

Altruists aren't always fair, and the fair aren't always altruistic:

Distinct motives for cooperation

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Social Dilemmas and two families of motives

Social dilemmas

A *social dilemma* (AKA *n-person prisoner's dilemma*) is a situation in which each individual has an opportunity to *cooperate* or *defect*. An individual's outcome is

- Best if everyone else cooperates while they defect
- Worst if everyone else defects while they cooperate
- Better off if everyone cooperates than when everyone defects.

The Social dilemma puzzle

We are fortunate that we have the puzzle of the fact that people cooperate more often than theory predicts. There are two broad approaches:

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We are fortunate that we have the puzzle of the fact that people cooperate more often than theory predicts. There are two broad approaches:

- The situations aren't really social dilemmas (typically because there is scope for defectors to be punished)
- There are systematic facts about human psychology that lead us to behave (gratifyingly) irrational in these contexts.

Motives based approaches

Within the stream of looking at the psychology of cooperation, there is a history of looking at *motives*. Most (but not all) experimental work on motives have all looked exclusively at motives that can be described in terms of out-come desires

- altruism
- greed
- spite

Two families of motives

- *Altruism* (maximizing collective interest)
- *Fairness* (need to do my fair share but only if others do their fair share as well)

Altruism

Altruism is the motive to attempt to reach the best collective outcome.

Fairness

Fairness is the simultaneous desire to “do one’s fair share” while also not wanting suffer the “unfairness of contributing while others don’t”. This means that fairness has two possible effects.

c-fair leading to cooperation by desire to do one’s share

d-fair leading to defection by desire to not be treated unfairly

A first difference

We can clearly predict that

H1 The more altruistic one is the more one will cooperate.

But we can make no such prediction about fairness motivated people in general.

A difference that makes a difference

Fairness and altruism differ in their interactions with other beliefs about the situation.

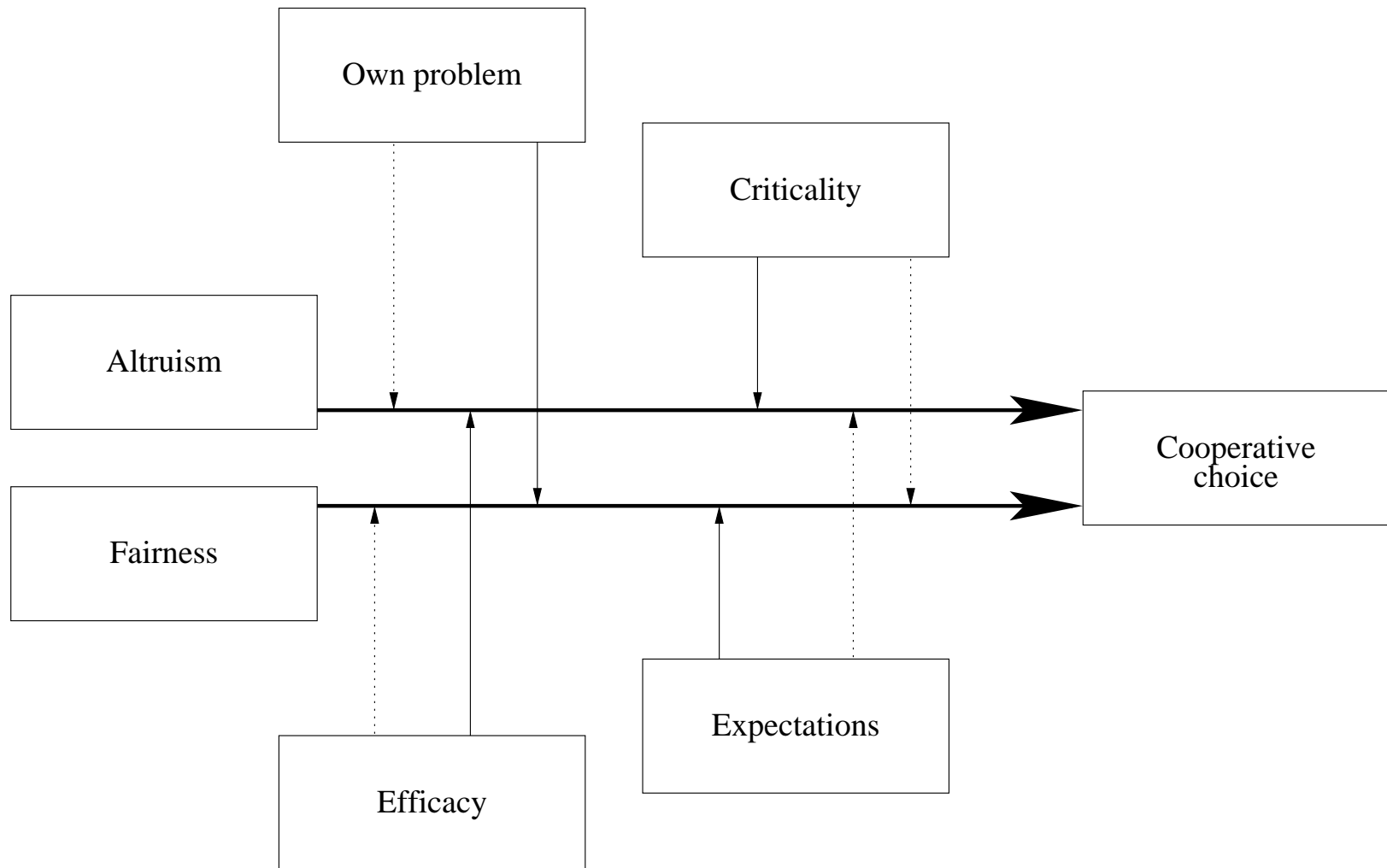
H2 Perceived criticality has a greater effect on altruists


