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# Essays on Intergovernmental Fiscal Relationship

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ESSAYS ON INTERGOVERNMENTAL FISCAL RELATIONSHIP

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in

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by

Bimal Soti

2015

To: Dean John F. Stack
  School of International and Public Affairs


This dissertation, written by Bimal Soti, and entitled Essays on Intergovernmental Fiscal Relationship, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.


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ABSTRACT OF THE DISSERTATION

ESSAYS ON INTERGOVERNMENTAL FISCAL RELATIONSHIP

by

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Florida International University, 2015

Miami, Florida

Professor Cem Karayalcin, Major Professor

The aim of this dissertation is to explore a number of issues in intergovernmental fiscal relationships in the United States. Three independent essays in the dissertation focus on three different issues of interest in public finance: the response of school districts and county governments to changes in state government grant allocations; political determinants of presidential disaster declarations; and the crowding out of federal transfers to states by private charitable donations with special reference to the proportion of federal welfare grants to all 50 U.S. states over the period 2005 - 2013.

Results in the first essay show that decreases in real per capita state grants cause statistically significant increases in per capita property taxes in Florida counties and school districts. However, the effect is stronger for counties as compared to the school districts. Another major result from this study is that property taxes, a major funding source for public education, decrease when the proportion of the young in total population increases. This could have important consequences for public education funding.

Results from the second essay show that during the sample period, from 2000 to 2013, the average number of days for presidential disaster declarations was lower when

the president is a Republican and the governor is a Democrat. The longest time delay in

presidential disaster declarations occurred when the president is a Democrat and the

governor is a Republican. The study also provides evidence that the higher the incumbent

president's vote share, the shorter is the delay in presidential disaster declarations.

Additionally, it is found that the more salient the disaster event is (as measured by the

number of newspaper articles per day), the shorter it takes for presidents to declare major

disasters.

The third essay provides evidence that state-level charitable contributions

correlate significantly with federal public welfare grants to states. An increase in

charitable contributions leads to a decrease in the proportion of federal grants allocated to

public welfare, controlling for political and demographic factors. The study also shows

that the level of crowding out that occurs is significantly higher than that predicted by the

previous literature on the subject.

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## LIST OF ABBREVIATIONS

| Abbreviations/Acronyms | Description |
|---|---|
| AGI | Adjusted Gross Income |
| CBO | Congressional Budget Office |
| EDR | Economic and Demographic Research |
| FDE | Florida Department of Education |
| GDP | Gross Domestic Product |
| FEMA | Federal Emergency Management Agency |
| DHS | Department of Homeland Security |
| IRS | Internal Revenue Service |
| SOH | Save Our Homes |

# CHAPTER I

## INTRODUCTION

### 1.1    Background

In the United States there are three distinct tiers of government with their own

distinct set of fiscal responsibilities namely, federal, state, and local governments. States

typically enjoy a substantial degree of fiscal autonomy and have the authority to collect

their own taxes and determine their own levels public spending. This fiscal autonomy has

given the states the ability to respond to local preferences and makes them in return

highly accountable to local people  (Laubach, 2005).

Yet, the fiscal autonomy enjoyed by the states does not mean that they are

completely fiscally independent of the federal government. First, spending by the federal

government directly affects state finances. Second, states are subject to a number of

limitations imposed by the federal constitution, most notably in interstate commerce

(Laubach, 2005).  Third, state residents pay taxes directly to the federal government and

receive transfer payments and public services from it.

For all levels of government, taxes, and most importantly property, sales, and

income taxes, are a major source of revenue. For the federal government the main sources

of revenue are individual income taxes, payroll taxes, corporate income taxes, excise

taxes, estate and gift taxes, customs duties and some miscellaneous receipts. State

governments generate most of their revenue (other than federal government grants) from

individual and corporate income taxes, sales and use taxes, and several other minor taxes

such as inheritance, licenses, and mineral severance taxes. States also receive revenues

from recreation charges, higher education payments, lotteries, and other service charges.

For local governments the major sources of revenue are intergovernmental transfers, property taxes, fees and miscellaneous receipts. While never a completely satisfactory source, property taxes typically have constituted the major channel through which local governments have raised revenue (Oates and Schwab, 2004).

Intergovernmental revenue transfers are routinely used in the United States to transfer funds from one level of government to the other to fund either general governmental operations or particular projects. Revenue transfers from the federal to state governments and from state to local governments, are important for the provision of public goods and services. These transfers affect the lower government's incentives to raise their own revenue to fund projects and, in some cases, revenue transfers from upper level governments depend on the revenues available to lower level governments.

Since state and local governments are in the best position to more efficiently and effectively implement programs that require localized knowledge and because benefits from those programs may extend beyond their jurisdictions, the federal government makes grants to state and local governments. In addition, federal grants are also used to redistribute resources among communities and individuals. Furthermore, some federal grants to state governments are used to help stabilize the economy or to implement policies prioritized by the federal government (CBO, 2013).

## 1.2 Significance of the Study

The assignment of fiscal responsibilities and sources of revenues constitute the key issues in intergovernmental fiscal relations. Through decisions on grants-in-aid, mandates, preemptions, and policy choices to stimulate activity on the state and local levels, the federal government influences the forms of the relationships it has with the

state and local governments. These intergovernmental relationships are also influenced by the complex political, economic, legal, and administrative frameworks in which they have been historically embedded. The three essays in this dissertation examine the fiscal interactions between the federal, state, and local governments from multiple perspectives in an attempt to fill some of the gaps in the existing economic literature.

**1.3  Dissertation Outline**

This dissertation is organized into five chapters. This first chapter provides a basic introduction to the intergovernmental fiscal relationships in the United States. Chapters 2, 3 and 4 are independent chapters focusing on different aspects of the intergovernmental fiscal relationships in the United States. Finally, Chapter 5 presents the major findings of the dissertation as developed in the previous three chapters and then concludes the study.

In Chapter 2, I test the hypothesis that there exists a statistically significant negative relationship between the property tax levies of county governments and school districts on the one hand and the state government grants to local government on the other. The chapter focuses on the property tax revenues of Florida counties and school districts because the property tax, as in elsewhere in the United States, is the single most important source of local revenue.

The third chapter presents an analysis of the political determinants of the time it takes to declare a major disaster in the United States, with particular attention paid to the political drivers of federal emergency management. In this chapter I examine as to whether the amount of time taken to declare a major disaster depends mainly on the nature of disaster itself or whether political motivations play a significant role. My results show that the average number of days it takes to respond for a Republican president and a

Democratic governor combination is significantly lower than for either a Democratic president and a Democratic governor combination or a Democratic president and a Republican governor combination. Generally Republican presidents declare disasters with a shorter delay than Democratic presidents. Additionally, the salience of the disaster event as measured by the amount of media coverage is shown to be an important determinant of the delays involved in declarations of major disasters by US presidents. The research finds that more newspaper articles per day result in significantly shorter delays before a declaration.

