

REDISTRIBUTION OVER GAINS AND LOSSES: SOCIAL PREFERENCES & MORAL RULES

UNIVERSITY OF NAVARRA — INTERNAL SEMINAR

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de Navarra



- 1** Setting the Scene
- 2 Experimental Design
- 3 Identification Strategy
- 4 Results
- 5 Conclusion

WHY DO PEOPLE REDISTRIBUTE?

SOCIAL PREFERENCES ... ?

■ Redistrib. over losses — more selfish

- | List (2007), Bardsley (2008), Cappelen et al. (2013), Boun et al. (2018)
- | Can't be captured by canonical models of social preferences

■ Explanation:

- | Social Prefs. + Loss Aversion
- | Moral Rules

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EXPLANATIONS — WHY 2 PATHS?

■ Classical Theoretical Predictions — **Too Selfish**

| Free Riding, No Donations, ...

■ The **Giants Speak** (I): Harsanyi (1955) and Sen (1977)

Amartya Sen (1977). **Rational Fools:** ...

*“... if it does not make you feel personally worse off, but you think it is wrong and you are ready to do something to stop it, it is a case of **commitment**.”*

■ **Experimental Evidence** of Altruism in the 70's – 90's

| **Public Goods:** Böhm (1972); **Ultimatum Game:** Güth et al. (1982); **Dictator Game:** Forsythe et al. (1994); **Trust Game:** Berg et al. (1995); ...

■ **Theoretical models** of Social Preferences in the 90's – 2000's

| Rabin (1993), Fehr and Schmidt (1999), Charness and Rabin (2002), ...

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Horse-Race

Test whether

- **Self-interest** (i.e., Social Preferences & Loss Aversion)
- **Disinterestedness** (i.e., moral rules)

shape redistribution

- Replicate gains — losses asymmetry
- Social prefs. & Moral Rules drive redistribution

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- 1 Setting the Scene
- 2 Experimental Design**
 - Binary Dictator Games
 - Other Tasks
- 3 Identification Strategy
- 4 Results
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EXPERIMENTAL DESIGN

EXP. DESIGN: MAIN GAME(S)

Decision	Gains		Losses	
	Left	Right	Left	Right
1	(\$10; \$0)	(\$0; \$0)	(\$0; \$10)	(\$10; \$10)
2	(\$10; \$0)	(\$1; \$1)	(\$0; \$10)	(\$9; \$9)
3	(\$10; \$0)	(\$2; \$2)	(\$0; \$10)	(\$8; \$8)
4	(\$10; \$0)	(\$3; \$3)	(\$0; \$10)	(\$7; \$7)
5	(\$10; \$0)	(\$4; \$4)	(\$0; \$10)	(\$6; \$6)
6	(\$10; \$0)	(\$5; \$5)	(\$0; \$10)	(\$5; \$5)
7	(\$10; \$0)	(\$6; \$6)	(\$0; \$10)	(\$4; \$4)
8	(\$10; \$0)	(\$7; \$7)	(\$0; \$10)	(\$3; \$3)
9	(\$10; \$0)	(\$8; \$8)	(\$0; \$10)	(\$2; \$2)
10	(\$10; \$0)	(\$9; \$9)	(\$0; \$10)	(\$1; \$1)
11	(\$10; \$0)	(\$10; \$10)	(\$0; \$10)	(\$0; \$0)

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EXP. DESIGN: OTHER TASKS

■ Satisfaction Ratings

- | 64 income distributions, $n = 4$ people
- | Rate your satisfaction $z \in [-50; +50]$

■ WTA & WTP

- | WTA: price for selling a mug
- | WTP: price for buying (the same) mug
- | Incentive-Compatible: BDM mechanism

■ Impartial Moral Judgments

- | Person A & Person B play all the main games
- | You are neither A nor B
- | Judge Person A for each action in each game – $22 \times 2 = 44$ Judgments

■ Procedures

- | Randomise order of tasks
- | 2 Experiments: Students ($N_1 = 305$) and Representative Sample ($N_2 = 348$)
- | Experiment & Statistical Analyses pre-registered

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 - Social Preferences
 - Moral Rules
 - Big Picture
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IDENTIFICATION STRATEGY

Inequality & Loss Aversion

$$U_i(i; j) = \begin{cases} i - i \cdot \max\{f_i - j; 0\} & \text{if } i \geq 0 \\ i - i \cdot i \cdot \max\{f_i - j; 0\} & \text{if } i < 0 \end{cases}$$

