

Group Identification and the Collaboration Effect

Mary McGrath

Assistant Professor of Political Science

IPR Fellow

Northwestern University

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DRAFT

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ABSTRACT

How do we distinguish the deserving from the undeserving poor? Collaboration shifts our distributive preferences, increasing our willingness to give up resources for someone who has less. A sense of shared group membership with one's collaborator appears to play an important role in this effect. This paper presents evidence on the relationship between group identification and the collaboration effect. An initial experiment and a replication study show that respondents treat collaborators differently when the collaborator is a member of a racial out-group. Furthermore, respondents with a "High-Group" outlook appear to be more sensitive to collaboration, suggesting heterogeneous treatment effects corresponding with grid-group cultural theory. Investigation of the mechanism suggests that the collaboration effect operates by creating a sense of indebtedness to the partner, and an initial test indicates that the effect of collaboration may reach beyond the immediate context of the collaboration, altering reported preferences for federal spending on welfare.

1. Intro

Attitudes toward redistributive policies are complex. Faith in the agents and the instruments of redistribution, principles regarding compulsory versus voluntary sharing of resources, and beliefs about long-run effects of redistributive policy all factor into individual views, alongside the particularities of any policy. But beneath these complexities, attitudes toward redistribution are informed by a preliminary question: who merits a share of our resources? Because material resources are limited, redistributive decisions necessarily discriminate—lines are drawn in response to the question, “who among the needy should be helped?” (Katz 1989). In making these decisions, how do we distinguish—knowingly or unconsciously, rightly or wrongly—the deserving from the undeserving poor?

Basic models of political economy demonstrate that anyone with income above the median should vote against redistribution (see, Meltzer & Richards 1981), but evidence from in-depth interviews (Hochschild 1981) and open-ended survey questions (Feldman & Zaller 1992) reveals that respondents often key on attributes of the recipient, rather than simply economic self-interest. Though individuals report attitudes toward redistribution that are complicated and often ambivalent, themes of economic individualism or effort-based distribution of resources consistently emerge in studies examining preferences regarding redistribution.

Belief that one’s station in life is more due to effort than to luck corresponds with lower levels of social spending cross-nationally and within the United States (Alesina, Glaeser, & Sacerdote 2001). This belief also predicts lower individual-level preferences for redistribution (Alesina & La Ferrara 2005, Fong 2001). Importantly, Aarøe and Petersen (2014) demonstrate a causal relationship between perception of recipient’s effort and attitudes toward redistribution: a brief description suggesting whether or not a welfare recipient is making an effort eliminates the

otherwise considerable difference between American and Scandinavian survey respondents' support for welfare benefits.

Race also appears to be an important factor in shaping preferences for redistribution. Studies have found that in the United States, perception that transfer payments will benefit a racial minority corresponds with lower levels of support for redistribution (Alesina et al. 2001; Gilens 1995; Mendelberg 2001; Lee & Roemer 2006; Luttmer 2001). Harell, Soroka, & Iyengar (2016) show that the effect of racial cues on support for redistributive policy exists beyond the U.S. context. And Winter (2006) demonstrates that this effect of race on attitudes toward social welfare payments manifests not only as discrimination against recipients from a racial out-group, but preferential treatment towards racial in-group recipients.

Preferential treatment of in-group members in redistributive decisions is not limited to race. Shayo (2009) develops of a model of redistributive preferences characterized by altruism directed only at in-group members, and Klor & Shayo (2010) show that with in-groups defined simply by field of academic study, participants are willing to sacrifice material payoffs to benefit their group.

In addition to effort and group-membership, recent evidence suggests another recipient attribute that appears to be key in determining deservingness: whether or not the recipient is considered a collaborator. People are more likely to give up money for a collaborating partner who has received a lower payoff than for a partner who has performed the same work, but done so individually—even when it is clear they will never encounter the partner again (McGrath & Gerber 2017). A similar result holds among young children sharing toys, but not among chimpanzees, suggesting that this effect of collaboration is inherent and unique to the human sense of distributive justice (Hamann et al. 2011; Hamann et al. 2014). While research on political attitudes toward redistribution has paid considerable attention to the role of recipient effort, the nature of that

effort—whether it is perceived as a contribution to a collective endeavor or undertaken as an individual pursuit—has largely been overlooked.

Collaborative effort also increases identification with a partner as a member of your team McGrath & Gerber 2017. Because in-group status affects distributive preferences, learning about the relationship between in-group status and collaboration is critical to understanding the role each of these variables plays in determining recipient deservingness and influencing political attitudes toward redistribution.

Understanding why people share resources with others and seek to reduce inequality is necessary to understanding the politics of inequality and redistribution. As Aarøe and Petersen (2014) note, researchers have increasingly called for attention to the micro-dynamics of opinion formation on welfare, as it provides valuable insight into dynamics at the macro level in addition to greater understanding of the psychological processes involved.

Collaborative effort affects our determinations of who merits a share of our resources; collaboration also appears linked to a sense of shared group membership. This paper investigates the relationship between group identification and the effect of collaboration on distributive preferences. Does the collaboration effect differ depending on whether collaboration takes place with an in-group member or an out-group member? Does collaboration influence sharing *more* among people with a naturally strong group orientation than among those with a more individualistic outlook? Does sharing increase simply because warmth is greater for someone perceived as a member of your team, or does the increase in sharing stem from a sense that contribution to the team effort means joint ownership of the result? Does the effect of collaboration spill beyond the immediate collaborative context to influence preferences on redistributive policies more generally?

2. Theory

Evolutionary models can account for humans' widespread ability to forgo their immediate self-interest in order to avoid suboptimal outcomes for all involved in an enterprise. This ability has been demonstrated in instances from common-pool resource games in behavioral labs to self-organized water management regimes in agricultural societies (see Ostrom 2000). Ostrom focuses on the strength of evolutionary theory in explaining this demonstrated capacity to overcome collective action problems in contravention of Olson's zero contribution hypothesis (Olson 1965).

The collaboration effect, however, reveals a propensity to share with collaborators in a one-shot interaction, and so does not represent solution of a collective action problem. Increased sharing with one-time collaborators appears instead to be a response to a collective action problem not actually present: an impulse evolved in the context of communal resource production and triggered in analogous settings even when there is no collective action problem to overcome. Petersen et al. (2012) write about the triggering of apparently instinctive responses in settings far removed from those in which they likely evolved. In particular, the authors draw attention to redistributive policy as resource sharing, arguing that the modern-day welfare state provokes responses adaptive to the small-scale exchanges of help that were characteristic of our evolutionary past.

Ostrom writes that from the perspective of evolutionary models, identification of like-minded others is essential to developing processes of cooperation; the emergence of self-organized collective action frequently relies upon group boundaries defined by well-understood criteria. Social identity theory helps us to understand these boundaries: We readily categorize ourselves and others. Those categories in which we place ourselves constitute our in-groups. Out-groups are defined by a characteristic with which we do not identify (Tajfel and Turner 1979). Even when the

basis of group identification is relatively weak, experimental results generally reveal more favorable treatment of in-group members over out-group members. People are more likely to maximize social welfare at a cost to themselves when matched with in-group rather than out-group members (Chen and Li 2009), and are more protective of others within their own group who have been disadvantaged (Bernhard et al. 2006).

Race is a particularly salient group identifier in the United States, and a broad literature looks at how racial out-group status of recipients affects sharing (see, e.g., Fong and Luttmer 2011 on donations to charities; Gilens 1999 on attitudes toward redistributive policies; Alesina and Glaeser 2004 on the nature of the welfare state). Applying social identity theory to racial group identification, Herring et al. (1999) find that identity is most strongly defined by the sense of a common plight or linked fate. A sense of linked fate—dealt with most often in terms of race (see, e.g., Dawson 1994; Herring et al. 1999), but also gender (e.g., Gay and Tate 1998; Simien 2005) and other group identifiers (e.g., Gay and Hochschild 2010)—rests in the perception of your own outcomes as closely tied to the outcomes of the group to which you belong.²

In an evolutionary context, such a linked fate likely would have characterized most collaborations: the fate of the group going forward directly affects the fate of the individual. In such circumstances, taking action in the group interest is advantageous. The notable aspect of the collaboration effect is that a sacrifice of self-interest manifests in response to collaborative effort even in the absence of any truly linked fate. While respondents' realized outcomes are clearly

² Herring et al. (1999) note that this recognition that one's own outcomes are tied to the outcomes of the group is both distinct from any feelings of warmth toward other in-group members and does not imply any negative orientation toward out-group members.

dependent upon the actions that were taken by the group, the fate of the group has no bearing on the respondent's outcomes going forward. A respondent's self-interest is best served by sharing nothing.

