ONLINE APPENDIX TO, "THE MANY FACES OF HUMAN SOCIALITY: UNCOVERING THE DISTRIBUTION AND STABILITY OF SOCIAL PREFERENCES"

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Additional Figures and Tables

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Appendix: Additional Figures and Tables

A.1. Screenshots

Dictator game (translated from German) is given in Figure A.1.

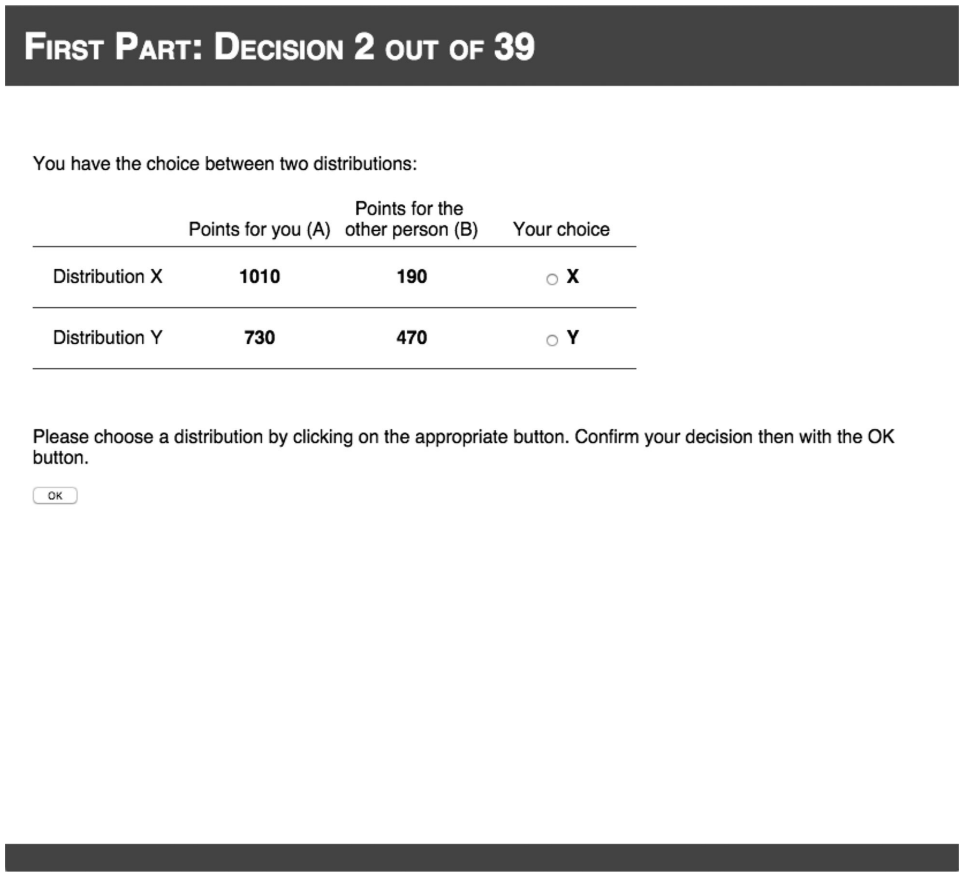

FIGURE A.1. Screenshot of a dictator game. Choice by player A.

Reciprocity Game (translated from German) is given in Figure A.2.

