The Political Economy of FEMA Disaster Payments

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Thomas A. Garrett
and
Russell S. Sobel*

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Abstract

We find that presidential and congressional influences affect the rate of disaster declaration and the allocation of FEMA (Federal Emergency Management Agency) disaster expenditures across states. States politically important to the president have a higher rate of disaster declaration by the president, and disaster expenditures are higher in states having congressional representation on FEMA oversight committees. Election year impacts are also found. Our models predict that nearly half of all disaster relief is motivated politically rather than by need. The findings reject a purely altruistic model of FEMA assistance and question the relative effectiveness of government versus private disaster relief.

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Thomas A. Garrett
Research Division
Federal Reserve Bank of St. Louis
St. Louis, Missouri 63102

Russell S. Sobel
Department of Economics
West Virginia University
Morgantown, West Virginia 26506

"*Disasters are very political events.*" - Former FEMA Director James Lee Witt[1]

I. INTRODUCTION

A central contribution of public choice theory to the analysis of government activity is in viewing the activities of government, not as determined by some single altruistic dictator, but rather as the result of a process involving individual political agents who react to the incentives they face. This somewhat skeptical view of government provided by the public choice approach can be hard for many people to accept, particularly those who believe that in many important cases such as regulation, income redistribution, tax collection, and general government spending for the "public good" that the government acts to maximize public welfare; and that individuals in political power will put aside their personal self-interests in favor of the public good. In these cases then, where people would imagine the government acting benevolently, it is most important to test the predictions of the public choice model.

Tests of the public choice model to various cases of government activity have their basis in what has been called the congressional dominance model, which postulates that bureaus are very responsive to the wishes of congress. As discussed by Moe (1987, 1997), Weingast and Moran (1983), and Weingast (1984), the model suggests that congressional committees having both budget and oversight responsibilities see that bureaucrats implement the policy preferences of the legislators (legislators are wealth maximizers); and that the executive branch behaves as an electoral vote maximizer. There have been several empirical tests of various forms of the congressional dominance model. Wright (1974), Anderson and Tollison (1991), and Couch and Shughart (1997) find that New Deal spending across states was correlated with congressional

power and the importance of a state's electoral votes in the next presidential election. In a study of Federal Reserve policy, Grier (1987) finds that Fed policy is influenced by changes in the leadership of the Senate Banking Committee. Faith, Leavens, and Tollison (1982) show that Federal Trade Commission (FTC) case rulings tend to be more favorable for firms with headquarters in a district having representation on FTC congressional oversight committees. Finally, Young, Reksulak, and Shughart (2001) present strong evidence that Internal Revenue Service (IRS) audit rates are substantially lower in states that are politically important in the next presidential election, and are also substantially lower in the congressional districts of members on key congressional committees overseeing the IRS.

Here we examine whether congressional and presidential influences affect the rate of disaster declaration and the allocation of federal disaster relief payments made by the Federal Emergency Management Agency (FEMA).[2] This paper has several distinct advantages over earlier works on congressional dominance, afforded by the unique nature of disaster declaration and relief. The potential exists for political influence to impact the process at two distinct stages; whether or not a disaster is declared, and then how much money is allocated for the disaster. After a disaster strikes a particular area, the governor makes a request to the president for disaster assistance. After receiving a governor's request, the president then decides whether or not to declare the state or region a disaster area. Only after a disaster has been declared by the president can disaster relief be given. FEMA is in charge of determining the level of relief funding for the area, but further appropriations are determined by Congress in cases requiring large amounts of funding beyond FEMA's allocated budget.

FEMA was created by an executive order of President Carter in 1979 that essentially merged together many separate disaster relief agencies that had already been in existence. FEMA is responsible for allocating federal money to areas that have been adversely impacted by natural disasters such as hurricanes, earthquakes, tornadoes, fires, and severe flooding. However, a great deal of FEMA funding is also allocated for more minor weather phenomenon such as thunderstorms, snow storms, and ice storms. FEMA disaster relief is based on the idea that federal aid is necessary to supplement state and local relief. On average, FEMA provides annual relief expenditures of about $3 billion for about 50 declared disasters each year. Relief varies greatly from year to year, however, and hit a high in 1994 when FEMA disaster expenditures exceeded $8 billion.

The vast majority of FEMA operations and expenditures are undertaken under the rules and processes established by the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288), hereafter referred to as the Stafford Act. This act establishes the process for requesting a Presidential disaster declaration, defines the types of relief that are available for relief expenditures, and also the conditions for obtaining assistance. From a budgetary standpoint, expenditures under the Stafford Act come from the portion of FEMA's budget known as the President's Disaster Relief Fund. In addition to FEMA's activities under the Stafford Act, there are several additional, smaller programs undertaken outside the Stafford Act such as the flood insurance program and the U.S. Fire Administration.

The activities of FEMA are subject to congressional oversight by several committees. In the House of Representatives, for example, there are four committees partially responsible for the oversight of FEMA. Two of these committees oversee the activities of FEMA under the Stafford

Act, while the other two oversee the smaller, non-Stafford Act activities. A similar process is present on the Senate side of FEMA congressional oversight.

Sources of Political Influence

The process for FEMA disaster relief suggests there are two potential sources by which political influence may enter into the FEMA disaster relief process, both of which we test empirically. The first avenue of political influence is in the process of disaster declaration. Disaster declaration is solely in the hands of the president. The Stafford Act also provides the president no concrete set of criteria on which to declare a disaster. Given that disaster declaration is a decision left entirely to the president, and because there is such a wide range of possible weather phenomenon for which disasters may be declared, it is possible that he may be more likely to declare a disaster in a state that is politically important. Also, because the Stafford Act allows the president to unilaterally declare a disaster without the approval of congress, it is possible that the president may use this power to punish or reward legislators who support or oppose his policies, or just simply tarnish the image of opposing party legislators in hopes of reducing their probability of reelection.

