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Altruism and Spite in Politics: How the Mind Makes Welfare Tradeoffs About Political Parties

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Abstract

How much will people sacrifice to support or oppose political parties? Extending previous work on the psychology of interpersonal cooperation, we propose that people's minds compute a distinct cost–benefit ratio—a welfare tradeoff ratio—that regulates their choices to help or hurt political parties. In two experiments, participants decide whether to financially help and hurt the inparty and outparty. The results show that participants were extremely consistent (> 90%) while making dozens of decisions in a randomized order, providing evidence for tradeoff ratios toward parties. Moreover, participants' ratios correlated in the expected directions with partisanship, political ideology, and feelings of enthusiasm and anger toward each party, corroborating that these ratios are politically meaningful. Generally, most participants were willing to sacrifice at least some money to help their inparty and hurt the outparty. At the same time, a sizable minority hurt their *in*party and helped their *out*party. Welfare tradeoff ratios push our understanding of partisanship beyond the classic debate about whether voters are rational or irrational. Underneath the turbulent surface of partisan passions hide precise calculations that proportion our altruism and spite toward parties.

Keywords Altruism · Spite · Political parties · Welfare tradeoffs · Evolutionary political psychology

All data and replication codes foreach study in this article are available at the Political Behavior Dataverse website: https://dataverse.harvard.edu/dataverse/polbehavior.

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Introduction

> "Proportion is not only found in numbers and measurements but also in sounds, weights, times, spaces, and in whatsoever power there may be."
> Leonardo da Vinci (*Notebooks*, p. 191).

It's pouring rain on election day and the polling place is far away. How much is it worth to support your party? Parties need supporters who are ready to sacrifice time, energy, and money to help the party win offices and power. Thus, parties call on citizens to donate to campaigns (Jacobson 1978), canvas neighborhoods (Enos and Hersh 2015), solicit donors (Koger et al. 2009), and broadcast the party's messages to peers (DiGrazia et al. 2013).

How much time, money, and resources are people willing to give up to benefit a party? And, critically, how do they make that decision? To address these questions, we leverage previous research in psychology on people's tradeoffs toward others (Delton and Robertson, 2016; Tooby et al. 2008). We adapt previous methods to measure participants' willingness to sacrifice varying amounts to help or hurt political parties. We test whether people's sacrifices for political parties, like individuals, are regulated by a key cognitive variable: the welfare tradeoff ratio.

The Political Consequences of Citizens' Tradeoffs for Parties

Supporting a party requires citizens to make tradeoffs. Whether or not they explicitly think about it, citizens weigh the cost to themselves against the benefit to the party. Tradeoffs are inevitable because contributing resources to the party subtracts them from the contributor and their family. Tradeoffs are related to but not the same as partisanship or ideology. In principle, a committed partisan or extreme ideologue can be loyal at the voting booth but still a stingy supporter. Tradeoffs highlight something different: How much a citizen will sacrifice for the party, rather than which party they identify with or agree with the most.

Citizens also make tradeoffs to hurt parties such as buying ads to attack opponents (Geer 2008). They decide whether the cost is worth the damage that it will inflict on the opponent. Indeed, for some citizens the primary aim of partisanship is to hurt the outparty (Abramowitz and Webster 2018). More subtly, citizens must often decide whether to spite or compromise with their own party. For instance, recent polls in the U.S. showed that about 60% of partisans disagreed with their party on at least one major issue, and 30% disagreed with their party on at least three of seven top issues (Pew Research Center 2016). Partisans must weigh whether to accept these disagreements or spite their party.

Similarly, some citizens might actually want to help the opposing party. For instance, in the 2020 presidential primaries, prior to dropping out of the race, Democratic candidates Andrew Yang and Tulsi Gabbard were able to attract support from many Republicans (Godden 2019; Skelley 2019). Also, about 30% of registered voters are swing voters (Kirzinger et al. 2019), who might include not only unattached

citizens but also spiteful partisans. In the 2016 presidential election, spiteful Democrats may have paved the way for Clinton's defeat: many Democrats who believed that Clinton received an unfair advantage from the media stayed at home or voted for Trump (Goidel et al. 2019).

How Do People Make Tradeoffs Toward Parties? A Psychology for Welfare Tradeoffs

To understand how voters make tradeoffs toward parties, we can look at previous work in psychology on how people make tradeoffs toward individuals. Tradeoffs abound in social life, and the mind appears to have dedicated psychological abilities for making them (Delton and Robertson 2016; Sell, Tooby, and Cosmides 2009; Smith et al. 2017). Friends decide whether to help each other, parents decide how much to sacrifice for their children, and leaders decide whose interests to prioritize. The mind intuitively computes how much it is worth to help or hurt specific individuals, summarized by a cognitive variable called the *welfare tradeoff ratio* (in short: tradeoff ratio, or WTR; Tooby et al. 2008). People compute tradeoff ratios automatically, quickly, and effortlessly, without requiring conscious reasoning. Although we experience these computations as vague feelings, the underlying cognitive processes are precise and sophisticated, analogous to the precise computations that unconsciously regulate vision and language (Delton 2010; Delton and Robertson 2016). To guide decisions, the mind uses welfare tradeoff ratios to index how much another person's welfare is worth compared to one's own.

For example, when a friend asks for help such as watching her pet, your mind (unconsciously) calculates how much to value your friend's welfare compared to your own and then uses that ratio to weigh the benefit to your friend against the cost to yourself. Formally, the mind favors helping someone if $WTR * b_{other} > c_{self}$ where WTR is the welfare tradeoff ratio, b is the benefit to the other person, and c is the cost to oneself (including any forgone benefits). For instance, if Alice has a tradeoff ratio of 0.5 toward Betty, then she would take an opportunity to pay 4 to give Betty 10, because $0.5 * 10 > 4$. The mind regulates spite with a similar formula except it is for damaging the other person with a negative payoff, so the individual hurts them when their tradeoff ratio is sufficiently negative.[1] For instance, if Alice has a tradeoff ratio of -0.5 toward Cindy, then she would take an opportunity to pay 4 to inflict a damage of -10, because $-0.5 * -10 > 4$.

