

Altruism and Turnout

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Abstract

Scholars have recently reworked the traditional calculus of voting model by adding a term for benefits to others. Although the probability that a single vote affects the outcome of an election is quite small, the number of people who enjoy the benefit when the preferred alternative wins is large. As a result, people who care about benefits to others and who think one of the alternatives makes others better off are more likely to vote. I test the altruism theory of voting in the laboratory by using allocations in a dictator game to reveal the degree to which each subject is concerned about the well-being of others. The main findings suggest that variation in concern for the well-being of others in conjunction with strength of party identification is a significant factor in individual turnout decisions. Partisan altruists are much more likely to vote than their nonpartisan or egoist peers.

For decades, social scientists have sought to explain why people vote (Campbell et al. 1960; Rosenstone and Hansen 1993; Verba, Schlozman, and Brady 1995; Wolfinger and Rosenstone 1980). Rational choice scholars have typically approached the problem by using models based on pure self interest (Aldrich 1993; Downs 1957; Feddersen and Pesendorfer 1996; Ledyard 1982; Myerson 2000; Palfrey and Rosenthal 1985). However, these models yield vanishing turnout in large populations, failing to explain why billions of people go to the polls.

At the same time, a growing experimental economics literature is beginning to question models based on pure self interest. Subjects in the laboratory frequently engage in altruism, bearing a personal cost to improve the welfare of others (Andreoni and Miller 2002; Camerer 2003; Kagel and Roth 1995). These findings are remarkably robust to a number of manipulations, and they suggest that models of human behavior should include an altruism component.

Scholars have reworked the traditional calculus of voting model by adding a term for benefits to others (Edlin, Gelman, and Kaplan 2003; Jankowski 2002; Jankowski 2004). Although the probability that a single vote affects the outcome of an election is quite small, the number of people who enjoy the benefit when the preferred alternative wins is large. As a result, people who care about benefits to others and who think one of the alternatives makes others better off are more likely to vote.

I test the altruism theory of voting in the laboratory by using a technique from experimental economics. Subjects are asked a number of standard questions regarding their socioeconomic status, political beliefs, and turnout behavior. They then participate in a “dictator game” (Forsythe et al. 1994), in which they are asked to divide a prize between themselves and an anonymous individual. These allocations reveal the degree to which each subject is concerned about the well-being of others.

I then use data from this experiment to evaluate the role of altruism in the turnout decision. The main findings suggest that variation in concern for the well-being of others in conjunction with strength of party identification is a significant factor in individual turnout decisions. Partisan altruists are much more likely to vote than their nonpartisan or egoist peers.

Altruism and the Calculus of Voting

In the traditional calculus of voting model there are two alternatives. For simplicity, a citizen gets a benefit $B > 0$ if the alternative she prefers wins, and 0 if the other alternative wins. Voting has a cost $C > 0$ because it involves learning about the alternatives and taking time to go to the polls, but it also increases the probability that the preferred alternative will prevail by P . Thus, the citizen will vote if $PB > C$.

The main problem with this model is that a single vote only changes the outcome of an election when there is an exact tie, or when the vote can create a tie. The probability this happens is decreasing in the size of the population, N . In fact, a number of scholars have shown both theoretically (Chamberlain and Rothchild 1981; Edlin, Gelman, and Kaplan 2003; Fischer 1999; Good and Mayer 1975; Tullock 1967) and empirically (Gelman, King, and Boscardin 1998; Gelman, Katz, and Bafumi 2004; Mulligan and Hunter 2003) that P is approximately proportional to $1/N$ when there is uncertainty about the election due to polling error, personal information constraints, and so on. Thus, PB is probably less than C in large populations, even when the cost of voting is very low.

For decades, scholars have tried and failed to explain high aggregate turnout as a phenomenon based purely on self-interest (Aldrich 1993; Downs 1957; Feddersen and Pesendorfer 1996; Ledyard 1982; Myerson 2000; Palfrey and Rosenthal 1985). However, there is by now a substantial literature in economics, sociology, biology, psychology, and political science yielding evidence that human beings are also motivated by the welfare of others (Fehr and Fischbacher 2003; Monroe 1998; Piliavin and Charng 1990). Specifically, people frequently engage in acts of *altruism* by choosing to bear costs in order to provide benefits to others.

Scholars incorporate altruism into the traditional calculus of voting model by assuming that a citizen also cares about the benefits that others secure from the preferred outcome (Edlin, Gelman, and Kaplan 2003; Jankowski 2002; Jankowski 2004). Under this assumption, B is a function not only of direct benefits to oneself B_s , but to the N other people affected by the outcome of the election who would

gain an average benefit B_O if the citizen's preferred alternative won.¹ It also depends on how much the citizen cares about benefits to others, which is labeled α for altruism.

