PHPE 308M/PHIL 209F
Fairness

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Ultimatum Game: Two players receive a windfall. One of the players suggests a division. After learning of the first player's proposal, the second must either accept or reject it. If the second accepts, both receive the amounts suggested by the first, otherwise they receive nothing.

Experimental Regularity: In the ultimatum game, a substantial proportion of responders reject non-zero offers and a significant number of proposers offer an equal split.

Subjects in interpersonal experiments like the ultimatum game may be influenced by all kinds of factors: the wording of the instructions, the identity of the experimenters, whether the experiment is thought to be "economics" or "psychology," and so forth. This means that initial results should be interpreted cautiously.

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(Camerer and Thaler, p. 213)

Dictator Game

In the dictator game, the first player, called the Allocator, makes a unilateral decision regarding the split of the pie. The second player, the Recipient, has no choice and receives only the amount that the dictator decides to give.

Since dictators have no monetary incentives to give, a payoff-maximizing dictator would keep the whole amount.

Dictator Game

Experimental Regularity: A significant number of Allocators give some money in the dictator game. Moreover, the distribution of donations tend to be bimodal, with peaks at zero and at half the total.

Daniel Kahneman, Jack L. Knetsch, and Richard Thaler (1986). *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*. American Economic Review, 76, pp. 728 - 741.

Christoph Engel (2011). *Dictator games: A meta study*. Experimental Economics, 14(4), pp. 583 - 610.

The Dictator Game

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- Offers in the dictator game are lower than in ultimatum games, but (in most variations) are still positive.

Manipulating the Social Distance

Elizabeth Hoffman, Kevin McCabe and Vernon L. Smith (1996). *Social Distance and Other-Regarding Behavior in Dictator Games*. The American Economic Review, 86(3), pp. 653660.

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In laboratory experiments we cannot assume that subjects behave as if the world is completely defined by the experimenter. Past experience is important in so far as beliefs are based on experience....In short, subjects bring their ongoing repeated game experience and reputations from the world into the laboratory, and the instructional language, especially in single-play sensitive experiments like the dictator game, can subtly suggest more or less isolation from that interactive experience. (p. 655)

Manipulating the Social Distance

When the instructions state that the subject and his or her counterpart "has been provisionally allocated $10," and suggesting that the task is to "divide" the $10 may imply that the objective is to share the money with someone, who, though anonymous, is socially relatively near to the decision maker.

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(Hoffman et al., p. 655)

Double Blind Experiment

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Dummy envelopes ensure complete anonymity—experimenter cannot distinguish between $0 offers and dummy envelopes.

Manipulating Social Distance

- DB1: Double blind experiment
- DB2: Same as DB1 except remove the paid monitor and the dummy envelopes.
- SB1: Same as DB2 except the experimenter learns of the subjects choice
- SB2: Same as SB1 except subjects fill out a form recording their decision (their identity is still hidden from the responder)
- FHSS-V/FHSS-R: Single blind, but drop the phrases suggesting that the dictator and his or her anonymous counterpart "has been provisionally allocated" $10, and that the task is to "divide" the $10.

Manipulating the Social Distance

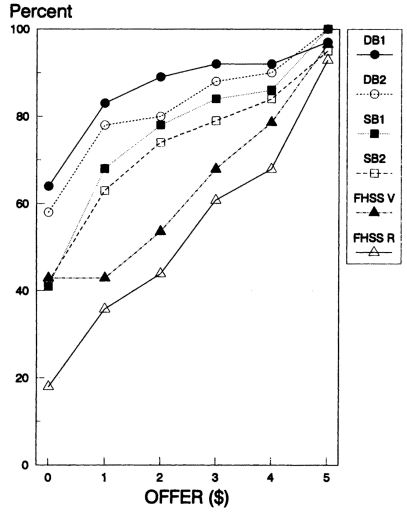

FIGURE 1. CUMULATIVE DISTRIBUTIONS FOR DICTATOR EXPERIMENTS

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  - Conducted among a relatively homogeneous group of college undergraduates
  - Relatively low stakes of $10 (though other studies tested with $100)
- Caveat 3: Double blind may not increase self-interest in ultimatum games
  - First players' fear of rejection may override anonymity effects
  - Expectations of rejection dominate any effects from complete anonymity