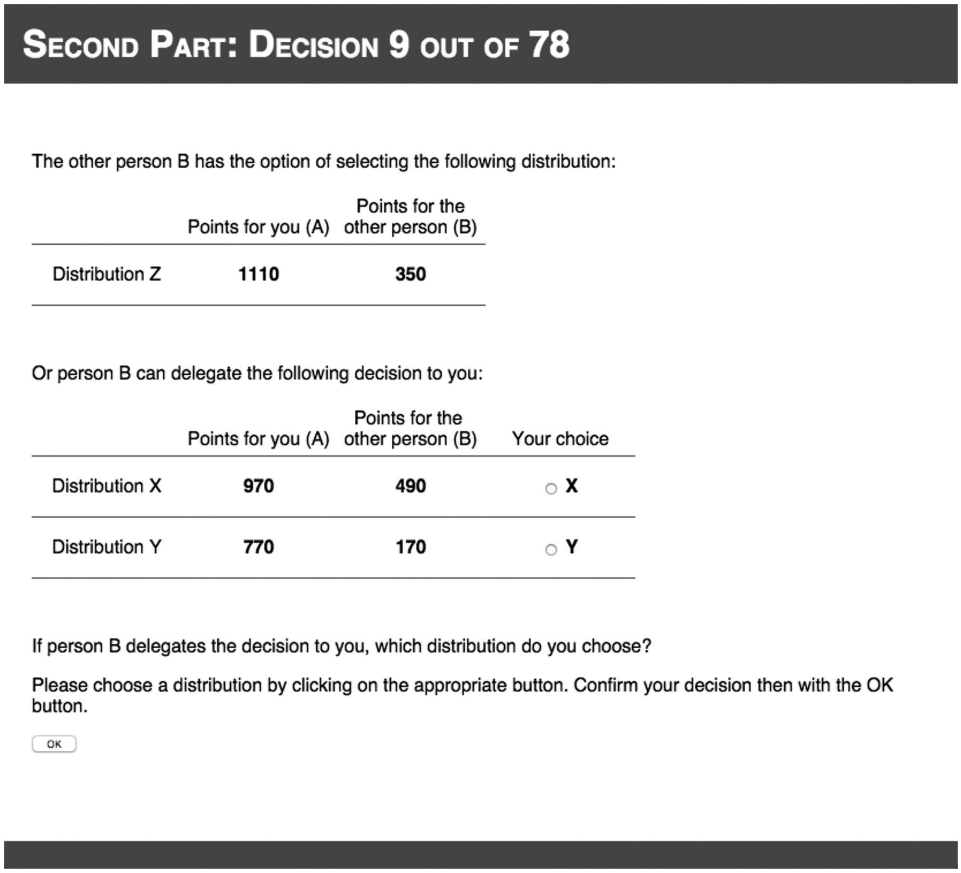

FIGURE A.2. Screenshot of a reciprocity game. Choice by player A.

A.2. Potential of Reciprocity Games to Trigger the Sensation of Having Been Treated Kindly or Unkindly by the Other Player

Table A.1 allows to check the potential of the reciprocity games for triggering reciprocal actions. It shows for a sample of 18 reciprocity games, how subjects in the role of player A on average rated player B's kindness when player B forgoes allocation Z and gives them the choice between allocations X and Y. Subjects had to rate player B's kindness on a 5-point scale form 1 (very unkind) to 5 (very kind)

TABLE A.1. Kindness rating if player B forgoes allocation Z and leaves player A the choice between allocations X and Y (1 = very unkind; 5 = very kind).

Allocation X (Π_X^A, Π_X^B)	Allocation Y (Π_Y^A, Π_Y^B)	Allocation Z (Π_Z^A, Π_Z^B)	Average kindness rating	Std. Err.
(470, 730)	(190, 1010)	(610, 590)	2.087	0.065
(520, 870)	(140, 870)	(660, 730)	2.294	0.063
(450, 1020)	(210, 720)	(590, 880)	2.306	0.058
(790, 600)	(410, 600)	(930, 460)	2.375	0.061
(740, 460)	(460, 740)	(880, 320)	2.487	0.059
(720, 750)	(480, 450)	(860, 610)	2.669	0.061
(1060, 330)	(680, 330)	(1200, 190)	2.712	0.064
(990, 480)	(750, 180)	(1130, 340)	2.725	0.061
(1010, 190)	(730, 470)	(1150, 50)	2.831	0.060
(450, 1020)	(210, 720)	(70, 860)	3.825	0.063
(720, 750)	(480, 450)	(340, 590)	3.888	0.061
(990, 480)	(750, 180)	(610, 320)	3.888	0.059
(790, 600)	(410, 600)	(270, 740)	4.725	0.045
(1060, 330)	(680, 330)	(540, 470)	4.763	0.051
(470, 730)	(190, 1010)	(50, 1150)	4.763	0.044
(520, 870)	(140, 870)	(0, 1010)	4.794	0.050
(740, 460)	(460, 740)	(320, 880)	4.800	0.046
(1010, 190)	(730, 470)	(590, 610)	4.831	0.039

A.3. No Evidence of Attrition Bias

TABLE A.2. No evidence of attrition bias.

