Relative Deprivation and Intergroup Competition

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Abstract

Two experiments utilized a new experimental paradigm – the IPD-MD game – to study how relative deprivation at the group level affects intergroup competition. The IPD-MD game enables group members to make a costly contribution to either a within-group pool that benefits fellow in-group members, or a between-group pool, which, in addition harms out-group members. We found that when group members were put in a disadvantaged position, either by previous actions of the out-group (Experiment 1) or by random misfortune (Experiment 2), they contributed substantially more to the competitive between-group pool. This destructive behavior both minimized inequality between the groups and reduced collective efficiency. Our results underscore the conditions that lead group members to care about relative (rather than absolute) group outcomes and highlight the need to differentiate between the motivation to get ahead and the motivation not to fall behind: the latter, it appears, is what motivates individual participation in destructive intergroup competition.

Keywords: Relative deprivation, collective action, intragroup cooperation, intergroup competition, experimental games.

On August 28, 1963, 250,000 civil-rights supporters attended the March on Washington, during which Martin Luther King Jr. delivered his famous “I have a dream” speech. Two conditions had to be met for this remarkable event to have happened, one involving intergroup processes and the other involving intragroup processes. At the intergroup level, enough group members individuals had to feel that their group was unjustly deprived relative to another group in society. At the intragroup level, a sufficient number of these people had to decide that they were willing to pay the personal costs associated with fighting for change (i.e., invest the time and effort required to participate in this rally).

The aforementioned historic event was quite exceptional in its magnitude and impact; the two conditions that afforded it, however, appear to be necessary (though not always sufficient) for successful intergroup competition. Social competition emerges “to the extent that one party feels deprived of important outcomes” (De Dreu, 2010, p. 984). Social competition is successful to the extent that group members are willing to pay the personal costs associated with participation in the group's collective action (Bornstein, 2003). The present investigation focuses on both processes and utilizes a new experimental paradigm – the Intergroup Prisoner’s Dilemma – Maximizing Difference (IPD-MD) game (Halevy, Bornstein, & Sagiv, 2008), to study how group members react to relative deprivation when intergroup competition entails costly participation in collective action.

From Relative Deprivation to Intergroup Competition

Relative deprivation theory (Bernstein & Crosby, 1980; Crosby, 1976; Davis, 1959) proposes that feelings of resentment, anger, and unrest arise when a person (group) (a) wants something; (b) perceives that another person (group) has the thing they want; (c) feels entitled to possess the thing they want; (d) thinks it is feasible to attain the thing they want; and (e) does not

see their current failure to possess the thing they want as their own fault. Egoistic relative deprivation occurs when a person compares himself or herself to another individual, whereas fraternal relative deprivation occurs when a person compares his or her in-group to another group (Crosby, 1976).

Both egoistic and fraternal relative deprivations often motivate competition for relative standing (Crosby, 1976; De Dreu, 2010; Mummendey, Kessler, Klink, & Mielke, 1999; Ten Velden, Beersma, & De Dreu, 2009; Vanneman & Pettigrew, 1972). Marwell, Ratcliff, and Schmitt (1969), for example, randomly assigned participants to either equal or unequal positions by having them play an initial decision-making game. In the equity condition, the payoff structure of this initial game resulted in identical cumulative payoffs for the two participants; in the inequity condition, the payoff structure of this initial game resulted in one participant ahead and the other participant behind. Participants in both conditions subsequently played the two-person Maximizing Difference (MD) game. Marwell, Ratcliff, and Schmitt (1969) found that participants in the disadvantaged positions competed significantly more than their advantaged counterparts in this situation. Their study thus provided initial support for the proposition that in interpersonal interactions, the motivation of disadvantaged parties to minimize inequality might breed more competition than the motivation of advantaged parties to maintain (or even enhance) their relative advantage.

The present research advances our understanding of the relationship between relative deprivation and intergroup competition by focusing on the distinction between the motivation to get ahead (i.e., maximize the in-group's relative advantage over the out-group) and the motivation not to fall behind (i.e., minimize the in-group's relative disadvantage vis-à-vis the out-group; Ten Velden, Beersma, & De Dreu, 2009). Although both motivations may incite

conflict, we propose that the latter is more likely than the former to spur competition for relative standing (cf. Marwell et al., 1969; Wildschut & Insko, 2007).

