of the patient
A 0	pays 250 himself.	500	pays 250 himself.
B 125	pays 125 himself.	375	pays 375 himself.
C 200	pays 50 himself.	300	pays 450 himself.
D 250	pays nothing.	250	pays 500 himself.
E 300	keeps 50.	200	pays 550 himself.
F 375	keeps 125.	125	pays 625 himself.
G 500	keeps 250.	0	pays 750 himself.

Table 5.2

Answers to health case 1:

<i>Health case 1 (%)</i>	Answer	Belgium n=94	Burkina Faso n=87	Indonesia n=200
Full compensation	A	–	1.1	–
Intermediate compensation	B	14.0	18.4	18.3
Intermediate compensation	C	23.6	8.0	12.6
No compensation	D	60.2	67.8	63.3
Countercompensation	E	1.1	1.2	2.6
Countercompensation	F	1.1	1.2	1.1
Countercompensation	G	–	2.3	2.1

Table 5.3

Q 5.2 – health case 2:

Same as health case 1, except for the seventh sentence from above which now reads: Mark, on the other hand, has *psychological problems* with the presence of other people and opts therefore for a private room in the hospital where he is not confronted with other people.

Answers to health case 2:

<i>Health case 2 (%)</i>	Answer	Belgium n=94	Burkina Faso n=87	Indonesia n=200
Full compensation	A	6.4	9.3	5.7
Intermediate compensation	B	46.8	44.2	39.1
Intermediate compensation	C	26.6	24.4	22.9
No compensation	D	18.1	19.8	28.1
Countercompensation	E	1.1	1.2	0.5
Countercompensation	F	1.0	1.1	1.1
Countercompensation	G	–	–	2.6

Table 5.4

Q 5.3 – health case 3:

Luke and Mark are both suffering from lung cancer. They have the same financial wealth at their disposal and earn the same income. Luke and Mark have to be admitted to a hospital for treatment. We suppose that all treatments are effective. Luke has *never been a smoker*. The costs of his treatment in the hospital are 250. Mark, on the other hand, is a *confirmed smoker*. Due to his smoking behaviour, the effects of lung cancer are more serious than the effects of lung cancer for Luke. The costs of the treatment of Mark are 750. The government has to divide 500 as a financial contribution to the costs of the treatments of the two persons and is willing to divide it completely. What would you consider to be a just division of this amount of money? Place an asterisk * in the box of your choice. In row H you can add an own ideal distribution of the government money.

Answers to health case 3:

<i>Health case 3 (%)</i>	Answer	Belgium n=94	Burkina Faso n=87	Indonesia n=200
Full compensation	A	3.2	2.3	6.1
Intermediate compensation	B	21.3	18.6	18.0
Intermediate compensation	C	15.9	16.3	20.5
No compensation	D	45.7	45.3	39.0
Countercompensation	E	7.5	5.8	6.2
Countercompensation	F	6.4	4.7	3.6
Countercompensation	G	–	7.0	6.6

Table 5.5

Q 5.4 – health case 4:

Same as health case 3, except for sentences 5, 6, and 7 which read:

Luke is born with a *normal natural resistance* to lung cancer. The costs of his treatment in the hospital are 250. Mark, on the other hand, has a *genetic defect* and therefore his natural resistance to lung cancer is much weaker.

Answers to health case 4:

<i>Health case 4 (%)</i>	Answer	Belgium n=94	Burkina Faso n=87	Indonesia n=200
Full compensation	A	28.7	25.6	28.3
Intermediate compensation	B	57.5	47.7	36.1
Intermediate compensation	C	7.4	11.6	16.0
No compensation	D	5.3	11.6	16.0
Countercompensation	E	-	1.2	2.1
Countercompensation	F	1.1	1.2	—
Countercompensation	G	—	1.2	1.5

Table 5.6

In Table 5.7, the results above are presented in a condensed form. “Full compensation” means that the respondent views the characteristic as a compensation variable. Therefore, the respondent is in favour of equality of the own contribution (A). “No compensation” refers to the case where the differentiating characteristic is treated as a responsibility variable and the respondent supports the concept of “strict compensation”. This means that there should be an equal distribution of the subsidy (D). “Intermediate compensation” covers cases B and C, where the respondent gives a larger subsidy to the person with higher medical expenditures but does not want the own contributions to be equal. Finally, “countercompensation” goes in the opposite direction, i.e. a smaller subsidy in case of higher medical expenditures.

Criteria for compensation and condensed results

	Belgium n=94	Burkina Faso n=87	Indonesia n=200
<i>Health case 1: Private room (CP)</i>			
Full compensation	0.0	1.1	0.0
Intermediate compensation	37.6	26.4	30.9
No compensation	60.2	67.8	63.3
Countercompensation	2.2	4.7	5.8
<i>Health case 2: Private room because of psychological problems (IP)</i>			
Full compensation	6.4	9.3	5.7
Intermediate compensation	73.4	68.6	62.0
No compensation	18.1	19.8	28.1
Countercompensation	2.1	2.3	4.2
<i>Health case 3: Smoker (CR)</i>			
Full compensation	3.2	2.3	6.1
Intermediate compensation	37.2	34.9	38.5
No compensation	45.7	45.3	39.0
Countercompensation	13.9	17.5	16.4
<i>Health case 4: Genetic defects (IR)</i>			
Full compensation	28.7	25.6	28.4
Intermediate compensation	64.9	59.3	52.1
No compensation	5.3	11.6	16.0
Countercompensation	1.1	2.5	3.6

Table 5.7

Table 5.7 informs us that both for the preference aspect and the resource aspect, compensations are larger for “involuntary” than for “controlled”. Both for involuntary and controlled, the resource aspect gets more compensation than the preference aspect. Furthermore, cases of no compensation or even countercompensation are less frequent under involuntary than under controlled. All this is quite intuitive. On the other hand, if you add cases of full compensation and intermediate compensation, roughly 30% of the students in all three countries wish to compensate Mark for his “expensive tastes”, i.e., his choice of a private room. And 40% of the respondents compensate for controlled resources (Mark being a smoker). But one should also note that in the last case as well as under CP, the frequency of no compensation is very high (between 45% and roughly 60%). And in the CR case, more than 15% want to punish Mark for his smoking habits (countercompensation).

Coming back to the idea of responsibility-sensitive egalitarianism, full compensation does not fare too well. Respondents who wish to compensate have a clear preference for intermediate compensation in all three countries. Schokkaert und Devooght write

that the axiom of full compensation which is the basic idea of egalitarianism, is “quite decisively rejected” (p. 216), even in the case of genetic defects (IR). This should caution us when we think of the theoretical underpinning leading to the present investigations.

All in all, there is some support for the view that individuals are responsible for the preferences with which they identify and also for the idea that individuals are responsible for “those things” which are under their control. While full egalitarianism is rejected, there is a clear evidence for intermediate compensation which is an inequality-reducing measure that does not go all the way towards egalitarianism. The authors argue that from a theoretical perspective, it seems to be promising to extend the framework of responsibility-sensitive egalitarianism to a concept of intermediate responsibility leading to the present findings, namely intermediate compensation on a broader scale.