When self-interest and group-interest conflict, action on behalf of one's group can result from commitment to group norms of collective political behavior (White et al. 2014). White et al. discuss this commitment as an individual-level internalization of social pressure. An alternative perspective is that prioritization of group-interest over self-interest stems from a concern for procedural justice within one's group. Tyler and Blader's (2003) group engagement model holds that individuals highly prioritize procedural justice within their own groups because of how it speaks to their identity. People are willing to sacrifice their own self-interest for the sake of procedural justice because belonging to a group that treats its members fairly says a great deal about who you are. In the context of the collaboration effect, however, the sacrifice of self-interest for group-interest appears at an early enough age that social pressure and identity concerns are unlikely to play a central role in driving the response.

While social identity theory focuses on the perception of others as either members of one's own group or as outsiders, the group aspect of grid-group cultural theory focuses instead on how people differ in the extent to which their lives are organized by the bonds of a group. Grid-group cultural theory is a theory of social organization which holds that any society is composed of distinct "cultures" that can be characterized along two dimensions: Grid and Group (Douglas 1978).

The Grid dimension measures the extent to which organization is defined by adherence to rules or regulations. The Group dimension measures the extent to which organization is defined by the boundaries of community. Within a society, individuals will differ on these two dimensions.

The individuals who make up a High-Grid culture are strictly rule-bound, while members of a Low-Grid culture are free of structural constraints. For someone in a High-Group culture, the pull of group ties is very strong, influencing the person's perceptions, values, and behaviors. Someone in a Low-Group culture feels little or no constraint from ties to others. Because of the important role that group-orientation appears to play in the collaboration effect, it seems likely that members of a High-Group culture would exhibit a stronger response to collaboration than members of a Low-Group culture.

In addition to examining how in/out-group status might moderate the effect of collaboration and whether sensitivity to collaboration might vary based on an individual's location in the grid-group typology, I investigate indebtedness as a mechanism behind the collaboration effect. An intuition that collaboration may have a significant effect on how individuals perceive obligation has been long appreciated. The idea that collaborative effort with disparate outcomes should create a sense of debt ties directly to Locke's concept of property rights (Locke [1689] 1764). If labor bestows ownership, then joint labor should create joint ownership. If one person benefits from the product of joint labor while the collaborating partner does not, then—because the collaborator has a “natural right” to some benefit from the product—the beneficiary owes a debt to the collaborator.

3. Hypotheses

This paper focuses on three main hypotheses. The first hypothesis is that assignment to an out-group partner will decrease the effect of collaboration on sharing. Evidence from McGrath & Gerber 2017 suggests that a sense of one's partner as a teammate is important to the sharing decision, and that collaboration is associated with increased identification with the partner as a

teammate. Because in-group members are likely to be more readily identified as members of one's team, while out-group status poses an obstacle to identification as a teammate, I predict that the collaboration effect will be larger with an in-group partner than with an out-group partner. I focus here on race, gender, and political party as particularly salient characteristics for group identification, and limit my investigation to partner's out-group status only in terms of these three characteristics.

Second, I hypothesize that the collaboration effect operates by creating a sense of debt to the partner. I propose that the connection between collaboration, group-membership, and sharing behavior is not through affinity for a member of one's team, but through debt to one's teammate. That is, the collaboration effect is not a result of greater warmth toward someone because that person is viewed as a group-member—instead, I propose that collaboration increases sharing because the outcome of a collaborative effort is inseparably linked to the collaborator's input, creating joint ownership of that outcome. Collaborative effort increases a respondent's willingness to share not by creating a general preference for the partner to be better off, but through the sense that some share of the fruits of that effort are owed to the partner.

Finally, I hypothesize that the collaboration effect will be stronger among respondents who express a "High-Group" tendency than among those who express a "Low-Group" tendency. I expect that people who give more importance to their bond with others ("High-Group") will exhibit a stronger response to the collaboration treatment than will those who grant less importance to their bond with others ("Low-Group").

4. Design overview & subjects

The experiments presented here start from the basic design described in McGrath & Gerber 2017. This design pairs each respondent with a "partner" and assigns each two-person team to a

Collaborative compensation scheme or a Separate compensation scheme.³ Respondents are told that the study is taking place to evaluate a new system designed to improve the speed and accuracy of online data entry, and that each person will be paired with a partner for a data entry task. Before the data entry task, each two-person team will be assigned to a *collaboratively-working* group or to a *separately-working* group, but would only learn which group their team had been assigned to after completion of the task.⁴

Respondents are informed that the new incentive system involves a lottery to receive a bonus payment, held after completion of the data entry task. The lottery eligibility rules, seen by all respondents in both groups, explain that in the collaboratively-working group each person's lottery eligibility is dependent on her partner's work as well as her own: if and only if both members of the team complete the required number of entries accurately, then both members of the team will be entered into the lottery. Respondents are informed that in the separately working group, lottery eligibility is dependent only on one's own work: for each person on the team, lottery eligibility is granted if she herself completes the required number of entries accurately, regardless of her partner's performance.

³ The partner is fictitious, as explained in a debrief at the end of each experiment.

⁴ This sequence ensures that respondents in both conditions are working under the same assumptions: the belief that assignment to one group or the other has already taken place (so your performance on the task cannot affect which compensation scheme you are assigned to), but because that assignment has not been revealed, you could be working under either compensation scheme (so group assignment cannot affect performance on the task).

After completing the data-entry task, respondents learn whether they were in the Collaborative or Separate compensation scheme. Each respondent also learns that she has won a bonus payment in a lottery and that her partner has not won anything in the lottery. Respondents are given the option to share some of their bonus payment with their partner. The amount shared constitutes the primary outcome measure.

Variations on this basic design are introduced to test whether out-group status moderates the collaboration effect, and whether the collaboration effect operates by creating a sense of debt to the partner, rather than increasing generosity by creating a sense of affinity for the partner. Details of these design variations accompany the presentation of each test in the sections below. The Supplementary Materials include screenshots of instructions and explanation of the procedure as presented to the respondents.

Respondents were recruited in two waves. For Experiment 1, I recruited respondents ($N = 1,055$) through Qualtrics Panels in August 2014. The sample was collected to be balanced on race/ethnicity, with approximately one-third of the respondents primarily identifying as black, one-third as white, and one-third as Hispanic. Recruitment was targeted to obtain a sample nationally representative on age, income, education, and sex. Fifty-one percent of respondents identified with the Democratic party, 23% as Independents, and 25% as Republicans.

For the replication study (Experiment 2), I recruited respondents ($N = 1,135$) in December 2014 through Survey Sampling International. The sample was again collected to be balanced on race/ethnicity, and nationally representative on age, income, education, and sex. Forty-six percent of respondents identified as Democrats, 27% as Independents, and 28% as Republicans.

In both samples, the experimental conditions were balanced on covariates (see Appendix Tables 1 and 2). Appendix Tables 3 and 4 show the distributions of race/ethnicity and party

identification. In both Experiment 1 and Experiment 2, condition assignments took place shortly before measurement of the primary outcome variable, and attrition is negligible.⁵

5. Out-group status

Purpose & design details – out-group status

To test whether out-group status moderates the collaboration effect, respondents are randomly assigned to a partner who either matches or differs from themselves on a number of demographic characteristics. After completing the data-entry task, respondents are presented with a “team statistics” table conveying information about each member of the two-person team. Two columns in the center of the table present demographic information about the respondent and the partner. The first of these two columns lists “Matching Characteristics”: demographics shared by the respondent and partner. The next column lists “Unmatched Characteristics”: demographics that differ for the respondent and partner. Partner demographic characteristics were randomly assigned to match or not match those of the respondent. I test whether the collaboration effect differs for respondents paired with an in-group versus an out-group partner as defined by three demographic characteristics salient to group identification: race, political party, and gender.

⁵ Experiment 1 had no attrition. In Experiment 2, one respondent in the collaboratively-working condition and one respondent in the separately-working condition dropped out of the experiment after condition assignment.

Paired Partners Work Stats & Outcomes

	Effort Level*	Team Characteristics		Lottery Eligibility	Bonus	Message(s)
		Matching Characteristics	Unmatched Characteristics			
Your outcomes: (Participant ID cp2_38)	44.89	- black - lean Democrat - college graduate (4 year)	- age 25 to 34 - female - attends services several times a year - urban - annual income \$50,000 to \$74,999	Eligible for bonus lottery!	selected	You have been selected in the lottery! You will be awarded an additional \$0.50.
Partner outcomes: (Participant ID cp_39)	37.8		- age 65 or over - male - attends services more than once a week - rural - annual income under \$15,000	Eligible for bonus lottery!	not selected	Not selected to receive a bonus.
Pair outcomes:	82.69	Separately-working team		Eligibility achieved separately	-	See option below.

