The Ultimatum Game, Fairness and Social Preferences

-The ultimatum game

-Inequity aversion

-The Charness/Rabin model

-Dictator with exit game

The Ultimatum Game

A proposer propose a split of a pie (e.g. SEK 100) and a responder accepts or rejects the proposed division; if acceptance they both get paid according to the proposal; if rejection both get nothing.

TABLE I
PERCENTAGE OF OFFERS BELOW 0.2 AND BETWEEN 0.4 AND 0.5 IN THE ULTIMATUM GAME

Study (Payment method)	Number of observations	Stake size (country)	Percentage of offers with $s < 0.2$	Percentage of offers with $0.4 \leq s \leq 0.5$
Cameron [1995] (All Ss Paid)	35	Rp 40.000 (Indonesia)	0	66
Cameron [1995] (all Ss paid)	37	Rp 200.000 (Indonesia)	5	57
FHSS [1994] (all Ss paid)	67	\$5 and \$10 (USA)	0	82
Güth et al. [1982] (all Ss paid)	79	DM 4–10 (Germany)	8	61
Hoffman, McCabe, and Smith [1996] (All Ss paid)	24	\$10 (USA)	0	83
Hoffman, McCabe, and Smith [1996] (all Ss paid)	27	\$100 (USA)	4	74
Kahneman, Knetsch, and Thaler [1986] (20% of Ss paid)	115	\$10 (USA)	?	75[a]
Roth et al. [1991] (random payment method)	116[b]	approx. \$10 (USA, Slovenia, Israel, Japan)	3	70
Slonim and Roth [1997] (random payment method)	240[c]	SK 60 (Slovakia)	0.4[d]	75
Slonim and Roth [1997] (random payment method)	250[c]	SK 1500 (Slovakia)	8[d]	69
Aggregate result of all studies[e]	875		3.8	71

a. percentage of equal splits, b. only observations of the final period, c. observations of all ten periods, d. percentage of offers below 0.25, e. without Kahneman, Knetsch, and Thaler [1986].

TABLE 1—THE ULTIMATUM GAME IN SMALL-SCALE SOCIETIES

Group	Country	Mean offer[a]	Modes[b]	Rejection rate[c]	Low-offer rejection rate[d]
Machiguenga	Peru	0.26	0.15/0.25 (72)	0.048 (1/21)	0.10 (1/10)
Hadza (big camp)	Tanzania	0.40	0.50 (28)	0.19 (5/26)	0.80 (4/5)
Hadza (small camp)	Tanzania	0.27 (38)	0.20 (8/29)	0.28 (5/16)	0.31
Tsimané	Bolivia	0.37	0.5/0.3/0.25 (65)	0.00 (0/70)	0.00 (0/5)
Quichua	Ecuador	0.27	0.25 (47)	0.15 (2/13)	0.50 (1/2)
Torguud	Mongolia	0.35	0.25 (30)	0.05 (1/20)	0.00 (0/1)
Khazax	Mongolia	0.36	0.25		
Mapuche	Chile	0.34	0.50/0.33 (46)	0.067 (2/30)	0.2 (2/10)
Au	PNG	0.43	0.3 (33)	0.27 (8/30)	1.00 (1/1)
Gnau	PNG	0.38	0.4 (32)	0.4 (10/25)	0.50 (3/6)
Sangu farmers	Tanzania	0.41	0.50 (35)	0.25 (5/20)	1.00 (1/1)
Sangu herders	Tanzania	0.42	0.50 (40)	0.05 (1/20)	1.00 (1/1)
Unresettled villagers	Zimbabwe	0.41	0.50 (56)	0.1 (3/31)	0.33 (2/5)
Resettled villagers	Zimbabwe	0.45	0.50 (70)	0.07 (12/86)	0.57 (4/7)
Achuar	Ecuador	0.42	0.50 (36)	0.00 (0/16)	0.00 (0/1)
Orma	Kenya	0.44	0.50 (54)	0.04 (2/56)	0.00 (0/0)
Aché	Paraguay	0.51	0.50/0.40 (75)	0.00 (0/51)	0.00 (0/8)
Lamelara[e]	Indonesia	0.58	0.50 (63)	0.00 (3/8)	0.00 (4/20)

Note: PNG = Papua New Guinea.