These assumptions transform the calculus of voting to $P(B_S + \alpha N B_O) > C$. Given that P is proportional to $1/N$ when there is election uncertainty, the decision to vote reduces approximately to whether or not $\alpha B_O > C$. Citizens who think others will benefit from a certain election outcome and who exhibit a sufficient degree of concern for the welfare of others will be willing to engage in costly voting. Notice especially that this is an *interaction* effect. If a citizen *either* does not care about others ($\alpha = 0$) *or* thinks the average person does not benefit from her preferred alternative ($B_O = 0$), then the altruism term will be negligible and she will be less likely to vote.

It is important to distinguish the altruism model of voting from the “civic duty” model. Riker and Ordeshook (1968) add a D term to account for the benefit derived from fulfilling a social obligation to vote. In their model, the decision to vote is based on whether or not $PB + D > C$. One might argue that the αB_O term is simply a restatement of the D term, since a duty to vote might be thought of as a duty to help others. However, this misses the important point that the D term does not depend on instrumental outcomes. The civic duty model suggests that people with a strong sense of social obligation will vote in an election even if they think the alternatives in question yield identical benefits to themselves and to others. In contrast, the altruism model suggests that people who care about the welfare of others will vote only if they think one of the alternatives is superior. I will include a proxy for the D term in the empirical tests below to compare the two theories.

Altruism and the Dictator Game

To test the altruism model of voting, we need a measure for how much people value the welfare of others. Previous attempts to examine the relationship between altruism and turnout rely on questions

¹ Although politics may yield benefits for some at the expense of others (e.g. a tax on the wealthy to provide services to the poor), if a citizen thinks the alternative she prefers will make society as a whole better off, then the *average* benefit to others $B_O = B_{Society} / N$ will be positive.

in the National Election Study (NES) pilots. Knack (1992) creates an index of “social altruism” from questions about charity, volunteer work, and community involvement on the 1991 NES Pilot Study and finds a positive relationship between the index and turnout. However, the questions used in the index look a lot like those used by scholars who argue that organizational involvement (not altruism) enhances political participation (Verba, Schlozman, and Brady 1995). Jankowski (2004) finds a relationship between turnout and “humanitarian” norms from questions on the 1995 NES Pilot Study. For example, turnout correlates with answers to the question “One of the problems of today's society is that people are often not kind enough to others.” These questions certainly reflect expectations about the altruism of *others*, but it is not clear how they relate to the respondent’s own degree of altruism.

While the findings in Knack (1992) and Jankowski (2004) are supportive of the relationship between altruism and turnout, they both rely on respondents’ *expressed* preferences for helping others. In neither case do respondents actually experience a cost in order to give a benefit to someone else. In contrast, preferences for helping others are *revealed* in what experimental economists call the “dictator game” (Forsythe et al. 1994). In this game, the experimenter gives player 1 a certain amount of money and then asks the subject to divide that money between herself and player 2. Unlike the ultimatum game (c.f. Hibbing and Alford 2004), the dictator game does not give player 2 an opportunity to accept or reject the offer—she simply pockets the money that player 1 allocates to her and the game is over.

If player 1 is motivated only by her own economic gain, she should keep all the money for herself and allocate nothing to player 2. This is not what players normally do. In a survey of the literature on dictator games, Camerer (2003) shows that the mean allocation to player 2 ranges from 10% to 52%. Anonymity conditions tend to decrease the mean allocation, but even in the most anonymous treatments (Hoffman et al. 1994) about 40% of the allocations are still greater than 0. These results suggest that many people are willing to engage in acts of altruism.

One argument that can be raised against this interpretation is that subjects do not understand the game and are just making random allocations. Andreoni and Miller (2002) address this concern by examining choices in a series of dictator games with different payoffs. In some treatments, player 2 is

given \$0.20 or \$0.30 for every \$0.10 player 1 allocates. In other treatments, player 1 must allocate \$0.20 or \$0.30 for every \$0.10 player 2 receives. By varying the payoffs, Andreoni and Miller are able to determine whether or not within-subject behavior is consistent. They find that 98% of the subjects make choices that are consistent across eight treatments, suggesting that most of them understand the game and are not choosing randomly.

The consistency of dictator game allocations suggests that they would be a good way to measure individual altruism. The well-being of others is probably more important to a person who chooses to allocate 20% than one who allocates 0%. In fact, if we assume the utility function used in Andreoni and Miller (2002) to explain behavior in the dictator game, then there is a monotonic relationship between the equilibrium allocation in the dictator game and the weight a player places on the other player's utility.² In other words, the more a player cares about the well-being of others, the more she will allocate to the other player in the dictator game.

Research Design and Subject Profile

In May 2004, about 350 subjects were recruited from two introductory undergraduate political science courses to participate in a study administered by computer. Subjects were offered credit towards their course grade for their participation in the study, and 249 (about 70%) of them chose to participate. Of these, 235 were eligible to vote in the March 2004 California primary election. Each subject answered several standard political science survey questions and then played a version of the dictator game. Exact question wording can be found in the appendix.