Let S_{id} be the Satisfaction Rating of subject i for distribution d . Then, we estimate

$$\hat{S}_{id}(i; j) = \hat{\alpha}_0 + \hat{\alpha}_1 \cdot i + \frac{\hat{e}^2}{1 + \hat{e}^2} \left(\frac{\sum_{j \neq i} \max\{f_j - i; 0\}}{3} \right)$$

- $\hat{\alpha}_1 = 1$
- $\frac{\hat{e}^2}{1 + \hat{e}^2} \in [0; 1] \quad \frac{\hat{e}^2}{1 + \hat{e}^2} < i$

Inequality & Loss Aversion

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Let $k > x > \underline{x} \geq \underline{x} \in \mathbb{R}$. Then,

- $hx; xi > hx; \underline{x}i$, $i > \frac{x \cdot \underline{x}}{x \cdot \underline{x}}$

- $hx > k; x > ki > hx > k; \underline{x} > ki$, $i > i \left(\frac{x \cdot \underline{x}}{x \cdot \underline{x}} \right)$

Social Efficiency & Loss Aversion

$$U_i(i; j) = \begin{cases} (1 - \lambda_i) i + \lambda_i (i + j) & \text{if } i \geq 0 \\ \lambda_i (1 - i) + (1 - \lambda_i) (i + j) & \text{if } i < 0 \end{cases}$$

Let S_{id} be the Satisfaction Rating of subject i for distribution d . Then, we estimate

$$\hat{S}_{id}(i; j_d) = \lambda_{i0} + \frac{1}{1 + e^{\lambda_i}} i_d + \frac{e^{\lambda_i}}{1 + e^{\lambda_i}} \sum_{j=1}^4 j_d$$

- $\frac{1}{1 + e^{\lambda_i}} + \frac{e^{\lambda_i}}{1 + e^{\lambda_i}} = 1$ & $\frac{1}{1 + e^{\lambda_i}}, \frac{e^{\lambda_i}}{1 + e^{\lambda_i}} \in [0; 1]$
- $\frac{e^{\lambda_i}}{1 + e^{\lambda_i}} = \lambda_i$

Social Efficiency & Loss Aversion

$$U_i(x_i; j) = \begin{cases} (1 - \lambda_i) x_i + \lambda_i (x_i + j) & \text{if } x_i \geq 0 \\ -\lambda_i (1 - \lambda_i) |x_i| + \lambda_i (x_i + j) & \text{if } x_i < 0 \end{cases}$$

Let $k > x > \underline{x} \geq \underline{x} \in \mathbb{R}$. Then,

- $U_i(x; x) > U_i(x; \underline{x})$, $\lambda_i > \frac{x - \underline{x}}{x - x}$

- $U_i(x; x) > U_i(x; \underline{x}) > U_i(k; \underline{x})$, $\lambda_i > \lambda_i \left(\frac{x - \underline{x}}{(2 - \lambda_i)x + (\lambda_i - 1)x - \underline{x}} \right)$

Maximin & Loss Aversion

$$U_i(i; j) = \begin{cases} (1 - \hat{\alpha}_i) i + \hat{\alpha}_i \min\{i; j\} & \text{if } i \geq 0 \\ -\hat{\alpha}_i (1 - \hat{\alpha}_i) i + \hat{\alpha}_i \min\{i; j\} & \text{if } i < 0 \end{cases}$$

Let S_{id} be the Satisfaction Rating of subject i for distribution d . Then, we estimate

$$\hat{S}_{id}(i; j) = \hat{\alpha}_i + \frac{1}{1 + e^{\hat{\alpha}_i}} i + \frac{e^{\hat{\alpha}_i}}{1 + e^{\hat{\alpha}_i}} \min\{i; j\}$$

- $\frac{1}{1 + e^{\hat{\alpha}_i}} + \frac{e^{\hat{\alpha}_i}}{1 + e^{\hat{\alpha}_i}} = 1$ & $\frac{1}{1 + e^{\hat{\alpha}_i}}; \frac{e^{\hat{\alpha}_i}}{1 + e^{\hat{\alpha}_i}} \in [0; 1]$
- $\frac{e^{\hat{\alpha}_i}}{1 + e^{\hat{\alpha}_i}} = \hat{\alpha}_i$

