PREFERENCES FOR EQUITY IN HEALTH BEHIND A VEIL OF IGNORANCE

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SUMMARY

Individual attitudes to distributions of life years between two groups in a society are explored by means of an experiment. Subjects are asked to place themselves behind a veil of ignorance which is specified in terms of risk (known probabilities) for some subjects and in terms of uncertainty (unknown probabilities) for some subjects. The latter is argued to be the appropriate interpretation of Rawls’ notion. It is found that subjects exhibit convex preferences over life years for the two groups, and that preferences do not differ between the risk and the uncertainty specifications. Copyright © 1999 John Wiley & Sons, Ltd.

KEY WORDS — Rawls; veil of ignorance; genuine uncertainty; health; equity; trade-off

INTRODUCTION

Rawls' theory of justice as fairness [1] is frequently mentioned in the economics literature when equity issues are discussed, be it with respect to income distribution or health. The main feature of Rawls’ approach is that individuals should imagine that they are in an original position, behind a veil of ignorance, concerning their position in society. It is suggested that this approach will lead them to select basic properties of society which are both desirable (just) and stable; eligibility is used as a proxy for desirability.

In this paper, we argue that the most natural interpretation of the veil of ignorance is that the individual should see himself as being in a position of genuine uncertainty; i.e. he should not perceive the existence of firm probabilities of various states of affairs in society. This implies an affinity between Rawls' suggestions and the literature on uncertainty aversion. We attempt to operationalize and empirically investigate the effect of such a veil of ignorance on the choice between different societies, distinguished from each other by different distributions of life expectancies in the population.

Rawls’ work marked a major resurgence of political theory concerned with the desirability and feasibility of social arrangements, even though he had not been alone in such undertakings in the preceding decades [2, Ch. 1]; notably conceptions similar to the veil of ignorance had been discussed by economist John Harsanyi [3,4]. Rawls argued that his contractarian procedure would lead to a desire to improve the position of the worst-off person in society, which is usually interpreted as a maximin criterion. This conclusion has been criticized on the grounds that it would require the individual in the original position to take an extremely pessimistic stance [5], and to represent an extreme form of risk aversion; with the formalization of genuine uncertainty and uncertainty aversion, an alternative motivation...
for the maximin criterion is complete uncertainty aversion. We will return to this discussion.

One of the applications of Rawls’ contractarian paradigm is equity in health. In that context, Rawls’ argument is taken to suggest that one should aim at improving the health of the least healthy person in society [6–8]. The presumption is that ‘health’ could be seen as one of the ‘primary goods’ in Rawls’ terminology, goods which everyone desires because they are required for the pursuit of any particular goal; these goods enable the individual to define his self-interest in the original position [1, p. 93]. A closely related concern is that an equitable society should strive towards equality in health and the elimination of systematic social differences in health expectations [9–11]. Pursuit of such a goal is usually argued to entail a trade-off between equity and efficiency (interpreted as maximization of health). Several authors have discussed the use of a social welfare function approach to handle this trade-off, where Rawls’ maximin criterion constitutes one special case [6,7,11–15]. Some empirical studies have also shown that individuals appear willing to sacrifice some efficiency to achieve a more equitable distribution of health [6,13–16], and health maximization does not appear to be their only concern when asked about priorities in health care [17–19].

Despite the continued interest in Rawls’ theory, it appears that very few empirical tests have been attempted with respect to how individuals value social organizations when placed behind a veil of ignorance [13,20,21]. Moreover, the respondents in these tests have been told to envisage probabilities with respect to their eventual position in society, either directly or indirectly by referring to ‘chance’. For example, this was the case in the pioneering study of Johannesson and Gerdtham [13], where preferences for equity in health behind a veil of ignorance were investigated; the respondents were told that they had a fifty-fifty probability of belonging to one of two possible groups in society.