Manipulating the Social Distance

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Only under conditions of social isolation are these reputational concerns of little force. (Hoffman et al., p. 659)

Manipulating the Social Distance

Subjects are handed $10 in manna from experimental heaven and asked whether they would like to share some of it with a stranger who is in the same room. Many do. However, if the first player is made to feel as if he earned the right to the $10, or the relationship with the other player is made less personal, then sharing shrinks. Etiquette may require you to share a windfall with a friend, but it certainly does not require you to give up some of your hard-earned year-end bonus to a stranger. (Camerer and Thaler, p. 216)

Why does game theory fail as a predictive model in ultimatum and dictator games? These games are so simple that we can rule out rationality as the source of any problem, so the difficulty presumably has something to do with the assumption that the players are income maximizers.

(Camerer and Thaler, p. 216)

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- The standard assumption is that players are *payoff maximizing*:
  - If $x_P < y_P$, then $u_P(x_P, x_R) < u_P(y_P, y_R)$ (and similarly for player R).
  - For simplicity we often identify money with utility, so $u_P(x_P, x_R) = x_P$ and $u_R(x_P, x_R) = x_R$; but this is not necessary.

Inequality Aversion: Fehr and Schmidt Utility Function

$$u_P(x_P, x_R) = x_P - \alpha_P \max(x_R - x_P, 0) - \beta_P \max(x_P - x_R, 0)$$
$$u_R(x_P, x_R) = x_R - \alpha_R \max(x_P - x_R, 0) - \beta_R \max(x_R - x_P, 0)$$

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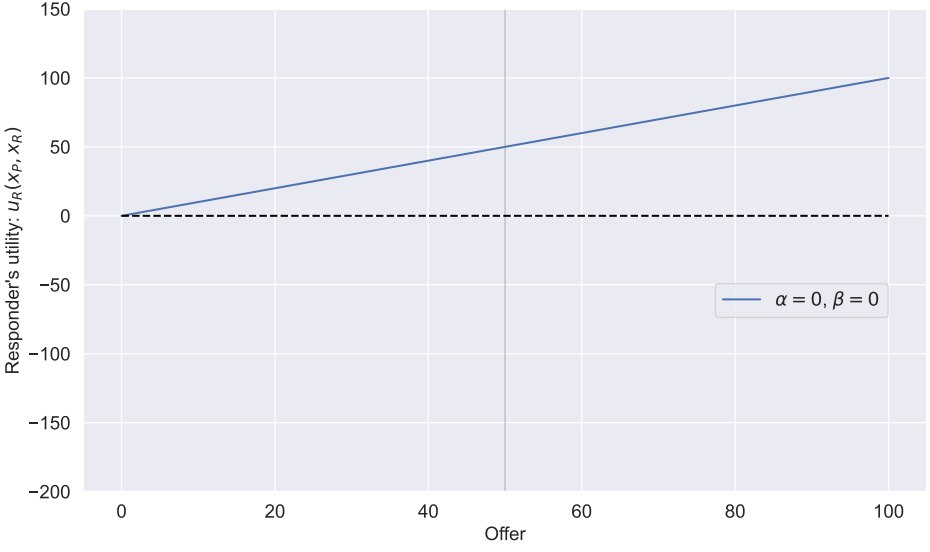
- α_i is i's 'envy' weight and β_i is i's 'guilt' weight
- $0 < \beta_i < \alpha_i$: indicates that people dislike inequality against them more than they do inequality favoring them.
- $\beta_i < 1$: agents do not suffer terrible guilt when she is in a relatively good position. For example, a player would prefer getting more without affecting other people's payoff even though that increases inequality.

Ernst Fehr and Klaus M. Schmidt (1999). *A theory of fairness, competition, and cooperation.* The Quarterly Journal of Economics, 114(3), pp. 817 - 868.