H3 Ownership of problem has greater effect on the fair

H4 Expecting others' cooperation has greater effect on the fair

H5 Self-efficacy beliefs have greater effect on altruists

A thousand words





California electricity crises as a social dilemma

When supply doesn't meet demand

The price paid by end users for electricity was capped. Thus it was possible for supply and demand to not meet. This mismatch resulted in shortages implemented through rolling black-outs and requests made for people to conserve.

Because there was a need to conserve, and the price paid by end users was artificially low we had a social dilemma.

Non price sensitive conservation

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Some more reasons to believe that some conservation was not merely due to price.

- 1 Usage reduction occurred also where no price increase
- 2 Peak-time usage reduced more than overall usage although price is (mostly) not peak/off-peak sensitive.
- 3 Individuals expressed concern about rolling blackouts as well as price

Conservation as a social dilemma

- If everyone else conserves, I'm best off not conserving.
- If nobody else conserves, I'm best off not conserving.
- We are all better off if everyone conserves.



The Study

Sample and Data sources

- Telephone survey (October 2001) of 700 total households served by Southern California Edison (SCE) and Riverside Public Utilities Company (RPUC).
- Electricity usage data (from SCE and RPUC) and price paid for past two years.
- Data on housing type, heating system type, etc from utility companies.
- “Motive factor items” from prior study (with artificial social dilemma) of 200 MBA students.



Variables & Measures

Motive measures

Using a multi-item questionnaire with identifies motivations based on altruism, greed, spite, c-fairness, d-fairness and fear the two families of motives were scored as

Altruism altruism score minus greed/spite score.

Fairness c-fair plus d-fair/fear scores.

