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Article

From windfall sharing to property ownership: Prosocial personality traits in giving and taking dictator games

Games

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From windfall sharing to property ownership: Prosocial personality traits in giving and taking dictator games

Supplementary Materials

Table S1*Entire List of Tasks and Questionnaires Administered in the Current Study*

Order	Measure	Reference
<i>Economic decision-making tasks</i>		
1	Giving- or taking-framed dictator game	Adapted for this study
5	Simple response tasks	Adapted for this study based on Charness, G., & Rabin, M. (2002). Understanding social preferences with simple tests. <i>The Quarterly Journal of Economics</i> , 117(3), 817–869.
4	Social mindfulness task	Van Doesum, N. J., Van Lange, D. A.W., & Van Lange, P. A. M. (2013). Social mindfulness: Skill and will to navigate the social world. <i>Journal of Personality and Social Psychology</i> , 105(1), 86–103.
6	Third-party games	Adapted for this study based on Fehr, E., & Fischbacher, U. (2004). Third-party punishment and social norms. <i>Evolution and Human Behavior</i> , 25(2), 63–87.
3	Moral dilemma	Adapted for this study
8	Conflict templates	Halevy, N., Chou, E. Y., & Murnighan, J. K. (2012). Mind games: The mental representation of conflict. <i>Journal of Personality and Social Psychology</i> , 102(1), 132–148.
12	Stag hunt games	Adapted for this study
<i>Personality measures</i>		
7	Big Five Aspect Scales	DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. <i>Journal of Personality and Social Psychology</i> , 93(5), 880–896.
13	HEXACO Personality Inventory—Revised	Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. <i>Multivariate Behavioral Research</i> , 39(2), 329–358.
2	Interpersonal Reactivity Index	Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. <i>JSAS Catalog of Selected Documents in Psychology</i> , 10, 85.
9	Major Life Goals	Roberts, B. W., & Robins, R. W. (2000). Broad dispositions, broad aspirations: The intersection of personality traits and major life goals. <i>Personality and Social Psychology Bulletin</i> , 26(10), 1284–1296.
10	Propensity to Trust Survey	Evans, A. M., & Revelle, W. (2008). Survey and behavioral measurements of interpersonal trust. <i>Journal of Research in Personality</i> , 42(6), 1585–1593.
11	Altruistic Personality Scale	Rushton, J. P., Chrisjohn, R.D., & Fekken, G. C. (1981). The altruistic personality and the self-report altruism scale. <i>Personality and Individual Differences</i> , 1, 292–302.
14	Dirty Dozen measure of the Dark Triad	Jonason, P. K., & Webster, G. D. (2010). The Dirty Dozen: A concise measure of the Dark Triad. <i>Psychological Assessment</i> , 22(2), 420.

Table S2

Descriptive Statistics and Correlations with Giving and Taking for all Personality Variables from the Big Five Model

Personality variable	Cronbach's α	M (SD)	Correlations with dictator allocations	
			Giving frame ($N = 131$)	Taking frame ($N = 125$)
<i>Trait level</i>				
B5 Neuroticism	.95	2.73 (0.82)	.05	.03
B5 Agreeableness	.91	3.80 (0.60)	-.003	.32** ^b
B5 Conscientiousness	.90	3.49 (0.61)	-.16 ^a	.05
B5 Extraversion	.94	3.11 (0.76)	-.06	.03
B5 Openness/Intellect	.90	3.70 (0.62)	-.05	.16
<i>Aspect level</i>				
Withdrawal	.91	2.86 (0.91)	.06	.04
Volatility	.92	2.60 (0.86)	.02	.04
Politeness	.82	3.83 (0.63)	.05	.23*
Compassion	.92	3.77 (0.76)	-.02	.32** ^c
Industriousness	.90	3.49 (0.76)	-.14	.09
Orderliness	.83	3.50 (0.64)	-.13	.04
Enthusiasm	.90	3.19 (0.82)	-.01	.14
Assertiveness	.92	3.03 (0.87)	-.07	-.09 ^c
Openness	.84	3.72 (0.67)	-.001	.19*
Intellect	.90	3.68 (0.75)	-.12	.10

Note. Cronbach's α and means for personality data refer to combined giving and taking conditions. Bivariate correlations are calculated using Spearman's rho. Game allocations indicate amount that the partner received out of 10 points. B5 = Big Five Model, measured using the Big Five Aspect Scales (BFAS; DeYoung, Quilty, & Peterson, 2007).

