

Who sees what as fair?

Mapping individual differences in valuation of reciprocity, charity, and impartiality

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Abstract

When scarce resources are allocated, different criteria may be considered: impersonal allocation (impartiality), the needs of specific individuals (charity), or the relational ties between individuals (reciprocity). In the present research, we investigated how people's perspectives on fairness relate to individual differences in interpersonal orientations. Participants evaluated the fairness of allocations based on (a) impartiality (b) charity, and (c) reciprocity. To assess interpersonal orientations, we administered measures of dispositional empathy (i.e., empathic concern and perspective-taking) and Machiavellianism. Across two studies, Machiavellianism correlated with higher ratings of reciprocity as fair, whereas empathic concern and perspective-taking correlated with higher ratings of charity as fair. We discuss these findings in relation to recent neuroscientific research on empathy, fairness, and moral evaluations of resource allocations.

Keywords: fairness, reciprocity, charity, impartiality, empathy, Machiavellianism

120 word Abstract

Introduction

Principles that guide scarce resource allocation often conflict: *reciprocity* -- returning favors, *charity* -- helping those in need, and *impartiality* -- remaining blind to personal attributes (Rasinski, 1987; Wolff, 2007). These competing principles can lead to dilemmas when people aim to be fair across public and private situations. Reciprocity and charity involve personal considerations -- the attributes of specific individuals -- and as such can be thought of as “person-based” forms of fairness (Deutsch, 1975; Tyler, 1994). By contrast, impartial allocations rely on standardized impersonal criteria (e.g., use of a lottery); impartiality constitutes “person-blind” fairness.

In one striking illustration of the conflict between “person-based” and “person-blind” fairness, Dr. Harvey Bahnsen, chief of surgery at Presbyterian-University Hospital in Pittsburgh in the early 1980’s, responded to allegations that surgeons bypassed standard organ transplant policy: “I’d hope Tom [...the leading transplant surgeon at Presbyterian-University Hospital] would take care of my daughter and vice versa” ... “That’s a natural inclination.” Dr. Bahnsen deemed it “appropriate” to follow the social norm of reciprocity in a professional context, i.e., surgical practice, but he also conceded that his view might not be “universally accepted” (Schneider & Flaherty, 1985, pg.1). In line with his concession, we have found in prior work that people consider reciprocity-based allocations to be less fair than charity-based allocations, and substantially less fair than impartial allocations (Niemi, Wasserman & Young, 2017). The current research examines how individual differences in interpersonal orientations correspond to people’s evaluations of the fairness of allocations based on reciprocity, charity and impartiality. In particular, the present work focuses on individual differences in tendencies toward Machiavellianism -- ruthless, self-interested pursuit of personal goals (Dahling,

Whitaker & Levy, 2009; Wilson, Near & Miller, 1996) and dispositional empathy, including both perspective-taking and empathic concern (Davis, 1980).

While the present study assesses these interpersonal orientations independently, past research has, unsurprisingly, found links between them. For example, Machiavellian individuals have been found to have deficits in dispositional empathy (i.e., difficulty in perspective-taking and reduced concern about suffering), signaled by reduced responsiveness in a network of brain regions involved in processing other people's mental states, a cognitive capacity known as theory of mind (ToM), including the temporoparietal junction and medial prefrontal cortex (reviewed in Berezkei, 2015). On the flip side, Machiavellian individuals are hyper-concerned about violating social norms and highly responsive to punishment cues (Spitzer, Fischbacher, Herrnberger, Grön, Fehr, 2007; Czibor & Berezkei, 2012). In one study, more Machiavellian individuals achieved better results in an economic task because of their sensitivity to punishment: Machiavellianism scores correlated with activation in brain areas associated with evaluation of aversive stimuli (including lateral orbitofrontal cortex), and conscious awareness of threat and negative affect (including the insula; Spitzer et al., 2007).

Given the “person-based” nature of *reciprocity*, a form of fairness that can protect close social ties and thus confer benefits to the self, we expected more Machiavellian, self-interested, individuals to be especially likely to endorse *reciprocity* as fair. Indeed, our previous research has revealed links between Machiavellianism and enhanced valuation of deference to authority as well as reduced valuation of universal caring (Niemi & Young, 2013). “Binding” values such as deference to authority function to protect close social ties in the service of group-level order and welfare, and contrast with impartiality and universal caring values—which explicitly forbid partiality and harm—to protect individual-level well-being (e.g., Graham et al., 2011). Other work has found that decreased valuation of impartiality and universal caring values is

associated with increased willingness to inflict harm on another (Zeigler-Hill, Noser, Roof, Vonk, Marcus, 2015), and heightened antagonism and disinhibition (Noser et al., 2015). Therefore, individuals high in Machiavellian may endorse reciprocity as fair because of an interest in protecting *close* personal relationships (Dahling, Whitaker & Levy, 2009; Niemi & Young, 2013; Wilson, Near & Miller, 1996).

By contrast, we expected people scoring higher in dispositional empathy and lower in Machiavellianism to be more likely to endorse *charity* as fair. Charity, notably, represents another form of “person-based” fairness. Like reciprocity, charity requires allocators to individuate recipients. The recipient of the allocation, however, is identified by need, not by relationship to the allocator. Thus, charity’s benefits to another, not the self, might lead to a view of charity as fair to correlate with dispositional empathy, not Machiavellianism.

Finally, “person-blind” fairness, *impartiality*, favors no recipients – not close others and not those in need. Therefore, we cautiously expected to find no significant relationship between views of impartiality as fair and interpersonal orientations of Machiavellianism (associated with favoring close personal ties) or dispositional empathy (associated with concern for the suffering). However, it has been proposed by some that people may engage in impartial behavior in order to *signal* impartiality for reputational benefit at an ultimate level (Shaw, 2013). Thus, it is also possible that people high in Machiavellianism may infer that appearing impartial could benefit the self. A less positive view of charity has also been suggested: charity as “drawn-out reciprocity” (Trivers, 1971). For the same reason, people high in Machiavellianism may infer the benefits of charity, and flexibly invoke charity as fair.

In the current research, using a series of vignettes about everyday situations drawn from prior work (Niemi, Wasserman & Young, 2017), we examined the relationship between participants’ ratings of the fairness of allocators operating based on (a) reciprocity, (b)

impartiality, and (c) charity, and interpersonal orientations: Machiavellianism and dispositional empathy (i.e., perspective taking and empathic concern). We measured Machiavellianism with the Machiavellian Personality Scale (MPS; Dahling et al., 2009) and dispositional empathy with the Interpersonal Reactivity Index (IRI; Davis, 1980).

