Substitution Among Charitable Contributions : An Experimental Study

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"To what extent does an individual's contribution to one cause come at the expense of his or her other philanthropy?"

- What does this question mean?
- Why is it important/ who cares?
- How can we observe this?
- What factors determine a potential donor's choice over a range of charities?

List I: Theoretical Models **Name,Author, Year**	**Single Charity** (go quick) **Utility Function**
1. Pure Public Goods, Becker, 1974	$u(x, G)$
2. Pure Warm Glow (Andreoni, '04)	$u(x, g_i)$
3. Mixed warm glow, Becker, 1974	$u(x, G_{\sim i}, g_i)$
4. Mixed warm glow (Andreoni, '04)	$u(x, G, g_i)$
5. Tithing	$g_i = \tau m_i$; where $\tau \in (0, 1)$
6. Kantian or individual/group- -misperception (follows Sugden, 1975)	i chooses $\arg\max_{x_i, g_i} u_i(x_i, n g_i)$; s.t. budget constraint but i gets actual utility $u_i(x_i, G)$
7. Reciprocity (Sugden, 1984)	Typical, with 'obligation' restrictions
8.Impact (Duncan, 2004)	$u(x, Z(G_{\sim i} + g_i) - Z(G_{\sim i})$ ...$Z(\cdot)$: Charity's production

List II: Multi-Charity Name,Author, Year	**Utility forms and Related Models** (veryquickly) Utility/Expenditure Function
1. Andreoni et al. ('04) (Quadratic)	$U(x,m,wh,l) = U(\mathbf{Q}) = \alpha'\mathbf{Q} - \frac{1}{2}\mathbf{Q}'\beta\mathbf{Q}$ m: \$ gifts, w: imputed volunteer wage, h : volunteer hours ; l: leisure
2. Andreoni et al. ('03) "...by Married Couples...," Considers extreme cases:	$U_i = U(x_i\ , g, \theta_i(g_1, g_2))$; $i = h, w$ h: husband; wife; g: marriage-specific public good $\theta_h = \theta_w = d_1$; $\theta_h = d_1, \theta_w = d_2$; $\theta_h = -\theta_w = d_1 - d_2$
3. Harbaugh's (1998b) (Stone-Geary)	$u_i = ln(x_i\ ) + b\ln(\pi(g_i) + k_1) + c\ln(g_i + k_2)$ where $\pi(g_i)$ = prestige, k's: constants

Theoretical predictions

"Expenditure substitution": conditional expenditure (Sugden) response in one charity to a change in a preallocation of another charity.

Model	**Net Substitution?**
Shock/Appeal driven	None
Public Goods (strict)	Complete within same category otherwise none
'Kantian' model	Only between similar categories
Reciprocity	Anything goes, may depend ... on group members' reaction
Warm Glow (sophisticated)	'Anything goes' "probably" some substitution.
Impact Philanthropy (concave)	Substitution scales with 'impact' of shocked gift
Tithing/Fixed Purse/Homogeneous	Complete (perfect crowding-out)

Standard Framework

$$U^*_{it} = \max_{x_{it}, g_{1it}, \ldots g_{Kit}} \left(u_i \left(x_{it}, g_{1it}/p_{1it}, \ldots, g_{Kit}/p_{Kit}; \Theta_{it} \right) \right)$$

$$s.t. \sum_{k=1..K} g_{kt} + x_{it} = m_{it}$$

$$g_{kit} \geq 0,\ x_{it} \geq 0 \ \forall\ k, t$$

Where

x_{it}: Take-home pay (if stage t chosen)

g_{kit}: Gift to charity k in stage t (amount of own consumption given up)

p_{kit}: Effective price of donating \$1 to charity k in stage t

Θ_{it}: Parameters, background characteristics, attributes of the experimental setup/stage.

– These may include "prices" allowing the "amount sacrificed" to matter.

m_{it}: Endowment/allocation

Note, this assumes independence between stages (people only care about 'realized outcomes') – future research.

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- Would it be meaningful to estimate "substitution" responses directly?
- *Incoherent regressions of one endogenous variable on another?*

"Specific" shock α

$$U = f(x, g_1, h(g_2, \alpha))$$
$$\text{e.g.,} f(x, g_1, g_2 - \alpha) \tag{1}$$

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$\rightarrow$Can express $\Delta g_A(\Delta g_B)$

Example: (quick)
Assume utility is separable in consumption, giving, additive specific shock (α):

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Standard optimization techniques yield:

$$\frac{dg_1}{d\alpha} = \left(\frac{dg_2}{d\alpha} - 1\right)\frac{p_2 U_{12} - p_1 U_{22}}{p_1 U_{12} - p_2 U_{11}} \tag{3}$$

$$g_1(\alpha_1) - g_1(\alpha_0) = \int_{\alpha_0}^{\alpha_1} \left[\left(\frac{dg_2}{d\alpha}(g_1,g_2) - 1\right)\frac{p_2 U_{12}(g_1,g_2) - p_1 U_{22}(g_1,g_2)}{p_1 U_{12}(g_1,g_2) - p_2 U_{11}(g_1,g_2)}\right] d\alpha \tag{4}$$

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With quadratic utility the *discrete* indirect effect a simple linear function of the direct effect:

$$g_1(\alpha) = A + B g_2(\alpha)$$

Experiments: general description

In a sequence of stages, under a variety of conditions, subjects choose how much of their allocation to keep and how much to donate to any of a set of charities.

Various stages offer 'treatments' to motivate giving to certain charities and observe how the gifts to these and the other charities respond.

Implementation

- Experimental Social Science Laboratory (X-Lab) at the University of California, Berkeley
- Subjects (97 in total) were recruited by the X-Lab (email list) from pool of students and staff at the University of California, Berkeley
- Mainly U.C. Berkeley undergraduates from a variety of departments, but included some staff and alumni.
- Subjects were promised an average payment of $15 per hour / Base payment of $5 ($8)

Charities

1. CARE-USA: International development and disaster relief
2. Medical Research Charities (MRC): Funds all types of medical research
3. Scholarship America (SA): Scholarships for needy American students to go to university
   Also (2nd wave, select stages):
4. UNICEF: International children's aid, picked to be similar to CARE-USA
5. The Nature Conservancy (TNC): Environmental, purchases land, meant to be distinct to other charities

First wave experiment

- Recruit subjects from Xlab pool (50 total, 3 dates), subjects fully informed
- Automatic $5 ($8) "take-home" plus earnings from experiment
- 6 stages, randomize ordering of stages 1-3, some 'controls' in latter stages

First wave: order

1. Contribute \$0-\$10 of endowment to SA, matched at 20%
2. Contribute \$0-\$10 of endowment to MRC, matched at 20%
3. Contribute \$0-\$10 of endowment to CARE, matched at 20%

4. Contribute \$0-\$10 (total) of endowment to any combination of the 3 charities, matched at 20%

5. Contribute \$0-\$10 (total) of endowment to any combination of the 3 charities, matched at 20% for SA & MRC, 50% for CARE

6. Watch CARE promotional video, contribute \$10 (total) of endowment to any combination of the 3 charities, matched at 20%

(7) Complete survey
(8) Randomly select stage 1-6 for payment to subject, charities