However, it is debatable whether a scenario with stated probabilities captures the essence of Rawls’ notion of choosing behind a veil of ignorance. As argued by Kukathas and Pettit [2, pp. 24–25]; the veil of ignorance is a ‘light veil’ rather than a ‘heavy veil’ in the sense that no-one knows any of the relevant probabilities. In our view, therefore, application of the veil of ignorance implies that the individual in the original position is in a situation of genuine uncertainty, rather than one of risk; i.e. he has no information about the probabilities of different outcomes [22].

If we accept that the veil of ignorance should be represented by a situation where there is genuine uncertainty, we should not think of the choice in Rawls’ original position only in terms of risk and risk aversion. Rather, we should also resort to the newly emerging theories of behaviour under genuine uncertainty, and the associated concept of uncertainty aversion. This literature devises a formal structure generalizing expected utility where generalized probabilities capture uncertainty [23]. The theory works in a way such that outcomes are assigned generalized probabilities that need not sum to one. If a decision-maker is uncertainty averse, the generalized probabilities sum to less than one. When expectations are computed these generalized probabilities are transformed into decision weights summing to one, and uncertainty aversion corresponds to larger weights on bad outcomes: in a simple two-outcome setting, the event with the best outcome is weighed by its generalized probability, while the weight of the worst event is one minus the weight of the best. Consider the outcomes $c_1$ and $c_2 > c_1$, and let the generalized probabilities be $p_1$ and $p_2$; the expectation is then $p_2c_2 + (1 - p_2)c_1$. Assuming the events to be symmetrical, the principle of insufficient reason (i.e. a ‘fifty-fifty rule of thumb’) states that $p_1 = p_2$: the theory allows this number to differ from 1/2 with substantive consequences for the expectation (e.g. $p_1 = p_2 = 0.4$ gives the events equal relative likelihoods, while the decision weights in the expectation are 0.6 for $c_1$ and 0.4 for $c_2$). Hence, according to the theory, the principle of insufficient reason is compatible with the expectation weighting the worst outcome more heavily.

Taking uncertainty aversion to its limit, all weight is placed on the event with the worst outcome—the maximin criterion. Thus, a completely uncertainty averse decision-maker behind a veil of ignorance would base his preferences exclusively on the position of the worst-off person in society and pick the Rawlsian solution (this is true independently of his risk aversion). In this respect, the behavioural implication of complete uncertainty aversion coincides with those of complete risk aversion. However, to the extent that both uncertainty aversion and risk aversion are
present, one can discriminate between the two by specifying two different probabilistic environments. Experimental studies of uncertainty aversion will be discussed in the ‘Discussion’ section.

In the rest of this paper, we investigate the choice made behind a veil of ignorance between two different societies where one society is more equitable with respect to life expectancy. In this setting, we explore the consequences of constructing the veil of ignorance with known as opposed to unknown probabilities. In addition, we follow Johannesson and Gerdtham [13] and explore the effect of varying the terms of the implicit trade-off in life years between individuals, as well as varying the initial level of inequality (to be made precise below).

After discussing the design of our experiment in the next section, we examine the responses descriptively in the section ‘The Response’. In the section ‘Analysis’, we turn to a formal statistical evaluation of the results and a number of interpretations. The ‘Discussion’ section provides a discussion of the results and issues raised by them. The last section concludes.

**DESIGN OF THE EXPERIMENT**

In order to assess preferences concerning the equity–efficiency trade-off, as well as the significance of risk versus genuine uncertainty, an experiment was performed where a group of students were asked to complete a questionnaire. (The verbal feedback from a pilot study indicated that the format was feasible.)

*The subjects*

The respondents were recruited among first-semester economics students at Lund University. The sample size (225 responses) was given by the largest available group of students; as will be clear below, the number was sufficient for devising a powerful test of the attitude towards uncertainty. The experiment was performed on two consecutive days in mid May of 1998 in five groups of students. In each instance, one of the authors visited the group towards the end of the first part of a two-part lecture. All of the students were asked to complete the questionnaire, and the remainder of the lecture was available for this purpose. Participation was clearly stated to be voluntary and anonymous. As an incentive to participate, five randomly selected participants (among the approximately 250 potential subjects) won prizes of 500 Swedish crowns each (approximately $65). All of the participants had almost one semester of training in economics. They were not familiar with the notion of the veil of ignorance.

