



Noblesse oblige emerges (with time): Power enhances intergenerational beneficence



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ABSTRACT

Across four experiments, we examine how the experience of power affects intergenerational decision-making. We argue, and empirically demonstrate, that the experience of power enhances intergenerational beneficence. This effect emerges because the experience of power in intergenerational dilemmas prompts a sense of social responsibility among powerholders. In particular, the experience of power in intergenerational contexts leads people to feel an obligation to look out for the long-term interests of others, which in turn enhances generosity to future others. Thus, the positive effect of power on intergenerational beneficence is mediated by a sense of responsibility to look after others' long-term interests.

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Introduction

From CEOs defrauding investors to politicians engaging in various forms of moral hypocrisy, examples of powerful individuals abusing their power for personal gain are pervasive, and the notion that power corrupts seems to be as taken-for-granted as the notion that two plus two equals four. At the same time, technological, political, and economic developments in the past century have changed the nature and scope of the issues that societies face, such that powerholders now have unprecedented ability to shape the experiences and opportunities not only of a large number of present-day actors but also of many future generations to come. For example, leaders in large corporations make decisions about the allocation and consumption of resources that can affect the welfare of communities well into the future. Given the unprecedented potential reach of today's powerful actors, a better understanding of how the experience of power affects resource allocations, especially intergenerational allocations, is crucial in order to develop strategies to limit corruption and to channel powerholders' decisions in a socially responsible manner.

Intergenerational decisions are decisions in which present decision-makers allocate resources between themselves in the present and others in the future. These types of decisions can involve a conflict between the interests of present decision-makers and the interests of future others when the decision calls for sacrifice on the part of actors in the present (Wade-Benzoni, 2002; Wade-Benzoni & Tost, 2009). For example, present generations may have to forego the consumption of desirable benefits, such as natural resources, in order to ensure the sustainability of resources for future generations. Similarly, if future generations are to be spared costly burdens, such as debt or hazardous waste, it may be necessary for present actors to shoulder those burdens themselves.

A key feature of intergenerational dilemmas is that they involve both interpersonal and temporal distance. That is, outcomes of the decision accrue not just to the self in the present but also to another person (interpersonal distance) in the future (temporal distance). Given that previous research has demonstrated that decision makers tend to discount across both of these dimensions, one would expect that the barriers to promoting intergenerational beneficence (i.e., generosity to future others) are considerable (see Wade-Benzoni & Tost, 2009, for an in-depth discussion of the barriers to intergenerational beneficence). However, previous research has uncovered a number of surprising variables that enhance intergenerational beneficence, such as outcome uncertainty (Wade-Benzoni, Hernandez, Medvec, & Messick, 2008) and

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mortality salience (Wade-Benzoni, Tost, Hernandez, & Larrick, 2012). In this paper, we explore how the experience of power is likely to affect intergenerational decision-making.

The notion that power might enhance intergenerational beneficence may seem somewhat counter-intuitive. After all, recent research on the psychological effects of power has demonstrated that the experience of power promotes moral hypocrisy (Lammers, Stapel, & Galinsky, 2010), increases the tendency to objectify others (Gruenfeld, Inesi, Magee, & Galinsky, 2008), and leads powerholders to devalue the abilities and perspectives of those around them (Galinsky, Magee, Inesi, & Gruenfeld, 2006; Georgesen & Harris, 1998; Kipnis, 1972). However, other research has identified important moderators of the effect of power on self-interested behavior, suggesting that in certain circumstances, the psychological experience of power can be channeled in prosocial ways. For example, research indicates that the relationship between power and prosocial behavior differs depending on individuals' relationship orientation (Chen, Lee-Chai, & Bargh, 2001) and moral identity (DeCelles, DeRue, Margolis, & Ceranic, 2012). Research has also shown that structural features of decision making situations can alter the effects of power. For example, Handgraaf and colleagues (Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008) found that power increases selfishness in allocation decisions but only up to the point at which other recipients are completely powerless, at which point a desire to help others minimizes self-interested behavior. Intergenerational decisions often involve extreme power imbalances, and consistent with this notion, Wade-Benzoni et al. (2008) found that the experience of power can induce feelings of stewardship, raising the level of generosity to future others that is viewed as fair and just. However, in the Wade-Benzoni et al. (2008) experiment that manipulated power, participants were asked to focus on fairness as a determinant of their allocation. The question remains, therefore, as to whether in the absence of such a requirement, power would enhance individuals' willingness to forego immediate benefits to the self in generosity to future others. We investigate this possibility.

To do so, we integrate research on the experience of power with research on intergenerational decision-making and argue that the experience of power can magnify individuals' sense of responsibility to protect the long-term interests of others. As a consequence, when individuals are given the opportunity to make an intergenerational allocation of resources, power enhances generosity to future others because deferring one's present enjoyment of resources so that others can instead enjoy the benefits in the future fulfills this sense of responsibility. In the following sections, we develop this argument in more detail, and we present four experiments that lend support to these ideas.

Intergenerational decisions and power

Intergenerational decisions, which involve allocations between the self in the present and others in the future, involve two types of psychological distance that can lead to discounting (the tendency to devalue a specific outcome based on a feature of that outcome). Temporal discounting refers to the tendency to discount the value of resources that will be consumed in the future; in essence, people tend to prefer immediate, rather than delayed, consumption (see Loewenstein, 1992, for a review). Interpersonal discounting refers to the tendency to devalue outcomes that are received by others rather than the self (Loewenstein, Thompson, & Bazerman, 1989). Intergenerational discounting involves the combination of these two effects. Specifically, intergenerational discounting occurs when "individuals prefer smaller benefits for themselves now as opposed to larger benefits for others in the future" (Wade-Benzoni & Tost, 2009: 168; see also Wade-Benzoni, 2002,

2008). Because intergenerational discounting involves the compounding of temporal and interpersonal discounting, the barriers to intergenerational beneficence are considerable. However, we argue that the psychological experience of power overcomes these barriers because, in intergenerational contexts, the psychological experience of power induces a sense of responsibility to look out for the long-term interests of others.

Power refers to an individual's relative ability to control others' outcomes, experiences, or behaviors (Keltner, Gruenfeld, & Anderson, 2003; Thibaut & Kelley, 1959), and extensive research has shown that the experience of power can have a considerable impact on powerholders' cognitions and behaviors. With respect to interpersonal discounting, while research suggests that in most settings power enhances powerholders' sense of interpersonal distance (Magee & Smith, 2013), scholars have also demonstrated that when power asymmetry is extreme, this tendency may reverse. Specifically, Handgraaf et al. (2008) examined the effect of power on allocations in a modified social dilemma game. They found that as power increased, allocators behaved more selfishly but only up to a point. In particular, Handgraaf et al. (2008) operationalized power by varying the extent to which the recipient of an allocation decision had the capacity to reciprocate the allocator's behavior. They proposed, and empirically demonstrated, that there was a negative effect of the recipient's ability to reciprocate on the allocator's generosity as long as the recipient maintained a non-zero capacity to reciprocate. In other words, as long as the recipient was not completely powerless, the allocator's power reduced the allocator's generosity. However, at the very high end of the continuum of allocator power, the effect reversed. Specifically, allocators were more generous to completely powerless recipients (i.e., those with no capacity to reciprocate) than to extremely weak recipients. Handgraaf et al. (2008) argued that this effect emerged because when individuals are confronted with others who are completely powerless, the situation is construed as one in which social responsibility is in order. Their findings are consistent with other research that has found that sometimes allocators offer substantial resources to others in dictator games, despite the possibility of reserving all benefits for the self (e.g., Camerer & Thaler, 1995; Forsythe, Horowitz, Savin, & Sefton, 1994; Kahneman, Knetsch, & Thaler, 1986; Sachdev & Bourhis, 1985; van Dijk & Vermunt, 2000; see also Overbeck & Park, 2001).

Handgraaf et al.' (2008) findings suggest that, for power to elicit a sense of social responsibility, awareness of the powerlessness and vulnerability of others is likely crucial. We argue that such awareness is more likely to emerge in intergenerational contexts than in interpersonal tradeoffs that do not involve time delay. In particular, we suggest that the time delay inherent in intergenerational decisions draws decision makers' attention to the extreme power asymmetry that characterizes intergenerational decisions (Wade-Benzoni, 2002; Wade-Benzoni et al., 2008). In intergenerational decisions, as in some contemporaneous allocation decisions, the decision maker has control over how resources will be allocated to others. However, two common features of intergenerational dilemmas, both of which are brought about by time delay, are likely to draw decision makers' attention to the extremity of the power imbalance.