In chapter four, I analyze whether federal transfers are negatively correlated with charitable giving in the U.S. states. The analysis is carried out with special reference to the proportion of federal welfare grants to all 50 U.S. states during 2005-2013. It appears that the proportion of federal public welfare grants to state governments is negatively correlated with state charitable contributions. This effect is statistically and economically significant: a one percent increase in charitable contributions decreases the proportion of public welfare grants by the federal government to the state on average by 2.198%.

Finally chapter five summarizes the major findings of the dissertation developed in the previous three chapters. Along with the conclusions, recommendations and directions for future research are presented.

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# CHAPTER II

## EFFECTS OF CHANGES IN STATE GOVERNMENT REVENUES (GRANTS) ON PROPERTY TAXES IN FLORIDA

### Abstract

Local governments obtain income from a variety of sources with the share of income from each source varying significantly by state. The differences observed are typically explained by reference to a number of factors including the policy priorities of state and local governments, the types of taxes and fees administered, and the types of resources available to state governments. In general, the property tax is the major source of local government and school district revenues in the United States. The aim of this study is to examine the relationship between per-capita property taxes and state revenue grants in the period after 2007 coinciding with the burst of the real estate bubble and its aftermath.

### 2.1 Introduction

Apart from some federal and state government grants, local governments in the United States collect taxes from a variety of local revenue sources, including individual income taxes, general sales taxes, specific excise taxes, fees and charges and local property taxes (Alm, Buschman, & Sjoquist, 2011). Among these revenue sources, the property tax is one of the major sources of revenue for local governments. In 2010, out of a total local government revenue of $1,631 billion (counties, municipalities, school districts, and special districts combined), $427 billion or 26.18 % came from property taxes. At the same time there was approximately $14.54 billion of property taxes levied by state governments (U.S. Census Bureau). Intergovernmental revenue transfers, particularly from state governments, constitute another major source of revenue for local

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governments. In 2010 state government transfers to local governments constituted

$475.79 billion, 29% of the latter's total revenue. The share of property taxes and

transfers from state governments in total revenues of local governments vary significantly

across U.S. states ranging from 9% of total local revenue in Arkansas to 54% in New

Hampshire. Likewise, the share of transfers from state governments ranges from 7% of

total local revenues in Hawaii to 50% in Arkansas. This shows that the state and local

governments are bound in complex fiscal relationships and that local governments are at

risk when state governments face large budget shortfalls. Because local governments rely

heavily on the property taxes and transfers from state governments, when the state grants

to the local governments decline, local governments and school districts face pressure to

maintain the quality of public services they provide with less funding. While there are

some studies indicating that local governments respond by reducing spending and

increasing local taxes sufficiently to make up for reduced state grants, a study by Dye and

Reschovsky (2008) showed that local governments had responded mainly by increasing

local property taxes.

The fiscal crisis caused by the burst of the real estate bubble in 2008 has impacted

all levels of government in the United States to some extent. While local governments

have experienced decreased revenue generation due to the increase in unemployment, the

decrease in consumer purchasing demand (Muro & Hoene, 2009), and the dramatically

higher number of foreclosures leading to reduced property tax collection (Miller & Svars,

2010), means that  they are also affected by fiscal issues at the federal and state levels

(Wolman & Hincapie, 2014). However, initially during the 2007-09 recession, the

American Recovery and Reinvestment Act of 2009 ("the stimulus") provided fiscal relief to state and local governments (Gordon, 2012).

The State of Florida provides a good example on the role of property taxes in maintaining the level of local government spending. In Florida in 2010, 19% of the local government revenue came from state government sources and 30% from local property taxes. Recent changes in state revenues and property taxes in Florida are illustrated in Table 2.1. Property tax as percent of total local revenue increased as the share of revenue transfers from the state decreased. In 2010, school districts received 43.7%, counties 26.4%, cities 12.7% and special districts 17.1 % of total property tax levied. In states like Florida, property tax is the financial backbone of local governments and school districts.

Since the property tax depends on the value of property, property tax as a major revenue source for local governments could be under threat during economic downturns. However, it should also be noted that the property tax is different from all other taxes as the property tax revenue generation is based on the decision of the taxing body, which calculates the amount of revenue required to balance its budget (Boris & Steuerle, 2006).

Because of the importance of state revenue transfers for local government functioning and the property taxes being as the most flexible source of revenue at the local level, this chapter examines the effect of changes in state government revenue transfers to local governments on the levies of property taxes by Florida local governments, particularly on counties and school districts.

While there is abundant literature on how the state and local governments respond to increased revenues and their allocation, there exist a rather limited number of studies looking into the fiscal responses of state and local governments to reduced grants and

revenue collection. Existing studies present mixed results and do not provide a clear description of the responses of state and local governments to maintain balanced budgets. Following the methodology established by Dye and Reschovsky (2008), this study examines the percent change in per-capita property taxes and state revenues and especially in the period in which the real estate bubble burst in 2008 and its aftermath. Dye and Reschovsky (2008) use state-wide data for property tax collections of local governments (combined of counties, cities, school districts and special districts) and state aid in 2000, 2002 and 2004. Although they report that the within-state correlation of year-to-year changes in real per-capita local government property taxes and state aid was negative in 24 States during 1978-2000, the substitution between property taxes and state aid was insignificantly different from zero for all local governments between 2002 and 2004. A similar exercise for School Districts found a strongly negative coefficient on the state aid variable.

In this study, I tested the hypothesis that property tax levies by county governments and school districts respond negatively to a change in state government revenue grants to local governments. I focused on the levies of property taxes by Florida counties and school districts because it is the single most important source of local revenue.

**2.2 Data and Methodology**

A panel of 67 Florida counties with yearly data for 2006-2010 was used.  A separate panel of 67 independent school districts with annual data for 2006-2010 was used for a second regression. County revenue data came from the Florida Department of Financial Services and the Department of Revenues, and school district revenue data was

obtained from the U.S. Census Bureau. The population estimates are from the Office of Economic and Demographic Research.