^aSignificant unique predictor ($p < .05$) when all Big Five *traits* were entered in a regression on *giving*.

^bSignificant unique predictor ($p < .05$) when all Big Five *traits* were entered in a regression on *non-taking*.

^cSignificant unique predictor ($p < .05$) when all Big Five *aspects* were entered in a regression on *non-taking*.

* $p < .05$. ** $p < .01$.

Table S3

Tobit Regression Analysis of Prosocial Personality Traits on Amount Allocated to Partner in Giving and Taking Dictator Games

Variable	R^2	β	95% CI	p
<i>Big Five Model</i>				
Intercept	.07			< .001
Frame (giving = 0, taking = 1)		0.12	0.01, 0.24	.04
B5 Politeness		0.13	-0.08, 0.34	.24
B5 Compassion		-0.11	-0.30, 0.09	.30
Frame \times B5 Politeness		-0.08	-0.29, 0.13	.44
Frame \times B5 Compassion		0.30	-0.11, 0.49	.002
<i>HEXACO Model</i>				
Intercept	.09			< .001
Frame (giving = 0, taking = 1)		0.12	0.001, 0.23	.05
HEX Honesty-Humility		0.36	0.16, 0.51	< .001
HEX Agreeableness		-0.10	-0.28, 0.07	.25
Frame \times HEX Honesty-Humility		-0.07	-0.25, 0.12	.47
Frame \times HEX Agreeableness		0.05	-0.13, 0.22	.61

Note. B5 = Big Five Model, measured using the Big Five Aspect Scales (DeYoung et al., 2007). HEX = HEXACO Model, measured using the HEXACO Personality Inventory—Revised (Lee & Ashton, 2004).

Text S1

Description and summary of findings from a preliminary study on prosocial personality traits in hypothetical giving–taking dictator games

We conducted a preliminary study examining the role of prosocial personality traits in hypothetical giving–taking dictator games. Although the design of this study was very similar to our incentivized study, the results should be treated with some caution due to the fact that they measured hypothetical decisions in the absence of real stakes and incentives (for a discussion of this in psychology and economics studies, see Ariely & Norton, 2007; Camerer & Hogarth, 1999).

The final sample consisted of 193 first-year psychology students at an Australian university (aged 18–55 years, $M_{age} = 19.9$, $SD = 4.8$; 74% female), who completed the study for course credit. Participants completed the same personality measures as in the study, that is, the Big Five Aspect Scales (BFAS; DeYoung et al., 2007) and the HEXACO Personality Inventory Revised (HEXACO-PI-R; Lee & Ashton, 2004). Participants were randomly assigned to one of two versions of a modified dictator game, which differed with respect to the action required for the allocation of wealth (giving $N = 101$, taking $N = 92$). However, this game was presented as a hypothetical scenario and partners were described as an anonymous stranger that one would not knowingly meet. Monetary units were imaginary dollars that varied in increments of one. Participants were then asked to indicate the behavior that they would engage in (e.g., “*I would give \$0 to my partner*”). Participants completed all game and personality measures on a survey programmed using Qualtrics Survey Software. While the study consisted of additional tasks and questionnaires beyond the scope of the current research, the dictator game was always completed first before all other tasks, followed later by the BFAS and the HEXACO-PI-R. Embedded within these personality measures were two attention checks (e.g., “*Please select Strongly Agree*”), leading to thirty-nine participants (17%) being excluded for failing at least one attention check.

Descriptive statistics and bivariate correlations between personality and hypothetical game decisions are presented in Table S4. All dictator game results are described in terms of the amount of money that a partner receives, regardless of giving or taking frame. Independent samples t-tests indicated that hypothetical allocations to the partner were significantly higher in the taking game ($M = 5.33$) than the giving game ($M = 4.17$), $t(191) = 3.47$, $p = .001$. Neither age nor gender were associated with allocations in the two dictator games.

Agreeableness was the only broad trait domain from the Big Five model significantly correlated with hypothetical giving ($r_s = .21, p = .04$), and the relation was accounted for by its politeness ($r_s = .22, p = .03$) rather than compassion ($r_s = .13, p = .19$) aspect. Similarly, agreeableness was the only broad trait domain from the Big Five model significantly correlated with hypothetical non-taking ($r_s = .26, p = .01$), and this relation appeared slightly stronger for politeness ($r_s = .26, p = .01$) than compassion ($r_s = .20, p = .06$). None of the prosocial traits from the HEXACO model were associated with hypothetical giving, while honesty-humility was correlated with hypothetical non-taking ($r_s = .28, p = .01$).