Study 1

Study 1: Method

Participants were 96 individuals on Amazon Mechanical Turk ($M(SD)_{age}=37.55(12.90)$; 54 female, 43 male, 1 chose other) who read 24 vignettes drawn from 96 total stories (see Figure 1, and Supplementary Material for full text of vignettes; and Niemi, Wasserman & Young, 2017). The vignettes featured protagonists who allocated resources in range of contexts based on (i) reciprocity, (ii) impartiality, (iii) charity, or (iv) unspecified criteria (6 per condition; in one of eight counterbalanced orders). The condition in which allocation criteria were unspecified was intended as a control condition that would not elicit strong inferences about allocators. However, the results are consistent with the possibility that participants inferred impartiality in this condition (As in Niemi, Wasserman & Young, 2017; the allocators in the unspecified condition received relatively high fairness ratings; e.g., in Study 1: $M= 5.37$, $SD=.92$). Given this ambiguity, the unspecified condition is not featured in the crucial comparison between conditions.

(A) Sasha is a manager at a large factory. She is in charge of scheduling shifts for all the managers to complete safety trainings.

(B) Today Sasha has to assign shifts, and she knows afternoon shifts are always preferred to morning shifts.

(C) *i. Reciprocity:* Sasha thinks about some managers who recently were a great help to her during the planning of the safety training curriculum.

ii. Impartiality: Sasha thinks about which managers had the morning shifts last week, since she trades off shifts week to week.

iii. Charity: Sasha thinks about a couple managers who were struggling to adjust to having newborns at home.

iv. Unspecified: Sasha thinks about the managers and the available shifts. She opens the scheduling document and selects some managers' names.

(D) Sasha assigns those managers the better afternoon shifts.

Figure 1. Composition of a sample scenario. See Appendix for full text of scenarios.

After each vignette¹, participants were asked: “Did [*protagonist*] act fairly?” on a scale from 1 = “Not At All” to 7 = “Very Much”. Participants then completed measures of Machiavellianism (MPS: Machiavellian Personality Scale; Dahling et al., 2009), dispositional empathy (IRI: Interpersonal Reactivity Index; Davis, 1980) in randomized order.

Machiavellianism. The Machiavellianism Personality Scale (MPS; Dahling et al., 2009) contains four subscales: (1) amorality (endorsement of lying, cheating, e.g., “I believe that lying is necessary to maintain a competitive advantage over others”), (2) control (e.g., “I enjoy having control over other people”), (3) status (e.g., “I want to be rich and powerful someday”), and (4) distrust (e.g., “Other people are always planning ways to take advantage of the situation at my expense”). Participants responded using a scale with anchors: 1 = “Strongly Disagree”, 2 =

¹ Two participants were excluded for answering “1=Strongly Disagree” or “2=Disagree” on a Scale from 1 to 5 (3 = “Neither Agree nor Disagree”, 4 = “Agree”, 5 = “Strongly Agree”) in response to an attention check question embedded in the Machiavellian scale: “I dislike forgetting to bring money when I go out to buy something.” We also administered items assessing how much participants judged the action of the protagonist to be morally blameworthy or praiseworthy, liked the protagonist, wanted to be friends with the protagonist, thought they’d get along with the protagonist, and would make the same decision as the protagonist, not discussed here. Additionally, we administered the Autism Quotient and the Social Values Orientation task (Van Lange, Otten, De Bruin, Joireman, 1997; see Supplementary Material “Allocation Task”).

“Disagree”, 3 = “Neither Agree nor Disagree”, 4 = Agree”, 5 = “Strongly Agree”. An overall Machiavellianism score for each participant was created by averaging subscale scores.

Dispositional empathy. The Interpersonal Reactivity Index (IRI; Davis, 1980, 1983) contains four subscales related to dispositional empathy, two of which are relevant to perceptions of fairness: (1) empathic concern (e.g., “I often have tender, concerned feelings for people less fortunate than me.”); and (2) perspective-taking (e.g., “I try to look at everybody's side of a disagreement before I make a decision.”). Participants responded using a scale from 1 = “This does not describe me well” to 5 = “This describes me very well”.

The dimensions of empathic concern and perspective-taking have been linked to higher levels of sensitivity to and awareness of other people without particular concern about implications for the self, and lower endorsement of interpersonal attributes including dictatorialness and arrogance (Davis, 1983). Men and women higher in empathic concern report being more emotionally sensitive – they disagree more with statements like “never cries” and “feelings not easily hurt”, compared to men and women lower in this dimension (Davis, 1983).

Study 1: Results

First, replicating our prior work (Niemi, Wasserman & Young, 2017), fairness ratings significantly differed across conditions ($F(2, 190)=130.74, p<.001$; see means in Figure 2, error bars indicate standard deviation). Participants rated the allocators in the *impartiality* vignettes to be the most fair, significantly more so than allocators in the *charity* vignettes ($F(1, 95)=94.46, p<.001$) and *reciprocity* vignettes ($F(1, 95)=311.18, p<.001$), which also significantly differed from each other ($F(1, 95)=33.28, p<.001$).

Fairness Ratings

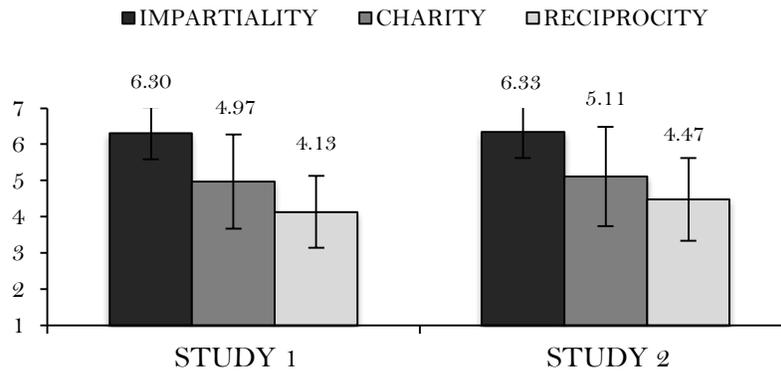


Figure 2. Fairness ratings for allocators in the impartiality, charity, reciprocity vignettes.