*The questionnaire*

The questionnaire itself consisted of one page of paper. Before the questionnaires were completed, the concept of choosing behind a veil of ignorance as a way of ranking societies was introduced. To ensure that all participants received identical information, this information was shown on a sheet displayed on an overhead projector, and it was read aloud by the visiting author. See the Appendix for the exact wording of the information sheet and the questionnaire.

On the questionnaire, the respondents were asked to make a choice between two societies—referred to throughout as A and B—distinguished by different distributions of life expectancies. Each society was specified as consisting of two groups of people, and the life expectancy for each group was specified; life expectancy was significantly greater for one group than for the other. By choosing society B rather than A, one obtained an increase in life expectancy for the unfortunate (short-lived) group accompanied by a reduction in life expectancy for the long-lived. The difference in life expectancies between the societies was stated to be due to the organization of the societies.

Further, half of the questionnaires specified that the probability of belonging to each of the groups was 50%. In contrast, the other half of the questionnaires specified that nothing was known about the probability of belonging to one group or the other. To further elaborate this mental construct, it was suggested that one could think of the groups as consisting of unknown numbers of people and that each group could be of any conceivable size.

The respondents were told that each year of life was lived in full health, except for the last 2 years, which were characterized by reduced quality of life. This reduction in the quality of life was stated to be the same for everybody. The main reason
was to avoid choices being influenced by a dismal view of life at old age (more on this in the ‘Discussion’ section).

The life expectancies specified for the two groups differed in two dimensions. Firstly, the trade-off between reducing life expectancy for the fortunate and increasing it for the unfortunate differed. Secondly, there were two sets of absolute numbers for years of life, one uniformly further away from equal life expectancy (we will call this a variation in ‘relative difference’; it may also be interpreted as the level of initial inequality). The alternatives are illustrated in Figure 1; the axes measure the life expectancies of the two groups. For the specification with the largest relative difference, life expectancy in society A was 88 years for group 1 members (the fortunate ones) and 66 years for group 2 members; society B represented a ‘redistribution’ that reduced the life expectancy of group 1 members by 6 years while the life expectancy of group 2 members was increased by either 2, 4, or 6 years. These options are illustrated by the diamonds and the square in the diagram. For the specification with the smaller relative difference, society A had life expectancies of 82 and 68 years for groups 1 and 2, and society B was defined by taking 6 years from group 1 and giving 2, 4 or 6 years to group 2; these options are illustrated by the square and the triangles.

Thus, there was a variation in the trade-off between years of life for group 1 and life years for group 2, the trade-off being 1/3, 2/3, or 1 year for group 2 in exchange for taking 1 year from group 1. There was also a variation in the relative difference between years of life for the groups.

Since there were two specifications concerning the probabilistic nature of the environment, three different trade-offs, and two levels of relative difference, there were in total 12 different variations of the questionnaire. The questionnaires were randomly distributed across respondents.

Hypotheses

Obviously, one would expect a more favourable trade-off to make subjects more prone to choose society B. With truly Rawlsian preferences, society B should always be chosen. Somewhat less obviously, subjects should be more prone to choose society B when the initial distribution is more unequal (i.e. higher relative difference) whenever they have convex preferences over pairs of life years (i.e. formally in terms of the diagram, if they have indifference curves that are convex to the origin).

Rawlsian preferences over pairs of life years can be a consequence either of complete risk aversion or of complete uncertainty aversion. In our study, each of the numeric specifications is combined either with the specification of probabilities or with a statement that no probabilities are known. Thus, the specification can separate the caution emanating from aversion to uncertainty and aversion to risk, except in the special case of complete risk aversion (which implies that the maximin strategy will be chosen under both scenarios). Whenever preferences exhibit uncertainty aversion, we expect individuals to be more prone to choose society B when presented with the uncertainty scenario. Uncertainty aversion will lead to a relatively larger decision weight being placed on the worst outcome (being short-lived), which makes society A relatively less attractive.