First, the potential for reciprocity in intergenerational allocations is lower than in contemporaneous allocations. For example, if a supervisor makes a decision that reduces the bonus that a subordinate is eligible to receive tomorrow, the supervisor may have unilateral power in the immediate decision context, but the subordinate may later have the opportunity to reciprocate the unfavorable treatment. However, if the supervisor makes a decision that reduces the bonus that a subordinate is eligible to receive in six months, the potential for reciprocity is less clear: Will the supervisor and subordinate still work on the same team in six

months? Will intervening events balance out the present unfavorable decision? The time delay inherent in the latter example magnifies the power asymmetry of the decision. Indeed, in most studies of intergenerational decisions, the potential for reciprocity is entirely ruled out and decision makers are removed from the social context after their decisions are made (Wade-Benzoni, 2002).

Second, in intergenerational dilemmas, the consequences often increase over time (Wade-Benzoni, 2002, 2008). For example, in the case of long-term financial investments, if one generation saves money, the size of the fund saved is generally expected to increase over time, enhancing the benefits that future generations may enjoy. Similarly, if a corporation decides to bury toxic waste to avoid the burden of cleaning it up, that burden can be magnified for future generations if the waste contaminates drinking water in the area. This aspect of intergenerational dilemmas creates a situation in which the party with control over the decision is not the party with the most at stake. In such circumstances, the power asymmetry of intergenerational dilemmas, and the powerlessness of future recipients, is apparent and further intensified.

We therefore argue that intergenerational dilemmas represent a unique type of dilemma in which the experience of power is likely to evoke and enhance the sense of social responsibility that Handgraaf et al. (2008) identified in their research (see also Overbeck & Park, 2001). That is, intergenerational decisions imbue decision makers with power; when decision makers experience an additional boost of power, either from holding a role that affords them power over others or from some form of episodic priming (see Smith & Galinsky, 2010),¹ this enhanced power is likely to enhance their sense of responsibility for others. By “social responsibility,” we simply mean a feeling of obligation to act in ways that benefit others (Handgraaf et al., 2008; Krebs, 1970; Pearce & Gregersen, 1991; Smith, Organ, & Near, 1983). Consistent with this expectation, Wade-Benzoni et al. (2008) found that the experience of power in intergenerational dilemmas can induce feelings of stewardship, raising the level of generosity to future others that is viewed as fair. We argue that this sense of social responsibility and the accompanying concerns about fairness that are elicited by the experience of power in intergenerational contexts are likely to decrease interpersonal discounting, consequently leading to less intergenerational discounting.

In addition to this reduction in interpersonal discounting, recent research has shown that power reduces temporal discounting. Specifically, Joshi and Fast (2013) have demonstrated that the experience of power minimizes the tendency to prefer immediate to delayed benefits to the self (i.e., power reduces the tendency to prefer personal consumption in the present over personal consumption in the future). Relatedly, others have found that under certain circumstances, power enhances the motivation to save money (Garbinsky, Klesse, & Aaker, 2014). While we do not view this effect of temporal discounting to be the key driver of the effect of power on intergenerational decision making (because we expect the role of social responsibility to future others to predominate),

we recognize that the tendency for power to reduce temporal discounting may reinforce the effect we examine. We therefore suggest that the negative effect of power on temporal discounting can be extended beyond the realm of the self: specifically, we suggest that not only does power reduce temporal discounting on behalf of the self but also on behalf of others.

In summary, decision making in intergenerational dilemmas involves the contemplation of the interests and needs of future others, which is likely to highlight for decision makers the extreme nature of the power imbalance involved in the decision. As a consequence, we argue that in intergenerational dilemmas, power enhances a sense of responsibility to protect the long-term interests of others, and that this sense of responsibility to protect the long-term interests of others leads to enhanced generosity to future others. We therefore propose the following hypotheses:

Hypothesis 1. There is a positive effect of power on intergenerational beneficence.

Hypothesis 2. The positive effect of power on intergenerational beneficence is mediated by a sense of responsibility to look out for the long-term interests of others.

We test these predictions in a series of four experiments.

Overview of studies

In Experiment 1, we manipulate power and the time delay between the decision and the accrual of outcomes to others, allowing for a comparison of the effects of power on generosity in contemporaneous and intergenerational allocations. Hypothesis 1 predicts that power will enhance generosity in the intergenerational allocation, but we do not expect this effect to emerge in the contemporaneous one. Experiment 2 compares temporal discounting in intrapersonal and intergenerational contexts. That is, we adapt an experimental paradigm designed to explore temporal discounting of outcomes to the self, incorporating an additional condition that examines the temporal discounting of outcomes to others (i.e., intergenerational discounting). While previous research has demonstrated that power is likely to decrease temporal discounting in the personal context, Hypothesis 1 predicts that power should reduce discounting in the intergenerational context as well. This design allows us to compare the magnitude of the two effects. Experiment 3 provides a more conservative test of Hypothesis 1, examining the effect of power on allocations to future others when alternative allocation options are available (i.e., self in the future, other in the present) and also tests Hypothesis 2. Finally, Experiment 4 returns to an exclusively intergenerational paradigm and provides further support for Hypotheses 1 and 2 in a between-subjects design.

Experiment 1

In Experiment 1, we examine the effect of power on intergenerational generosity in the context of charitable donations. Here, we manipulate power and then present participants with the opportunity to allocate money to a charitable organization. In one condition, the charity focuses on protecting and promoting the present interests of individuals in need. In the other condition, the charity focuses on protecting and promoting the long-term interests of those in need. The study thus has a 2 (power: high vs. low) × 2 (recipients: present vs. future) between-subjects design. Consistent with Hypothesis 1, we expected that power would induce generosity in the future others condition but not in the present others condition.

¹ It may be helpful to note here that the type of power we manipulate in our studies is orthogonal to the form of power that Handgraaf et al. (2008) examined. Handgraaf et al. (2008) examined the capacity of the allocation recipient to exert reciprocal control over the decision. The power of the allocator was operationalized as inversely proportional to the reciprocal capacity of the recipient. In our studies, all recipients are completely powerless in terms of capacity to reciprocate, placing all of our decisions at the extreme end of Handgraaf et al.'s (2008) power continuum. However, the reciprocal capacity of the recipient is not the only form of power that may influence these types of decisions. Individuals making allocation decisions may also have role-based power, a broader subjective sense of power due to control over other resources, or any range of other bases of the capacity to control others. In our studies, we manipulate power orthogonally to the decision situation by using power primes and power-based role assignments.

Methods

Participants were 222 individuals (53% female; $M_{\text{age}} = 43.91$, $SD_{\text{age}} = 15.62$) recruited from Qualtrics, an organization that manages an online national survey pool.

Power manipulation

To manipulate the psychological experience of power, we used a writing task that has been used extensively in previous research (Galinsky, Gruenfeld, & Magee, 2003). Participants in the high power condition were asked to recall a situation in which they had power over others, while participants in the low power condition were asked to recall a situation in which they lacked power.

Recipient manipulation

Participants were led to believe that this writing task constituted the entirety of the study. Participants then saw a statement thanking them for participating and informing them that they would be entered in a lottery for \$1000 as an additional reward for their participation. Participants were told they could specify an amount of money that, if they were to win the lottery, would be taken from their winnings and donated to the charity. Participants were presented with a description of an actual charity that was described as serving the needs of individuals in “impoverished communities.” We varied whether the charity was described as focusing on having an immediate or a long-term impact. The descriptions were based on materials used in previous studies of intergenerational behavior (see Wade-Benzoni et al., 2012).

Both charities were titled “Food for the Poor.” Participants in the present-focused charity condition were told that the charity “works to provide direct, immediate relief assistance to the poor by purchasing and distributing food in impoverished communities. The organization strives to meet pressing immediate needs in society today.” Participants in the future-focused charity condition were told that the charity “works to establish structural improvements in food supply systems that will help to eliminate hunger in the future for individuals in impoverished communities.”²

Participants were then asked to indicate how much of the prize money, if any, they would like to donate to Food for the Poor. The amount of U.S. dollars that individuals indicated they would like to donate was used as the measure of generosity. Participants had no reason to suspect that this question constituted the dependent variable.