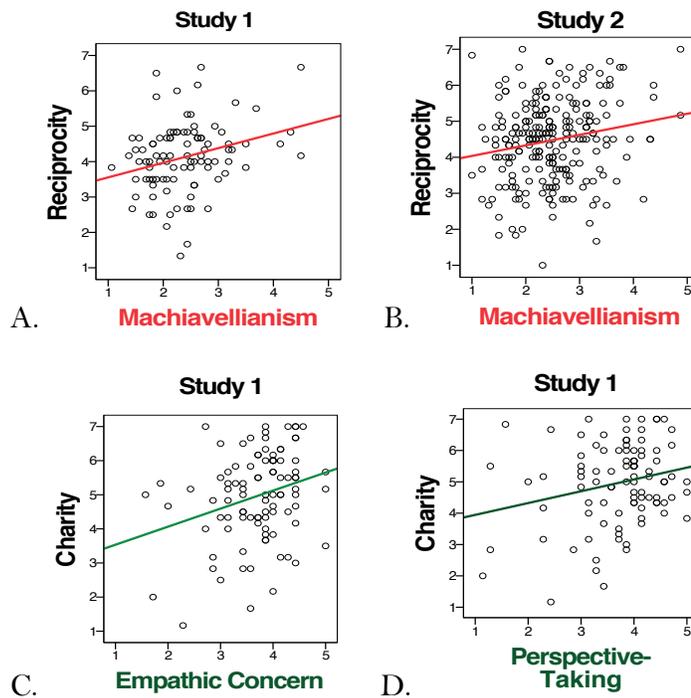
In Table 1, we report correlations among fairness ratings for *impartiality*, *reciprocity*, and *charity* and Machiavellianism (*Mach*) ($M(SD)=2.39(.67)$, Cronbach's $\alpha=.89$), the IRI dimensions of empathic concern (*EC*) ($M(SD)=3.70(68)$, Cronbach's $\alpha=.74$) and perspective-taking (*PT*) ($M(SD)=3.71(.81)$, Cronbach's $\alpha=.88$) (* $p<.05$, ** $p<.01$, *** $p<.001$).

Table 1. Zero-order correlations among fairness ratings for *impartiality*, *reciprocity*, and *charity* and Machiavellianism, empathic concern and perspective-taking in Studies 1-2.

		Dispositional Empathy					
		1. Recip	2. Impart	3. Charity	4. Mach	5. EC	6. PT
1. Recip	<i>Study 1</i>						
	<i>Study 2</i>		.039	.259*	.281**	-.084	-.209*
2. Impart	<i>Study 1</i>			.238***	.185**	-.004	-.094
	<i>Study 2</i>			.220*	.036	-.029	.017
3. Charity	<i>Study 1</i>				-.019	.276**	.234*
	<i>Study 2</i>			.088	-.075	.144*	.072
4. Mach	<i>Study 1</i>					-.499***	-.409***
	<i>Study 2</i>					-.387***	-.258***
		Dispositional Empathy					
5. EC	<i>Study 1</i>						.574***
	<i>Study 2</i>						.517***

Note. 1. Zero-order correlations uncorrected for multiple comparisons, **Top line:** *Study 1*; **bottom line:** *Study 2*. **Recip** = Fairness of reciprocity; **Impart** = Fairness of impartiality; **Charity** = Fairness of Charity; **Mach** = Machiavellianism Scale Score; **EC** = Empathic Concern; **PT** = Perspective Taking. *** $p <.001$, ** $p <.01$, $p <.05$.

First, and, unsurprisingly, as shown in Table 1, Machiavellianism was strongly negatively correlated with dispositional empathy: both empathic concern ($r = -.499, p < .001$) and perspective-taking ($r = -.409, p < .001$). Second, crucial to the present research, the more that participants rated reciprocity as fair, the higher they scored in Machiavellianism ($r = .281, p = .006$). By contrast, the more that participants rated charity as fair, the higher they scored in both empathic concern ($r = .276, p = .006$) and perspective-taking ($r = .234, p = .02$). A negative relationship was also observed between perspective-taking and ratings of reciprocity as fair ($r = -.209, p = .04$), though this relationship was reduced to non-significant when controlling for Machiavellianism. Importantly, Machiavellianism remained correlated with rating reciprocity as fair when controlling for perspective-taking ($r = .219, p < .03$). These results therefore suggest an independent relationship between Machiavellianism and rating reciprocity as fair. By contrast, low perspective-taking scores relate to rating reciprocity as fair only to the extent that low perspective-taking scores relate to Machiavellianism. The primary results of Studies 1-2 are illustrated in Figure 3.



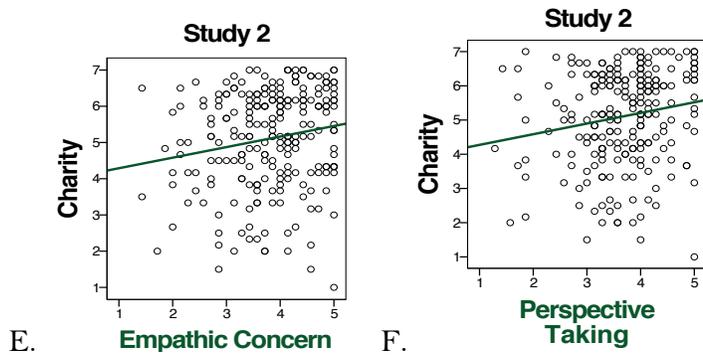


Figure 3. Across Studies 1-2, rating reciprocity as fair correlated with Machiavellianism (A-B); rating charity as fair correlated with empathic concern and perspective-taking (C-F).

We also explored correlations among fairness ratings. Rating reciprocity as fair correlated with rating charity as fair ($r=.259, p=.01$). In addition, rating charity as fair correlated with rating impartiality as fair ($r=.22, p=.03$), and ratings of reciprocity and impartiality did not correlate with each other ($r=.039$), though both of these results did not replicate in Study 2. These exploratory analyses are consistent with the idea that the same individuals may be sensitive to the person-based nature of charity and reciprocity when evaluating their fairness.

Study 2: Method

Study 2 provides a direct replication of Study 1. We tested 251 participants on Amazon Mechanical Turk, with a final sample of 233 participants² ($M(SD)\text{age} = 37.58 (11.94)$; 144 female, 87 male, 2 chose other). We relied on a larger sample to determine whether order of tasks (i.e., completing fairness ratings before the individual differences measures) affected results; it did not.