Altruism items

1. It's worth the effort to conserve if others benefit. [.80]
2. It's worth a lot for me to know that I am making everyone in California better off. [.73]
3. Helping others is important. [.71]
4. I like to help others out. [.66]

Cronbach $\alpha = .77$

Greed and spite items

1. By not conserving, I won't end up worse off than anyone else. (SPITE) [.88]
2. If everyone else conserves a lot then I get the best of both worlds if I don't. (GREED) [.86]
3. If others put a large effort into electricity conservation and I don't, that is my gain and their loss. (GREED) [.81]
4. Let the suckers put a lot of effort into electricity conservation. (GREED) [.63]
5. By not conserving I'll come out better off than those who conserve a lot. (SPITE) [.59]

D-fair and fear

1. It is unfair to expect me to contribute more than others. (D-FAIR) [.86]
2. I don't want to be a sucker by conserving while others don't. (FEAR) [.85]
3. I don't want to do more than others. (D-FAIR) [.78]
4. I don't want to risk putting in a large effort into electricity conservation when others may just make a small effort. (FEAR) [.75]
5. If others conserve only a little why should I do more? (D-FAIR) [.73]

C-fair

1. Everybody needs to share the burden if everybody wants to enjoy the benefit. [.81]
2. I should do my fair share. [.79]
3. If others put a lot of effort into electricity conservation I should do the same. [.56]

Cronbach $\alpha = .70$

Controls

Control variables: Differences in “heating degree days”, differences in “cooling degree days”, price of electricity, number of tenants in household, stated household income, stated highest level of education, ownership or rental of property, building type, weather zone, electricity provider (SCE or RPUC).

Usage measure

The overall dependent variable was a combination of normalized actual reduction ratio of summer 2000 usage (t_1) and summer 2001 usage (t_2)

$$\frac{t_2 - t_1}{t_1}$$



Results

Hierarchical Regression (Controls)

<i>Step</i>	<i>R</i> ²	ΔR^2	ΔF	<i>Variables</i>	β	<i>t</i>
1	.08*					
				Heat diff.	.05	.66
				Cool diff.	-.03	-.41
				Price diff.	.27	3.89***
				Tenants	.03	.38
				Income	.00	.05
				Education	.06	.76
				Own/Rent	-.05	-.66
				Building type	-.02	-.30
				Weather zone	.04	.43
				RPUC/SCE	.09	1.03

[Continued]

Hierarchical Regression (effects)

<i>Step</i>	<i>R</i> ²	ΔR^2	ΔF	<i>Variables</i>	β	<i>t</i>
<i>[Continued]</i>						
2	.16	.08	3.15**	Criticality	.59	.56
				Ownership	.12	1.33
				Efficacy	.04	.39
				Expectations	.21	2.05*
				Altruism	.26	2.25*
				Fairness	.03	.43

Hierarchical Regression (interaction)

<i>Step</i>	<i>R</i> ²	ΔR^2	ΔF	<i>Variables</i>	β	<i>t</i>
<i>[Continued]</i>						
3	.21	.05	1.95 [†]	Altruism–critical	.02	.26
				Fair–critical	.01	.11
				Altruism–own	.01	.13
				Fair–own	.15	1.56
				Altruism–efficacy	.34	1.81 [†]
				Fair–efficacy	.18	1.03
				Altruism–expect	.04	.41
				Fair–expect	.22	2.05*

Altruism & Conservation (H1)

It is no surprise that altruism has a positive effect on cooperation ($t = 2.25, p < .05$). Nor is it surprising that unmoderated fairness does not ($t = .43$).