Tradeoff ratios differ from the common notion of *social preferences*, such as general motives for altruism, spite, fairness, equality, and justice (in politics, see: Carlin and Love 2013; Dawes et al. 2011; Fowler 2006; Fowler and Kam 2007; Gilens and Thal 2018; Loewen 2010). Unlike social preferences, tradeoff ratios are not general

[1] The WTR formula generalizes a functional form from theories of social interaction in evolutionary biology. The most well-known is Hamilton's Rule, which holds that organisms help kin when $r * b > c$, where r is the degree of genetic relatedness (Hamilton, 1964). Another example is reciprocal altruism (Trivers, 1971) in which individuals cooperate when $w * b > c$, where w is the probability of interacting with the individual again in future periods (Axelrod and Hamilton, 1981).

preferences for how to treat everyone: the mind assigns a specific value to each person we know. These values depend on the other person's traits and our relationship with them. For instance, ratios are generally greater for genetic kin than nonrelatives (e.g. Lieberman et al. 2007; Sznycer et al. 2016), greater for friends than strangers (DeScioli and Krishna 2013), greater for more cooperative people (Nowak 2006; Krasnow et al. 2016), and greater for people who suffer an unexpected misfortune (Delton et al. 2019; Sznycer et al. 2019).

Moreover, tradeoff ratios are not fixed: They are updated as relationships and people change over time. Many social emotions function, in part, to update tradeoff ratios (McCullough et al. 2013; Tooby et al. 2008; Sznycer and Lukaszewski 2019). For instance, compassion increases tradeoff ratios toward those in need (Sznycer et al 2019), gratitude boosts ratios toward those who bestow favors, and anger decreases tradeoff ratios toward those who injure, insult, or disregard us (Sell et al. 2017).

In sum, people have special cognitive abilities for making welfare tradeoffs. These include welfare tradeoff ratios that are specific to each person and are updated as relationships change, in part by social emotions such as gratitude and anger.

Is Helping Groups like Helping People?

Although people help *individuals* based on tradeoff ratios, does the same psychology extend to *groups*, such as political parties? It may not because individuals and groups have obvious differences. Individuals are unitary and have one mind, whereas groups contain multiple individuals with different, often conflicting goals.

Even so, psychologists argue that people often think about groups using the same psychological abilities for understanding individuals (Boyer 2018; Wilson 2004). For instance, people attribute intentions, beliefs, and emotions to groups as though they were unitary individuals. Consider common statements like: "Democrats believe the president abused his power," or "Americans will never forget 9/11." People also express social emotions toward groups ("I'm grateful for the University's support during the disaster").

Likewise, people typically show altruism and spite toward individuals and they might also show these social behaviors toward groups (Tooby and Cosmides 2010; Tooby et al. 2006). However, previous research has not investigated whether the psychology of tradeoff ratios also applies to groups. This question can be answered by adapting previous methods to be used for groups.

Previous research examined people's tradeoff ratios in part by looking at participants' consistency across many tradeoffs with varying costs. For instance, imagine a participant first gives up $10 to give $50 to someone but then refuses to give up $5 to give the same amount of $50. These choices are inconsistent because there is no tradeoff ratio that fits both decisions. On the other hand, if a participant makes consistent tradeoffs across many decisions with varying costs in a randomized order, this provides evidence that the participant has a distinct tradeoff ratio that explains this consistency, rather than deciding haphazardly. Consistency is critical because

it can reveal the precise computations that underlie people's vague intuitions about when it's worth helping.

To study tradeoff ratios for political parties, we leverage the same key measure of consistency. Participants make tradeoffs with varying costs in a random order, this time deciding when to give to or take money from political parties. If participants make highly consistent tradeoffs, then this supports the hypothesis that people have distinct welfare tradeoff ratios toward parties. On the other hand, if participants are mostly inconsistent, especially compared to tradeoffs toward individuals, then this would contradict the hypothesis.

We also examine whether tradeoff ratios track people's emotions toward parties. We assess feelings of anger and enthusiasm, which are also well-known drivers of political behavior (Marcus et al. 2011; Valentino et al. 2011; see Feldman et al. 2012 for a review). Many studies find that anger corresponds with lower welfare tradeoff ratios in relationships between *individuals* (Sell 2011; Sell et al. 2017; Sznycer et al. 2015), so we examine whether the same applies to *groups*, specifically political parties.

Partisanship and Ideology as Determinants of Tradeoff Ratios

Partisanship and ideology are prime candidates for influencing tradeoff ratios toward parties. We consider some possible predictions from two theories of partisanship: partisanship as a social identity and partisanship driven by ideology.

Partisanship as a social identity is rooted in social identity theory (Tajfel and Turner 1979). According to Tajfel (1981), once people know that they are part of a group, they have an emotional attachment to it. Partisan identity theory contends that people are loyal to their party because they feel close to it regardless of the party's policies (see Huddy et al. 2020 for a review). Thus, strong partisans should be more willing to sacrifice for their party (Huddy et al. 2015). As for the opposing party, in the absence of a threat (such as electoral defeat), a strong partisan would not necessarily want to harm the outparty (Amira et al. 2019; Lelkes and Westwood 2017). Thus, absent a threat, partisan identity predicts that strong partisans will generously support their party but not necessarily harm the outparty.

In contrast, alternative theories hold that people support a party based on their ideology, meaning how much they agree with the party's policies (Abramowitz and Saunders 2006). Thus, extreme ideologues should be more generous toward their party than moderates and less likely to hurt the inparty, while moderates should be more generous than extremists toward the outparty.