² Exclusions were based on participants' failure on either of two catch questions embedded in the MPS (answering "1 = Completely Disagree" or "2" on a Scale from 1 – 5 (3 = "Neither agree nor disagree", 4, 5 = "Completely agree") to "Humans need food and water in order to survive," or "4" or "5" (same scale) to "I believe the human race has only existed for about 100 years total"), or completion of the MPS in under 30 seconds.

Study 2: Results

First, as in Study 1 and prior work (Niemi, Wasserman & Young, 2017), fairness ratings significantly differed across conditions ($F(2, 464)=199.61, p<.001$; see means in Figure 1, error bars indicate standard deviation). Participants rated the allocators in the *impartiality* vignettes to be the most fair, significantly more so than the allocators in the *charity* vignettes ($F(1, 232)=157.12, p<.001$) and *reciprocity* vignettes ($F(1, 232)=506.39, p<.001$), which also significantly differed from each other ($F(1, 232)=38.43, p<.001$). Correlations among fairness ratings for *impartiality*, *reciprocity*, and *charity* and Machiavellianism (Mach) ($M(SD)=2.49(.72)$, Cronbach's alpha=.89), and the IRI dimensions of empathic concern (EC) ($M(SD)=3.81(.81)$, Cronbach's alpha=.89) and perspective-taking (PT) ($M(SD)=3.68(.77)$, Cronbach's alpha=.86) are reported in Table 1.

First, Machiavellianism was strongly negatively correlated with empathic concern ($r=-.387, p<.001$) and perspective-taking ($r=-.258, p<.001$). Second, the more that participants rated reciprocity as fair, the higher they scored in Machiavellianism ($r=.185, p<.01$). By contrast, the more that participants rated charity as fair, the higher they scored in empathic concern ($r=.175, p<.01$) and perspective-taking ($r=.174, p<.01$). These results replicate Study 1. However, in contrast to Study 1, rating reciprocity as fair was not negatively correlated with perspective-taking.

As in Study 1, rating reciprocity as fair was correlated with rating charity as fair ($r=.238, p<.001$). This time, however, charity and impartiality ratings were not correlated, whereas reciprocity and impartiality ratings were weakly positively correlated ($r=.130, p<.05$).

Discussion

Controversy about what is fair abounds. Here we investigated whether and how people's interpersonal orientations (Machiavellianism and dispositional empathy) related to their views of "person-based" allocations – *reciprocity* and *charity* – versus "person-blind" allocations – *impartiality*. Across both studies, we found that Machiavellianism, an interpersonal orientation involving ruthless pursuit of one's own personal goals (Dahling et al., 2009), to be associated with rating reciprocity as more fair, and dispositional empathy to be associated with rating charity as more fair. We do not mean to claim that highly Machiavellian individuals will always and only see reciprocity as fair or that highly empathic individuals will always and only see charity as fair. Nevertheless, our findings suggest that individuals with different interpersonal orientations and perhaps even organizations promoting associated tendencies may take systematically different perspectives on fairness. Importantly, these results help clarify the moral landscape by underscoring distinctions between "person-based" forms of fairness, such as reciprocity and charity, and how each differs from "person-blind" impartiality.

In our neuroimaging work, evaluation of the allocators in the same reciprocity and charity vignettes, compared to the impartiality vignettes, elicited greater activity in regions for social cognition and theory of mind (Niemi, Wasserman & Young, 2017). These findings suggest that, when participants evaluated allocators operating based on reciprocity and charity, they may have attended to allocators' mental states, i.e., internal motivations, to a greater extent. Consistent with this neural pattern, reciprocity and charity were rated more motivated by allocators' emotions and the unique states of individuals, and less by standard procedures, compared to impartiality. Furthermore, across both studies in the present work, ratings of charity and reciprocity as fair were correlated, whereas other correlations with impartiality were inconsistent across studies. Interestingly, in our neuroimaging work, although reciprocity and charity alike elicited greater activity in brain regions for theory of mind, i.e., precuneus,

dorsal and ventral medial prefrontal cortex (MPFC) and left temporo-parietal junction (LTPJ), compared to impartiality, reciprocity and charity also elicited distinct neural and behavioral patterns. Reciprocity alone elicited consistently greater activation in these brain regions compared to impartiality. Furthermore, participants rated reciprocity as even more motivated by allocators' personal goals, less fair, and less morally praiseworthy, compared to both charity and impartiality. Overall these findings suggest that evaluating different kinds of allocations recruits ToM to varying extents, with charity and reciprocity eliciting greater attention to mental states. On average people may consider "true" fairness to be a matter of maintaining a "person-blind" approach; thus, the extent to which allocations do not trigger ToM might indicate fairness.

The current work affords a number of additional neural predictions. Machiavellian individuals who consider reciprocity to be more fair might show reduced or disrupted representations of others' pain, reflected in reduced activity in anterior insula (AI), posterior anterior and anterior medial cingulate cortex (pACC/aMCC) (Engen & Singer, 2012). Conversely, we might expect people who rate charity to be more fair and who are higher in empathic concern and perspective-taking to exhibit enhanced activation in core empathy-related regions in response to others' distress.

In our prior work (Niemi, Wasserman & Young, 2017) and here, impartiality stands out as prototypically fair – yet, in the current work, we demonstrate robust individual differences in *who sees what as fair*. These novel results suggest that people interested in gaining support for their arguments about how to allocate resources (e.g., lawmakers; policy proposers and protesters) may find that appeals to impartiality are not always the best strategy, depending on the audience. Arguments that reciprocity-based allocations are "fair" may be more convincing

to an audience high in Machiavellianism who may see such proposals as missions of “loyalty in action”.

The present results also reveal the boundary lines between the “person-based” forms of fairness, such as reciprocity and charity, and how each differs from “person-blind” impartiality. Prior research has underscored the crucial role of reciprocity for many different relationships (e.g., Axelrod & Hamilton, 1981; Baumard, André & Sperber, 2013; Gurven, 2006; Hill & Kaplan, 1993; Rand & Novak, 2013; Trivers, 1971; Wedekind & Milinski, 2000). Returning favors is not only expected in typical social dyads (e.g., friendships and partnerships), but built into many major religious tenets (e.g., The Golden Rule: “Do unto other as you would have them do unto you”) as well as criminal justice programs (e.g., victim compensation). However, when multiple recipients may have a stake in resources, allocations guided by the tenet “you scratch my back, I scratch yours” may strike some as unfair (Elster, 2006; Gurven, 2006). Indeed, in our past work, participants rated allocators in the reciprocity vignettes as significantly more motivated by their own personal goals, compared to allocators in the charity and impartiality vignettes (Niemi, Wasserman & Young, 2017). We speculate that including reciprocity in one’s definition of “fairness” may be part of a Machiavellian moral worldview aimed at securing close relationships to have people nearby available either to exploit or to aid in the exploitation of third parties (Cf. Niemi & Young, 2013).