THE RESPONSE

We received 225 completed questionnaires. No one declined participation, but two blank answers were submitted. The 12 varieties of the questionnaire were represented in essentially equal proportions.

Roughly 71% of the subjects chose society B, which indicates fairly egalitarian preferences. Concerning the effects of the different probabilistic specifications, it seems clear that uncertainty
did not induce more cautious—in the sense of inequality averse—responses; the proportion of subjects choosing society B was 69% among those who did not receive probabilities, and 73% among those who did.

The other two variables—the trade-off and the relative difference—seem to have a stronger impact. The proportion of subjects choosing society B dependent on these variables is presented in Table 1.

For purposes of illustration, Figure 2 shows the proportion of subjects choosing society A (since that diagram is somewhat more conspicuous). The trade-off has the expected effect on responses, and the relative difference has a discernible effect. As we shall see, both of these do stand out statistically as well.

**ANALYSIS**

**Statistical modelling**

In this section, we develop a simple statistical model of the choices made. The probability, $P$, of choosing society B is modelled as a function of the trade-off (TO), the ratio between life expectancies in society A in the respective specifications ($R$) (measuring the ‘relative difference’), and a dummy variable for the uncertainty specification ($U$). The probability is modelled by means of the standard logit model; i.e. the probability is modelled as $P = \Lambda(a + b_1 TO + b_2 R + b_3 U)$ where $\Lambda$ is the cdf of the logistic distribution and $(a, b)$ are constants to be estimated [24,25]. We estimated this general model as well as the models obtained by excluding uncertainty ($U$), by excluding the ratio ($R$), and by excluding all the explanatory variables. (To assess robustness, we also obtained estimates from probit models, and linear-regression and analysis-of-variance models; the results turned out to be very similar.) The estimates obtained from the unrestricted model and those obtained when $U$ is excluded are reported in Tables 2 and 3. Uncertainty is measured by a dummy variable; the trade-off is used in its original form (1/3, 2/3, 1); and the relative difference is the ratio of society A, i.e. 82/68 = 1.21 for the less unequal and consequently 88/66 = 1.33 for the more unequal specification.

**Results**

Evidently, the impact of uncertainty is almost completely indiscernible in the data; moreover, the effect that is present has the ‘wrong sign’. To formally test whether the impact of $U$ is negligible, we make use of the $t$-statistic; the $p$-value is 0.70, and the restricted model obtained by excluding $U$ cannot be rejected by any reasonable standards (the test is asymptotically equivalent to a likelihood-ratio test for the exclusion of $U$). It is

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>$t$-statistic</th>
<th>$p$-value</th>
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<tbody>
<tr>
<td>Constant</td>
<td>-6.14</td>
<td>-1.96</td>
</tr>
<tr>
<td>TO</td>
<td>2.31</td>
<td>3.92</td>
</tr>
<tr>
<td>$R$</td>
<td>4.42</td>
<td>1.81</td>
</tr>
</tbody>
</table>

Correctly predicted: 71%; Log likelihood: -125.4.
worth noting that with a $p$-value of 0.70, one can devise the test (by choosing 0.70 as the significance level) in such a way that the power of rejecting the null hypothesis (no effect of uncertainty) against any alternative hypothesis is no less than 0.70: by considering only alternatives differing from zero by one standard deviation or more, the power is approximately 0.80 (using that the statistic defined by the estimated $b_1$ is asymptotically normal with the estimated standard deviation).

The next variable whose importance may be questioned is the relative difference: it has the largest $p$-value in the restricted model and, moreover, it was found to have the wrong sign and to be highly insignificant in the study by Johannes son and Gerdtham [13]. By considering its $t$-statistic we can test the exclusion of $R$ from the model with TO and $R$. The $p$-value is 0.071; i.e. the exclusion is rejected at the 7.5% level (a similar result obtains if the same test is performed with $U$ included). Thus, the ratio is significant by reasonable standards; it is also quantitatively significant, as we will see below. Finally, we can assess the explanatory power of the overall model by comparing it with a logit model with all the explanatory variables excluded; the likelihood-ratio test has a $p$-value of 0.00005, and the restriction is rejected strongly (the test is defined by the statistic $2 \times (L_{gen} - L_{rest})$, $L_{gen}$ being the maximum value of the log-likelihood function for the general model and $L_{rest}$ being the corresponding value for the model with the restriction imposed; the statistic is asymptotically distributed as Chi-squared with $q$ degrees of freedom, $q$ being the number of restrictions).