	Subjects participating in sessions 1 and 2 ($N = 160$)	All subjects participating in session 1 ($N = 183$)	p-value of z-test with H_0: equal estimates in columns (1) and (2)
α: Weight on other's payoff when behind	0.083^{***}	0.076^{***}	0.699
	(0.015)	(0.014)	
β: Weight on other's payoff when ahead	0.261^{***}	0.261^{***}	0.984
	(0.019)	(0.018)	
γ: Measure of positive reciprocity	0.072^{***}	0.074^{***}	0.916
	(0.014)	(0.012)	
δ: Measure of negative reciprocity	-0.042^{***}	-0.036^{***}	0.723
	(0.011)	(0.010)	
σ: Choice sensitivity	0.016^{***}	0.015^{***}	0.862
	(0.001)	(0.001)	
Number of observations	18,720	21,411	
Number of subjects	160	183	
Log likelihood	−5472.31	−6332.84	

Notes: Individual cluster robust standard errors in parentheses. Subjects with inconsistent choices and at least one estimated preference parameter outside the identifiable range of −3 to 1 are dropped. ***Significant at 1%.

A.4. Willingness to Change the Other's Payoff in Session 2 (K = 1 Model)

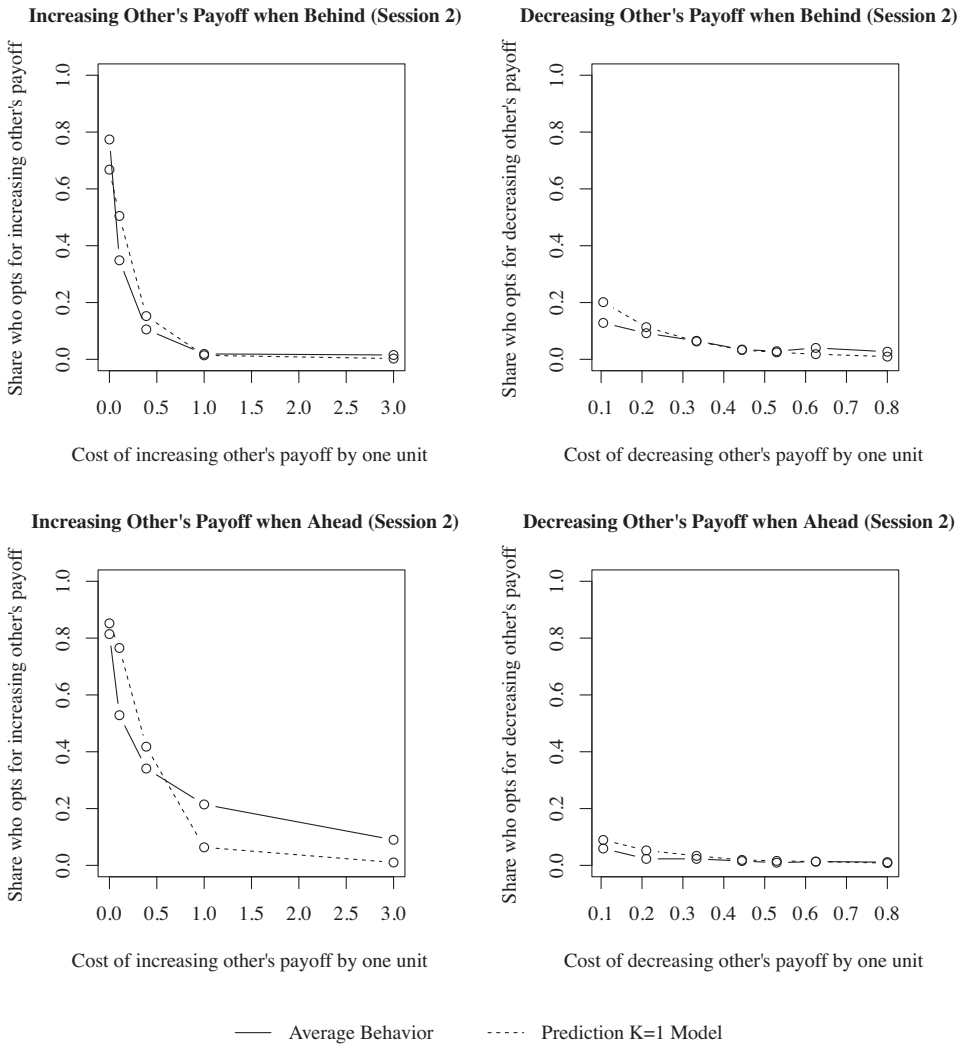

FIGURE A.3. Representative agent's empirical and predicted willingness to change the other player's payoff across cost levels in session 2. The empirical willingness corresponds to the fraction of subjects that chose to change the other player's payoff in the indicated direction. The predicted willingness corresponds to the predicted probability that the representative agent choses to change the other player's payoff in the indicated direction. It is based on the random utility model presented in Section 3.1 and uses the estimated aggregate parameters of session 2 on all dictator and reciprocity games.

