

Voter Partisanship and the Effect of Distributive Spending on Political Participation

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Do distributive benefits increase voter participation? This article argues that the government delivery of distributive aid increases the incumbent party's turnout but decreases opposition-party turnout. The theoretical intuition here is that an incumbent who delivers distributive benefits to the opposing party's voters partially mitigates these voters' ideological opposition to the incumbent, hence weakening their motivation to turn out and oust the incumbent. Analysis of individual-level data on FEMA hurricane disaster aid awards in Florida, linked with voter-turnout records from the 2002 (pre-hurricane) and 2004 (post-hurricane) elections, corroborates these predictions. Furthermore, the timing of the FEMA aid delivery determines its effect: aid delivered during the week just before the November 2004 election had especially large effects on voters, increasing the probability of Republican (incumbent party) turnout by 5.1% and decreasing Democratic (opposition party) turnout by 3.1%. But aid delivered immediately after the election had no effect on Election Day turnout.

Do government distributive benefits increase voter turnout? Scholars have long argued that non-means-tested entitlement programs cause increased turnout among their beneficiaries. For example, the recipients of agricultural subsidies (Wolfinger and Rosenstone 1980), Social Security (Campbell 2002), and Medicare and veterans' benefits (Mettler and Stonecash 2008; Verba et al. 1993) exhibit higher turnout rates than nonrecipients. At the aggregate level, counties and congressional districts respond to increased distributive spending with higher turnout (Ansolabehere and Snyder 2006; Matsubayashi and Wu 2009). A commonly hypothesized explanation for this positive turnout effect is Lipset's classic argument that one's decision to turn out depends upon the perceived "relevance of government policies to the individual" (1960, 190). Under this theory, as articulated by subsequent scholars (e.g., Campbell 2002; Wolfinger and Rosenstone 1980), the delivery of distributive benefits motivates recipients to protect their

stake in these spending programs by participating in politics through voting.

However, there is reason to question whether this positive relationship between distributive benefits and turnout should hold for all voters, regardless of their partisanship. A voluminous literature on political behavior, beginning with *The American Voter*, argues that voters' responses to political events are conditioned by their partisanship. Voters' partisan identification serves as a "perceptual screen through which the individual tends to see what is favorable to his partisan orientation" (Campbell et al. 1960, 133). Partisanship affects voters' subjective judgments, such as their approval of presidential performance (Bartels 2002), as well as objective evaluations, such as assessments of the economy (Gerber and Huber 2009, 2010).

This article draws upon the political participation theory described by Lipset (1960), Wolfinger and Rosenstone (1980), and Campbell (2002), revising and

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extending this classic theory to account for voters' partisan biases in their retrospective evaluations. This article's theory preserves these authors' original intuition that the recipients of distributive benefits are motivated to vote in order to protect their future benefits. But the theory also revises this argument by accounting for voters' partisan biases in deciding whether to turn out. The theory predicts that distributive spending can affect voter turnout in opposite directions, depending on the voter's partisanship: voters who share the incumbent's partisanship respond to benefits with *increased* turnout. But voters who align with the challenger's party respond to benefits with *decreased* turnout.

The intuition behind this asymmetric result is as follows. Each voter has an ideological preference for either the left- or right-wing party, but voters also generally prefer politicians who prioritize the delivery of distributive benefits. Hence, a voter who receives benefits from a same-party incumbent will respond with increased turnout in order to enhance the probability of reelecting the incumbent. By contrast, a voter who identifies with the challenger's party prefers to expel the incumbent for ideological reasons. But if the incumbent delivers benefits to this opposite-party voter, the voter may respond by *not turning out* to vote, as the incumbent's distributive generosity has mitigated the voter's motivation to oust the incumbent.

Borrowing from the retrospective voting literature (e.g., Ferejohn 1986; Fiorina 1981), this article's theory considers voters who retrospectively judge the incumbent's distributive policy. The voter observes the incumbent's disaster aid policy and evaluates the incumbent's prioritization of disaster aid. Hence, an incumbent who delivers pre-election aid develops a reputation as being likely to deliver such aid in the future, thus enhancing her favorability among voters regardless of partisanship. If the incumbent is right-wing, then this enhanced reputation may convince a left-wing voter to simply abstain from voting, as the incumbent's superior record on disaster aid has weakened the voter's overall aversion to the incumbent and motivation to oust her.

Empirically, this article tests these theoretical predictions using detailed records of 1.1 million households that applied for Federal Emergency Management Agency (FEMA) disaster assistance during the summer 2004 hurricane season, just prior to the November 2004 presidential election. I linked these FEMA applications to Florida voter registration and past turnout records. By comparing individual voters' turnout in the 2002 (pre-hurricane) and 2004 (post-hurricane) elections, I find that the awarding of FEMA aid *increases* Republican (incumbent party) voters' turnout while *decreasing* Demo-

cratic (challenger party) turnout in November 2004. I also analyze FEMA aid awarded at the voting precinct level, finding that the awarding of FEMA aid causes a statistically significant increase in President Bush's vote share in November 2004.

Exploiting variation in the timing of the delivery of FEMA aid helps to establish the causal direction of this effect. First, FEMA awards delivered in the week *just before* the November 2004 election had an abnormally large effect, increasing the probability of Republican (incumbent party) turnout by 5.1% and decreasing Democratic (opposition party) turnout by 3.1%. Second, several placebo tests investigate whether FEMA aid delivered *immediately after* the November 2004 election is statistically related to Election Day turnout. The placebo tests find that post-election aid has no effect on Election Day turnout. Hence, the analysis of pre- and post-election aid supports the causal argument that FEMA aid affects voter turnout, not vice versa.

This article proceeds as follows. The first section intuitively describes the article's theory and explains the two testable predictions of this theory concerning the effect of disaster aid on voter behavior. The online appendix presents a formal model of this theory. The second section describes the process by which FEMA distributed disaster aid to hurricane victims in 2004. The third section conducts several tests of the formal model's predictions using individual-level data on FEMA aid applications, linked to individual voter-turnout records and precinct-level election results. The final section addresses the causal direction of the finding and robustness checks.

A Theory of Disaster Aid and Voter Turnout

This section intuitively presents this article's theory and explains the two testable predictions of the theory. Additionally, the online appendix presents a more detailed formal model that derives these two predictions. Because of space constraints, this section simply summarizes the key features and assumptions of the model and informally explains the intuitive logic of the theory.

Politicians' Ideologies and Types

To set up the theory, suppose the incumbent president is ideologically right-wing, and the challenger candidate is left-wing. This illustrative setup mirrors the

empirical context of this article, which examines the 2004 election with a Republican incumbent and a Democratic challenger.

The theory considers two types of politicians: those who prioritize disaster aid and those who do not. A president might not prioritize disaster aid because she instead focuses her attention and public resources on other policy issues. The full formal model assumes that Nature randomly chooses each politician's type, and these two politician types are distinguished by their utility preferences over delivering disaster aid. A politician's type is independent of her ideology.

Voters do not become aware of a politician's type until they observe the president making a policy choice on disaster aid. Hence, having observed the incumbent in office during the previous term, voters develop certainty about the incumbent's type, but they remain uncertain about the challenger's type. As an illustrative example, voters might have been uncertain about President Bush's type prior to September 2005. But after the intense public scrutiny of FEMA's response to Hurricane Katrina, voters updated their beliefs and developed stronger and more specific views about the Bush administration's prioritization of hurricane relief efforts. In this sense, an incumbent with a reputation for delivering disaster aid enjoys a "valence advantage," independent of voters' preferences over candidates on the ideological dimension, as modeled by Groseclose (2001).

Voter Interests

Following Dixit and Londregan (1996), Persson and Tabellini (2000), Stokes (2005), and other models of distributive politics, the theory assumes that voters have ideological preferences as well as a preference for receiving distributive benefits. Second, the act of turnout is costly for voters (e.g., Aldrich 1993). Hence, a voter turns out only if her preference for her favored candidate is sufficiently strong.