The intercultural differences are much less pronounced than one might have thought. Compensation and intermediate compensation are a bit higher among Belgian students, but not much. Countercompensation, a somewhat non-liberal attitude, is somewhat higher among Burkinese students, but not much either. In some of the other studies which we shall not discuss here, Schokkaert and Devooght found that Indonesian students are more efficiency-oriented and less redistribution-oriented than the respondents from the other nations, but the authors add that these students came from a specific entrepreneurially oriented segment of the Indonesian society.

Gaertner and Schwettmann (2007) also looked at the issue of whether responsibility aspects are being considered in cases of basic needs. We saw in section 2 when we discussed the situation of the handicapped person and the child(ren), that the support for the needy person diminished over the years while efficiency aspects became stronger. Would responsibility as an additionally included argument further reduce the support for the worst-off person?

In one version, we gave the information that the retarded person was severely handicapped from birth. In a second version, presented to other students, of course, it was said that brain damage was due to an accident from participation in a dangerous sport (paragliding, let’s say). Otherwise, the descriptions were exactly the same as before. We found that fulfilment of the equity axiom is weaker for the responsibility case and furthermore, that the relative frequency of revising the initial decision is lower in the responsibility version, viz. from 47.2% in the case of handicap from birth to 36.4% in the case of a dangerous sport. Surprisingly, unconditional support for the handicapped (i.e. sequence 0000) was higher in the latter case than it was in the former. We used χ^2 tests to check whether there were statistically significant differences between the answering patterns of the two versions. The null hypothesis that the distribution of responses in the “responsibility” variant is identical to the distribution in the “no responsibility” version could not be rejected. Only for the switching behaviour (i.e. the sum of the frequencies of the sequences 0001, 0011, and 0111) we could reject the null hypothesis of no differences between the two samples at the .05 significance level.

Sequence	No Responsibility 2002 + 2003 n=178	Responsibility 2002 + 2003 n=187
0 0 0 0	0.360	0.412
0 0 0 1	0.022	0.032
0 0 1 0	0.0	0.0
0 0 1 1	0.213	0.139
0 1 0 0	0.0	0.0
0 1 0 1	0.011	0.0
0 1 1 0	0.006	0.0
0 1 1 1	0.236	0.193
1 0 0 0	0.0	0.0
1 0 0 1	0.0	0.0
1 0 1 0	0.0	0.0
1 0 1 1	0.006	0.011
1 1 0 0	0.011	0.005
1 1 0 1	0.0	0.0
1 1 1 0	0.0	0.0
1 1 1 1	0.135	0.209
% of switch	47.2	36.4
% fulfilment of equity axiom	84.8	77.5

Table 5.8

As just mentioned, there was an increase in unconditional support for the handicapped in the case of responsibility. In order to learn more about what really was going on, we did a gender breakdown. We found that in comparison with female answers, the fact that the handicap resulted from a sports accident had a positive and significant (at the 5% level) effect on male answers regarding both the fulfilment of the equity axiom and the unconditional support of the worst-off. Having controlled for this effect, there was a highly significant (at the 1% level) negative influence on the fulfilment of the equity axiom coming from female respondents. In other words, basic needs are considerably less often supported by females if the suffering person is to be blamed for her own situation. We got the impression that our male students to some degree “honoured” participation in some risky sport, whereas female respondents had a clear reservation about this. So gender obviously matters.

We “tested” the responsibility issue in another situation (see footnote 1 above) that we do not want to present in full detail. In this case, financial aid to Sub-Saharan Africa was considered as an alternative to environmental programs in the home country. It was stated that starvation either resulted – variant 1 – from a long-lasting drought or – variant 2 – harvests were severely damaged by failures to cultivate self-bred grain. Note that compared to the two variants in the first situation, this African situation aimed at incorporating responsibility aspects not at a personal or *ad personam* level but on an “impersonal” broader scale.

We found (Gaertner and Schwettmann, 2007) that the two quite different reasons for starvation had no influence on the evaluation of our respondents. For example, the frequencies for choosing the sequence 0000 in both variants and the frequencies for picking 1111 in both variants were in each case astonishingly close to each other. Also, the percentages of a switch were more or less the same in both variants. What does this mean? It is possible that in the African situation, responsibility has to be seen as responsibility taken by a larger entity. The individual African peasant is just a “small” member of the community who is more or less unable to take an independent decision, for or against self-bred grain. Also, given the case that large-scale droughts hit certain parts of Africa every other year, shouldn’t one seize every opportunity to get out of this dilemma, even at the price of a possible failure?

We find that after having discussed various facets of the notion of responsibility in this section, further research is needed to shed some more light on this important issue.

6 Behind the Veil of Ignorance or Outside the Veil

The first paper in this section by Traub et al. (2005) investigates the evaluation of income distributions for two different roles in which the evaluating person may find herself, and for two different information scenarios. The two different roles are those of an outside observer with no stakes, called an umpire, and of a person who becomes an income recipient within her most favoured income distribution, once the veil of ignorance has been lifted, called the self-concern mode. The two informational scenarios are the case of “ignorance” where it is assumed that only the set of possible incomes is known, while there is absolutely no information on probabilities, and the case of “risk” where agents know both the possible incomes and the probability distribution over these incomes.

Combining the self-concern mode and the umpire mode with the two scenarios of ignorance and risk gives four different situations. The authors wanted the students to participate in all four cases. The experiment lasted for two hours. There were material incentives for the students which, to some degree, depended on their choices in the course of the experiment. 61 students were involved in this study, mostly from economics and business administration. The authors assert that there were no gender differences in the students’ responses. It appears as if the sequence in which the four cases were given to the students was not varied among the participants. So it was not possible to check for order effects, for example learning.

The ignorance scenario, depicted in Table 6.1, consisted of nine income sets. These sets represented eligible entries in income distributions. Respondents were told that the eventual income distributions were made up only by using components of these sets so that not all components of these sets necessarily entered the ensuing income distribution. This was said in order to destroy any connotation of probabilities. The ignorance scenario was devised to mimic a Rawlsian set-up. The reader will recall that his difference principle was designed without using the concept of probability.

Ignorance Scenario: Q 6.1

No.	Income set
1	{59,000 110,000}
2	{60,000}
3	{40,000 45,000 50,000 55,000 60,000}
4	{30,000 150,000}
5	{30,000 180,000}
6	{20,000 50,000 100,000 150,000 220,000}
7	{20,000 60,000 100,000 160,000 220,000}
8	{0 100,000 220,000 250,000}
9	{10,000 20,000 30,000 40,000 45,000 50,000 55,000 60,000 80,000 90,000 100,000}

Table 6.1

The risk scenario, shown in Table 6.2, consisted of twelve income distributions, each of which contained exactly five entries representing income quintiles. This scenario was designed to mimic a Harsanyi-type environment to which we already referred in the second half of section 4. In all twelve distributions, agents know both the possible incomes and their probability distributions.