Maximin & Loss Aversion

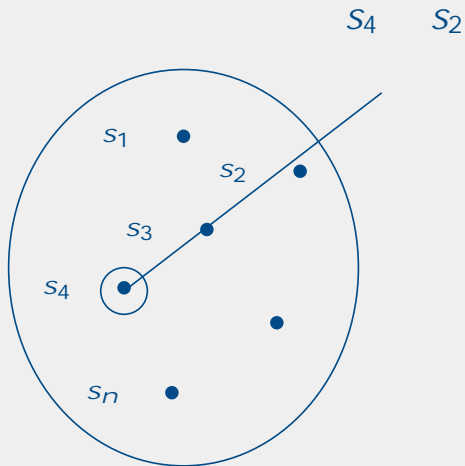
$$U_i(x; y) = \begin{cases} (1 - \lambda) x + \lambda \min\{x, y\} & \text{if } \lambda \geq 0 \\ \lambda x + (1 - \lambda) \min\{x, y\} & \text{if } \lambda < 0 \end{cases}$$

Let $k > x > \underline{x} \in \mathbb{R}$. Then,

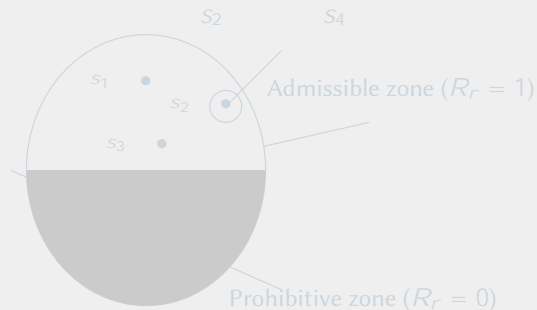
- $hx; xi > hx; \underline{x}i$, $\lambda > \frac{x - \underline{x}}{x - x}$
- $hx; k; x > ki > hx; k; \underline{x} > ki$, $\lambda > \lambda \frac{x - \underline{x}}{x - \underline{x} + \lambda(x - \underline{x})}$