[a] This column shows the mean offer (as a proportion) in the ultimatum game for each society.

[b] This column shows the modal offer(s), with the percentage of subjects who make modal offers (in parentheses).

[c] The rejection rate (as a proportion), with the actual numbers given in parentheses.

[d] The rejection rate for offers of 20 percent or less, with the actual numbers given in parentheses.

[e] Includes experimenter-generated low offers.

Inequity Aversion (Fehr/Schmidt QJE 1999)

Two player case:

$U_i(x_i,x_j)=x_i - \alpha_i \max\{x_j - x_i,0\}$
$\qquad\qquad - \beta_i \max\{x_i - x_j,0\}$

X_i=own payoff

X_j=payoff to the other player

TABLE III

ASSUMPTIONS ABOUT THE DISTRIBUTION OF PREFERENCES

DISTRIBUTION OF α's AND ASSOCIATED ACCEPTANCE THRESHOLDS OF BUYERS			DISTRIBUTION OF β's AND ASSOCIATED OPTIMAL OFFERS OF SELLERS		
$\alpha = 0$	30 percent	$s' = 0$	$\beta = 0$	30 percent	$s^* = 1/3$
$\alpha = 0.5$	30 percent	$s'(0.5) = 1/4$	$\beta = 0.25$	30 percent	$s^* = 4/9$
$\alpha = 1$	30 percent	$s'(1) = 1/3$	$\beta = 0.6$	40 percent	$s^* = 1/2$
$\alpha = 4$	10 percent	$s'(4) = 4/9$			

Acceptance threshold=$\alpha/(1+2\alpha)$

TABLE I
GAME-BY-GAME RESULTS

	Two-person dictator games	Left	Right
Berk29 (26)	B chooses (400,400) vs. (750,400)	.31	.69
Barc2 (48)	B chooses (400,400) vs. (750,375)	.52	.48
Berk17 (32)	B chooses (400,400) vs. (750,375)	.50	.50
Berk23 (36)	B chooses (800,200) vs. (0,0)	1.00	.00
Barc8 (36)	B chooses (300,600) vs. (700,500)	.67	.33
Berk15 (22)	B chooses (200,700) vs. (600,600)	.27	.73
Berk26 (32)	B chooses (0,800) vs. (400,400)	.78	.22

Charness/Rabin Model (QJE 2002)

Two player case (no reciprocity):

$U_i(x_i,x_j)=(1-\sigma)x_i + \sigma x_j$;if $x_i<x_j$
$U_i(x_i,x_j)=(1-\rho)x_i + \rho x_j$;if $x_i>x_j$

Competitive preferences: $\sigma \leq \rho \leq 0$
Difference aversion (inequity aversion): $\sigma < 0 < \rho < 1$
Social-welfare preferences: $1 \geq \rho \geq \sigma > 0$

With negative reciprocity ($\theta>0$ if the other player has ”misbehaved” and 0 otherwise):

$U_i(x_i,x_j)=(1-\sigma+\theta)x_i + (\sigma-\theta)x_j$;if $x_i<x_j$
$U_i(x_i,x_j)=(1-\rho+\theta)x_i + (\rho-\theta)x_j$;if $x_i>x_j$

Exit in Dictator Games (Dana et al. 2006)