Consequently, the delivery of hurricane aid to the voter prior to the election can affect voter behavior in one of three ways. If the voter has a strong ideological preference for the incumbent, then delivering aid prior to the election may further motivate the voter to turn out in order to secure the incumbent's reelection. If the voter has a strong ideological preference for the challenger, then pre-election aid from the incumbent may induce the voter to stay home by mitigating the voter's hostility toward the incumbent. And finally, if the voter is ideologically indifferent between the two candidates, then the delivery of aid might sway the voter's preference.

The Asymmetric Partisan Effects of Disaster Aid on Turnout

Regardless of voter ideology, the delivery of pre-election disaster aid is an informative signal that enhances the voter's belief that the incumbent will again deliver aid in the future. Hence, this enhanced belief always increases the voter's expected utility from having the incumbent reelected.

Whether this enhanced belief increases or decreases turnout depends on the voter's ideological preference over the two candidates. If the voter is right-wing and already prefers the incumbent on ideological grounds, then this enhanced belief induced by disaster aid simply provides yet an additional motivation to turn out and reelect the incumbent, thus increasing the probability of turnout.

But disaster aid would have the opposite effect on turnout for a left-wing voter. If she turns out, the left-wing voter always prefers the left-wing challenger candidate on ideological grounds. Hence, the left-wing voter's probability of turnout depends on how strongly she prefers the challenger over the incumbent. The delivery of pre-election disaster aid to the left-wing voter enhances the voter's perception of the incumbent, thus mitigating the voter's motivation to oust the incumbent. This decreased motivation to vote the incumbent out of office decreases the left-wing aid recipient's probability of turnout. This theory thus makes the following prediction:

Hypothesis 1: The delivery of disaster aid prior to the election causes an increase in turnout for an incumbent-supporting recipient but a decrease in turnout for a challenger-supporting recipient.

This hypothesis is stated formally as Proposition 1 in the formal model in the online appendix.

The Effects of Disaster Aid on the Incumbent's Vote Share

In Hypothesis 1, the delivery of aid increases incumbent supporters' turnout while decreasing opposition turnout. Furthermore, as noted above, conditional on turning out, the partisan left-wing and right-wing voters support the challenger and the incumbent in the election, respectively. Hence, disaster aid causes either an increase in the incumbent's *vote totals* or a decrease in the challenger's *vote totals*, depending on whether the voter is left- or right-wing. In either case, the net effect on the incumbent's *vote share* is therefore always a positive one, a result

consistent with previous empirical findings in the disaster relief literature (e.g., Reeves 2011). Hypothesis 2 summarizes this testable prediction:

Hypothesis 2: The delivery of disaster aid prior to the election causes an increase in the incumbent candidate's electoral vote share.

The following section describes the context of the FEMA disaster aid data, and these data are used to test the two predictions of the theory. This article focuses primarily on testing Hypothesis 1, while Hypothesis 2 is tested in the *Alternative Causal Explanations* section.

The Distribution of FEMA Disaster Aid

This section describes three important characteristics of FEMA disaster aid.

Presidential Disaster Declarations

First, residents of all 67 counties in Florida were eligible to apply for FEMA aid. In the 12 weeks prior to the November 2004 presidential election, Florida was struck by four hurricanes of at least Category II strength. Hurricanes Charley (Category IV), Frances (Category II), Ivan (Category III), and Jeanne (Category III) made landfall throughout Florida, prompting President Bush to issue disaster declarations, with eligibility for individual disaster aid, for all 67 of Florida's counties during the 2004 hurricane season.

Hence, consistent with previous literature on presidents' disaster responses, the distribution of FEMA aid does not manifest from any strategic county-level targeting of presidential disaster declarations *within* Florida. Reeves (2011) finds that the president is more likely to issue disaster declarations in states that are electorally competitive, while Garrett and Sobel (2002) and Downton and Pielke (2001) observe a spike in declarations during election years. Both of these conditions apply to this study: the FEMA aid analyzed in this article was delivered just prior to the November 2004 election, and Florida was a competitive swing state in both the 2000 and 2004 presidential contests. The fact that all 67 Florida counties were declared eligible for individual aid is therefore consistent with past studies' findings on the targeting of disaster declarations *across* different states.

The Universal Nature of FEMA Aid

Second, FEMA distributed hurricane disaster aid through a universal, non-means-tested program. After President Bush's disaster declarations, Florida residents were eligible to apply for aid under FEMA's Individuals and Households Program (IHP). Officially, IHP, authorized by the Stafford Act of 1988 (P.L. 93–288) and the Disaster Mitigation Act of 2000 (P.L. 106–390), provides up to \$25,000 of assistance to victimized households to pay for "necessary expenses and serious needs" not covered by insurance (44 C.F.R. § 206.110a). FEMA most frequently awards IHP aid to households to fund temporary housing, to repair damaged residences, to replace damaged property, such as furniture and electronics, and to pay for medical, funeral, and other personal expenses caused by the hurricanes.

Disaster aid under IHP cannot be awarded or restricted on the basis of residents' income, a statutory mandate codified in 42 USC § 5163 and 42 USC § 5174(b)(1) and implemented in 44 C.F.R. § 206.113. Instead, the primary restrictions are that IHP aid only covers inspector-verified damage at an applicant's primary residence, FEMA awards may not duplicate insurance payouts, and households may not receive more than \$25,000 in total aid. In particular, the prohibition against duplicating insurance payouts had the effect of disqualifying many wealthier homeowners from receiving some categories of FEMA aid. Nevertheless, many households with flood insurance still qualified for FEMA aid to cover uninsured possessions and expenses.

The universal nature of FEMA disaster aid is an important distinction, given the previous literature on turnout. Scholars of political participation have found that social spending programs mobilize voter turnout only when benefits are distributed under universal, non-means-tested programs (e.g., Mettler 2005; Verba, Scholzman, and Brady 1995). For example, Mettler and Stonecash (2008) find that the beneficiaries of universal programs such as Veterans Benefits and Medicare vote at higher rates than nonbeneficiaries. By contrast, Soss (1999, 2002) and Bruch, Ferree, and Soss (2009) find that means-tested welfare programs stigmatize voters, thus possibly discouraging them from political participation.

Hence, this existing literature suggests that FEMA disaster aid, which is universally available to hurricane victims regardless of their income status, might mobilize recipients to vote in order to protect potential aid in the future. Although voters cannot directly control the amount of aid delivered in the future, they can at least mobilize to reelect a politician with a past history of supporting disaster relief policies. This article contributes to

the past literature by explaining why this mobilization logic is conditional on recipients' ideological proximity to the incumbent government: the delivery of benefits by a Republican administration to Republican recipients should indeed mobilize their turnout. But the delivery of benefits by a Republican administration to Democratic recipients may induce a decrease in their turnout, as the recipients' stake in protecting their benefits decreases their motivation to oust the Republican incumbent.

The FEMA Aid Decision Process

Residents self-select into applying for IHP aid simply by providing their names and contact information to FEMA in person, by telephone, or through FEMA's website. Although applicants may describe the hurricane damage to their property, they are not permitted to request a specific aid amount. Nor does an applicant's description of damage either limit or enhance the amount of aid his or her household is eligible to receive.

Instead, a FEMA inspector visits each applicant's residence to complete a checklist of damaged property and to estimate the severity of any such damages. By protocol, FEMA personnel check for a standard list of damaged areas in each home, regardless of whether the applicant had reported damages in such areas. Specifically, the FEMA inspector assigns a score of "X," "Y," or "Z" to each room and each area of the residence, indicating the severity of the hurricane damage. For each particular type of room (e.g., kitchen, living room) and for a particular level of damage ("X," "Y," or "Z"), FEMA awards a predetermined amount of assistance, regardless of the actual value of the applicant's pre-hurricane property. Hence, the applicant has no formal opportunities to strategically manipulate the FEMA aid process by exaggerating the severity of hurricane damage.

In the aftermath of the 2004 Florida hurricanes, FEMA received applications for IHP aid from 1.1 million unique households. FEMA approved aid awards for about 40% of these applications, distributing over \$1.2 billion in total assistance. The size of these awards varied widely, ranging from under \$100 to \$25,000, depending upon the FEMA inspectors' assessments of damages. Figure App.1 of the online appendix details the distribution of these awards.