We ran an ordinary least squares (OLS) regression on allocations with giving–taking frame (giving = 0, taking = 1) and the relevant standardized prosocial traits and their interactions with game frame entered as independent variables (see Table S5). In the Big Five model, we observed a main effect for frame, but no significant main effects or interactions for each of the two aspects ($ps > .22$). For the HEXACO model, the main effect for frame was again replicated. There was no main effect for honesty-humility, but a significant interaction with frame, in which honesty-humility was associated with non-taking but not giving. There were no significant main effects or interactions with HEXACO agreeableness.

Table S4

Descriptive Statistics and Bivariate Correlations between Prosocial Traits and Hypothetical Dictator Allocations

Variable	N	Mean (SD)	Correlations				
			1	2	3	4	5
1 B5 Agreeableness	193	3.92 (0.43)	.85				
2 B5 Compassion	193	4.05 (0.47)	.80**	.84			
3 B5 Politeness	193	3.80 (0.55)	.86**	.43**	.79		
4 HEX Honesty-Humility	193	3.38 (0.55)	.46**	.33**	.43**	.82	
5 HEX Agreeableness	193	3.12 (0.54)	.36**	.16*	.45**	.25**	.85
6 Allocation in giving DG	101	4.17 (1.80)	.21*	.13	.22*	.15	.14
7 Allocation in taking DG	92	5.33 (2.78)	.26*	.20	.26*	.28**	.12

Note. Cronbach's α s are shown in the diagonal. Bivariate correlations are calculated using Spearman's rho. Game allocations indicate amount that the partner received out of \$10 (hypothetical). Total N and means for personality data refer to combined giving and taking conditions. B5 = Big Five Model, measured using the Big Five Aspect Scales (BFAS; DeYoung et al., 2007). DG = Dictator game. HEX = HEXACO Model, measured using the HEXACO Personality Inventory—Revised (HEXACO-PI-R; Lee & Ashton, 2004).

* $p < .05$. ** $p < .01$.

Table S5

Regression Analysis of Prosocial Personality Traits on Amount Allocated to Partner in Hypothetical Dictator Games

Variable	R^2	Adjusted R^2	B	β	95% CI	t	p
<i>Big Five Model</i>	.13	.10					
Intercept			4.18			18.85	< .001
Frame (giving = 0, taking = 1)			1.13	0.24	0.11, 0.37	3.53	< .001
B5 Politeness			0.22	0.09	-0.12, 0.30	0.84	.40
B5 Compassion			0.14	0.06	-0.15, 0.26	0.56	.58
Frame \times B5 Politeness			0.43	0.13	-0.08, 0.35	1.22	.22
Frame \times B5 Compassion			0.11	0.03	-0.18, 0.24	0.31	.75
<i>HEXACO Model</i>	.15	.13					
Intercept			4.17			18.82	< .001
Frame (giving = 0, taking = 1)			1.17	0.25	0.12, 0.37	3.65	< .001
HEX Honesty-Humility			0.16	0.07	-0.12, 0.25	0.68	.50
HEX Agreeableness			0.24	0.10	-0.09, 0.29	1.01	.31
Frame \times HEX Honesty-Humility			0.82	0.23	0.05, 0.42	2.44	.02
Frame \times HEX Agreeableness			-0.10	-0.03	-0.22, 0.16	-0.29	.77

Note. B5 = Big Five Model, measured using the Big Five Aspect Scales (DeYoung et al., 2007). HEX = HEXACO Model, measured using the HEXACO Personality Inventory—Revised (Lee & Ashton, 2004).

Text S2

Description and summary of findings from the post-decision questionnaire

To examine whether agreement with post-decision reasons (as an indication of underlying motives) were associated with game behaviors and personality traits, we asked participants to complete a short questionnaire after the dictator game. Participants indicated their agreement with 13 randomly-ordered statements on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Three of these statements involved reasons around adherence to moral norms (e.g., “*It was the fair thing to do*”), five statements involved reasons around a partner’s wellbeing (e.g., “*I wanted to make my partner happy*”), and three statements involved reasons around one’s own emotions (e.g., “*I would have felt guilty if I didn’t do what I had decided*”). A complete list of these statements is provided in the note to Table S6. Two additional statements measured the monetary value of the endowment (“*The amount of money was too trivial to keep*”) and perceived initial ownership of the money (“*At the start of the task, I felt that all of the 10 points was in my possession*”), with the latter serving as a manipulation check.