Three complementary theoretical perspectives lend support to our prediction. First, consistent with the principal proposition of prospect theory that losses loom larger than corresponding gains (Kahneman & Tversky, 1979), we propose that the psychological displeasure (or even pain) associated with falling behind is considerably greater than the psychological pleasure of being ahead (cf. Otten, Mummendey, & Blanz, 1996). This asymmetry potentially explains why “a state might be willing ... to fight and defend the same territory that it would not have been willing to fight to acquire” (Levy, 1992, p. 284). The greater weighing of losses relative to gains of the same magnitude suggests that minimizing the in-group’s relative disadvantage should be a more powerful driver of intergroup competition than maximizing the in-group’s relative advantage over an out-group.

Second, consistent with regulatory focus theory (Higgins, 1998) and the proposed consequences of reduced power (Keltner, Gruenfeld, & Anderson, 2003), we suggest that members of disadvantaged groups are more likely than members of advantaged (or non-disadvantaged) groups to compete for relative standing because their relative deprivation predisposes them toward prevention focus, vigilance, perceptions of threat, and negative emotions toward out-group members (Shah, Brazy, & Higgins, 2004). These consequences of relative deprivation make those who seek not to fall behind more likely to engage in destructive intergroup competition than those who seek to be ahead (Bernstein & Crosby, 1980; Crosby, 1976; Davis, 1959).

Finally, the desire not to fall behind is more likely to enhance intergroup competition than the desire to get ahead because it has fairness and appropriateness on its side (March, 1994;

Weber, Kopelman, & Messick, 2004). Because equality is a salient distribution rule, a powerful norm, and a central value in many cultures (Messick & Schell, 1992; Rawls, 1985; Schwartz, 1992), intergroup competition that is motivated by the desire to minimize a group's relative disadvantage is likely to be judged as more appropriate, just, and fair than intergroup competition that is motivated by the desire to maximize a group's relative advantage over an out-group. The former is likely to be regarded as a legitimate reaction to injustice (Tyler, 2001), whereas the latter is likely to be judged as greedy. This proposition is consistent with the observation that fairness and appropriateness considerations often serve as constraints on profit maximization (Fehr & Schmidt, 1999; Kahneman, Knetsch, & Thaler, 1986).

Modeling Intergroup Conflict: The IPD-MD Game

To explore the theoretical distinction between different types of competitive motivations in intergroup relations, the current studies employ a novel experimental paradigm. This paradigm, called the Intergroup Prisoner's Dilemma – Maximizing Difference (IPD-MD) game (Halevy, Bornstein, & Sagiv, 2008), allowed us to simultaneously study the two components in our theoretical model – relative deprivation at the intergroup level and the collective action problem at the intragroup level. Previous research on relative deprivation and intergroup competition used field-studies and employed survey methods that relied on respondents' self reports (e.g., Mummendey et al., 1999). In contrast, we experimentally manipulated relative deprivation in the lab and directly observed participants' costly behavior in a controlled environment.

The IPD-MD game entails competition between two groups. Each group member decides how much to contribute to the collective group effort. Contribution is beneficial to the group but costly to the individual. The IPD-MD game was designed specifically to distinguish between

costly individual contributions intended to help the in-group (“in-group love”) and costly individual contributions intended to hurt the out-group (“out-group hate”; Halevy et al., 2008).

Following previous research (Halevy et al., 2008; Halevy, Weisel, & Bornstein, 2010), the IPD-MD game is operationalized as a game between two three-person groups. Each individual receives an initial endowment of 10 game chips and has to decide how much of it to keep for himself or herself, how much to contribute to a within-group pool, and how much to contribute to a between-group pool. Each chip that is kept is worth 2 money units (MUs) to the individual. Contribution to the within-group pool adds 1 MU to each in-group member including the contributor without affecting the out-group in any way. Contribution to the between-group pool adds 1 MU to each in-group member including the contributor; in addition, it also subtracts 1 MU from each out-group member. Contribution to the within-group pool benefits fellow in-group members at a cost to the self and thus can be considered a behavioral manifestation of in-group love (Brewer, 1999). Contribution to the between-group pool helps the in-group to the same extent and at the same personal cost, and in addition harms the out-group. Hence, contributions to the between-group pool can only be considered a behavioral manifestation of out-group hate (Brewer, 1999).

In the IPD-MD game, self-interested individuals should keep the endowment in its entirety because the return they personally receive for contributing (i.e., 1MU) is only half the cost of contributing (2MUs). However, because the group as a whole gets 3MUs for a game chip that is worth only 2MUs, the group interest is to have all group members contribute all their resources (to either the within-group pool or the between-group pool). The payoff structure within each of the competing teams is thus an n-person PD game (i.e., a social dilemma; Dawes, 1980; Weber, Kopelman & Messick, 2004). Finally, the collective interest of all the individuals

in both groups is that everyone restricts their contributions to the within-group pool because such behavior maximizes the absolute profit to all participants. From the collective point of view, contribution to the between-group pool is a net waste of 2MUs because the benefit for one group (3MU) is offset by the loss to the other group (-3MUs). The game between the groups is thus a Maximizing Difference (MD) game (Kelley & Thibaut, 1978; Marwell et al., 1969).