Risk Scenario: Q 6.2

No.	Income distribution
1	{60,000 60,000 60,000 60,000 60,000}
2	{50,000 55,000 60,000 65,000 70,000}
3	{40,000 50,000 60,000 70,000 80,000}
4	{40,000 40,000 60,000 80,000 80,000}
5	{40,000 60,000 60,000 60,000 80,000}
6	{10,000 20,000 60,000 100,000 110,000}
7	{10,000 60,000 60,000 60,000 110,000}
8	{70,000 70,000 100,000 110,000 120,000}
9	{70,000 70,000 70,000 90,000 180,000}
10	{15,000 15,000 100,000 110,000 120,000}
11	{15,000 15,000 70,000 90,000 180,000}
12	{0 60,000 80,000 250,000 250,000}

Table 6.2

The respondents were required to state complete preference orderings both over the nine income sets in the ignorance scenario (Q 6.1) and the twelve income distributions in the risk scenario (Q 6.2). One of the focusses in this paper was to investigate differences in the respondents' behaviour under the self-concern mode and under the mode of an external observer. A second focus was whether and to what degree the respondents' orderings came close to one of the standards of behaviour, such as the Rawlsian maximin principle or its lexicographic variant, Harsanyi's utilitarian criterion, the Gini ranking

or some other standard of behaviour. The authors, in particular, focus on a hybrid standard which they call Boulding's principle where the realization of a floor constraint is combined with the maximization of expected utility.

Table 6.3 gives an overview of the rankings of the nine income sets by the students for the ignorance scenario both under the self-concern mode and the umpire mode.

Mean rank and students' rankings of income sets in the ignorance scenario

No.	income set ($\times 1000$)	self-concern		umpire	
		mean rank	ranking position	mean rank	ranking position
1	{59, 110}	4.11	3	4.25	3
2	{60}	5.51	5	4.70	5
3	{40, 45, 50, 55, 60}	5.92	7	6.64	9
4	{30, 150}	5.93	8	5.49	7
5	{30, 180}	5.07	4	5.07	6
6	{20, 50, 100, 150, 220}	3.48	2	4.15	2
7	{20, 60, 100, 160, 220}	2.92	1	3.92	1
8	{0, 100, 220, 250}	6.16	9	4.51	4
9	{10, 20, 30, 40, 45, 50, 55, 60, 80, 90, 100}	5.90	6	6.28	8

Table 6.3

Under the self-concern mode, income set 7 was ranked highest with income set 6 winning the second position (note that set 7 weakly vector-dominates set 6). Income set 8 where one of the incomes is zero, fared very badly. Under the umpire mode, sets 7 and 6 were still at the top but they lost in terms of mean rank. Interestingly, income set 8 gained five rank positions. Subjects, in their role as outside observer, seem to have thought that the possibility of rather high incomes under set 8 compensates the society for the chance of a zero income. "However, when possibly affected by a zero income under the self-concern mode, they shied away from income set 8" (Traub et al., p. 296). While the first three ranking positions are taken by the same income sets under both modes, sets 5 and 3 lose two ranking positions when going from the first to the second mode. The outside observer apparently now considers set 3 "much worse" than set 2 which contains only one income, viz. 60000, whereas under the self-concern mode, both sets are not "that far apart" both according to the mean rank and the ranking position. Does this mean that in the ignorance scenario, respondents became more inequality-averse as impartial umpires? We admit that a positive answer to this question would be in some contrast to the statement above concerning the possibility of a zero income in income set 8.

Given the standards of behaviour to which we referred earlier, the authors computed the theoretical ranking of the nine income sets for each standard of behaviour. Then, for every respondent, Spearman's rank correlation between the empirical rank ordering of the nine income sets and any theoretical ranking was computed. This generated 61 rank correlation coefficients for each theoretical ranking. Without going too much into technical details, one can say that under the self-concern mode, Boulding's principle and expected utility were among the winning standards of behaviour and both were also in the leading group under the umpire mode. The leximin principle was the big loser under both modes. Furthermore, the authors observed a shift in the respondents' assessment of the income sets when switching from self-concern to external observer. A between-subjects analysis suggests that on average, respondents behaved less inequality-averse under the umpire mode than under the self-concern mode. This means that if a utilitarian structure was underlying the respondents' evaluations, the shape of the utility function became less concave for the external observer. This finding supports Brickman's (1977) observation that respondents tend to endorse more inequality when they themselves have fewer stakes in the outcome. However, 23% of the students behaved more inequality-averse as umpires. This behaviour corresponds to findings by Loewenstein et al. (1989) who observed a dislike even for "advantageous inequalities" among respondents. So the data of the authors contains, as already mentioned above, a certain degree of divergence in behaviour towards risk among the respondents. On the one hand, income set 2 gained more support when switching to the external observer situation, on the other, income set 8 with the possibility of zero income made a big jump from the self-concern to the umpire mode, obviously manifesting a lower degree of inequality aversion among a larger subgroup of the students.

In table 6.4, the mean ranks and the students' rankings of the income distributions in the risk scenario are given. Here, the income distributions 8, 9, and 12, characterized by high payoff, high risk and high variance lost significantly in mean rank in favour of the distributions 1, 3, 4, and 5 which have low payoffs, low risk and low variance, when switching from self concern to external observer. The figures in this table, therefore, indicate that the respondents, on average, exhibited more inequality aversion under the umpire role than under self concern. The authors refer to Loewenstein et al. (1989) who found that the role of an uninvolved external observer generates more interpersonal concern for the incomes of other persons. But also in the present case, one should be cautious. Income distributions 8 and 9 have lost in terms of mean rank when going from self concern to umpire; however, they still rank highest in the students' orderings. Interestingly, for income distribution 12 which contains a zero income, one observes a reaction which is in full contrast to the one for income set 8 in the ignorance scenario.

Mean rank and students' rankings of income distributions in the risk scenario

No.	income distribution ($\times 1000$)	self-concern		umpire	
		mean rank	ranking position	mean rank	ranking position
1	(60, 60, 60, 60, 60)	6.95	5	5.62	3
2	(50, 55, 60, 65, 70)	6.66	4	6.28	5
3	(40, 50, 60, 70, 80)	7.61	9	6.41	6
4	(40, 40, 60, 80, 80)	7.79	10	6.77	8
5	(40, 60, 60, 60, 80)	7.30	8	6.08	4
6	(10, 20, 60, 100, 110)	9.02	12	9.03	12
7	(10, 60, 60, 60, 110)	8.46	11	7.75	11
8	(70, 70, 100, 110, 120)	2.48	1	4.15	1
9	(70, 70, 70, 90, 180)	2.59	2	4.34	2
10	(15, 15, 100, 110, 120)	7.07	6	7.46	9
11	(15, 15, 70, 90, 180)	7.11	7	7.59	10
12	(0, 60, 80, 250, 250)	4.98	3	6.51	7

Table 6.4

A statistical analysis analogous to the one briefly outlined in connection with the ignorance scenario, shows that, again, expected utility maximization is among the winning standards of behaviour. The Boulding principle fares “relatively well” under the umpire mode. Leximin behaviour fares much better now than under the ignorance scenario, though it is “quite far away” from expected utility maximization. Finally, an estimation of the values of the inequality aversion parameter indicates that in the role of an umpire, the students showed a higher degree of inequality aversion than under the self-concern mode. In other words, the shape of the utility function became more concave for the external observer. On the other hand, we have seen in the ignorance scenario where no probability information was available, that a larger group of respondents were more inequality-averse when they were personally affected by the realization of a particular income distribution. Apparently, the phenomena that we presently discuss don't lend themselves to a simple answer, or so it seems.