The potential for presidential political manipulation is in part due to the wording of the Stafford Act, which was made more general in 1988. Federal assistance under the Stafford act should be awarded when the incident "is of such severity and magnitude that effective response is beyond the capabilities of the state and the affected local governments and that federal assistance is necessary." The vague language of what constitutes a disaster means that an official federal disaster could have occurred whenever the president said it did. In fact, before the Stafford Act

was modified in 1988, the average number of disasters a year between 1983 and 1988 was 25. Between 1989 and 1994, the average number of disasters a year increased to 41.

The second avenue of political influence may occur through congressional oversight. This is spurred by the important fact that the Stafford Act specifically prohibits the use of any arithmetic formula to determine disaster relief to any geographic area. In other words, there are no set criteria on which levels of FEMA disaster expenditures are based. It is important for the agency to be in good standing with the oversight committees, as these committees can have considerable influence over the agency. In 1992, for example, the House Appropriations Committee found evidence of excessive and wasteful spending by several senior executives at FEMA, such as chauffeur-driven cars. The Appropriations Committee readily cut several executive positions and reduced the budgets of others.[3] Given the power of oversight committees, it is thus possible that states that are represented on these committees overseeing FEMA receive a disproportionately larger amount of money for disaster relief to remain in the good graces of the oversight committees.

II. DATA DESCRIPTION

This section provides an overview of several key variables we use in our empirical tests of political influence on disaster declaration and expenditures.

FEMA Disaster Expenditures

FEMA disaster expenditures were obtained for all 50 states over the period 1991 to 1999. These include expenditures on all declared disasters, such as earthquakes, floods, snowstorms,

hurricanes, tornados, etc. The expenditure data are censored in that not every state in a given year had a disaster declared, so some observations take the value of zero.[4] An examination of the raw data reveals that some states received significantly higher disaster relief than other states over the nine year sample period. The top ten and bottom ten states in terms of disaster relief received (1996 dollars) are shown in Table 1. Not surprising is the finding that the bigger, more populated states like California, Florida, and Texas received significantly more funding, as these states along with several others in the top ten are subject to relatively common disasters such as earthquakes, hurricanes, flooding, and tornados.

The raw data also allows an interesting examination of recent major disasters and the level of relief received. Many Midwestern and southern states bordering the Mississippi river had significantly higher FEMA disaster relief in 1993 than in other years due to the massive floods that year. In 1992, the year of hurricane Andrew, Florida received $1.86 billion in FEMA disaster expenditures, or roughly 72% of Florida's total disaster expenditures received over the sample period. Similarly, of California's $8.87 billion in disaster relief over the sample period, $7.24 billion was received in 1994, the year of the Northridge earthquake.

FEMA Oversight Subcommittees

Are disaster expenditure levels solely a result of the natural occurrence and size of the disaster, or does congressional influence also determine disaster expenditure levels? To explore whether those states having greater representation on FEMA oversight committees receive higher FEMA disaster expenditures, we researched which House and Senate subcommittees have FEMA oversight responsibilities, and how many legislators from each state for a given year serve on each

oversight subcommittee. This information was obtained from the *Almanac of American Politics* over various years and was confirmed by FEMA.

There are a total of nine subcommittees that oversee FEMA, four in the House of Representatives and five in the Senate. Of the four subcommittees in the House, two oversee major disaster funding (the Stafford Act) and two oversee more minor FEMA programs such as fire prevention, flood insurance, and earthquake safety programs. In the Senate, two subcommittees also oversee disaster expenditures and three oversee other FEMA programs. In the House, the two subcommittees that oversee disaster relief under the Stafford Act are 1) the Water, Resources, and Environment subcommittee of the Transportation and Infrastructure Committee, and 2) the Veterans Administration, Housing and Urban Development, and Independent Agency subcommittee of the House Appropriations Committee. In the Senate, the two Stafford Act oversight subcommittees are 1) the Clean Air, Wetlands, Private Property and Nuclear Safety subcommittee of the Environment and Public Works Committee, and 2) the Veterans Administration, Housing and Urban Development, and Independent Agency subcommittee of the Senate Appropriations Committee.

The non-Stafford Act oversight committees are, in the House, 1) the Basic Research subcommittee of the Science Committee, which oversees the U.S. Fire Administration and the Earthquake program, and 2) the Housing and Community Opportunity subcommittee of the Banking and Financial Services Committee, which oversees the Flood Insurance Program. In the Senate, the three subcommittees are 1) the Oversight of Government Management and District of Columbia subcommittee of the Government Affairs Committee, 2) the Housing Opportunity and Community Development subcommittee of the Banking, Housing, and Urban Affairs Committee,

and 3) the Science, Technology, and Space subcommittee of the Commerce, Science, and Transportation Committee.

The number of members on each of the nine subcommittees is relatively constant over the years, although membership can vary. A listing of each subcommittee and the average number of members on each committee over the period 1991 through 1999 is provided in Table 2. In addition, membership is not uniform across the states - some states may have more than one legislator on an oversight subcommittee, whereas other states may have no legislators on a subcommittee.

Presidential Influence

Federal disaster declaration is open to political influences because there are no established set of criteria the president uses when deciding whether or not to declare a disaster; and the president has unilateral authority to declare a disaster. The process of disaster declaration involves the governor of the affected state contacting the president, with the president making the final decision as to whether or not a disaster is declared. The public choice model predicts that those states politically important to the president are likely to have more disasters declared. In fact, an article in the September 1996 issue of *The American Spectator* summarized several stories from the nation's top newspapers documenting that many states who had bonafide disasters were overlooked while electoral vote-rich states, such as California and Florida, had disasters declared in the wake of mild natural occurrences.[5] Downton and Pielke (2002) provide evidence of this by showing that presidential flood declarations are greater in election years where the president is running for reelection.