By requiring inspectors to check for residential damage, FEMA's inspection procedures effectively distributed IHP disaster aid most heavily to areas that experienced the most severe hurricane storms. This geographic pattern is illustrated in Figure App.2 of the online appendix, which depicts the maximum wind speeds observed dur-

ing Hurricane Charley, the first declared disaster of the 2004 Atlantic hurricane season (FEMA Disaster #1539). The bright pink areas in this map represent the highest measured winds of over 130 miles per hour, reflecting that Hurricane Charley entered Florida's Gulf coast through Cape Coral, traveled northeast across the state, and exited Florida's Atlantic coast just south of Daytona Beach. The green dots on the map identify the geocoded locations of all Florida residents who applied for and successfully received some disaster aid under FEMA Disaster #1539. Although aid recipients appear throughout the entire state, this map illustrates that the vast majority of the recipients were geographically concentrated along the center of Hurricane Charley's path as the storm crossed Florida.

The Effect of FEMA Aid on Individual Voter Turnout

This section analyzes the effect of FEMA disaster aid awards on individual voter turnout in November 2004. I tracked the turnout of FEMA aid applicants by matching the residential addresses listed on individual households' FEMA applications with the addresses listed on Florida voter registration and turnout records. In the aftermath of the 2004 hurricane season, several Florida newspapers made repeated requests under the Freedom of Information Act (FOIA) to access records on individual FEMA aid applicants. FEMA officials initially refused all of these FOIA requests. However, several federal lawsuits, culminating in the 11th U.S. Circuit Court of Appeals' June 22, 2007, decision in *News-Press v. U.S. Department of Homeland Security* (No. 05-16771 and No. 06-13306), forced FEMA to turn over detailed records on the Florida FEMA aid applicants. These records contain the addresses of the 1.1 million households that applied for aid and the dollar amounts awarded to the 40% of applicants who were approved for aid.

Using these data, I matched the FEMA applicant addresses to Florida voter registration forms, on which voters must self-report their residential addresses. I then used these records to identify all registered voters whose household applied for FEMA aid in 2004. Finally, using voter history files provided by counties' boards of elections, I tracked each registered voter's turnout in the November 2002 (pre-hurricane) and 2004 (post-hurricane) general elections.

This section's empirical analyses include only Florida residents who satisfied all four of the following criteria: (1) the individual lives in a household that applied for FEMA aid during the 2004 hurricane season; (2) FEMA

took action on the household’s aid application prior to the November 2004 general election; (3) the individual was eligible and actively registered to vote in both the 2002 and 2004 general elections; and (4) the individual was either a registered Democrat or Republican as of the November 2004 election. There were 268,752 registered voters who satisfied all four of these criteria, and these voters collectively exhibited a 75% turnout rate in the November 2004 Bush-Kerry presidential election.

Registered voters are not required to affiliate with a party, but most do so because Florida operates closed presidential primaries. Table App.1 of the online appendix details the breakdown of FEMA applicants by party affiliation, showing that 83% of registered voters who applied for aid are affiliated with either the Democratic or Republican parties. Additionally, the histograms in Figure App.1 illustrate the distribution of FEMA award sizes across the Democratic and Republican registrants in the data. These histograms show that FEMA applicants from the two parties received a comparable range of award sizes. The mean award size for approved applicants in these data was \$682.

Equation (1) is a test of Hypothesis 1, which predicts that with a right-wing incumbent, distributive aid should increase right-wing voter turnout while decreasing left-wing turnout. Specifically, equation (1) regresses an applicant’s November 2004 turnout onto the applicant’s turnout in November 2002 and whether the applicant was approved for FEMA disaster aid. The basic logit model is:

$$\begin{aligned} & \text{logit} [\text{Pr} (Voted\ 2004_i)] \\ & = \left\{ \begin{array}{l} \alpha + \beta_A \cdot \text{Application Approved}_i \\ + \beta_{RA} \cdot (\text{Republican}_i \\ \times \text{Application Approved}_i) \\ + \beta_R \cdot \text{Republican}_i \\ + \beta_{02} \cdot (Voted\ 2002_i) + \varepsilon_i, \end{array} \right. \quad (1) \end{aligned}$$

where *Application Approved_i* indicates whether the applicant was awarded aid. *Voted 2002_i* and *Voted 2004_i* indicate whether applicant *i* voted in the 2002 and 2004 elections, respectively, and *Republican_i* is an indicator for registered Republicans; all other voters are registered Democrats.

Effect of FEMA Aid on Turnout Probability

In Table 1, Model 3 estimates equation (1) using the full set of Democratic and Republican voters, and Models 1 and 2 estimate equation (1) by examining Democrats and Republican voters separately. The online appendix (Table

App.2) also reestimates the full equation (1) models using standard errors clustered at the county level.

Overall, the Table 1 results corroborate the Hypothesis 1 predictions. I use CLARIFY (King, Tomz, and Wittenberg 2000) to interpret the following Table 1 results. In Model 3, the awarding of FEMA aid to a Republican applicant who did not vote in 2002 *increases* her probability of turnout in November 2004 by 2.1 percentage points, from 50.8% to 52.9%. The simulated 95% confidence interval for this estimated turnout effect is [+1.3%, +2.9%]. But for a similar Democratic applicant, FEMA aid causes a 0.9 percentage point *decrease* in turnout probability, from 47.8% to 46.9%. The 95% confidence interval for this estimated turnout effect is [−0.2%, −1.6%].

Control Variables

In Table 1, Models 4 to 6 control for several hurricane-related and demographic variables. I geocode the voters in the data using the home addresses listed on their voter registrations. Using NOAA satellite data with discrete wind vectors recorded during each major hurricane, I interpolated the hurricane winds experienced at each voter’s residential location. The Table 1 models control for the *Maximum Wind Speed*, measured in miles per hour, at each voter’s residence during the 2004 hurricane season. Other controls include the *Voter’s Gender*, the *Voter’s Age*, *African American Voters*, the *Median Household Income* of the census block group in which the voter resides, and the *Median Home Value* in the block group. These expanded models also include *County Fixed Effects*. The estimated turnout effects of FEMA aid remain comparable in direction and significance in these expanded models.

Effect of FEMA Aid Delivered One Week before the Election

Intuitively, the effect of aid awarded just prior to the election should be especially large. To test this intuition, I divide all FEMA awards into two groups: (1) awards delivered during the week prior to the election, October 27 to November 2 (5% of all awards); and (2) awards delivered at all earlier times (95% of all awards).

I then estimate the effects of awards delivered just prior to the election. In the online appendix, Table App.3 presents the full model specifications and coefficient estimates, and the estimated turnout effects are summarized as follows. FEMA awards delivered one week prior to the election cause a +5.1% increase in the probability of

TABLE 1 Effect of FEMA Application Approval on Voter Turnout among FEMA Applicants

<i>Voters Included:</i>	<i>Dependent Variable: Voted in November 2004 Election</i>					
	Model (1): Democrats	Model (2): Republicans	Model (3): Democrats and Republicans	Model (4): Democrats	Model (5): Republicans	Model (6): Democrats and Republicans
FEMA Application Approved	-0.036** (0.013)	0.084*** (0.016)	-0.035** (0.013)	-0.039** (0.014)	0.054*** (0.016)	-0.041** (0.014)
FEMA Application Approved × Registered Republican	-	-	0.118*** (0.020)	-	-	0.100*** (0.021)
Registered Republican	-	-	0.141*** (0.015)	-	-	0.080*** (0.016)
Voted in November 2002 General Election	2.358*** (0.014)	2.416*** (0.016)	2.384*** (0.011)	2.343*** (0.015)	2.347*** (0.017)	2.352*** (0.011)
Maximum Wind Speed (Miles Per Hour)	-	-	-	0.000 (0.005)	-0.011* (0.005)	-0.005 (0.003)
Maximum Wind Speed (Miles Per Hour Squared)	-	-	-	0.000 (0.000)	0.000* (0.000)	0.000 (0.000)
Voter's Age (Years)	-	-	-	0.071*** (0.002)	0.081*** (0.003)	0.075*** (0.002)
Voter's Age (Years Squared)	-	-	-	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Med. Home Value in Block Group (\$1,000s)	-	-	-	0.009*** (0.002)	0.010*** (0.002)	0.010*** (0.002)
Voter's Gender (Male)	-	-	-	-0.276*** (0.014)	-0.162*** (0.016)	-0.226*** (0.010)
African American	-	-	-	-0.011 (0.018)	-0.474*** (0.051)	-0.027 (0.016)
Med. Household Income in Block Group (\$1,000s)	-	-	-	0.081*** (0.008)	0.092*** (0.009)	0.081*** (0.006)
County Fixed Effects	-	-	-	Included	Included	Included
Constant	-0.088*** (0.011)	0.032* (0.013)	-0.097*** (0.010)	-1.689*** (0.182)	-1.534*** (0.229)	-1.633*** (0.140)
<i>Pseudo R</i> ²	0.30	0.30	0.30	0.34	0.33	0.34
<i>N</i>	142,637	126,115	268,752	142,637	126,115	268,752