Results and discussion

The two-factor between-participants ANOVA with donation amount as the dependent variable revealed no main effects and a significant interaction between power and recipient ($F(1,218) = 4.44$, $p = .036$, $\eta_p^2 = .02$) (Fig. 1). Levene's Test for Equality of Variances indicated that the assumption of homogeneity of variance was violated, so we further examined our predictions using unequal variance t -tests. As expected, individuals in the future allocation condition allocated more to the charity when they had engaged in the high power writing task ($M = 290.92$, $SD = 349.71$) than when they had engaged in the low power writing task ($M = 176.82$, $SD = 230.12$), $t(106.95) = 2.06$, $p = .04$. Thus, Hypothesis 1 was supported. In the present recipient

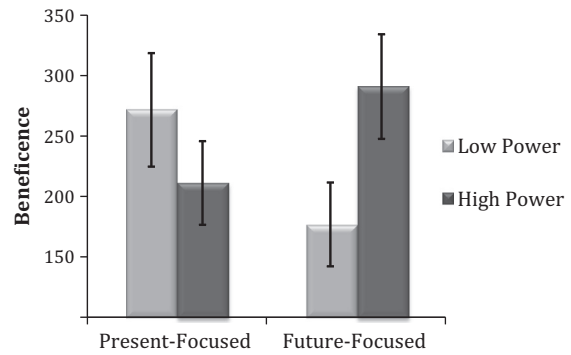


Fig. 1. Interaction on beneficence: Experiment 1.

condition, there was no effect of power on the amount allocated to the charity ($M_{LP} = 271.63$, $SD = 338.85$; $M_{HP} = 211.11$, $SD = 270.44$; $t(97.09) = 1.04$, $p = .30$). These findings give support to our argument that the effect of power on generosity to others is uniquely elicited by the time delay inherent in intergenerational allocations.

Experiment 2

In Experiment 2 we seek to compare the effect of power on personal temporal discounting to the effect of power on intergenerational discounting (i.e., temporal discounting with an added interpersonal dimension). We felt it was important to do so because we wanted to assess whether the effect of power on intergenerational beneficence represents more than just an extension of the previously demonstrated effect of power on temporal discounting (Joshi & Fast, 2013) to the intergenerational context. To do so, we adapted the design used by Joshi and Fast (2013; Studies 1 and 2) in their tests of the effect of power on personal temporal discounting, and we used a 2 (power: high vs. low) \times 2 (type of temporal discounting: personal vs. intergenerational) between-subjects design.

We sought to compare the effects of power on temporal personal discounting and intergenerational discounting in two ways: mediation and magnitude of the effect. First, Joshi and Fast (2013) argued that, because power leads to higher level construal (i.e., “bigger picture” thinking) and reduced uncertainty, power enhances decision makers’ feelings of connection to their future selves and consequently reduces personal temporal discounting. Thus, the mediator in their studies was felt connection to the future self. One possibility is that the effect of power on both personal temporal discounting and intergenerational discounting is of the same magnitude (i.e., there is a main effect of power, but no interaction), but the effect is only mediated by connection to future self in the personal discounting condition. This finding would establish the uniqueness of the intergenerational context by suggesting that there is a separate mechanism that explains the effect of power on intergenerational discounting.

Alternatively, the feelings of responsibility to others that we argue is evoked in intergenerational decisions may amplify the effect of power on personal temporal discounting. If so, then we would expect to find an interaction, such that the effect of power on discounting in the intergenerational condition is even larger than that in the personal condition.

In sum, we see two possible analytical outcomes as representing evidence that the intergenerational context is unique: (1) a main effect of power on discounting, in which the effect in the personal condition is mediated by connection to future self but the effect in the intergenerational condition is not or (2) an interaction

² Because previous research has shown that power can lead to higher construal level (Magee & Smith, 2013; Smith & Trope, 2006) we conducted a brief pilot study to ensure that participants did not perceive either of these charities as more effective from a “big picture” perspective. The pilot study showed that individuals’ sense of “big picture” or strategic effectiveness did not differ between the two descriptions of the charity.

between power and type of discounting, such that the effect of power on intergenerational discounting is greater than the effect of power on personal temporal discounting. That said, we note that, strictly speaking, support of Hypothesis 1 only requires an effect of power in the intergenerational condition.

Methods

Participants were 165 individuals (63% female; $M_{\text{age}} = 35.64$, $SD_{\text{age}} = 12.64$) recruited via Amazon's Mechanical Turk. They were paid \$3 for their participation. We told participants that they would be working in a virtual team composed of four people.

Power manipulation

To conduct the power manipulation, we used the approach of Joshi and Fast (2013, Study 1). Specifically, participants were randomly assigned either to the role of team manager (high power) or team worker (low power). Participants in the high power manager condition were told that they would have control over which tasks the other group members performed and would also be asked to evaluate the performance of their workers. Low power workers, in contrast, were told that they did not have control over the tasks and instead would have to perform the tasks assigned by their manager; they were also told they would not be able to evaluate their managers performance. After reading about their role assignment, participants were informed that they would be asked to respond to some questions before engaging in the group activity.

Discounting measure and recipient manipulation

To measure discounting, we used the titration approach taken by Joshi and Fast (2013) and developed by Hardisty and Weber (2009). Specifically, we asked participants to give preferences for winning a lottery. To encourage participants to report their true preferences, we noted that the lottery would take place that day and that if they were to win, the administrators would choose one of their nine binary choices and make the allocation based on that choice. They then completed a series of binary choices in which they indicated their preference between receiving \$120 now and some other outcome. For those in the personal temporal discounting condition, this other outcome involved varying sums of money (\$113, \$120, \$137, \$154, \$171, \$189, \$206, \$223, and \$240) that they would receive in one year. For those in the intergenerational condition, this other outcome involved varying sums of money (\$113, \$120, \$137, \$154, \$171, \$189, \$206, \$223, and \$240) that another randomly chosen person on their team would receive in one year. Thus, the intergenerational condition involved, consistent with the definition of intergenerational decisions, both interpersonal distance (allocation is to another person rather than the self) and time delay (the other person would only receive the allocation after a one year delay). Following this series of questions, participants were asked to indicate their indifference point with the following item: "Please fill in the amount (in US dollars) that would make you indifferent between the following two options: (A) \$120 today for yourself, (B) ____ in one year [for yourself /for a team member]." A single indifference point was obtained for each participant by identifying the point at which the participant switched from preferring the present option to preferring the future option unless the participant maxed out on the free response scale, in which case the open response measure was used (see Hardisty & Weber, 2009).

Thus, for those in the personal temporal discounting condition, the titration procedure allows us to determine the amount at which participants were indifferent between receiving money in the present or in the future. For those in the intergenerational condition, this procedure allowed us to determine the amount at which participants were indifferent between receiving money in

the present or having someone else receive it in the future. Consistent with the approach taken by Joshi and Fast (2013), we then used the indifference point to determine the level of discounting by applying the formula: $k = (A/V - 1)/\text{time in years}$ where A refers to the future amount required to forego V , the present amount.

Connection to future self

We used the same approach to measuring connection to future self as that taken by Joshi and Fast (2013). Specifically, participants were presented with an adaption of the Inclusion of Other in the Self scale (Aron, Aron, & Smollan, 1992). Participants were presented with a series of circles that overlapped to varying degrees, and they were asked to indicate which of the circles best represented their feelings of connection to their future selves (see also Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009; Husman & Shell, 2008).

Other measures

We also identified and measured several variables that have been shown to be related to power, temporal discounting, and/or intergenerational beneficence in order to assess any potential role of these variables as mediators. These measures included the following: legacy motive (e.g., "It is important to leave a positive legacy for future generations"), connection to future others (Aron et al., 1992; Ersner-Hershfield et al., 2009; Husman & Shell, 2008), dominance motivation (Cassidy & Lynn, 1989), prestige motivation (Cassidy & Lynn, 1989), performance orientation (Horvath, Scheu, & DeShon, 2001), long-term perspective (Husman & Shell, 2008), perception of distance to the future (Husman & Shell, 2008), self-interest, moral identity (Aquino & Reed, 2002), optimism (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009; Watson, Clark, & Tellegen, 1988), regulatory focus (Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008), construal level (using the Behavior Identification Form; Vallacher & Wegner, 1989), sense of control over general events (Fast et al., 2009), uncertainty avoidance (Hofstede, 1980), and fairness. None of these variables acted as mediators; we therefore do not discuss them further.

Manipulation check

Just before the demographic section, participants were asked to indicate the extent to which they had power over their team members on a 7-point scale. In addition, participants filled out the sense of power over general events scale (Anderson & Galinsky, 2006). Participants were asked to indicate the extent to which they agreed with the scale items, including the preface, "In general..." Example items include "I can get people to listen to what I say" and "My wishes do not carry much weight" (reverse-scored) (scale: 1 = strongly disagree to 7 = strongly agree; $\alpha = .88$; $M = 4.73$, $SD = 1.04$).