The indifference curves

Let us now turn to the implication of the model selected (i.e. with $U$ excluded). The logit model implies that the logarithm of the odds ratio is a linear function of the observations:

$$\ln(P/(1 - P)) = a + b_1 \cdot TO + b_2 \cdot R.$$  

The median marginal trade-off (MMTO)—i.e. the trade-off where precisely 50% of the population would prefer each society—is of obvious interest. Moreover, as is shown by Johansson et al. [26], the median marginal trade-off is equal to the mean marginal trade-off whenever the trade-off enters the logit model linearly. Hence, one can solve for this object by setting $P = 1/2$ in the above equation, getting:

$$MMTO = (-a - b_2 \cdot R)/b_1.$$  

Plugging in the values of the ratios, one obtains that the median marginal trade-off is 0.35 for the ratio corresponding to the more equal initial distribution, and 0.11 for the more unequal initial distribution. Hence the relative difference has a considerable impact on the propensity to choose the more equitable society, *ceteris paribus*.

One might ask whether these numbers reasonably represent indifference curves of some well-known class of social welfare functions. Since the data gives us two slopes, we are likely to need a two-parameter family to fit an indifference curve. Nevertheless, it is worth trying a simple CES function (which is equivalent to the iso-elastic utility function) over pairs of life expectancies for the groups ($h_1$, $h_2$), i.e. a welfare function

$$u(h_1, h_2) = (h_1^\rho + h_2^\rho)^{1/\rho}.$$  

Doing so, one finds that the two points define (setting the marginal rate of substitution, $h_1/ h_2$ $^{\rho - 1}$, equal to the MMTO) $\rho = -4.6$ and $\rho = -6.7$, respectively. Thus, the data seems reasonably consistent with such preferences with a rather high degree of inequality aversion. The estimated parameters are very close to those obtained in a previous study [15], where a CES-function is estimated based on a questionnaire study among Swedish politicians responsible for health care. Moreover, if one sets $\rho = -5.5$, it turns out that the two specifications of society A (88, 66 and 82, 68) are very close being on the same indifference curve (the ratio between the values being 1.008).

DISCUSSION

The main finding of the present study is that individuals’ propensity to prefer a society which improves the life expectancy of the unfortunate short-lived individuals is influenced by the cost of doing so in terms of reduced life expectancy for the fortunate ones in society. Hence, to the extent that our approach mirrors Rawls’ conception of choosing behind a veil of ignorance, his prediction that everybody would prefer to improve the situation of the worst-off in society is refuted. The fact that the maximin strategy does not prevail...
everwhere is interesting in its own right. Moreover, the veil of ignorance may—no matter the preferences arrived at—be seen as an attractive device in the quest to determine the properties of a desirable society and to explore how individuals value equity when they are asked to do so in an impartial way.

Employing this device, we found that the median marginal trade-off varied from 0.11 to 0.35 years of life expectancy being demanded among the short lived in exchange for 1 year lost among the long-lived in society. These figures are lower than the 0.45 median marginal trade-off found by Johannesson and Gerdtham [13], who made a similar study of a choice between two societies with differing life expectancies for two population groups. One may formally test whether the coefficients are different (employing asymptotic normality and the fact that the models measure the same trade-off), and the result of such a test is that they are significantly different at the 5% level.

Furthermore, and contrary to Johannesson and Gerdtham [13], we found that the ‘relative-difference’ variable had a significant impact on the propensity to choose the more equitable society B, which is in accordance with our theoretical expectations. There are several possible explanations for this difference in result. One is of course sample size (225 versus 80); there are also seemingly minor differences in scenario and presentation (one may note that Johannesson and Gerdtham had one alternative where life expectancies in the two population groups were equalized at 13 which is known to be a potentially focal number; if this is so, it works in the direction of making the ‘relative-difference’ variable insignificant).