Consideration of two separate panels of data for counties and school districts is based on the fact that Florida is one of 41 U.S. states where school districts themselves collect local property taxes[1]. The state constitution of Florida authorizes counties, municipalities, and school districts to levy ten mills of property taxes (EDR, 2012). In addition to the ten-mill cap, the constitution allows for a voted debt service millage and a voted millage not to exceed a period of two years. The state constitution deems school districts to be independent from the counties and allows school boards a non-voted discretionary school operating millage rate. To have a sense of the range millage across school districts over the years note that Glades, the school district with the highest average operating millage rate, chose rates of 5.66, 6.74, and 7.24 in 2008, 2009, and 2010 respectively. The Monroe school district, which had the lowest average operating millage rate during this period, imposed rates of 2.45, 2.42, and 2.89 in 2008, 2009, and 2010 respectively (FDE, 2009, 2010, 2011).

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[1] School districts in the following states do not themselves collect local property taxes: Alaska, Connecticut, Hawaii, Maryland, Massachusetts, North Carolina, Tennessee, Vermont, and Virginia.

Table 2.1 Property tax and state governmental revenue in Florida Local Governments 2004-2010.

| Year | Local governments total revenue In billions | Property tax as % of total Local revenue | State revenue as % of total Local revenue | Per capita property tax in 2005 price | Per capita state aid in 2005 price | Change in real per capita property tax | Change in real per capita state aid | Change in real per-capita state aid as percent of property tax |
|------|------|------|------|------|------|------|------|------|
| 2004 | 71.79 | 25 | 24 | 1081.23 | 1026.12 | | | |
| 2005 | 76.28 | 26 | 24 | 1126.19 | 1007.40 | 4.16 | -1.82 | -1.73 |
| 2006 | 85.37 | 27 | 22 | 1223.62 | 995.06 | 8.65 | -1.22 | -1.10 |
| 2007 | 96.65 | 28 | 22 | 1375.31 | 1105.29 | 12.40 | 11.08 | 9.01 |
| 2008 | 101.82 | 30 | 21 | 1505.01 | 1073.99 | 9.43 | -2.83 | -2.28 |
| 2009 | 92.46 | 32 | 20 | 1458.33 | 924.34 | -3.10 | -13.93 | -9.94 |
| 2010 | 94.61 | 30 | 19 | 1350.64 | 874.65 | -7.38 | -5.38 | -3.41 |

Source: Annual surveys of State and Local Government Finance data, U.S. Census Bureau

Table 2.2 Total revenue of school districts in Florida, 2006-2010.

| Year | Total Revenue (billions) | Federal grant as % of Total Rev | State grant as % of Total Rev | Property Tax as % of Total Rev | Per capita Real State Grant (in 2005$) | Per capita Real Property tax (in 2005) | Change in per-capita state grant as of property taxes | Change in per capita property taxes |
|------|------|------|------|------|------|------|------|------|
| 2006 | 25.42 | 9.68 | 40.18 | 39.27 | 544.74 | 532.34 | | |
| 2007 | 28.90 | 8.61 | 40.07 | 40.90 | 593.47 | 605.80 | 9.15 | 13.80 |
| 2008 | 30.00 | 8.27 | 39.43 | 42.34 | 588.02 | 631.37 | -0.90 | 4.22 |
| 2009 | 26.50 | 10.17 | 34.15 | 47.00 | 442.86 | 609.52 | -22.99 | -3.46 |
| 2010 | 26.23 | 16.01 | 31.32 | 43.97 | 392.82 | 551.35 | -8.21 | -9.54 |

Source: Public School Finance Data, U.S. Census Bureau.

The empirical model hypothesizes that the change in real per capita income in the previous year has a positive effect on the change in per capita property tax in the current year. As income increases, demand for public goods provided by the local government would increase in quantity and to meet this higher demand the government revenue must rise. An increase in real per capita income can also lead to a demand for higher quality education with the same effect on required government expenditures.

Similarly, a change in assessed property value is expected to have a positive effect on per capita property tax levies in that year. A change in total population the previous year will also have effect on per capita property tax in the current year. With an increase in total population, producing a given level of public good may require a lower per-capita expenditure, which can ultimately result in a lower per capita property tax. I hypothesize a negative effect of the proportion of elderly population (65 years and above) on per capita property taxes. This is based on the notion that elderly residents prefer a lower level of public goods provision and constitute a significant share of the population in Florida, where according to U.S. Census Bureau's American Community Survey, over 18.2% of Florida's population was 65 and older in 2012 compared to less than 13.3% for the nation. Considering a potential positive correlation between the share in population of those who are 65 years and older and the change in total population, a year-wise correlation was run which did not show any significant correlation in any year. A similar relationship was seen in the share in population of the 5-18 age group and the change in total population.

Small counties are another group of interest as counties with small populations are mostly rural counties in Florida and tend to have few sources of revenue other than assessed property. They are thus in a special situation of over-dependence on property taxes and assistance from other counties in the form of shared revenue (Florida Association of Counties, 2004). The correlation coefficients between the share of property taxes in a county's own total revenue and the share of the county population in the total Florida population are negative but insignificant, yet display an increasing trend between 2006 and 2010. As a result, because of the special circumstances faced by the small counties, a small county dummy is used for counties when their population is less than 75,000.

Year dummies are included for every year in the data. Each of the years in the sample is assumed to affect all the counties and school districts in a similar way. In 2007, the legislature stepped up the pressure on local governments by rolling back the property tax rate, but allowed county commissions to approve higher rates with a super-majority vote. In 2008, voters approved a constitutional amendment to double the homestead exemption for homeowners, to create portability for the Save Our Homes (SOH) and to put a cap on tax assessments for non-homestead property. A state-wise property tax overview presented by Dadayan (2012) shows that Florida experienced the highest drop-off in both total and per-capita property taxes between 2007 and 2009 of all the U.S. states. From 2007 to 2008 total property taxes grew by 12.8 percent (11.9 percent in per capita terms), whereas it dropped by 2.5 percent in 2009 (3.1 percent in per capita terms). Thus, a total difference of 15.3 percent in property tax (15 percent in per capita terms) growth rate occurred between 2007 and 2009.

The model for the relationship between the change in county per-capita property taxes and the change in per-capita state revenue transfers to counties (along with other variables) is given by the equation below:

(chngpcptax)it

$$= \beta0 + \beta1(chngpcstrev)it - 1 + \beta2(chngptaxshre)it - 1$$

$$+ \beta3(chngrlpcinc)it - 1 + \beta4(chngassval)it + \beta5(smlcounty)it$$

$$+ \beta6(chngtotpop)it - 1 + \beta7(shre65yrsabv)it - 1 + \beta8(d1)$$

$$+ \beta9(d2) + \varepsilon it$$

Where $(chngpcptax)_{it}$ denotes the change in real per-capita property tax in year t, $(chngpcstrev)_{it-1}$ denotes the change in real per-capita state revenue transfers as the percentage of property taxes in year t-1, $(ptaxshre)_{it-1}$ denotes property tax as share of total revenue in year t-1, $(chngrlpcinc)_{it-1}$ stands for the change in per capita real income in year t-1, $(chngassval)_{it}$ represents the change in the assessed property value in year t, $(smlcounty)_{it:}$ takes the value 1 if the county population is less than 75,000, otherwise it is 0, $(chngtotpop)_{it-1}$ denotes the change in total population in year t-1, $(shre65yrsabv)_{it-1}$ represents the share of 65 years and above in population in year t-1, (d1) and (d2) are year dummies for 2008 and 2009 respectively with 2010 being the reference year.