Results

Manipulation check

The role power manipulation check, in which participants indicated the extent to which they felt they had power over their team members, was submitted to a two-way ANOVA with the power manipulation and the recipient manipulation as the predictor variables. The analysis revealed a main effect of the power manipulation, such that participants in the high power manager condition felt more power over team members ($M = 5.12$, $SD = 1.13$) than did those in the low power worker condition ($M = 4.23$, $SD = 1.28$; $F(1, 157) = 18.61$, $p < .001$, $\eta_p^2 = .11$). No other effects were significant.

Scores on the measure of general sense of power were submitted to the same two-way ANOVA. However, there was no effect of the power manipulation on this measure ($M_{HP} = 4.67$, $SD_{HP} = 1.16$; $M_{LP} = 4.93$, $SD_{LP} = 0.99$).

Thus, the manipulation enhanced power in the specific context of the group activity but not in a generalized sense in the way that the power writing task used in Experiment 1 has been shown to do. Indeed, [Joshi and Fast \(2013\)](#), in their use of this manipulation, used only the role power manipulation check. Because the manipulation was specific to the role and the effect of the manipulation on power within that role was both significant and large, we regard the manipulation as successful.

Discounting

We analyzed the dependent variable in two ways. First, we followed [Joshi and Fast's \(2013\)](#) approach of focusing only on the binary choices and constrained those who maxed out on the binary choices to a discounting score of 1. Next, we used [Hardisty and Weber's \(2009\)](#) approach of using the open-ended response for those who maxed out on the binary choices. Following both [Joshi and Fast \(2013\)](#) and [Hardisty and Weber \(2009\)](#), we excluded from the analyses participants who demonstrated inconsistent discounting preferences (8 when looking only at the binary choices; an additional 24 when incorporating the open-ended responses) and were outliers within their condition (4 participants with SD from the mean >4.50 ; all remaining participants had $SDs < 3.00$). We also excluded participants who missed our attention checks (10 participants).

Beginning with the discounting measure utilizing only the binary choices, we submitted the binary discounting score to a two-way between-subjects ANOVA with power and recipient as the predictor variables. We found a main effect of type of discounting ($F(1, 140) = 5.01$, $p = .027$, $\eta_p^2 = .04$), such that discounting to others ($M = 0.89$, $SD = 0.25$) was greater than discounting to the self ($M = 0.79$, $SD = 0.27$). This finding is consistent with previous research showing that people discount outcomes that accrue to others rather than the self (e.g., [Loewenstein et al., 1989](#)). The main effect of power was not significant, but we did find a significant interaction ($F(1, 140) = 7.66$, $p = .006$, $\eta_p^2 = .05$; see [Fig. 2](#)). Examining the interaction, we found that the effect of power on discounting was significant and negative in the intergenerational condition ($M_{HP} = 0.82$, $SD_{HP} = 0.29$; $M_{LP} = 0.95$, $SD_{LP} = 0.21$; $F(1, 140) = 3.99$, $p = .048$, $\eta_p^2 = .03$). Thus, Hypothesis 1 was supported. Surprisingly, however, we also found that in the personal condition the effect of power on temporal discounting was positive and marginally significant ($M_{HP} = 0.85$, $SD_{HP} = 0.24$; $M_{LP} = 0.73$, $SD_{LP} = 0.29$; $F(1, 140) = 3.67$, $p = .058$, $\eta_p^2 = .03$). It is also interesting to note that, among participants in the high power condition, there

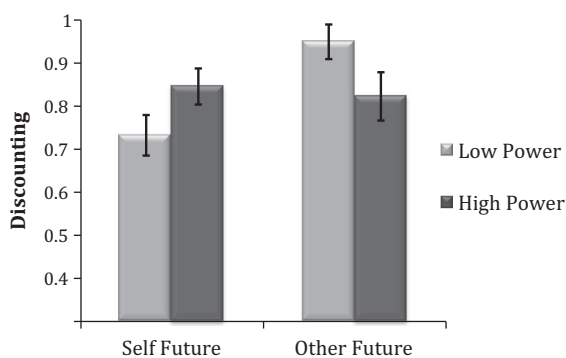


Fig. 2. Interaction on discounting: Experiment 2.

was no effect of interpersonal distance on future allocations. That is, high power participants discounted to the same degree whether allocating to the self in the future or the other in the future ($F(1, 140) = 0.14$, $p = .71$).

We next submitted the measure of discounting that incorporated the open-ended response for those who maxed out on the binary items to the same two-way ANOVA. Neither main effect was significant. We did, however, find a marginally significant interaction ($F(1, 115) = 3.39$, $p = .068$, $\eta_p^2 = .03$). Examining the interaction, we found that the effect of power on discounting was significant in the intergenerational condition ($M_{HP} = 2.71$, $SD_{HP} = 3.52$; $M_{LP} = 26.89$, $SD_{LP} = 85.32$; $F(1, 115) = 4.81$, $p = .03$, $\eta_p^2 = .04$). Thus, Hypothesis 1 was again supported. We found that the effect of power in the personal discounting condition was not significant ($M_{HP} = 4.32$, $SD_{HP} = 14.15$; $M_{LP} = 1.85$, $SD_{LP} = 2.62$; $F(1, 115) = 0.07$, $p = .79$). It is again interesting to note that high power participants discounted to the same degree whether allocating to the self in the future or the other in the future ($F(1, 115) = 0.03$, $p = .88$).

Connection to future self

We submitted the measure of connection to future self to the same two-way ANOVA. We found a marginally significant effect of power ($F(1, 140) = 3.55$, $p = .06$, $\eta_p^2 = .03$), such that those in the high power condition felt a greater connection to their future selves ($M = 4.84$, $SD = 1.96$) than did those in the low power condition ($M = 4.30$, $SD = 1.75$). This finding is consistent with the findings of [Joshi and Fast \(2013\)](#). However, there was also a marginally significant interaction ($F(1, 140) = 3.09$, $p = .08$, $\eta_p^2 = .02$). Examining the interaction, we found that the effect of power on connection to future self was significant in the intergenerational condition ($M_{HP} = 5.21$, $SD_{HP} = 1.87$; $M_{LP} = 4.09$, $SD_{LP} = 1.82$; $F(1, 140) = 6.20$, $p = .014$, $\eta_p^2 = .04$), but not in the personal condition ($M_{HP} = 4.51$, $SD_{HP} = 2.01$; $M_{LP} = 4.48$, $SD_{LP} = 1.69$; $F(1, 140) = 0.01$, $p = .93$).

Given these findings, we looked to see whether connection with future self predicted discounting and whether the effect of connection with future self on discounting varied based on the type of discounting. Regressing the binary-only measure of discounting on connection to future self (centered), the power manipulation (low = -1 ; high = 1), the type of discounting manipulation (self = -1 ; other = 1), the interaction between power and discounting type, and the interaction between discounting type and connection to future self, we found a marginally significant negative effect of connection to future self ($b = -0.02$, $SE = 0.01$, $p = .08$) and a positive effect of discounting type ($b = 0.05$, $SE = 0.02$, $p = .03$). The only significant interaction was that between power and discounting type ($b = -0.06$, $SE = 0.02$, $p = .009$). Finally, we used the [Hayes \(2013\)](#) process model program in SPSS to test for both first- and second-stage moderated mediation (model 59). We found that none of the indirect effects were significant. Thus, connection to future self did not act as a mediator of the effect of power on either personal temporal discounting or intergenerational discounting.

Discussion

In Experiment 2, we sought to compare the effect of power on temporal discounting in personal and intergenerational dilemmas. We found that the effect of power emerged only in the intergenerational context. Thus, Hypothesis 1 was supported.

In addition to the support for Hypothesis 1, two other aspects of the findings of Experiment 2 merit discussion. First, despite the well-documented tendency for individuals to engage in interpersonal discounting (e.g., [Loewenstein et al., 1989](#)), participants in the high power manager role did not appear to do so. Consistent

with our theorizing, we interpret this finding to indicate that the intergenerational dilemma activated a sense of social responsibility in powerholders to look out for the long-term interests of their team members. We test this causal mechanism in Experiments 3 and 4.

Second, despite the previous work showing that power reduces temporal discounting in personal allocations (Joshi & Fast, 2013), that effect did not emerge in Experiment 2. We did find a positive effect of power on felt connection to the future self, but this effect did not translate into reduced discounting of outcomes to the future self.