*Effort Level algorithm based on individual worker's response pattern, accuracy, and timing.

Optional: Your partner (separately-working team) was not selected to receive a bonus in the lottery. **If you choose to share some of your bonus, your partner will receive twice the amount you give.** (For example, if you give \$0.10, your partner will receive \$0.20.)

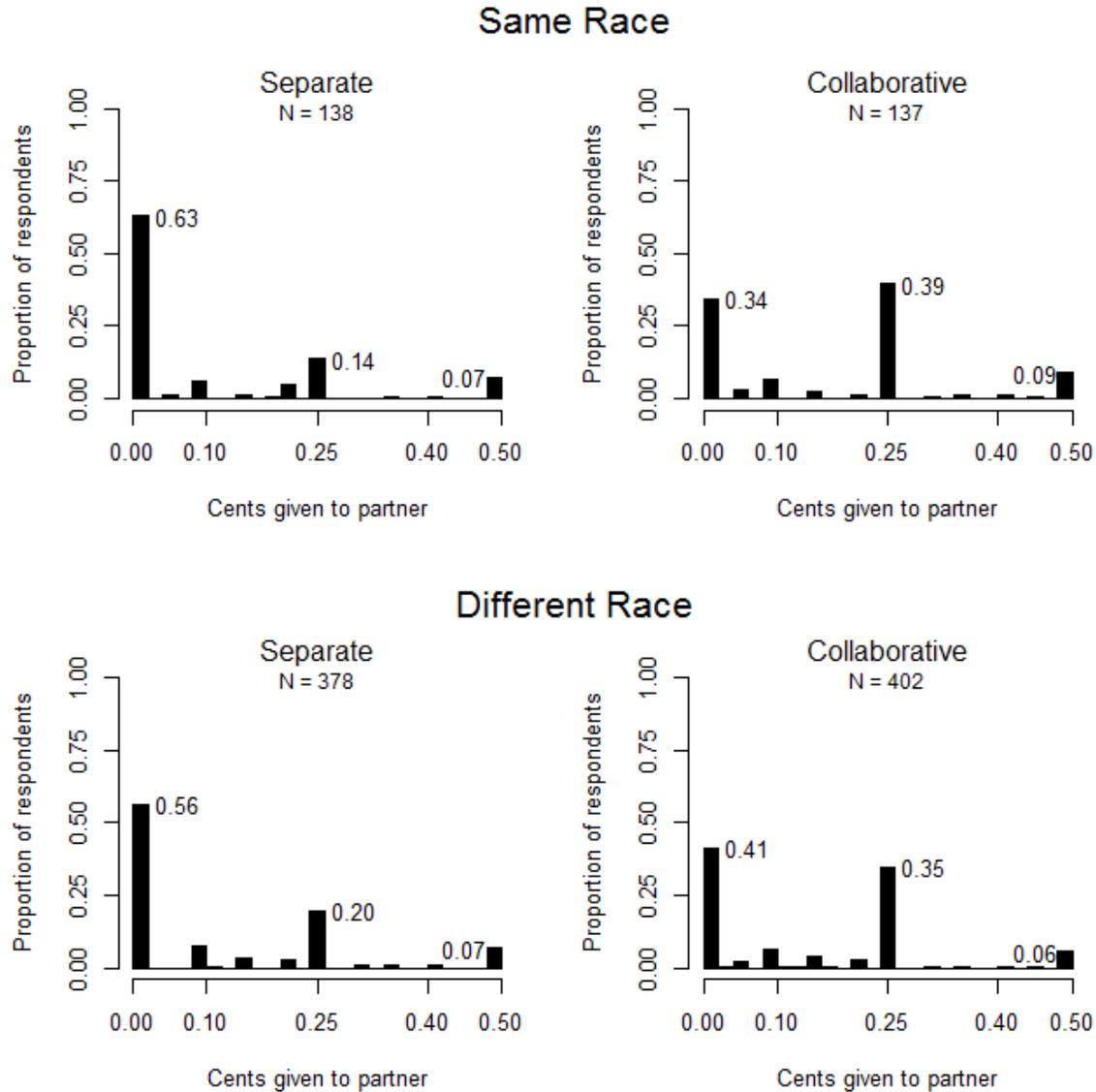
If you would like to share some portion of the \$0.50 bonus with your partner, please enter the amount you consider fair. If not, please enter 0.

Results – out-group status

In my hypotheses I identified race, gender, and political party as salient group characteristics. I found no notable interaction between party or gender out-group status and the collaboration effect. Collaboration increased the amount given to one's partner by an average of \$.03-\$.05 for both in-group and out-group partners. Appendix Tables 5-8 present full results for party and gender out-group status. The remainder of this sub-section focuses on the results for racial out-group status.

Figure 1 presents all of the outcome data from Experiment 1. The top row shows the amount given by respondents who were assigned a partner of the same race. The bottom row shows the amount given by respondents assigned a partner of a different race. In both the top and bottom rows, the left column presents respondents assigned to the separately-working condition, and the right column presents respondents assigned to the collaborative condition.

Figure 1: Sharing Outcomes by Racial Out-Group Status, Experiment 1



Note: Top panel shows histograms of the outcomes from respondents assigned a partner of the same racial identification. Bottom panel shows respondents assigned a partner of a different racial identification. Respondents assigned to the separately-working condition are shown in the left column, those assigned to the collaboratively-working condition are shown in the right column.

In all four groups, the predominant responses are to give \$0 or to share half of the bonus (\$0.25) with the partner. In both the top and bottom row, collaboration (right column) decreases the number of respondents giving \$0 and increases the number sharing half their bonus. In the top row, where partners are of the same race as the respondent, collaboration causes a slightly greater proportion to share half of their bonus relative to those who give nothing. In the bottom row, where partners are of a different race than the respondent, the proportion sharing half remains slightly less than the proportion sharing nothing. Table 1 shows that in Experiment 1, the increase in proportion sharing \$0.25 vs. \$0 caused by collaboration with a same-race partner is 15.7 percentage points greater than the proportion increase caused by collaboration with a different-race partner (95% CI: 1.1 ppt, 30.0 ppt).

Table 1: Interaction between Collaboration Effect and Partner Race

Effect of Collaboration and Partner Race on Proportion Giving \$0 vs. \$.25		
	Exp. 1	Exp. 2
Collaboration	.199** [.039]	.135** [.042]
Same Race	-.078 [.046]	-.170** [.050]
Collaboration x Same Race	.157* [.074]	.149* [.075]
Constant	.259 [.026]	.359 [.029]
N	796	763