² Suppose a player's utility is a function of the payoff to oneself π_s , payoff to another player π_o , and the weight a player attaches to the other player's payoff, α . Following Andreoni and Miller (2002), utility can be expressed as a CES function $U(\pi_s, \pi_o) = (\pi_s^\rho + \alpha\pi_o^\rho)^{1/\rho}$ where $\rho < 1$ represents the convexity of preferences and the budget constraint is $\pi_s + \pi_o = 1$. Maximizing utility and solving for the optimal allocation to the other player yields $\pi_o^* = 1 - \left(1 + \alpha^{1/(1-\rho)}\right)^{-1}$, which by inspection is increasing in α .

Subjects in the study range in age from 18 to 27 years, with an average age of 20. The sample is evenly divided between women and men, with about 53% minorities. There is a wide range of religious observance, but the average subject attends services about once a month. Subjects were asked whether or not they voted in the March 2004 California primary, which included nominations for national and local offices and four widely publicized ballot measures related to the California budget crisis. Typical for a younger population, about 21% of those eligible say they voted, compared to 31% in the population as a whole. The average subject leans left and Democratic, placing herself at 3.57 on the seven point liberal conservative scale and 3.27 on the seven point party identification scale. About 39% say they were very interested in the election campaign, but only 34% agree that voting in elections is a duty.

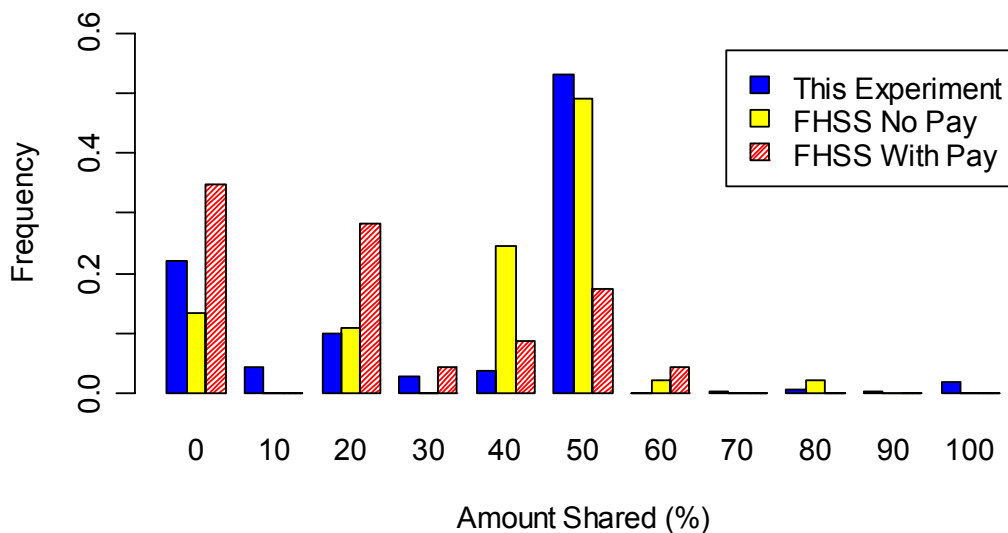
Dictator Game Results

In a typical dictator game, subjects are given a small amount of money (\$5 to \$10) and they then give back the portion of the money they choose to allocate to the other player. This procedure can be very costly for larger samples, so I employ a different technique. Subjects are told they are eligible to win a prize of \$100 and they are asked how much of the prize they would like to share with an anonymous individual. However, only one subject is randomly chosen to win the prize. Thus, in expectation the prize is only worth $\$100 / N \approx \0.40 to each subject. Though economists sometimes criticize low-stakes experiments like this one, a survey of the experimental economics literature by Camerer and Hogarth (1999) shows that stake size has only a small effect on average behavior and the biggest effect of stakes on behavior is changing from zero to positive stakes. Furthermore, Carpenter, Verhoogen, and Burks (2004) show specifically for the dictator game that changing from low stakes to high stakes has no effect on mean allocations.

In general, results from the dictator game in this experiment appear to be representative of similar results by other researchers. Figure 1 shows the distribution of prize allocations in this experiment and compares it to allocations in Forsythe, et al. (1994) which had two treatments. In the “with pay” treatment, subjects were given \$5 and asked to divide it between themselves and an anonymous player.

In the “no pay” treatment, subjects were asked how they would divide \$5, but they were not given any money. Notice that the responses in this experiment tend to fall between the two treatments in Forsythe, et al. (1994). Only 22% of the subjects kept the whole prize for themselves compared to 13% in the “no pay” treatment and 35% in the “with pay” treatment. The mean allocation to the other player was 35% compared to 22% in the “with pay” treatment and 40% in the “no pay” treatment.

Figure 1. Distribution of Allocations in the Dictator Game



Note: Allocations rounded to nearest 10%. FHSS = Forsythe, Horowitz, Savin, and Sefton (1994). In the “With Pay” and “No Pay” treatments subjects were paid and not paid, respectively.

This experiment also replicates the finding that demographic factors have little effect on dictator game allocations (see Camerer (2003) for a review). Table 1 shows that dictator game allocations do not significantly correlate with any of the socioeconomic factors or political attitudes measured in this study (see Appendix for coding descriptions). Some of the correlations are *almost* significant and suggest there may be weak relationships in larger sample sizes. For example, altruism may decrease with age, increase with income, and be higher among liberals and Democrats than conservatives and Republicans.