The IPD-MD game enables researchers to test predictions derived from rational choice theory (e.g., Camerer, 2003), realistic conflict theory (Campbell, 1965; Sherif, 1966), and social identity theory (Tajfel & Turner, 1986). According to rational choice theory, individuals will keep their initial endowment to themselves in a one-shot IPD-MD game because this is the strategy that maximizes their *personal outcomes*. Realistic conflict theory, on the other hand, predicts that, in the absence of a structural reason to compete group members will contribute their resources to the within-group pool to maximize *absolute group outcomes* (there is no inherent goal incompatibility or conflict of interests between groups in the IPD-MD game). Finally, social identity theory predicts that group-level social comparison concerns will propel group members to contribute to the between-group pool to maximize *relative group outcomes*.

Consistent with realistic conflict theory (Campbell, 1965; Sherif, 1966), previous research with the IPD-MD game (e.g., Halevy et al., 2008) has found high levels of intragroup cooperation (contribution to the within-group pool) and very low levels of intergroup competition (contribution to the between-group pool). Specifically, Halevy et al. (2008) found that in a one-shot IPD-MD game group members contributed only about 5% of their initial endowment to the between-group pool. Moreover, allowing group members to communicate within their group decreased free-riding (i.e., the tendency to keep the initial endowment) and

increased contribution to the within-group pool (from 47% to 68%), but did not affect contribution to the competitive between-group pool.

A subsequent study by Halevy et al. (2010) which studied repeated interaction in the IPD-MD game found similarly low contribution rates to the competitive between-group pool, lending additional support to the predictions of realistic conflict theory. Contributions to the between-group pool averaged 6% across the entire 60 rounds of play. Moreover, group members preferred intragroup cooperation to intergroup competition even following a history of intergroup conflict in an Intergroup Prisoner's Dilemma (IPD) game (Bornstein, 1992). Specifically, in one condition in this experiment, groups played an IPD game for 30 rounds prior to playing an IPD-MD game for 30 rounds. Unlike the IPD-MD game, the IPD game does not allow contributions to a within-group pool (there is only a between-group pool). During the first 30 rounds, where participants could either keep the initial endowment or contribute it to the between-group pool, participants contributed a substantial proportion of their endowment to the between-group pool (approximately 27%). However, when the option to contribute to the within-group pool was introduced, thereby transforming the situation from an IPD game into an IPD-MD game, contribution to the between-group pool dropped immediately (to approximately 9%), without any communication either within or between groups except for signaling through behavioral decisions. In fact, the contribution rate to the between-group pool in this condition (i.e., when the IPD-MD game was played after an IPD game) was not statistically different from that in a control condition in which the IPD-MD game was played throughout the entire 60 rounds of the interaction.

Relative Deprivation and Intergroup Completion in the IPD-MD Game

Relative deprivation theory (Bernstein & Crosby, 1980; Crosby, 1976; Davis, 1959) integrates components from both realistic conflict theory (Campbell, 1965; Sherif, 1966) and social identity theory (Tajfel & Turner, 1986). Similar to realistic conflict theory, it focuses on material interests and real competition over scarce resources; similar to social identity theory, it underscores the role that group-level social comparison plays in motivating intergroup conflict. Halevy et al. (2008; 2010) found support for realistic conflict theory *in symmetric situations*—when in-group and out-group members had equal resources and equal opportunities for gain. Under these conditions, individuals tended not to hurt out-group members and refrained from competing for relative standing. However, little is known about what happens when groups are in asymmetric standings, i.e. whether the members of disadvantaged groups would participate in costly collective action to minimize the relative advantage of out-group members.

Unlike the two-person MD game (Marwell et al., 1969), in the IPD-MD game, minimizing inequality is a group goal that potentially creates an internal social dilemma. In this social dilemma, members of disadvantaged groups may be tempted to free ride and let other in-group members pay the costs necessary for achieving equality. However, to the extent that individuals are willing to pay the cost of contribution, they can minimize their group's disadvantage by contributing to the between-group pool rather than keeping the initial endowment to themselves or contributing it to the within-group pool. Thus, relative deprivation theory predicts that in *asymmetric* situations, members of disadvantaged groups will be more likely than members of advantaged groups to engage in intergroup competition (i.e., contribute to the between-group pool in the IPD-MD game). The current research tests this prediction.