How do people judge income distributions when they are behind a veil of ignorance, i.e., not knowing their own position in society and how do they judge distributions when

they know their own place in society? Herne and Suojanen (2004) ran experiments to find answers to these questions. For the first situation, they refer to Rawls (1971), for the second case they refer to Scanlon (1982) who considers negotiating parties that have full knowledge of their personal characteristics as well as economic and social circumstances, have equal bargaining power and desire to reach an agreement that nobody could reasonably reject. Why wouldn't individuals just follow their pure self-interest in such a situation? Because the other group members or contracting parties would then have reasonable arguments for rejection of such a behaviour.

The following experiment was run at the University of Turku in Finland in 2002. There were 208 participants all in all, 57% of them were female. The students received a monetary reward for their participation. In the experiment (Q 6.3), all participants answered one choice task to be described shortly. The experiment was run in groups of five students; there were 42 groups. Each choice set (choice task) consisted of four alternatives: a utilitarian distribution (U) that maximized the average and total income, a Rawlsian distribution (R) that maximized the lowest income, a mixed distribution that maximized the average with a range constraint (RC), and a mixed distribution that maximized the average with a floor constraint (FC). The students were told that the numbers in the distributions could be understood as different net wages for one hour's work. Each group of five students was allocated randomly to one of three versions with different choice sets. Each choice set consisted of the four alternative distributions specified above, with slightly varying incomes (see Table 6.5). The order of the alternative income distributions within each choice set was varied across the groups.

Choice Sets (euros): Q 6.3

	Choice Set 1				Choice Set 2				Choice Set 3			
Income Class	U	R	RC	FC	U	R	RC	FC	U	R	RC	FC
1	38	22	32	37	40	25	34	37	42	22	32	37
2	33	20	28	26	35	24	23	24	37	21	24	24
3	22	18	20	16	21	23	22	23	20	20	23	19
4	11	16	12	12	12	18	19	15	14	17	19	16
5	7	13	8	10	6	14	10	11	8	16	10	11
Average	22.2	17.8	20.0	20.2	22.8	20.8	21.6	22.0	24.2	19.2	21.6	21.4
Floor income	7	13	8	10	6	14	10	11	8	16	10	11
Range	31	9	24	27	34	11	24	26	34	6	22	26

Table 6.5

The participants were informed that they would earn money depending on their own income class in the experiment and on the income distribution on which their group agreed. Individual participants were allocated randomly into two experimental treatments and, as stated above, in groups of 5. In the veil of ignorance treatment (VI), students did not know their income classes at the time when they made their choices. In the no veil of ignorance version (NVI), students knew their income classes at the time of their choices. In each group, individual positions within the income distribution were assigned by a random mechanism, where each student had a 1/5 chance of ending up in each of the five income classes. Participants were also told that if all group members

chose the same distribution, that distribution would be applied to the group. In case there were no unanimous choice, each member of the group would receive 6 euros. So each group member had veto power over the choice of the group. Individual choices were not made public so that anonymity was preserved in the case of a non-unanimous group decision.

First of all, the results show that the alteration of the choice set or the order of alternative distributions within a choice set did not have an effect on group choices. The truly surprising point is that Rawlsian choices were made more frequently without the veil than behind the veil. More concretely, behind the veil 62% of the students chose the distribution with the floor constraint; only 14% made a choice according to Rawls. In the non-veil situation, 60% of the participants made a decision according to Rawls, while 20% voted for the floor-constraint variant. The decision in favour of the floor constraint behind the veil is in line with the results in earlier experiments run by Frohlich, Oppenheimer and Eavey (1987) and by Frohlich and Oppenheimer (1990). Both the utilitarian distribution and the range-constraint distribution were not very popular under either treatment.

What can be the reasons for this rather unexpected outcome? Herne and Suojanen see a conflict of interest in the non-veil situation, a conflict between self-interested choices and fairness. The authors had asked their students at the end of the experiment to name arguments that were exchanged among the members of their group. The authors report that justice was the most often given argument in the NVI version, but also equality of the income distribution was used as an argument more often in the NVI treatment than in the VI treatment. The most frequently given argument in the VI treatment was a compromise between maximization and equality. Therefore, the authors infer that the NVI scenario was more likely to generate arguments related to justice and equality than the VI scenario. This is quite surprising as a verdict, since it seems to be in stark opposition to the Rawlsian reasoning. One should keep in mind though that in the present experiment with income distributions, the issue was not to agree on the basic structure of society which was Rawls's very focus.

We wish to discuss yet another investigation which was recently run by Amiel, Cowell and Gaertner (2006). In these questionnaire experiments, the focus is on Harsanyi's two utilitarian models which differ from each other in terms of the role and position of the person who makes an evaluation for society.

The first of Harsanyi's two models is commonly referred to as "Harsanyi's aggregation theorem" (Weymark 1991). It says that if the individual preferences and the social preference relation satisfy the expected utility axioms and if V_i and V are the von Neumann-Morgenstern utility representations of these individual relations and the social preference relation respectively, then, given that Pareto Indifference is satisfied, there exist numbers $a_i, i \in \{1, \dots, n\}$, and b such that for all elements p from a set of lotteries L

$$V(p) = \sum_{i=1}^n a_i V_i(p) + b .$$

This means that the social utility of any $p \in L$ must be a weighted affine combination of the individual utilities. The theorem does not say that the weights a_i have to be positive or at least nonnegative. Nor does it say that the vector of coefficients $(a_1, \dots, a_n; b)$ is unique. Furthermore, this mathematical representation theorem does not assume the possibility of interpersonal utility comparisons. Harsanyi (1978, p. 227) says that if such comparisons are ruled out, then the coefficients a_i will have to be based completely on the evaluating person's "personal – and more or less arbitrary – value judgments". The evaluator is not necessarily a member of the society that he is examining. Harsanyi (1978, p. 226) mentions judges and other public officials who will be "guided in their official capacities by some notions of public interest and of impartial justice". The evaluating person's moral preferences have to satisfy certain Bayesian rationality postulates so that "his moral value judgments will be such as if he tried to maximize a special utility function expressing these moral preferences" (p. 226). This utility function will be the evaluator's social welfare function.

The vector of coefficients (a_1, \dots, a_n) can be rendered strictly positive by replacing Pareto Indifference by Strong Pareto. The vector of coefficients $(a_1, \dots, a_n; b)$ becomes unique by introducing a further requirement that Harsanyi did not make explicitly. This is the axiom of Independent Prospects which says that for each individual one can find a pair of prospects over which that person is not indifferent and over which every other individual is indifferent.

The second model – often referred to as the "impartial observer theorem" – was discussed by Harsanyi in a number of contributions (Harsanyi 1953, 1955, 1977, 1978). The basic idea is already to be found in Vickrey (1945). This model presupposes the possibility of interpersonal comparisons of utility. This is done in the way that an impartial observer who is sympathetic to the interests of each member of society makes moral value judgments for this society. More explicitly, the observer is to imagine himself being person i , $i \in \{1, \dots, n\}$, under social alternatives x, y , etc. In making this sympathetic identification with individual i , the observer not only considers himself with i 's objective circumstances under x, y, \dots , but also is supposed to imagine himself with i 's subjective characteristics, in particular with i 's preference ordering. In order to be impartial, the observer has to enter a thought experiment in which he is imagining that he has an equal chance of being any person in society, complete with that person's objective and subjective circumstances. In this way, an equal consideration is given to each person's interests. In ranking the lotteries in L , the impartial observer, person j – but it can be any $j \in \{1, \dots, n\}$, calculates the average expected utility of each lottery so that for all $p \in L$, one obtains the formula of the arithmetic mean:

$$W_j(p) = \frac{1}{n} \sum_{i=1}^n V_i(p).$$

The expression on the right hand side of this formula is person j 's expected utility.