However, the lack of significance suggests that we can treat altruism as an exogenous variable for the purpose of exploring its impact on turnout.

Table 1. Study Variables and Their Correlations with Altruism

Variable	Sufficient Statistics				Correlation with Altruism	
	Mean	S.E.	Min.	Max.	p-value	
<i>Age</i>	19.77	1.62	17	27	-0.11	0.08
<i>Liberal-Conservative Scale</i>	3.57	0.84	1	7	-0.09	0.16
<i>Parents' Education</i>	4.23	1.59	1	7	0.09	0.17
<i>Democrat-Republican Scale</i>	3.25	0.84	1	7	-0.08	0.22
<i>Income</i>	5.11	2.56	1	8	0.08	0.23
<i>Political Interest</i>	2.32	0.6	1	3	0.06	0.31
<i>Strength of Party ID</i>	2.99	0.84	1	4	0.06	0.37
<i>Political Information</i>	4.76	1.6	1	8	0.05	0.43
<i>Civic Duty</i>	2.67	1.32	1	5	0.05	0.47
<i>Married</i>	0.01	0.09	0	1	-0.04	0.55
<i>Church Attendance</i>	2.31	1.34	1	5	0.03	0.59
<i>External Efficacy</i>	10.49	3.31	0	4	0.03	0.64
<i>Female</i>	0.49	0.5	0	1	-0.03	0.67
<i>Internal Efficacy</i>	3.29	1.29	1	5	0.01	0.89
<i>Race</i>	0.02	0.15	0	1	-0.01	0.92

Altruism, Partisanship, and Turnout

The altruism theory of voting suggests that there is an interaction effect between a citizen's concern for others and her perception that one of the election outcomes will benefit others more than some other outcome. Thus we need a way to measure how subjects value the importance of election outcomes. Finkel and Opp (1991) note that strength of party identification reflects a concern for the outcome of the election, and several studies have shown that it is positively related to turnout (Campbell et al. 1960; Rosenstone and Hansen 1993; Verba, Schlozman, and Brady 1995; Wolfinger and Rosenstone 1980). Although we do not know whether respondents in these studies are self-interested or altruistic, the literature on economic voting shows that people generally take into account *both* individual (pocketbook) effects and society-level (sociotropic) effects when they vote (Clarke and Stewart 1994; Kinder and Kiewiet 1981; Mutz and Mondak 1997). Moreover, data from the NES suggests that strength of partisanship increases the likelihood that an individual believes that one party will make society better off

than the other.³ Thus, I use strength of partisan identification to measure how much individuals think the election outcome will affect the well-being of others.

Incorporating partisanship into the altruism theory of voting yields two main predictions. First, increasing concern for others will increase the probability that citizens vote, but only if they think the election matters. Thus, altruism should affect the turnout of partisans more than nonpartisans. Second, increasing the importance of the election will similarly increase the probability that citizens vote, but only if they are willing to pay the cost of voting to help others. The strength of partisanship should thus affect the turnout of altruists more than egoists.

Results

Table 1 shows results from several logit models of turnout with multiple covariates. In model (1) turnout is regressed on altruism and strength of party identification. While both are positive, only partisanship is significantly different from 0. When an interaction term is added in model (2), it is significant and model fit improves as demonstrated by the Akaike Information Criterion (AIC). Notice especially that the strength of partisanship ceases to be independently significant. Consistent with the altruism theory of turnout, partisanship is important but only in interaction with a concern for the wellbeing of others. The independent effect of altruism is significant and negative, suggesting that nonpartisans may actually be *less* likely to turnout as they become more concerned about the well-being of others. However, this effect will not remain significant when we introduce additional controls in models (3) and (4).

A number of factors are added to model (3) which are widely thought to affect turnout.

Socioeconomic status (SES) variables like age, gender, race, and marital status are included because they

³ In the 1976 and 1980 NES, respondents were asked to name “the single most important problem the government in Washington should try to take care of”, which party would “do a better job in dealing with” it, and whether they were “affected personally by this problem.” Among those respondents who said they were *not* personally affected (i.e. on issues that *only* affected the well-being of others), strong partisans were much more likely to say that one of the parties would do a better job in dealing with it (63.0% compared to 47.2% for weak partisans, 43.2% for partisan leaners, and 29.6% for nonpartisans).