A.5. Finite Mixture Model with K = 2 Preference Types

TABLE A.3. Finite mixture estimations ($K = 2$) in sessions 1 and 2.

	Social welfare type I	Social welfare type II
Session 1		
π: Types' shares in the population	0.477***	0.523***
	(0.049)	(0.049)
α: Weight on other's payoff when behind	0.061***	0.085***
	(0.015)	(0.030)
β: Weight on other's payoff when ahead	0.122***	0.370***
	(0.023)	(0.027)
γ: Measure of positive reciprocity	0.000	0.141***
	(0.011)	(0.023)
δ: Measure of negative reciprocity	−0.026**	−0.055***
	(0.012)	(0.019)
σ: Choice sensitivity	0.032***	0.012***
	(0.003)	(0.001)
Session 2		
π: Types' shares in the population	0.638***	0.362***
	(0.039)	(0.039)
α: Weight on other's payoff when behind	0.033**	0.188***
	(0.013)	(0.019)
β: Weight on other's payoff when ahead	0.089***	0.493***
	(0.012)	(0.020)
γ: Measure of positive reciprocity	−0.008	0.098***
	(0.007)	(0.023)
δ: Measure of negative reciprocity	−0.021***	−0.080***
	(0.007)	(0.018)
σ: Choice sensitivity	0.028***	0.018***
	(0.003)	(0.001)
Number of observations (both sessions)	18,720	
Number of subjects (both sessions)	160	
Log likelihood in session 1	−4920.77	
Log likelihood in session 2	−3689.26	

Notes: **Significant at 5%; ***significant at 1%.

A.6. Finite Mixture Model with K = 4 Preference Types

TABLE A.4. Finite mixture estimations ($K = 4$) in sessions 1 and 2.