The school district model is represented by a similar equation as (2.1) above, except that 'the share of 65 years and above in population in year t-1' is replaced by 'share of 5-18 years in total population'. Accordingly, two separate model coefficients are presented in table 2.7.

Even if data is used for 2006-2010, only a three-year panel is used to run the above model as most of the explanatory variables are one year lagged. Thus, the change

in real per capita property tax in 2008 is regressed on the change in real per-capita state revenue in 2007. Similarly, all other variables except the change in assessed property value, and the 'small county dummy' are from 2007 in the first year observed, i.e. 2008. The values of explanatory variables for 2007 are in turn calculated as a percent change compared to 2006 value.

Table 2.3 in the descriptive statistics shows the values of county level variables, which in turn are used to calculate the percentage change over the years shown in Table 2.5. Revenues listed in Table 2.3 are the amount received exclusively by county governments (it does not include the amount levied or received by municipalities, school districts, and special districts within that particular county). Similarly, Table 2.4 shows the school district revenue and population variables, which are used to calculate the percentage change between years shown in Table 2.6.

Table 2.3 Descriptive statistics of absolute value of county variables, 2007-2010.

| Variable | | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| **Total revenue (in'000s)** | overall | 664,452.3 | 1,416,026 | 12,944.08 | 9,683,635 |
| | between | | 1,421,042 | 13,752.1 | 9,367,044 |
| | within | | 91,971.62 | -27,432.16 | 1,157,669 |
| **Property tax as share of total revenue** | overall | 26.295 | 7.939 | 9.77 | 52.13 |
| | between | | 7.616 | 10.063 | 47.658 |
| | within | | 2.385 | 13.105 | 35.145 |
| **Real per capita property tax** | overall | 449.588 | 201.132 | 114.21 | 1,149.78 |
| | between | | 197.519 | 127.648 | 952.043 |
| | within | | 43.343 | 274.661 | 669.811 |
| **Real per capita state revenue** | overall | 231.992 | 161.337 | 74.03 | 912.9 |
| | between | | 152.734 | 83.133 | 681.13 |
| | within | | 54.441 | -16.093 | 517.772 |
| **Total Population** | overall | 279,997.7 | 440,685.9 | 7,772 | 2,496,435 |
| | between | | 443,152 | 8,128.75 | 2,477,090 |
| | within | | 5,185.445 | 252,423.4 | 307,098.7 |
| **Population ≥ 65 yrs.** | overall | 48,145.74 | 68,740.09 | 907 | 360,391 |
| | between | | 69,097.89 | 929 | 348,828 |
| | within | | 2,080.483 | 37,261.74 | 59,708.74 |
| **Real per capita income** | overall | 29,753.15 | 9,300.844 | 15,969 | 60,251 |
| | between | | 9,257.613 | 16,404.25 | 55,845.75 |
| | within | | 1,328.628 | 25,548.4 | 34,924.4 |

N = 268, n = 67, T = 4

Table 2.4 Descriptive statistics of absolute values of school district variables (2007-2010).

| Variable | | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| **Total revenue (in '000)** | overall | 416,514.3 | 670,832.8 | 11,183 | 3,959,408 |
| | between | | 672,994.6 | 11,586.5 | 3,687,021 |
| | within | | 46,733.08 | 172,210.3 | 688,901.3 |
| **Share of property tax in total revenue** | overall | 36.649 | 17.388 | 6.47 | 71.32 |
| | between | | 17.252 | 7.95 | 69.983 |
| | within | | 2.833 | 21.656 | 45.036 |
| **Real per capita state revenue** | overall | 603.724 | 297.995 | 102.96 | 2,615.16 |
| | between | | 267.743 | 190.198 | 1,561.87 |
| | within | | 133.866 | -32.166 | 1,657.014 |
| **Real per capita property tax** | overall | 492.370 | 246.835 | 90.9 | 1,188.83 |
| | between | | 245.49 | 101.143 | 1,095.958 |
| | within | | 36.596 | 339.988 | 623.255 |
| **5-18 yrs. population** | overall | 48,485.650 | 80,172.810 | 1,254 | 460,401 |
| | between | | 80,599.77 | 1,306 | 452,798 |
| | within | | 2,085.526 | 26,733.650 | 56,088.65 |
| **Total population** | overall | 279,997.7 | 440,685.9 | 7,772 | 2,496,435 |
| | between | | 443,152 | 8,128.75 | 2,477,090 |
| | within | | 5,185.445 | 252,423.4 | 307,098.7 |
| **Real per capita income** | overall | 29,753.15 | 9,300.844 | 15,969 | 60,251 |
| | between | | 9,257.613 | 16,404.25 | 55,845.75 |
| | within | | 1,328.628 | 25,548.4 | 34,924.4 |

N = 268, n = 67, T = 4

## 2.3 Results and Discussion

Revenue sources for state governments such as the individual income tax and the sales tax are more sensitive to economic downturns than the property tax, the main source

of local government revenue (Reschovsky, 2003). The descriptive statistics in Table 2.5 indicate an overall reduction in real per-capita property tax in Florida counties during 2008-2010 by -4.688%. While there is a possibility that the reduced rate of property tax could be due to reduced rental income or lower property values, the results indicate that the share of state grants in total revenue also plays a role in the reduction of property tax rates (Table 2.7). However, in their analysis of historical data and case studies in individual states, Lutz et al. (2011) reported that the property tax revenue collected by local governments remained resilient after recessions. This resilience could be the result of significant lags in the effect of changes in property market values on changes in taxable assessments, and may in part be due to the tendency of local policymakers to offset declines in property values by increasing the property tax rate (Lutz et al., 2011; Jonas, 2012). The average change in real per-capita state revenue transfers to counties during 2007-2009 is also negative, but this rate is smaller than the change in property taxes. As the rate of change in per-capita state revenue transfers is calculated with respect to the per-capita property tax (in the denominator), even a small change in state revenues results in a large rate of change (for example Min: -102.73 and Max: 146.76, Table 2.5) if the county collects a small amount of per-capita property taxes compared to per-capita state transfers. As expected, the share of property taxes in total revenues is highly significant in both regressions. Results in Table 2.7 show coefficients of -0.207 and -0.184 for counties and school districts respectively (p<0.01 in both models). A one percent increase in the share of property taxes in overall revenues the previous year leads to a reduction in per-capita property taxes by $0.20 and $0.18 in counties and school districts. Thus, a local government that was highly dependent on property taxes as a

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source of revenue the previous year is likely to lower the per-capita property tax the following year. This effect could be due to the adjustment by policymakers and tax administrators at the level of local government to maintain a balance among revenue sources. That is, if local policymakers believe that the local government has become too dependent on a specific source of revenue, they would want to reduce the excess dependency on that specific source by trying to raise more revenue from other sources.