Second wave experiment, structure

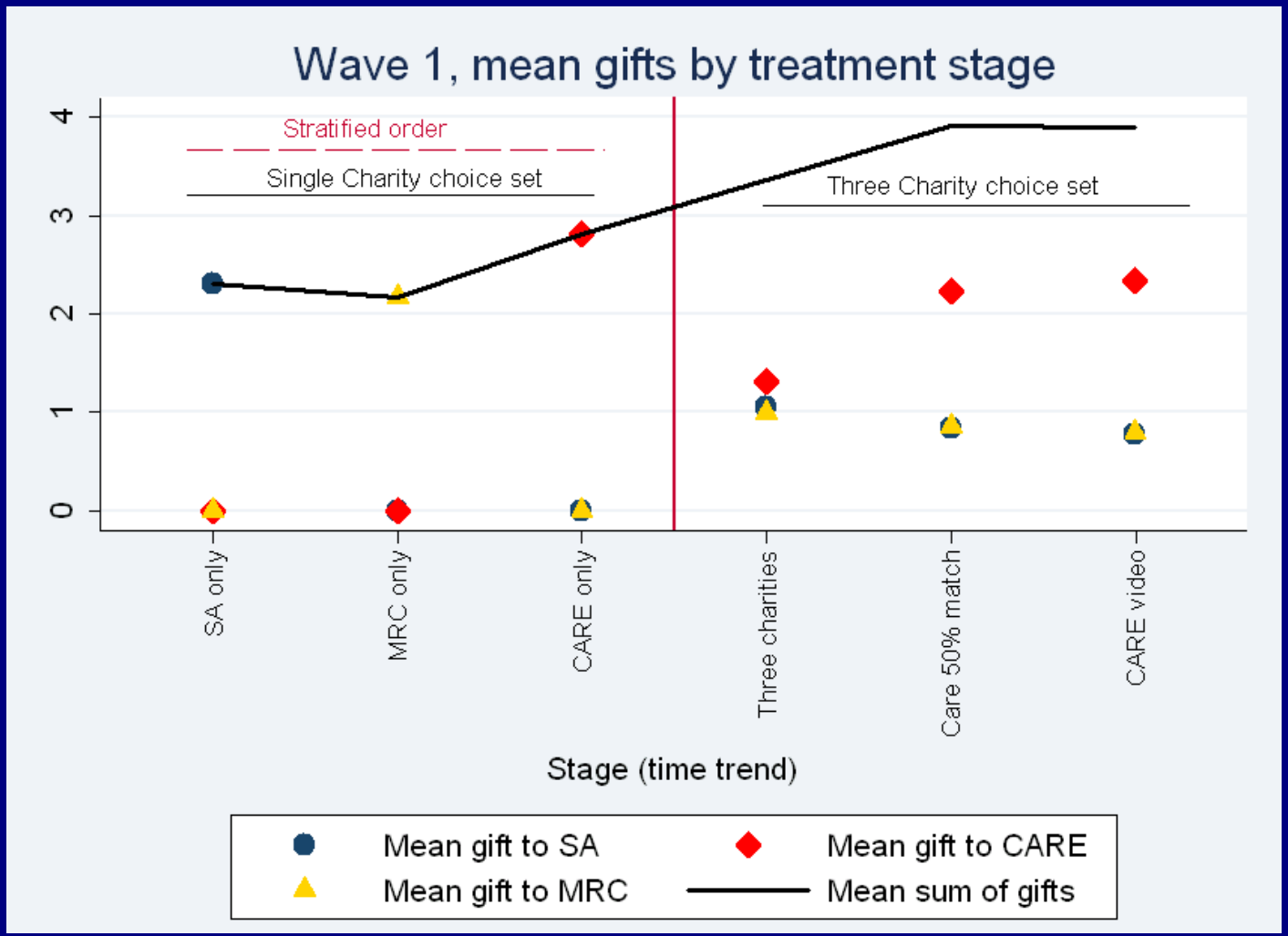
1: "Standard treatment", allocation $20, 3 charities (Care, MRC, SA) together, 20% match rate
2,3,4: Allocation $20, 3 charities together, 20% match rate for 2 of 3 charities, 50% for the third, stratified order
5: Standard treatment

6,7: Add fourth charity (UNICEF or TNC, stratified order), 20% match rate for all
8: Care, MRC, SA (20% match), UNICEF (50% match)

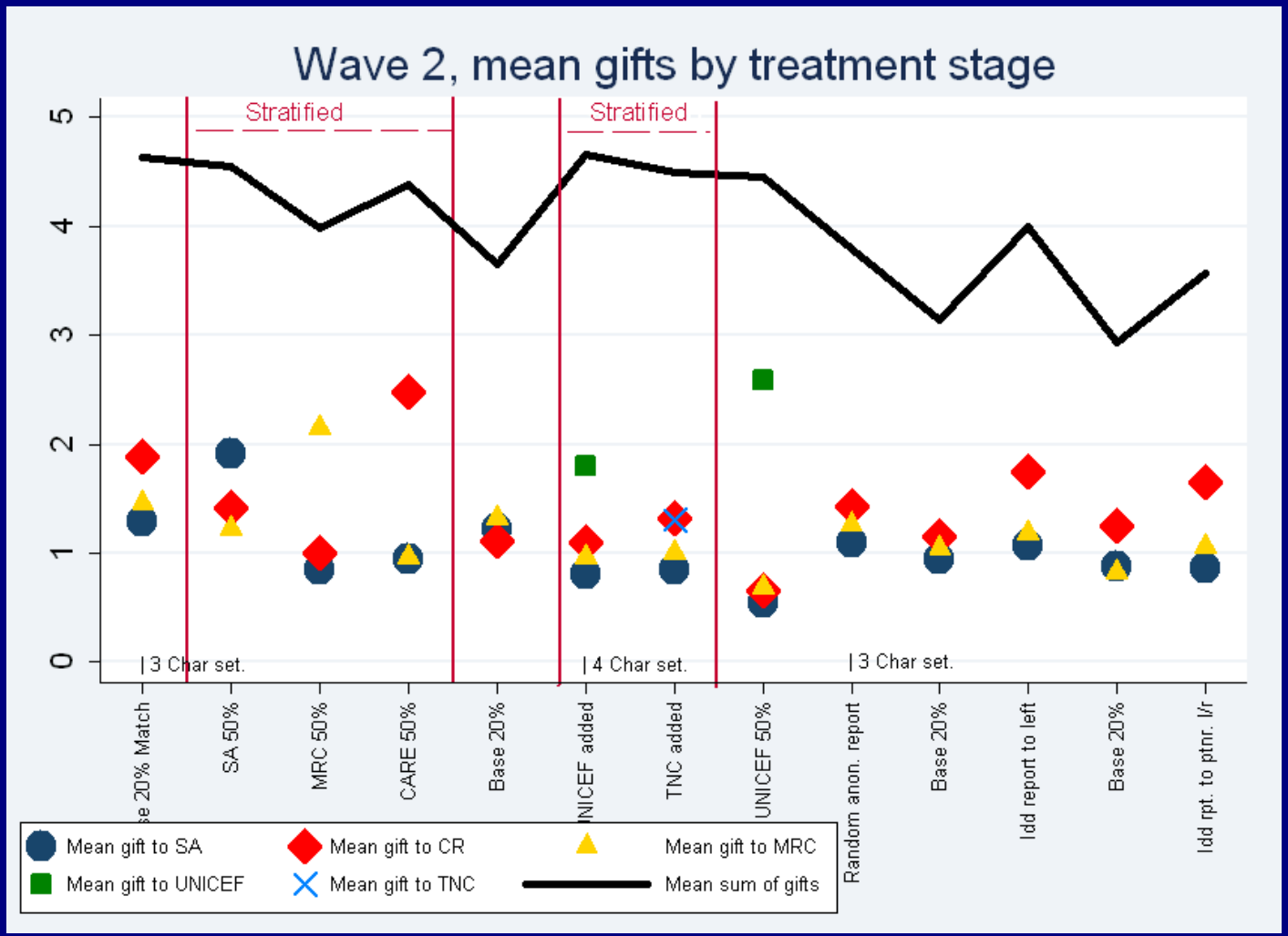
Social Effects Section (skip for now):
9: "Standard" Treatment, decision anonymously reported to randomly-selected participant.
10: Standard Treatment
11: "Standard" Treatment, decision reported to subject on your left
12: Standard Treatment
13: "Standard" Treatment, known final stage, decision reported to matched subject 2 to left/right
(Last: survey)

Results

Aggregate giving patterns: Wave 1



Aggregate giving patterns: Wave 2



	First Wave			Second Wave		
Variable	Mean	Std. Dev.	N	Mean	Std. Dev.	N
Gift to SA in stage	0.81	1.17	195	1.02	1.77	624
Dummy: Gave to SA in stage	0.49	0.5	195	0.4	0.49	624
Gift to MRC in stage	0.69	1.02	195	1.16	1.7	624
Dummy: Gave to MRC in stage	0.46	0.5	195	0.47	0.5	624
Gift to CARE in stage	1.8	2.18	195	1.4	2.19	624
Dummy: Gave to CARE in stage	0.65	0.48	195	0.46	0.5	624
Gift to UNICEF in stage				2.19	2.23	96
Dummy: Gave to UNICEF in stage				0.72	0.45	96
Gift to TNC in stage				1.31	2.5	48
Dummy: Gave to TNC in stage				0.52	0.5	48
Sum of gifts in stage	2.9	2.71	294	4.02	4.41	624
Dummy: Gave something in stage	0.74	0.44	294	0.65	0.48	624
Dummy: Gave at least once in the experiment						
to any charity	0.88	0.33	49	0.9	0.31	48
to CARE	0.86	0.35	49	0.75	0.44	48
to MRC	0.65	0.48	49	0.77	0.42	48
to SA	0.69	0.47	49	0.75	0.44	48