Willet (1989) and Tabellini and Alesina (1990) suggest the political importance of each state can be measured by its expected number of electoral votes. We construct a measure, which we term 'electoral importance,' that considers that the president has an greater incentive to declare more disasters in those states where his chance of reelection is near 50% (i.e. battle-ground states), compared to states where his chances are greater than or less than 50%. To compute our measure of electoral importance, we first calculated the percent of presidential elections from 1956 to 1996 that were won by a Democrat.[6] This percentage was then entered into a formula that produces a maximum value of one if the percent of elections won is 50%, and has a value that symmetrically decreases to zero as the percentage of elections won approaches either 0% or 100%.[7] This value is then multiplied by the number of electoral votes in each state (from the *Federal Registrar*) to give us our electoral importance variable. Thus, if the president has a 50-50 chance of winning a state, then the electoral importance of that state is equal to the state's number of electoral votes, whereas a 0% or 100% chance of winning a state provides an electoral importance of zero.

State governors often serve as the link between the president and a state's constituency, especially in election years. Governors are often seen beside the president as he tours or campaigns in the state. During election years governors of the same political party as a presidential candidate often publicly offer their endorsement of the candidate. Governors also offer public comments on the president's agenda. Whether the comments are favorable is surely dependent upon the political party affiliation of the governor and the president. Given these relationships between governors and the president, the public choice model suggests that the president may declare more disasters in those states whose governor is of the same political party

as the president. We include a dummy variable that accounts for this relationship that has a value of one if the governor from state *i* in year *t* is from the same political party as the president, and has a value of zero otherwise.

Finally, because the Stafford Act allows the president to unilaterally declare a disaster without the approval of congress, it is possible that the president may use this power to punish or reward legislators. A Democratic president may decide not to declare a disaster in a state with predominately Republican representation in congress, either to punish the legislators for not supporting his policies or just to hurt the legislators politically, especially in congressional election years. In addition, disaster declaration may act as a sort of log-rolling between the president and congress. The ability of the president to use disaster declaration as a political tool, however, is tempered by the severity of the disaster and the nationwide attention it receives. We compute for each year the percent of legislators from each state in the U.S. Congress that are Republican and the percent of legislators from each state in the U.S. congress that are Democrats. For years in our sample in which George H. Bush was president this congress variable is the percent of legislators from each state that are Republican, and for Bill Clinton years the congress variable is the percent of legislators from each state that are Democrat.

Controlling for Disaster Size

Of course, disaster declaration and expenditure levels are directly related to the severity of an actual disaster besides the possible political influence of oversight committees and the president. In order to evaluate the impact of oversight committee membership and presidential influence on disaster expenditures and declarations, it is important that we control for the size of

the natural disaster in our empirical models. We consider two variables that serve as measures for the size of a disaster. One variable is the dollar amount of private property insurance claims due to natural disasters, provided by the American Insurance Services Group, Inc. This variable is available by state by year, and is simply the total dollar amount of private property insurance claims that were filed as a result of a natural disaster. The second variable is Red Cross financial disaster assistance, which includes monetary payments to individuals and families along with food, medicine, etc. It is expected that the Red Cross financial assistance variable and the private insurance claims variable are both directly related to the level of FEMA disaster expenditures.[8] Thus, if we think of total FEMA disaster assistance as having both an altruistic component (based on the severity of the disaster) and a politically motivated component, by including the Red Cross and private insurance variables in the regression we can control for the severity component, and isolate the politically motivated component of FEMA expenditures.

III. EMPIRICAL METHODOLOGY

This section presents the two empirical models we use to test for political influence over disaster declaration and FEMA disaster expenditures. Recall that the disaster declaration relief process is that the president decides whether or not to declare the state or region a disaster area after receiving a request from the governor. Only after a disaster has been declared by the president can relief be provided by FEMA. The first model we present accounts for those factors, political and otherwise, influencing the rate of disaster declaration by the president. The second model explores the factors influencing FEMA disaster expenditures to states, namely

whether states having greater representation on FEMA oversight committees receive higher FEMA disaster payments.

A Model of Presidential Disaster Declaration

The number of presidential disaster declarations by state by year was provided by FEMA. Over the period 1991 through 1999, the number of presidential disaster declarations ranged from 98 in Texas to one in Wyoming. Florida and California had 23 and 16 disasters declared, respectively. Most states had between one and 20 disasters declared over the sample period. To explore the determinants of presidential disaster declaration, one could, using ordinary least squares (OLS), regress the number of presidential disasters declared in state *i* in year *t* on a vector explanatory variables, including state electoral importance and the governor dummy variable.[9] However, the count nature of the dependent variable will render OLS inconsistent, as well as introduce heteroscedasticity into the model. The number of disasters declared, like the disaster expenditure variable, is censored. Also, the non-zero observations take values of y_{it} = 1, 2, 3, etc., depending upon the number of disasters the president declared. To consider the count-nature of the dependent variable we estimate the disaster declaration model using a Poisson regression model.

The basic Poisson model (see Greene, 2000) is:

$$(1) \qquad Prob(Y_{it} = y_{it}) = (e^{-\lambda_{it}} \lambda_{it}^{y_{it}})/y_{it}!, \qquad y_{it} = 0,1,2,3,.....$$

where λ_{it} is the average number of occurrences (in this case disasters declared) within the given space and time interval (state and year). It is commonly assumed that λ_{it} takes the form:

(2) $$\ln \lambda_{it} = \beta' \mathbf{x}$$

Given the nonlinear nature of the model, maximum likelihood is the favored estimation approach. The likelihood function for (1) can be written, using (2), as:

$$lnL = ln\left[e^{-\lambda_{it}} \lambda_{it}^{y_{it}}) / y_{it}!\right]$$

(3) $$\ln L = \sum_{i=1}^{n} \sum_{t=1}^{T} [-\lambda_{it} + y_{it} \ln \lambda_{it} - \ln y_{it}!]$$

Estimating (3) will provide coefficient estimates, and finding $\partial E[y_{it} | \mathbf{x}] / \partial \mathbf{x}$ provides the marginal effects. These measure the impact of each explanatory variable on the mean rate of occurrence for disaster declaration.