	Strongly altruistic type	Moderately altruistic type I	Moderately Altruistic type II	Behindness averse type
Session 1				
π: Types' shares in the population	0.360***	0.367***	0.170***	0.103***
	(0.054)	(0.045)	(0.035)	(0.033)
α: Weight on other's payoff when behind	0.180***	0.056*	0.057***	−0.558**
	(0.023)	(0.028)	(0.017)	(0.223)
β: Weight on other's payoff when ahead	0.484***	0.178***	0.072***	−0.207
	(0.031)	(0.040)	(0.012)	(0.139)
γ: Measure of positive reciprocity	0.150***	0.022	−0.003	0.211
	(0.026)	(0.023)	(0.011)	(0.140)
δ: Measure of negative reciprocity	−0.060***	−0.032	−0.020	−0.071
	(0.021)	(0.020)	(0.017)	(0.123)
σ: Choice sensitivity	0.018***	0.023***	0.139***	0.008***
	(0.001)	(0.002)	(0.034)	(0.002)
Session 2				
π: Types' shares in the population	0.342***	0.313***	0.245***	0.100***
	(0.038)	(0.039)	(0.037)	(0.024)
α: Weight on other's payoff when behind	0.193***	0.097***	0.026***	−0.329***
	(0.019)	(0.013)	(0.007)	(0.073)
β: Weight on other's payoff when ahead	0.503***	0.168***	0.033***	−0.048
	(0.019)	(0.015)	(0.010)	(0.053)
γ: Measure of positive reciprocity	0.103***	−0.005	−0.004	−0.028
	(0.023)	(0.012)	(0.005)	(0.030)
δ: Measure of negative reciprocity	−0.081***	−0.034***	−0.009	−0.015
	(0.019)	(0.012)	(0.006)	(0.035)
σ: Choice sensitivity	0.019***	0.039***	0.109***	0.015***
	(0.001)	(0.003)	(0.009)	(0.002)
Number of observations (both sessions)	18,720			
Number of subjects (both sessions)	160			
Log likelihood in session 1	−4039.43			
Log likelihood in session 2	−3016.26			

Notes: Individual cluster robust standard errors in parentheses. *Significant at 10%; **significant at 5%; ***significant at 1%.

A.7. Distribution of Posterior Probabilities of Individual Type-Membership

The finite mixture method we used not only provides a characterization of the preferences of each type but also provides posterior probabilities of type-membership for each individual (see equation (7)). A good model assigns individuals unambiguously to one of the preference types in the sense that the probability of belonging to that type is close to 1, and close to 0 for all other types. The upper and lower panels in Figure A.4 show the distribution of the posterior probabilities of individual type-membership in sessions 1 and 2, respectively. The histograms reveal that there are almost no interior probabilities of individual type-membership suggesting that almost all subjects are unambiguously assigned to one of the three types.

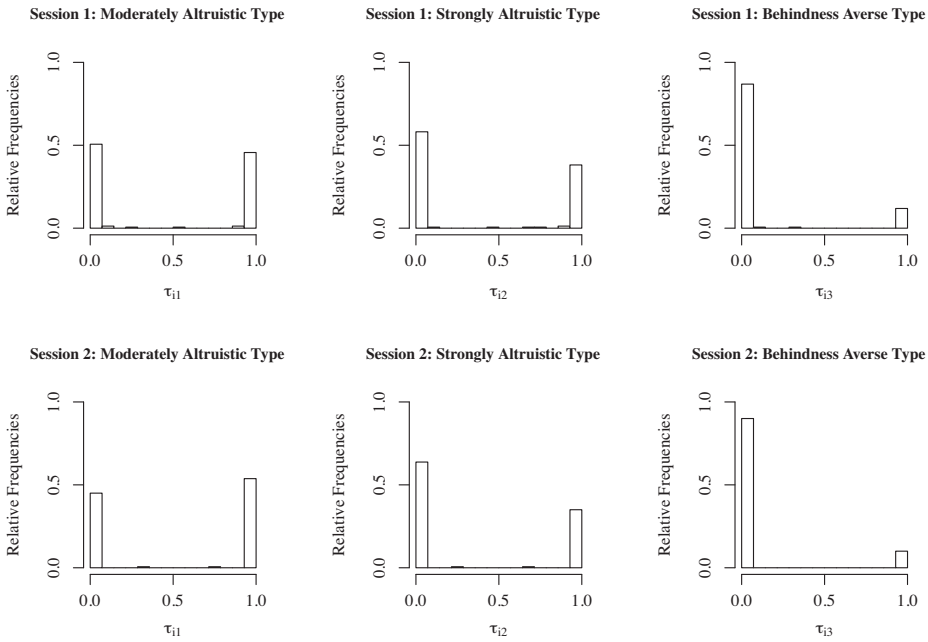

FIGURE A.4. Distribution of posterior probabilities of individual type-membership in sessions 1 (upper row) and 2 (lower row).