We first classed 11 items on the post-decision questionnaire according to three pre-determined categories. These categories were based on the theoretical underpinnings of each of the prosocial traits. The *Moral* category was an average of three items concerning adherence to moral norms around fairness (Cronbach’s $\alpha = .94$), the *Partner-Focused Emotions* category was an average of five items concerning a partner’s wellbeing (Cronbach’s $\alpha = .91$), and the *Self-Focused Emotions* category was an average of three items concerning one’s own emotions (Cronbach’s $\alpha = .76$). One remaining item from the questionnaire (“*The amount of money was too trivial to keep*”) was deemed to be qualitatively different from the others as it captured perceptions of costliness rather than moral or interpersonal concerns. Indeed, this item was included as a means of verifying that stake sizes in the games were meaningful to participants ($M = 2.32$). This item was therefore excluded from the following analysis.

Correlations between each of the categories of post-decision reasons, game allocations, and prosocial traits are presented in Table S6. All three categories of reasons were associated with greater giving and non-taking. Associations between prosocial traits with post-decision reasons paralleled those with dictator allocations. Neither politeness nor compassion in the Big Five model were associated with any categories of reasons in the giving game, while compassion was uniquely associated with all three in the taking game. In

contrast, HEXACO honesty-humility was correlated with all three categories under both frames, albeit weakly for Self-Focused Emotions.

Post-decision reasons around adherence to fairness norms and concerns around a partner's wellbeing were consistently associated with prosocial traits in both personality models. However, there was a lack of discriminant validity *between* prosocial traits. All three traits of politeness, compassion, and honesty-humility showed relatively smaller correlations with reasons around enhancing one's own emotional wellbeing (e.g., to avoid feeling guilty or to feel proud of oneself), suggesting that those high on prosocial traits indeed make such decisions with others' interests at heart. However, given that perceptions of ownership and post-decision reasons were measured *after* the dictator game, where they may have been subject to self-justification biases and post-decision consolidation and distortion of information, these results are treated somewhat tentatively as an indicator of motives.

Table S6*Correlations with Post-Decision Reasons*

Bivariate Correlations with Game Allocations and Prosocial Traits	Category of Post-Decision Reasons		
	Moral	Partner-Focused Emotions	Self-Focused Emotions
Cronbach's alpha	.94	.91	.76
Giving dictator game ($N = 131$)			
Allocations	.85**	.79**	.71**
B5 Compassion	.09 (.07)	.08 (.01)	.07 (.04)
B5 Politeness	.06 (.01)	.13 (.11)	.08 (.04)
HEX Honesty-Humility	.29** (.32**)	.30** (.28**)	.18* (.18*)
HEX Agreeableness	-.04 (-.15)	.13 (.03)	.04 (-.02)
Taking dictator game ($N = 125$)			
Allocations	.73**	.69**	.58**
B5 Compassion	.40** (.33**)	.37** (.26**)	.26** (.25**)
B5 Politeness	.24** (.01)	.29** (.09)	.10 (-.07)
HEX Honesty-Humility	.26** (.25**)	.22* (.20*)	.12 (.08)
HEX Agreeableness	.09 (.02)	.11 (.05)	.14 (.11)

Note. Items for *Moral* category: *It was the fair thing to do; I would like others to treat me in this same way; I wanted to do what was morally right.* Items for *Partner-Focused Emotions* category: *I did not want to hurt my partner; I did not want my partner to react negatively; I wanted to make my partner happy; I felt sympathetic towards my partner; I wanted to help my partner out.* Items for *Self-Focused Emotions* category: *My decision made me feel emotionally positive; My decision made me feel proud about myself; I would have felt guilty if I didn't do what I had decided.* Bivariate correlations are calculated using Spearman's rho. Game allocations indicate amount that the partner received out of 10 points. Data in parentheses refer to partial correlations when controlling for the other aspect of Big Five agreeableness. B5 = Big Five Model, measured using the Big Five Aspect Scales (BFAS; DeYoung et al., 2007). HEX = HEXACO Model, measured using the HEXACO Personality Inventory—Revised (HEXACO-PI-R; Lee & Ashton, 2004).

* $p < .05$. ** $p < .01$.

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