*** p < .001; ** p < .01; * p < .05 (two-tailed). Standard errors in parentheses.

Note: Data include registered voters whose household applied for FEMA disaster aid before the November 2004 election and who were registered to vote in both the 2002 and 2004 elections.

turnout for a Republican who previously did not vote; the confidence interval for this effect is [+2.9%, +7.4%]. For a similarly situated Democrat, the effect of receiving FEMA aid one week before the election is a 3.1% decrease in the probability of turnout, with a confidence interval of [-1.2%, -5.0%]. Hence, FEMA aid delivered one week before the election has an abnormally large effect on Republican and Democratic turnout. Later placebo tests show that post-election FEMA aid has no significant effect on turnout, providing further support for the hypothesized causal direction.

Effect of FEMA Award Sizes

FEMA awards vary widely in size, and although this article's theory does not incorporate this complexity, larger award sizes should intuitively cause larger positive and negative turnout effects for Republicans and Democrats, respectively. Most awardees received under \$2,000, but awards ranged up to \$25,000. Because of this significant right tail, Table App.4 of the online appendix reestimates all of the Table 1 models by replacing *Application Approved* with *Logged FEMA Aid Size*. To include the significant

fraction of applicants who were rejected and thus received \$0, I add \$1 to every award size before logging. Table App.5 presents similar models using alternative specifications of the *Logged FEMA Aid* term.

The results in Table App.4 confirm that larger award sizes indeed produce turnout effects of significantly greater magnitude. For Democrats (Model 1), receiving an average-sized award of \$682 causes a 1.5% decrease in turnout probability for a previous nonvoter. By contrast, Model 2 estimates that for Republicans, the same award size causes a 1.3% increase in turnout probability.

How substantively large are these turnout effects of FEMA aid? In the most extreme case, the earlier results estimated that FEMA awards delivered one week prior to the election cause a 5.1% increase in the probability of Republican turnout. This estimate implies that \$13,373 of FEMA aid produces one new Republican voter, an estimate that is nearly identical to Levitt and Snyder's (1997) calculation that \$14,000 of federal spending generates one additional vote for an incumbent legislator. But for FEMA aid delivered temporally further away from the election, the turnout effect is much smaller: \$32,476 of aid increases Republican turnout by one voter. Hence, although delivering FEMA aid produces statistically significant effects on Republican and Democratic turnout, disaster aid is likely not the most impactful type of federal spending when compared to the many types of federal spending in the Levitt and Snyder (1997) data.

Robustness of Empirical Findings

Having illustrated the main statistical relationship between FEMA aid delivery and voter turnout, this article proceeds to evaluate the causal direction and the empirical robustness of this main finding. To do so, this section explores several placebo tests, potential omitted variables, and selection issues that arise in the FEMA aid data. Collectively, these additional empirical tests strengthen this article's main empirical argument that FEMA aid increased turnout among incumbent supporters and decreased turnout among opposition voters.

Causal Identification and Placebo Tests

What is the causal direction of the empirical relationship between FEMA aid and increased turnout in November 2004? Two potential alternative explanations for the main findings in Table 1 are reverse causality, whereby increased

turnout from 2002 to 2004 causes FEMA aid receipt, or an omitted variable that simultaneously causes FEMA aid receipt and increased turnout from 2002 to 2004.

To test for these alternative causal explanations, this section presents several placebo tests that take advantage of the temporal distribution of FEMA aid applications. FEMA continued to accept aid applications through December 2004, and although the majority of hurricane victims applied for aid before November, 40,656 registered Democrats and Republicans in the data did not apply until after the November general election.

The placebo test therefore examines whether FEMA aid that was awarded *after* the November election affects Election Day turnout. Election turnout and post-election FEMA aid should be correlated only if reverse causality or an omitted variable is driving the main Table 1 results. The placebo tests reestimate the equation (1) model using only the 40,656 registered voters who applied for aid during 2004 but after the November election.

The placebo test results appear in Table 2. The six logit models estimated in Table 3 are identical to the six models reported in Table 1, except that the data include only post-election applicants. Each of the six placebo tests in Table 2 finds no statistically significant effect of post-election FEMA aid on Election Day turnout. In contrast to the Table 1 results, Republicans who would later receive FEMA aid after the election did not exhibit higher turnout than nonrecipients. Nor was there a significant turnout effect for Democrats who would subsequently receive FEMA aid. The magnitudes of the *Application Approved*_{*i*} coefficients estimated in the placebo tests are also much smaller than in the Table 1 results and statistically indistinguishable from zero. Thus, the placebo tests fail to find evidence of reverse causality in the main tests of equation (1).

Effect of Previous Turnout on Program Participation

A possible selection issue in the main results is that individuals may self-select into applying for FEMA aid based on factors that are also related to their turnout. Such self-selection is plausible, given that civic skills, as described by Verba, Schlozman, and Brady (1995), may explain both turnout and applying for aid. If such self-selection occurs, then the population that applied for aid is not perfectly comparable to those who did not apply for aid, thus potentially limiting the external validity of this article's findings.

To test for and correct such self-selection bias, Table 3 employs a Heckman selection model. The

TABLE 2 Placebo Test of Residents Who Applied for FEMA Aid after November 2004

<i>Voters Included:</i>	<i>Dependent Variable: Voted in November 2004 Election</i>					
	Model (1): Democrats	Model (2): Republicans	Model (3): Democrats and Republicans	Model (4): Democrats	Model (5): Republicans	Model (6): Democrats and Republicans
FEMA Application Approved (Post-November 2004)	-0.011 (0.034)	-0.006 (0.040)	-0.011 (0.034)	0.017 (0.036)	-0.012 (0.041)	0.016 (0.035)
FEMA Application Approved (Post-November 2004) × Registered Republican	-	-	0.005 (0.053)	-	-	-0.020 (0.054)
Registered Republican	-	-	0.179*** (0.040)	-	-	0.139** (0.043)
Voted in November 2002 General Election	2.301*** (0.036)	2.315*** (0.041)	2.307*** (0.027)	2.291*** (0.039)	2.234*** (0.044)	2.269*** (0.029)
Maximum Wind Speed (Miles Per Hour)	-	-	-	0.003 (0.014)	-0.006 (0.016)	-0.000 (0.010)
Maximum Wind Speed (Miles Per Hour Squared)	-	-	-	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Voter's Age (Years)	-	-	-	0.071*** (0.006)	0.074*** (0.007)	0.071*** (0.004)
Voter's Age (Years Squared)	-	-	-	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Med. Home Value in Block Group (\$1,000s)	-	-	-	0.008 (0.006)	0.005 (0.005)	0.006 (0.004)
Voter's Gender (Male)	-	-	-	-0.260*** (0.036)	-0.146*** (0.040)	-0.207*** (0.027)
African American	-	-	-	-0.034 (0.044)	-0.397*** (0.117)	-0.066 (0.040)
Med. Household Income in Block Group (\$1,000s)	-	-	-	0.091*** (0.019)	0.088*** (0.021)	0.087*** (0.014)
County Fixed Effects	-	-	-	Included	Included	Included
Constant	-0.077** (0.029)	0.097** (0.034)	-0.079** (0.027)	-1.671** (0.515)	-1.328* (0.607)	-1.558*** (0.388)
<i>Pseudo R</i> ²	0.29	0.28	0.29	0.33	0.32	0.32
<i>N</i>	21,864	18,792	40,656	21,864	18,792	40,656

***p < .001; **p < .01; *p < .05 (two-tailed). Standard errors in parentheses.

Note: Data include registered voters whose household applied for FEMA disaster aid after the November 2004 election and who were registered to vote in both the 2002 and 2004 elections.

selection model compares individuals who selected into applying for FEMA aid against those who were eligible but chose not to apply. To estimate this selection model, I use Florida voter registration lists to identify all Florida residents who (1) were registered and eligible to vote in both November 2002 and 2004, and (2) were registered as either a Democrat or Republican. These two criteria produce a full set of 3,571,284 individuals, representing the universe of previously registered voters who were eligible to apply for FEMA aid in Florida. As previously noted,

only 268,752 (7.5%) of these individuals actually applied for aid prior to the November election.