We anticipate the electoral importance variable to be positive, suggesting that the rate of disaster declaration is higher in those states that are politically important to the president. If the president rewards governors of the same political party, then the governor variable should be positive. If disaster declaration is used as a tool by the president to politically help legislators of the same political party (or harm legislators of the opposing political party), a positive relationship is expected between the congress variable and the rate of disaster declaration. We also include per capita income to explore whether relatively wealthier states receive more or less favorable treatment by the president, along with a set of regional and year dummy variables to control for unobserved state and time effects. The coefficient estimates for the 1992 and 1996 year dummy variables are reported to reveal any differences in the mean rate of presidential disaster declaration during an election year (1991 is the omitted category).[10] In an attempt to control for the actual

number of disasters in the state that year, we also include the number of disasters declared by private insurance companies as an independent variable in the regressions.[11]

A Model of FEMA Disaster Expenditures

We examine the impact of oversight committee membership on FEMA disaster expenditures by regressing FEMA disaster expenditures on several subcommittee variables and other explanatory variables. The models take the form:

(4) $$y_{it}^* = \beta X + e_{it}$$
$$y_{it} = 0 \text{ if } y_{it}^* \# 0,$$
$$y_{it} = y_{it}^* \text{ if } y_{it}^* > 0$$

Given the censored nature of the dependent variable, performing OLS on equation (4) will result in inconsistent coefficient estimates. A tobit regression model is used to account for the censored data and arrive at consistent coefficient estimates. The tobit coefficients each measure the impact of the explanatory variable on the dependent variable given that a disaster has been declared (positive values of y_{it} only). The marginal effects are each interpreted as the effect of the explanatory variable on the expected value of the dependent variable, incorporating both their effect on the probability a disaster is declared and the level of disaster expenditures. Whether one is interested in the tobit coefficients or the marginal effects depends upon the question at hand. Although we generate both estimates, we are primarily interested in the tobit coefficients.

We generate two oversight subcommittee variables to test whether states having greater representation on Stafford Act and non-Stafford Act oversight subcommittees receive higher

FEMA disaster payments. One variable represents the total number of legislators from state *i* in year *t* that serve on one or more of four the Stafford Act oversight subcommittees (shown in Table 2). The other variable represents the total number of legislators from state *i* in year *t* that serve on one or more of the five non-Stafford Act FEMA oversight subcommittees. For any state within a given year, subcommittee membership by state ranges from zero to seven for all of the Stafford Act oversight committees, and ranges from zero to ten for all of the non-Stafford Act subcommittees. Membership by state also varies year to year in terms of the number of legislators on each subcommittee from each state. Although we expect both subcommittee variables to be positive and significant, we also expect the Stafford Act oversight subcommittee variable to be larger than the non-Stafford Act oversight subcommittee variable since the Stafford Act directly involves disaster relief, the primary function of FEMA.

We then separated the Stafford Act and non-Stafford Act variables to explore any differences between Senate and House subcommittees. Senators and representatives face different median voters. Also, given that disasters are normally isolated to a small geographic area, one might expect House members from the impacted district to be more responsive to the disaster (and thus exert more influence) than a Senator from the same state. This is because for most natural disasters, a House member will have a higher percentage of his or her constituency impacted by the disaster than a Senator from the same state. The benefit FEMA can provide a legislator on an oversight committee in terms of increased votes or support is thus higher for Representatives than it is for Senators. In this environment, Goff and Grier (1993) suggest that Senators will be less politically effective and less likely to apply influence relative to House members. Furthermore, as noted in the paper's introduction, it was the House Appropriations

committee that took action against excessive spending at FEMA. This suggests that FEMA may be more responsive to this and possibly other House committees.

To explore these possible differences between Senate and House subcommittees, we separated the Stafford act variable into two new variables, one reflecting House subcommittees overseeing the Stafford Act and the other reflecting Senate subcommittees overseeing the Stafford Act. Similarly, we divided the variable for non-Stafford Act oversight subcommittees into both a Senate variable and a House variable.

Other variables in the disaster expenditure model include private insurance property claims from natural disasters and Red Cross financial disaster assistance. These variables control for the size of the disaster and are expected to be positive. As in the disaster declaration model, we also include regional and year dummy variables with the 1992 and 1996 dummy variables reported to reveal differences in the mean level of disaster expenditures during an election year. Finally, the number of FEMA disasters declared is included in the models because the number of disasters declared is a determinant of the probability that the expenditure variable is non-zero.

IV. EMPIRICAL RESULTS

Presidential Disaster Declaration

The results from three different Poisson regressions are shown in Table 3.[12] The first specification only includes the number of private insurance disaster declarations and state economic variables. The second specification includes the congress variable and the governor dummy variable, and the third specification includes the electoral importance variable. All specifications contain regional and year dummy variables.[13]

As expected, the private insurance disaster declaration variable is positive and significant in all three specifications. Per capita income is significant in the third specification only, providing slight evidence that states having higher per capita income have a lower rate of disaster declaration than lower income states, possibly suggesting lower income states are favored over higher-income states.

We find evidence that certain political incentives facing the president significantly impact the rate of disaster declaration. Those state having a higher electoral importance have a higher rate of presidential disaster declaration. This finding is consistent with Downton and Pielke's (2002) finding that a greater number of floods are declared by the president in election years. We also find evidence that the mean rate of presidential disaster declaration was higher during election years compared to a non-election year (1991). The mean rate of disaster declaration during an election year was higher for Bill Clinton than George H. Bush. The coefficients on the 1996 election year dummy variable are greater in magnitude than all other year dummy variables, suggesting that the mean rate of disaster declaration in our sample was highest in the year of Bill Clinton's reelection campaign. We find no evidence that those states having a governor of the same political party as the president have, on average, a higher rate of disaster declaration. The insignificant coefficient on the congress variable suggests that disaster declaration in a state is not influenced by the political party of the state's legislators, suggesting that the president does not punish legislators of the opposing political party.