Table 1. The Effect of Altruism and Partisanship on Turnout

	<i>Dependent Variable: Did Subject Vote?</i>											
	<u>Model (1)</u>			<u>Model (2)</u>			<u>Model (3)</u>			<u>Model (4)</u>		
	Coef. (S.E.)	95% Conf. Interval		Coef. (S.E.)	95% Conf. Interval		Coef. (S.E.)	95% Conf. Interval		Coef. (S.E.)	95% Conf. Interval	
<i>Altruism</i>	0.45 (0.69)	-0.90	1.84	-4.43 (2.20)	-8.79	-0.10	-4.38 (2.33)	-8.98	0.22	-3.75 (2.19)	-8.12	0.50
<i>Strength of Party ID</i>	2.14 (0.69)	0.86	3.55	0.13 (1.02)	-1.79	2.26	-1.13 (1.17)	-3.43	1.17	-0.17 (1.07)	-2.23	2.02
<i>Altruism* Strength of Party ID</i>				6.29 (2.69)	0.98	11.62	6.71 (2.96)	0.88	12.55	5.70 (2.71)	0.43	11.09
<i>Age</i>							2.66 (1.13)	0.44	4.88	2.26 (1.01)	0.30	4.27
<i>Female</i>							-0.51 (0.42)	-1.35	0.32			
<i>Race</i>							0.57 (1.06)	-1.51	2.66			
<i>Married</i>							0.86 (2.25)	-3.58	5.29			
<i>Income</i>							0.41 (0.58)	-0.74	1.56			
<i>Parents' Education</i>							0.35 (0.83)	-1.28	1.99			
<i>Political Interest</i>							2.01 (0.76)	0.51	3.52	2.14 (0.67)	0.87	3.48
<i>Political Info.</i>							1.15 (0.98)	-0.78	3.09			
<i>External Efficacy</i>							0.41 (0.99)	-1.55	2.37			
<i>Internal Efficacy</i>							-0.18 (0.65)	-1.45	1.09			
<i>Civic Duty</i>							-0.36 (0.55)	-1.45	0.74			
<i>Church Attendance</i>							-0.07 (0.56)	-1.03	1.18			
<i>Constant</i>	-2.98 (0.59)	-4.20	-1.90	-1.48 (0.76)	-3.13	-0.10	-3.82 (1.17)	-6.24	-1.63	-3.55 (0.97)	-5.59	-1.78
<i>AIC</i>	239.86			236.49			223.95			222.58		

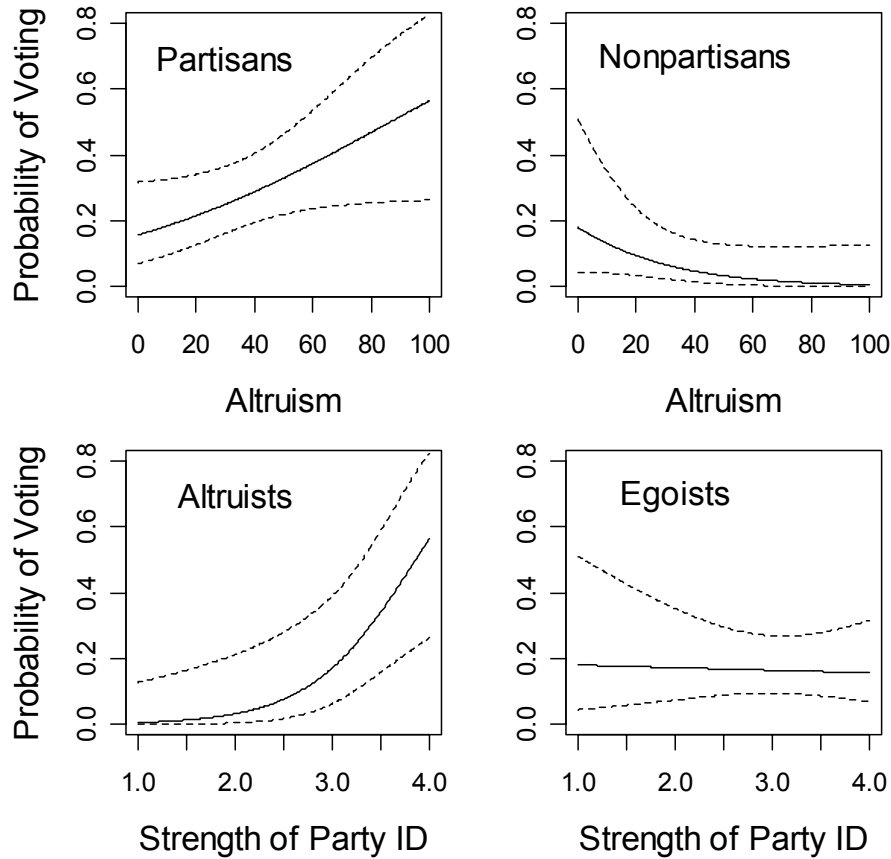
Note: N=235. Model estimated using GLM with logit link function. Standard errors in parentheses, 95% confidence intervals are from profile likelihood. Model (4) specified using stepwise model selection by exact AIC on model (3). All variables are rescaled to [0,1] for ease of interpretation.

affect the costs of acquiring information about politics—Verba, et al. (1995) argue that higher status individuals are more likely to vote because their costs are lower. Parental education has also been added because Plutzer (2002) shows it is important for the development of turnout behavior among young people.