The Heckman selection model results appear as follows. The right column of Table 3 presents the selection model, which estimates self-selection into applying for FEMA aid among the full set of 3.57 million eligible residents. The middle column of Table 3 presents the Heckman probit outcome model, which predicts November 2004 turnout for the 268,752 residents who applied for FEMA aid. This outcome model is identical in setup to

TABLE 3 Heckman Censored Probit Model

<i>Dependent Variable:</i>	<i>Voters Included: Democrats and Republicans</i>		
	Standard Probit Model: Voted in November 2004	Heckman Outcome Model: Voted in November 2004	Heckman Selection Model: Applied for FEMA Aid
FEMA Application Approved	-0.020* (0.008)	-0.019* (0.008)	-
FEMA Application Approved × Registered Republican	0.068*** (0.012)	0.068*** (0.012)	-
Registered Republican	0.082*** (0.008)	0.083*** (0.008)	0.009*** (0.002)
Voted in November 2002 General Election	1.379*** (0.006)	1.378*** (0.006)	0.030*** (0.002)
Median Household Income of Block Group (\$100,000s)	-	-	0.028* (0.009)
Median Home Value in Block Group (\$100,000s)	-	-	-0.230*** (0.003)
Male Gender	-	-	-0.008*** (0.002)
African American	-	-	0.073*** (0.003)
Maximum Wind Speed (Miles Per Hour)	-	-	0.034*** (0.000)
Maximum Wind Speed (Miles Per Hour Squared)	-	-	-0.000*** (0.000)
Voter's Age (Years)	-	-	0.020*** (0.000)
Voter's Age (Years Squared)	-	-	-0.000*** (0.000)
Constant	-0.058*** (0.006)	-0.119*** (0.015)	-3.373*** (0.015)
ρ			0.036 (0.008)
<i>N</i>	268,752	268,752	3,571,284

*** $p < .001$; ** $p < .01$; * $p < .05$ (two-tailed). Standard errors in parentheses.

Note: The full data include all Democrats and Republicans who were registered to vote in both the 2002 and 2004 elections. The selection model predicts which of these registrants self-select into applying for FEMA aid prior to the November 2004 election.

equation (1), except that the parameters of the Heckman outcome model and the selection model are jointly estimated via maximum likelihood. Finally, for comparison purposes, the left column of Table 3 presents a standard uncorrected probit model estimating equation (1).

The Heckman model in Table 3 reveals three findings. First, the selection model in the right column finds that previous 2002 voters are indeed more likely to apply for FEMA aid than nonvoters, even after accounting for hurricane wind speeds and various demographics. Second,

this self-selection indeed affects the corrected outcome model, and the model results reject the null hypothesis that the outcome equation and selection equation are independent. But third, the estimated effects of FEMA aid on turnout in the corrected Heckman outcome model remain statistically significant and in the same directions as in the main results. Substantively, the estimated turnout effects are only slightly smaller in magnitude than in the standard uncorrected probit model in the left column of Table 3. Hence, the Heckman estimates

TABLE 4 Effect of FEMA Application Approval on Voter Turnout among Previous Voters and Previous Nonvoters

Voters Included:	<i>Dependent Variable: Voted in November 2004 Election</i>					
	November 2002 Voters whose Party Affiliation is . . .			November 2002 Nonvoters whose Party Affiliation is . . .		
	Democrat Model (1)	Republican Model (2)	Democrat or Republican Model (3)	Democrat Model (4)	Republican Model (5)	Democrat or Republican Model (6)
FEMA Application Approved	-0.017 (0.024)	0.101*** (0.026)	-0.017 (0.024)	-0.044** (0.016)	0.074*** (0.019)	-0.044** (0.016)
FEMA Application Approved × Registered Republican	-	-	0.118*** (0.036)	-	-	0.118*** (0.025)
Registered Republican	-	-	0.179*** (0.025)	-	-	0.122*** (0.018)
Constant	2.260*** (0.017)	2.439*** (0.019)	2.260*** (0.017)	-0.084*** (0.012)	0.038** (0.014)	-0.084*** (0.012)
<i>Pseudo R</i> ²	0.30	0.30	0.30	0.30	0.30	0.30
<i>N</i>	81,148	82,427	163,575	61,489	43,688	105,177
<i>Total Applicants</i>	81,148	82,427	163,575	61,489	43,688	105,177
<i>Applicants Awarded Aid</i>	39,583	44,104	83,687	32,006	23,723	55,729
<i>Approval Rate</i>	48.8%	53.5%	51.2%	52.1%	54.3%	54.0%

*** p < .001; ** p < .01. Standard errors in parentheses.

Note: Data include registered voters whose household applied for FEMA disaster aid before the November 2004 election and who were registered to vote in both the 2002 and 2004 elections.

reveal that self-selection indeed affects the composition of applicants in the data, but after correcting for selection bias, the main results regarding increased Republican turnout and decreased Democratic turnout still hold.

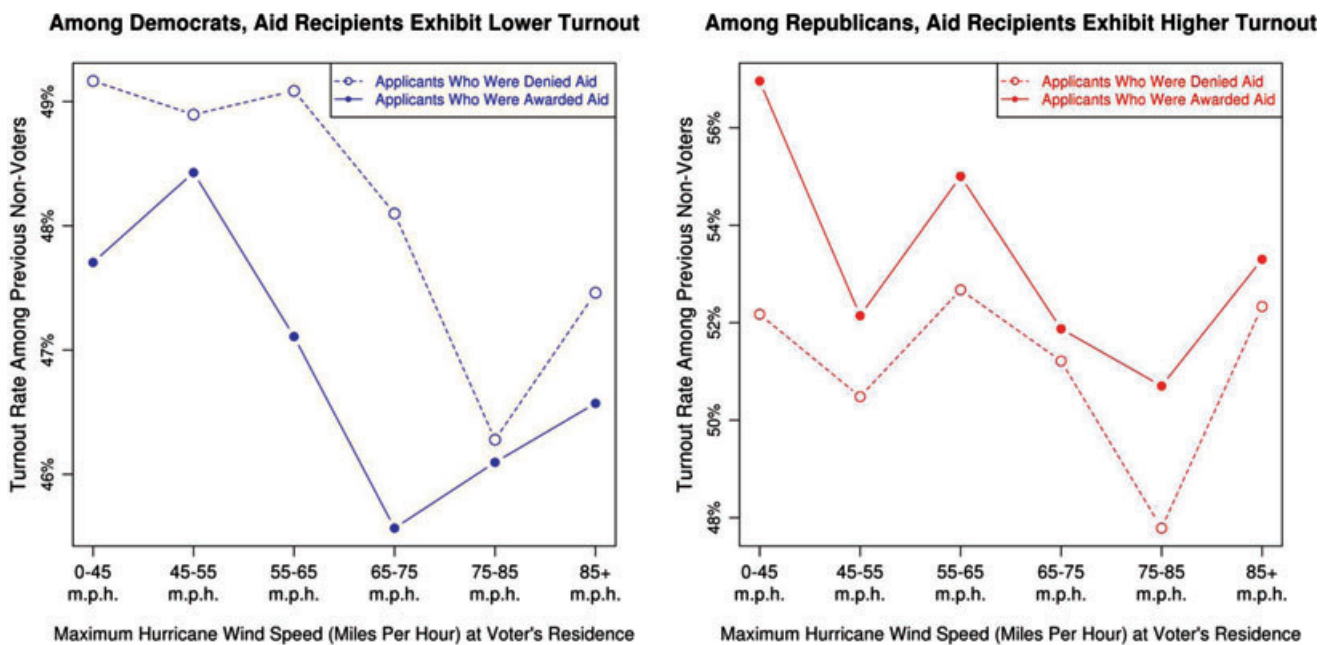
Effect of Previous Turnout on FEMA Application Approval

A related issue is that turnout in the previous election is related to the approval of one's FEMA application. Since Key (1949), political scientists have suggested that voters who exhibit higher turnout rates may receive favorable treatment from the government. For example, Aldrich and Crook (2008) find that undesirable FEMA trailer parks are targeted toward neighborhoods with lower voter turnout. If FEMA treats previous voters and nonvoters differently, then approved FEMA applicants may be dissimilar in political activeness to rejected applicants in the data, thus raising the possibility that this article's main findings may not generalize to all types of voters.