Charity shares features with both reciprocity and impartiality. Like impartiality, charity may be derived from and ultimately serve preferences for equality (Shaw & Olson, 2012). All else being equal, charity provides a means to equality without triggering loss aversion (i.e., appealing to the *do-no-harm* principle; Baron, 1995; Kahneman & Tversky, 1979; Van Beest, Van Dijk, De Dreu, Wilke, 2005). However, charitable allocations meant to “level the playing field” in service of social justice (e.g., to correct for historical exploitation as in the case of

affirmative action) may be deemed by some to be unfair to the extent that they are viewed as involving “preferential treatment”. According to Trivers (1971), giving specifically to the recipient most in need may in some cases be the *most* personally advantageous: the recipient, in this case, is maximally grateful to the allocator and therefore most tightly bound to reciprocity norms that favor the allocator in the future. The implication is that charitable allocations do not necessarily stem from a preference for equality, as is the case for “person-blind” impartiality, but instead derive from a desire to build long-standing ties with exchange partners, as is the case for “person-based” reciprocity. In addition to some neural evidence for differences between charity and reciprocity, described above (Niemi, Wasserman & Young, 2017), the two present studies revealed that charity and reciprocity are associated with divergent stable interpersonal orientations, suggesting interesting nuances in how the evolutionary advantages of charity may play out at an interpersonal and group level. Participants who rated charity as more fair were higher in empathic concern and perspective-taking, which are both conspicuously low in people high in Machiavellianism, who in turn rated reciprocity as more fair.

According to Hume, questions of justice are less likely to arise at the tails of a normal distribution of resources: extreme plenty or extreme scarcity (Wolff, 2006). In conditions of plenty, allocation concerns are less pressing. In conditions of scarcity, it is hard to fault someone for doing what they can to survive. When people face life or death circumstances (e.g., due to genocide, enslavement), adopting a definition of fairness that prioritizes close relationships might be crucial to developing and preserving coalitions necessary for escaping exploitation and abuse. Indeed, other research has shown that even young children favor reciprocity in explicitly competitive contexts (Shaw, DeScioli, Olson, 2012; Shaw, 2013). We have examined fairness values as if they should be expected to be relevant to humans in the

same way across the lifespan and across many different sizes of groups; however, we might expect, for example, that charity becomes more salient when we consider humans at the beginning or end of their lives. In spite of differences, highlighted in the present work, both “person-blind” and “person-based” forms of fairness likely allow people to manage the problem of resource allocation as it presents itself across diverse relationships — from friendships and partnerships to child and elder care to the community and global economy.

Compliance with Ethical Standards:

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SUPPLEMENTARY MATERIAL

Who sees what as fair?

Mapping individual differences in valuation of reciprocity, charity, and impartiality

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Appendix: Vignettes

Participants received one version of each of the 24 vignettes in all studies; each condition -- *Reciprocity*, *Impartiality*, *Charity*, *Unspecified* -- was represented by 6 vignettes. Condition was varied in part C. Alterations in part D for *Unspecified* condition are indicated in brackets.

VIGNETTE 1

- (A) Sasha is a manager at a large factory. She is in charge of scheduling shifts for all the managers to complete safety trainings.
- (B) Today Sasha has to assign shifts, and she knows afternoon shifts are always preferred to morning shifts.
- (C) *Reciprocity*: Sasha thinks about some managers who recently were a great help to her during the planning of the safety training curriculum.
Impartiality: Sasha thinks about which managers had the morning shifts last week, since she trades off shifts week to week.
Charity: Sasha thinks about a couple managers who were struggling to adjust to having newborns at home.
Unspecified: Sasha thinks about the managers and the available shifts. She opens the scheduling document and selects some managers' names.
- (D) Sasha assigns those managers the better afternoon shifts.

VIGNETTE 2

- (A) Dan referees street hockey games in a small city. He is responsible for making calls during the games.
- (B) In one game, Dan is unsure whether a player has just committed a penalty.
- (C) *Reciprocity*: Dan thinks about the player and how he had recently helped Dan clear out a large mess from his basement.
Impartiality: Dan thinks about the technical rules of the game and determines that the player's move was not illegal.
Charity: Dan thinks about the player and how he had just recently returned to hockey after recovering from a major car accident.
Unspecified: Dan thinks about the player's movements in relation to the other player, and the location of the hockey stick.
- (D) Dan decides to not call out this penalty.

VIGNETTE 3

- (A) Carol is asked to judge a contest at her company's annual picnic. The winner will receive a large gift certificate to a home improvement store.
- (B) Carol watches her fellow employees participating in the contest.
- (C) *Reciprocity*: One co-worker had recently put in a lot of overtime helping Carol complete a project at work.
Impartiality: One co-worker met all the judging criteria Carol had been given.
Charity: One co-worker was part of a department that had just been downsized and would soon be laid off.
Unspecified: One co-worker from the shipping department got on stage and performed an interesting juggling act.
- (D) She decides to give this co-worker the highest score.

VIGNETTE 4

- (A) Katie is part of a work group at school with two other students. The other students each have a different idea about the best way to present the project.
- (B) They ask Katie to pick which idea she likes best. Katie gives it some thought.
- (C) *Reciprocity*: One of the other students had recently picked Katie's idea for another part of the project.
Impartiality: One of the other students had presented an idea that fit all the requirements laid out in the syllabus.
Charity: One of the other students had just received her first chemotherapy treatment after being diagnosed with lymphoma.
Unspecified: She gets up to take a short break. She buys a soda from the vending machine and returns to the group.
- (D) Katie decides to choose that student's idea [which student's idea to choose].