Research Overview

Recognizing that fraternal relative deprivation constitutes a major determinant of intergroup competition, the present investigation studied behavior in the IPD-MD game under asymmetrical conditions. We created asymmetry between the in-group and the out-group in two fundamentally different ways. In Experiment 1 the in-group was put in a disadvantaged position by the out-group, who (ostensibly) had moved first in the IPD-MD game. In Experiment 2 asymmetry between the two groups was created exogenously through random chance. Our goal was to test the hypothesis that asymmetry, or fraternal relative deprivation, causes members of disadvantaged groups who wish to avoid falling behind to engage in intergroup competition significantly more than members of advantaged groups (who wish to maintain their advantaged position or further increase their relative advantage).

Experiment 1

In Experiment 1 we created relative deprivation by manipulating the information in-group members received about the (alleged) actions of the out-group members. Specifically, participants were told that the game was played sequentially, and that the out-group moved first. Half the participants were told that the out-group contributed only a few chips to the between-group pool, whereas the other half were told that the out-group contributed many chips to the between-group pool. We predicted that participants would contribute more to the between-group pool in the latter condition because relative deprivation was stronger in that condition.

Given the way we manipulated the inequality between the groups, contribution to the competitive between-group pool is likely to serve another function in addition to minimizing the in-group's disadvantage. Since unprovoked competition by the out-group caused the in-group's unfavorable position, retaliation was presumably a major consideration as well. From a rational perspective, retaliating against the out-group in a one shot game is pointless, as it will not

increase the group's absolute payoffs (of course, in a repeated game, retaliation is a completely different matter). Nevertheless, there is ample research showing that people are “strong reciprocators” who are willing to sacrifice resources to punish others who behave unfairly “*even if this is costly and provides neither present nor future material rewards for the reciprocator*” (Fehr, Fischbacher, & Gächter, 2002, p.3, italics in source). Thus, although contributing to the between-group pool does not benefit fellow in-group members more than contributing to the within-group pool, group members might contribute to the competitive pool just to get back at the out-group. It should be stressed that punishing the out-group, just like restoring equality, requires collective group action and even if all group members would like to see the out-group punished, not everyone is likely to be willing to pay the costs associated with punishing out-group members. In this sense, the present study is different from previous research on punishment conducted in the context of interpersonal interactions (c.f., Boyd, Gintis, Bowles, & Richerson, 2003; Gintis, 2000; Fehr et al., 2002).

Method

Forty-four social sciences students from a large Israeli university participated (31.8% female, *Mean age* = 25 years, *SD* = 1.9 years). Participants were recruited at the end of one of their classes: An experimenter arrived to the classroom and offered students the opportunity to participate in a study on group decision making in which they could earn money based on their decisions and the decisions of other participants.

Half the participants were randomly chosen to move to a different room and half remained in their original classroom. All the participants subsequently received instructions for a *sequential* IPD-MD game. They were told that: they would be randomly assigned to a three-person group with two other students in the same room; their group would be matched with a

three-person group from the other room; and they would not know who was in their group or who was in the other group. All the participants were told that the groups in the other room were randomly chosen to make their decisions first, and that they would receive information about the other group's decision prior to making their own decision. Participants were also told that each participant would have 10 chips to allocate (i.e., 30 chips for each group).

We used the same parameters of the IPD-MD game employed by Halevy et al. (2008). Thus, each chip that was kept paid 2 New Israeli Shekels (NIS) to the individual; each chip that was contributed to the within-group pool added 1NIS to each in-group member including the contributor; each chip that was contributed to the between-group pool added 1NIS to each in-group member including the contributor and subtracted 1NIS from each out-group member. The instructions were phrased in neutral language and there was no mention of the words cooperation or competition. Participants were assured that their decisions would remain completely confidential. Following the instructions, all the participants solved a quiz that tested their understanding of the rules of the game.

After participants had read the instructions and solved the quiz correctly, they were made to wait for five minutes – supposedly to allow the groups in the other room to make their decisions. After the five minutes had passed, a second experimenter entered the room holding what were ostensibly the decision forms from the out-group members. The experimenters then aggregated the alleged contributions from out-group members to the between-group pool in front of the participants and indicated in writing (on special feedback sheets) the out-group's total contributions to the between-group pool (but no other information). Each participant subsequently received his or her decision form with a feedback sheet indicating how many chips

out-group members had contributed to the between-group pool. The same procedure was used in both rooms.