We believe that the lack of effect on temporal discounting in the personal condition may be due to a notable difference between our approach and the one taken by Joshi and Fast (2013): specifically, we included an open entry item where individuals could indicate an indifference point (see Hardisty & Weber, 2009). Consistent with the approach of Hardisty and Weber (2009), the inclusion of this open response option allowed us to measure discount factors greater than 1. We felt this approach was important for our research question, because we expected a high level of interpersonal discounting among those in the low power condition: in the intergenerational condition people are actually giving money away to others. It therefore seemed likely that a significant number of individuals would max out on the scale used by Joshi and Fast (2013). However, we now suspect that the existence of the open response box may have activated a sense of ambition among some individuals, which could reduce the effect of power in the personal temporal discounting condition. Moreover, the use of the binary choices without the open entry item may have set expectations that an indifference point would emerge somewhere between the first and final points on that scale in the Joshi and Fast (2013) studies, and our use of the open entry box may have eliminated this effect.

An alternative possibility is that Joshi and Fast's (2013) findings are dependent upon a generalized psychological sense of power to emerge, whereas the intergenerational effect is not. As the manipulation checks demonstrated, our manipulation only affected role-based power. We used the same power manipulation as Joshi and Fast (2013) did in their Study 1; however, because Joshi and Fast (2013) did not utilize a measure of the generalized sense of power as their manipulation check, this remains an issue that we leave to future research, as our primary interest in this paper is to explain the effect of power on intergenerational discounting.

Experiment 3

While our findings thus far support the notion that power enhances generosity to future others, individuals often have multiple options about how to allocate their money. In Experiment 3, we examine how power affects allocations across four options: self-present, self-future, other-present, and other-future. Thus, we utilize a single factor design in which power is manipulated and participants are asked to make an allocation that is neither purely contemporaneous (i.e., strictly between the self and another person in the present) nor purely intergenerational (i.e., strictly between the self now and another person in the future). However, we argue that the time delay feature of the decision (in which decision makers have the option to allocate money to others but delay the time at which they will receive it) will activate a sense of social responsibility to the recipient. That is, because participants will have the option of delaying outcomes to future others at their discretion, this "power of delay" will enhance awareness of the extremity of the power asymmetry, enhancing feelings of social responsibility among powerful participants (just as the mandatory time delay does in purely intergenerational dilemmas). In essence,

we are contending that any time an intergenerational component of a decision task is highlighted, the effect of power on social responsibility will emerge.

Thus, Hypothesis 1 predicts that, regardless of how power affects the other three allocations, power will enhance allocations to others in the future. Hypothesis 2 predicts that, because there is an intergenerational component to the allocation task, power will enhance the felt responsibility to look out for others' long-term interests, and this effect will mediate the positive effect of power on generosity to future others. Notably, however, because the intergenerational component of the dilemma is expected to enhance felt responsibility to others, we would also expect that power would enhance generosity to others in the present as well as in the future.

Method

Participants were 465 individuals (53% female; $M_{\text{age}} = 33.20$, $SD_{\text{age}} = 10.57$) recruited from Amazon's Mechanical Turk. They were paid \$3 for their participation. The power manipulation was the same as the one used in Experiment 1. The allocation task was an adaptation of the one used in Experiment 2. Specifically, participants were informed that one randomly chosen participant would win a \$1000 bonus. We asked them to allocate the bonus across the following four "accounts": (1) an account they would receive for themselves immediately; (2) an account that would be saved for them to receive 1 year from now; (3) an account that another team member would receive immediately; (4) an account that another team member would receive 1 year from now. For both of the "future" accounts, we indicated that the amount they allocated would be multiplied by 1.5. This multiplication procedure was used to capture the common feature of intergenerational dilemmas (as well as personal savings accounts) in which the resources multiply over time. Participants then completed a brief survey.

Measure of responsibility to protect others' future interests

Participants responded to the following three items: "I feel I should look out for others' long-term interests," "I feel a responsibility to ensure that others have a bright future," and "I want others to benefit from my actions in the future" (scale: 1 = *strongly disagree* to 7 = *strongly agree*; $\alpha = .87$; $M = 4.94$, $SD = 1.34$).

Measure of responsibility to protect others' immediate interests

Because the allocation task involves an intergenerational component, we expected that the power manipulation would also affect participants' general sense of social responsibility. We therefore also measured felt responsibility to look out for others' present interests. Participants responded to the following three items: "I feel I should look out for others' immediate interests," "I feel a responsibility to ensure that others feel good today," and "I want others to benefit from my actions right away" (scale: 1 = *strongly disagree* to 7 = *strongly agree*; $\alpha = .87$; $M = 4.91$, $SD = 1.33$).

Other measures

As in Experiment 1, we again measured several variables that have been shown to be related to power and/or intergenerational beneficence in order to rule out these variables as alternative mediators. These measures included the following: legacy motive (e.g., "It is important to leave a positive legacy for future generations"), connection to future others (Aron et al., 1992; Ersner-Hershfield et al., 2009; Husman & Shell, 2008), dominance motivation (Cassidy & Lynn, 1989), prestige motivation (Cassidy & Lynn, 1989), performance orientation (Horvath et al., 2001), connection to future self (Aron et al., 1992; Ersner-Hershfield et al., 2009;

Husman & Shell, 2008), perception of distance to the future (Husman & Shell, 2008), self interest, moral identity (Aquino & Reed, 2002), regulatory focus (Neubert et al., 2008), construal level (using the Behavior Identification Form; Vallacher & Wegner, 1989), and sense of control over general events (Fast et al., 2009). None of these variables acted as mediators; we therefore do not discuss them further.

However, two such additional variables did show preliminary evidence of mediation. We identify these below and discuss them in the Results section as well.

Fairness

Participants were asked to indicate the extent to which the following considerations affected their allocations: “Concerns about what would be fair,” “Concerns about justice,” and “A desire to make sure my decisions were fair” (scale: 1 = *not at all* to 7 = *very much so*; $\alpha = .93$; $M = 4.29$, $SD = 1.99$).

Long-term perspective

Participants responded to a 7-item scale designed to assess how much they value the future relative to immediate outcomes (see Husman & Shell, 2008). Example items include “It is better to get something you want in the future than something you want today” and “Long-range goals are more important than short-range goals” (scale: 1 = *strongly disagree* to 5 = *strongly agree*; $\alpha = .87$; $M = 3.40$, $SD = 0.60$).

Manipulation check

Participants responded to the same role-based manipulation check as in Experiment 1. We also included the sense of power scale (Anderson & Galinsky, 2006) as an exploratory measure.

Results

Manipulation check

The role power manipulation check, in which participants indicated the extent to which they felt they had power over their team members, was submitted to a one-way ANOVA with the power manipulation as the predictor. As in Experiment 1, the analysis revealed a main effect of the power manipulation, such that participants in the high power manager condition felt more power over team members ($M = 5.11$, $SD = 1.34$) than did those in the low power worker condition ($M = 3.61$, $SD = 1.44$; $F(1,463) = 136.94$, $p < .001$, $\eta_p^2 = .23$). However, there was no effect of the power manipulation on the general sense of power scale ($M_{HP} = 4.76$, $SD_{HP} = 1.02$; $M_{LP} = 4.71$, $SD_{LP} = 1.05$; $F(1,463) = 0.26$, $p = .61$). Once again, because the manipulation was specific to the role and the effect of the manipulation on power in that role was both significant and large, we regard the manipulation as successful.

Our approach to these analyses proceeds in two steps. We first examine our specific predictions laid out in Hypotheses 1 and 2. We then explore the data more fully, examining the effects of power on allocations to accounts other than the other-future account, as well as mediation of those effects and alternative mediators of allocations to the other-future account.

First test of Hypothesis 1

Hypothesis 1 predicts that power will enhance allocations to the other-future account. To test for this effect, we began by submitting the allocation amounts to a one-way repeated measures ANOVA with the power manipulation as a between-subjects factor and allocation recipient as a within-subjects factor. Mean allocation amounts by condition are reported in Fig. 3. Given the ipsative nature of the allocation measures, we used the Greenhouse–Geisser epsilon correction for the repeated measures tests (see

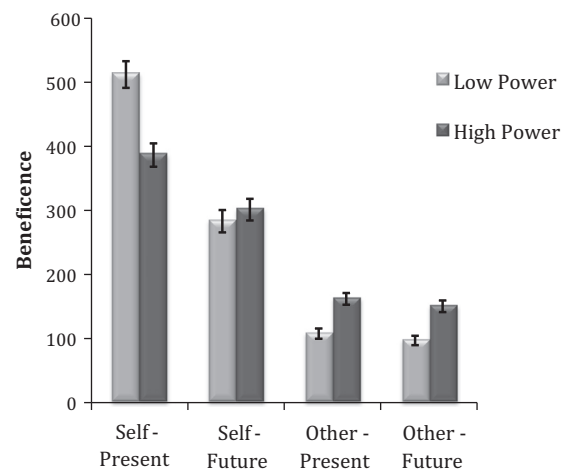


Fig. 3. Interaction on beneficence: Experiment 3.