VIGNETTE 5

- (A) Jon is the instructor of an engineering course at a small college. The students of the class have just finished designing an electric car for a competition.
- (B) Jon must decide which student will be chosen to drive the car for the judges at the competition.
- (C) *Reciprocity*: Jon thinks about the students. One student had recently helped Jon raise money for the project at a fundraiser outside of school.
Impartiality: Jon thinks about the rules of the competition. The driver of the car is required to have certain qualifications, and only one student qualifies.
Charity: Jon thinks about the students. One student had recently lost his home to a devastating tornado.
Unspecified: Jon thinks about the students and the dates of the competition. He pulls up the competition schedule on his computer.
- (D) Jon chooses this [a] student to drive the car.

VIGNETTE 6

- (A) Craig is part of a team of catering staff who pool all the tips they receive in an evening. All the employees have slightly different jobs and some serve more tables than others.
- (B) Tonight, Craig must distribute the tips among them.
- (C) *Reciprocity*: Craig thinks about a couple team members who had made his night a lot easier by running an extra errand that usually took Craig a long time to do.
Impartiality: Craig thinks about the catering company's rule that tips should be allocated based on how many tables employees served. Some employees served a lot of tables that evening.
Charity: Craig thinks about a couple of employees whose spouses were recently laid off from their jobs and who were on the verge of home foreclosure.
Unspecified: The evening had gone smoothly, and the client had written a check to pay for the catering at the end of the night. Craig thinks about some employees who worked that evening.
- (D) He gives the largest portions of the tip money to them.

VIGNETTE 7

- (A) Janice delivers a presentation at an important meeting at work. After she finishes, her co-workers praise the presentation and her achievements.
- (B) Janice thinks about the help she received on the presentation.
- (C) *Reciprocity*: One co-worker had recently located an important document that Janice had lost and which was critical for the presentation.
Impartiality: One co-worker had coordinated the meetings related to the presentation, and it was standard for the presenter to thank the coordinator.
Charity: One co-worker who helped had recently found out that her husband, a pilot in the Air Force, was being deployed for the third time.

Unspecified: She notices a few notes she had added to the end of her presentation. She returns to the podium.

- (D) Janice acknowledges this [a] co-worker aloud.

VIGNETTE 8

- (A) Jim coaches a soccer team at a local elementary school in a small city. There are twenty children on the team and they have gathered on the field for practice.
(B) Today, Jim is teaching the kids how to kick a goal.
(C) *Reciprocity:* Jim thinks about the children on the team. One child had recently come over and tutored Jim's own son in math.

Impartiality: Jim thinks about the soccer league's guideline that all the kids should be able to kick a goal. One child is not able to do it.

Charity: Jim thinks about the children on the team. One child's parents were recently evicted and were now facing homelessness.

Unspecified: Jim demonstrates kicking to the children and they practice. One child is very enthusiastic and won't stop kicking goals, even during the breaks.

- (D) He lets this child have the most kicks.

VIGNETTE 9

- (A) Brian is a landscaper who tends several lawns and gardens in the town of Fairfield. One day, he is short on time and can only make it to some of his clients.
(B) He looks at his client list and tries to figure out where he will go.
(C) *Reciprocity:* One of his clients had recently given him a valuable new referral for a large landscaping design job.

Impartiality: He checks the contracts for his clients and notices that the contract for one client specifically stipulates daily visits.

Charity: One of his clients recently had surgery and was unable to clear the leaves off his front stairs in order to safely use them.

Unspecified: He notices that several clients are about to receive large shipments of tulip bulbs. He checks the shipping status and looks at his map.

- (D) Brian makes a plan to go to that [a] client.

VIGNETTE 10

- (A) Naomi has a popular blog that she uses to discuss issues on children's education. Many people in several districts in her city regularly access the blog for tips.
(B) Naomi is writing a post on tutoring companies and wants to include links to tutors.
(C) *Reciprocity:* Naomi thinks about one tutoring company with several different locations, which recently sent Naomi a packet of information on math learning that she used to write a well-liked post.

Impartiality: Naomi has a rule to include links that are helpful for her readers all over the city. She figures out the locations of tutoring companies in different districts across the city.

Charity: Naomi thinks about her readers in one part of the city who recently lost funding for their in-school tutoring program. She figures out the locations of tutors that would be accessible and affordable for them.

Unspecified: Naomi spends the afternoon making phone calls, checking things online, and writing some notes in a document. She opens the blog program and begins to draft her post.

- (D) Naomi includes these [some] links on her blog.

VIGNETTE 11

- (A) Jessica recently graduated from college and moved to a major metropolitan area. Several acquaintances from college are in the city for a conference.
(B) Jessica has only enough room in her small apartment to provide one person with a place to stay.

- (C) *Reciprocity*: She thinks about her acquaintances. One of them had recently helped Jessica at a different conference by connecting her with a contact who had a job opening.
Impartiality: She thinks about her acquaintances. She emails them all and lets them know the first person to reply can stay at her apartment. She receives a reply that evening.
Charity: She thinks about her acquaintances. One of them had recently been overwhelmed by very expensive student loan payments and was barely able to pay them.
Unspecified: She thinks about her acquaintances. They had all moved far from the college they attended in the middle of the country. Jessica receives a phone call.
- (D) Jessica offers this [an] acquaintance a place to stay.

VIGNETTE 12

- (A) Carla is a medical director at a dermatology clinic that employs several physicians. Recently, a new surgical technology had been demonstrated to the group.
- (B) Several of the physicians come to Carla and request time off to obtain training in this new technique.
- (C) *Reciprocity*: One of the physicians had recently covered several of Carla's duties when she took time off to attend a business development seminar in Germany.
Impartiality: It is a clinic policy that training leaves are granted based on the number of years physicians have been employed with the group. Only one had completed the required number of years.
Charity: One of the physicians had recently gone through a messy divorce after surviving a domestic assault, and her finances had been largely wiped out.
Unspecified: Carla consults the website of the company that trains physicians in the new surgical technique. She notes the dates and locations of the training sessions.
- (D) Carla lets this [a] physician take time off for the training.

VIGNETTE 13

- (A) Rick manages the purchasing department for an online retailer. Around the holidays, many companies and manufacturers send Rick holiday gifts.
- (B) Today, Rick is deciding what to do with a basket full of chocolates.
- (C) *Reciprocity*: One employee had recently come in on his day off to organize Rick's messy filing system.
Impartiality: He has a rule that a different employee will receive whatever gift was sent to Rick that day. He checks his list for the name of the next employee in line.
Charity: One employee's husband was a police officer who had recently been seriously injured in the line of duty.
Unspecified: He puts the basket on his desk. He checks his calendar and realizes he has a meeting in five minutes.
- (D) Rick gives the chocolates to this [an] employee.