Several results from our disaster declaration regressions support the public choice model that political agents respond to the incentives they face. Evidence clearly shows that the rate of disaster declaration across states is not only a function of disaster occurrence, but is determinant

on the political benefits that a state can offer to the president. In the next section we explore whether political incentives impact the distribution of FEMA disaster expenditures, given that a disaster has been declared by the president.

FEMA Payments and Congressional Influence

An important issue that arises regarding the estimation of the disaster expenditure models is the possible endogeneity of the subcommittee variables, thus resulting in possible biased coefficient estimates. The question is, are legislators from states having relatively more disasters more likely to be on a FEMA oversight committee than legislators from less disaster-prone states? Weingast and Marshall (1988) provide evidence that, at least to some degree, legislators will attempt to self-select to those oversight committees that are relevant to their constituents' interests. To test for the endogeneity of the committee variables within a tobit framework, we follow the procedure outlined in Smith and Blundell (1986). The procedure involves regressing the committee variables on the explanatory variables in Table 4 (and other identifying variables), keeping the residuals from these regressions, and including the residuals in the final tobit model.[14] A Wald test (distributed as χ^2) is then conducted on the null hypothesis that the residual slopes are jointly equal to zero (no endogeneity). We computed a Wald statistic for the two models containing subcommittee variables. The Wald statistic for the endogeneity test of the two subcommittee variables shown in model (2) was 4.90, and the Wald statistic was 4.68 for the endogeneity test of the four committee variables in model (3). Both Wald statistics are less than the χ^2 critical values of 5.99 and 9.49, respectively. The results suggest that the committee variables are not endogenous.[15]

We regress FEMA disaster expenditures in state *i* in year *t* (including the observations with values of zero) on private insurance disaster payments, Red Cross disaster assistance, the number of FEMA disasters declared, regional and year dummies, and the oversight subcommittee variables.[16] The coefficient estimates from the three tobit regressions are shown in Table 4.[17] All three specifications reveal that private insurance disaster payments and Red Cross disaster assistance are directly related to FEMA disaster expenditures, as expected.

We find strong evidence that political incentives are significant determinants of FEMA disaster relief payments. The Stafford Act oversight subcommittee variable in model (2) is positive and significant, revealing that those states having greater representation on FEMA oversight subcommittees received higher FEMA disaster relief. This finding and the fact that the non-Stafford Act oversight variable is not significant supports the greater influence that Stafford Act subcommittees have on disaster relief compared to non-Stafford Act subcommittees.

Model (3) breaks the Stafford Act and non-Stafford act variables into separate Senate and House variables. The evidence supports the hypothesis that FEMA is more likely to be responsive to House members. House members have a higher percentage of their constituency impacted by a disaster than a corresponding Senator, and it was the House Appropriations Committee that reprimanded FEMA in the past for excessive spending.

We also find evidence that the average level of disaster expenditures during election year 1996 (Bill Clinton's reelection year) was significantly greater than during a non-election year - roughly $140 million higher. Only 1994 (the year of the Northridge earthquake in California) had a higher average level of relief than 1996. The average level of disaster expenditures in 1992 (George H. Bush's reelection year) was not significantly different than the previous year.

The results from model (2) suggest that, on average, states having legislators on a Stafford Act oversight subcommittee received an additional $26 million in FEMA disaster expenditures for each legislator on a subcommittee. Model (3) reveals that states having House members on a Stafford Act oversight subcommittee received an additional $36.5 million, whereas House members on non-Stafford Act subcommittees generate $25 million. The average impact for a state having a House member on a FEMA oversight committee is roughly $31 million in additional disaster relief for each House member on a subcommittee.

The tobit coefficients in Table 4 measure the impact of each subcommittee variable on FEMA disaster payments given that a disaster has been declared. The marginal effects of each variable show the impact each variable has on the expected level of FEMA disaster payments, considering both the impact on the probability of disaster declaration and the level of expenditures once a disaster has been declared. The marginal effects from the three regressions in Table 4 are shown in Table 5. The marginal effects also provide significant evidence of congressional influence over the level of FEMA disaster payments, with the results directly supporting those shown in Table 4.

FEMA Payments - How Much Is Due to Political Influence?

Although we have shown that congressional oversight impacts the level of FEMA disaster relief in a state, it is interesting to calculate how much of total FEMA disaster relief over our sample period is motivated politically rather than by disaster severity or frequency. The predicted values (for non-zero observations only) from the regressions shown in Table 4 are the predicted level of total FEMA disaster expenditures given that a disaster has been declared. The level of

FEMA disaster payments that are a result of congressional oversight can be computed by multiplying the significant coefficient estimates from each oversight subcommittee variable by the actual number of legislators on each type of subcommittee (Stafford or non-Stafford), and then summing over each significant subcommittee variable. The ratio of this value to the total level of FEMA expenditures gives the percent of total FEMA payments that are due to political influence. This calculation for model (3) suggests that 44.5% of total FEMA disaster payments are due to Representative membership on FEMA oversight committees. Based on our data, sample period and estimated coefficients, this simulation suggests that nearly half of all FEMA disaster relief is explained by political influence rather than actual need.

V. SUMMARY & CONCLUSION

In this paper we examined how congressional and presidential influence impacts FEMA disaster expenditures across the states. Using state level FEMA disaster expenditure data from 1991 through 1999, we explore whether those states that are politically important to the president receive higher FEMA disaster expenditures than other states. We also explore whether FEMA disaster expenditures are higher in those states having congressional representation on FEMA oversight subcommittees.

The process of disaster declaration and funding lends itself well to empirical testing. After a disaster strikes a particular area, the governor makes a request to the president for disaster assistance. After receiving a governor's request, the president then decides whether or not to declare the state or region a disaster area. If a disaster has been declared by the president, congress and FEMA then decide upon the appropriate funding amount. In addition, under the

Stafford Act the President has the authority to declare a disaster without the approval of congress. This fact offers an unique opportunity to explore how the president uses this power.