"Gift" refers to amount given (not including match)

Universe: Stages where charity X in choice set

Table: **Summary statistics of gifts**

Directional evidence

Table: Column= direction of change in giving to X, row=direction of change in giving to sum of others

... where X given a "positive" treatment, others not

	Decrease	No change	Increase	Total
Decrease	7	22	126	155
No change	13	117	50	180
Increase	9	12	21	42
Total	29	151	197	377

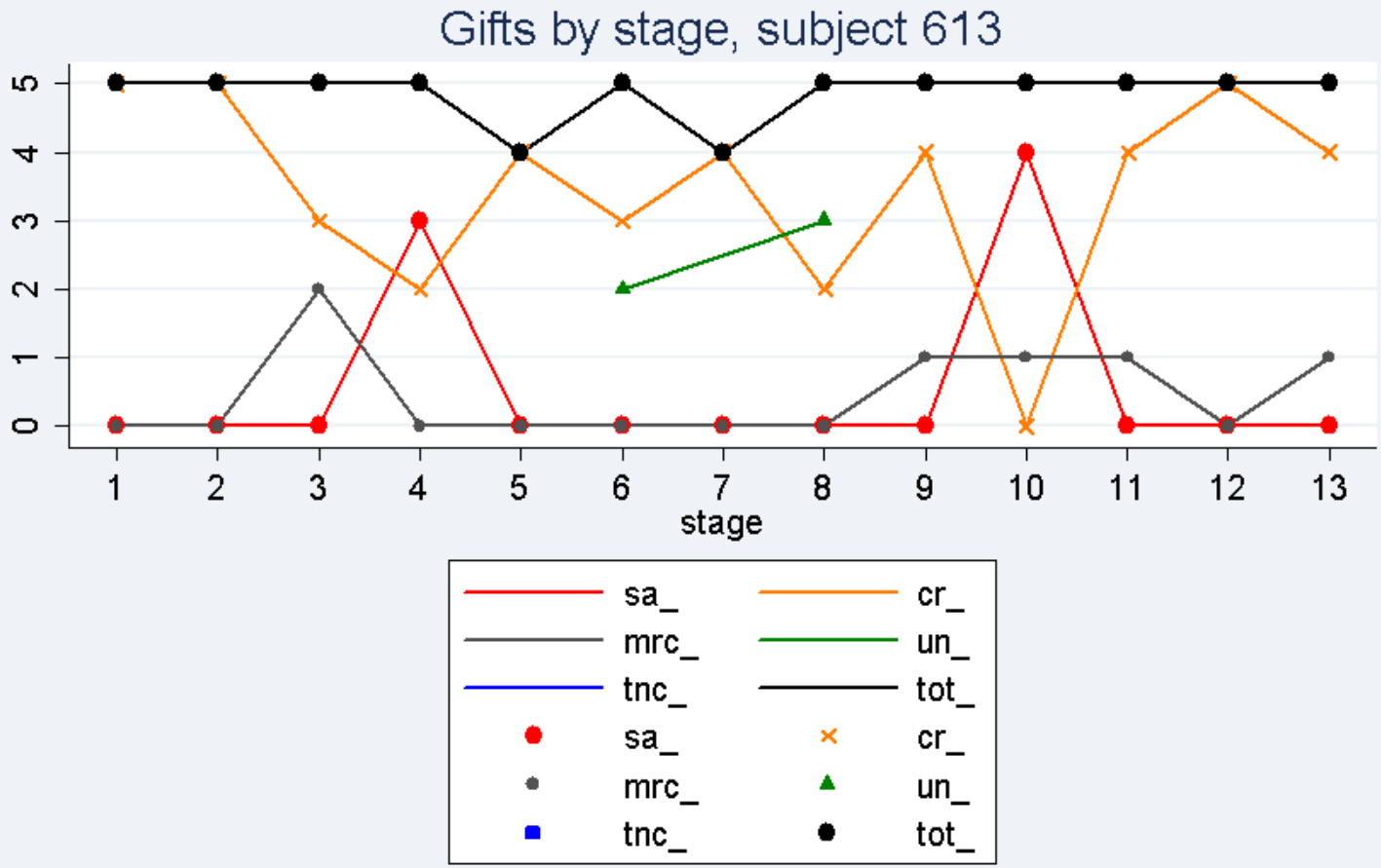
Table: **Direction of change in giving between periods**

Charicaturing: Types

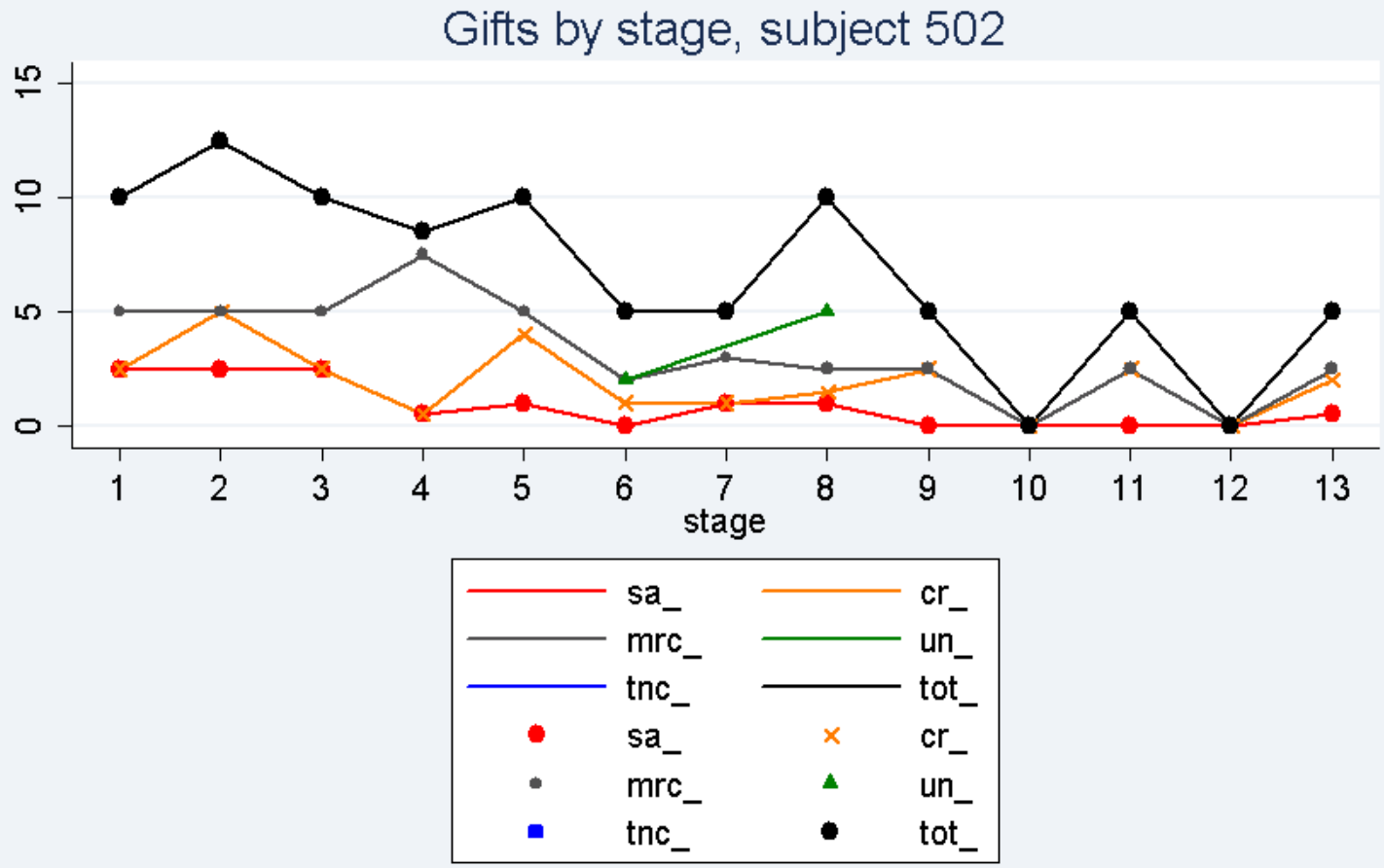
1. Non-givers and occasional responders to shocks
2. Fixed-purse givers (one charity/ multiple charities)
3. Flexible purse, some crowd-out
4. "Kantian": no crowd-out unless similar charity
5. No crowd-out