Though not statistically significant, the results of this study complement the general perception that the aging population has an overall negative impact on public spending (Harris et al., 2001). The share of those 65 years or older in the total population shows an inverse relationship with the change in per-capita county property tax. With the increase in the share of the aging population, Florida counties on average tend to reduce per-capita property taxes ceteris paribus, possibly due to the preference structure of this population group. On the other hand, parents of school-aged children are thought to prefer higher levels of local spending on schools (thus higher property taxes). However, the population share of those aged 5-18 shows an unexpectedly strong inverse relationship with the school district property tax. This result may be due to the relatively high level of non-whites in the school-age population (Porteba, 1996). Although county-wise ethnic composition was not considered in the model, the result obtained is similar to what Alesina et al. (1999) found, that is that voters tend to choose lower levels of public goods when the tax burden falls largely on one ethnic group, while the benefits from the public good thus financed are shared broadly with other ethnic groups. It is, however, worth noting that using data on American cities and school districts, Lee et al. (2015)

found evidence that ethnic heterogeneity results in reallocation of local public spending across uses rather than reducing it.

Table 2.5 Descriptive statistics of percent change in model variables in counties (2008-2010).

| Variable | | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Change in real per capita property tax | overall | -4.688 | 6.411 | -24.020 | 19.320 |
| | between | | 4.447 | -15.127 | 5.083 |
| | within | | 4.639 | -17.035 | 9.855 |
| Change in real per capita state revenue as percent of property tax | overall | -1.506 | 27.338 | -102.730 | 146.760 |
| | between | | 14.001 | -43.877 | 49.050 |
| | within | | 23.523 | -119.706 | 102.747 |
| Property tax as share of total revenue | overall | 26.216 | 7.711 | 9.770 | 47.130 |
| | between | | 7.475 | 10.157 | 46.167 |
| | within | | 2.034 | 15.976 | 32.546 |
| Share of 65 yrs and above in total population | overall | 18.158 | 8.460 | 4.160 | 66.03 |
| | between | | 8.498 | 4.293 | 64.727 |
| | within | | 0.272 | 17.281 | 19.461 |
| Rate of change in total population | overall | 1.211 | 1.640 | -3.680 | 8.680 |
| | between | | 0.938 | -1.050 | 4.923 |
| | within | | 1.348 | -2.523 | 4.967 |
| Change in real per capita income | overall | -1.416 | 3.257 | -15.690 | 12.150 |
| | between | | 1.650 | -5.783 | 4.233 |
| | within | | 2.813 | -11.489 | 6.501 |
| Change in assessed property value | overall | -3.484 | 12.741 | -25.330 | 94.940 |
| | between | | 8.576 | -16.383 | 31.097 |
| | within | | 9.462 | -37.364 | 60.359 |
| Small county with pop. <75,000 | overall | 0.453 | 0.499 | 0.000 | 1.000 |
| | between | | 0.498 | 0.000 | 1.000 |
| | within | | 0.058 | 0.119 | 1.119 |

Observations: N= 201, n= 67, T =3

Table 2.6 Descriptive statistics of change in model variables in school districts (2008-2010).

| Variable | | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| **Change in real per capita property tax** | overall | -0.316 | 8.771 | -18.850 | 50.270 |
| | between | | 4.831 | -9.480 | 13.933 |
| | within | | 7.337 | -21.669 | 36.021 |
| **Change in real per capita state revenue as percent of property tax** | overall | -1.328 | 55.620 | -176.460 | 539.120 |
| | between | | 32.111 | -43.503 | 243.830 |
| | within | | 45.528 | -172.232 | 293.962 |
| **Property tax as share of total revenue** | overall | 36.267 | 17.368 | 6.470 | 71.320 |
| | between | | 17.218 | 7.670 | 69.633 |
| | within | | 2.858 | 22.743 | 45.613 |
| **Share of 5-18 yrs. in total population** | overall | 16.759 | 2.232 | 11.4 | 22.05 |
| | between | | 2.233 | 11.503 | 21.923 |
| | within | | 0.212 | 16.222 | 17.492 |
| **Change in total population** | overall | 1.211 | 1.640 | -3.680 | 8.680 |
| | between | | 0.938 | -1.050 | 4.923 |
| | within | | 1.348 | -2.523 | 4.967 |
| **Change in real per capita income** | overall | -1.416 | 3.257 | -15.690 | 12.150 |
| | between | | 1.650 | -5.783 | 4.233 |
| | within | | 2.813 | -11.489 | 6.501 |
| **Change in assessed property value** | overall | -3.484 | 12.741 | -25.330 | 94.940 |
| | between | | 8.576 | -16.383 | 31.097 |
| | within | | 9.462 | -37.364 | 60.359 |

Observations: N= 201, n= 67, T =3

Table 2.7 Regression estimates of changes in real per capita property taxes in county and school district (2008- 2010).

| Variables | County | School District |
|---|---|---|
| Change in real per capita state revenue as percent of property taxes | -0.028* (-1.8) | -0.022** (-1.97) |
| Property tax as share of total revenue | -0.207*** (-3.26) | -0.184*** (-4.31) |
| Change in real per capita income | 0.063 (0.35) | -0.120 (-0.53) |
| Change in assessed property value | -0.027 (-0.65) | 0.052 (0.91) |
| Small county (pop<75,000) | 1.774* (1.78) | |
| Change in total population | 0.387 (1.22) | 0.946** (2.46) |
| Share of 65 yrs and above in total population | -0.067 (-1.21) | |
| Share of 5-18 yrs. in total population | | -0.723** (-2.55) |
| 2008 | -0.475 (-0.29) | 7.696*** (3.69) |
| 2009 | -1.186 (-0.88) | 1.269 (0.72) |
| Constant | 1.186 (0.53) | 14.333** (2.5) |

No. of observations: 201

^Output in this table is obtained by running a Time Fixed Effect panel regression in STATA.
***Significant at 1%, **Significant at 5%, *Significant at 10%
Numbers in parenthesis are t-statistics.