We find evidence that those states politically important to the president have higher rates of disaster declaration. Also, the mean level of disaster declaration is found to be higher in certain election years compared to non-election years. We find no evidence that the president uses his disaster declaration power to politically harm legislators of the opposing political party (or help legislators of his own party), or that states having a governor who is from the same political party as the president receive higher levels of disaster relief. We find strong evidence that once a disaster is declared, disaster expenditures are higher in those states having congressional representation on FEMA oversight subcommittees. Our estimates suggest that for each House member on an oversight subcommittee (which directly oversees disaster expenditures), states receive an average of $31 million in excess disaster expenditures for each Representative on a committee. Of all FEMA disaster relief provided over the sample period, our models suggest that nearly half of this total is due to political influences rather than by need.

Although FEMA is often promoted as a savior for individuals and communities hit by a disaster, we find evidence that disaster declaration and the level of FEMA disaster expenditures are both politically motivated. These findings cast doubt on FEMA's altruistic goal of financial assistance to those most in need, and questions the role of government versus private agencies in providing disaster relief.

References

Anderson, G. M. and R. D. Tollison. "Congressional Influence and Patterns of New Deal Spending, 1933-1939." *Journal of Law and Economics*, 34(1), 1991, 161-75.

Cameron, A. C. and P. K. Trivedi. "Regression Based Tests for Overdispersion in the Poisson Regression Model." *Journal of Econometrics,* 46(3), 1990, 347-64.

Couch, J. F. and W. F. Shughart II. *The Political Economy of the New Deal*. Cheltenham, UK and Northampton, Mass: Edward Elgar, 1997.

Downton, M. W. and R.A. Pielke, Jr. "Discretion Without Accountability: Politics, Flood Damage, and Climate." *Natural Hazards Review,* 2(4), 2002, 157-66.

Faith, R. L., D. R. Leavens, and R. D. Tollison. "Antitrust Pork Barrel." *Journal of Law and Economics,* 25(2), 1982, 329-42.

Goff, B. L. and K. B. Grier. "On the (Mis)measurement of Legislator Ideology and Shirking." *Public Choice,* 76(1-2), 1993, 5-20.

Greene, W. H. *Econometric Analysis*. Upper Saddle River, New Jersey: Prentice Hall, 2000.

Grier, K. B. "Presidential Elections and Federal Reserve Policy: an Empirical Test." *Southern Economic Journal,* 54, 1987, 475-86.

May, P. J. *Recovering from Catastrophe: Federal Disaster Relief Policy and Politics.* Westport, Connecticut: Greenwood Press, 1985.

Moe, T. M. "An Assessment of the Positive Theory of Congressional Dominance." *Legislative Studies Quarterly,* 12, 1987, 472-520.

Moe, T. M. "The Positive Theory of Public Bureaucracy," in Dennis C. Mueller (ed.), *Perspectives on Public Choice: A Handbook*, New York: Cambridge University Press, 1997, 455-80.

Platt, R. H. *Disasters and Democracy: The Politics of Extreme and Natural Events.* Washington, D.C: Island Press, 1999.

Smith, R. J. and R. W. Blundell. "An Exogeneity Test for a Simultaneous Equation Tobit Model with an Application to Labor Supply." *Econometrica,* 54(3), 1986, 679-85.

Tabellini, G. and A. Alesina. "Voting on the Budget Deficit." *American Economic Review,* 80(1), 1990, 37-49.

Weingast, B. R. "The Congressional-bureaucratic System: a Principal Agent Perspective (with applications to the SEC)." *Public Choice,* 44(1), 1984, 147-91.

Weingast, B. R. and M. J. Moran. "Bureaucratic Discretion or Congressional Control? Regulatory Policy-making by the Federal Trade Commission." *Journal of Political Economy,* 91(5), 1983, 765-800.

Weingast, B. R. and W.J. Marshall. "The Industrial Organization of Congress; or, Why Legislatures, like Firms, Are Not Organized as Markets." *Journal of Political Economy,* 96(1), 1988, 132-63.

Willet, T. D. *Political Business Cycles: The Political Economy of Money, Unemployment and Inflation*. Durham, North Carolina: Duke University Press, 1989

Wright, G. "The Political Economy of New Deal Spending." *Review of Economics and Statistics,* 56(1), 1974, 30-58.

Young, M., M. Reksulak, and W. F. Shughart II. "The Political Economy of the IRS," *Economics and Politics,* 13(2), 2001, 201-20.

Footnotes

* An earlier version of this paper was presented at the 2001 Public Choice Society meetings in San Antonio, Texas and the 2001 Southern Economic Association annual meetings in Tampa, Florida. We have benefited from the helpful comments of an anonymous referee of this journal, and discussions with Daniel Sutter, Jacob Gersen, John Charles Bradbury and Brian Knight, as well as other program participants. Remaining errors are our responsibility. The views expressed here are those of the authors and do not necessarily reflect official positions of the Federal Reserve Bank of St. Louis, the Federal Reserve System, or the Board of Governors.

Garrett: Senior Economist, Research Division, Federal Reserve Bank of St. Louis, St. Louis, MO 63102. Phone 1-314-444-8601, Fax 1-314-444-8731, E-mail tom.a.garrett@stls.frb.org

Sobel: Associate Professor, Department of Economics, West Virginia University, Morgantown, WV 26506. Phone 1-304-293-7864, Fax 1-304-293-5652, E-mail rsobel2@wvu.edu

1. Testimony to the United States Senate, April 30, 1996.

2. May (1985) and Platt (1999) further discuss the politics and process of federal disaster relief.

3. "House Panel Slashes FEMA request." *Washington Post*, July 28, 1992, Page A17.

4. Of the 450 observations on disaster expenditures, 162 had a value of zero. Over the nine year sample period all 50 states received some disaster relief.