Verba, et al. (1995) suggest the inclusion of several other variables in turnout models. Interest in politics and the ability to answer basic questions about the government indicate political engagement, which tends to correlate with turnout. Moreover, if people feel that they can understand political issues (internal efficacy) and their government responds to them (external efficacy), then they are more likely to go to the polls. Church attendance has been found to be significantly related to turnout in a number of studies (e.g. Timpone 1998). In particular, Verba, et al. (1995) argue that church attendance is important because people acquire civic skills in religious organizations (writing letters, public speaking, and so on) that may make it easier for them to participate in politics. Finally, to compare the altruism model to the civic duty model (Riker and Ordeshook 1968) I include a variable for civic duty. Details on coding and question wording for all these controls can be found in the appendix. Model (3) shows that the interaction term between altruism and partisanship remains significantly different from 0, while the independent effects of altruism and partisanship are not. Using stepwise AIC model selection to eliminate variables yields model (4). Again, the altruism-partisan strength interaction term is significant while their independent effects are not. Notice especially that the variable for civic duty is insignificant and eliminated from the model. These results support the altruism theory as an alternative to the civic duty theory and the traditional calculus of voting model.

To make the results concrete, Figure 2 shows the predicted effect of altruism and strength of party identification on the probability of voting. Changing a strong partisan from pure egoism to pure altruism changes the probability of turnout from 16% to 57%. Even more dramatically, changing a pure altruist from a nonpartisan to a strong partisan increases turnout from 1% to 57%. Meanwhile, changing the altruism of nonpartisans and changing the partisanship of pure egoists has no statistically significant effect.

Figure 2. Predicted Effect of Altruism and Party Identification on the Probability of Voting



Note: Predicted turnout probabilities and 95% confidence intervals calculated from Model (4) in Table 1 holding strength of party identification at “strong partisan” and “nonpartisan” in the top two graphs, and the amount shared in the dictator game at 100 for “altruists” and 0 for “egoists” in the bottom two graphs, with all other values held at their means.

Conclusion

For a long time we have been searching for a model of turnout that is based on pure self interest. While there can be no doubt that much of human behavior is motivated by self interest, dictator game experiments demonstrate that people frequently bear costs to make others better off. The results in this article suggest that such altruistic behavior may be an important factor in explaining political participation.

The altruism theory of voting extends the traditional calculus of voting model by incorporating the welfare of others into an individual turnout decision. Although the probability of changing the

outcome of an election is small in large electorates, the number of people affected by such a change is obviously large. Thus, a citizen who cares about the well being of others may have a much larger incentive to go to the polls. Of course, this also depends on the individuals' perception of the election. A citizen who thinks the election is unimportant may not vote, even if she cares about the welfare of others. Similarly, a citizen who shows no concern for others may not vote, even if she thinks the election is very important. It is the interaction of these two factors that significantly contributes to turnout behavior.

Evidence from the laboratory supports the altruism theory of voting. People who share more with an anonymous individual in the dictator game and who identify strongly with one of the parties are much more likely to vote than those who do not exhibit both of these characteristics. One might argue that these results are of limited value because they are based on the behavior of college students who are not representative of the population as a whole. However, the first few years of adulthood are probably the most critical for the formation of habitual political behavior (Highton and Wolfinger 2001; Plutzer 2002). Even if future work suggests that the altruism theory cannot explain the habits of older adults, it might still help to explain how these habits are formed.

Finally, the altruism theory of voting also has important implications for rational choice. Fiorina (1990) called turnout the "paradox that ate rational choice theory," but this catchy statement has unfortunately helped to perpetuate a fundamental misperception. The rationality assumption means only that people have preferences that are complete and transitive. Notice that the words "self interest" appear nowhere in this definition (Jackman 1993). While it is true that most rational models are based on self interest, there is no reason we cannot include in them a concern for others, especially when models based on pure self interest have failed to generate observable behavior. Our models of political participation are ripe for such a change in approach.

Appendix: Variable Description and Question Wording

Altruism is based on behavior in the dictator game. The game was described as follows: “Two prizes will be awarded in class at the conclusion of this study.⁴ One person in this study will be randomly chosen to receive each prize. If you are chosen to receive the first prize, your answer to the following question will determine the amount of the prize. Remember that your choice is completely anonymous. The anonymity of the winner's choices will be protected using a double-blind process, so no one will ever know what you choose to do here. You have been paired with a randomly chosen anonymous individual. The size of your award is \$100. You must choose how much of the award to share with this anonymous individual. If you choose to keep \$10, the individual will receive \$90. If you choose to keep \$70, the individual will receive \$30. These are examples only, the actual decision is up to you. You can choose to keep any dollar amount for yourself between \$0 and \$100 and the rest will be given to the anonymous individual. No one else, including the professors, will know your decision. You will never be able to find out the identity of the anonymous individual, and the anonymous individual will never be able to find out your identity. How much of the \$100 prize do you choose to keep for yourself? (\$0 - \$100)”

Altruism is coded as 100 minus the amount kept.