Responder's Utility



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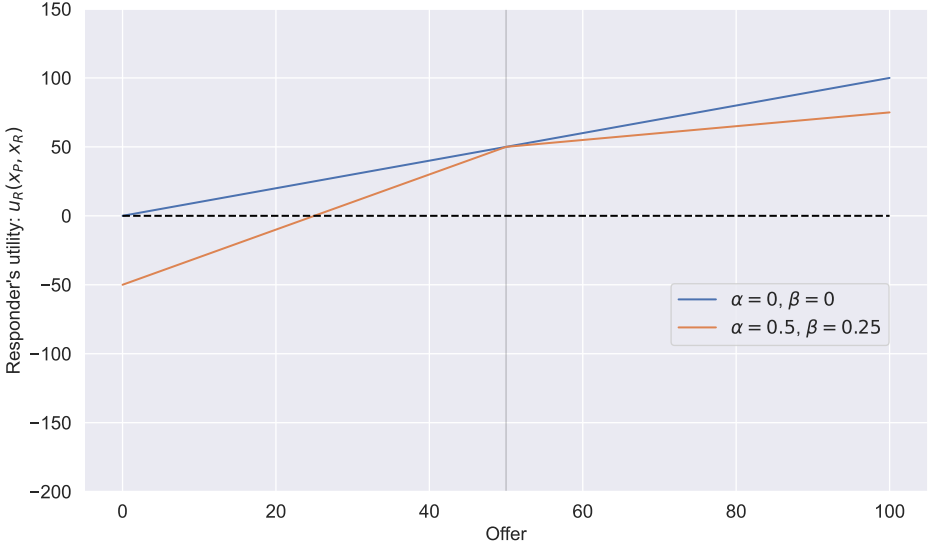

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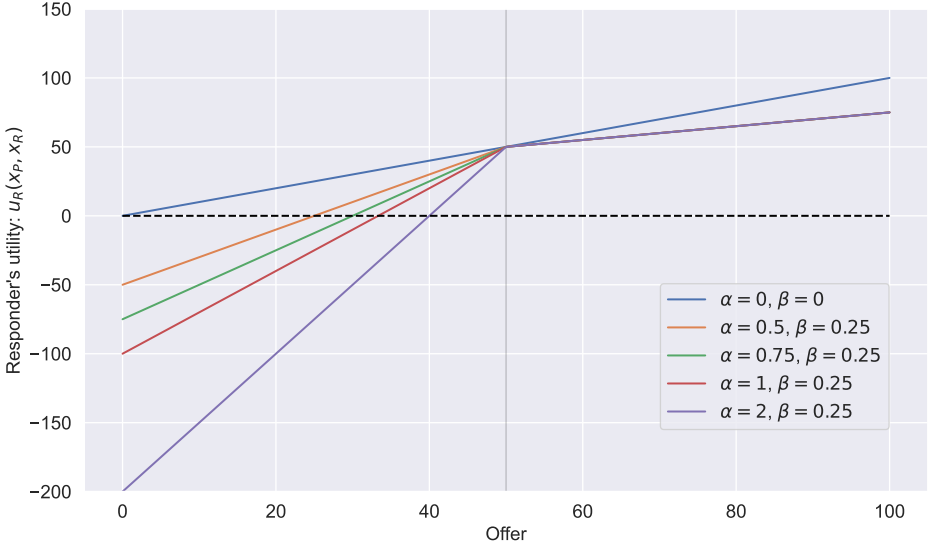

Suppose that the total amount to be distributed is M and y is how much P offers to R. So, $x_P = M - y$ and $x_R = y$:

$$u_R(x_P, x_R) = \begin{cases} (1 + 2\alpha_R)y - \alpha_R M & y < M/2 \\ (1 - 2\beta_R)y + \beta_R M & y \geq M/2 \end{cases}$$

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Then, R should accept provided that $u_R(x_P, x_R) > 0$. Solving, for y, we get:

$$y > \frac{\alpha_R M}{1 + 2\alpha_R}$$