The Present Research

In the present studies, we examine whether people have distinct welfare tradeoff ratios toward parties. As mentioned, we adapt previous methods to assess: (1) consistency across many tradeoffs with varying costs, and (2) correlations in the expected directions between tradeoff ratios and partisanship, ideology, and emotions directed at each party. Further, we examine welfare tradeoff ratios

for helping and hurting parties, because these are the most basic tradeoffs when dealing with other people or groups. People can pay to help someone, or they can pay to hurt them. Thus, participants complete an altruism task for helping parties and a spite task for hurting parties.

In the altruism task, a participant chooses whether to gain $X *or* give $50 to a political party. They make a series of these tradeoffs with different values for $X ($0, $5, $10, etc.) in order to vary the sacrifice required to give $50 to the party. Afterward, we assess at what price point the participant switched between giving and taking, and how consistent their choices were with a particular threshold. For example, if a participant always gave when the cost was $25 or less, and always kept amounts greater than $25, then they were willing to pay $25 to give $50, and their choices were 100% consistent. Further, these choices imply that the participant's welfare tradeoff ratio was 0.5, because they were willing to help when the cost was equal or less than 0.5 times the benefit to the party ($50). Thus, the altruism task allows us to measure each participant's welfare tradeoff ratio toward a party along with their consistency.

In the spite task, a participant chooses whether to gain $X *or* prevent the party from receiving $50 (so both earn nothing). Thus, the participant decides whether to sacrifice $X in order to preclude the party from getting $50. Again, they make a series of tradeoffs with varying costs, which allows us to assess their welfare tradeoff ratio for hurting a party along with consistency. For example, a participant who paid up to $25 to inflict the damage of −$50 had a welfare tradeoff ratio of −0.5, because they were willing to hurt the party when the cost was equal or less than −0.5 times the damage to the party (−$50).

More generally, these methods use money to measure social value, following the methods of experimental economics which are often used in experimental political science (Del Ponte et al. 2020; Ostrom 1998; for a few examples, see Del Ponte et al. 2017; Delton et al. 2020; Kanthak & Woon 2015). Money can be used to measure value because people have a deeper sense of value that allows them to compare different goods and services on a common scale (money, food, shelter, tools, medicine, etc.). This abstract sense of value allows people to make tradeoffs, such as choosing between chocolate cake, a painting, or helping the poor. Moreover, this sense of value includes social goals such as supporting one's coalitions, which are a vital source of resources and safety in all human societies. In fact, with a broader sense of payoffs (including health, safety, status, group status, etc.), people's political decisions generally serve their own interests, no longer appearing so irrational (Kenrick et al. 2010; Weeden & Kurzban 2014, 2017). Finally, money is especially useful in experiments because we can easily quantify and control it (as opposed to more subjective variables such as strength of partisanship).

In Study 1, we use the altruism and spite tasks to examine participants' welfare tradeoff ratios when helping the inparty and hurting the outparty. In Study 2, we expand to look at helping both the inparty and outparty, as well as hurting the inparty and outparty.

Study 1

In Study 1, participants complete the altruism task for the inparty and the spite task for the outparty. Also, we begin in this study by asking participants to make hypothetical tradeoffs. While real incentives are critical in many studies of economic decisions, there are several reasons why hypothetical payoffs are a sensible starting point in this case. Mainly, our main goal is to assess participants' consistency across many tradeoff decisions; hypothetical payoffs may inflate participants' overall generosity but there is little reason to expect that they will systematically alter participants' consistency. (If anything, participants who put less stock in their decisions may pay less attention and hence choose less consistently.) Moreover, previous research found that participants who complete these tasks for individuals made similar choices when the money was real and hypothetical (Delton 2010). Finally, we add real payoffs in Study 2 and, as we will see, find the same basic patterns of results.

Additionally, we test whether participants' tradeoff ratios toward each party correlate with politically meaningful variables including partisanship, ideology, as well as enthusiasm and anger directed at each party.

Methods

We recruited participants ($n = 182$; 32% female; modal age bracket: 25–34 years old[2]) from the United States on Amazon's Mechanical Turk (Berinsky et al. 2012) in March 2015. First, participants answered whether they are a Democrat or Republican, and Independents chose the party they feel closest to. If they said they were a true leaner, we asked them in a forced choice to still pick between the two major parties. The sample was 76% Democrats and 24% Republicans (including leaners and forced choices).

Next, participants read the instructions and completed the altruism task for their inparty and the spite task for the outparty (in random order). In the altruism task, participants made 13 hypothetical choices to gain money for themselves or give money to their political party. Participants chose between \$X for themselves or \$50 for the inparty, so that participants had to sacrifice \$X to give \$50. We varied the required sacrifice, \$X, from \$0 to \$60 in \$5 increments. For instance, a Democratic participant chose whether she gets \$35 or the Democratic party gets \$50. Participants made these decisions in random order.

In the spite task, participants made 11 hypothetical choices (in random order) to gain money for themselves or *prevent* the outparty from gaining \$50. Participants chose between gaining \$X for themselves and allowing the outparty to gain \$50, versus no one getting any money. In other words, participants could sacrifice \$X to reduce the outparty's payoff by \$50. We varied the required sacrifice, \$X, from \$0 to \$100 in \$10 increments.

[2] Based on the following age brackets: 18–24; 25–34; 35–44; 45–54; 55–64; 65+.

To calculate the WTR from each task, we used the following procedure, based on past work (e.g. Krasnow et al 2016). Although more complex techniques can be used for similar tasks (Andreoni and Miller 2002), this technique is straightforward and easily applied (based on Kirby and Marakovic 1996). Consider the altruism task, which has 13 decisions. This means that there are 14 places where a participant might "switch" from giving to the party to keeping for themselves (this includes always keeping or always giving, which strictly don't involve switching). For instance, participants might give to their inparty when they only have to pass up $5 or less, but switch to keeping beyond this point. If a participant switched here, their WTR = 0.15 (see the Present Research section above).