Political information is the number of correct answers to the following 8 multiple choice and open answer questions. “Which party currently has the most members in the House of Representatives in Washington?” (Republican / Democrat) “Which party currently has the most members in the Senate in Washington?” (Republican / Democrat) “Who has the final responsibility to decide if a law is constitutional or not?” (President / Congress / Supreme Court) “Whose responsibility is it to nominate judges to the Federal Courts?” (President / Congress / Supreme Court) “What is the job held by William Rehnquist?” “What is the job held by Tony Blair?” “What is the job held by John Ashcroft?” “What is the job held by Bill Frist?”

⁴ There was another prize related to a subjective time preference experiment that came later in the omnibus survey. Results from the other experiment are not correlated with results from the dictator game experiment.

Parents' Education is the average for both parents on "What was the highest level of education that your father [mother] (or male [female] guardian) completed?" 1 = Less than high school, 2 = High school diploma, 3 = Vocational School, 4 = Attended College, 5 = Bachelor's, 6 = Graduate School.

For *external efficacy* I follow Craig, Niemi and Silver (1990) and Niemi, Craig, and Mattei (1991) by creating an index that sums responses from four questions: "People like me don't have any say about what the government does", "I don't think public officials care much what people like me think", "How much do you feel that having elections makes the government pay attention to what the people think?", and "Over the years, how much attention do you feel the government pays to what the people think when it decides what to do?". The first two questions are coded 0 = agree, 0.5 = neither, and 1 = disagree in 1976-1984. For 1988 they are 0 = agree strongly, 0.25 = agree somewhat, 0.5 = neither, 0.75 = disagree somewhat, and 1 = disagree strongly. The third and fourth questions are coded 1 = a good deal, 0.5 = some, and 0 = not much.

For the remaining variables I follow the coding procedure in Timpone (1998) and the question wording used in the NES. *Age* is in number of years. *Married* is 1 for married and 0 for all others. *Church attendance* is an index of religious attendance, 1 = never/no religious preference, 2 = a few times a year, 3 = once or twice a month, 4 = almost every week, and 5 = every week. *Income* is the answer to: "Please choose the category that describes the total amount of income earned in 2003 by the people in your household. Consider all forms of income, including salaries, tips, interest and dividend payments, scholarship support, student loans, parental support, social security, alimony, and child support, and others." (1 = \$15,000 or under, 2 = \$15,001 - \$25,000, 3 = \$25,001 - \$35,000, 4 = \$35,001 - \$50,000, 5 = \$50,001 - \$65,000, 6 = \$65,001 - \$80,000, 7 = \$80,001 - \$100,000, 8 = over \$100,000) *Internal efficacy* is a binary response (0 = true, 1 = false) to the question "Sometimes politics and government seem so complicated that a person like me can't really understand what's going on." *Strength of party identification* is coded 1 = independents and apoliticals, 2 = independents leaning towards a party, 3 = weak partisans, and 4 = strong partisans. *Civic duty* is coded 1 = agree strongly, 2 = agree somewhat, 3 = neither, 4 = disagree somewhat, and 5 = disagree strongly for "If a person doesn't care how an election

comes out he shouldn't vote in it." *Female* is 1 for female, 0 for male. *Race* is 1 for black, 0 for others.

Interest in Politics is the answer to the question "Some people don't pay much attention to political campaigns. How interested are you in the 2004 presidential election campaign?" (1 = not much interested, 2 = somewhat interested, 3 = very much interested)