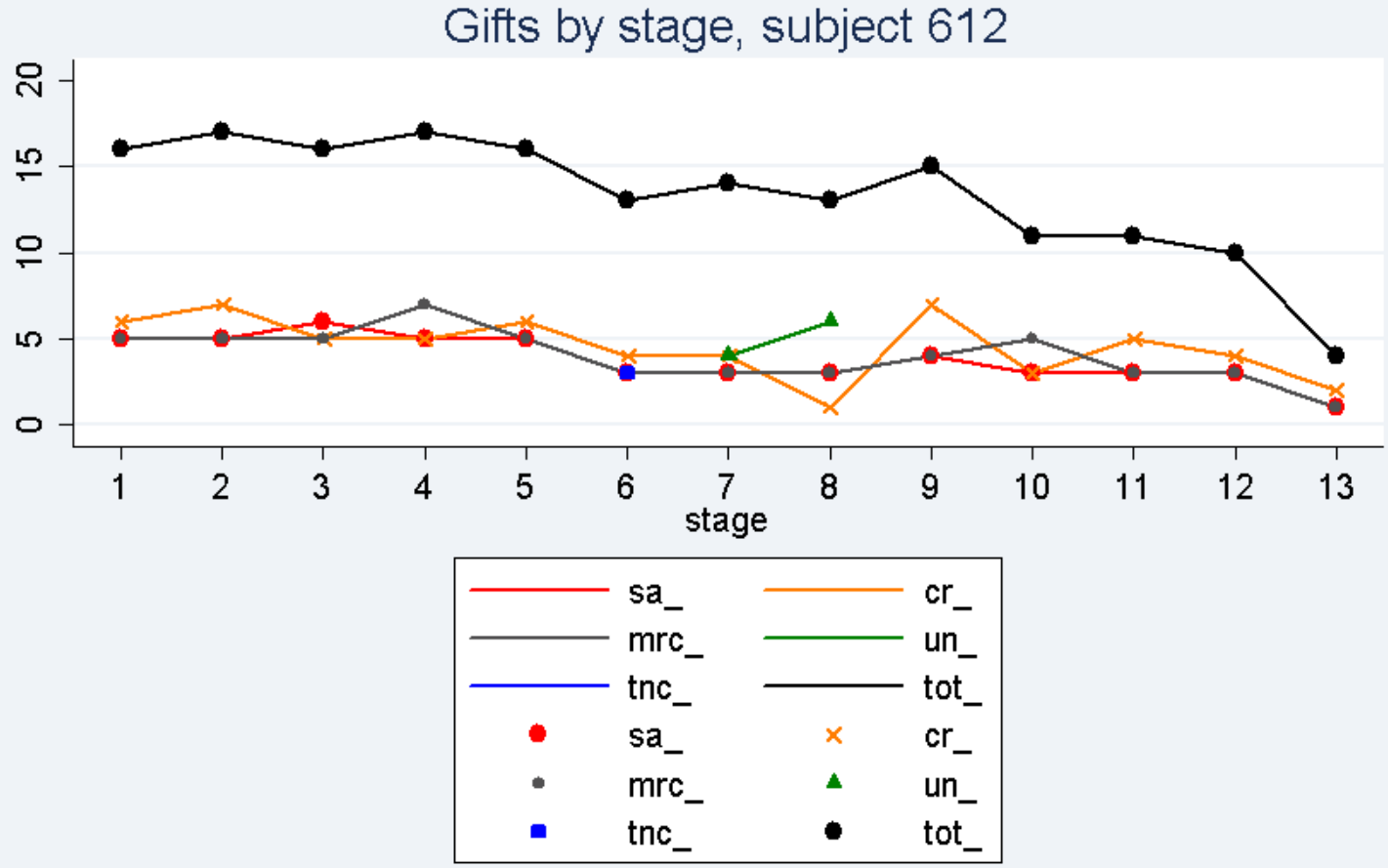
Variable	% of subjects
Relatively fixed purse (s.d.$<$ 25%), frequent giver	33%
Flexible purse, multiple charities, frequent giver	31%
Gave $<$ 25% of the time	27%
No substitutions, multiple charities, frequent giver	13%
Only gave to 1 cause	6%
Number of substitution periods	3.5
N	48

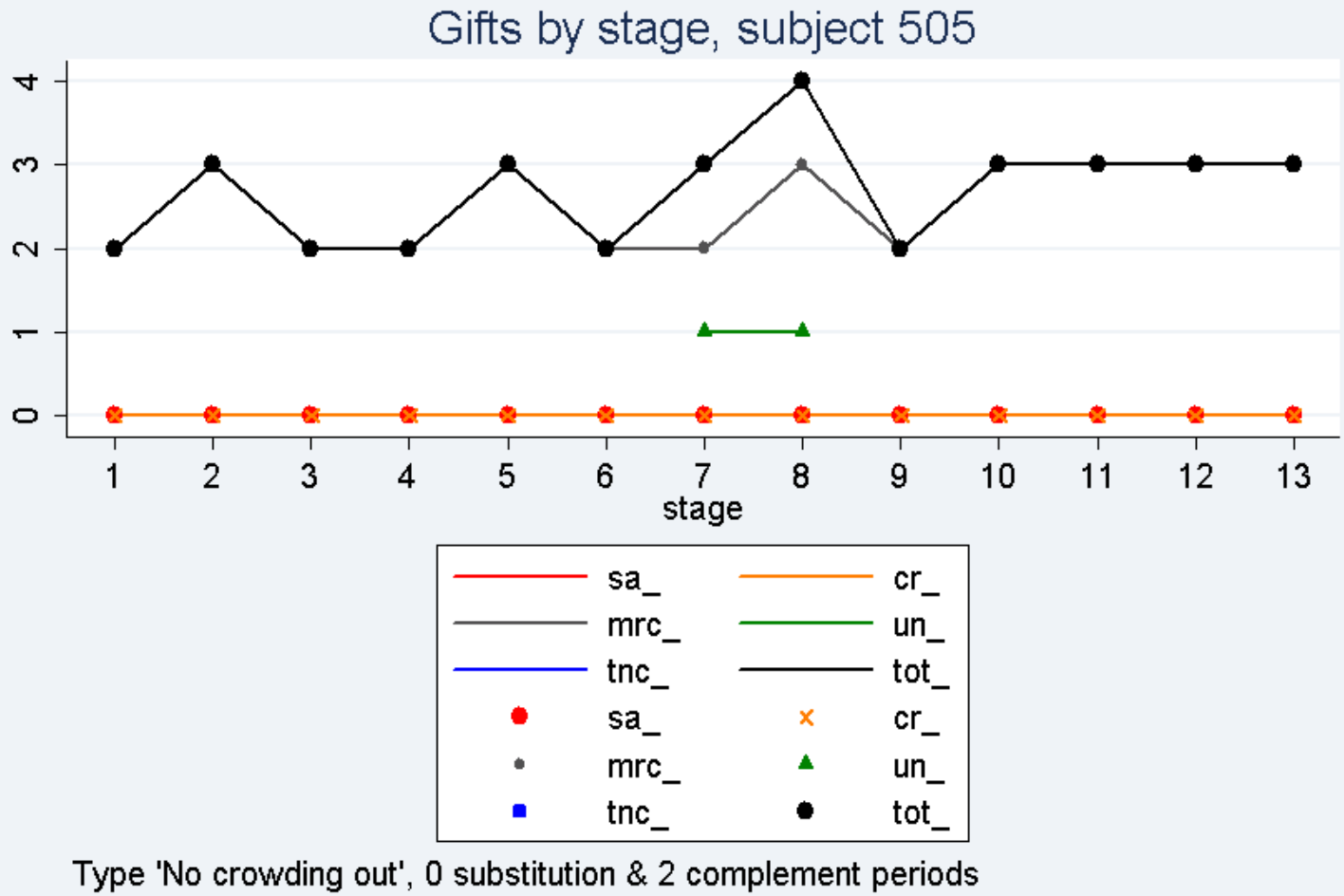
Table: **Types of behavior, 2nd wave**



Type 'Relatively fixed purse', 11 substitution & 4 complement periods


Gifts by stage, subject 502
0
5
10
15
1
2
3
4
5
6
7
8
9
10
11
12
13
stage
sa_
cr_
mrc_
un_
tnc_
tot_
sa_
cr_
mrc_
un_
tnc_
tot_
Type 'Flexible purse', 5 substitution & 11 complement periods