A.8. Willingness to Change the Other's Payoff in Session 2 (K = 3 Model)

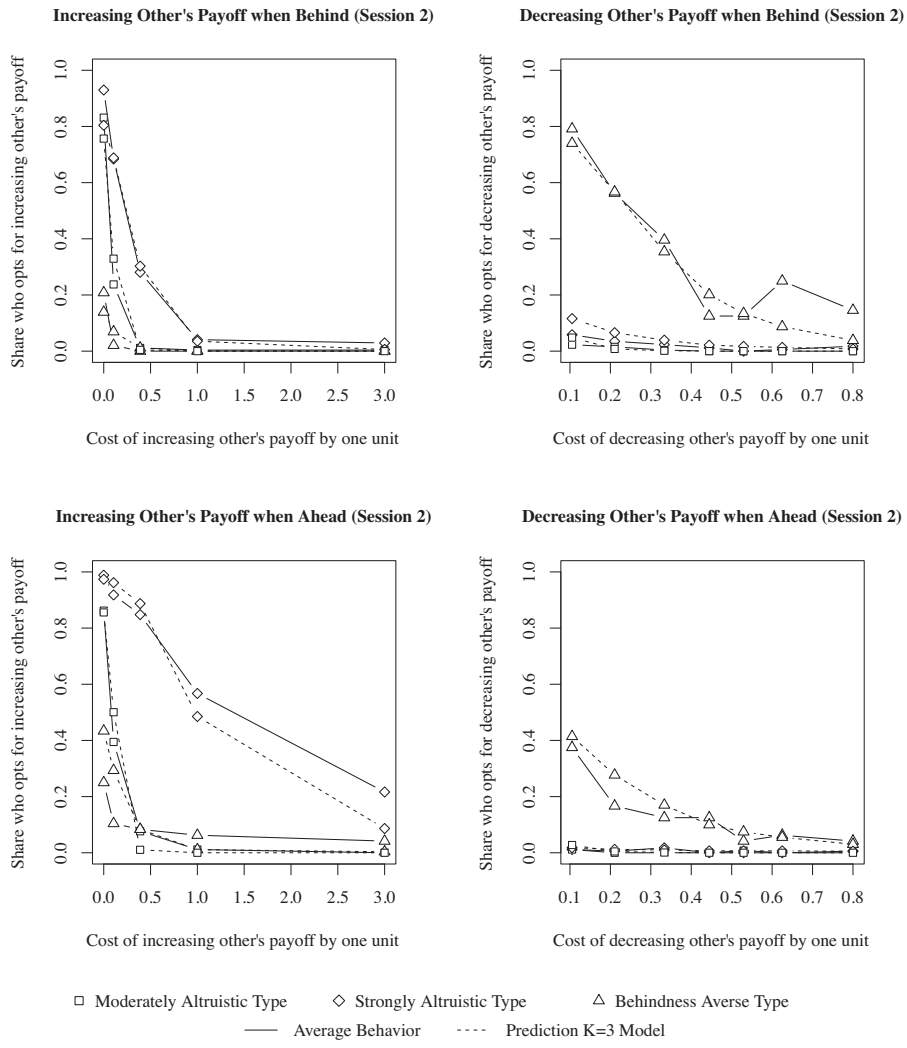

FIGURE A.5. Empirical and predicted willingness of the different preference types to change the other player's payoff across cost levels in session 2. The empirical willingness corresponds to the fraction of subjects of a given preference type that chose to change the other player's payoff in the indicated direction. The predicted willingness corresponds to the predicted probability that a given preference type changes the other player's payoff in the indicated direction. It is based on the random utility model presented in Section 3.1 and uses the estimated type-specific parameters of session 2 on all dictator and reciprocity games.