To explore this possibility, the bottom portion of Table 4 compares FEMA approval rates for November 2002 voters and nonvoters. Previous nonvoters had their applications approved at a slightly higher rate than previous voters. The likely explanation for this finding is that previous voters applied for FEMA aid more aggressively, even after controlling for wind speeds, as illustrated by the estimated Heckman selection model in Table 3. Consequently, these previous voters were more likely to be rejected, as these aggressive applications were less likely to have been justified by hurricane conditions.

To account for this issue, the upper portion of Table 4 analyzes the main equation (1) model separately for previous voters and nonvoters, as these two groups represent different self-selected samples of voters. Although the findings are consistent with the main empirical results of this article, Table 4 also isolates the source of the empirical results, demonstrating that FEMA aid primarily affects the turnout behavior of previous nonvoters, rather than previous voters. For Republicans, receiving FEMA aid causes an estimated 1.8% increase in the November 2004 turnout of previous nonvoters (Model 5), but only a 0.7% increase in the turnout of previous voters (Model 2).

FIGURE 1 Turnout Rate among FEMA Aid Recipients and Rejected Applicants



Note: Data include registered voters whose household applied for FEMA disaster aid before the November 2004 election, who were registered to vote in both the 2002 and 2004 elections, and who were either registered Democrats (left plot) or Republicans (right plot) as of the November 2004 election.

Analogously, for Democrats, receiving FEMA aid causes an estimated 1.1% decrease in the turnout of previous nonvoters (Model 4), but only a statistically insignificant decrease in the turnout of previous voters (Model 1). Hence, previous turnout indeed affects the magnitude, though not the direction, of voters' November 2004 responses to FEMA aid: overall, previous nonvoters exhibit larger turnout effects from receiving FEMA aid.

Partisan Differences in Hurricane Victimization

Did Democratic and Republican applicants in the data experience significantly different levels of hurricane victimization during the 2004 season? The data demonstrate that Republican voters in Florida were slightly more likely to be victimized by hurricanes than Democrats. Figure App.3 of the online appendix details this pattern by plotting the distribution of maximum wind speeds experienced by the individual voters of each party. This figure reveals that at the areas with the strongest hurricane winds of over 65 miles per hour, victims were more likely to be Republicans than Democrats.

To address this confounding factor, I examine whether the main findings hold when comparing Democratic and Republican applicants who experienced iden-

tical hurricane severity. To make such comparisons, Figure 1 sorts FEMA applicants into six groups, based on the hurricane wind severity observed at the applicants' respective residences. The left plot displays Democratic FEMA applicants who abstained in November 2002, while the right plot contains Republican applicants who abstained in 2002. Within each plot and within each of the six groups, Figure 1 compares the November 2004 turnout rate of FEMA aid awardees against the turnout rate of rejected applicants. This difference in turnout rate thus reflects the effect of FEMA aid on turnout within each group.

Figure 1 reveals that the main turnout findings for Republicans and Democrats hold within each of the six levels of hurricane severity. Within each level, Democrats receiving aid exhibited lower turnout rates than Democrats who were denied aid. And within each group, Republican awardees exhibited higher turnout rates than rejected Republican applicants. Hence, the main results hold when comparing Republicans and Democrats with similar hurricane victimization.

Partisan Bias in the Awarding of FEMA Aid

In addition to differences in hurricane victimization, Democrat and Republican aid applicants may have

received disparate treatment by FEMA. If partisan bias occurred, then such biased treatment by FEMA could possibly elicit either positive or negative reactions by voters, thus affecting their turnout.

Indeed, Table 4 suggests the possibility of such partisan bias by illustrating that Republican applicants (53.7%) were awarded aid at a slightly higher rate than Democratic applicants (50.2%). But the higher approval rate for Republicans also reflects the fact that Republicans were victimized by hurricanes more severely. To examine more carefully whether FEMA exhibited bias, Figure 2 considers how FEMA treated applicants of each party after controlling for two important predictors of disaster aid eligibility: (1) the hurricane severity at the applicant's home and (2) the applicant's income. Higher-income individuals are more likely to carry flood insurance, thus disqualifying them from receiving FEMA aid for damages to insured property.

To control for these two factors, Figure 2 compares the average FEMA aid awarded to Republican and Democratic applicants within each of three income categories and within each of six categories of hurricane wind severity. In Figure 2, average Republican aid awards are depicted in red triangles, while Democrats are in blue circles. Overall, this figure illustrates that within each income group and at each level of hurricane severity, Democratic and Republican applicants are treated similarly by FEMA, with no systematic pattern of Republican favoritism. In fact, the most notable partisan disparity occurs within the lowest income group, where Democrats receive slightly larger aid awards, though the magnitude of these differences is relatively small. In sum, after considering applicants' hurricane severity and household income, there is no strong evidence that FEMA engaged in individual-level targeting of Republican applicants in its distribution of aid. As a further illustration of this lack of Republican targeting, Figure App.4 of the online appendix presents additional plots that sort applicants by their estimated home values, illustrating FEMA's similar treatment of Democratic and Republican applicants within each level of home values.

Partisan Differences in Efficacy of FEMA Experiences

A related issue is that even if FEMA awarded aid equitably to Democrats and Republicans, Democratic applicants could still have been treated less efficiently by FEMA's inspectors. This potential concern is important to explore because previous literature on social programs has found that inefficient program administration can

cause political discouragement among clients. For example, Soss (1999) and Mettler and Stonecash (2008) find that poor beneficiaries of some means-tested programs, including AFDC and food stamps, exhibit lower political participation because of the stigmatizing, inefficient, and unresponsive administration of such programs.

To explore whether FEMA treated Democratic applicants more inefficiently than Republicans, I counted the number of days that elapsed from the initial filing of each application until FEMA's inspection and final disposition of the application. While most applicants waited no more than one week for an inspection, some applicants in areas with especially severe hurricane damage waited up to several weeks for FEMA to respond.

The data reveal that Democrats were not treated more slowly than Republicans. Figure App.5 of the online appendix illustrates this pattern in greater detail, showing the average wait term endured by Democratic and Republican applicants sorted by the hurricane wind severity at their respective homes. In fact, for applicants living in areas of moderate hurricane damage (45 to 85 mile-per-hour winds), Republican applicants actually waited slightly longer than Democrats for FEMA to respond, though these differences are not large.