MORAL RULES: BEHIND THE SCENES

Social Preferences

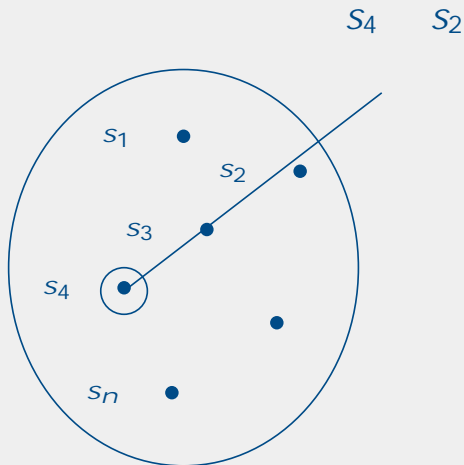


Disinterested Morality

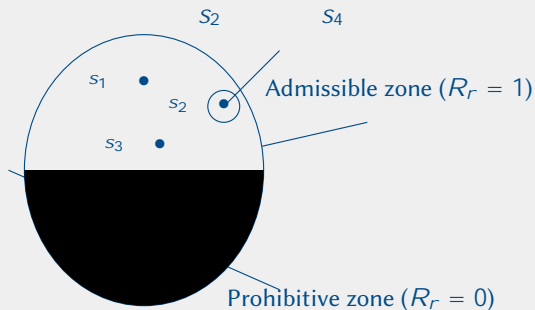


MORAL RULES: BEHIND THE SCENES

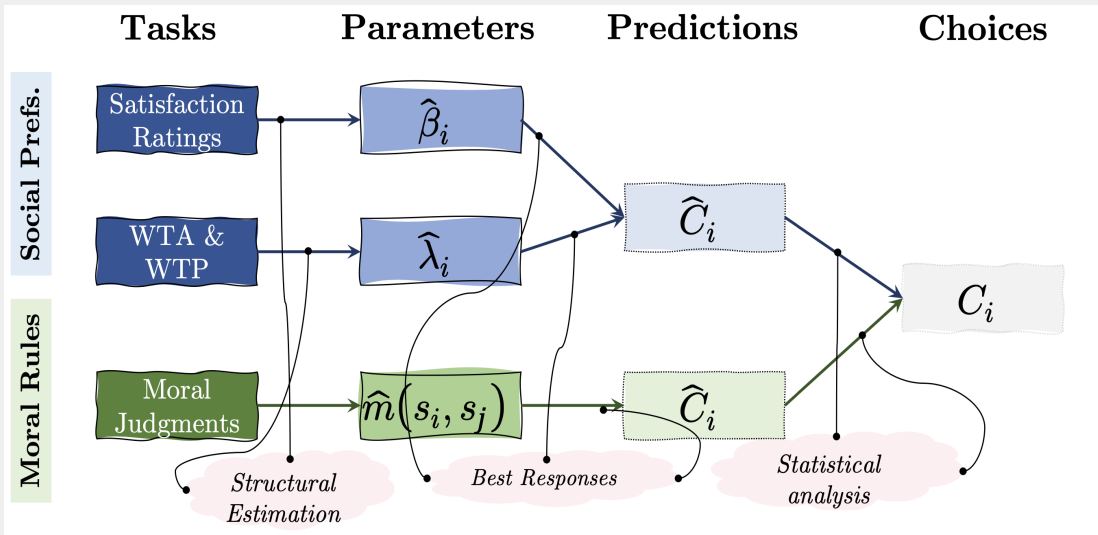
Social Preferences



Disinterested Morality



EXP. DESIGN: THE BIG PICTURE



RESULTS

- 1 Setting the Scene
- 2 Experimental Design
- 3 Identification Strategy
- 4 Results**
 - Descriptive Results
 - Regression Results
 - Distributional Results
- 5 Conclusion