5. "FEMA Money! Come and Get It!" *The American Spectator,* September 1996.

6. Source: *America Votes,* various years.

7. The formula we used is $Y = 1 - 4 \cdot (X - 0.5)^2$, where X is the percent of presidential elections between 1956 and 1996 won by a Democrat and Y is the weighting factor having a maximum value of one at $X = 50\%$ and a minimum value of zero at $X = 0\%$ or $X = 100\%$. Y is multiplied by the number of electoral votes in a state to arrive at the measure of electoral importance. Because Y has an inverted U-shape, the value of Y is the same if we used the percent of presidential elections that were won by a Republican.

8. We discuss the potential simultaneity between FEMA expenditures and the Red Cross and private insurance variables later in the paper.

9. It would be of interest to explore what percent of disaster declaration requests by state governors were honored by the president. However, the number of disaster declaration requests was not available.

10. There are a total of nine regional dummy variables, and a state's assignment to a particular region is based on the assignment given by the *U.S. Bureau of the Census*. The nine regions are: New England, Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific (omitted).

11. The number of disasters declared by private insurance companies is from the American Insurance Services Group, Property Claim Services. According to the industry, a weather event is considered a natural disaster if total damages in a geographic area exceed $25 million. This value has increased over time to reflect increases in building costs. Insurance payments are based solely on individuals' insurance claims and are not influenced by the level of federal disaster relief.

12. One feature of the Poisson model is that it assumes that the mean of the dependent variable is equal to its variance, or $E[y_{it} \mid \mathbf{x}] = \text{Var}[y_{it} \mid \mathbf{x}] = \lambda_{it} = e^{\beta \mathbf{x}_{it}}$. A test of this assumption can be conducted. The test, proposed by Cameron and Trivedi (1990), is commonly called a test for overdispersion. They essentially test whether the variance of y is equal to its mean, or H_o: $\text{var}[y_{it}] = u_{it}$, H_1: $\text{var}[y_{it}] = u_{it} + \alpha \cdot g(u_{it})$. Rejecting H_o ($\alpha \neq 0$) suggests that the variance is not equal to the mean. In this case, a negative binomial regression can be performed. We performed the over-dispersion test for our three presidential models. In each model the coefficient α was not significant at conventional levels, suggesting the Poisson model is appropriate.

13. In Texas in 1996 there were 33 disasters declared and in 1998 there were 56 disasters declared. For all other observations the number of disasters declared ranged from zero to eight, with each value between zero and eight having at least one observation (the average number of disasters in the sample is 1.5). Effective estimation of the Poisson model requires no large break in the count sequence of the dependent variable, so these two observations from Texas had to be omitted to estimate the models.

14. Additional variables must be included in the first stage regression for identification purposes. The other variables we included in the committee regressions were per capita income, population, the number of households, and the number of farm acres.

15. The fact that we find committee assignments to be exogenous yet we claim disaster relief is politically desirable may seem like a contradiction. The important fact here, however, is that the subcommittees that oversee FEMA are also responsible for overseeing other functions of government that would much more heavily drive the desire to be on the committees. In addition, because natural disasters are random and uncertain, it seems legislators would not actively seek to be on disaster oversight committees for the sole purpose of manipulating disaster aid because the opportunities to take advantage of this assignment are not clear and foreseen in advance. However, once a disaster does occur in a committee member's state, FEMA is in a position to gain from increasing expenditures above their 'normal' levels.

16. It is possible that FEMA expenditures influence the amount of Red Cross expenditures and private insurance expenditures (i.e. both variables could be endogenous). Using model (3), we empirically tested for the endogeneity of Red Cross expenditures and private insurance disaster expenditures with the same methodology used for committee variables. The Wald test statistic

was 0.30 for private insurance expenditures and 0.32 for Red cross expenditures. Both values are less than the P^2 critical value of 3.84, suggesting neither variable is endogenous and no simultaneity exists with FEMA disaster expenditures. This is interesting in its own right, but we believe the explanation is that private insurance claims are paid solely on individuals' insurance benefits and the level of damage. In addition, the Red Cross provides expenditures on specific items, such as food, temporary shelter, medicine, etc., that are available immediately after a disaster strikes, whereas FEMA simply issues checks to impacted individuals several days or weeks after the disaster.

17. We also included economic and demographic variables in the tobit regressions, such as per capita income, population, per capita transfer payments, farm and non-farm income, and retirement payments. Each of these variables were found to be highly correlated with the private insurance and red cross variables and were insignificant in each regression specification.

Abbreviations

FEMA: Federal Emergency Management Agency

FTC: Federal Trade Commission

IRS: Internal Revenue Service

OLS: Ordinary Least Squares

Table 1
Total FEMA Disaster Expenditures by State - 1991 to 1999
Top & Bottom Ten States

Top Ten States		**Bottom Ten States**	
State	*Expenditures (in millions)*	*State*	*Expenditures (in millions)*
California	$8,871.5	Nevada	$38.3
Florida	2,594.0	New Hampshire	30.7
North Carolina	950.3	Connecticut	28.7
Illinois	686.6	Colorado	28.6
Georgia	640.5	Delaware	24.3
North Dakota	590.5	Rhode Island	19.2
Minnesota	510.7	Montana	15.8
Texas	506.2	New Mexico	10.5
New York	502.8	Utah	1.8
Louisiana	426.2	Wyoming	1.1

Notes: Data obtained from FEMA and is converted to real 1996 dollars.

Table 2
FEMA Oversight Committees and Average Membership

Stafford Act Oversight Subcommittees	**Average Number of Members 1991 - 1999**
House of Representatives	
Water, Resources & Environment	30
Veterans Administration, Housing and Urban Development, and Independent Agency	11
Senate	
Clean Air, Wetlands, Private Property, and Nuclear Safety	7
Veterans Administration, Housing and Urban Development, and Independent Agency	11
Non-Stafford Act Oversight Subcommittees	
House of Representatives	
Basic Research	20
Housing and Community Opportunity	28
Senate	
Oversight of Government Management and District of Columbia	5
Housing Opportunity and Community Development	11
Science, Technology, and Space	9

Notes: Subcommittee membership by state for each legislator is from the *Almanac of American Politics*. FEMA oversight by the above subcommittees was confirmed by the *Almanac* and FEMA.