The main results of this study are presented in Table 2.7, where two separate

regressions for county and school districts are shown. As expected, real per-capita state

revenue transfers are shown to be negatively correlated with per-capita property taxes in

both county as well as school district regressions. However, a stronger effect is visible in the school district as compared to county regressions. Although the magnitude of the regression coefficient on the change in local governments own source revenue is small, it has the negative sign as expected. A one percent increase in per-capita state revenues (as a percentage of property taxes) at the county level on average leads to a decrease in per capita county property tax by $0.028 (about 3 cents) (p=0.10). Similarly a one percent increase in per-capita state revenues at school-district level on average leads to a decrease in per-capita school district property taxes by $0.022 (about 2 cents). Past researchers have presented mixed results in terms of the response of local governments to cuts in federal aid (Gamkhar, 2002; Reschovsky, 2003). While some suggest that state and local governments respond symmetrically to increases and decreases in grants, others suggest that they respond to grant cuts by raising taxes to make up for lost revenue. The results presented here support the idea that local governments respond by raising the property tax to make up for the lost grant funds.(source?)

Contrary to the priors, the research shows that the association between real per-capita income and per-capita property taxes is insignificant in both county and school district regressions. The assessed property value, as a control variable in the model, was expected to have a positive relationship with the change in real per-capita property taxes. The expected result was obtained in the school district regression, but the opposite in the county regressions. However, both coefficients are statistically insignificant, indicating that there may not be a correlation between assessed property values and property taxes.

Small counties are associated, as expected, with a statistically significant increase in per-capita property taxes. Other things being equal, counties that have populations of

less than 75,000 are associated with a $1.77 increase in the per-capita property tax

(p<0.10). Similarly, a one percent increase in the population on average leads to a $0.95

increase in the school district per-capita property tax (p<0.05). Population changes also

positively affect the property taxes in counties, though the coefficient is not statistically

significant. These positive associations between the total population and property taxes

run counter to the notion that public service provision is subject to increasing returns to

scale so that the per-capita cost of public services decline as population increases.

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# CHAPTER III

## FEDERAL DISASTER DECLARATIONS: IMPACT OF ELECTORAL INCENTIVES ON PRESIDENTIAL DISASTER DECLARATION DELAY

### Abstract

The aim of this paper is to analyze the determinants of the time it takes for policymakers to declare a major disaster, with particular attention paid to the political determinants of federal emergency management. The paper tests whether the time taken to declare a major disaster depends on the nature of disaster itself or on the political motives of policymakers. I analyze 797 disaster declarations between 2000 and 2013 covering two full tenures of a Republican president and one full plus two years tenure of two Democratic presidents. My results show that the average days it takes to declare a major disaster for the combination of a Republican president and a Democratic governor is significantly shorter than both the Democratic president-cum-Democratic governor and Democratic president-cum-Republican governor combinations. Similarly, the pair of Republican president-cum-Republican governor takes significantly shorter to declare a major disaster than the pair of Democratic president-cum-Republican governor. Thus, the evidence here suggests that generally republican presidents declare disasters faster than Democratic presidents. Additionally, the salience of the disaster events as measured by the media coverage is shown to be negatively correlated with delays in the declaration of major disasters. Here it is found that more newspaper articles per day covering a disaster lead to shorter delays in presidential declarations.

## 3.1    Introduction

Local and state governments have the first responsibility for protecting their citizens before disasters and providing recovery assistance after disasters. However, when a disaster is too large for the state and local governments to deal with, they seek help from the federal government.  The President can issue a major disaster or emergency declaration in response to catastrophes that overwhelm state and local governments under the Robert T. Stafford Disaster Relief and Emergency Assistance Act  (1988), known as the Stafford Act.  The disaster declaration process is initiated by a request from the governor of the state. With guidance from the Federal Emergency Management Agency (FEMA) officials, the president decides whether to grant or deny the request. The federal government typically provides disaster related assistance to states and lower level governments in all four stages of disaster management, that is, preparedness, response, recovery, and mitigation. The Disaster Relief Act of 1950 formalized the role of the federal government in disaster assistance. The federal government has over time placed increasing emphasis on disaster mitigation, especially after the restructuring of FEMA in 1993 when a mitigation directorate was created (Platt, 1999). Over the years, mitigation and private insurance have remained important agenda items for the federal government. However, it is clear that the role of the federal government has remained crucial also in the aftermath of the disaster when the state and local governments do not have the means to deal effectively with the challenges created by the disaster. The federal response may take the form of an emergency declaration (special emergency), fire management, or a major disaster declaration. Major presidential disaster declarations, constituting a type of assistance that is influenced by many political factors, is the main focus of this paper.

An immediate response to a disaster by the federal government is typically assumed to be the standard response, but depending on the nature of the disaster and a number of political considerations, the response by the federal government is most usually delayed. The time it takes to declare a major disaster in turn has a long-term effect on the affected states and counties and can cause major delays in the completion of recovery works.  Many factors other than type, intensity, and coverage of disasters affect the initiation of post-disaster work.  This paper explores the determinants of the time it takes to declare a major disaster, paying particular attention to the political factors that influence federal emergency management. In particular, I try to examine the relative role played by the nature of the disaster itself as compared to the political factors that affect the time it takes to declare a major disaster.

Most of the literature on major disaster declarations is focused on examining the factors affecting presidential disaster declarations and the level of federal disaster expenditure either before disasters for preparation or mitigation or in the aftermath of disasters for recovery (Chen, 2012; Gasper & Reeves, 2011; Sobel et al., 2007; Sainz-Santamaria & Anderson, 2013). There are only a small number of studies examining the determinants of the time taken to declare major disasters. Yet, as the time taken to declare disasters constitutes a part of a longer process of disaster declaration and the allocation of disaster expenditures, existing research on the subject does provide a helpful steppingstone for the analysis that follows. The investigation in this paper is based on the premise that the same set of variables that help explain the level of resources allocated to deal with the aftermath of a disaster will also be relevant to  the determinants of the time it takes to declare a major disaster.

The literature that analyzes the effect of political factors on the time it takes to declare a major disaster is small. Langabeer, Delli and Alqusairi, (2012) examine the 1993-2005 data for major disaster declarations with a focus on the effect of president-governor party affiliations on the time delays for the decision to declare major disasters. In this paper, the major departure from the approach adopted by Langabeer et al. is the incorporation of evidence on the importance of disaster events as measured by media coverage so as to assess the political incentives faced by presidents when deciding whether or not to declare a major disaster.