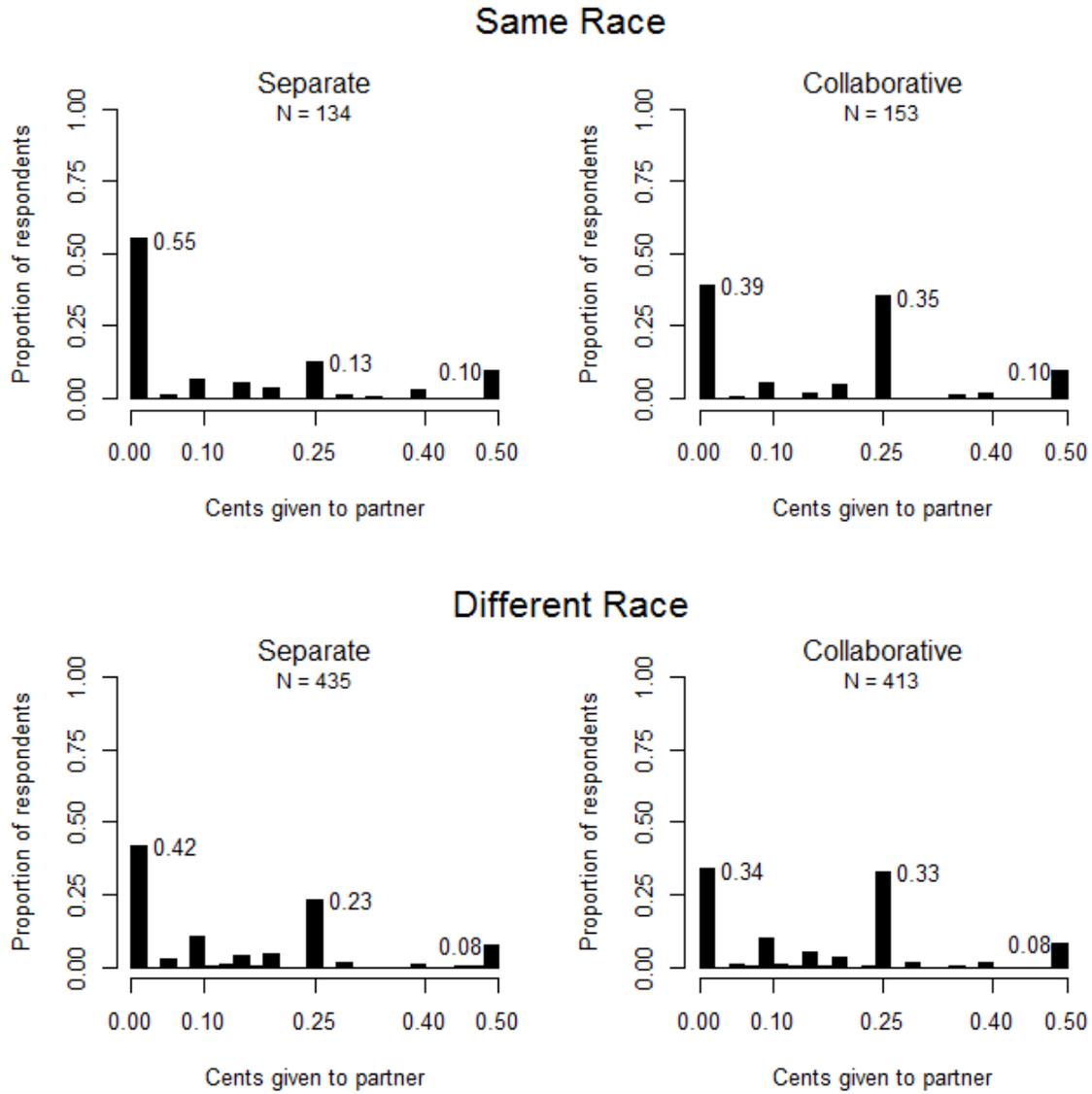
Robust standard errors shown in brackets

** indicates $p < .01$, * indicates $p < .05$

The same patterns that emerge in Experiment 1 are replicated in the outcome data from Experiment 2, shown in Figure 2. As in Experiment 1, the collaboration effect is apparent whether respondents are assigned to a same-race or a different-race partner, but the collaboration effect is smaller when respondents are assigned a partner of a different race. Table 1 shows that in

Experiment 2, the increase in proportion of respondents sharing \$0.25 vs. \$0 caused by collaboration with a same-race partner is 14.9 percentage points greater than the proportion increase caused by collaboration with a different-race partner (95% CI: 0.2ppt, 29.7ppt). This difference in treatment effect is of a similar magnitude as the difference of 15.7 percentage points estimated in Experiment 1.

Figure 2: Sharing Outcomes by Racial Out-Group Status, Experiment 2



Note: Top panel shows histograms of the outcomes from respondents assigned a partner of the same racial identification. Bottom panel shows respondents assigned a partner of a different racial identification. Respondents assigned to the separately-working condition are shown in the left column, those assigned to the collaboratively-working condition are shown in the right column.

Table 2 presents the mean amount given in each group and the proportion giving \$0.25 vs. \$0. The collaboration effect is statistically significant with both a same-race and a different-race partner—but the increase when assigned a partner of the same race is more than twice as large as the increase when assigned a partner of a different race.

Table 2: Giving by Racial Out-Group Status

		Experiment 1			Experiment 2		
		Collab.	Separate	Diff.	Collab.	Separate	Diff.
<i>A. Mean Amount Given to Partner</i>	Same Race						
	<i>Mean</i>	\$.173	\$.096	\$.077	\$.167	\$.122	\$.045
	<i>Std. error</i>	[.013]	[.013]	$p = .000$	[.013]	[.014]	$p = .020$
	<i>N</i>	137	138		153	134	
	Different Race						
	<i>Mean</i>	\$.143	\$.111	\$.031	\$.164	\$.139	\$.025
<i>Std. error</i>	[.007]	[.008]	$p = .004$	[.007]	[.007]	$p = .019$	
<i>N</i>	402	378		413	435		
<i>B. Proportion Giving \$0 vs \$0.25</i>	Same Race						
	<i>Proportion</i>	.535	.181	.354	.474	.189	.285
	<i>Std. error</i>	[.050]	[.038]	$p = .000$	[.047]	[.041]	$p = .000$
	<i>N</i>	99	105		114	90	
	Different Race						
	<i>Proportion</i>	.458	.259	.199	.495	.359	.135
<i>Std. error</i>	[.029]	[.026]	$p = .000$	[.030]	[.029]	$p = .001$	
<i>N</i>	306	286		275	284		

Note: The top panel shows mean amount given to the partner within the collaboratively-working and separately-working groups, along with the difference between treatment groups. Results from Experiment 1 are in the left column and results from Experiment 2 in the right column. The bottom panel shows the proportion giving half their bonus payment to their partner compared to the proportion giving nothing, along with the difference between treatment groups.

As predicted, in both Experiment 1 and Experiment 2 the collaboration effect is smaller among respondents who are assigned a racial out-group partner. Interestingly, this difference in effect does not stem from a straightforward instance of discrimination against out-group members. Instead, respondents appear to penalize in-group members relative to out-group members for *not* collaborating, while granting a greater reward *for collaboration* to in-group members than to out-group members. Table 2 shows that in both experiments, respondents in the separately-working condition share less on average with same-race partners than with different-race partners, while giving more on average to collaborating same-race partners than to collaborating partners of a different racial identification.⁶

6. Mechanism

Purpose & design-details – mechanism

To investigate whether the collaboration effect appears to operate more by creating a sense of debt to the partner or by creating a general preference for the partner to be better off, I assigned half of the respondents to a “matching grant” condition. This condition allows respondents to increase the amount received by the partner at no cost to themselves. Respondents assigned to the matching grant condition receive an alternative version of the outcome measure in which any amount the respondent chooses to give is doubled, so that the partner receives twice the amount given by the respondent.

If increased sharing in the Collaborative condition is driven by a general preference for the partner to be better off, then collaborating respondents should share no less under the matching

⁶ There were no clear patterns of difference based on respondent’s racial identification.