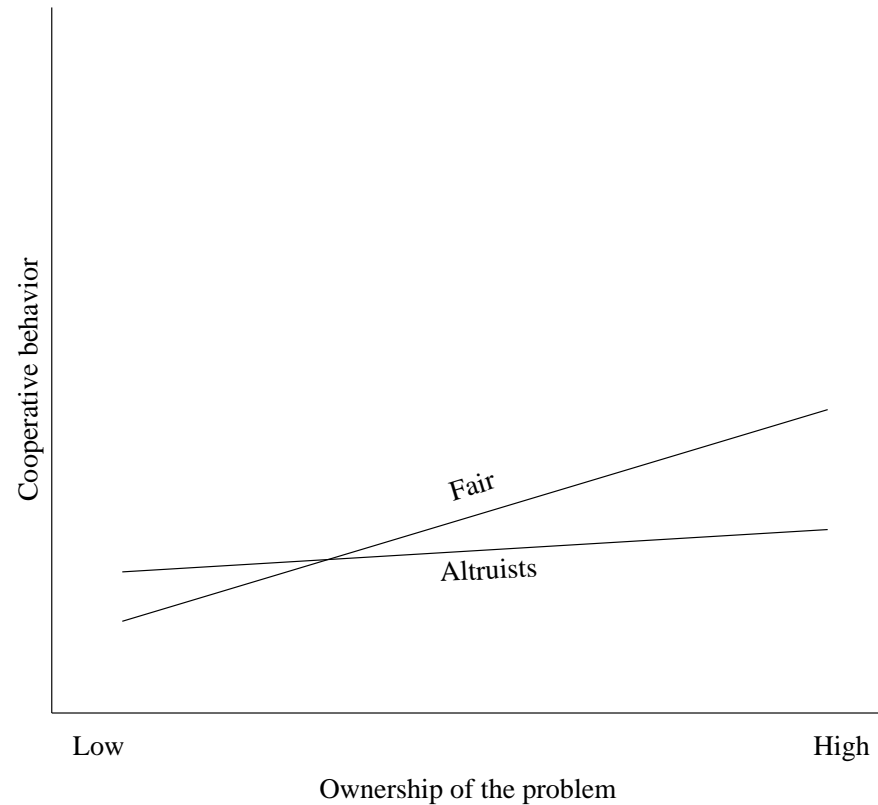
Comparing Regressions

Does one moderator have a larger effect than another?

$$t_{\text{diff}} = \frac{\beta_1 - \beta_2}{\sqrt{\text{var } \beta_1 + \text{var } \beta_2 - 2 \text{cov}(\beta_1, \beta_2)}}$$

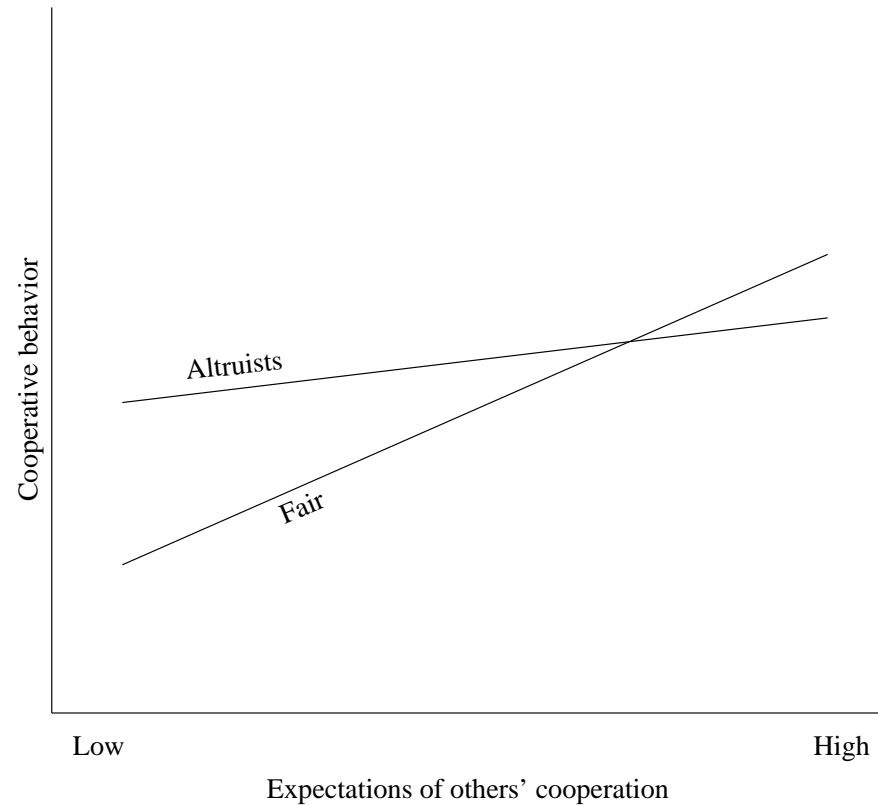
where β_1 and β_2 are regression coefficients