### 3.1.1 Disaster declarations and Role of President and FEMA

The Federal Emergency Management Agency (FEMA) coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all domestic disasters, whether natural or man-made, including acts of terror. The activities of FEMA are guided by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which amended the Disaster Relief Act of 1974 and was signed into law on November 23, 1988. According to the provisions of this statute, a U.S. presidential disaster declaration of emergency triggers financial and physical assistance through FEMA. It is the role of FEMA to identify the specific counties within a state that will be eligible for federal assistance once a state is declared to be the site of a major disaster by the president. The decision as to which counties within a state will receive a declaration and subsequent assistance is based in part on the result of preliminary damage assessments and in part on politics and media attention (Platt, 1999). There are three types of disaster declarations that are under the purview of FEMA. While fire management and emergency declaration (special emergency) are dealt by FEMA, the

proposal for major, also called presidential, disaster declarations are issued by the

president. Two major components of major disaster declarations are public assistance

(PA) and individual assistance (IA). The PA is primarily for the repair and/or

replacement of public infrastructure if to do so is beyond the capacity of state and local

government. Up to 75% of expenses to repair or replace public infrastructure are covered

by federal assistance. Individual assistance on the other hand, targets low-income

individuals and families in the affected counties of a state. In addition, funds for

Supplemental Community Development Block Grant-Disaster Recovery (CDBG-DR) are

appropriated by the U.S. Congress to assist communities to recover from major disasters,

such as hurricanes, floods, earthquakes, and tornadoes. It is important to note that the role

of the U.S. Congress is to provide funds for supplemental appropriations; it is not directly

involved in the disaster declaration process itself.

  Although the federal government, through FEMA, has put much of its focus on

the mitigation of disasters, it is also involved in the other phases of disaster management.

These are preparedness, response, and recovery. FEMA's emphasis, as articulated in

recent legislation and organizational changes, has shifted from response and recovery to

mitigation. These changes are in line with Peterson's (1995) functional classification of

different level of governments with respect to their emergency management functions.

According to this classification, local governments are in a better position to carryout

response and recovery tasks, with coordinating assistance from the states and fiscal

assistance from the federal government. The federal government can be most effective if

focused on mitigation, which requires investment on research and development, and

dissemination and availability of technical expertise. Despite these widely accepted roles

for different levels of government, the federal involvement in response and recovery is driven by a mix of incentives. In the case of some disasters these incentives and other pressures may be overwhelming in terms of their magnitude and the capacity of affected states or counties, so as to lead to a larger federal response and involvement.

### 3.1.2 Political incentives and other factors affecting disaster decisions

Following the merger of FEMA and the Department of Homeland Security (DHS) in 2003, the president and the congressional oversight committee still remain as the two main avenues of political influence on the operations of FEMA within the DHS. While this reorganization reduced the influence of congressional politics on the distribution of FEMA funding, the president still is the main actor in the declaration process (Berry, Burden, & Howell, 2010), and the decision to grant or deny the assistance is his alone. Furthermore, because there is no required threshold of damage that must be sustained in the affected area in order to issue a declaration under the Stafford Act, the president wields autonomous leverage to approve or to turn down requests. The decision to declare a major disaster could be electorally beneficial to the president and the governor of the state involved (Gasper & Reeves, 2011). The literature on the subject has argued that the majority of the disaster relief provided is politically motivated rather than being based on need (Garrett & Sobel, 2003), and that presidents are sensitive to electoral concerns when granting aid (Reeves 2011; Garrett & Sobel, 2003; Gasper, 2014). Additionally, political incentives for a president are heightened during election years and the likelihood of a disaster declaration for a state is a function of electoral timing (Sylves & Buzas, 2007; Salkowe & Chakraborty, 2009; Gasper, 2014). Furthermore electoral incentives are important factors not only in disaster declarations and allocation of relief spending, but

also in funding for disaster preparedness. Sainz-Santamaria and Anderson (2013) have examined U.S. disaster preparedness spending data from 1985 to 2008 to see whether preparedness is driven by the social planner's conception of need or by the politicians' desire for reelection. They found that counties that are competitive for the party of the incumbent president are allocated disproportionately higher preparedness spending.

There are several studies that empirically support the theories that swing voters and supporters in previous elections are favored by presidents in terms of the allocation of federal funds (Garrett & Sobel, 2003; Larcinese, Rizzo & Testa, 2006). In the following analysis, it is assumed that factors influencing the allocation of federal disaster funds are also relevant to the number of days taken to declare disaster. Thus, the variables "political competitiveness" and the "incumbent party share of vote" will play important roles in testing the hypothesis that presidents have the incentive to attract swing voters and reward supporters from the previous election. Favorable treatment received by the state governor of the same political party as the president could also be an example of rewarding the supporters as reported by various researchers.

The *congressional dominance* model has been used by researchers to analyze the role of the congress in federal government disaster decisions, mainly focusing on the allocation of disaster expenditure rather than on the presidential declaration itself. Evidence suggests that representation of a given state's member of congress on FEMA oversight committees and subcommittees has a significant effect on the level of FEMA disaster expenditure for that state (Husted & Nickerson, 2014; Garrett & Sobel, 2003). There are recent studies that suggest that the recent changes in the organization of FEMA have resulted in the weakening of the link between the level of disaster expenditure in a

given state and the congressional representation of that state on FEMA oversight committees (Sobel et al. 2007). However, some studies (e.g. Sainz-Santamaria & Anderson, 2013) found that congressional representation on FEMA oversight committees still positively affects disaster spending. Further, Sobel et al. (2007) provided evidence that politically important states, as measured by share of the vote for the incumbent president in that state, continued to have higher rates of disaster declaration. The empirical section below includes representation in FEMA oversight committees as an explanatory variable to assess whether this has an indirect effect on the president's disaster declaration decisions.

The literature has considered the effects of media coverage on the decisions concerning disaster assistance. Drury et al., (2005) in studying the factors affecting the U.S. foreign disaster assistance hypothesized the effects of U.S. foreign and domestic political concerns. They used media attention received by a disaster to gauge the salience of the event and found that "the number of stories in the New York Times taps the salience of the disaster and the country affected" (p.467). This result on the effect of the salience of the event as measured by media attention is statistically significant but substantively marginal. Eisensee and Stromberg (2007) found similar results when they studied the influence of the mass media on the U.S. government's response to natural disasters abroad. The empirical study that follows differs from this literature in that it uses the salience of the disaster event in the U.S. context.