References

- Aldrich, J. H. 1993. "Rational Choice and Turnout." *American Journal of Political Science* 37 (1):246-278.
- Andreoni, J., and J. Miller. 2002. "Giving According to Garp: An Experimental Test of the Consistency of Preferences for Altruism." *Econometrica* 70 (2):737-753.
- Camerer, C. F., and R. M. Hogarth. 1999. "The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework." *Journal of Risk and Uncertainty* 19 (1-3):7-42.
- Camerer, Colin F. 2003. *Behavioral Game Theory: Experiments in Strategic Interaction*. Princeton, NJ: Princeton University Press.
- Campbell, Angus, Philip E. Converse, Warren E. Miller, and Donald E. Stokes. 1960. *The American Voter*. New York,: Wiley.
- Carpenter, Jeffrey, Eric Verhoogen, and Stephen Burks. 2004. *The Effect of Stakes in Distribution Experiments*. New York: Columbia University.
- Chamberlain, G, and M Rothchild. 1981. "A Note on the Probability of Casting a Decisive Vote." *Journal of Economic Theory* 25:152-162.
- Clarke, H. D., and M. C. Stewart. 1994. "Prospections, Retrospections, and Rationality - the Bankers Model of Presidential Approval Reconsidered." *American Journal of Political Science* 38 (4):1104-1123.
- Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York,: Harper.
- Edlin, Aaron, Andrew Gelman, and Noah Kaplan. 2003. *Rational Voting and Voter Turnout*. Berkeley, CA: University of California.
- Feddersen, T. J., and W. Pesendorfer. 1996. "The Swing Voter's Curse." *American Economic Review* 86 (3):408-424.
- Fehr, E., and U. Fischbacher. 2003. "The Nature of Human Altruism." *Nature* 425 (6960):785-791.
- Finkel, S. E., and K. D. Opp. 1991. "Party Identification and Participation in Collective Political-Action." *Journal of Politics* 53 (2):339-371.
- Fiorina, Morris. 1990. Information and Rationality in Elections. In *Information and Democratic Processes*, edited by J. Ferejohn and J. Kuklinski. Urbana: University of Illinois Press.
- Fischer, A. J. 1999. "The Probability of Being Decisive." *Public Choice* 101 (3-4):267-283.
- Forsythe, R., J. L. Horowitz, N. E. Savin, and M. Sefton. 1994. "Fairness in Simple Bargaining Experiments." *Games and Economic Behavior* 6 (3):347-369.
- Gelman, A., G. King, and W. J. Boscardin. 1998. "Estimating the Probability of Events That Have Never Occurred: When Is Your Vote Decisive?" *Journal of the American Statistical Association* 93 (441):1-9.
- Gelman, Andrew, Jonathan N. Katz, and Joseph Bafumi. 2004. "Standard Voting Power Indexes Don'T Work: An Empirical Analysis." *British Journal of Political Science* 34 (4):657-674.
- Good, I. J., and L. S. Mayer. 1975. "Estimating Efficacy of a Vote." *Behavioral Science* 20 (1):25-35.
- Hibbing, John R., and John R. Alford. 2004. "Accepting Authoritative Decisions: Humans as Wary Cooperators." *American Journal of Political Science* 48 (1):62.
- Highton, B., and W. E. Wolfinger. 2001. "The First Seven Years of the Political Life Cycle." *American Journal of Political Science* 45 (1):202-209.
- Hoffman, E., K. McCabe, K. Shachat, and V. Smith. 1994. "Preferences, Property-Rights, and Anonymity in Bargaining Games." *Games and Economic Behavior* 7 (3):346-380.
- Jackman, R. W. 1993. "Rationality and Political-Participation." *American Journal of Political Science* 37 (1):279-290.
- Jankowski, Richard. 2002. "Buying a Lottery Ticket to Help the Poor - Altruism, Civic Duty, and Self-Interest in the Decision to Vote." *Rationality and Society* 14 (1):55-77.
- Jankowski, Richard. 2004. "Altruism and the Decision to Vote: Explaining and Testing High Voter Turnout." *Unpublished manuscript*.

- Kagel, John F., and Alvin E. Roth. 1995. *Handbook of Experimental Economics*. Princeton, NJ: Princeton University Press.
- Kinder, D. R., and D. R. Kiewiet. 1981. "Sociotropic Politics - the American Case." *British Journal of Political Science* 11 (APR):129-161.
- Knack, Stephen. 1992. "Social Altruism and Voter Turnout: Evidence from the 1991 Nes Pilot Study." *1991 NES Pilot Study Reports*.
- Ledyard, John D., ed. 1982. *The Paradox of Voting and Party Competition*. Edited by G. Horwich and J. Quirk, *Essays in Contemporary Fields of Economics*. West Lafayette, Ind.: Purdue University Press.
- Monroe, Kristen R. 1998. *The Heart of Altruism: Perceptions of a Common Humanity*. Princeton: Princeton University Press.
- Mulligan, C. B., and C. G. Hunter. 2003. "The Empirical Frequency of a Pivotal Vote." *Public Choice* 116 (1-2):31-54.
- Mutz, D. C., and J. J. Mondak. 1997. "Dimensions of Sociotropic Behavior: Group-Based Judgments of Fairness and Well-Being." *American Journal of Political Science* 41 (1):284-308.
- Myerson, R. B. 2000. "Large Poisson Games." *Journal of Economic Theory* 94 (1):7-45.
- Palfrey, T. R., and H. Rosenthal. 1985. "Voter Participation and Strategic Uncertainty." *American Political Science Review* 79 (1):62-78.
- Piliavin, J. A., and H. W. Charng. 1990. "Altruism - a Review of Recent Theory and Research." *Annual Review of Sociology* 16:27-65.
- Plutzer, E. 2002. "Becoming a Habitual Voter: Inertia, Resources, and Growth in Young Adulthood." *American Political Science Review* 96 (1):41-56.
- Riker, W. H., and P. J. Ordeshook. 1968. "A Calculus of Voting." *American Political Science Review* 62:25-42.
- Rosenstone, Steven J., and John Mark Hansen. 1993. *Mobilization, Participation, and Democracy in America, New Topics in Politics*. New York: Macmillan.
- Timpone, R. J. 1998. "Structure, Behavior, and Voter Turnout in the United States." *American Political Science Review* 92 (1):145-158.
- Tullock, Gordon. 1967. *Towards a Mathematics of Politics*. Ann Arbor: University of Michigan.
- Verba, Sidney, Kay Lehman Schlozman, and Henry E. Brady. 1995. *Voice and Equality : Civic Voluntarism in American Politics*. Cambridge, Mass.: Harvard University Press.
- Wolfinger, Raymond E., and Steven J. Rosenstone. 1980. *Who Votes?* New Haven: Yale University Press.