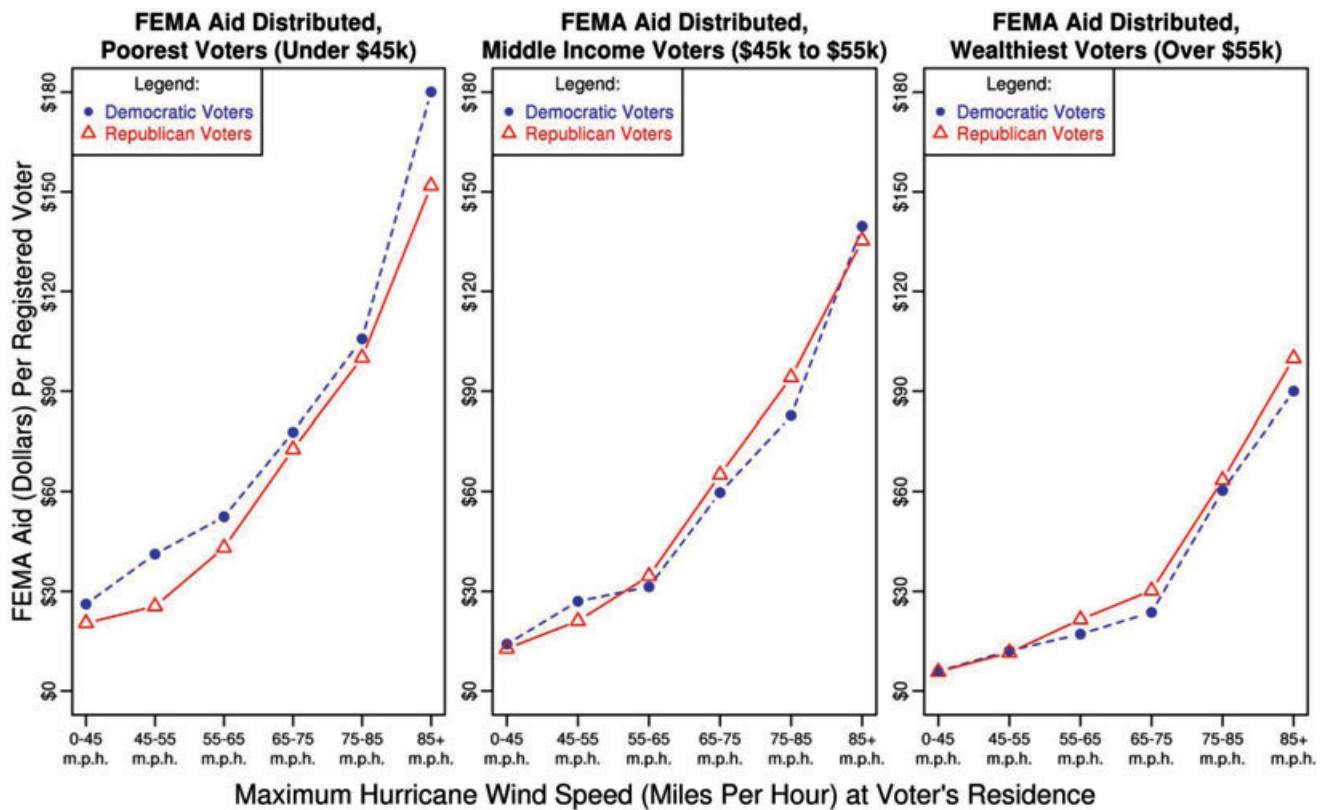
Next, having found that Democratic applications were not processed less efficiently, I examine whether applicants' waiting times affected their November 2004 turnout. Table App.6 of the online appendix reestimates all of the main Table 1 models while controlling for each applicant's *Waiting Time for FEMA Response*. The *Waiting Time* variable is never a significant predictor of turnout, and its inclusion in these models does not alter the main finding that FEMA aid decreases turnout among Democrats and increases turnout among Republicans.

Spatial Autocorrelation

Hurricane victimization occurs in a geographically clustered fashion, and the damage from the 2004 hurricane season and the ensuing disaster aid from FEMA were distributed unevenly throughout Florida. Hence, these geographic patterns raise the possibility that the main turnout results in Table 1 may be largely driven by voters in a small number of localized areas within Florida. The following two robustness checks address this possibility.

First, I test for spatial autocorrelation in the residuals of the main Table 1 turnout models. Specifically, I

FIGURE 2 The Awarding of FEMA Aid by Party, by Income Group, and by Hurricane Severity



Note: Data include all individuals who were registered to vote in both the 2002 and 2004 elections, and who were either registered Democrats (blue circles) or Republicans (red triangles) as of the November 2004 election.

calculate the residuals from Model 4 of Table 1, which predicts FEMA aid's effect on Democratic turnout. I geocoded the residuals using each voter's residential address and display a map of these residuals in Figure App.6 of the online appendix, with colors ranging from orange to blue representing the most negative to most positive residuals, respectively. Figure App.6 also presents details of a Global Moran's Index test for spatial autocorrelation. Similarly, Figure App.7 presents an analogous map and Moran's I calculations for the residuals of Model 5 of Table 1, which predicts FEMA aid's effect on Republican turnout. Together, these tests find no significant evidence of spatial autocorrelation in the residuals for either Democratic or Republican voters.

As a second test, Table App.2 of the online appendix reestimates each of the full models from Table 1 using standard errors clustered by county. While these clustered standard errors are slightly larger than the nonclustered results estimated in Table 1, the reestimated effects of FEMA aid on turnout remain statistically significant and in the same directions as before.

Republican Awardees' Motivation for Increased Turnout

A final test of this article's theory concerns the motivation of Republican FEMA recipients for increasing their turnout. This test considers the possibility that Republican awardees increase their turnout not because FEMA aid enhances their esteem for the incumbent president, but instead, because of their dissatisfaction with the FEMA aid process. If Republican awardees were generally dissatisfied with their experiences with the FEMA administration, then one would expect precincts receiving more FEMA aid awards to exhibit more electoral opposition to President Bush, even in Republican-leaning precincts.

Measuring the electoral effects of FEMA aid also represents a direct test of Hypothesis 2, which predicts that by causing increased Republican turnout and decreased Democratic turnout, FEMA aid should thereby cause an increase in President Bush's November 2004 vote share. This hypothesis logically holds only if the Republican FEMA recipients who increased their turnout rate

TABLE 5 WLS Regression: The Effect of FEMA Aid on Precinct-Level Bush Vote Share

Precincts Included:	Dependent Variable: 2004 George Bush Vote Share × 100				
	Model (1): All Precincts	Model (2): All Precincts	Model (3): All Precincts	Model (4): Democratic Precincts (< 50% Bush Vote)	Model (5): Republican Precincts (> 50% Bush Vote)
<i>Proposition 2:</i>	0.36***	0.78***	1.03***	0.58***	1.25***
FEMA Aid (Dollars Per Capita, Logged)	(0.04)	(0.04)	(0.04)	(0.07)	(0.06)
2000 G. W. Bush Vote Share	33.65***	26.16***	27.26***	17.49***	33.28***
	(1.02)	(1.03)	(0.93)	(1.34)	(1.65)
2002 Jeb Bush Vote Share	60.19***	66.50***	57.12***	61.58***	52.55***
	(1.03)	(1.03)	(1.07)	(1.39)	(1.69)
Median Household Income (\$10,000s)	–	–	0.50***	0.66***	0.29***
			(0.04)	(0.06)	(0.06)
Welfare Receipts (\$1,000s) Per Capita	–	–	–11.97***	–7.80***	–14.13***
			(2.06)	(2.68)	(3.16)
African American Proportion	–	–	–4.88***	–5.12***	–7.09***
			(0.46)	(0.60)	(1.20)
Homeowner Proportion	–	–	5.50***	3.87***	6.88***
			(0.33)	(0.41)	(0.54)
Hurricane Wind Speeds Included	No	Yes	Yes	Yes	Yes
Constant	0.77***	6.28***	7.16***	7.64***	7.45***
	(0.23)	(0.49)	(0.62)	(0.99)	(1.03)
R ²	0.93	0.93	0.94	0.93	0.80
N	5,897	5,897	5,897	2,866	3,031

*** p < .001. Standard errors in parentheses.

Note: Observations are weighted by precinct voting-age population. Democratic (Republican) precincts are those in which George Bush's share of the two-party vote in November 2000 was under (at least) 50%.

actually vote for President Bush. To test this prediction, Table 5 estimates the precinct-level relationship between FEMA aid and increased Bush vote share in November 2004, relative to November 2000. Hence, the data include only precincts that were geographically comparable across the 2000, 2002, and 2004 elections and that have provided presidential vote counts for all three elections. Of Florida's 6,616 precincts, 5,897 (89%) satisfy these criteria and are included.