Greer & Dunlap, 1997 for details). The analysis revealed a significant within-subjects effect of allocation recipient ($F(1.69,781.50) = 172.54$, $p < .001$, $\eta_p^2 = .27$), such that each allocation significantly differed from each of the others with one exception: the other-present and other-future allocations did not significantly differ from one another ($F(1,464) = 2.13$, $p = .15$; 95% confidence interval for mean difference: -5.84 , 26.48). That is, combining the allocations by both high and low power participants, there is no difference between the amount allocated to others now and the amount allocated for others to receive in one year. As expected, this main within-subjects effect of allocation recipient was moderated by a significant interaction between recipient and power ($F(1.69,781.50) = 13.37$, $p < .001$, $\eta_p^2 = .03$). We next used a one-way ANOVA to examine the effect of power on allocations to the other-future account. We found a significant and positive effect of power on allocations to the other-future account, such that people in the high power manager role allocated more to the other-future account ($M = 150.38$, $SD = 138.99$) than did those in the low power worker role ($M = 96.99$, $SD = 111.55$; $F(1,463) = 20.84$, $p < .001$, $\eta_p^2 = .04$). Thus, even when participants had other options about what to do with their money, Hypothesis 1 was supported.

We also examined the effects of power on allocations to the accounts other than the other-future account using one-way ANOVAs. We found a significant and negative effect of power in the self-present condition, such that people in the high power manager role allocated less to the self-present account ($M = 386.45$, $SD = 278.86$) than did those in the low power worker role ($M = 512.15$, $SD = 316.54$; $F(1,463) = 20.66$, $p < .001$, $\eta_p^2 = .04$). There was no effect of power in the self-future condition ($F(1,463) = 0.55$, $p = .46$). There was a significant positive effect of power in the other-present condition, such that people in the high power manager role allocated more to the other-present account ($M = 161.94$, $SD = 139.93$) than did those in the low power worker role ($M = 107.68$, $SD = 121.75$; $F(1,463) = 19.88$, $p < .001$, $\eta_p^2 = .04$). We note that this finding is consistent with our contention that the time delay inherent in the intergenerational component of the decision task renders this a decision situation in which power enhances social responsibility to others. In this case, the allocations to both the other-present and other-future account are allocated to the same individual, making it logical that the power-induced feelings of social responsibility would enhance allocations to the other individual in both time frames.

First test of Hypothesis 2

Hypothesis 2 predicts that the positive effect of power on allocations to the other-future account will be mediated by a sense of responsibility to protect the long-term interests of others. To test for this effect, we began by examining the effect of power on our measure of responsibility to protect the long-term interests of others (hereafter “RFI” for “responsibility for future interests”). We found a significant and positive effect of power, such that individuals in the high power manager position reported a higher RFI ($M = 5.11, SD = 1.32$) than did participants in the low power worker condition ($M = 4.77, SD = 1.34; F(1,463) = 7.61, p < .01, \eta_p^2 = .02$). We next regressed allocations to the other-future account on power (contrast coded) and RFI. We found a significant effect of RFI ($b = 40.55, SE = 3.98, p < .001$), and the analysis also showed that inclusion of RFI in the equation reduced the size of the power effect (from $b = 26.69$ to $b = 19.79; p$ for the effect of power remains $<.001$). Given this preliminary support of Hypothesis 2, we next used the Hayes (2013) process model program in SPSS to calculate the indirect effect of power on allocations to others as mediated by RFI, and we found that the indirect effect was significant (95% confidence interval: 3.92, 23.27). Thus, Hypothesis 2 was supported.

Second test of Hypothesis 1

We next examined the allocations in an additional way. Given the general tendency toward egoism and temporal discounting in allocation tasks, we examined the effects of power on the allocations of money that were not placed in the self-present account. That is, we subtracted the self-present allocation from 1000 to calculate the total amount that was not allocated to that account. We then divided the amounts allocated to each of the other three conditions by that amount. This computation allowed us to examine how power affected the proportion of the remaining money (i.e., that money not immediately consumed by the self) to the three remaining accounts. We submitted this measure to a repeated measures ANOVA with power as the between-subjects factor. We found a main effect of allocation account ($F(1.49,603.67) = 98.51, p < .001, \eta_p^2 = .20$) and a significant interaction between account and power ($F(1.49,603.67) = 5.91, p = .007, \eta_p^2 = .014$; see Fig. 4). Using one-way ANOVAs to explore this interaction, we found that power reduced the proportion allocated to the self-future account ($F(1,406) = 8.19, p = .004, \eta_p^2 = .02$), did not affect the amount allocated to the other-present account ($F(1,406) = 1.79, p = .18$), and increased the amount allocated to the other-future account ($F(1,406) = 9.12, p = .003, \eta_p^2 = .02$). This finding provides further support to Hypothesis 1.

Second test of Hypothesis 2

We used the same approach to testing Hypothesis 2 as we took with the first mediation test reported above. When we regressed the proportion allocated to the other-future account on power

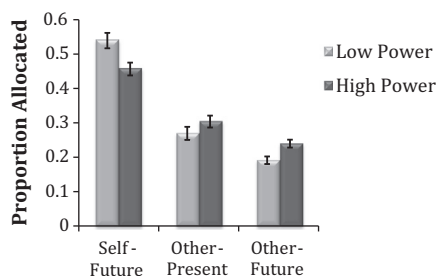


Fig. 4. Interaction on proportion not immediately consumed by the self that is allocated to the other three accounts: Experiment 3.

(contrast coded) and RFI, we found a significant effect of RFI ($b = 0.05, SE = 0.01, p < .001$), and the analysis also showed that inclusion of RFI in the equation reduced the size of the power effect (from $b = 0.024, p = .003$ to $b = 0.018, p = .015$). Given this preliminary support of Hypothesis 2, we next used the Hayes (2013) process model program in SPSS to calculate the indirect effect of power on allocations to others as mediated by RFI, and we found that the indirect effect was significant (95% confidence interval: 0.00, 0.03). Thus, Hypothesis 2 was again supported.

Additional mediation analyses (see Table 1 for summary)

We next explore alternative mediators of our focal effect (the effect of power on allocations to the other-future account), as well as mediation of the effects of power on the self-present and other-present allocations. In addition to RFI, we explore the role of fairness, the general tendency to take a long-term perspective in assigning value to outcomes, and responsibility to protect the immediate interests of others (hereafter “RII”).

We first examined the effect of power on these three variables. We found a significant and positive effect of power on fairness, such that individuals in the high power manager position reported higher fairness concerns ($M = 4.64, SD = 1.92$) than did participants in the low power worker condition ($M = 3.94, SD = 2.01; F(1,463) = 14.59, p < .001, \eta_p^2 = .03$). We also found a significant and positive effect of power on general long-term perspective, such that individuals in the high power manager position reported a higher tendency to hold a long-term perspective ($M = 3.47, SD = 0.57$) than did participants in the low power worker condition ($M = 3.33, SD = 0.62; F(1,463) = 6.27, p = .013, \eta_p^2 = .01$), a finding that is consistent with the findings of Joshi and Fast (2013). Finally, we also found a significant and positive effect of power on RII, such that individuals in the high power manager position reported a higher RII ($M = 5.06, SD = 1.27$) than did participants in the low power worker condition ($M = 4.75, SD = 1.36; F(1,463) = 6.58, p = .011, \eta_p^2 = .01$). We note that this latter finding is consistent with the notion that the intergenerational component of the allocation task enhanced felt social responsibility.