The greatest difference between the scenarios seems to be that we specified our two societies in terms of the total life expectancy of the two population groups, whereas Johannesson and Gerdtham asked their subjects to consider the remaining life expectancy of two population groups (in the interval 10–20 years of life). One may therefore speculate that this might have produced the difference in results. The main reason for our choice of total life expectancy was that we endeavoured to ensure that all respondents were placed in a similarly specified original position. By using remaining life expectancy instead, the respondents are induced to envisage an age from which this remaining life expectancy is calculated.

Even if respondents are of the same age, one of them may picture, for example, remaining life expectancy from the age of 60 while another respondent implicitly assumes that it is seen from the age of 70. This introduces an unknown factor, since we do not know how this ‘entering age’ varies across respondents; it could, for example, imply that two individuals presented with the same scenario envisage different degrees of relative difference in society A.

We wished to focus on the trade-off in terms of years in full health. A possible disadvantage with our specification could therefore be that individuals react unfavourably to the thought of living to a very high age, for example above 80, because they think of this as a period of sickness and disability. This could make them prone to choose the more equitable society. However, we stated very explicitly that the last 2 years of life were lived with reduced quality of life and that this was the same for everybody. Apart from making the scenario more realistic generally, this should greatly reduce the risk that respondents abstain from choosing society A for such a reason. It seems reasonably realistic to envisage that life is of good quality until you get seriously ill, and that this will reduce the quality-of-life of the last 2 years of your life, irrespective of at which age this occurs.

This should not be taken to imply, however, that healthy life years for oneself is necessarily the only aspect considered when choosing between different societies. In Rawls’ procedure, individuals are supposed to know the general facts about human society [1, p. 137]. This means, for example, that an individual choosing behind a veil of ignorance may well take account of aspects such as the quality of life when a number of his contemporaries have passed away.

According to our results, it does not appear to matter whether we employ a heavy or a light veil of ignorance. In other words, we did not find any evidence of uncertainty aversion; rather, as we pointed out, we found rather strong evidence against it. As we noted, the idea of formalizing the notion of uncertainty as well as decision-makers’ attitudes towards it springs from fairly recent developments in decision theory. There has been a great deal of theoretical work, and recently some empirical assessments have emerged [27,28]. The most clear-cut test we have found of whether the distinction between risk and uncertainty is
empirically significant is that performed by Fennema and Wakker [27]. Their test is designed to answer whether the weakening of the ‘independence axiom’ of expected-utility theory to the ‘comonotonic independence axiom’ (allowing for attitudes to uncertainty) provides a descriptive improvement; i.e. if comonotonic independence is violated to a lesser extent than independence. Contrary to their own expectations, but in accordance with our results, they find that the more general model that allows for uncertainty preferences does not provide a descriptive improvement over the expected-utility model.

While experimental findings thus seem to reject preferences’ exhibiting uncertainty aversion, the seminal Ellsberg [29] experiment still seems convincing; there, subjects are asked to choose between gambles based on drawing balls from an urn with an equal number of black and white balls, and gambles based on drawing balls from an urn with black and white balls in unknown proportions—it turns out that most people exhibit a strict preference for betting on known proportions in a fashion that is inconsistent with expected-utility theory, but consistent with uncertainty aversion.

These somewhat contradictory facts might be interpreted as subjects being unable to grasp probabilistic information when provided in an abstract fashion; in making decisions based on abstract information, the two specifications of our experiment might lead subjects to applying the same rules of thumb expressing their own notions of uncertainty. In contrast, in the Ellsberg experiment individuals were faced with a highly concrete situation, which made the difference between risk and uncertainty transparent. If this interpretation is correct, it is likely to have important implications in health economics as well as for the ordinary practice of health care; communication of probabilistic information is often a key aspect in these areas and decisions on health are often characterized by both risk and genuine uncertainty.