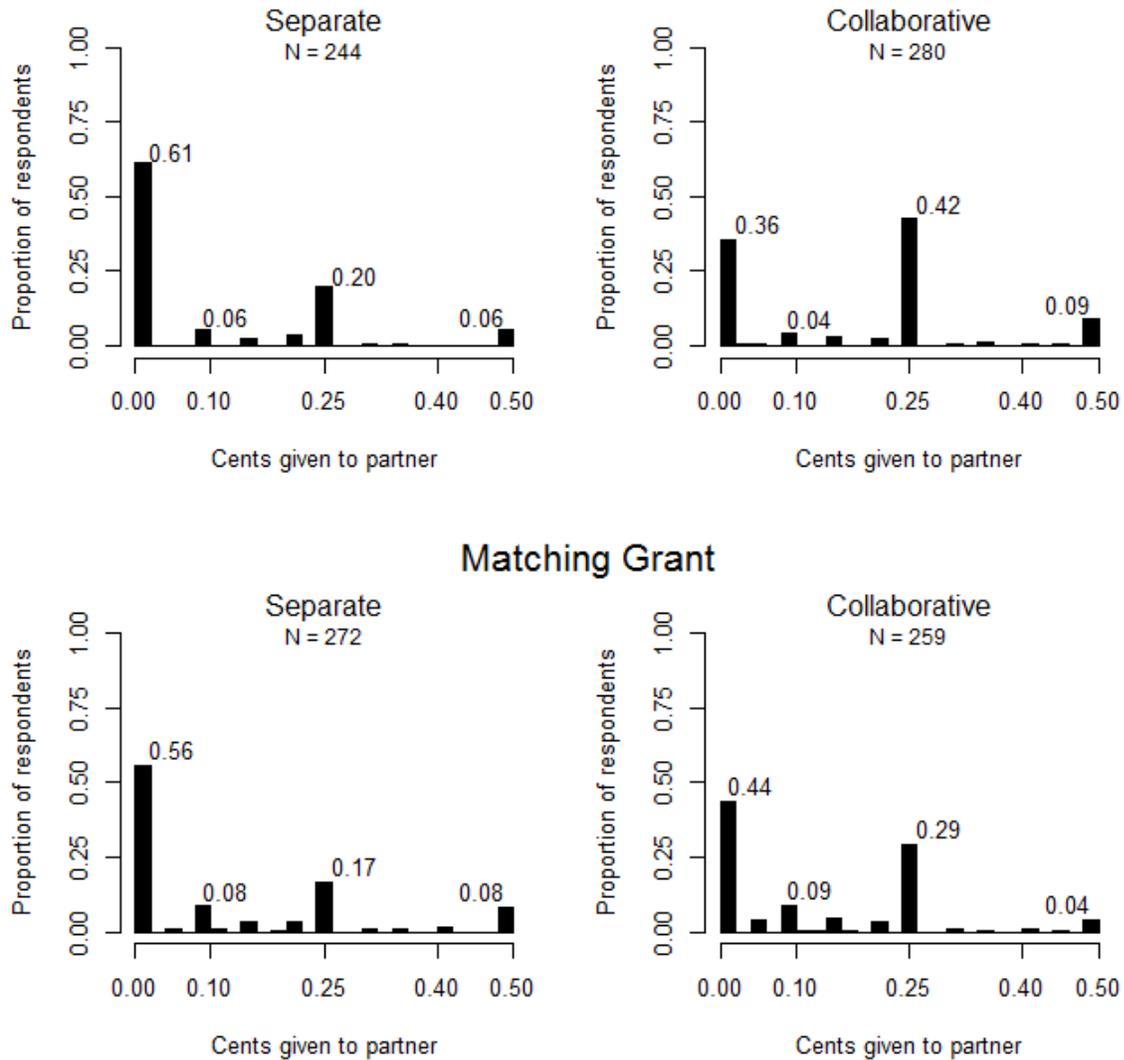
grant condition than under the standard giving condition. If, on the other hand, increased sharing in the Collaborative condition is motivated by repayment of a debt rather than a general preference for the partner to be better off, then the matching grant condition should *decrease* the amount shared by collaborating respondents. The respondent should choose to share only as much as necessary to satisfy the debt. When the amount shared is doubled, the respondent is able to give up a smaller amount while still covering whatever is perceived to be owed to the partner. Collaboration should increase giving *less* under the matching grant condition than under the standard giving condition.

Under the debt hypothesis, there should be no effect of the matching grant condition in the Separately working group. In the Separately working group there is no cause for a sense of debt to the partner. If respondents in the Separately working group do not focus on what is owed to the partner—instead basing their decision on the amount they will net rather than what the partner receives—there should be no expectation of an effect of the matching grant condition in the Separately working group, because the matching grant does not affect the amount each respondent takes in.

Results – mechanism

Figure 3 presents the outcome data for the separately-working and collaboratively-working groups under the standard giving condition and under the matching grant condition for Experiment 1. Respondents assigned to the separately-working group are represented on the left side, the collaboratively-working group on the right. The top row of figures shows outcomes under the standard giving condition, the bottom shows outcomes from the matching grant condition. Figure 3 shows that, as predicted, the matching grant decreases sharing in the Collaboratively working group, and has no effect on sharing in the Separately working group.

Figure 3: Sharing Outcomes under Standard Giving and Matching Grant, Experiment 1



Note: Top panel shows histograms of the outcomes from respondents assigned to the standard giving condition. Bottom panel shows respondents assigned to the matching grant condition. Respondents assigned to the separately-working condition are shown in the left column, those assigned to the collaboratively-working condition are shown in the right column.

Comparing standard giving against matching grant giving within each column of Figure 3 shows the effect of the matching grant within each of the two types of working conditions. The

left column of Figure 3 shows that, consistent with the expectation that respondents working separately focus on their own take, rather than what is owed to the partner, there is no effect of the matching grant within the separately-working group: the top and bottom figures in the left column of Figure 3 are nearly identical. Mean amount given does not decrease under the matching grant in the separately working group (+\$.01, 95% CI: -\$0.01, +\$.04).⁷

In the collaboratively-working group, shown in the column of Figure 3, the matching grant exerts a strong effect. As predicted, mean amount given decreases significantly under the matching grant in the collaboratively working group (-\$.05, 95% CI: -\$0.07, -\$0.02).⁸ Comparison of the two collaboratively-working figures in the right column shows that the matching grant greatly reduces the proportion of respondents sharing half of the bonus with their partner (-13.9ppt, 95% CI: -22.0ppt, -5.9ppt). The matching grant also reduces the proportion sharing more than half of their bonus with the partner. As can be seen in the right column of Figure 3, this is driven by a decrease in those giving away the full amount of \$0.50 (-4.4ppt, 95% CI: -8.4ppt, -0.3ppt).⁹

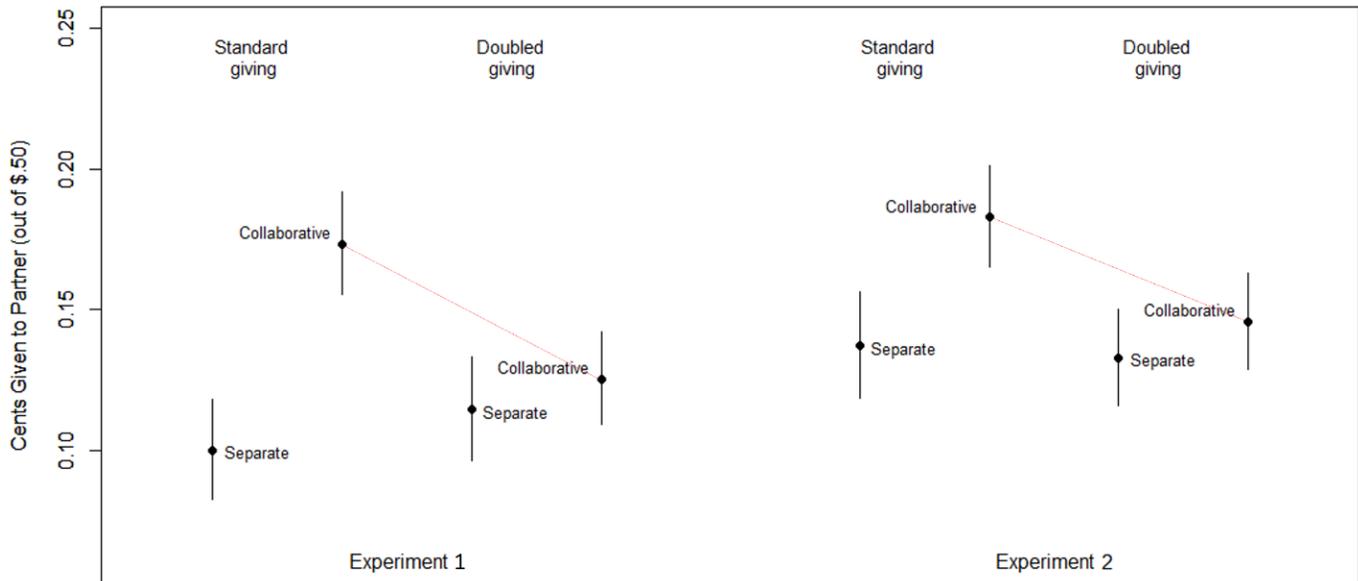
⁷ Group means are shown in Appendix Tables 9 and 10.

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⁹ However, the decrease in sharing brought about by the matching grant is not due to a general aversion to the partner receiving more than the respondent: the left column of Figure 3 shows that in the separately-working group, the proportion of respondents giving more than half of their bonus to the partner is slightly *higher* under the matching grant condition than under the standard giving condition (3.7ppt, 95% CI: -1.4, 8.7).

Experiment 2 replicates this finding, showing the same predicted pattern of results as in Experiment 1.¹⁰ Figure 4 shows mean amount shared within each condition for Experiment 1 and Experiment 2. In both experiments, the matching grant significantly decreases the mean amount shared in the collaboratively working group (Exp 1: $-\$0.05$, 95% CI: $-\$0.07$, $-\$0.02$; Exp. 2: $-\$0.04$, 95% CI: $-\$0.06$, $-\$0.01$), and has no effect on mean amount shared in the separately working group (Exp 1: $+\$0.01$, 95% CI: $-\$0.01$, $+\$0.04$; Exp. 2: $-\$0.00$, 95% CI: $-\$0.03$, $+\$0.02$).

Figure 4: Collaborative and Separate group means, standard giving and matching grant conditions, Experiments 1 and 2



Note: Points mark mean amount given to the partner within each group. Bars show 95% confidence intervals. Results from Experiment 1 are shown on the left, from Experiment 2 on the right.