Ownership of Problem (H3)



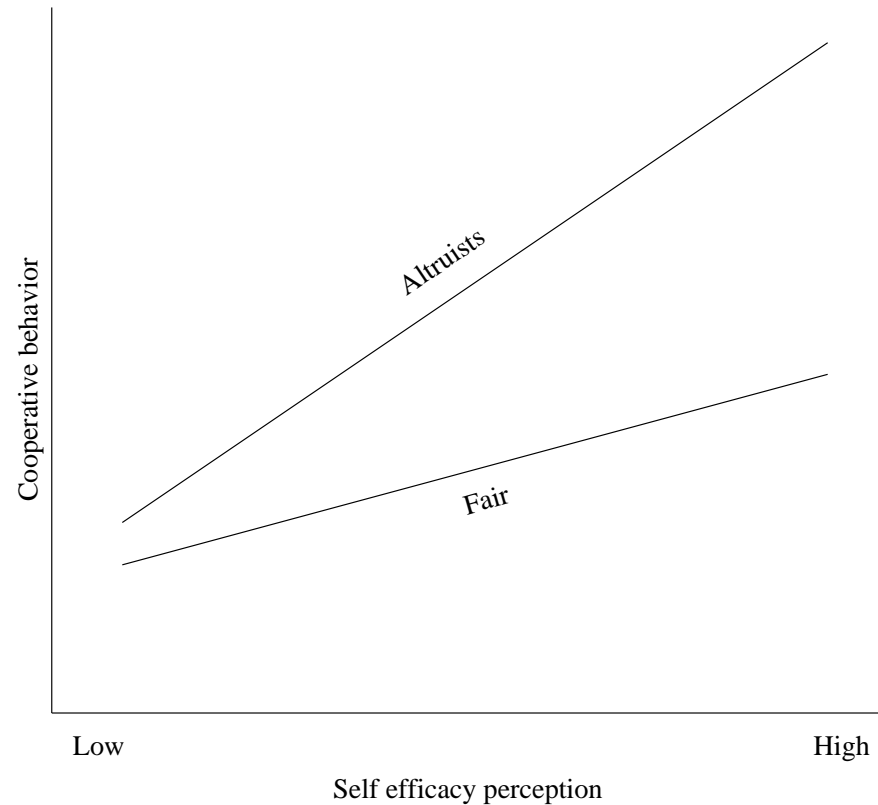
Stronger effect on the fair ($\beta = .15$) than on altruists ($\beta = .03$). ($t_{\text{diff}} = 1.34, p < .1$)

Expectations of others' (H4)



Stronger effect on the fair ($\beta = .22$) than on altruists ($\beta = .04$). ($t_{\text{diff}} = 1.82, p < .05$)

Efficacy beliefs (H5)



Stronger effect on altruists ($\beta = .34$) than on the fair ($\beta = .18$). ($t_{\text{diff}} = 1.63, p < .05$)

Criticality unsupported (H2)



This hypothesis unsupported (non-significant)



Conclusions, musings, etc

Yes, there is a difference

We see that the two families of motives behave differently in exactly the way predicted in the case of efficacy (greater effect on altruists [H5]) and expectations of others' cooperation (greater effect on the fair [H4]) and a marginally significant greater effect of ownership of the problem on the fair [H3]. Only the prediction regarding a sense of urgency didn't play out [H2].

More conclusions

- Cooperative motives are measurable and do play a role in behavior.
- Cooperativeness is not a one dimensional thing.
- The State of California is \$34 billion in debt, but I got a nice research project out of it.

Practical conclusions

- Some of this cooperation is fragile. Once fairness motivated individuals suspect that others aren't conserving, they will stop conserving. This means that efforts should be made to make current conservation stick.
- Altruists should be reminded of their efficacy.
- Don't forget price. This study focused on non-price related conservation, but does not claim that real lasting conservation can be achieved without price signals.

Resources

A (relatively) up-to-date version of the full paper as well as these slides (PDF) can be found at www.goldmark.org/livia/papers/energy/