Gifts by stage, subject 612
0
5
10
15
20
1
2
3
4
5
6
7
8
9
10
11
12
13
stage
sa_
mrc_
tnc_
cr_
un_
tot_
sa_
mrc_
tnc_
cr_
un_
tot_
Type 'Flexible purse', 9 substitution & 6 complement periods


Gifts by stage, subject 505
0
1
2
3
4
1
2
3
4
5
6
7
8
9
10
11
12
13
stage
sa_
mrc_
tnc_
cr_
un_
tot_
sa_
mrc_
tnc_
cr_
un_
tot_
Type 'No crowding out', 0 substitution & 2 complement periods

Nonstructural form regressions (with random coefficients):

$$g_{jit} = [\beta_{ji}] + \beta_{ji} t + \alpha'_{ji} \mathbf{g}_{\sim j,it} + \Pi'_{ji} \mathbf{X}_{ijt} + \varepsilon_{jit} \tag{5}$$

$$E(\varepsilon_{jit}) = 0 \tag{6}$$

Interpretation – Quadratic approximation: $g_1(\alpha) = A + Bg_2(\alpha)$ [ignoring corners here]

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Identification: Unbiased if $E(\varepsilon_{jit} \times \varepsilon_{\tilde{}jit}) = 0 \; \forall \; j, \tilde{}j$
Idea: The controlled treatments $\frac{p_j}{p_k}, ..., \Theta_k$ will shift $\mathbf{g}_{\tilde{}j}$ independently of g_{jit}

- Significant 'uncontrolled' stage-to-stage variation in (e.g.) 'propensity to give' could bias results
  - I.e., the nuisance variables might be confounded with the focus variables
  - Reverse causality?
  - 'Control' for individual characteristics and timing effects
- IV (e.g., using prices) or focusing on price effects ('psuedo-structural') as a check

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Where (for vectors of all observations in panel i):
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Under these assumptions:

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- Also yields a consistent estimator of $\mathbf{S}$, the parameter variance/covariance matrix
- Also can estimate 'efficient' individual coefficients, but I will plot 'regular' OLS coefficients estimated within each individual

I. Overall and by Wave/Run

Random parameters (XTRC) regressions, charity level, non-structural

Subset:	(1) Wave 1 period 4-6 & wave 2	(2) Wave 1	(3) Wave 2	(4) Run 4	(5) Run 5	(6) Run 6
Sum of gifts to						
... charities other than dep. var.	-0.32***	-0.47***	-0.21***	-0.25**	-0.18	-0.19**
	(0.05) (0.05)	(0.05) (0.05)	(0.06) (0.06)	(0.09) (0.11)	(0.13) (0.12)	(0.07) (0.07)
Dummy: MRC is dep. var.	-0.18*	-0.21**	-0.02	0.06	0.13	-0.16
	(0.07) (0.11)	(0.05) (0.09)	(0.16) (0.16)	(0.31) (0.43)	(0.14) (0.21)	(0.10) (0.11)
Dummy: SA is dep. var.	-0.22*	-0.17*	-0.11	0.10	-0.09	-0.24*
	(0.08) (0.12)	(0.06) (0.09)	(0.18) (0.18)	(0.41) (0.51)	(0.11) (0.15)	(0.10) (0.13)
Stage (time trend)	0.02	0.27***	-0.05***	-0.02	-0.06**	-0.08***
	(0.04) (0.05)	(0.05) (0.06)	(0.01) (0.02)	(0.03) (0.03)	(0.03) (0.03)	(0.02) (0.03)
Decision and identity observed	0.13**		0.32**	0.30	0.39*	0.29
	(0.04) (0.07)		(0.11) (0.13)	(0.18) (0.21)	(0.19) (0.21)	(0.22) (0.26)
Constant	2.41***	1.41***	2.56***	2.88***	2.26***	2.51***
	(0.37) (0.37)	(0.23) (0.25)	(0.42) (0.46)	(0.74) (0.80)	(0.66) (0.69)	(0.81) (0.91)
Observations	2313	882	1872	624	624	624
Number of subjects	97	49	48	16	16	16
σ of β_1	0.18	0.12	0.16	0.19	0.23	0.079

"Gift" refers to amount given (not including match) to SA, MRC, or CARE, whichever is the dependent variable.

Dependent variable: Gift to SA, MRC or Care.

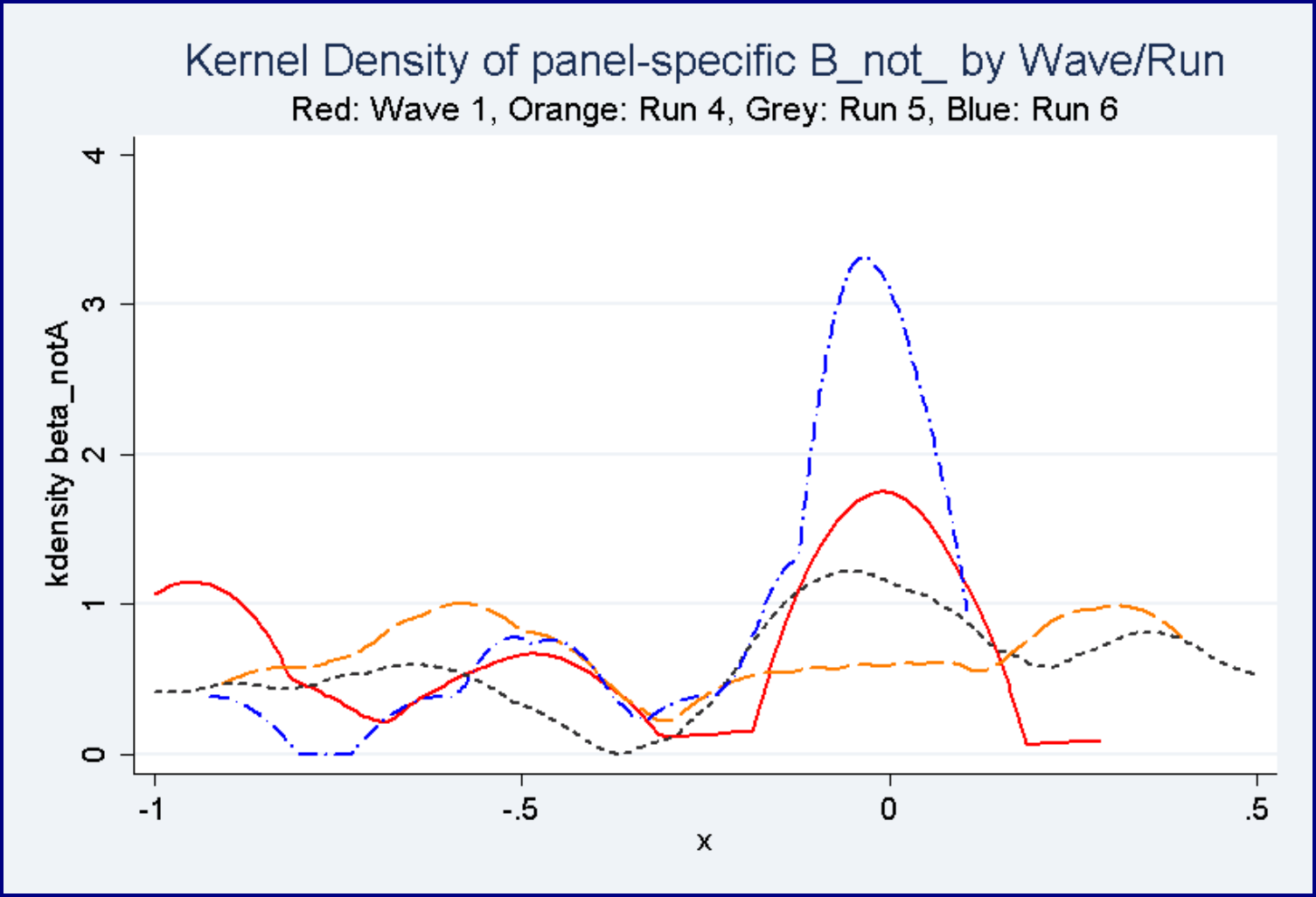
σ of β_1 : Std. dev. of (heterogeneous) coef. on Sum gifts to ... other than dep. var."