Note, however, that participants may not be perfectly consistent—perhaps due to error or inattention they accidentally select to keep for themselves when they meant to give to the party (or vice versa). Thus, there will not be a single, obvious switch point. The technique we use gets around this by assigning to participants the tradeoff ratio that is most consistent with their decisions. For every possible WTR, we do this by counting the number of actual decisions consistent with that WTR. Then, whichever WTR has the highest count is assigned to the participant. (If multiple WTRs have identically maximum counts, we average them.) For simplicity, we assume that the lowest (highest) WTR is 0 in the altruism task (spite task) and that the highest (lowest) follows in the same increment as holds through the middle of the scale. Thus, in the altruism task, possible WTRs could range from 0.0 to 1.25; in the altruism task from −2.10 to 0.0.

A salutary effect of this method is that, when we compute WTRs, we also obtain a participant's level of consistency in each task. To measure consistency, we divide the number of choices consistent with the best-fitting WTR by the total number of choices in the task to arrive at a consistency percentage. To provide a benchmark for what the basic consistency scores should be if participants were responding randomly, we conducted a series of simulations to numerically derive a baseline (see the results sections).

Finally, participants answered questions about their partisanship, ideology, emotions toward each party, and demographics (see Online Appendix). For partisanship, participants answered how strongly or weakly they identify with their party (7-point scale from "very weakly" to "very strongly"), which we folded to measure extremity, coded from 0 (weakest partisan) to 1 (strongest partisan). For ideology, they answered the standard 7-point item ("We hear a lot of talk these days about liberals and conservatives. Here is a 7-point scale on which the political views people might hold are arranged. Where would you place yourself on this scale?"). The scale ranged from "Very liberal" to "Very conservative". We folded and recoded the ideology variable to measure extremity, ranging from 0 (neutral) to 1 (extreme). We assessed anger with a single item for each party, and we assessed enthusiasm with three items asking how enthusiastic, grateful, and proud they feel about each party. Participants answered on a 7-point scale ranging from "Not at all" to "Very". We combined the three enthusiasm items for the inparty ($\alpha = 0.94$) and outparty ($\alpha = 0.92$). The anger and enthusiasm measures were also recoded to range from 0 to 1. In the Online Apendix, we also describe methods and results for anxiety toward each party.

Results

For the altruism task, we computed each participant's welfare tradeoff ratio from their decisions to help their inparty. Specifically, we considered every possible ratio implied by the 13 choices that each participant made. Out of 14 possible ratios, we calculated the ratio that is most consistent with participants' choices. We used the same approach for the 11 choices that participants made in the spite task (see Methods).

Consistency

Recall that participants decided whether to help their inparty 13 times with varying costs. By chance, a participant's choices would be, on average, 69% ($SD = 9\%$) consistent with the tradeoff ratio that best fits their choices. (We calculated chance by simulating 10,000 random sequences of 13 choices to find the average consistency with the best-fitting ratio.) In actuality, participants were 98% consistent on average ($SD = 5\%$), which is significantly greater than the chance benchmark, $t\ (181) = 78.25$, $p < .001$. Participants decided whether to spite the outparty 11 times with varying costs, which means they would be 70% ($SD = 10\%$) consistent by chance (based on 10,000 random sequences of 11 choices). On average, participants were 99% consistent ($SD = 3\%$), which again is greater than chance, $t\ (181) = 130.41$, $p < .001$. Participants' consistency supports the hypothesis that their minds regulate tradeoffs according to a distinct tradeoff ratio, rather than making tradeoffs haphazardly or indiscriminately.

Note that some participants always chose the same way rather than switching at a particular cost. (Specifically, 25% never helped and 2% always helped the inparty, while 12% never spited and 19% always spited the outparty.) However, even excluding these people, the remaining participants were on average 97% consistent when helping and 98% consistent when compromising (compared to the benchmarks, both $ps < .001$).

Altruism

Recall that greater tradeoff ratios mean greater altruism. Thus, we can use this task to quantitatively assess how willing our participants were to make a personal sacrifice (albeit hypothetical) on behalf of their preferred political party. Figure 1a shows the distribution. The average ratio was 0.22 ($SD = 0.32$), meaning that on average participants sacrificed as much as \$11 to give \$50 to the party. There was also considerable variability, ranging from 0 (26% of participants), which means never helping, to 1 or greater (6% of participants), which means valuing the party the same or more than oneself. Consider also what participants did when they choose between *\$0* for themselves versus giving \$50 to the inparty: Even when helping had zero cost, about a quarter of participants refused to help