Each participant was randomly assigned to one of two low out-group competition conditions or to one of two high out-group competition conditions. Participants in the low out-group competition conditions learned that out-group members jointly contributed either 0 chips (i.e., 0%, $n = 11$) or 5 chips (i.e., 16.67%, $n = 11$) to the between-group pool. As expected, there were no significant differences between the 0 chip and 5 chip conditions so we collapsed across these conditions to form a single *low out-group competition* condition ($n = 22$). Participants in the high out-group competition conditions learned that out-group members jointly contributed either 15 chips (i.e., 50%, $n = 11$) or 20 chips (i.e., 67%, $n = 11$) to the between group pool. As expected, there were no significant differences between the 15 chip and 20 chip conditions so we collapsed across these conditions to form a single *high out-group competition* condition ($n = 22$).¹

After learning the out-group's alleged allocation to the between-group pool, participants made their own IPD-MD decisions. Participants' contributions to the between-group pool served as our primary dependent measure. Participants were fully debriefed and paid after they made their IPD-MD decisions. Because the experiment involved false-feedback concerning the out-group's behavior, all participants were paid the maximal amount they could have earned assuming a collectively efficient outcome (60 NIS per participant, approximately \$15).

Results

Figure 1 presents the percentage of contributions to each of the three IPD-MD pools as a function of the relative deprivation manipulation. Participants in the high out-group competition condition contributed 27.27% of their chips to the between-group pool, which is significantly

more than the 3.18% that those in the low out-group competition condition contributed, $F(1,42) = 7.51, p = .01$).² This finding supports our hypothesis that greater relative deprivation leads to more intergroup competition in the IPD-MD game. Interestingly, although the number of chips contributed to the between-group pool did not significantly change within each of the two experimental conditions, a clear pattern emerged: participants who learned that out-group members contributed 0, 5, 15, or 20 chips to the between-group pool responded by contributing 0, 0.64, 1.82 and 3.64 chips (i.e., 0%, 6.4%, 18.2% and 36.4%) of their endowment to this pool, respectively.

Discussion

Experiment 1 found that participants did not compete to increase their group's advantage over the out-group. Contributions to the between-group pool were trivial (only 3%) in the low out-group competition condition. The low contributions to the between-group pool in the low out-group competition condition replicates prior IPD-MD findings (Halevy et al., 2008; 2010). Participants did compete, however, to decrease the advantage of the out-group over the in-group. Contributions to the between-group pool were substantial (over 27%) in the high out-group competition condition. These results support our proposition that the motivation not to fall behind is a stronger determinant of intergroup competition than the motivation to get ahead.

It should be noted, however, that the level of intergroup competition enacted by the participants never reached the level supposedly enacted by the out-group. Participants in the high out-group competition condition were told that out-group members contributed at a rate of either 50% or 67% to the between-group pool, yet their own contributions to the between-group pool were less than 30%. This finding suggests that participants either were somewhat forgiving of out-group members' competitive behavior and did not engage in "eye-for-an-eye" retaliation, or

that the participants were reluctant to participate in costly collective action to punish out-group members for their behavior.

The results of Experiment 1 establish that relative deprivation caused by the out-group increases intergroup competition. However, the manipulation used in Experiment 1 leaves open the possibility that participants' contributions were motivated by a desire for retaliation rather than (or in addition to) a desire to minimize inequality between the two groups. It is also possible that the feedback concerning the behavior of out-group members introduced a powerful norm regarding how individuals should behave in this situation, and the participants simply behaved according to this norm. Experiment 2 was designed to rule out these possibilities, by using a simultaneous rather than a sequential protocol of play in the IPD-MD game. To test whether inequality alone is sufficient to elicit competitive intergroup behavior, Experiment 2 also manipulated the relative positions of the two groups in a way that was exogenous to the intergroup interaction.

Experiment 2

Experiment 2 tested the effect of fraternal relative deprivation caused by misfortune (random move of nature) on intergroup competition. Unlike Experiment 1, which investigated only the behavior of disadvantaged groups, Experiment 2 investigated the behavior of advantaged groups as well. Additionally, in Experiment 2 we directly assessed feelings of resentment associated with the experience of fraternal relative deprivation.

Method

Forty-eight social sciences students from a private Midwestern university in the U.S. participated (56.5% female; *Mean age* = 19.9 years, *SD* = 1.1 years). Participants were recruited via e-mails that offered a monetary reward of \$8 for participating in a study on group decision-

making. Participants arrived at the laboratory in groups of 12 and were escorted to a private cubicle. Participants were randomly assigned to four three-person groups – two green groups and two yellow groups – and were informed that each green group would be paired with a yellow group. Although all the participants were in the same room, we prevented them from knowing who was in their group or who was in the other group by conducting two unrelated 6-person IPD-MD games simultaneously in the laboratory.