In his purely verbal 1953 paper, Harsanyi explicitly relates evaluations in terms of social welfare to the theory of choice involving risk. Specifically Harsanyi says that a person's value judgment on the distribution of income under complete ignorance of what this person's own relative position were within society would be a case of "impersonality to the highest degree" and "a clear instance of a 'choice involving risk' " (pp. 434-35).

Several authors have drawn attention to conceptual difficulties with Harsanyi's two models (see e.g. Weymark (1991) and Mongin (2001)). Some have even claimed that the two models collapse into one. Harsanyi distinguished between them and took some care to point out, as mentioned above, that the first model does not presuppose that individual utilities be comparable across persons whereas the second model would be meaningless without such a requirement. Without wishing to downplay the conceptual problems with Harsanyi's models it is legitimate to say that they represent an important strand within modern utilitarianism. Our focus of interest is whether the two sets of social situations are viewed as the same by the two types of observer. This point becomes even more interesting in the light of that position which considers the two models as basically being one model.

In what follows we set out, according to the structure of the two models, to give situations where certain vectors of income are to be evaluated, income vectors that arise from two different policies that we shall describe in the sequel. We invite respondents to express their views on these income distribution vectors embedded in either the context of the first or the second model. More concretely, we ask our respondents to evaluate income distribution vectors under two policies A and B and state which policy, according to their view, leads to a better situation for the persons involved.

The situations presented to our respondents are based on Amiel and Cowell (1998, 1999) and were originally used in a larger investigation concerning inequality and risk evaluations. For our current purposes, they were slightly rephrased in order to be as close as possible to Harsanyi who considers welfare evaluations in terms of utilitarian ethics.

The background for the questionnaires is a country Alfaland that consists of five different regions. These regions are identical with respect to all aspects except for the incomes of their inhabitants. Within each region, there are no income differences among the inhabitants. It is assumed that two economic policies A and B are under consideration and that one of these is to be implemented next year. It is known that the only effect of either policy will be on the income in each region. However, the effect on the income in each region will depend on the economic situation then prevailing in Alfaland: it is supposed that there are six different states in which Alfaland may find itself in the coming year.

Q 6.4 shows the income distribution vectors under policies A and B for the six different situations in which Alfaland may find itself. In each situation policies A and B differ in the same way: a switch from policy A to policy B would represent a simple notional income transfer from a richer to a poorer region. The notional transfer affects different regions as one goes from situation 1 to situation 6.

There are two versions of our questionnaire experiments. In the first we ask respondents to put themselves in the shoes of an outside observer who is asked to evaluate policies A and B . In the second, they are asked to imagine that *they themselves* are assigned to one of the regions of Alfaland, with equal probability of finding themselves in one of the five regions.

In both versions, the students were asked to state which policy would, in their own opinion, lead to a *better* situation. This implies that they had to form their own ideas of what “a better situation” for Alfaland would mean.

Q 6.4: H1

Alfaland consists of five regions that are identical in every respect other than the incomes of their inhabitants. Everyone within a given region receives the same income, but personal incomes differ from region to region.

Two economic policy proposals A and B are being considered for implementation in Alfaland next year. It is known that – apart from their impact on personal incomes – the two policies would have the same effect on the population. The impact upon the regions’ incomes would depend upon the particular state of the Alfaland economy at the time the policy (A or B) is to be introduced.

In each of questions (1) to (6) two alternative lists of incomes A and B (in Alfaland local currency) are given. Each of these pairs represents the outcomes of the A-policy and the B-policy on the five regions in each of six different situations in which Alfaland might find itself next year. Imagine that you are invited to be an outside observer of Alfaland. In each case please state which policy you consider would result in a better situation in Alfaland by circling A or B. If you consider that the two policies will result in an equivalent situation then circle both A and B.

- | | |
|-----------------------------|--------------------------|
| 1) A = (2, 5, 9, 20, 30) | B = (2, 6, 8, 20, 30) |
| 2) A = (2, 5, 9, 20, 30) | B = (3, 5, 9, 20, 29) |
| 3) A = (2, 5, 9, 20, 30) | B = (2, 6, 9, 20, 29) |
| 4) A = (2, 5, 9, 20, 30) | B = (2, 10, 9, 15, 30) |
| 5) A = (10, 10, 10, 10, 30) | B = (10, 10, 10, 20, 20) |
| 6) A = (2, 5, 9, 20, 30) | B = (2, 6, 9, 19, 30) |

Q 6.5: H2

The same as Q 6.4 except for: Replace the third sentence in the third paragraph by “Imagine that you have been assigned to one of the regions in Alfaland with an equal chance of being in anyone of the five regions.”

In Harsanyi’s models a positive or negative net effect on overall utilitarian welfare would depend on the properties of the individual utility functions. In his second model, which is much simpler since there is a common weight of $1/n$ attached to the utility functions of all n agents, a case of “relatively similar” strictly concave utility functions for all persons in society would, “with high probability”, lead to the assertion that under policy B, aggregate welfare is higher than under policy A.

The six different situations were presented to samples of student respondents in a series of experimental sessions during 2003. All were first-year or second-year students of economics or business administration and came from the UK (LSE), Germany (Osnabrück) and Israel (Ruppin). In each case the respondents completed the exercise during class or lecture time and were randomly assigned an H1-type or H2-type questionnaire. Here H1 stands for the Harsanyi model with an outside observer, H2 represents the model where the observer himself is a member of the society to be evaluated, with probability $1/n$ for each of the possible positions.

Responses from all countries							
		percentage choosing policy B					
	N	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6
males							
H1	76	63.2	81.6	72.4	61.8	85.5	61.8
H2	82	51.2	74.4	70.7	64.6	81.7	56.1
females							
H1	62	54.8	79.0	72.6	59.7	74.2	51.6
H2	64	60.9	84.4	59.4	45.3	70.3	50.0
all							
H1	141	58.9	80.9	72.3	61.0	80.9	56.0
H2	149	55.0	78.5	65.8	57.0	76.5	53.7

Table 6.6

We start with the overall figures comprising results from all three countries. In Table 6.6 the six possible situations for Alfaland are labelled Q_1 to Q_6 . For each individual situation, we state the percentage of answers that find that policy B leads to a better situation in Alfaland than policy A , for all respondents and for males and for females separately.

Although from previous studies there is evidence of rejection of the principle of transfers in the context of both inequality and of social welfare (Amiel and Cowell 1999) it was not clear a priori what response should be expected when comparing the two variants of the Harsanyi model. However, it is clear from the combined sample (Table 6.6) that there is a well-defined pattern: the proportions of B -responses in the outside-observer model vector dominate those in the model with involvement. The pattern is slightly less clear-cut when broken down by males and females.³ However, it is possible that there may be systematic differences between the groups of respondents in each of the locations where we conducted the experiment. So we examine each of the country subsamples.