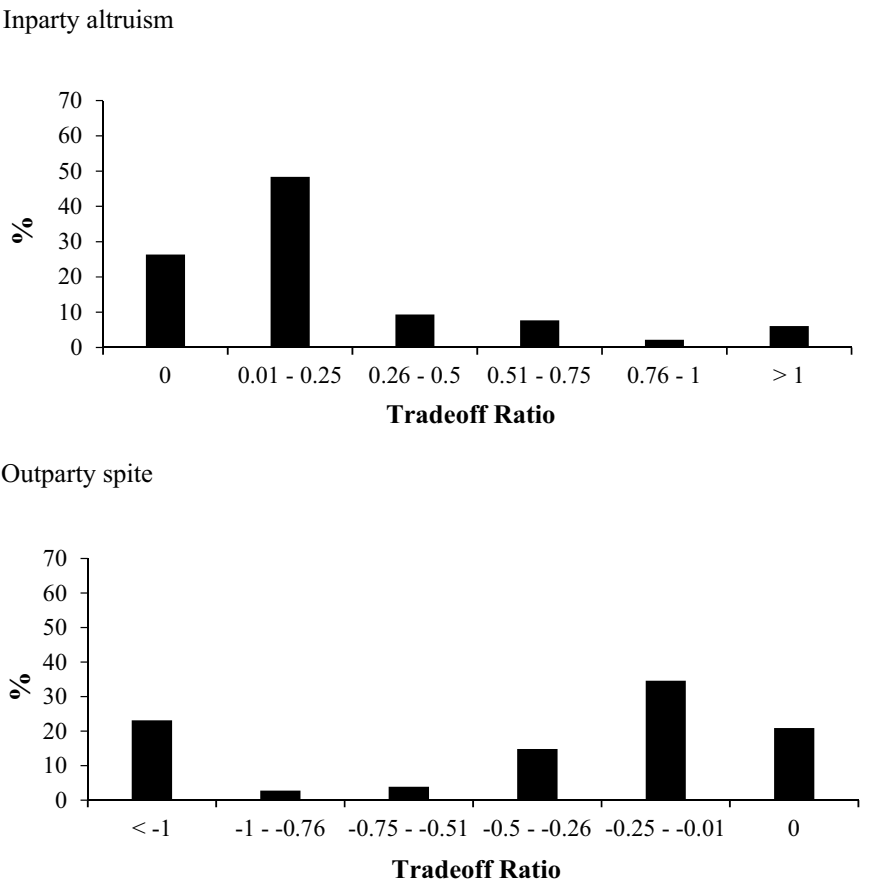

Fig. 1 Tradeoff ratios for political parties

(see the leftmost bar of Fig. 1a). This hints that a substantial proportion may spite their own party.

Spite

Here, more *negative* ratios mean more spite. Thus, we can quantitively assess how willing our participants were to sacrifice their own benefits to hurt their outparty. Figure 1b shows the distribution. The average ratio was −0.58 ($SD = 0.77$), meaning that on average participants were willing to sacrifice up to \$29 to prevent the outparty from getting \$50. The ratios ranged from 0 (21% of participants), allowing the outparty to gain \$50 for any amount, to −2.05 or less (the most negative ratio in the task; 14% of participants), sacrificing \$100 or more to prevent \$50 for the outparty.

Correlations with Partisanship, Ideology, and Emotions

We next look at whether participants' tradeoff ratios correlate with politically meaningful measures. We focus on partisanship, ideology, and emotions toward each party because they are well-known predictors of voting and political participation (Bartels 2000; Huddy et al. 2015; Palfrey and Poole 1987). Table 1 displays the correlations. The partisanship and ideology extremity measures were coded from 0 (weakest) to 1 (strongest partisanship or ideology). Generally, we find significant correlations that follow what would be expected. Participants with stronger partisanship and ideology were more altruistic toward the inparty and more spiteful toward the outparty. Participants who felt more enthusiastic about the inparty were more altruistic; participants who felt more enthusiastic about the outparty were less spiteful. Participants who felt angrier at their inparty were less altruistic; participants who felt angrier at their outparty were more spiteful. Together, these correlations add evidence that people's tradeoff ratios are politically meaningful.

In the Online Appendix we conduct subgroup analyses of people with extreme tradeoff ratios, which bolster the main findings reported above, and we report multiple regressions with both partisanship and ideology.

Discussion

These results support the hypothesis that welfare tradeoff ratios—a precise, cognitive variable—guide decisions not just about individuals but also groups like political parties. In repeated choices with varying costs, participants were extremely consistent (~98%) when deciding whether to help the inparty or hurt the outparty. Participants' tradeoff ratios correlated with partisanship, ideology, and emotions, as would be expected if these ratios are psychologically and politically meaningful. Tentatively, these data – using a quantitative measure of sacrifice—suggest that many people are willing to trade off their own benefits to

Table 1 Correlations between tradeoff ratios and partisanship, ideology, emotions

	Altruism Task		Spite Task	
	Inparty WTR		Outparty WTR	
	r	*p*	*r*	*p*
Partisanship	0.35	< .001	− 0.19	< .05
Ideology	0.16	< .05	− 0.25	< .001
Enthusiasm	0.39	< .001	0.29	< .001
Anger	− 0.17	< .05	− 0.36	< .001

Partisanship and ideology measure extremity, coded from 0 (weakest) to 1 (strongest) Republican/Democrat, or liberal/conservative. Each emotion refers to the inparty or outparty for the left and right columns, respectively. Higher WTRs in the altruism task indicate greater altruism. Lower WTRs in the spite task indicate greater spite

help and hurt political parties. However, Study 1 involved hypothetical decisions. Next, we examine participants' tradeoffs to help and hurt both parties with real money at stake.

Study 2

In a second study, we recruit participants to our lab, where participants complete both tasks for each party with real money at stake. We compare tradeoff ratios for each party and test whether people have higher ratios for the inparty than the outparty. This allows us to investigate more in depth whether tradeoff ratios capture people's sacrifice for political parties.

Methods

We recruited 167 undergraduate students (43% female; 41% white) in the Fall of 2015. Just for participating they received course credit. Based on their choices, they could also earn cash. The sample was 75% Democrats and 25% Republicans (including leaners and forced choices). Participants' decisions in the study had real money on the line. Participants' decisions determined how many raffle tickets they would earn, which gave them a chance to win one of several $10 prizes in a lottery at the end of the study.

Before they read the instructions and completed the altruism and spite tasks, participants chose their preferred party. If they did not choose any, we asked them in a forced choice to pick the one they felt closest to. Participants completed both the altruism task and the spite task for each party. In each task, participants chose between two options that assigned "money" to them and/or a political party. This was not real money (though it was denominated in "dollars"); participants were aware of this fact. At the end of the study, to determine payoffs, the computer randomly selected one out of 84 choices that each participant made. The experimental "dollar" amount earned in that single decision determined their raffle tickets for the chance to win $10. Each participant earned a number of tickets equal to the dollar amount in their decision. The probability they won was the number of raffle tickets they held divided by the total number of raffle tickets earned in their session. We drew for one winner every 10 participants in a session.

Prior to their decisions, participants read that the experimenters would actually send money to the political parties. However, our IRB would not allow us to send money to partisan organizations, so this element of the study was deceptive. Nonetheless, real money was on the line: Participants actually did receive raffle tickets worth real money if they made choices that allocated money to themselves.