Std. errors in parentheses, clustered at subject level, within-subject homoskedasticity assumed. First row - bootstraped, second - clustered.

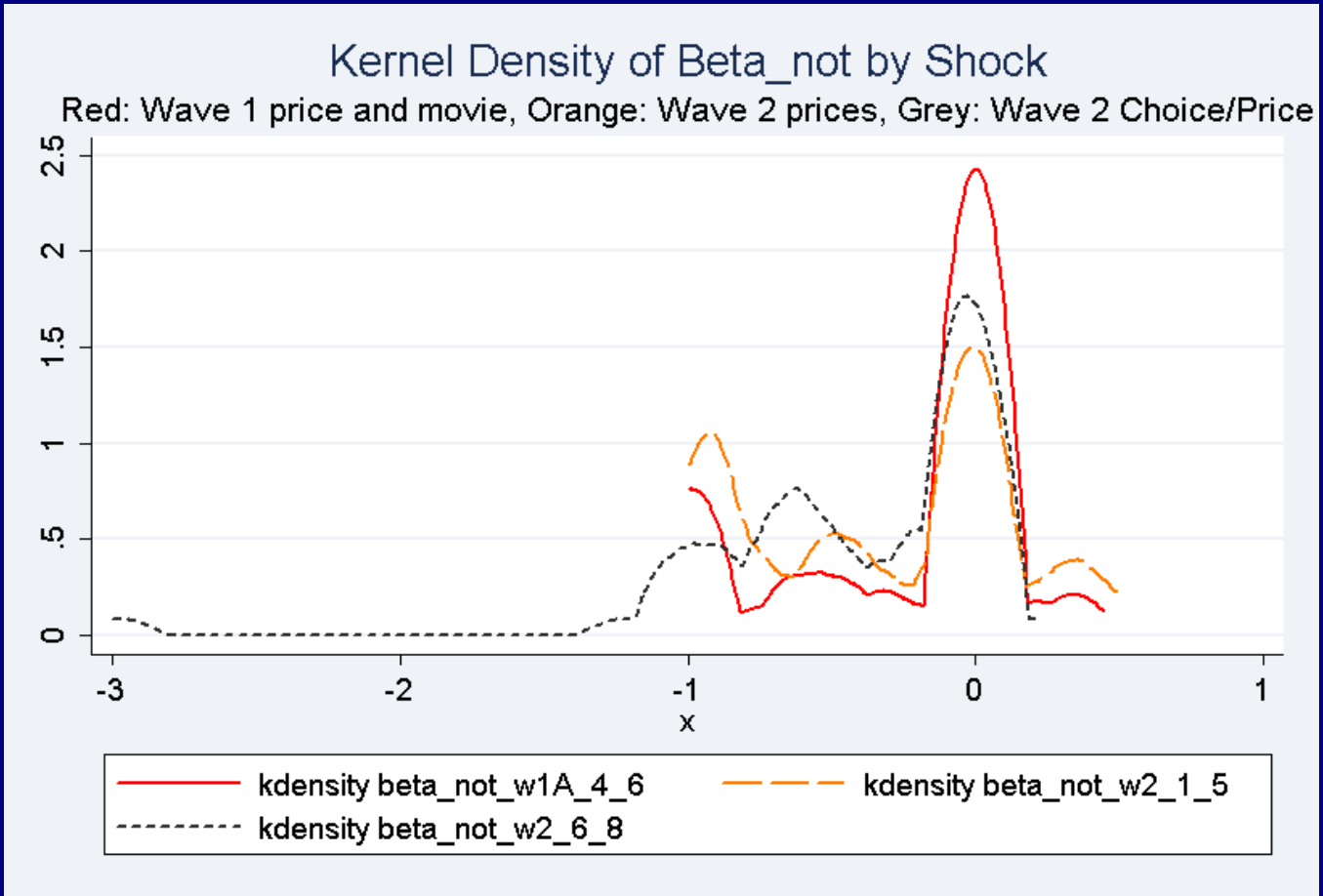
*** p<0.01, ** p<0.05, * p<0.1 for clustered standard errors.

Table: **Descriptive regressions** - Overall and by Wave/Run

Parameter heterogeneity



II. By Type of Shock
Parameter heterogeneity



Wave 2 stage data only

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Technique	Linear	Poisson	Linear	Linear, FE	Instrumental Variables		Poisson, FE	Linear
					1st stage	2nd stage		
Dependent variable:	Gift	Gift	Gift	Gift	Sum of gift to charities other than dep. var.	Gift	Gift	Gift
Shock to dep. var. charity	0.74***	0.41***						
	(0.20)	(0.10)						
Shock to other charity	-0.36**	-0.31***						
	(0.12)	(0.09)						
Sum of gift to charities other than dep. var.			0.19*** (0.04)	-0.19 (0.12)		-0.37* (0.15)	-0.10*** (0.01)	
Price of MRC other than dep. var					-2.78			4.55***
					(1.62)			(1.07)
Price of SA other than dep. var					-4.23**			2.51*
					(1.38)			(1.02)
Price of CR other than dep. var					-4.29*			3.62**
					(2.14)			(1.33)
Price of UNICEF other than dep. var					0.40* (0.18)			0.06 (0.08)
UNICEF in choice set					1.28***			-0.56***
					(0.26)			(0.14)
TNC choice					1.10**			-0.31
					(0.39)			(0.21)
Stage (time trend)	-0.05***	-0.04***	-0.05***	-0.07***	-0.08**	-0.09**	-0.06***	-0.08***
	(0.02)	(0.01)	(0.01)	(0.02)	(0.03)	(0.03)	(0.01)	(0.02)
Decision & identity obsd.	0.29**	0.26**	0.42***	0.45**	0.64***	0.46*	0.34***	0.33***
	(0.09)	(0.08)	(0.08)	(0.14)	(0.18)	(0.18)	(0.07)	(0.09)
MRC dep. var.	-0.24	-0.19	-0.28	-0.19	1.48	-0.15	-0.14**	0.53
	(0.24)	(0.19)	(0.29)	(0.20)	(2.23)	(0.15)	(0.05)	(1.15)
SA dep. var.	-0.38	-0.32	-0.45	-0.31	0.43	-0.24	-0.26***	-1.29
	(0.28)	(0.24)	(0.34)	(0.23)	(2.14)	(0.18)	(0.05)	(0.93)
Constant	1.80***	0.66**	1.16***	2.36***	8.50***	2.92***		-3.78**
	(0.32)	(0.20)	(0.29)	(0.40)	(2.25)	(0.71)		(1.29)
Observations	1872	1872	1872	1872	1872	1872	1638	1872

Standard errors in parentheses, within - subject homoskedasticity assumed
Giftrefers to amount given (not including match) to SA, MRC, or CARE, whichever is the dependent variable.
Poisson FE (7) regression , standard errors are not clustered
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Psuedo-Structural form – specification:

$$\ln(g_{jit}) = \beta_j + \beta_j t + \beta_j^{(p)\prime} \mathbf{p}_{jt}^L + \Pi_j' \mathbf{X}_{jt} + U_{jt} \tag{7}$$

Where:
$\mathbf{p}_{jt}^L$: Vector of logs of 'prices' of gifts to each charity
$\mathbf{X}_{jt}$: Vector of other variables potentially affecting gifts to charity j (and other charities)
...Including choice set dummies, 'movie' shock, social treatments

Coefficients of interest: $\beta_j^{(p)\prime}$ – own and cross-price effects ('elasticities')
Elements of Π_j': "Own and cross" effects of choice and movie shocks; overall effects of social shock

Pseudo-structural regressions, charity level, Wave 1 stages 4-6, Wave 2 all stages