For the UK subsample, there is again vector dominance of H1 responses over H2 (last

³A small-sample paired t test for differences shows that the proportion of B -responses is significantly higher (at the 1% level) in H1 compared with H2. Considering males alone, there is a dominance of H1 over H2 (significant at the 5% level) in five of the six questions; clearly question 4 is the exception. For the female subsample the proportion of B -responses is higher in H1 for only four out of six questions, and the results are not significant.

two rows of Table 6.7). This vector dominance, which also holds for the female students, does not hold for males.⁴ For Germany, the results are similar (Table 6.8). For the whole sample, there is vector dominance of H1 over H2 (at the 2% significance level). This time, the male percentages show a vector dominance of H1 over H2 (also at the 2% level); for the female responses, nothing like this happens. In three out of the six questions, the H1 percentages are higher, in the other three questions, the opposite is the case. This evidence suggests that there is clearly a greater propensity to conform to standard norms of distributional rankings if the issue is posed in terms of the Harsanyi outside-observer model rather than in terms of involvement.

Responses from UK subsample							
		percentage choosing policy B					
	N	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6
males							
H1	24	62.5	79.2	70.8	66.7	79.2	62.5
H2	30	56.7	66.7	73.3	66.7	73.3	60.0
females							
H1	18	72.2	88.9	83.3	83.3	83.3	72.2
H2	13	53.8	69.2	46.2	38.5	46.2	38.5
all							
H1	43	65.1	83.7	76.7	74.4	81.4	65.1
H2	44	54.5	68.2	65.9	59.1	65.9	54.5

Table 6.7

Responses from German subsample							
		percentage choosing policy B					
	N	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6
males							
H1	31	74.2	80.6	80.6	64.5	93.5	74.2
H2	28	46.4	67.9	57.1	53.6	85.7	39.3
females							
H1	17	47.1	70.6	70.6	58.8	76.5	35.3
H2	24	62.5	79.2	45.8	37.5	75.0	50.0
all							
H1	48	64.6	77.1	77.1	62.5	87.5	60.4
H2	52	53.8	73.1	51.9	46.2	80.8	44.2

Table 6.8

However, by contrast to the evidence of dominance of H1 over H2 for both the UK and Germany subsamples, the results for the Israel subsample are striking. In the case

⁴The paired t test for differences is highly significant for males and females combined (significance level below 1%). For females alone H1 dominates at a 5% significance level. For males the proportion of B -responses for H1 is greater than or equal to those for H2 in all but one case but the differences are not significant.

of Israel, we again find significant differences in response patterns but *in the opposite direction* – see Table 6.9. There is vector dominance with respect to H2 in all three cases, i.e. the complete sample and the two breakdowns for males and females.⁵

Responses from Israel subsample							
percentage choosing policy B							
	N	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6
males							
H1	21	47.6	85.7	61.9	52.4	81.0	42.9
H2	24	50.0	91.7	83.3	75.0	87.5	70.8
females							
H1	27	48.1	77.8	66.7	44.4	66.7	48.1
H2	27	63.0	96.3	77.8	55.6	77.8	55.6
all							
H1	50	48.0	82.0	64.0	48.0	74.0	44.0
H2	53	56.6	92.5	79.2	66.0	81.1	62.3

Table 6.9

Apparently, we have evidence of cultural differences in the responses to the outside-observer model and the model where the evaluating person is involved. In all three countries, we had also requested that students give personal characteristics. We had asked them, for example, whether they were employed before entering university, what their income expectations were and where they would locate their political views (on a left to right axis). All these characteristics did not prove to be statistically significant. We also re-ran the Israel questionnaire experiment in 2005 with a new sample of students. Apart from minor differences in the gender breakdown, the earlier results from Israel in 2003 were fully confirmed.

A person who asserts that policy B leads to a better situation in Alfaland than policy A must be convinced that an income transfer from a richer region to a poorer region is welfare-increasing for the country. The supposition for this is, of course, that the person has the all-encompassing concept of welfare in mind that economists normally use. If the utility functions of the representative in each of the five regions are identical and strictly concave, the welfare-improving effect is unambiguous and independent of where the transfer occurs. But this conclusion does not necessarily hold if the curvature of the utility function is different for persons in different regions: marginal utility losses have to be compared with marginal utility gains and the net effect can be of any sign.

Our results for the combined sample show that a welfare-improving effect of a richer-to-poorer transfer is more frequently acknowledged from the position of an outside observer than from the point of view of an impartial observer who is involved. This statement is supported by the overall results from Germany and the UK whereas the opposite is the case for Israel. The reasons for the difference between the Israel subsample and the

⁵Significant at the 1% level for males and females combined, at the 5% level for males or females taken separately.

rest might be supposed to lie in demographic or other background factors. However, as mentioned above, the background questions we had asked our students to answer, are unable to explain the sharp difference. Clearly other factors must be involved and one might be tempted to label these as just “cultural differences” but it may also be understood in terms of different attitudes to risk.

The risk argument for the difference in response patterns would run as follows. Personal attitude towards risk is neglected under model H1 but is central to H2 (Harsanyi himself characterized the case of an impartial but involved observer as a clear instance of a choice involving risk). So, consider the position characterising the UK and Germany respondents: from an outside point of view (where self-interest is not an issue and personal risks are not involved) they find the argument that a richer-to-poorer transfer is welfare-increasing more convincing than if they were personally affected; but when they are involved, they would need a larger transfer in order to regard policy *B* as “better” than *A*. By contrast, in a risky situation, Israeli respondents appreciate a richer-to-poorer transfer more when they are involved than they do from the position of an outside observer. For the Israeli respondents, it could be the case that from an outside position, their demands for a welfare-improving transfer would have to be substantially higher.

It is also possible that the respondents in all three countries clearly view H2 as a situation involving risk, whereas they look upon H1 as a case to which a utilitarian calculus should not be applied. The sharp difference between Germany and the UK on the one hand and Israel on the other would then come from the different ways in which these two groups view H1. Questions remain.

7 Beliefs

We wish to come back to the investigations by Yaari and Bar-Hillel (1984, 1993) and ask whether agents’ beliefs should matter in the determination of how commodities ought to be distributed between them. Let us consider the following modification of the earlier problem.

Q 7.1: A shipment containing 12 grapefruit and 12 avocados is to be distributed between Jones and Smith. The following information is given, and is known also to the two recipients:

- Jones believes that each grapefruit contains 100 milligrammes of vitamin F and that avocado does not contain vitamin F at all.
- Smith believes that a grapefruit and an avocado, each contains 50 milligrammes of vitamin F.
- Information regarding the true vitamin contents of the fruits is not available.
- Both persons, Jones and Smith, are interested in the consumption of grapefruit and/or avocados only insofar as such consumption provides vitamin F -

and the more, the better. All the other traits of the two fruits (such as taste, calorie content, etc.) are of no consequence to them.

- No trades can be made after the division takes place.

How should the fruits be divided between Jones and Smith, if the division is to be just?

Note that in formal terms, we have the same structure as in the earlier example. There is an initial endowment $w = (12, 12)$ and there are the two utility functions $u_j(x, y) = 100x$ and $u_s(x, y) = 50x + 50y$. The “only” twist is that the utility functions are now describing beliefs about the vitamin contents of grapefruit and avocados. Does this matter and if “yes”, to what extent?