VIGNETTE 14

- (A) Al teaches a creative writing course at a bookstore downtown. At the end of each course, he collects each student's favorite poem and prints it in his popular literary journal.
- (B) Today he is laying out the poems. One must be placed on the "feature" page at the beginning.
- (C) *Reciprocity*: One student had recently placed a new ad for Al's creative writing course at the coffee shop she owns.
Impartiality: Al had the students vote for their favorite out of all the students' poems. One poem received the majority of the votes.
Charity: One student had recently returned from Afghanistan, and was dealing with post-traumatic stress disorder.
Unspecified: Al opens his email program and downloads all the files that the students sent to him.
- (D) Al puts this [a] student's poem in the featured spot.

VIGNETTE 15

- (A) Gary is the driver of a large tour bus that takes hundreds of passengers to a casino. The huge crowd tends to get impatient as they wait to board the bus.
- (B) Gary is about to begin the boarding process for the passengers.
- (C) *Reciprocity*: Gary recognizes several passengers from a previous trip. They had won big payouts at the blackjack table at the casino, and had given Gary a large tip.
Impartiality: Passengers assigned to the seats in the back are to board first. Gary consults his passenger list and identifies those seated in the back rows.
Charity: Gary recognizes several passengers from a previous trip. They were a group of breast cancer survivors who had undergone difficult treatments.
Unspecified: Gary locates the passenger list for the trip. He checks the date and time that it was last updated. He determines how many empty seats would be available on the bus.
- (D) Gary lets these passengers board the bus first [some passengers board the bus].

VIGNETTE 16

- (A) Brenda works at a farm stand. There is a large selection of plants, fruits, and vegetables for sale.
- (B) Today the farm stand is busy with many customers, and Brenda is ringing up sales at the counter.
- (C) *Reciprocity*: Brenda recognizes a couple buying fruit and several potted plants. They had recently given her a discount at the hardware store that they own.
Impartiality: A couple is purchasing some fruit and several potted plants. They hand Brenda a coupon they had cut out of the paper for a discount.
Charity: Brenda recognizes a couple buying fruit and several potted plants. They had recently lost their son, who was away at college, in a terrible car accident.
Unspecified: A couple places several potted plants and a few pounds of fruits and vegetables on the counter. Brenda weighs the fruits and vegetables.
- (D) Brenda gives them the three plants for the price of one.

VIGNETTE 17

- (A) Jackson is a music teacher at an elementary school. The students are learning about percussion, and one instrument, the snare drum, is always the class favorite.
- (B) Today Jackson is preparing his lesson plan for music class and must assign the instruments.
- (C) *Reciprocity*: One student had stayed after class last week to help Jackson put away all the instruments in the storage closet, a task that usually takes him a long time to do.
Impartiality: Jackson trades off who gets the snare drum each class. He looks at the class roster and determines who was next in line for it.
Charity: One student was going through very difficult times at home and was barely able to stay engaged in the classroom.
Unspecified: Jackson pulls down the boxes of percussion instruments from the storage closets and makes sure all the pieces are there. He consults the class list.
- (D) Jackson assigns the snare drum to this [a] student in his lesson plan.

VIGNETTE 18

- (A) Mario is a cardiologist who runs a clinic for patients who are at risk of having a heart attack. A famous nutritionist is visiting Mario's clinic and offers to give two patients personalized diet advice.
- (B) Mario must select which patients will receive the free consultations.
- (C) *Reciprocity*: Two patients had recently helped Mario find an excellent assisted living facility for his mother.
Impartiality: The diet requires patients to have certain cholesterol levels and two patients fit the requirements.
Charity: Two patients had recently moved to the area because they were displaced from their home after flooding.

Unspecified: Mario notes the dates that the nutritionist is available to give the consultations on his calendar. He opens the patient records program.

- (D) Mario invites these [some] patients to come in for the nutritionist's consultations.

VIGNETTE 19

(A) Max is a photographer who is expanding his business to include weddings. In order to build a wedding portfolio, he invites couples to submit their names to be considered for free wedding photography.

(B) Today he needs to choose who will receive the offer.

(C) *Reciprocity:* One couple had recently recommended Max to a new hotel who needed photography for their website.

Impartiality: Max enters all the couples' names into a computer program and has the program randomly select one couple.

Charity: The father of the bride-to-be in one couple had recently been killed in a sudden workplace accident.

Unspecified: Max begins to sort through the emails of the couples who contacted him. He notes their names and contact information.

- (D) Max offers this [a] couple the free wedding photography services.

VIGNETTE 20

(A) Michelle is an intern at the White House. Several students from the high school she attended in her hometown are part of mentorship program for young people interested in a career in politics.

(B) Michelle is deciding which of these students to bring to an event at the White House.

(C) *Reciprocity:* One of the students had volunteered for several years in a row at an annual fundraiser that Michelle coordinated.

Impartiality: The program has a policy that seniors should be given priority to attend White House events. One student in the program is a senior.

Charity: One of the students in the program had been raised in foster care since the age of twelve after losing both of his parents in a shooting.

Unspecified: Michelle locates the phone number of the director of the mentorship program and gives her a call.

- (D) Michelle decides to bring this student to the event [which student to bring to the event].

VIGNETTE 21

(A) Anne is the director of an emergency response team in a small town in New England. After a major storm, the town is in need of clean drinking water.

(B) A major shipment of water arrives in town and Anne must decide how to distribute it.

(C) *Reciprocity:* The company who sent the shipment has a large warehouse located in the center of Anne's town. A group of their employees was working to repair that warehouse.

Impartiality: Anne consults the list of emergency zones given to her by the response team. The team has organized the list in order to facilitate the fastest distribution. One zone is at the top of the list.

Charity: Some residents of the town had their homes completely destroyed in the storm. They were all displaced to a shelter without electricity or running water in one area of the town.

Unspecified: Anne helps the emergency response team unload the massive shipment into smaller delivery trucks and boats. She selects an emergency zone from her list.

- (D) Anne sends the first portion of the shipment out to them.

VIGNETTE 22

(A) Sara collects book donations for a nonprofit organization in a major city. Thousands of children throughout the city receive free books through the program.