The altruism task was the same as Study 1 in that $50 was always at stake for the party. However, we examined a broader range of values for the self, ranging from $0 to $100 in $5 increments (21 choices total). For each amount, participants chose whether to gain $X or give $50 to the party. The possible range of WTRs was 0 to 2.05.

The spite task was also similar. In Study 2, however, we examined the same number of costs as in the altruism task (same range from $0 to $100 in $5 increments: 21 choices total). For each amount, participants chose whether they get $X and the party gets $50 or nobody gets any money. The possible range of WTRs was −2.05 to 0.

Participants completed both tasks for each party, for a total of 84 decisions (84 = 2 parties X 2 tasks/party X 21 decisions/task). Participants experienced these tasks as a single set of decisions for each party: we randomly assigned party order and randomly shuffled all 42 items for each party. For example, a participant might see one item from the altruism task followed by two items for the spite task, and then more items from the altruism task.

To calculate WTRs, we used the same methodology as in Study 1. The difference here is that we could ascertain the WTR for the spite task with more precision because here increments were in $5 instead of $10 steps. We also allowed for a broader range of tradeoff ratios in both tasks.

After the tasks, participants answered questions about emotions, partisanship, and ideology. Emotions and ideology were assessed as before. For partisanship, we used Huddy et al.'s (2015) partisan identity scale ($\alpha = 0.89$) as a more sensitive measure. Example items include: "When talking about Democrats, how often do you say 'we' instead of 'they'?" and, "How important is being a Democrat to you?". In the Online Appendix, we also describe methods and results for four additional measures: anxiety directed at each party and political knowledge, participation, and interest.

At the end of the study, we debriefed participants and informed them that the researchers would not actually send money to political parties.

Results

We calculated participants' tradeoff ratios in the same way as in Study 1.

Consistency

For altruism toward the inparty, participants were on average 89% ($SD = 13\%$) consistent with the best-fitting tradeoff ratio, which is greater than the benchmark of chance (for simulated random decision-making, $M = 65\%$; $SD = 7\%$), $t\,(166) = 23.86$, $p < .001$. (Similar to before, we calculated chance by simulating 10,000 random sequences of 21 choices to find the average consistency.) For helping the outparty, participants were on average 93% ($SD = 12\%$) consistent, which is greater than chance, $t\,(166) = 30.15$, $p < .001$. If we exclude participants who always or never helped, the remaining participants were 88% consistent for the inparty and 86% consistent for the outparty (relative to chance, $ps < .001$).

For spite toward the inparty, participants were 93% ($SD = 11\%$) consistent, which is greater than chance, $t\,(166) = 32.89$, $p < .001$). For spite toward the outparty, they were 92% ($SD = 11\%$) consistent, which is greater than chance $t\,(166) = 31.72$, $p < .001$). If we exclude participants who were always or never spiteful, participants

Table 2 Mean tradeoff ratios toward the inparty and the outparty

		M	*SD*	*t*	*p*
WTR	Inparty altruism	0.75	0.69	8.41	< .001
	Outparty altruism	0.32	0.57		
	Inparty spite	− 0.20	0.03	9.78	< .001
	Outparty spite	− 0.80	0.05		

were 87% consistent for the inparty and 89% consistent for the outparty (relative to chance, *p*s < .001).

Altogether, participants' choices were highly consistent for both the inparty and outparty, ranging from 89% to 93%. The percentages were slightly less than Study 1 but this is unsurprising because they made more total decisions (21 per task on 4 tasks). Moreover, in Study 2, in the altruism and spite tasks the decisions were randomly mixed together**.**

Comparing Tradeoff Ratios

Next, we examine whether participants' tradeoff ratios differed between inparty and outparty. Table 2 shows the mean tradeoff ratios. As expected, tradeoff ratios for the inparty were greater than those for the outparty in both tasks. For the altruism task, these numbers imply that the average participant would pass up as much as $37.50 to give $50 to the inparty, but only $16 to give to the outparty (for the difference, $p < .001$; Fig. 2, panels A and B, shows intervals of tradeoff ratios). (Keep in mind that these are experimental dollars, not US dollars.) Notably, the average participant was willing to pass up at least some money to help the outparty (Fig. 2). For instance, 27% of people passed up $5 to give $50 to the outparty. Less surprisingly, many people passed up money to help the inparty; 65% of people passed up $5 to give $50 to their inparty.

Turning to spite, we find that the average participant would forgo as much as $40 to prevent the outparty from receiving $50, whereas they would forgo only as much as $10 to prevent the inparty from receiving $50 (for the difference, $p < .001$; Table 2 shows the mean tradeoff ratios; Fig. 2, panel C and D shows intervals of tradeoff ratios). Although these amounts differ, it is surprising that at least some participants were willing to spite their inparty. For instance, 22% of players were willing to pass up $5 to prevent their own party from getting $50. And 10% were even willing to pass up $100 to prevent their own party from gaining money. (Nonetheless, the vast majority, 47%, never spited their inparty.) Less surprisingly, many people were willing to spite their outparty. For instance, 63% of people were willing to pass up $5 to prevent the outparty from getting $50 and 25% were willing to pass up $100.