To test Hypothesis 2, equation (2) regresses President Bush's 2004 precinct-level vote share onto the amount of FEMA aid each precinct's residents collectively received. The model also controls for precinct-level vote shares in the 2000 presidential election and the 2002 gubernatorial election, which the president's brother, Republican Jeb Bush, won by a margin of 56% to 43%. The full model is:

$$\begin{aligned}
 \text{Bush04}_i = & \alpha + \beta_{B00} \cdot \text{Bush00}_i + \beta_{B02} \cdot \text{Bush02}_i \\
 & + \beta_F \cdot \text{FEMA}Aid_i + \gamma \cdot x_i + \varepsilon_i, \quad (2)
 \end{aligned}$$

where Bush04_i , Bush00_i , and Bush02_i are George Bush's (November 2004 and November 2000) and Jeb Bush's (November 2002) vote shares, respectively, of the two-party vote in precinct i . $\text{FEMA}Aid_i$ is measured as $\log(\text{Dollars}_i + 1)$, where Dollars_i is the number of FEMA aid dollars per capita that residents of precinct i received during 2004 prior to Election Day. Finally, x_i represents a vector of the following control variables: the highest *Hurricane Wind Speed* measured in precinct i during each of the four hurricanes, the precinct's *Median Household Income*, the amount of *Welfare Per Capita* received by the precinct, the *African American Proportion*, and the proportion of the precinct's residents who are *Homeowners*. Finally, the full model includes county fixed effects. All observations are weighted by precinct-level voting-age population.

Table 5 reports estimates of equation (2) using the full model (Model 3), without the control variables (Model 2), and without the *Hurricane Wind Speed* measurements (Model 1). Models 4 and 5 also estimate

equation (2) separately for Democratic-leaning (Model 1) and Republican-leaning (Model 2) precincts; Democratic-leaning precincts are those which supported Al Gore over George Bush in November 2000, and Republican-leaning precincts are those with more Bush voters. Collectively, the results in Table 5 corroborate the theoretical prediction of Hypothesis 2: in both Republican and Democratic areas, the increase in Republican turnout and the decrease in Democratic turnout caused by FEMA aid both appear to positively affect Bush's vote share. In Republican-leaning precincts (Model 5), a \$100 per capita increase in FEMA aid causes a 1.0% increase in Bush's 2004 vote share; this estimate has a 95% confidence interval of +0.9% to +1.1%. In Democratic-leaning precincts (Model 4), a \$100 per capita increase in aid causes a 0.5% increase in Bush's 2004 vote share, with a confidence interval of +0.4% to +0.6%.

The online appendix presents two further robustness checks of these basic tests of Hypothesis 2. First, Table App.7 reestimates all of the Table 5 models using clustered standard errors; although the estimated clustered standard errors are larger, the overall effects of FEMA aid on Bush vote share remain statistically significant. Second, Figure App.8 presents plots of the precinct-level data to graphically illustrate the relationship between FEMA aid and Bush vote share. In each plot in this figure, the vertical axis measures each precinct's residual Bush vote share when George Bush's (2004) precinct-level vote share is regressed onto its 2000 and 2002 Bush vote shares. In other words, the residual vote share measures each precinct's *unexpected* support for President Bush in 2004, given the precinct's past pre-hurricane history of Republican voting. The horizontal axis in each plot measures the amount of FEMA aid per capita received by the residents of each precinct. The dashed line in each plot represents the population-weighted least-squares fit within each plot, illustrating the positive relationship between FEMA aid and Bush vote share.

Discussion

This article makes three new contributions to the existing literature on distributive spending and political participation. First, it illustrates that one important effect of government spending is the suppression of voter participation among opposition party constituents while simultaneously mobilizing core constituents. Past empirical studies have argued that distributive spending affects electoral outcomes by mobilizing core voter turnout (e.g., Cox and Kousser 1981; Nichter 2007) or by persuading moderate or swing voters (e.g., Dixit and Londregan 1996, 1998; Stokes 2005).

This article contributes to this literature by empirically demonstrating that in addition to the core and swing voter effects, distributive benefits may also enhance the incumbent party's electoral prospects by suppressing the opposing party's voter turnout. Previously, formal models by Heckelman (1998), Morgan and Vardy (2006), and Gans-Morse, Mazzuca, and Nichter (2009) have suggested the possibility of "negative turnout buying" or "buying abstention," whereby a party explicitly bribes opposition voters to abstain from voting. Anecdotally, Cox and Kousser (1981), Argersinger (1987), and Schaffer (2002) described historical instances in which parties may have engaged in "negative turnout buying" strategies. While the electoral impacts of FEMA aid certainly do not qualify as "negative turnout buying," they nevertheless describe a related situation in which distributive benefits persuade opposition voters to abstain from participating in an election. This article is the first to provide systematic, individual-level evidence that a party's delivery of distributive benefits can indeed depress the electoral turnout of the opposition party's voters.

Second, this article's theory explains, and the empirical results illustrate, why a nonpartisan distributive program can cause such partisan disparity in political participation. In studies of developing democracies and political machines, a discussion of swing voter (e.g., Dixit and Londregan 1996, 1998; Stokes 2005) and core voter models (e.g., Cox and McCubbins 1986; Nichter 2007) can safely presume that a political party often has the option of targeting distributive benefits to a chosen constituency primarily on the basis of partisan or ideological loyalties.

But a distinguishing feature of developed democracies is that norms of government transparency and accountability effectively preclude parties from engaging in extreme targeting of public spending. Indeed, at the individual level, there is no evidence that FEMA favored Republican aid applicants over Democrats. Hence, the article's theory assumes that a right-wing president cannot target aid to Republicans and discriminate against Democrats.

Why does this nonpartisan nature of FEMA aid cause a partisan disparity in turnout effects? As disaster aid cannot be targeted to Republicans, a right-wing incumbent who provides pre-election disaster relief can therefore credibly develop a reputation among all voters for prioritizing disaster aid. This enhanced reputation mitigates a left-wing voter's ideological opposition to the incumbent while augmenting the right-wing voter's ideological preference for the incumbent. Consequently, the left-wing aid recipient has less motivation to vote and expel the incumbent, while the right-wing recipient has increased motivation to vote and reelect the incumbent. Hence,

these dynamics produce the counterintuitive result that a nonpartisan FEMA aid program actually causes disparate partisan effects on turnout for Republicans and Democrats.

Finally, this article's results explain why distributive spending can simultaneously boost incumbent politicians' electoral fortunes (e.g., Pacek and Radcliff 1995) while also decreasing political participation among many recipients (e.g., Soss 1999). Examining cross-country voting data, Radcliff (1992) and Pacek and Radcliff (1995) argue that large welfare states may protect incumbent politicians from being punished during economic busts. Singer (2011) presents similar findings by examining incumbent vote shares in U.S. state legislative elections.

This article helps to explain why these two observed effects of welfare—depressed turnout but increased incumbent support—can emerge theoretically when one accounts for the partisan biases of the beneficiaries of distributive programs. The delivery of distributive benefits lowers the turnout of voters who were already disinclined to support the incumbent government. This lower turnout among opposition voters effectively increases the incumbent's vote share and reelection chances. Hence, the findings suggest that politicians benefit electorally even when they deliver aid to voters who are ideologically opposed.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table App.1: Partisan Composition of FEMA Aid Applicants

Table App.2: Re-estimation of Table 1 Models Using Clustered Standard Errors: Effect of FEMA Application Approval on Voter Turnout Among FEMA Applicants

Table App.3: Effect of FEMA Aid Delivered One Week Before the November 2004 Election

Table App.4: Effect of FEMA Award Size on Voter Turnout Among FEMA Applicants

Table App.5: Alternative Specifications of Logged FEMA Aid Models

Table App.6: Effect of FEMA Responsiveness on Voter Turnout Among Applicants

Table App.7: Re-estimation of Table 5 Models Using Clustered Standard Errors WLS Regression: The Effect of FEMA Aid on Precinct-Level Bush Vote Share

Figure App.1: Distribution of FEMA Aid Across Individuals

Figure App.2: FEMA Aid Recipients for Hurricane Charley (FEMA Disaster #1539)

Figure App.3: Hurricane Wind Speeds Experienced by Democratic and Republican Voters

Figure App.4: The Awarding of FEMA Aid by Party, by Home Value Group, and by Hurricane Severity

Figure App.5: Efficacy of FEMA Application Process for Democratic and Republican Applicants

Figure App.6: Spatial Autocorrelation of Residuals from Table 1, Model 4 (Democratic Applicants)

Figure App.7: Spatial Autocorrelation of Residuals from Table 1, Model 5 (Republican Applicants)

Figure App.8: Effect of FEMA Aid on Bush Vote Share in Democratic and Republican Precincts

The Formal Model

Formal Model Proofs

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