At the beginning of the experiment, each member in the green groups received \$5 and each member in the yellow groups received \$1. This differential pay was public: An experimenter approached each participant and paid them based on their randomly assigned tag color. This payment was in addition to individuals' participation fee and the potential money that they could earn in the group decision-making task. Thus, participants in the yellow groups were disadvantaged relative to those in the green groups.

Next, participants read instructions for a simultaneous IPD-MD game. The game used the following parameters: Each individual had 10 game chips; each chip that was kept was worth \$1 for the individual; each chip that was contributed to the within-group pool added \$0.50 to each in-group member including the contributor; each chip that was contributed to the between-group pool added \$0.50 to each in-group member including the contributor; in addition, it also subtracted \$0.50 from each out-group member. Each participant completed a quiz to ensure they understood the rules of the game. As in Experiment 1, the IPD-MD instructions were phrased in neutral language, there was no mention of cooperation or competition, and participants were assured that their decisions would remain completely confidential.

After being fully trained on the IPD-MD game, participants were given a decision form and instructed to indicate their allocation decisions. Participants' contribution to the between-

group pool served as our primary dependent measure. After making their IPD-MD decisions, participants responded to three items tapping negative feelings. Specifically, participants indicated on 7-point rating scales (ranging from *not at all* to *very much*) the extent to which they felt envy, jealousy, and anger. We averaged each participant's responses to the three items to create an index of negative emotions (Cronbach's $\alpha = .94$). This index served as a manipulation check—we expected members of disadvantaged groups to report stronger negative emotions than members of advantaged groups.

Results

An analysis of the negative emotions index indicated that the relative deprivation manipulation was successful in eliciting stronger negative emotions among those in the disadvantaged groups ($M = 4.31$, $SD = 1.90$) relative to those in the advantaged groups ($M = 1.39$, $SD = .45$), $F(1,46) = 49.70$, $p < .001$).

Figure 2 presents the percentage of contributions to each of the three IPD-MD pools as a function of the relative deprivation manipulation. Members of disadvantaged groups contributed on average 17.69% of their chips to the between-group pool, which was significantly more than the 6.36% contributed by members of advantaged groups, $F(1,46) = 3.92$, $p = .05$).³ This finding supports our hypothesis that relative deprivation causes intergroup competition in the IPD-MD game; more specifically, it shows that the motivation not to fall behind breeds more intergroup competition than the motivation to get ahead.

Discussion

The results of Experiment 2 support our hypothesis that relative deprivation causes intergroup competition in the IPD-MD game: Members of disadvantaged groups contributed significantly more to the between-group pool than members of advantaged groups, even though

the out-group was not responsible for the in-group's relative disadvantage. Whereas contributions to the between-group pool by participants in advantaged groups were similar to contributions previously observed by Halevy et al. (2008, 2010) in symmetrical IPD-MD competitions (approximately 5%), contributions by participants in disadvantaged groups were considerably higher (approximately 18%). Overall, these findings suggest that relative deprivation can motivate groups to engage in destructive intergroup conflict, even if the deprivation is caused by factors exogenous to the intergroup interaction, and despite the fact that intergroup competition requires individual sacrifice in the form of costly participation in collective action.

General Discussion

Two experiments tested the hypothesis that the desire not to fall behind increases intergroup competition for relative standing more than the desire to get ahead. Consistent with previous research on relative deprivation and intergroup competition (e.g., Mummendey et al., 1999; Scheepers et al., 2006), we found that fraternal relative deprivation, caused either by the actions of out-group members or random chance, increased intergroup competition among members of disadvantaged groups. These results extend previous research by providing direct evidence that the motivation not to fall behind facilitates intergroup competition significantly more than the motivation to get ahead.

Our experiments utilized the IPD-MD game to study the effect of group-level relative deprivation on intergroup competition. Previous research using the IPD-MD game has found that individuals and groups do not tend to compete to maximize relative group outcomes. Instead, when participation in intragroup cooperation and intergroup competition costs the same and provides the same absolute benefits to the in-group, group members strongly prefer intragroup

cooperation to intergroup competition. The present experiments suggest that this preference for peaceful coexistence may be limited to relations between groups of equal status and power (Otten, Mummendey, & Blanz, 1996; Scheepers et al., 2006). When group members were put in a disadvantaged position relative to an out-group, either by the competitive behavior of the out-group or by bad luck, they competed against the out-group to a considerable extent.

Group-level relative deprivation in our experiments, regardless of whether it was intentionally caused by the rival group or randomly brought about by misfortune, increased destructive intergroup competition. Future research might investigate whether relative deprivation has the same effect when the inequality in resources results from one group being less industrious or less efficient in solving its internal problems than the other. Relative deprivation theory suggests that justifiable disadvantage (i.e., disadvantage attributed to in-group members' own behavior, competence or achievements) should not increase individual participation in intergroup competition (Bernstein & Crosby, 1980; Crosby, 1976). In contrast, research by Scheepers and colleagues (2006) showed that members of low-status group discriminated in favor of fellow in-group members and against out-group members (who had higher status) even when status differences were based on group members' competence and performance levels.