Finally, we note that the altruism and spite tasks are correlated with each other (see the Online Appendix). The strongest correlations are between the tradeoff ratios in the inparty altruism and outparty altruism tasks ($r = 0.48$, $p < .001$) and between

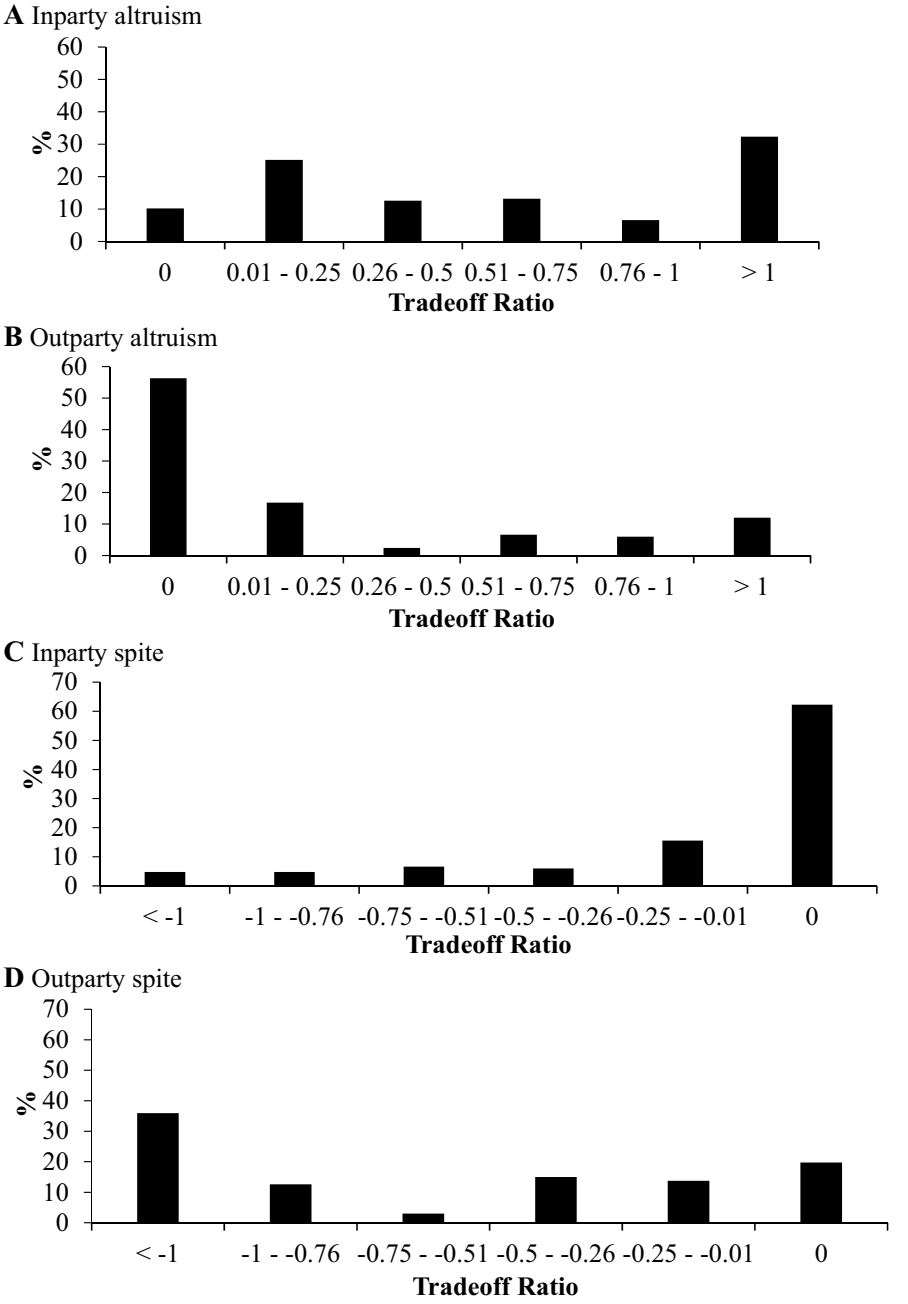

Fig. 2 Altruism and spite toward the inparty and the outparty

Table 3 Pairwise correlations between tradeoff ratios and partisanship, ideology, and emotions

	Inparty WTRs				Outparty WTRs			
	Altruism task		Spite task		Altruism task		Spite task	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Partisanship	0.12	0.12	0.23	< 0.01	− 0.08	0.32	− 0.29	< 0.001
Ideology	0.03	0.73	0.08	0.28	− 0.24	< 0.01	− 0.36	< 0.001
Enthusiasm	0.24	< 0.01	0.15	0.06	0.36	< 0.001	0.30	< 0.001
Anger	0.03	0.67	− 0.15	0.06	− 0.17	< 0.05	− 0.21	< 0.01

Partisanship and ideology are folded to measure their intensity and not their direction. The table displays correlations between tradeoff ratios and the emotions toward the respective party. Higher WTRs in the altruism task indicate greater altruism. Lower WTRs in the spite task indicate greater spite

ratios in the outparty altruism and outparty spite tasks ($r = 0.29$, $p < .001$). While expected, these results bolster the validity of the welfare tradeoff measure in political contexts.

Correlations with Partisanship, Ideology, and Emotions

Table 3 displays the correlations between ratios, partisanship, ideology, and emotions. The directions of the correlations make intuitive sense, although effect sizes were weaker than in Study 1 (here, the absolute size of the median correlation was 0.15; in Study 1 it was 0.26). One of the most consistent findings is that party enthusiasts were more generous and were less spiteful. Moreover, stronger partisans were less spiteful toward their inparty and more spiteful toward the outparty. (Recall that this study uses a different measure of partisan identity, Huddy et al.'s (2015) 4-item scale).

In the Online Appendix we report subgroup analyses of people with extreme tradeoff ratios and a multiple regression including both partisanship and ideology.

Together, the correlations between tradeoff ratios and key political variables lend support to the hypothesis that people have distinct tradeoff ratios that influence their political behavior.

General Discussion

In these experiments, we applied the psychology of interpersonal tradeoffs to study how citizens make sacrifices to help or hurt political parties. We looked for the signature of welfare tradeoff ratios: a computational variable that the mind uses to make tradeoffs toward individuals and groups. The results support the hypothesis that people have welfare tradeoff ratios for political parties, just as previous research found them for individuals. First, participants' decisions were extremely consistent despite having plenty of opportunities for inconsistency. Also, ratios correlated in the expected direction with political variables: partisanship, ideology, as well as anger

and enthusiasm directed at each party. Strong partisans and extreme ideologues sacrificed more resources for the inparty and spited the inparty less, whereas the opposite occurred for the outparty. Participants who were angry at a party helped it less and spited it more whereas the reverse occurred if they were enthusiastic about it.