¹⁰ A histogram showing the standard-giving and matching-grant outcome data for Experiment 2 is available in Appendix Figure 1.

Experiment 1 and Experiment 2 both show a pattern of results that suggest the increased sharing caused by collaboration is not driven by a straightforward preference for the partner to be better off; instead, the results are consistent with the hypothesis that the collaboration effect operates by creating a sense of debt owed to the partner.

7. Heterogeneity

Purpose & design-details - heterogeneity

To examine whether collaboration causes heterogeneous treatment effects corresponding with Grid-Group Theory, I designed a two-question indicator to place respondents within a quadrant of the Grid-Group typology: Isolate (high grid, low group), Individualist (low grid, low group), Egalitarian (low grid, high group), and Hierarch (high grid, high group). Although Grid-Group Theory holds that people range along a spectrum in each of the two dimensions, for purposes of categorization I used two binary questions to identify respondents as either High-Group or Low-Group and High-Grid or Low-Grid.¹¹

To assess the importance of one's bond to others (Group), I asked respondents whether they agreed more with the statement, "Loyalty matters above all else," or the statement, "Sometimes it's necessary to breach another's trust." Respondents who agreed more with the statement "Sometimes it's necessary to breach another's trust," were considered Low-Group, and those who agreed more with the statement "Loyalty matters above all else," were considered High-Group.

¹¹ I developed these two questions as a succinct but rough gauge of culture. Since survey measures to assess cultural type typically involve multi-question batteries (see, e.g., Dake 1992), a more nuanced assessment of cultural type may prove more revealing than my two-question measure.

To assess the importance of adhering to rules (Grid), I asked respondents whether they agreed more with the statement, “I need to stick to the rules along with everyone else,” or the statement, “I don’t think it’s necessary to always follow the rules.” Respondents who agreed more with the statement “I don’t think it’s necessary to always follow the rules,” were considered Low-Grid, and those who agreed more with the statement “I need to stick to the rules along with everyone else,” were considered High-Grid.

I examine the effect of assignment to the Collaborative condition for respondents in each of the four quadrants separately. Because I expect respondents who give more importance to their bond with others to be more sensitive to the collaboration treatment, I expect the collaboration effect to be stronger among respondents who express a “High-Group” tendency than among those who express a “Low-Group” tendency.

Results - heterogeneity

Table 3 shows estimates of the collaboration effect on amount given to the partner within each of the four Grid-Group cultures. Because few respondents fall into the two low-group quadrants, in this section I pool the results from Experiments 1 and 2.¹² The estimates in Tables 3 and 4 include fixed effects for the experiment. Note that because many more respondents fall into the high-group quadrants, the collaboration effect is more precisely estimated for respondents in the high-group cultures than for respondents in the low-group cultures. However, the point estimates generally reflect the predicted result, with high-group respondents (Egalitarians and Hierarchs) exhibiting a

¹² Full results for each Grid-Group quadrant are shown in Appendix Figures 2 and 3, and Appendix Tables 11 and 12.

larger collaboration effect on average than low-group respondents (Isolates and Individualists). Collapsing the grid dimension in order to compare how high-group versus low-group participants respond to the collaboration treatment, the estimated effect of collaboration on amount of money shared with the partner is \$.03 higher for high-group respondents than for low-group respondents, though the interaction is shy of statistical significance (95% CI: $-\$.01, \$.06$).

Table 3: Collaboration effect on amount given by Grid-Group typology

	<i>Low Group</i>		<i>High Group</i>	
	Isolate	Individualist	Egalitarian	Hierarch
Collaboration	\$.02 [.02]	\$.02 [.02]	\$.03* [.01]	\$.05** [.01]
Constant	\$.15 [.02]	\$.11 [.02]	\$.12 [.01]	\$.10 [.01]
N	218	211	575	1186

Robust standard errors shown in brackets
 Fixed effects for experiment
 ** indicates $p < .01$, * indicates $p < .05$

Considering the ability of the collaboration treatment to encourage sharing among those not otherwise inclined to give anything at all (i.e., looking at whether or not the participant gives any amount to the partner), assignment to collaboration has a much greater effect among high-group participants than among low-group participants. Collaboration does not significantly increase the proportion of low-group respondents who give (+3 ppt, 95% CI: -6 ppt, 12 ppt), but increases the proportion of high-group respondents who give by 16 percentage points (95% CI: 12 ppt, 21 ppt). Table 4 shows that the effect of collaboration on proportion of respondents who give to the partner is estimated to be 12 percentage points higher among high-group respondents than among low-group respondents (95% CI: 2 ppt, 22 ppt). However, note that this interaction results

in part because the high-group respondents are *less* likely to share with their partner in the separately working group than are low-group respondents.

Table 4: Interaction between Collaboration and High-Group Culture

Effect of Collaboration and High-Group Outlook on Proportion Who Share	
Collaboration	.04 [.05]
High Group	-.13** [.04]
Collaboration x High Group	.12* [.05]
Constant	.55 [.04]
N	2190

Robust standard errors shown in brackets
 Fixed effect for experiment
 ** indicates $p < .01$, * indicates $p < .05$

Categorizing respondents into one of the four cultures in Grid-Group theory based on their responses to two binary questions, respondents who fall into the High-Group appear to be more sensitive to collaboration. There is some evidence that high-group respondents exhibit a stronger collaboration effect than low-group participants in terms of amount given to their partner, but greater evidence that collaboration stimulates sharing among high-group respondents who are not otherwise inclined to give, while not exerting a similar effect among low-group respondents.

8. Policy preferences

Purpose & design-details – policy preferences

In Experiment 2, I look into whether collaboration might influence attitudes on redistributive spending at the policy level. Redistributive policies are one way in which people share with others (members of a broadly-defined group) who have received less than their fair share. As noted above, Petersen et al. (2012) presents such policies as a modern-day analog of the group resource sharing that played a critical role in our evolutionary past. In Experiment 2, I include survey questions to investigate whether the effect of collaboration might spill over onto attitudes toward redistribution at the policy level.

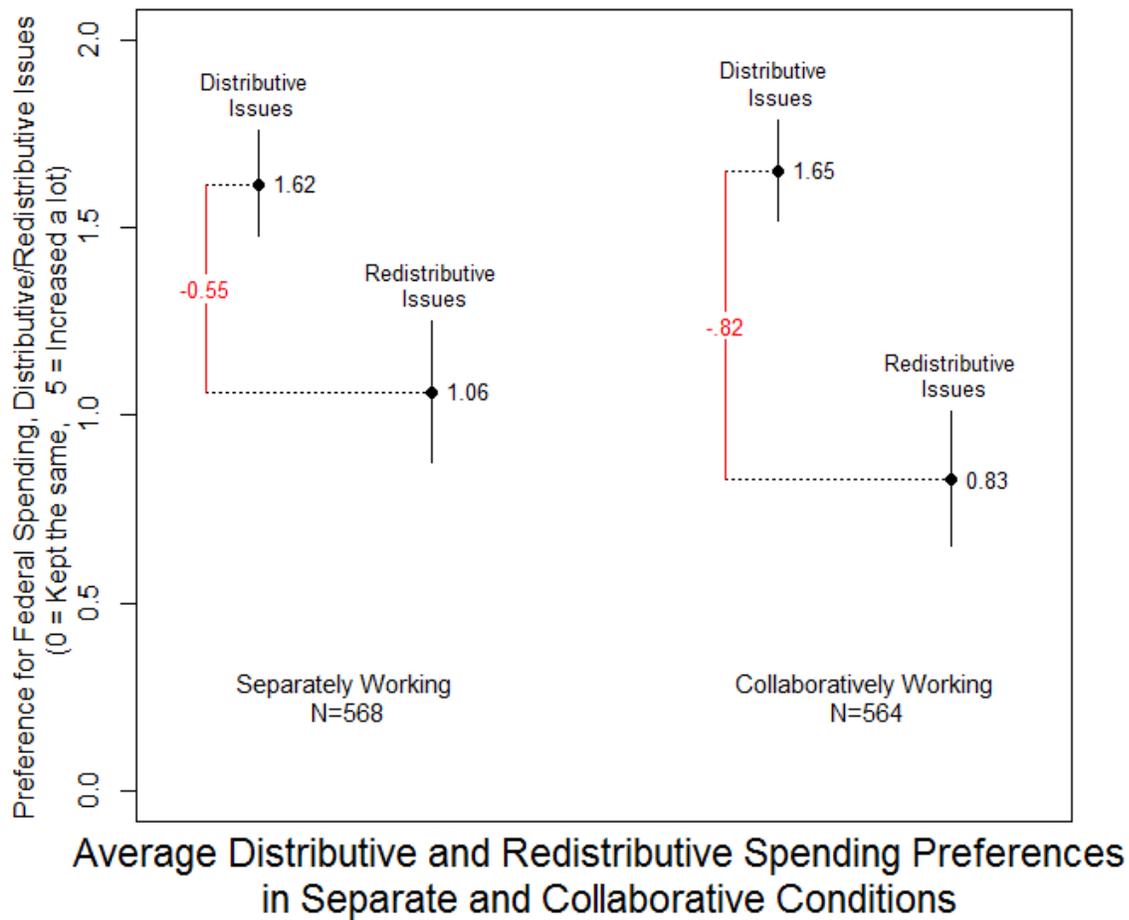
After collecting the primary outcome measure, I asked respondents questions from the ANES on whether federal spending should increase, decrease, or be kept the same in six areas. The six areas included three “redistributive” issues—welfare, food stamps, and aid to poor people—and three “distributive” issues—crime, the environment, and infant mortality.¹³ Scores on the distributive areas serve as a baseline against which to gauge preferences for redistribution. For each question, spending preference was reported on a continuous scale from –5 to +5, with –5 indicating spending should be decreased a lot, 0 indicating that spending should be kept about the same, and +5 indicating that spending should be increased a lot. I calculated a distributive spending score for each respondent by taking the average of their responses on the three distributive questions, and a redistributive spending score analogously.

