
Choosing from behind a veil of ignorance in India

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Social inequality aversion is measured through a veil-of-ignorance experiment with Indian students. The median relative risk aversion is found to be quite high, about 3, and independent caste.

I. INTRODUCTION

The concept of choosing from behind a veil of ignorance, i.e. choosing between societies without knowing where you will be placed or what characteristics you will have in each society, to reflect goodness or fairness of societies, has proved very useful in theoretical economics (e.g. Vickrey, 1945; Harsanyi, 1955; Cremer and Pestieau, 1998), political science (e.g. Frohlich and Oppenheimer, 1992) and in moral philosophy (e.g. Rawls, 1971). According to Harsanyi, the ‘ethical preferences’ revealed from such choices would, under plausible conditions, reflect a utilitarian social welfare function. This is in sharp contrast to Rawls, who argued that people would only focus on the most unfortunate member of each society and would choose the society that is best for this member, in terms of some primary goods including income.

The veil-of-ignorance approach has received much less empirical interest. The only study, to our knowledge, that analyses the choice between different societies with different income distributions from behind a veil of ignorance is Johansson-Stenman *et al.* (2002).¹ This article largely follows the experimental survey-design of that paper, but is adapted to an Indian context. The respondents make eight pair-wise choices between societies *A* and *B*, given information about the highest, lowest and average income in each society, where both average income and the degree of inequality is always greater in *A*. The results enable one to estimate individual-specific parameters of relative risk aversion, which may be

interpreted as social inequality aversion, and also to test econometrically the determinants behind these parameters. The Indian context is of particular interest because of the prevalence of the Caste system and its rather unequal income distribution.

II. EXPERIMENTAL

Students from Jadavpur University ($N=364$), Calcutta University, Kalyani University and Viswa Bharati University participated in the experiment. The first two universities are located in Calcutta city and the other two in rural areas in West Bengal. Participation was voluntary. The time for conducting each session varied between 20 and 30 minutes, and the students were given information both verbally and in printed form.

In order to create a veil-of-ignorance situation, the respondents were given the following information: ‘Imagine that in the future you have a grandchild, and you have the power to place him or her in a society of your choice.’ In this way, the respondents’ own personal circumstances and environment are limited, although perhaps not eliminated. They were also told that they could not know the position of their future grandchild in the income structures of the given societies. The only information they received was the income distribution (and hence probability) of the future society. It was emphasised throughout the experiment that the societies were identical in all other respects; in particular, they were explicitly told that (i) all prices and

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¹Frohlich and Oppenheimer (1992) report from several experiments where people instead choose between different distributive principles. There are of course other experimental approaches measuring attitudes to inequality, see e.g. Amiel and Cowell (1999). Johansson and Gerdtham (1996) undertake a veil-of-ignorance experiment on health-care inequality.

available goods are exactly the same in the two societies, (ii) the societies are culturally and linguistically identical and (iii) government policy for affirmative action for scheduled (formerly known as lower) caste people are the same as today.

One assumes that individuals' preferences are given by the constant relative risk aversion (CRRA) utility function $u = y^{1-\rho}/(1-\rho)$, where y is disposable income and ρ the relative risk aversion, which is often interpreted as the social inequality aversion (e.g. Christiansen and Jansen, 1978; Amiel *et al.*, 1999). If the individual is risk neutral then $\rho=0$ whereas if $\rho \rightarrow \infty$ then the individual is extremely risk averse and is of the Rawlsian maxi-min type.

In both societies, the income distribution was described by a right-angled triangular distribution, with the highest probability density at the lowest income level. This income distribution is of course crude but fairly realistic for a society such as India, and much easier to comprehend than, say, a log-normal distribution. Special emphasis was put on carefully explaining the features of the triangular distribution, which was also presented in a graph.