Can equal split (J: 6,6; S: 6,6) be considered a just distribution? Clearly not, if one takes the beliefs of the two persons seriously. For both of them, given their beliefs, the distributions (J: 8,0; S: 4,12) and (J: 9,0; S: 3,12) would be improvements over equal split. If the beliefs, however, were nothing else but subjective feelings, without any firm grounds, wouldn't it then be better to decide in favour of an equal split and find out at a later stage what the true vitamin contents are? In sharp contrast to Q 2.1, there is no “real” difference between the two individuals, except for their beliefs. A risk-averse individual or a person who is sceptical towards personal beliefs may argue that possible mistakes are kept “small” with an equal split.

On the other hand, if beliefs are subjective “utility” statements, then ignoring these statements violates consumer's sovereignty. Bar-Hillel and Yaari argue that maintaining an equal-split distribution could be viewed as an act of coercion, against the interests of the persons involved.

The authors develop an interesting counter-argument against their last assertion. If Jones were a moral person, he should object to a move from equal split to (J: 9,0; S: 3,12), for example. While such a move would undoubtedly be beneficial for him, given his beliefs, the same move would reduce Smith's vitamin intake from 600 to 300. Likewise if Smith were a moral person, he should also object to a move from equal split to (J: 9,0; S: 3,12), since this change would reduce Jones' vitamin consumption from 600 to 450, given Smith's beliefs.

On the other hand, does one have a moral obligation to protect others from their, as one thinks, wrong beliefs? Again, one reverts to the point of which value or degree of importance one should attach to other persons' beliefs that function as subjective (utility) statements.

Anyway, question Q 7.1 was given to 145 students. Here are their answers:

Distribution	% of respondents
(J: 6–6, S: 6–6)	34
(J: 6–0, S: 6–12)	4
(J: 8–0, S: 4–12)	51
(J: 9–0, S: 3–12)	4
(J: 12–0, S: 0–12)	7

The reader should compare the present outcome with the results from Q 2.1 (needs) and Q 3.1 (tastes). Though in all three cases, the technical formulations are the same, the distributions of responses are markedly different. While the equal split solution was chosen by only a few respondents in Q 2.1 and Q 3.1, in the case of beliefs, it is picked by one third of the respondents. This means that for a large group of students, beliefs seem to be irrelevant. In other words, subjective statements about the vitamin content are largely discounted. Interestingly, in the case of tastes, the subjective statements (and the willingness-to-pay as an expression of such statements) were taken seriously so that hardly anyone opted for equal split. Therefore, beliefs and tastes apparently represent different categories.

The fairly strong support for equal split in the present case of beliefs is just one aspect of the whole picture. 51% of the respondents honour the beliefs of the two agents and clearly wish that there be an equal amount of vitamin obtained by the two, each according to his own beliefs. Actually, it is the highest equal-vitamin outcome possible. This division, i.e. (J: 8,0; S: 4,12) also receives a fairly strong support under the taste aspect. On the other hand, the Pareto-optimal division (J: 9,0; S: 3,12) is picked by roughly one quarter of the respondents under the taste issue, while hardly anybody (4%) chose it in the case of beliefs. So again, there is a difference between tastes and beliefs which culminates in the percentage differences with respect to the so-called utilitarian solution, namely (J: 12,0; S: 0,12).

Taking all three distribution problems together, it has become clear that respondents view them as very different from one another, though, as we have indicated, their mathematical formulations are the same.

8 Frames

Tversky and Kahneman (1981) were among the first to point out that different framings of the same problem matter. If a certain phenomenon has positive and negative features, then framing in positive terms will elicit different reactions or verdicts than framing in negative terms, though the underlying situation is exactly the same under both variants. Tversky and Kahneman told participants in their experiment that the USA had two options to prepare for the outbreak of a certain disease, which was predicted to take 600 lives. The probands were asked to choose between them. When formulated in positive terms of saving lives, the two options were: 200 persons will be saved for certain against

a one-third chance that 600 persons will be saved and a two-thirds chance that nobody will be saved. When framed in negative terms of having people die, the two options were: 400 people will lose their lives for sure, contrasted with a one-third chance that nobody will die and a two-thirds chance that 600 people will die. The participants showed a tendency to choose the option of 200 being saved, when the problem was framed positively and to choose the option with a one-third chance that nobody will die and a two-thirds chance that 600 persons will lose their lives, when the problem was formulated in a negative way.

Do similar phenomena exist in the context of justice evaluations? This was the object of investigation of Gamliel and Peer (2006) and the two authors provide evidence that the answer apparently is “yes”. The hypothesis is that “positive framing of a resource allocation should lead to a more favorable association, which will lead to a more favorable judgment of the allocation situation and the principles used to accomplish the allocation” (2006, p. 312). The authors’ first experiment examined selection procedures, viz. accepting/rejecting students who applied to higher education institutions and accepting/rejecting potential personnel which applied to prospective employers. The distributive principle which was tested was the rule of merit (a combination of an individual’s ability and effort). The situations were described in a positive way (to accept half of the applicants) or – relative to the very same situation – in a negative way (to reject half of the applicants). The experimental results are such that allocation by merit was preferred more under positive framing (acceptance) than under negative framing (rejection). The framing effect in the case of selection for higher education was statistically significant; for the case of personnel selection, it was not.

The second experiment examined five rules of distributive justice, viz. ability, effort, tenure, need, and equality of opportunities. The sample included 134 participants, 58 males and 75 females (one person did not state her gender) who worked in various organizations. Three situations were considered (Q 8.1). They all described a department in a business organization that employed 50 workers. In each situation, the department had to allocate a different resource to 25 of the workers. In the first situation, the department had 25 new computers and 25 old computers that needed to be allocated, where every worker, of course, preferred the new computers. In the second situation, the department decided to send employees to a professional training program which would eventually lead to a higher salary. But only 25 workers could be sent to the training program. In the third situation, the department’s management needed 25 workers to work two hours overtime in order to accomplish additional tasks.

In each situation, there was a positive and a negative framing. The computer situation was described as either delivering goods (new computers) or as delivering bads (old computers). The professional training program was framed as either leading to a salary increase or not leading to a higher salary. The overtime situation was described as either withholding or delivering a burden (overtime hours). The participants were presented with five options specifying the use of a different principle of distributive justice to determine the allocation: random draw (equality of opportunities), employee needs, the length of time the worker had been employed (tenure), the employee’s ability, and the employee’s effort. The respondents were asked to rate each principle on a 6-point scale, from 1 (“very unjust”) to 6 (“very just”).

Table 8.1 presents the descriptive statistics of the respondents' ratings of the five distributive principles for each of the three resources. The table also measures the size effect for the difference between benefit and harm. The figures reveal a consistent pattern for the non-egalitarian principles in the sense that these principles were considered as more just under positive framing (benefits) than under negative framing (harm). There is only one exception, which is the effect under the effort principle in the case of the training program. For the equality principle, the size effects are different. Statistically significant differences between framing conditions are evident for ability and tenure in the computer allocation case, significant differences are given for ability, tenure and need in the training program, and statistically significant differences are evident for effort and need in the case of working overtime.