¹³ This follows Hetherington’s (2006) use of the terms distributive and redistributive to distinguish programs that benefit most Americans from programs designed to benefit specific (generally, low SES) target groups.

Results - policy preferences

Figure 5 shows respondents' spending preferences in the separately-working and collaborative conditions. Within each condition, mean distributive spending score and mean redistributive spending score is plotted along with 95% confidence bars. Scores on distributive spending are similar in the two conditions. In the separately-working condition, the relative spending preference (redistributive score minus distributive score) is $-.55$ scale points. Assignment to the collaborative condition causes the relative spending preference to fall significantly, to a $-.82$ scale point difference. The estimated difference-in-difference is $.27$ scale points (95% CI: $.06, .48$).

Figure 5: Effect of Collaboration on Distributive vs. Redistributive Spending Preferences

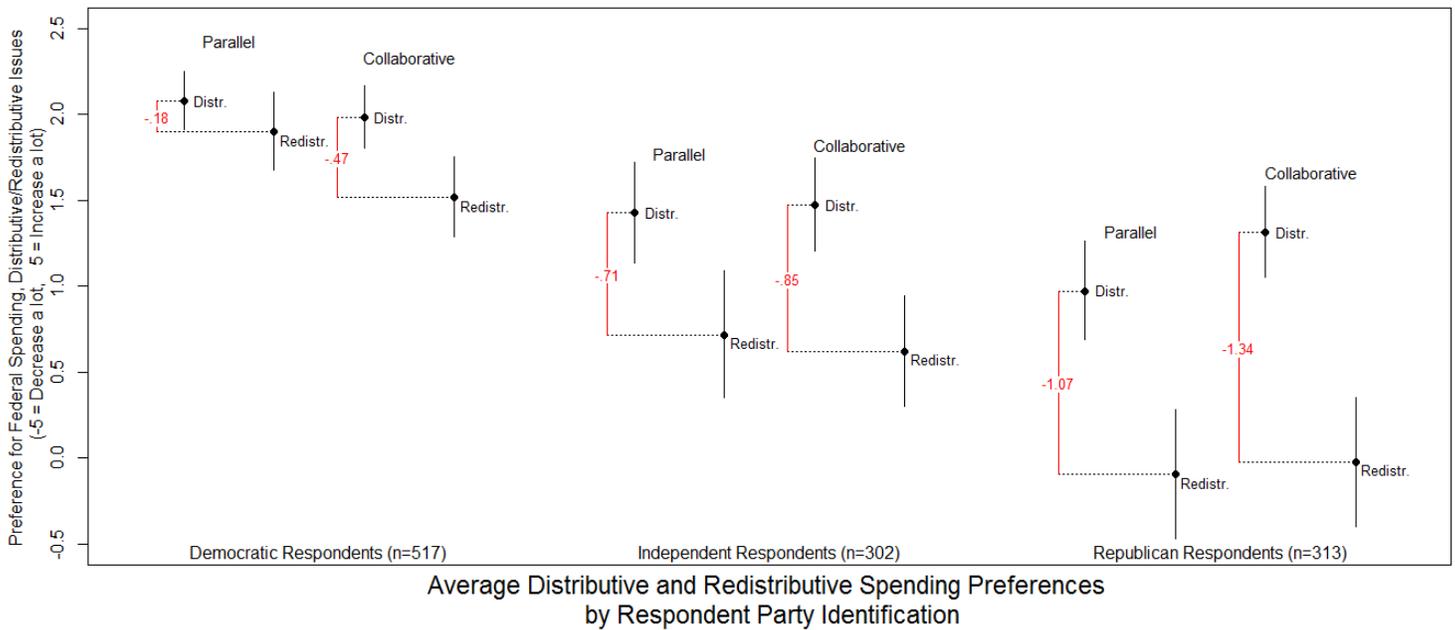


Note: Points show mean distributive spending score and mean redistributive spending score within the separately-working and collaboratively-working conditions. Bars show 95% confidence intervals.

Since respondents are likely to have different preferences regarding federal spending depending on their political views, I examined whether the effect of collaboration on respondents' relative preference for distributive over redistributive spending differed by party identification. Figure 6 plots the mean distributive and redistributive spending preferences among respondents identifying as Democratic, Independent, and Republican. The plot looks as should be expected in

two ways: (1) Democrats have the highest spending preferences and Republicans the lowest, with Independents in the middle; and (2) Democrats exhibit the smallest difference between distributive and redistributive preferences (i.e., are the most favorable toward redistributive policies) and Republicans exhibit the largest difference (i.e., least favorable toward redistribution), with Independents again in the middle.

Figure 6: Effect of Collaboration on Spending Preferences by Party



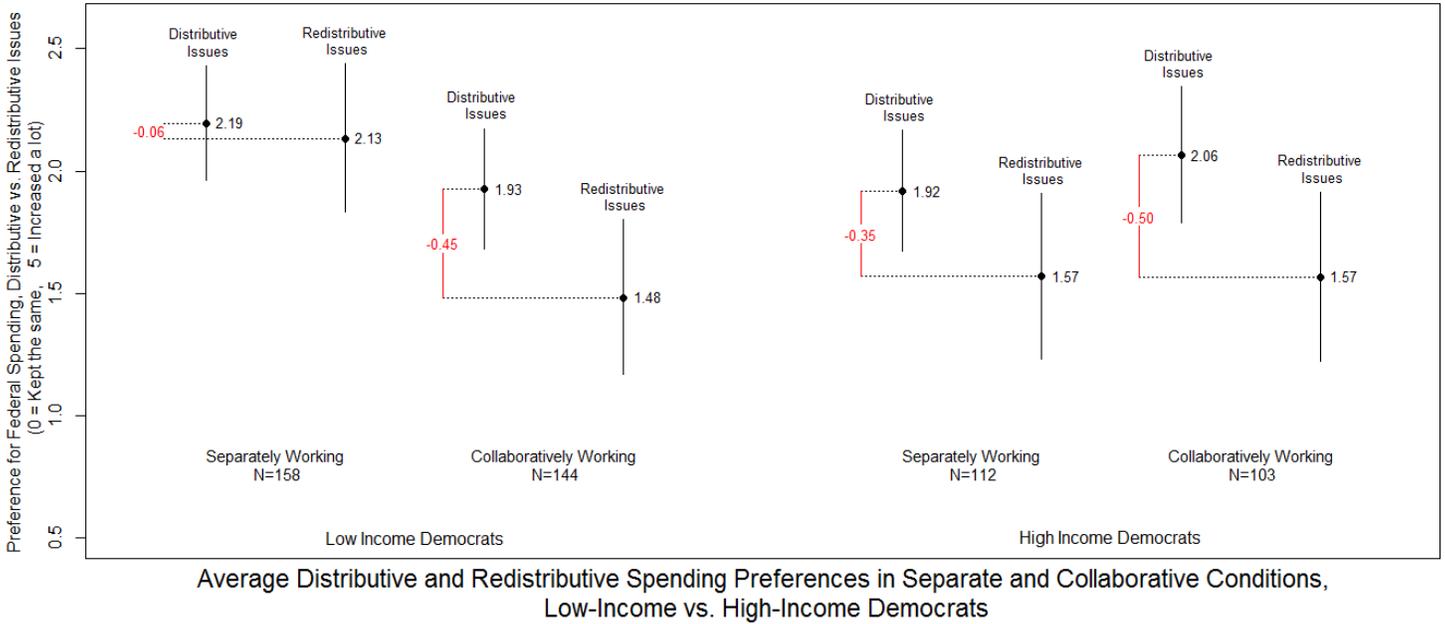
Note: Points show mean distributive spending score and mean redistributive spending score within the separately-working and collaboratively-working conditions, broken down by party. Mean scores for respondents who identify with the Democratic party are shown on the left, Independent respondents in the middle, and those who identify with the Republican party on the right. Bars show 95% confidence intervals.