- (B) Sara has received a huge donation of brand new books from a popular publisher, which she will send out today.
- (C) *Reciprocity*: Sara thinks of a school in one borough that often sends teachers to help out with the organization's fundraisers.
Impartiality: Sara opens the master list of the schools that receive book donations. She notes which school is next in line for a donation.
Charity: Sara thinks of a school in one borough that was very poorly funded and was recently labeled 'underperforming' by the state.
Unspecified: Sara sorts the books by level of reading difficulty. She repackages the books, labels them, and prints the addresses of the recipients.
- (D) Sara ships the donation out to them.

VIGNETTE 23

- (A) Tania is an executive assistant for a design company in Los Angeles. One afternoon, she is asked to make several deliveries in the city.
- (B) Tania is not sure she'll be able to get all the deliveries out in time. She begins to plan her route.
- (C) *Reciprocity*: One delivery was for a designer in the lighting department who recently gave Tania an enthusiastic recommendation for a raise.
Impartiality: Tania plots out what appears to be the most direct route to all the delivery locations on her map. One location is just next door.
Charity: One delivery was for a designer whose son was in the hospital and who was clearly very stressed out at work.
Unspecified: Tania picks up the outgoing delivery packages and makes sure she can fit them all in her car. She types in an address on her GPS.
- (D) Tania makes this delivery first.

VIGNETTE 24

- (A) Bill is a fisherman who catches lobsters in the town of Rockport. When he gets back to shore one afternoon, there is a mixup with some orders.
- (B) Bill notices there is an extra lot of 6 lobsters.
- (C) *Reciprocity*: The owner of the business next door to the dock had recently given Bill his extra set of tickets to a baseball game.
Impartiality: Whenever there are extra lobsters, the fishermen give them to the manager who redistributes them to another order.
Charity: A family that lived close by was struggling through tough financial circumstances and Bill often saw the father returning from the food bank.
Unspecified: Bill looks over the order forms closely, checks the orders he already packed, and speaks to his co-worker.
- (D) Bill packs up the lobsters and brings them over to him.

Study S1

Study S1: Method

To test the robustness of the relationship between ratings of the fairness of reciprocity and Machiavellianism, as well as their connections to allocation behavior, we ran these measures in an additional study ($n=132$) on Amazon Mechanical Turk. Participants rated the fairness vignettes and then completed the allocation task and Machiavellianism scale (order of presentation of allocation task and scale counterbalanced between subjects). The final sample included 119 individuals ($M(SD)age=36.87(10.61)$; 63 female, 56 male). This study used the same exclusion criteria used in Study 2 reported in the main text.

Allocation Task Method. Participants received the following instructions for the allocation task.

"In this task we ask you to imagine that you have been randomly paired with another person, whom we will refer to simply as the "Other." This other person is someone you do not know and that you will not knowingly meet in the future. Both you and the "Other" person will be making choices by choosing either the letter A, B, or C. Your own choices will produce points for both yourself and the "Other" person. Likewise, the other's choice will produce points for him/her and for you. Every point has value: the more points you receive, the better for you, and the more points the "Other" receives, the better for him/her.

Here's an example of how this task works:

A

You get: 500

Other gets: 100

B

You get: 500

Other gets: 500

C

You get: 550

Other gets: 300

In this example, if you choose A you would receive 500 points and the others would receive 100 points; if you chose B you would receive 500 points and the other 500, and if you chose C, you would receive 550 points and the other 300.

So, you see that your choice influences both the number of points you receive and the number of points the other receives. Before you begin making choices, please keep in mind that there are no right or wrong answers -- choose the option that you, for whatever reason, prefer most. Also, remember that the points have value: the more of them you accumulate the better for you. Likewise, from the "other's" point of view, the more points s/he accumulates, the better for him/her."

Study S1: Results

First, as in Studies 1-2, and prior work (Niemi, Wasserman & Young, in press), participants rated the allocators in the *impartiality* vignettes to be the most fair, significantly more so than allocators in the *charity*, and *reciprocity* vignettes, which also significantly differed from each other ($F(2, 236)=113.21, p<.001$; see means in Figure S1, error bars indicate standard deviation).

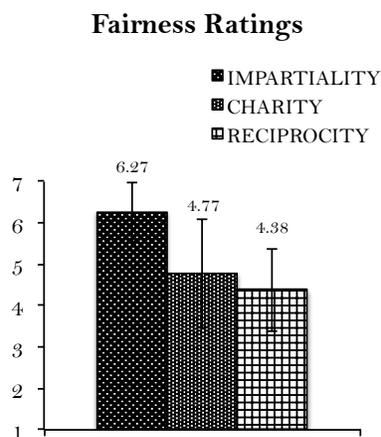


Figure S1. Fairness ratings for allocators in the impartiality, charity, reciprocity vignettes.

We found a correlation between Machiavellianism and reduced ratings of impartiality as “fair” (see Table S1 for correlations). This result is a conceptual replication of the link between Machiavellianism and higher rating of “person-based” fairness (reciprocity) in Studies 1-2. People higher in Machiavellianism may be less likely to endorse *impartiality* as “fair”, as impartiality might strike them as prohibitively restrictive (Bereczkei, 2015).

We did not find a correlation between ratings of reciprocity as “fair” and higher Machiavellianism. But, reduced ratings of impartiality as “fair” and Machiavellianism also both correlated with more competitive choices in the allocation task. Machiavellianism also correlated with fewer prosocial choices in the allocation task. Finally, as in Studies 1-2, fairness ratings of reciprocity were more strongly correlated with fairness ratings of charity than with fairness ratings of impartiality ($p=.05$, based on results of a test of the difference between these dependent correlations, Lee & Preacher, 2013, September).

Table S1. Correlations among Machiavellianism, Allocation Behavior, Fairness of Reciprocity, Impartiality and Charity.

<i>n</i> =119	Mach	Pro	Ind	Comp	Reciprocity	Impartiality	Charity
Mach		-.20*	.15	.27**	-.01	-.18*	-.09
Pro			-.99	-.13	.18	.14	.07
Ind				-.04	-.13	-.07	-.06
Comp					.07	-.45***	-.06
Reciprocity						.20*	.39***
Impartiality							.09
Charity							

Note. Mach = Machiavellianism Scale Score. Pros= Prosocial (50-50 egalitarian) allocations, Ind= Individualistic (self-serving) allocations, Comp=Competitive allocations; Recip=Fairness ratings for reciprocity, Impart=Fairness ratings for Impartiality, Charity=Fairness ratings for charity.

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