Table 1 Results of mediation tests: Experiment 3.

| | Absolute amounts allocated to each account | | | |
|---|---|---------------|---------------|--------------|
| | Self-present | Self-future | Other-present | Other-future |
| Effect of power | – | NS | + | + |
| <i>Potential mediators:</i> | | | | |
| Responsibility to protect future interests | ✓ | | | ✓ |
| Responsibility to protect immediate interests | | | ✓ | |
| General future perspective | ✓ | | | |
| Fairness | ✓ | | ✓ | ✓ |
| | Proportion of the amount Not Immediately Consumed by the Self that is allocated to: | | | |
| | Self-future | Other-present | Other-future | |
| Effect of power | – | NS | + | |
| <i>Potential mediators:</i> | | | | |
| Responsibility to protect future interests | | | | ✓ |
| Responsibility to protect immediate interests | | | | |
| General future perspective | ✓ | | | |
| Fairness | | | | ✓ |

Note: “–” represents a negative relationship; “+” represents a positive relationship; “NS” represents a non-significant relationship, “✓” represents a significant mediating effect.

Further tests of Hypothesis 2: Total allocation to other-future account. To further explore the potential mediating roles of these variables, we first focused on the other-future allocation to consider whether RFI, fairness, future perspective, and RII may predict other-future allocation and whether controlling for alternate mediating variables changes our initial finding of support for Hypothesis 2. To do so, we regressed allocations to the other-future account on power (contrast coded), RFI, fairness, future perspective, and RII. We found significant positive effects of power ($b = 15.14$, $SE = 5.10$, $p = .003$), RFI ($b = 38.35$, $SE = 5.88$, $p < .001$), and fairness ($b = 23.01$, $SE = 3.03$, $p < .001$). We found a significant negative effect of RII ($b = -19.61$, $SE = 5.91$, $p = .001$). Given that the effect of power on allocations to the other-future account is positive, the negative effect of RII on this allocation renders it implausible as a mediator. Finally, we did not find a significant effect of future perspective ($b = 1.26$, $SE = 8.78$, $p = .89$).

Given the preliminary support for fairness and continued support of RFI as mediators, we next used the Hayes (2013) process model program in SPSS to calculate the indirect effect of power on allocations to others as mediated by RFI and fairness, both in sequence and in parallel, so that we could compare the effects. We found that the indirect effect through RFI was significant (95% confidence interval: 2.89, 18.68) even when controlling for fairness. Thus, Hypothesis 2 was further supported. We also found that the indirect effect through fairness was significant (95% confidence interval: 3.00, 17.47). Finally, we found that a two-step indirect effect in which power enhances RFI, which in turn enhances fairness, also mediates the effect of power on allocations to the other-future account (95% confidence interval: 1.45, 9.31). We conducted a contrast analysis comparing these indirect effects to one another. We found that the indirect effect through RFI alone is significantly greater than the two-step indirect effect (95% confidence interval of the difference: 0.39, 11.34), but does not significantly differ from the indirect effect through fairness (95% confidence interval of the difference: -10.69, 11.99). We conclude that RFI and fairness both mediate this effect of power in parallel.

Further tests of Hypothesis 2: Proportions not immediately consumed for the self. We next returned to the measure of the amount of money not immediately consumed for the self that was instead allocated to the other-future account. Our first analyses of this variable are reported above under the heading “Second test of Hypothesis 1”, where we explain that power enhanced the proportion of this money allocated to the other-future account. To further examine mediation of that effect, we regressed that proportional measure on power (contrast coded), RFI, fairness, future perspective, and RII. We found significant positive effects of power ($b = 0.015$, $SE = 0.01$, $p = .035$), RFI ($b = 0.05$, $SE = 0.01$, $p < .001$), and fairness ($b = 0.02$, $SE = 0.01$, $p < .001$). We found a significant negative effect of RII ($b = -0.02$, $SE = 0.01$, $p < .001$). Given that the effect of power on the proportion allocated to the other-future account is positive, the negative effect of RII on this allocation renders it implausible as a mediator. Finally, we did not find a significant effect of future perspective ($b = -0.02$, $SE = 0.01$, $p = .23$).

Given the preliminary support for fairness and continued support of RFI as mediators, we next used the Hayes (2013) process model program in SPSS to calculate the indirect effect of power on allocations to others as mediated by RFI and fairness, both in sequence and in parallel, so that we could compare the effects. We found that the indirect effect through RFI was significant (95% confidence interval: 0.01, 0.04) even controlling for fairness. Thus, Hypothesis 2 was further supported. We also found that the indirect effect through fairness was significant (95% confidence interval: 0.00, 0.02). Finally, we found that a two-step indirect effect in which power enhances RFI, which in turn enhances fairness, also mediates the effect of power on allocations to the

other-future account (95% confidence interval: 0.00, 0.01). We conducted a contrast analysis comparing these indirect effects to one another. We found that the indirect effect through RFI alone is significantly greater than the two-step indirect effect (95% confidence interval of the difference: 0.00, 0.02), but does not significantly differ from the indirect effect through fairness (95% confidence interval of the difference: -0.01, 0.02). We again conclude that RFI and fairness both mediate this effect of power in parallel.

As explained above, when examining the effect of power on the distribution of money not immediately consumed by the self, there was also a negative effect of power on the proportion allocated to the self-future account. We used the same approach described in the previous paragraphs to explore the mediation of this effect. We found that the effect was mediated by future perspective (95% confidence interval: 0.00, 0.03).

Mediation of the effect of power on the self-present account. Using the same approach described above, we examined RFI, RII, future perspective, and fairness as mediators of the negative effect of power on allocations to the self-present account. We found significant negative effects of RFI ($b = -81.76$, $SE = 14.91$, $p < .001$), future perspective ($b = -63.65$, $SE = 22.26$, $p = .004$), and fairness ($b = -28.52$, $SE = 7.67$, $p < .001$) on allocations to the self-present account. The effect of RII on allocations to this account was positive ($b = 45.76$, $SE = 14.98$, $p = .002$), suggesting that people may have retained money for themselves with the intention of helping someone other than their teammate in the present. This finding, however, makes RII implausible as a mediator of the negative effect of power on allocations to the self-present account. We therefore examined the indirect effects of power on allocations to the self-present account through RFI, future perspective, and fairness. We found significant indirect effects of each, and contrast analyses indicated that the indirect effects were of equal size.

Mediation of the effect of power on the other-present account. Once again using the same approach, we examined RFI, RII, future perspective, and fairness as mediators of the positive effect of power on allocations to the other-present account. We found significant positive effects of fairness ($b = 24.99$, $SE = 2.92$, $p < .001$) and RII ($b = 47.86$, $SE = 5.70$, $p < .001$) on allocations to the other-present account. The effect of future perspective was not significant. We found a significant negative effect of RFI ($b = -20.00$, $SE = 5.67$, $p < .001$), making RFI implausible as a mediator of the positive effect of power on allocations to the other-present account. We therefore examined the indirect effects of power on allocations to the other-present account through RII and fairness. We found significant indirect effects of both, and contrast analyses indicated that the indirect effects were of equal size.

Discussion

The findings from Experiment 3 provide support for both of our hypotheses. Specifically, power increased both the absolute amount allocated to the future other account, as well as the proportion of the money not consumed by the self immediately that was allocated to the future other account. These effects emerged even though participants had multiple other options for how to allocate the money. Moreover, we found consistent evidence that a feeling of responsibility to look after the long-term interests of others mediated this effect. We also found that fairness functioned as a mediator of this effect, a finding we return to in Experiment 4.

One shortcoming of Experiment 3, however, is that we measured the mediator after the dependent variable. It is therefore possible that the mediator scores were driven less by the power manipulation than by the fact that people had just allocated money to future others and therefore hoped that the money they allocated

would have a positive impact. In order to examine this possibility, in Experiment 4 we measure the mediator before participants are allowed to make their allocations.

Experiment 4

In Experiment 4, we return to a classic intergenerational experimental paradigm, in which participants are asked to make an allocation between themselves in the present and others in the future, and we manipulate power.

Method

Participants were 84 individuals (45% female; $M_{\text{age}} = 34.60$, $SD_{\text{age}} = 10.63$) recruited from Amazon's Mechanical Turk. They were paid \$1 for their participation. The power manipulation was the same as the one used in Experiment 1. The allocation task was an adaptation of the one used in Experiment 3. Specifically, participants were informed that one randomly chosen participant would win a \$1000 bonus, and that they would be asked to allocate the bonus between themselves in the present and another team member who would receive the money in one year. As before, we informed them that the amount saved for the other person to receive in the future would be multiplied by 1.5. However, before we asked them to make the allocation, we first asked them to respond to the measure of responsibility to protect others' future interests. They then made the allocation and were subsequently asked to complete the measures of fairness and the manipulation check, as well as demographic questions.