Figure 6 shows that the collaboration-induced drop in preference for redistributive spending apparent in the full sample is concentrated entirely among Democratic respondents. In the separately-working group, Democrats show a preference for distributive over redistributive spending of .18 scale points, which grows to .47 scale points in the collaborative group, for an estimated difference-in-difference of .28 scale points (95% CI: .02, .56). Independents in the collaborative group show no difference in preference from those in the separately-working group. And while Republicans in the collaborative group show no difference in attitude toward redistributive spending relative to those in the separately-working group, they show a slight *increase* in preference for *distributive* spending relative to Republicans in the separately-working group.

It is theoretically interesting to distinguish lower-income Democrats—who should stand to gain from redistributive policies—from higher-income Democrats—for whom redistributive policies should be taken as an economic loss. Respondents self-reported household income. The 2014 U.S. Census reports the median household income as \$51,939. I used this figure to categorize respondents who indicate an annual household income below \$50,000 as lower-income, above \$50,000 as higher-income.

Figure 7: Effect of Collaboration on Spending Preferences, Lower- vs. Higher-income

Democrats



Note: Points show mean distributive spending score and mean redistributive spending score within the separately-working and collaboratively-working conditions for respondents who identify with the Democratic party. Means for lower-income Democrats are shown on the left half of the plot, and means for higher-income Democrats on the right half. Bars show 95% confidence intervals.

Figure 7 shows mean preferences among lower-income and higher-income Democratic respondents separately. The effect of collaboration on relative spending preference among lower-income Democrats is very different from the effect among higher-income Democrats. In the separately-working group, lower-income Democrats report similar attitudes toward distributive (2.19 scale points) and redistributive spending (2.13 scale points). In the collaboratively-working

group, the average preference for distributive spending drops to 1.93 points and preference for redistributive is .45 scale points below that. The estimated difference-in-difference among lower-income Democrats is .38 scale points (95% CI: .04, .73). Among higher-income Democrats there is virtually no difference between the collaboratively-working and separately-working groups.

9. Discussion

Collaboration shifts our distributive preferences. We distinguish between collaborators and non-collaborators in determining who merits a share of our resources. A psychological predisposition to key on a potential recipient's perceived contribution to a collective endeavor likely shapes our political attitudes toward redistribution.

The evidence presented here shows that the effect of collaboration on distributive preferences interacts with group identification, both in terms of recipient characteristics (Is the potential recipient an in-group member?) and in terms of respondent characteristics (Does the respondent tend towards a group-oriented worldview?). When respondents are assigned a partner whose racial identification differs from their own, the collaboration effect is diminished. And people who prioritize group bonds exhibit a stronger response to collaboration than do people who have a more individualistic outlook, suggesting a correspondence with grid-group cultural theory.

Collaboration does not appear to increase sharing by creating a general preference for a member of your team to be better off. Instead, the evidence supports the hypothesis that collaboration creates a sense of debt to that teammate. This indebtedness mechanism may relate to the finding that assignment to the collaborative condition *decreases* preferences for redistributive policy spending. This decrease is concentrated entirely among lower-income Democrats: it could

be that respondents who are more likely to think of themselves as beneficiaries of redistribution alter their views upon feeling an obligation to share their earnings with others.

In examining what influences our decision to share with someone who has less, this study focused on two attributes of the potential recipient: whether the recipient was a collaborator, and whether the recipient was an in-group member. Out-group status decreases the collaboration effect, but the pattern of results does not indicate a straightforward case of preferential treatment of an in-group partner. Instead, people appear more likely to penalize in-group partners for *not* collaborating, and more likely to reward in-group partners *for* collaborating—suggesting different standards to which respondents hold racial in-group partners and racial out-group partners.¹⁴ This pattern could reflect lower expectations of contribution from a racial out-group partner, so that no penalty is levied against the out-group partners for non-collaboration—but these same racial out-group partners are not fully considered members of the team, so respondents feel less is owed to an out-group collaborator than would be to an in-group collaborator.

A related pattern of response appears when considering respondents categorized as high-group according to my rough measure of the Grid-Group typology. The ability of collaboration to increase the proportion of respondents who share with their partner is much greater among high-group respondents than among low-group respondents—but this interaction is largely a result of

¹⁴ Sharp et al. (2014) report a similar finding in the relationship between racial in-group status and public school teachers' distribution of rewards and punishments. Black teachers are both more likely to place black students in gifted and talented programs, and more likely to assign black students harsh disciplinary action, such as suspension from school. The authors find the same relationship with Hispanic teachers and students.

high-group respondents being *less* likely to share with a non-collaborating partner than are low-group respondents. That is, participants categorized as more attentive to group membership show a greater sensitivity to the collaboration treatment, but there is some evidence that this is driven by an inclination to penalize non-collaboration: high-group respondents are less likely to give anything at all to their non-collaborating partner than are low-group respondents.

A psychological predisposition to key on collaboration could be rooted in an evolutionary history of distinguishing between collaborators and non-collaborators when deciding with whom to share limited resources (see, e.g., Hamann et al. 2011). This reflexive attention to collaborator status could underlie other variables that have been identified as important to political attitudes toward redistribution and concepts of distributive justice. Swaan (1988) identifies proximity—broadly defined to include boundaries of kinship, residence, or identity—as one of three commonly occurring criteria used to distinguish the deserving from the undeserving poor. In the absence of clear information about collaborator status, people may resort to proximity as an indicator: a signal that the potential recipient has likely contributed collaborative effort to some enterprise in which you are engaged. Similarly, in the context of global justice, patriotic bias prioritizing the poor in one’s own country above the poor living on the other side of a boarder (see, e.g., Miller 1998) could grow from an instinctive effort to distinguish collaborators—compatriots engaged in the collective endeavor of statehood—from non-collaborators.¹⁵

Aarøe & Petersen (2014) convincingly demonstrate that recipient effort has a causal effect on attitudes toward redistribution—that effort is integral to deservingness. McGrath & Gerber 2017 provides evidence that collaboration is a distinct element in determining desert. And out-group status, notably when embodied in racial identification, has been shown to exert an effect on

¹⁵ Thanks to Scott Ashworth and Ethan Bueno de Mesquita for this insight.

attitudes toward redistribution in numerous contexts (e.g., Alesina et al. 2001; Federico 2004; Gilens 1995; Harell, Soroka, & Iyengar 2016; Lee & Roemer 2006; Luttmer 2001; Mendelberg 2001; Nelson 1999; Winter 2006). The present study demonstrates the complex relationship between the collaboration effect and group identification. Recipient's in/out-group status moderates the collaboration effect, and collaboration exerts heterogeneous treatment effects corresponding with one's grid-group cultural worldview. Furthermore, the increased willingness to share caused by collaboration appears more likely to be driven by a sense of debt owed to one's teammate, rather than by creating a general preference for a member of your team to be better off.

The findings presented here speak to some of the ways in which group identification plays a role in the collaboration effect, but many questions about this relationship remain to be explored. The collaboration effect appears to differ based on partner's in-/out-group status in terms of race—but contrary to the initial hypothesis, not in terms of political party or gender. Some recent evidence suggests that discrimination based on political party identification now matches or exceeds discrimination based on race (see, e.g., Iyengar & Westwood 2015)—making the non-effect of political party particularly surprising. Is racial identification unique in its relationship with the collaboration effect, or are there other in-group/out-group attributes that moderate the collaboration effect? Evidence suggesting different sensitivities to the treatment based on a very coarse measure of worldview indicates that the possibility of heterogeneous treatment effects corresponding with grid-group cultural theory merits further exploration. And the preliminary investigation into the effects of collaboration on policy attitudes points to a promising avenue of research into the various ways that the effects of collaboration may reach into our political lives far beyond the immediate context of the collaborative effort.

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