	(1)	(2)	(3)
Technique:	Poisson	Poisson	Poisson
Dependent variable:	Gift	Gift	Gift
Log price of gift to dep. var.	-2.18***	-2.22***	
	(0.36)	(0.35)	
Mean log price of charity other than dep. var		2.18**	
		(0.73)	
Shock to other charity	-0.26**		
	(0.08)		
TNC choice		-0.10	-0.10
		(0.17)	(0.17)
UNICEF in choice set		-0.17	-0.15
		(0.14)	(0.14)
UNICEF choice x CARE dep. var.		-0.11	-0.15
		(0.13)	(0.12)
50% match for UNICEF		-0.31*	-0.32*
		(0.15)	(0.15)
50% match UNICEF × CARE dep. var.		-0.15	-0.15
		(0.18)	(0.18)
MRC dep. var.	-0.27	-0.28	-0.79**
	(0.16)	(0.15)	(0.29)
SA dep. var.	-0.37	-0.39*	-0.68
	(0.20)	(0.19)	(0.36)
Stage (time trend)	-0.04***	-0.03**	-0.03**
	(0.01)	(0.01)	(0.01)
Decision & identity obsd.	0.27***	0.25***	0.25***
	(0.08)	(0.07)	(0.07)
Constant	0.20	0.58**	0.80**
	(0.20)	(0.20)	(0.26)
Observations	2313	2313	2313
All price variables included:	No	No	Yes

Standard errors in parentheses, within - subject homoskedasticity assumed

Giftrefers to amount given (not including match) to SA, MRC, or CARE, whichever is the dependent variable.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

	MRC	SA	CR
Price MRC	-2.61***	1.16	2.28**
	(0.53)	(0.82)	(0.82)
Price SA	-0.10	-2.50***	0.72
	(0.64)	(0.60)	(0.85)
Price CR	1.29*	0.98	-1.92***
	(0.54)	(0.73)	(0.47)

Standard errors in parentheses, within - subject homoskedasticity assumed

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Are subjects discouraged by removal of incentives?

Test for discouragement effect, RE exponential, Wave 2

Dependent variable:	Gift to SA, MRC, or CARE
Dummy: MRC is dep. var.	-0.29*
	(0.14)
Dummy: SA is dep. var.	-0.15
	(0.13)
Log price of gift to dep. var. charity	-2.34***
	(0.33)
Log price of gift to CARE × CARE is not dep. var.	1.00
	(0.52)
Log price of gift to MRC × MRC is not dep. var.	1.55**
	(0.52)
Log price of gift to SA × SA is not dep. var.	0.17
	(0.45)
Stage (time trend)	-0.04***
	(0.01)
Dummy: Stage 5	0.03
	(0.08)
Decision and identity observed	0.37***
	(0.07)
Constant	0.43
	(0.29)
Observations	1872
Number of subjects	48

"Gift" refers to amount given (not including match) to SA, MRC, or CARE, whichever is the dependent variable.
Standard errors in parentheses, clustered at the subject level, within-subject homoskedasticity assumed.
*** p¡0.01, ** p¡0.05, * p¡0.1

Table: **Test of wave 2 stage 5 difference**

Some Internal Validity Issues

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1. **Dominance and Salience of Incentives**

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3. **False Consistency:** 'Within-subjects tests are always more statistically powerful, but they run a certain risk: presenting several stimuli to a single subject could conceivably induce her to behave more consistently then she would if she saw the stimuli one at a time' (Camerer, 1995)

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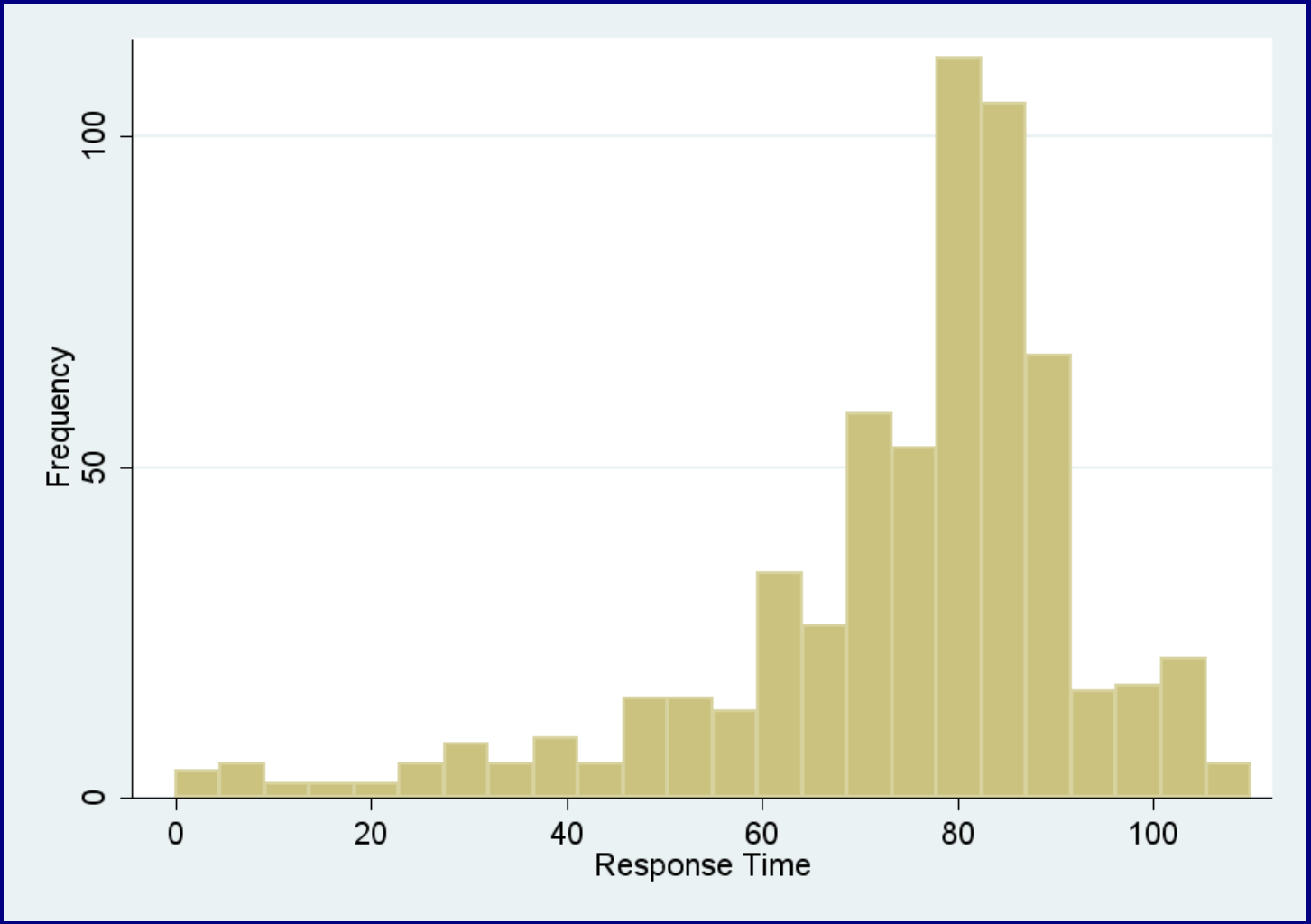
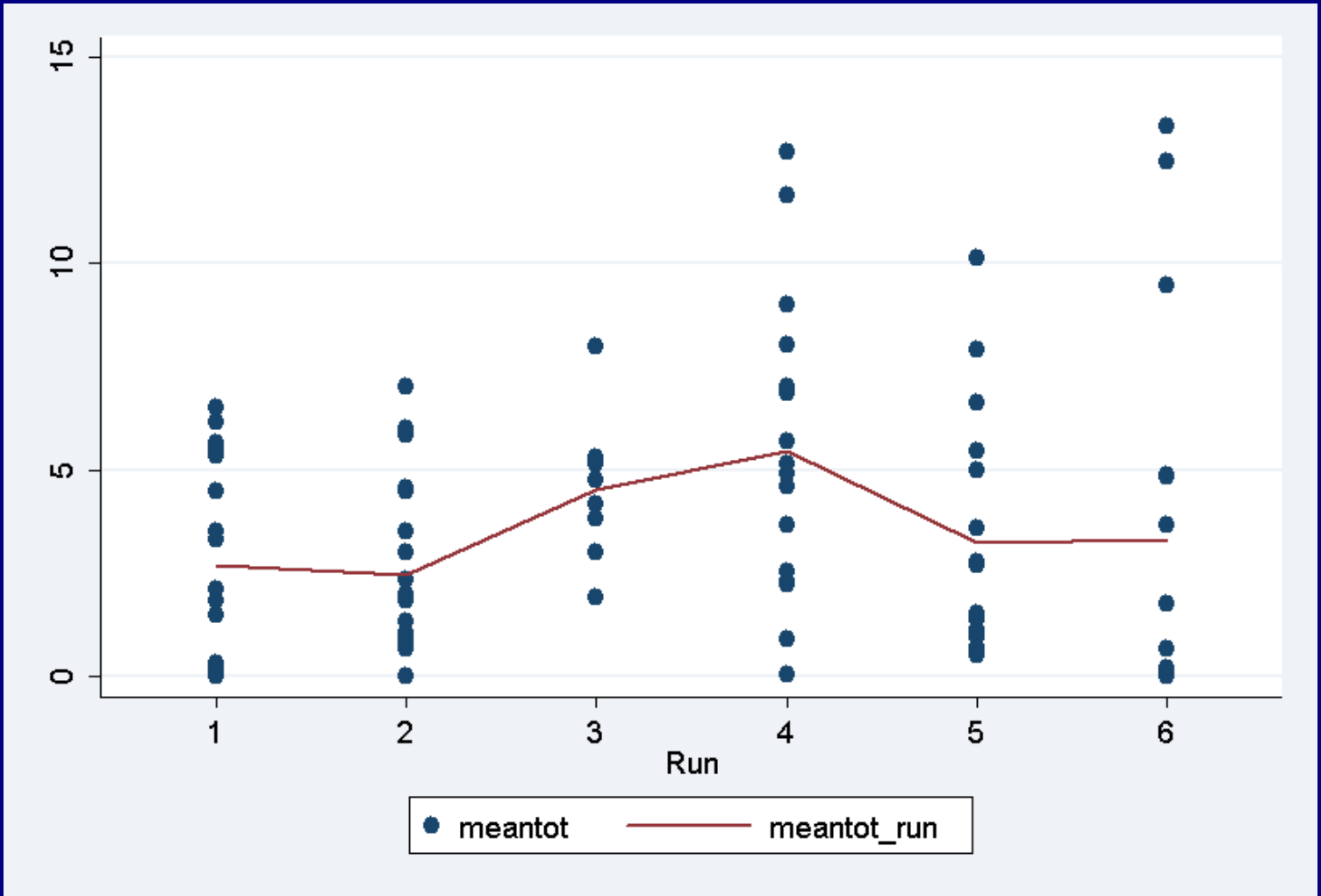
4. **Compensating behavior** (the shadow of the field in the lab; see next section)
5. **Misunderstanding**
6. **Mistrust**