CONCLUSION

This study adds to the relatively limited empirical literature that deals directly with individual preferences for equity in health. Similar to previous studies, we have found that individuals have preferences over the distribution of health in society, and that many prefer a society with a more equitable distribution of health. Respondents placed behind a veil of ignorance did not respond with a ubiquitous choice of a maximin strategy, but nevertheless showed a relatively strong propensity to prefer a more equitable society. Contrary to previous experience, we could show that the degree of inequality mattered for the trade-off. However, we found no evidence of uncertainty aversion. Consequently, it did not appear to matter whether the veil of ignorance was envisaged as enforcing genuine uncertainty or a choice under risk.

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APPENDIX A: THE QUESTIONNAIRE (TRANSLATION FROM SWEDISH)

[A. Information common to all respondents. It was given on a sheet shown on an overhead projector and read aloud by one of the authors.]

Reason for the investigation

- An issue that interests many people is how we shall be able to choose between different ways of organising a society.
- The philosopher John Rawls has suggested a procedure that enables individuals to rank societies in an impartial way.
- He suggests that you should consider viewing society from outside, and that you are placed behind a ‘veil of ignorance’. This means that you should imagine that you do not know anything about ‘who you are’ in society. Consequently, you do not know if you are rich or poor, healthy or ill, etc.
- By forcing such an impartiality upon yourself, you can rank societies without being influenced by your actual position.
- We will ask you to answer a question about which out of two societies that you prefer. We
have made the question in such a way that you should be able to imagine that you are behind such a ‘veil of ignorance’.

- We ask you not to talk to anybody while you complete the questionnaire.
- The questionnaire begins with some practical information about the investigation.

[B. A page distributed to the participants which existed in 12 different versions, cf. below]

About participation:

Participation in this investigation is completely voluntary. The investigation consists of answering a single question. Your answer will be treated anonymously. As compensation, 500 crowns to each of five participants will be disposed of by lottery among the circa 300 invited to participate. You can therefore indicate your name and telephone number on the enclosed sheet which you tear off and hand in separately.

Question:

We will ask you to choose between two societies, A and B. Assume that each society consists of two groups of individuals, group 1 and group 2. The groups differ by having different life expectancies. The groups are exactly alike in all other aspects, for example, they have the same income. We also assume that all individuals live each year of their lives in full health, except for the last two years of life when a reduced quality of life occurs (it is reduced in the same way for all individuals).

Assume now that the two societies are organised in different ways, and that this brings about a situation whereby the life expectancies for the two groups of individuals are not the same across the two societies.

[Here follows a paragraph of which there were two versions, distinguishing the case of risk with known probabilities from the case of genuine uncertainty.]

[version 1—risk]

Now you shall choose between these societies without knowing the group in society to which you belong. As we explained in the introduction, you should imagine that you have no knowledge about which group you belong to. Assume that chance determines the group to which you belong, and that you have an equal chance of belonging to both groups. Hence you have a 50% probability of belonging to each group.

[version 2—genuine uncertainty]

Now you shall choose between these societies without knowing the group in society to which you belong. As we explained in the introduction, you should imagine that you have no knowledge about which group you belong to. This means furthermore that you do not know anything about how probable it is that you belong to one group or the other. In order to comprehend this you can, for example, imagine that you do not know anything about how many people there are in the two groups in society—each group can be of any size, large or small, and the difference between the number of people in the groups can be of any size.

Which society (A or B) do you choose if the life expectancies for the two groups are distributed according to the table below? Remember what we said about all individuals living all their years—except the two last years—in full health. Encircle the society you prefer.

[Here follows a table of which there were six versions. The one displayed here represents a high level of relative difference and a trade-off of 1/3.]

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<thead>
<tr>
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<th>Society A</th>
<th>Society B</th>
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<tbody>
<tr>
<td>Life expectancy in</td>
<td>88</td>
<td>82</td>
</tr>
<tr>
<td>group 1</td>
<td></td>
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<tr>
<td>Life expectancy in</td>
<td>66</td>
<td>68</td>
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<tr>
<td>group 2</td>
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Thank you very much for your participation! We would be pleased to answer queries about the investigation.

[The authors’ names and telephone numbers followed.]

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