The competitive intergroup behavior observed in our experiments should be put in perspective. Consistent with previous research on the positive-negative asymmetry effect in social discrimination (Hewstone, Rubin, & Willis, 2002; Mummendey et al., 1992; Mummendey & Otten, 1998; see Buhl, 1999 for a meta-analysis), very little intergroup competition was observed among members of groups that were not disadvantaged (Experiment 1) or among members of advantaged groups (Experiment 2). These participants behaved just like those in

Halevy et al.'s (2008; 2010) previous experiments with the symmetric IPD-MD game.

Furthermore, contributions to the between-group pool never exceeded contributions to the within-group pool, even among individuals who experienced fraternal relative deprivation. These results are encouraging, then, in that they suggest that in-group love rather than out-group hate is the default motive in intergroup relations (Brewer, 1999; Halevy et al., 2008; 2010; Mummendey & Otten, 1998). Thus, our results generally support Campbell's (1965) observation that "the altruistic willingness for self-sacrificial death in group causes may be more significant than the covetous tendency for hostility toward out-group members" (p. 293). They are also consistent with the general observation that individuals' endorsement of competitive strategies reflects greater concern with "protecting the in-group, as opposed to pulling down the out-group" (Garcia, Tor, Bazerman, & Miller, 2005, p. 194).

Previous research (Lowery, Unzueta, Knowles, & Goff, 2006) showed that support for policies aimed at minimizing inequality in society, such as affirmative action, depend on the extent to which individuals believe that those policies would benefit the in-group, not on how they might affect the out-group. Importantly, there are two complementary ways to restore equity or justice between groups in society. It is possible to restore equity or justice by taking resources away from dominant groups or allocating more resources to disadvantaged or oppressed groups (Lowery, Chow, & Crosby, 2009). Our findings suggest that a substantial proportion of the members of disadvantaged groups are willing to pay a personal cost (by participating in collective action) to take resources away from members of dominant groups.

Modeling Intergroup Conflict with the IPD-MD Game

There are important theoretical and methodological differences between our approach and that of the minimal group research, particularly on the positive-negative asymmetry effect

(PNAE) in social discrimination (Mummendey et al., 1992; Otten, Mummendey, & Blanz, 1996; Scheepers et al., 2006). Consistent with the notion that in-group love is a more potent motive in intergroup relations than out-group hate (Brewer, 1999; Campbell, 1965; Halevy et al., 2008), research on the PNAE in social discrimination has consistently shown that although resource allocation decisions tend to be biased in favor of in-group members in the positive domain, this bias is considerably lessened when it comes to the negative domain (i.e., when allocating aversive stimuli such as unpleasant noise or tasks; see Buhl, 1999 for a meta-analysis).

Research on the PNAE in the minimal group paradigm typically studies in-group love and out-group hate *separately*, by manipulating the valence (positive / negative) and the behavioral mode (allocation / removal) of the relevant stimuli (Amiot & Bouhris, 2003; 2005a; Mummendey & Otten, 1998). In addition, this line of research does not consider either the collective action problem that exists within groups who seek social change through intergroup competition (Bornstein, 1992; 2003) or the role that self-interest plays in shaping individual behavior (e.g., Miller, 1999); participants in the minimal group paradigm typically make allocation decisions that influence the outcomes of in-group and out-group members but not their own. In contrast, our theoretical approach is that participation in intergroup competition is personally costly, that intergroup conflict often requires group members to simultaneously consider self-interest, in-group love, out-group hate, and concern for the collective welfare, and that there the intragroup and the intergroup levels in intergroup conflict are inherently interdependent (Halevy et al., 2008).

We are in full agreement with research on the PNAE, however, concerning the robustness of the asymmetry and aggravation effects (Otten, Mummendey, & Blanz, 1996). We see relative deprivation as a fundamental “aggravating condition” that can push even the members of

minimal, ad hoc groups in the lab to display intentional out-group hate (i.e., “aversive discrimination” rather than “mindless group favoritism”: Mummendey & Otten, 1998; 2001). Consistent with the theoretical distinction between status and power (Fiske, 2010; Magee & Galinsky, 2008), however, it is important to distinguish between low status as an aggravating condition and material relative deprivation as an aggravating condition. Although status and control over valued resources often go hand in hand, they are not the same.