RESULTS (I): PARAMETER ESTIMATES

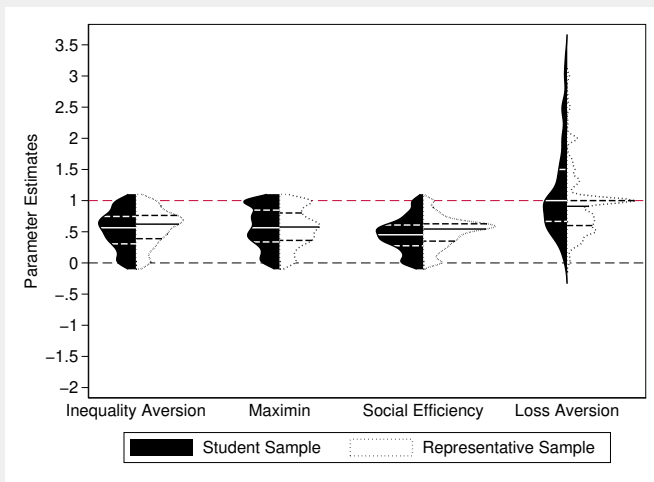


Figure 1: Violin Plots of the calibrated parameters

RESULTS (II): MORAL JUDGMENTS

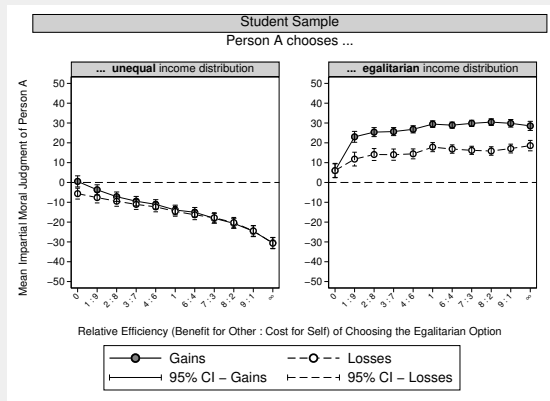


Figure 2: Moral ratings — Student Sample

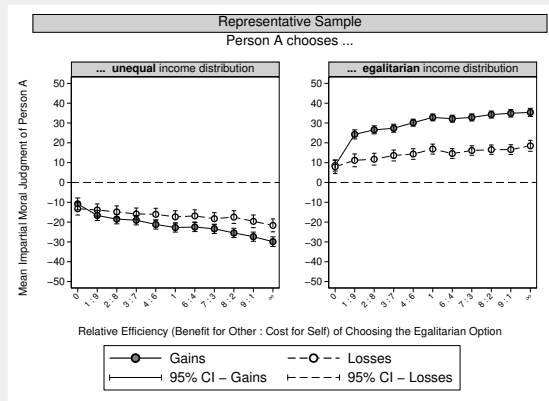


Figure 3: Moral ratings — Representative Sample

RESULTS (III): DICTATOR GAMES — PLAY

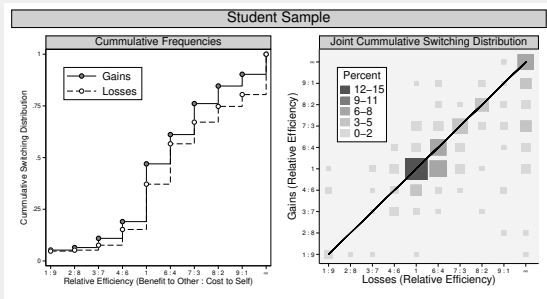


Figure 4: Switch point — Student Sample

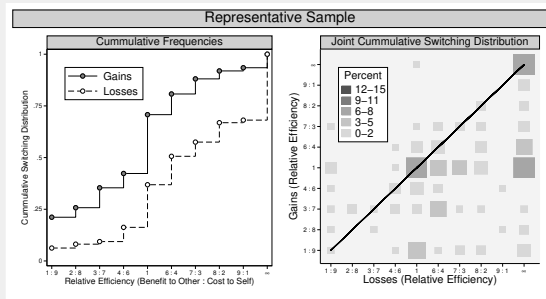


Figure 5: Switch point — Representative Sample

RESULTS (IV): REGRESSION RESULTS

Regression Specification – Random-effects Logit

$$\Pr[a_{it} = \text{egal} \mid i; b_t; \mathbf{P}'_{it}; \mathbf{O}'_i; \mathbf{S}'_i] = \left(\beta_0 + \beta_1 \mathbb{1}_{\text{losses}} + \beta_2 b_t + \beta_3 \mathbb{1}_{\text{losses}} b_t \right. \\ \left. + \beta_4 \mathbf{P}'_{it} + \beta_5 \mathbf{O}'_i + \beta_6 \mathbf{S}'_i + \eta_{it} \right)$$

Where

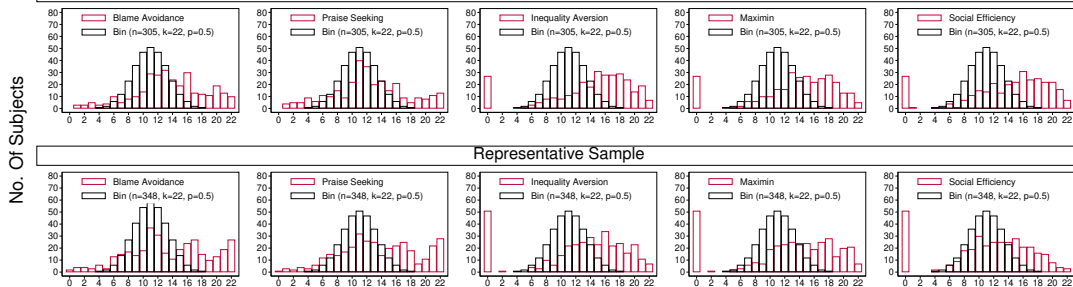
- $\mathbb{1}_{\text{losses}} = 1$ if dictator games over losses
- $b_t =$ benefit to others from choosing $a_{it} = \text{egal}$
- $\mathbf{P}'_{it} =$ vector of predictions for subject i and game t
- $\mathbf{O}'_i =$ Vector of order-effects dummies
- $\mathbf{S}'_i =$ Vector of 3-way interactions

RESULTS (IV): REGRESSION RESULTS

	Student Sample		Representative Sample	
	/ SE	AME	/ SE	AME
<i>Game Features</i>				
<i>b</i>	0.306*** (0.113)	0.064***	0.532*** (0.124)	0.043***
<i>losses</i>	2.101** (0.703)	0.010	2.800*** (0.614)	-0.068***
<i>b losses</i>	-0.238* (0.141)		-0.417*** (0.137)	
<i>Moral Rules</i>				
Blame Avoidance	0.582 (0.549)	0.072***	-0.301 (0.539)	-0.108*
Praise Seeking	-1.067 (0.730)	0.006	0.430 (0.656)	0.043
<i>mj(egal) mj(uneq)</i>	0.012 (0.009)	0.001*	0.020*** (0.007)	0.002***
<i>Social Preferences</i>				
Inequality Aversion	-0.964 (0.608)	0.022	-0.528 (0.560)	0.041*
Maximin	-0.683 (0.527)	0.029	0.130 (0.584)	0.031
Social Efficiency	1.240 (0.839)	0.008	2.617*** (0.752)	0.047**
Constant	-3.562*** (0.574)		-3.329*** (0.526)	