A.9. Distribution of Individual-Specific Parameter Estimates in Session 2

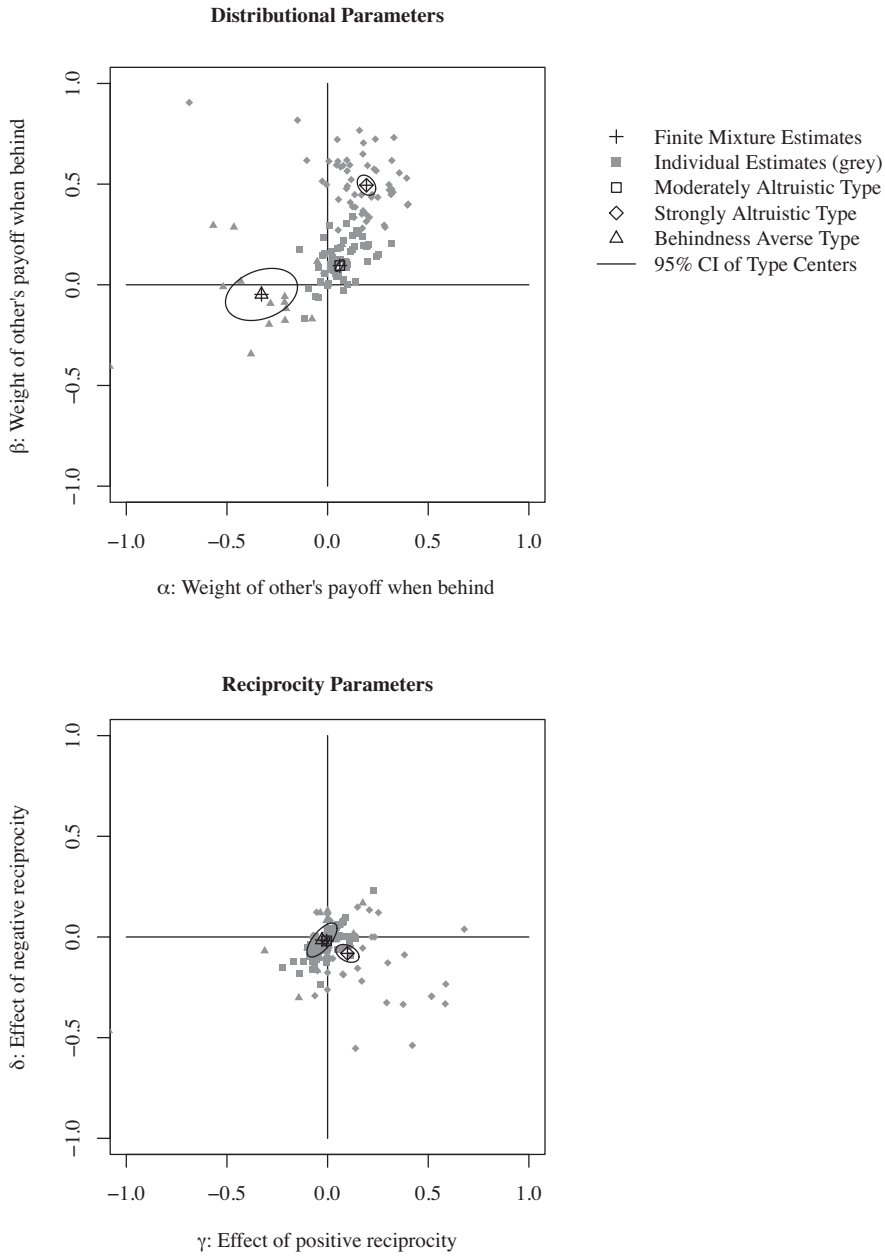

FIGURE A.6. Distribution of individual-specific parameter estimates along with type-specific parameter estimates ($K = 3$ model) in session 2. The shapes of the individual-specific estimates indicate the underlying subjects' classification into preference types according to the individual posterior probabilities of type-membership (see equation (7)): the moderately altruistic (MA) types are represented by squares, the strongly altruistic (SA) types by diamonds, and the behindness averse (BA) types by triangles.