Consistent with social identity theory, researchers (e.g., Scheepers et al., 2006; Otten, Mummendey, & Blanz, 1996) have often manipulated relative group status in the minimal group paradigm by giving participants feedback on in-group members’ level of task performance compared to that of out-group members. Thus, the finding that members of low-status groups discriminate more than members of high-status groups when allocating resources in the minimal group paradigm should be interpreted as an attempt to affirm self-worth. Our approach, which derives from realistic conflict and relative deprivation theories, focuses on concrete, tangible resources. Accordingly, this research studied how relative deprivation in wealth (possession of valuable resources), rather than competence-based status, affects costly participation in intergroup competition (cf. Amiot & Bourhis, 2005b).

In sum, previous research in the minimal group paradigm has touched on the same fundamental questions that the present investigation addresses (i.e., when and why group members show in-group love versus out-group hate; Amiot & Bouhris, 2003; 2005; Buhl, 1999; Hewstone, Rubin, & Willis, 2002; Mummendey & Otten, 1998; 2001). We maintain that research with the IPD-MD game supplements the research on the PNAE in social discrimination by looking at costly individual behavior and modeling the nature of interdependence between the

intragroup and the intergroup levels in intergroup conflict, which we see as essential features of most real-world intergroup conflicts.

Intergroup conflict typically involves internal conflicts within each of the competing groups as well. Moreover, the intergroup and the intragroup levels of conflict are inherently interdependent. Therefore, to fully capture the complexity of international relations, labor negotiations and social conflicts, researchers must also consider domestic politics, intra-organizational bargaining, and internal problems of collective action and coordination (Bornstein, 2003; Coser, 1956; Putnam, 1988; Walton & McKersie, 1965). This view is supported by substantial empirical evidence showing that intragroup conflict decreases groups' effectiveness in meeting the challenges associated with intergroup competitions (Bornstein, 1992) and negotiations (Halevy, 2008). We maintain that the IPD-MD game provides a good approximation of this important feature of many real-world intergroup conflicts.

Maximization of Absolute versus Relative Gains in Intergroup Conflict

The question whether group members strive to maximize an absolute or relative group outcome, which is captured in the IPD-MD game by the choice between the within-group and between-group pools, goes well beyond the disciplinary boundaries of social psychology. The “structural realism” school of thought in international relations, for example, suggests that states are more concerned with how well they do relative to other states than with how well they do themselves, and that it is this relativistic concern that often triggers international conflict. In contrast, the “liberal institutionalism” school of thought in international relations asserts that states are motivated to maximize their absolute wealth, and points to examples of international cooperation to support this argument (Jervis, 1978; Powell, 1991; Rousseau, 2002; Snidal, 1991).

In recent years there has been similar discussion among economists and anthropologists concerning the distinction between altruism—self-sacrificial behavior aimed at helping fellow in-group members—and parochialism—self-sacrificial behavior aimed at hurting the out-group, or increasing the in-group’s advantage over it (e.g., Arrow, 2007; Bernhard, Fischbacher, & Fehr, 2006; Bowles, 2008; Choi & Bowles, 2007; Efferson, Lalive, & Fehr, 2008). The IPD-MD game, which draws a clear distinction between absolute and relative gains, in-group love and out-group hate, and altruism and parochialism, may be just the right tool for identifying the theoretical and behavioral conditions that determine which of these motives predominates intergroup relations.

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Endnotes

1. In addition to the absence of significant differences within the low and high out-group competition conditions, a two-way analysis of variance confirmed that the interaction term also was statistically insignificant: $F(1,40) = .46, p = .50$, indicating that the insignificant differences within each of the two conditions were comparable.
2. Participants in the high out-group competition condition kept a lower proportion of the initial endowment to themselves compared to participants in the low out-group competition condition (44.5% versus 62.3%, respectively), $F(1,42) = 1.90, p = .18$; they also contributed slightly less to the within-group pool compared to participants in the low out-group competition condition (28.2% versus 34.5%, respectively), $F(1,42) = .28, p = .60$. These differences, however, were not statistically significant.
3. Members of disadvantaged and advantaged groups kept similar proportions of the initial endowment to themselves (59.2% versus 59.1%, respectively), $F(1,46) = .00, p = .99$. Members of disadvantaged groups contributed somewhat less to the within-group pool compared to members of advantaged groups (23.1% versus 34.5%, respectively); this difference, however, was not statistically significant $F(1,46) = 1.42, p = .24$.

Figure 1. Percentage of the initial endowment kept and contributed to the two pools in the IPD-MD game as function of relative deprivation (out-group competition).

Figure 2. Percentage of the initial endowment kept and contributed to the two pools in the IPD-MD game as function of relative deprivation (relative wealth).