Measure of RFI

Participants responded to the same measure of RFI as in Experiment 3, with the exception that in this study we added an additional item: "I feel a responsibility to look after others' long-term needs." The additional item was intended as a possible replacement for the item "I want others to benefit from my actions in the future" because we felt that "responsibility to look after..." better captured our theorizing than "I want...". However, all four items loaded strongly on a single factor (as did the three items in the Experiment 3 measure); we therefore created the measure based on all four items ($\alpha = .92$; $M = 5.62$, $SD = 1.14$). Results are consistent regardless of whether either of these items is removed from the scale.

Fairness

Participants responded to the same measure of fairness concerns as in Experiment 3 ($\alpha = .95$; $M = 5.15$, $SD = 1.78$).

Manipulation check

Participants indicated the extent to which they had power over their team members on a 7-point scale.

Results

Manipulation check

The role power manipulation check, in which participants indicated the extent to which they felt they had power over their team members, was submitted to a one-way ANOVA with the power manipulation as the predictor. The analysis revealed a main effect of the power manipulation, such that participants in the high power manager condition felt more power over team members ($M = 5.83$, $SD = 1.19$) than did those in the low power worker condition ($M = 3.60$, $SD = 1.82$; $F(1,82) = 44.47$, $p < .001$, $\eta_p^2 = .35$).

Allocation

The amount allocated to the other team member was submitted to a one-way ANOVA with the power manipulation as the predictor. The analysis revealed a main effect of the power manipulation, such that participants in the high power manager condition allocated more for their team member to receive in a year ($M = 387.14$, $SD = 182.97$) than did those in the low power worker condition ($M = 305.00$, $SD = 191.47$; $F(1,82) = 4.04$, $p = .048$, $\eta_p^2 = .05$). Thus, Hypothesis 1 was again supported.

Mediation

We next examined the mediating effects of RFI and fairness. We began by examining the effect of power on each. We first submitted the measure of RFI to a one-way ANOVA with the power manipulation as the predictor. The analysis revealed a main effect of the power manipulation, such that participants in the high power manager condition reported a higher RFI ($M = 5.92$, $SD = 0.96$) than did those in the low power worker condition ($M = 5.32$, $SD = 1.23$; $F(1,82) = 6.27$, $p = .014$, $\eta_p^2 = .07$). There was no effect, however, of power on fairness ($F(1,82) = 1.09$, $p = .30$).

We next regressed allocations to other team members one year from now on the measure of power (contrast coded) and the measure of RFI. We found a significant effect of RFI ($b = 89.38$, $SE = 16.09$, $p < .001$), and the analysis also showed that inclusion of RFI in the equation reduced the size of the power effect to the point of non-significance (from $b = 41.07$, $p = .048$ to $b = 14.21$, $p = .44$). We next used the Hayes (2013) process approach to compute the indirect effect and found that it was significant (95% confidence interval: 13.54, 115.15), indicating full mediation. Thus, Hypothesis 2 was again supported.

Discussion

Experiment 4 provides further evidence in support of Hypotheses 1 and 2. First, Experiment 4 shows that the effect of power on intergenerational allocations to team members also emerges in a between-subjects design. Second, Experiment 4 shows that the mediation effect proposed in Hypothesis 2 also emerges when the mediator is measured before the allocation task. Finally, Experiment 4 provides evidence that the mediating effect of responsibility to look out for others' long-term interests may be more reliable than the mediating effect of fairness in explaining the effect of power on intergenerational allocations, because fairness acted as a mediator only in Experiment 3 (fairness did not mediate the effect of power in Experiments 1 or 4).

General discussion

The findings from these four experiments provide consistent support for our argument that power enhances generosity to future others. This effect was demonstrated in each of the four experiments, and the mediating effect of responsibility to protect others' long-term interests was demonstrated in Experiments 3 and 4. These findings support our contention that the combination of interpersonal and temporal distance that uniquely characterizes intergenerational decisions produces situations in which the experience of power enhances feelings of responsibility to others. Our findings show that this effect is unique from the effects of power on personal temporal discounting (Experiment 2) and contemporaneous interpersonal allocations (Experiment 1). Our findings further show that the effect of power on allocations to future others occurs even when individuals are given other options regarding how to allocate their money and discretion regarding whether time delay will be experienced by recipients (Experiment 3).

We wish to highlight three key contributions of this research. First, these findings contribute to a stream of research that has shown that, in certain situations, power can enhance generosity to others. Earlier work in this area has shown that power may increase individuals' inclinations to interact in constructive ways with those dependent on them, including responding to requests for help (Tjosvold, 1985; see also Frieze & Boneva, 2001). More recent work has similarly shown that the effects of power on prosocial behavior can differ based on a variety of aspects of individuals' personal and social mindsets and motivations (e.g., Chen et al., 2001; DeCelles et al., 2012; Frieze & Boneva, 2001). The present findings add to the work showing that certain structural aspects of the experience of power can induce a feeling of social responsibility (e.g., Handgraaf et al., 2008; Wade-Benzoni et al., 2008). Specifically, our findings identify intergenerational decisions as situations that are particularly likely to elicit a sense of "noblesse oblige" when individuals experience an enhanced level of power. An interesting area for further research in this area is the question of the degree of subjective and/or role-based power that is necessary to bring about this effect. Whereas Handgraaf et al. (2008) examined the full continuum of power as measured by the recipient's capacity to reciprocate the allocation, we held that capacity constant (at zero) and examined orthogonal forms of power in a dichotomous fashion. Therefore, future work may explore what degree of subjective or role-based power difference between allocator and recipient is necessary to bring these effects about.

Second, our work contributes to research on intergenerational decision making, by showing that power enhances individuals' willingness to make personal sacrifices to provide benefits to future others. These findings enrich our understanding of intergenerational decision making and the role power plays in decision processes that involve both temporal and interpersonal dimensions. Prior research has highlighted power asymmetry as a key structural feature in intergenerational decisions (Wade-Benzoni, 2002; Wade-Benzoni & Tost, 2009) and has indicated that, in intergenerational contexts, power decreases the amount of resources that people view as fair to keep for oneself (Wade-Benzoni et al., 2008). We advance research in this area by demonstrating that power affects these allocations directly by enhancing decision makers' sense of responsibility to protect the long-term interests of others. In addition, our Experiment 1 is the first to directly compare the effects of power in contemporaneous vs. intergenerational contexts, and Experiment 3 is the first to examine the effect of power on generosity to others in a decision task with both contemporaneous and intergenerational components. These studies also highlight an important avenue for future research in this area. Specifically, three of our studies examined a relatively short timeline. Future work should seek to identify the time horizon over which these effects hold.

Third, our findings contribute to ongoing research examining the complex ways in which time affects power dynamics. Specifically, Joshi and Fast (2013) recently found that power reduces temporal discounting. While this effect did not emerge in Experiment 2, Experiment 2 did reveal an effect of power on felt connection to the future self, the mechanism that Joshi and Fast (2013) found to underlie the effect of power on temporal discounting. That is, powerful people feel a greater connection between themselves in the present and themselves in the future. It is unclear why the effect of power on connection to the future self did not result in reduced personal temporal discounting in Experiment 2. Future research should explore possible explanations for this result. We describe several possible explanations in the discussion section of Experiment 2.

There are also important practical implications of this research. In particular, by advancing a better understanding of the

micro-forces that promote intergenerational beneficence, our research highlights ways in which the effects of power can be channeled for social benefit. For example, an important practical implication of our findings is that it may be possible to channel the behavior of powerholders in prosocial ways by emphasizing the ways in which their decisions affect future individuals. In addition, organizations seeking to ensure that decision makers consider the long-term interests of future organizational members and the organization as a whole should consider highlighting that individuals with decision making authority have the power to shape not only their own (or their team's) current performance and outcomes but also the performance and outcomes of future organizational members and teams. In doing so, organizations would be able to activate a sense of social responsibility among decision makers, thereby motivating decision makers to prioritize long-term outcomes over immediate self-benefit.

At the same time, it is interesting to note that powerholders often fail to consider the interests of future others in their decisions. We suspect that this is often the case because situational or circumstantial features of the decision context may obscure the extremity of the power imbalance that characterizes the decision. For example, powerholders may feel constrained by organizational norms or institutions, or the presence of influential regulatory agencies may lead them to believe that the interests of future others is being protected by other parties. Future research should explore these possibilities in more detail.

Given the unprecedented potential reach of today's powerful actors, it is crucial that researchers develop a better understanding of how power affects prosocial behavior both in the present and over time. We hope that the studies presented here have laid the foundation for continued investigations into this topic.

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