Evidence: Dominance/ Salience

Evidence: Dominance
Response times (Wave 1, stages 1-3)



Evidence: Experimenter effect
Consistency from run to run (see also previous regressions)



Evidence: Misunderstanding, mistrust

	Understood rules of experiment	Confidence charities use money as stated	Confidence in random choice of stage	Confidencewe pay the charities
Disagree	5 (6.41%)	23 (29.49%)	4 (5.13%)	2 (2.56%)
Neutral/No opinion/Don't want to answer	4 (5.13%)	5 (6.41%)	9 (11.54%)	6 (7.69%)
Agree	69 (88.46%)	50 (64.10%)	65 (83.33%)	70 (89.74%)
Total	78 (100.00%)	78 (100.00)	78 (100.00%)	78 (100.00%)

Table 1:

Eliciting 'homegrown values': issues (Harrison '92; '04)

'Lab responses may be censored by field opportunities'

Under-report value if cheaper in the field (hence 20% matching); over-report value if can re-sell; here could reduce giving in field

'...Elicitation procedures themselves might influence subject's perception of field substitutes' ... or perceptions in general

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Responses: High matching rate, differentiate outside givers/non-givers, survey 'evidence', 'neutral' language

Evidence: Compensating Behavior

Test outside giving × price, Poisson RE

	(1)	(2)
Subset	Wave 2, SA, MRC, CARE	... and did not giver outside experiment
	Gift	Gift
Dummy: MRC is dep. var.	-0.29*	-0.07
	(0.14)	(0.20)
Dummy: SA is dep. var.	-0.15	0.47*
	(0.13)	(0.19)
Gave outside dummy	0.48	
	(0.38)	
Log price of gift to dep. var. charity	-1.61***	-1.55**
	(0.45)	(0.49)
Gave outside experiment × log price of gift to dep. var.	-0.51	
	(0.55)	
Log price of CARE × CARE is not dep. var.	1.46**	1.16
	(0.52)	(0.69)
Log price of MRC × MRC is not dep. var.	2.01***	2.27**
	(0.52)	(0.78)
Log price of SA × SA is not dep. var.	0.62	0.29
	(0.45)	(0.68)
Dummy: UNICEF in choice set	-0.45***	-0.23*
	(0.09)	(0.11)
Dummy: 50% match rate for UNICEF	0.06	0.18
	(0.08)	(0.11)
Dummy: TNC in choice set	-0.14	0.22
	(0.09)	(0.12)
Stage (time trend)	-0.04***	-0.07***
	(0.01)	(0.01)
Decision and identity observed	0.26**	0.42***
	(0.08)	(0.13)
Constant	0.56	0.35
	(0.32)	(0.40)
Observations	1872	1131
Number of subjects	48	29

Gift refers to amount given (not including match) to SA, MRC, or CARE, whichever is the dependent variable.

Standard errors in parentheses

*** p¡0.01, ** p¡0.05, * p¡0.1

Table: **"Outside givers" versus rest**

Representativeness
'Convenience sample' ...students and staff at Berkeley, experimental volunteers

Responses:
Can make inferences about similar populations (in similar environments)

Can check for heterogeneity, differences across observed characteristics (sex, race, etc.)

Evidence: heterogeneity by demographic characteristics

Poisson, W2 and W1 (run 2-3) stage 4-6, by demography

Subset:	(1) All	(2) Females	(3) Ethnic Asians	(4) Income ¡ $63k	(5) Identified as a religion
Dummy: MRC is dep. var.	-0.08	-0.24***	0.11	0.01	0.02
	(0.04)	(0.06)	(0.06)	(0.07)	(0.06)
Dummy: SA is dep. var.	-0.19***	-0.60***	-0.17**	-0.30***	-0.18**
	(0.05)	(0.06)	(0.07)	(0.08)	(0.07)
Log price of gift to dep. var.	-2.76***	-2.59***	-2.68***	-3.24***	-2.86***
	(0.25)	(0.32)	(0.37)	(0.44)	(0.35)
Shock to charity other than dep. var.	-0.34***	-0.37***	-0.22**	-0.17*	-0.35***
	(0.05)	(0.06)	(0.07)	(0.08)	(0.07)
Stage (time trend)	-0.04***	-0.05***	-0.03***	-0.02*	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Movie	0.12	0.13	0.02	0.19	0.05
	(0.10)	(0.14)	(0.19)	(0.19)	(0.15)
Decision observed	-0.12	-0.12	-0.20	-0.24	-0.11
	(0.09)	(0.11)	(0.13)	(0.16)	(0.13)
Decision & identity obsd.	0.44***	0.57***	0.53***	0.60***	0.42**
	(0.09)	(0.12)	(0.14)	(0.17)	(0.13)
Decision & identity obsd. by opposite sex	-0.04	-0.07	-0.11	-0.10	0.05
	(0.09)	(0.12)	(0.13)	(0.15)	(0.12)
Constant	-0.17	0.18	-0.34	-0.78**	-0.15
	(0.15)	(0.19)	(0.22)	(0.24)	(0.19)
Observations	2652	1425	1494	1353	1272
Number of subjects	97	49	47	43	44

Gift refers to amount given (not including match) to SA, MRC, or CARE, whichever is the dependent variable.

Standard errors in parentheses

Dependent variable is always: Gift to SA, MRC, or CARE

*** p¡0.01, ** p¡0.05, * p¡0.1

Table: Differentiated results by demographics

Conclusion: Experimental Results

- People do give to multiple charities in the lab
- Most shocks 'work'
- **Substitution exists in the lab**, particularly among similar charities, although people vary greatly (types).
- ... but typically substitution is not 'complete.'
- Mean effect is hard to pin down.
- Depends on charities, context
- Differentiated effects (by demography, combinations of charities, etc);

  but substitution present for all observed groups
- Aside: Declining contributions across stages even without interacting with other subjects

Potential future work:

- Measure robustness of these qualitative laboratory findings (more experiments, larger endowments, more representative subject pools, sequential decisions, piggyback on other earnings, between-subject design)
- Gain relevant parameter estimates from field work and natural experiments; want to be able to make predictions.
- (Reinstein 2011 BEJEAP: PSID data, some evidence of expenditure substitution, particularly for large givers, but inference requires particular assumptions)
- Evidence from observational data (Micro: recent changes in tax policies. Macro: disaster giving)