Table 3
Factors Impacting the Rate of Presidential Disaster Declaration
POISSON REGRESSIONS - Marginal Effects

Variable	Model (1)	Model (2)	Model (3)
Constant	0.486 (0.87)	0.510 (0.90)	0.539 (0.94)
Private insurance - number of disasters declared	0.103*** (4.43)	0.105*** (4.47)	0.086*** (3.44)
Per capita income	-0.285 (1.29)	-0.297 (1.34)	-0.383* (1.67)
Percent of Congress same party as President	--------	0.082 (0.33)	0.063 (0.24)
Governor from Same Political Party As President	--------	0.124 (1.03)	0.153 (1.25)
Electoral Importance	--------	--------	0.017** (2.04)
1992 Election Year Dummy Variable	0.431 (1.60)	0.437 (1.62)	0.424 (1.56)
1996 Election Year Dummy Variable	0.923*** (3.73)	0.923*** (3.72)	0.974*** (3.89)
Regional and Year Dummy Variables	Yes	Yes	Yes
Observations	448	448	448
Log Likelihood	-600.21	-599.53	-597.08

Notes: Dependent variable is the number of presidential disasters declared in state *i* in year *t*. Absolute t-statistics in parentheses. *** denotes significance at 1%, ** at 5%, and * at 10%. The restricted log likelihood for the models (all $'s = 0) is -648.84. The coefficient on per capita income is interpreted per a $10,000 change. All coefficients are interpreted as their impact on the mean rate of disaster declaration. 1991 is the omitted year dummy variable. The sample period is 1991 to 1999.

Table 4
Determinants of FEMA Disaster Expenditures - Tobit Coefficients

Variable	Model (1)	Model (2)	Model (3)
Constant	-102,372,356* (1.66)	-156,432,467** (2.43)	-147,856,974** (2.32)
Insurance Property Claims from Disasters ($)	0.253*** (19.68)	0.245*** (18.77)	0.244*** (18.82)
Red Cross Disaster Assistance ($)	16.003*** (5.93)	14.214*** (5.22)	14.459*** (5.34)
Number of Presidential Disasters Declared	10,961,440*** (2.61)	8,788,234** (2.08)	7,921,685* (1.88)
Number of Legislators on Stafford Act Oversight Committees	--------	26,169,930** (2.06)	--------
Number of Legislators on non-Stafford Act Oversight Committees	--------	13,896,506 (1.36)	--------
Number of Senators on Stafford Act Oversight Committees	--------	--------	-14,718,707 (0.52)
Number of Senators on non-Stafford Act Oversight Committees	--------	--------	-21,036,191 (0.94)
Number of Representatives on Stafford Act Oversight Committees	--------	--------	36,568,792** (2.33)
Number of Representatives on Non-Stafford Act Oversight Committees	--------	--------	24,689,388** (1.96)
1992 Election Year Dummy Variable	-9,658,313 (0.15)	-2,620,343 (0.04)	-4,488,710 (0.07)
1996 Election Year Dummy Variable	136,735,863** (2.24)	144,883,460** (2.39)	146,639,194** (2.44)
Regional and Year Dummies	Yes	Yes	Yes
Number of Observations	450	450	450
Log Likelihood	-6075.10	-6070.63	-6068.09

Notes: Dependent variable is FEMA disaster expenditures. *** denotes significance at 1%, ** at 5%, * at 10%. Absolute t-statistics in parentheses. Each coefficient is interpreted as the impact

on FEMA expenditures *given* non-zero (positive) levels of FEMA disaster expenditures. 1991 is the omitted year dummy variable. The sample period is 1991 to 1999.

Table 5
Determinants of FEMA Disaster Expenditures - Marginal Effects

Variable	Model (1)	Model (2)	Model (3)
Constant	-43,153,624* (1.69)	-65,973,788** (2.51)	-62,421,761** (2.37)
Insurance Property Claims from Disasters ($)	0.107*** (14.24)	0.103*** (13.89)	0.103*** (13.87)
Red Cross Disaster Assistance ($)	6.75*** (5.73)	5.995*** (5.08)	6.104*** (5.19)
Number of Presidential Disasters Declared	4,620,641*** (2.61)	3,706,347** (2.08)	3,344,350* (1.88)
Number of Legislators on Stafford Act Oversight Committees	--------	11,036,900** (2.05)	--------
Number of Legislators on non-Stafford Act Oversight Committees	--------	5,860,709 (1.35)	--------
Number of Senators on Stafford Act Oversight Committees	--------	--------	-6,213,894 (052)
Number of Senators on non-Stafford Act Oversight Committees	--------	--------	-8,880,988 (0.94)
Number of Representatives on Stafford Act Oversight Committees	--------	--------	15,438,489** (2.32)
Number of Representatives on Non-Stafford Act Oversight Committees	--------	--------	10,423,283** (1.96)
1992 Election Year Dummy Variable	-4,071,326 (0.15)	-1,105,103 (0.04)	-1,895,028 (0.07)
1996 Election Year Dummy Variable	57,639,065** (2.24)	61,103,113** (2.40)	61,907,643** (2.44)
Regional and Year Dummies	Yes	Yes	Yes

Notes: Dependent variable is FEMA disaster expenditures. *** denotes significance at 1%, ** at 5%, * at 10%. Absolute t-statistics in parentheses. Each marginal effect reflects the impact on the expected amount of disaster expenditures, as each variable impacts the probability of a disaster being declared and the level of expenditures. 1991 is the omitted year dummy variable. The sample period is 1991 to 1999. Number of observations is 450.