In general, most partisans sacrificed for political parties: 92% of participants helped a party at a cost to themselves. These findings comport with the common observation that citizens often sacrifice precious time, money, and effort to help their party (Koger et al. 2009; Enos and Hersh 2015). Moreover, participants' support was precise and proportional to the costs.

These altruistic decisions contradict the notion of narrow rationality while supporting theories that encompass citizens' broader goals such as fulfilling their civic duty (Barry 1970). Instead of maximizing their own money, most participants gave up money to support their party, consistent with a broader notion of rationality that includes supporting one's political party, expressing support to signal allegiance to the party, and striving to improve the party's status (Petersen 2015; Weeden and Kurzban 2014, 2017).

These findings help to push our understanding of partisanship beyond the traditional debates about whether voters are rational or irrational. Instrumental theories of partisanship emphasize narrow self-interest, but participants' altruism and spite clearly contradict this idea. Expressive theories emphasize emotions and social identities, perhaps even suggesting that attachment to parties is irrational and uncalculating, which implies that people's quantitative tradeoffs will be disordered and haphazard since they do not benefit from the precision of calculations. But in fact, participants' tradeoffs remained highly consistent with a distinct cost–benefit ratio, even though they were challenged to make many tradeoffs in a random order. Participants' altruism and spite toward parties were proportional to the costs and benefits, revealing that their tradeoffs did result from precise calculations, even if they didn't maximize their own money.

Thus, we argue that people's partisanship is rational in the sense of proportional to costs and benefits, rather than in the sense of narrowly maximizing money. This argument echoes growing research in psychology finding that many emotions, including anger, compassion, fear, and disgust are regulated by precise (unconscious) calculations, which proportion our emotional responses to costs and benefits, such as more anger for more harm, more compassion for more need, and more disgust for more risk of pathogens (e.g. Boyer 2018; Delton et al. 2018; Reed and DeScioli 2017; Sell, Tooby, and Cosmides 2009; Tybur et al. 2013). Underneath the turbulent surface of partisan passions hide precise calculations that proportion our altruism and spite toward parties.

Welfare tradeoffs uncover citizens' willingness to sacrifice for political parties, including the *out*party. Generally, it is easiest to measure help for the inparty such as donations and canvassing. It is more difficult to assess help for the outparty, and especially to assess spite for either party. By examining costly tradeoffs, we were able to shine a spotlight on these less accessible motivations. Thus, our research goes beyond past work on sacrifice in an important way. In addition, welfare tradeoffs may complement traditional measures such as feeling thermometers, which may not fully capture partisans' complex attachment to political parties (Lavine et al.

2012) and may reflect cheap talk. Welfare tradeoffs better capture partisans' willingness to pay a cost to fight for their party or against the opposition.

Remarkably, we found that a sizeable minority of participants spited their own party. Inparty spite is consistent with surveys showing Americans' increasing frustration with parties in general (Klar et al. 2018) but also with their own party, which leads to rising discord within parties (Groenendyk et al. 2020). We also found that four out of ten participants gave up at least some money to benefit the outparty at a personal cost whereas one in five did not take the opportunity to spite it. At the same time, 23% of participants in Study 1 and 35% in Study 2 spited the outparty in every possible instance, giving up even $100 to prevent the party to get $50. These findings support the notion that a fraction of polarized citizens coexists with a majority of moderate voters.

Our findings speak also to the debate about whether partisanship is expressive or instrumental (see Huddy et al. 2020 for a review). The correlations between welfare tradeoffs, partisanship, and ideology suggest that expressive and instrumental partisanship may synergize to motivate political behavior. Specifically, we found that partisan identity more strongly correlated with more altruism and less spite toward the inparty whereas ideology more strongly correlated with less altruism and more spite toward the outparty. These results indicate that inparty loyalty may have stronger expressive roots whereas outparty hostility may be more instrumental.

Consistent with expressive partisanship (Huddy et al. 2015; Iyengar, Sood, and Lelkes 2012), enthusiasm and anger were correlated with tradeoff ratios for both the inparty and the outparty. Consistent with instrumental partisanship (Abramowitz and Saunders 2006; Downs 1957; Fiorina 1981), ideological extremists were more likely to spite the outparty.

These results suggest that partisan identity drives tradeoffs toward the inparty because consistent support signals loyalty, whereas instrumental support is less reliable since it depends on the circumstances. Previous work supports this argument: For instance, Huddy et al. (2015) found that partisan identity was a better predictor than ideology for selfless political behaviors that benefit the inparty such as volunteering in campaigns.

Being a loyal supporter of a party does not require hurting the outparty. In contrast, if a voter supports the inparty for instrumental reasons (ideology), then they will also help or hurt the outparty when it furthers their policy goals. And in fact, partisans do sometimes compromise with the outparty on public policy (Delton, DeScioli and Ryan 2019; Ryan 2017). Still, even if partisans appreciate agreement within their party, they expect the outparty to make concessions when compromise must occur across party lines (Wolak 2020). Overall, many citizens may support the inparty to express their loyalty, while hurting the outparty when they stand in the way.

A limitation of these studies is that we used convenience samples. But, previous work suggests that samples from undergraduates and MTurk are well-suited for psychological research on liberals and conservatives (Clifford et al. 2015). Convenience samples are also appropriate to develop and test new methods. Future work can further investigate people's sacrifice toward political parties using national samples.

Future research can study whether tradeoff ratios toward partisan individuals differ from those toward parties as a whole. Also, future work can further unpack the relationships between tradeoff ratios and variables such as partisanship, ideology, and emotions. Finally, researchers can manipulate scenarios to study how voters recalibrate their ratios toward parties when they take actions such as proposing reforms for taxes, health care, and criminal justice. In sum, welfare tradeoff ratios can help uncover the cognitive underpinnings of how voters judge political parties.

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