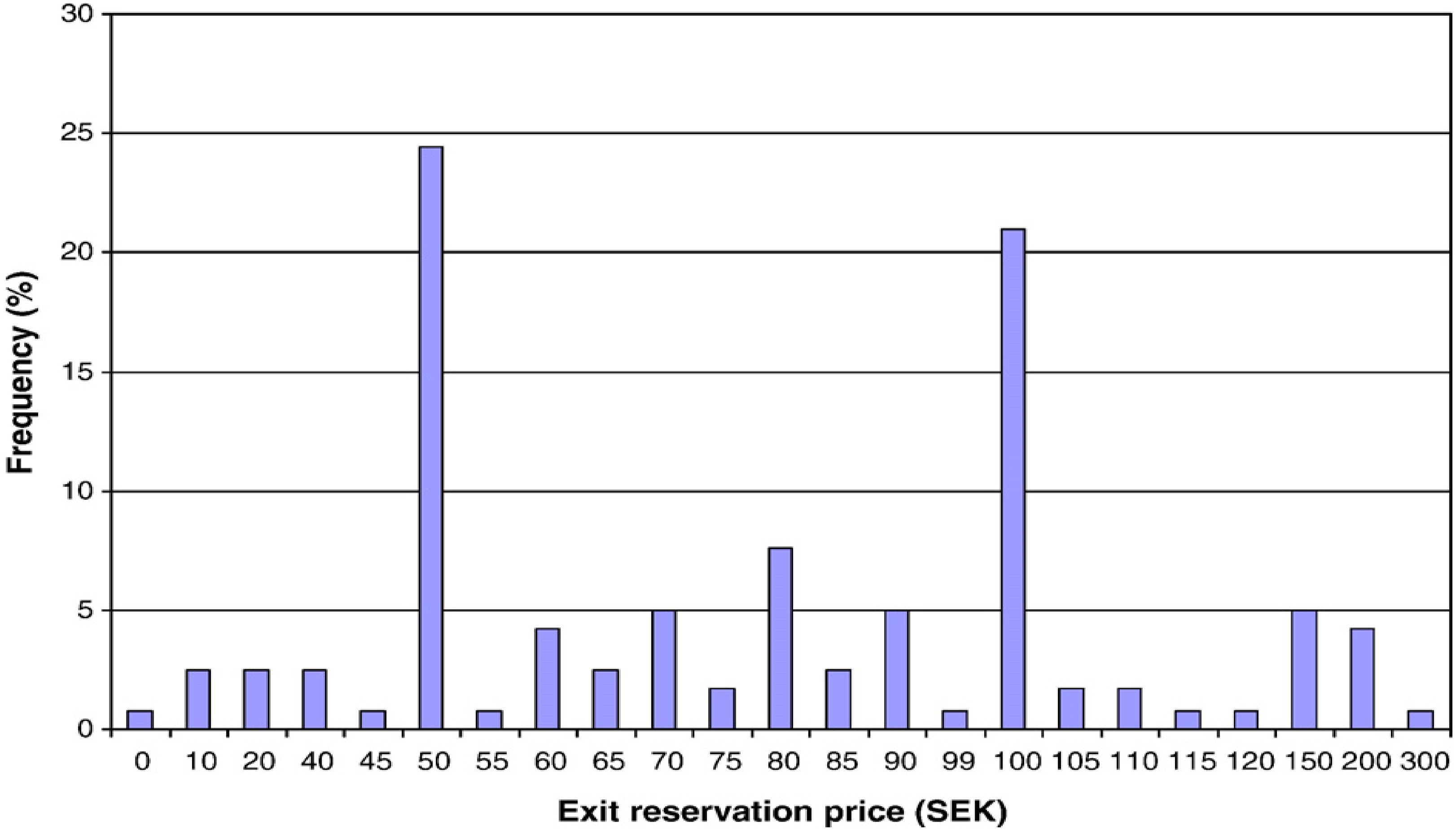
Setting: A dictator can choose between playing a $10 dictator game or exit and take $9 instead. If the exit option is chosen the receiver will not know that a dictator game was to be played.

Experiments:

1. 40 dictators play the game (they first make their allocation choice in the dictator game and are then told about the exit option and chose whether to exit or not).
2. Two treatments: A replication of the first experiment (with 21 dictators) and a ”private condition” treatment (with 24 dictators). In the private condition treatment the receiver does not know from where any money received has come.

Table 1
Dictator behavior across conditions

	Initial giving > 0	Exit after giving > 0	Exit after giving 0	Total exit
Study 1	27/40 (68%) *m* = \$2.40	9/27 (33%)	2/13 (15%)	11/40 (28%)
Study 2: replication	16/21 (76%) *m* = \$2.67	8/16 (50%)	1/5 (20%)	9/21 (43%)
Standard game all	43/61 (70%) *m* = \$2.49	16/43 (37%)	3/18 (16%)	20/61 (33%)
Study 2: private	13/24 (54%) *m* = \$1.79	0	1/11 (9%)	1/24 (4%)



Broberg et al. Economics Letters 2007
Mean exit reservation price (for SEK 100 dictator game): SEK 82
Fraction with an exit reservation price ≥SEK 100: 36%
(the conventional model and social preference models predicts an exit reservation price of ≥SEK 100)