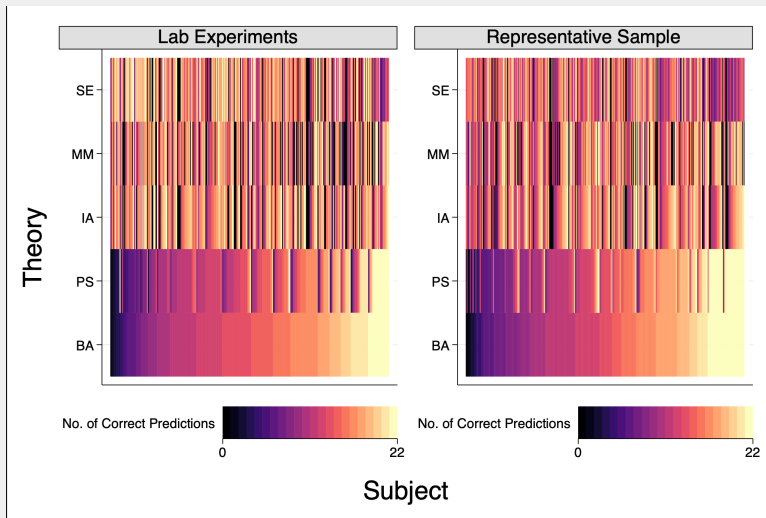
RESULTS (V): TESTING AGAINST THE VOID

Student Sample



No. of Successes (out of 22 games)

RESULTS (VI): COMPLEMENTARITY



RESULTS (VII): HORSE-RACE

Multinomial-Dirichlet

■ **Multinomial:** $Pr(k_1; \dots; k_t; N; p_1; \dots; p_t) = \frac{N!}{\prod_{t=1}^T k_t!} \prod_{t=1}^T p_t^{k_t}$

■ **Dirichlet:** $Pr(p_1; \dots; p_t; \alpha_1; \dots; \alpha_t) = \frac{(\sum_{t=1}^T \alpha_t)!}{\prod_{t=1}^T \alpha_t!} \prod_{t=1}^T p_t^{\alpha_t - 1}$

■ **Dirichlet-Multinomial:** $L(k; p; \alpha) = \frac{\prod_{t=1}^T \alpha_t^{k_t} (\alpha_t + k_t - 1)!}{N! \prod_{t=1}^T (\alpha_t + k_t - 1)!}$

Where

- | N = Number of observations
- | k_t = Number of successes of theory t
- | p_t = % of subjects following theory t
- | α_t = Prior probability of p_t
- | $\phi = \frac{1}{1 + \sum_{t=1}^T \alpha_t}$ = Overdispersion

RESULTS (VII): HORSE-RACE

	Student Sample		Representative Sample	
	MLE	MoM	MLE	MoM
<i>Moral Rules</i>				
Blame Avoidance	0.176*** (0.004)	0.172** (0.082)	0.195*** (0.005)	0.185* (0.097)
Praise Seeking	0.159*** (0.004)	0.162* (0.092)	0.199*** (0.005)	0.187* (0.099)
<i>Social Preferences</i>				
Inequality Aversion	0.177*** (0.004)	0.179*** (0.062)	0.169*** (0.005)	0.175** (0.074)
Maximin	0.172*** (0.004)	0.174*** (0.062)	0.168*** (0.005)	0.174** (0.077)
Social Efficiency	0.152*** (0.004)	0.156** (0.066)	0.169*** (0.005)	0.166** (0.072)
<i>Selfishness</i>				
Homo Economicus	0.142*** (0.004)	0.143 (0.096)	0.119*** (0.004)	0.123 (0.129)
<i>Overdispersion</i>				
	0.020*** (0.001)	0.016*** (0.002)	0.042*** (0.002)	0.027*** (0.003)

CONCLUSION

ROADMAP

- 1 Setting the Scene
- 2 Experimental Design
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CONCLUSION

1. People are more **selfish** over **losses**
2. Asymmetry in distributional behavior explained by moral rules & social preferences

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THANK YOU!
QUESTIONS?