The CRRA utility function together with this triangular distribution results in the following expression for expected utility:

$$E(u) = \int_{y_{\min}}^{y_{\max}} \frac{y^{1-\rho}}{1-\rho} \frac{2(y_{\max}-y)}{(y_{\max}-y_{\min})^2} dy$$

$$= \frac{2}{(y_{\max}-y_{\min})^2} \left[\frac{y_{\max} (y_{\max}^{2-\rho} - y_{\min}^{2-\rho})}{(2-\rho)(1-\rho)} - \frac{(y_{\max}^{3-\rho} - y_{\min}^{3-\rho})}{(3-\rho)(1-\rho)} \right]$$

Given that the respondents choose in order to maximize expected utility, they are indifferent between the two societies, A and B , iff $E(u_A) = E(u_B)$. Using this condition we can find the relative risk aversion parameter at which the individual is indifferent.² For example, if the respondent is indifferent between society A , where income varies between

7000 and 60000 Rupees, and society B , where income varies between 3000 and 100000 Rupees, then it can be shown that $\rho \approx 2$. Consequently, if A is chosen $\rho < 2$ and vice versa.

III. RESULTS

Out of 364 responses 338 were consistent, i.e. they did not contradict themselves given the assumed utility function. The income distributions of the societies and the results are presented in Table 1. Society A was always the same and was compared in a pair-wise manner with the eight B -societies.

The median relative risk aversion is close to 3, but about 20% went for the extreme Rawlsian prediction, while 5% appear to like risk. These results are very similar to the ones for Swedish students in Johansson-Stenman *et al.* (2002), the main difference being a somewhat higher fraction of the Rawlsian kind of response in the present study.

Table 2 presents the results from an interval regression model with the estimated individual relative risk aversion as the dependent variable. The two groups with the highest relative risk aversion are grouped together, so at the upper extreme we have $\rho < 8$.

Individuals who are politically left wing do not have a significantly different level of risk (or inequality) aversion than others, but if the respondent's parents support the left wing then the risk aversion is significantly (around 1.1 units) higher. This may indicate that values are largely formed at childhood and will persist from then on. Most other significant parameters, including the ones associated with the students' main streams of study, can probably be attributed to differences in expected future income. It is well known that people tend to modify their ethical values in a self-serving manner (e.g. Babcock *et al.*, 1996), so that, for example, people with higher incomes tend to consider

Table 1. Societies and descriptive results of the experiment

Society	Min Income	Mean Income	Max Income	Relative risk aversion if indifference	Share of respondents who chose A
Society A	3 000	35 333	100 000		
Society B ₁	10 000	35 333	86 000	$\rho=0$	0.04
Society B ₂	9 470	33 460	81 442	$\rho=0.5$	0.07
Society B ₃	8 770	30 987	75 422	$\rho=1$	0.15
Society B ₄	7 000	24 733	60 200	$\rho=2$	0.25
Society B ₅	5 550	19 610	47 730	$\rho=3$	0.51
Society B ₆	4 250	15 016	36 550	$\rho=5$	0.67
Society B ₇	3 680	13 002	31 648	$\rho=8$	0.76
Society B ₈	3 000	10 600	25 800	$\rho \rightarrow \infty$	0.80

² Although there is no algebraic solution, it is straightforward to solve for ρ using standard numerical methods.

Table 2. Interval regression estimates of relative risk aversion

	Coefficient	P-value	Mean
Intercept	5.721	0.00	
Equivalence scaled monthly per capita household income (1000 rupees)*	-0.188	0.01	4.03
Respondent's own income (1000 rupees)	0.717	0.04	0.272
Scheduled caste	0.012	0.98	0.13
Muslim	-1.602	0.21	0.02
Support left wing party	-0.262	0.66	0.20
Parents support left wing party	1.125	0.02	0.33
Main stream of study**			
Economics	-2.387	0.01	0.06
Natural science	-0.536	0.35	0.32
Technology	-1.582	0.01	0.30
Social science	-1.736	0.02	0.12
Sigma	3.389	0.00	

Notes: *Equivalence scale used: 0.9 one adult, 0.71 each additional adult and 0.61 each child.

**Base case: Humanities.

income inequality to be less of a serious social problem. Consequently, risk aversion increases with the respondents' own income which is probably because it is mainly students from poorer families who have to work and support themselves.

The coefficient for Scheduled Caste is highly insignificant.³ However, recall that the university students of our sample belong to the elite of the Scheduled Caste, implying that the result could have been quite different with another sample.

IV. CONCLUSION

Students in the Indian sample are found to be rather risk (inequality) averse when choosing from behind a simulated veil of ignorance. These results are close to earlier ones obtained for Sweden. A large part of the econometrically explained heterogeneity between individuals can probably be attributed to self-serving bias.

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³ Even when we run the regression with only Scheduled Caste as an explanatory variable, the coefficient is still insignificant.