Q 8.1 : The ratings of the five principles of allocation for different resources using different modes of allocation under benefits (positive) versus harms (negative) conditions^a

Modes of allocations (Resource)	Principle	Positive		Negative		Mean difference ^b
		Mean	SD	Mean	SD	
Deliver goods versus deliver bads (computers)	Ability	3.54	1.29	3.16	1.27	0.29*
	Effort	3.90	1.23	3.67	1.30	0.18
	Tenure	3.19	1.28	2.75	1.33	0.33*
	Needs	5.51	0.68	5.36	1.01	0.17
	Equality	3.09	1.52	3.40	1.47	-0.21
Deliver goods versus withhold goods (training program)	Ability	3.90	1.18	3.44	1.42	0.35*
	Effort	4.72	1.10	4.74	1.06	-0.02
	Tenure	3.46	1.25	2.55	1.39	0.65*
	Needs	4.70	1.30	3.84	1.36	0.62*
	Equality	3.07	1.57	3.27	1.51	-0.13
Withhold bad versus deliver bad (overtime)	Ability	2.12	0.99	2.00	0.96	0.12
	Effort	3.60	1.38	2.88	1.51	0.48*
	Tenure	2.93	1.32	2.73	1.23	0.16
	Needs	4.47	1.14	3.70	1.37	0.59*
	Equality	4.42	1.28	4.09	1.50	0.24

^a The number of participants in each experimental condition ranged between 66 and 67.

^b Positive frame mean minus negative frame mean divided by total standard deviation units.

* $p < 0.05$.

Table 8.1

All in all, one can say that whenever the allocation situations were framed positively (leading to benefits), the non-egalitarian allocation principles were judged as more just than when the very same situations were framed negatively (resulting in harm). Therefore, a different framing apparently generates a shift in people's justice evaluations due only to different descriptions of exactly the same situation. In other words, the positive framing of an allocation problem seems to lead to a different encoding of the information than the negative framing of an identical situation.

9 Final Observations

No attempt will be made to summarize the discussion in the preceding sections. Instead, we wish to emphasize a couple of points that may be worth being explored in more detail in future work.

Yaari and Bar–Hillel (1984, 1993) argued that a theory of distributive justice, like any other theory, has to be tested in order to see how well it performs when confronted with evidence. Most of the approaches we were discussing in the previous sections were static in the sense that the questionnaire experiments were done once and were not re–run at later points in time in order to check for “outcome stability”. Changes over time may reflect a certain instability or, if there is a visible trend, may reveal a systematic or structural change. Such a longer–term perspective is important if you want normative economics to have – at least some – influence on the decisions taken within the political system and society.

Our own investigations on the fulfilment of the equity axiom actually showed quite a change over time in the response pattern of the German (Osnabrück) students. The concern for equity seems to have gone down substantially; at the same time, aspects of efficiency have gained momentum. Does this reflect the present “Zeitgeist”? It was visible in situation Q 2.4 where the issue was either to give some money to a handicapped person or to invest in the education of talented children. It was also apparent in a case which we did not report in this survey, where the issue was to either introduce a set of measures for rapid economic reconstruction at the expense of some basic human rights (such as the right to go on strike) or to have a slower economic recovery going hand in hand with a full restoration of these basic rights.

In an era where, within continental Europe at least, political boundaries have begun to fall, it is, of course, important to know how individuals in other countries view and evaluate “certain things”. We briefly mentioned at the end of section 2 that results in the Baltic countries were “vastly different” from the Osnabrück figures. The percentage of respondents supporting the handicapped person unconditionally was less than 0.05. This result was so much different from the German percentage that we were prompted to re–iterate the questionnaire studies in Lithuania three years later (i.e. in 2001) with exactly the same result. Also the support for a re–instalment of basic human rights was so much lower in the Baltics than in Germany. On the other hand, we discovered (Gaertner and Schwettmann, 2007) that the consideration of basic human rights has grown remarkably in Austria (Klagenfurt) and Slovenia (Ljubljana) in recent years, starting, though, from a significantly lower level than in Germany. This shows that the cultural, historical and political background seems to matter, beyond the general economic environment. From all this follows that there is need for replication, both at different places and at different times.

There is also need for examining how different layers of society evaluate the same situations. In most questionnaire experiments, including our own, the focus of attention have been undergraduate students enrolled in economics or business administration. Only a few studies approached other people. Konow’s telephone interviews presumably

contacted quite a variety of different people. Gamliel and Peer approached people employed in various organizations. This is important, though not easy to achieve. As a second or third best solution, students from other sciences should be contacted. There is some evidence from other studies (in experimental game theory) that students from history, languages and the natural sciences evaluate situations differently than economics students do. We have some results from undergraduate students in Norway showing that even among business students, those in their first year decide differently from business students in their third year.

More empirical research is also needed as far as the responsibility aspect is concerned. We said earlier on in connection with the inquiries by Schokkaert and Devooght (2003) that quite a few of their results sound intuitive. But the authors also found that if intermediate forms of compensation are allowed for, there is a large percentage of people who want to honour expensive tastes and there is an even higher frequency of respondents who are willing to compensate a heavy smoker. One should not forget that on the other hand, there are “relatively many” respondents who wish to countercompensate. The smoker should be made to pay for his habit.

We mentioned in connection to our own findings that it may be worth distinguishing between *ad personam* responsibility and responsibility “at large” where there does not exist a direct or one-to-one relationship between causation and effect. We know that with such an assertion we are on shaky grounds. The evidence that we obtained from our own questions is just “too thin”. We are a bit more confident as far as the case of the handicapped person is concerned. We were astonished to see that support for this person increased when the handicap resulted from indulging in some dangerous sport. A gender breakdown revealed that male respondents apparently are unwilling to punish the handicapped individual for his bad luck, whereas women reveal the opposite inclination. While in general, women show more concern for the worse-off in society, in this particular case, they seem to have clear-cut reservations.

This brings us to the gender issue. In the psychological and sociological literature, there are many studies on gender disparities. A general view is that women are more socially oriented, care more about needs and are better able to take on the perspective of others (Gilligan, 1982; Davis 1983; Eisenberg and Lennon, 1983; Eagly, 1995). Dickinson and Tiefenthaler (2002) and Michelbach et al. (2003) found that men are often concerned about efficiency, while women are more likely to prefer equality. Croson and Gneezy (2004) argue that men tend to decide less context-specific, in compliance with abstract rules, so to speak, trying to detect a common structure in different situations while women consider each case separately, being sensitive to small variations. Also, according to Croson and Gneezy, women tend to be significantly more risk-averse than men which could, at least to some extent, explain why male students in Osnabrück seemed to honour the risky sport of the paraglider, while women were inclined to punish this activity.

But, of course, gender does not always matter. In some of the investigations we discussed in previous sections, the authors asserted that they did not see any gender effect. In our own studies about the two Harsanyi models, there clearly were gender effects, but not in a systematic way. We saw, for example, that there was vector dominance of H1

over H2 for female students in the UK, while the German data revealed the same vector dominance, but this time applying to the male respondents. This demonstrates that both analysis and interpretation of gender differences have to be done with great care. Since the gender issue cannot be separated entirely from other factors such as place, historical background and political situation, a serious study of gender differences becomes even more intricate. But this is what true economics is about. People are embedded in some environment which often is multi-faceted reflecting and requiring, as Sen would say, different identities.

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