The empirical model in this chapter uses the number of days it takes for the president to declare a major disaster as the explanandum. Under the assumptions that politicians respond to incentives and seek to maximize votes, the model posits that the

salience of the disaster event as <u>proxied</u> by the intensity of its media coverage would be negatively correlated with the days taken for the disaster declaration. In addition to salience reflected by media coverage, the number of affected counties is posited to be a measure of the salience of the event.

Another factor to be considered is the possible effects of the reorganization of FEMA in 2003. The immediate cause of this reorganization was the 9/11 terrorist attack on the World Trade Center and Pentagon after which the White House and the U.S. Congress acted to make the government agencies more efficient and responsive to help prevent future terrorist attacks. Yet the reorganization also changed the way FEMA responds to natural disasters. Sobel et al. (2007) used panel data on presidential disaster declarations and FEMA disaster expenditures in the U.S. states for 2003-2005 and found that the reorganization of FEMA has resulted in a regime change with regard to how decisions are made and how it responds to disasters. Because it is necessary to account for this regime change in the empirical model a dummy variable is included which takes different values before and after the 2003 reorganization. It is a priori not clear how the reorganization may have affected the response of FEMA to disasters. Because it faces less political pressure from the Congress, it may be that the bureaucratic machinery of FEMA has become more efficient. Alternatively less congressional oversight may have led to a loss of efficiency.

## 3.2 Data and Method

This paper covers the period 2000 to 2013 and thus the tenures of a Republican President (2001-2008) and two Democratic Presidents (2000, and 2009-2013). Only disaster declarations for the 50 states in this period are considered. Between 2000 and

2013, a total of 797 disasters were declared major disasters in the 50 U.S. states. Four

disasters, which were categorized as incident type 'other-2', dam/levee break, and

terrorist, were removed  leaving 793 presidential disaster declarations that fall into 12

different incident types: hurricane, flood, tornado, mud/landslide, tsunami waves, severe

storm, severe ice storm, coastal storm, freezing, snow, earthquake, and fire. These 12

incident types were aggregated into five main types based on their nature (duration and

intensity) to avoid statistical biases that would result from creating dummy variables with

unusually large and small observations. This is because groups with very different sample

sizes can invalidate the assumption concerning variance homogeneity and the power of

the tests conducted was based on the smallest sample size. The final dataset groups

consisted of three atmospheric events, namely, hurricanes, floods/tornadoes, and severe

storms and two other types, namely earthquakes and fires. In the empirical section below,

the focus is on a subset of disasters with only atmospheric events by removing the groups

earthquakes and fires.

In the dataset there are five instances of disaster declarations when state governors

were political independents, that is, neither democratic nor republican. Two of these

disasters occurred under democratic presidents and three under the republican president.

As the number of observations with independent governors is very small these are

removed from the data set.  Consequently, the total number of disaster declarations that

are in the analysis is 788.

An important variable affecting presidential decisions concerning disaster

declarations is the political importance of the state. In considering this variable previous

researchers had initially used the expected number of the state's electoral votes following

Willet (1989) and Tabellini and Alesina (1990). More recently, Garrett and Sobel (2003) have devised an improved measure called electoral importance, which is calculated by multiplying each state's electoral votes by an index that measures the long-term political closeness (competitiveness) of each state in presidential elections since 1956. The proportion of a win closer to 0.5 implies that the closeness index is high. The study uses a slight variation that utilizes the formula $Yit = 1\text{-}4\ (Xit\text{-}0.5)2$ where $Xit$ for state $i$ denotes the percentage of votes the president has received in that state between 1956 and year $t$, with $t$ being the election years 1996, 2000, 2004, 2008, and 2012. Thus, the electoral importance variable obtained by multiplying electoral votes in a state (which may change in every election year based on changes in population) by the factor $Yit$ will be a unique number for a given state in a four-year period. As an example, the dependent variable in the empirical model, "days to declare disaster" between January and December of 2000 is expected to be affected by the electoral importance variable derived for the election year 1996. The Democratic presidential candidates won 3 elections in Alabama between 1956 and 1996, which implies $Xit$ =0.27. Consequently, the "competitiveness factor" $Yit$, becomes 0.79 and electoral votes of 9 in Alabama in 1996 will result in an electoral competitiveness measure of 7.14 for Alabama for the 1997-2000 period.

The share of votes for the incumbent party in each state in recent elections is used to measure political closeness of the incumbent party towards that state. It is expected that the president will be more responsive to a state that has supported his party.

Election year dummies capture the effect of being in an election year. The comparison years or omitted years are all other years. In a separate model, a dummy variable is created for re-election years, with non-reelection years being the omitted

category. In both cases, it is expected that the election-year dummies have a higher and more significant effect on the dependent variable, that is, a shorter delay is expected in the declaration of major disasters.

The number of fatalities and injuries and total economic damage (property damage and cross loss) due to the disaster provide important information on the seriousness of a disaster event, but this information was not included in the present study because of the lack of availability of a complete data set[2]. Durations of the disasters are included in the model as a measure of the strength of event given that it was not possible to incorporate the physical and human loss data. However, it is acknowledged that the duration of a disaster may not truly represent the intensity of the disaster and its use here simply reflects the paucity of available data. It is certainly conceivable that the longer the disaster lasts, the more likely it is to result in a presidential disaster declaration. However, if the extent of the loss is not immediately visible, the presidential declaration may be delayed.

While there is disagreement in the literature on which congressional committees and subcommittees have real or influential oversight responsibilities, the study followed Garrett & Sobel's (2003) choices on committee assignments. In addition, the study

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[2] Some researchers (Sainz-Santamaria and Anderson, 2013) have used county-wise annual and monthly aggregate disaster loss data compiled by Spatial Hazard Events and Losses Database for the United States (SHELDUS), University of South Carolina using data from National Climatic Data Center (NCDC.gov), the National Geophysical Data Center, and the Storm Prediction Center. However, disaster loss data for individual events was impossible to obtain, as there can be more than one disaster event in a county in a given month. Further, many of the events that received presidential disaster declarations and are included in FEMA database, the main data source for this paper, are absent from the National Climatic Data Center database. In addition, only less than one third of the events listed in the NCDC, the only source of disaster loss information, have disaster loss data. Consequently, the limited disaster loss information available was not included.

focused on the Oversight Committee on Homeland Security that was formed in the 107th Congress. Committee membership from all 50 states during each congress from the 106th congress to 113th Congress was retrieved from the U.S. Government Publishing Office (http://www.gpo.gov/).

The number of New York Times articles covering each event are used to measure the salience of the disaster events. To maintain uniformity throughout the sample, the only articles included were those that appeared from the "event beginning date" to "disaster declaration date." Events covered in blogposts, and other multimedia outlets were not counted. The name of the state and the incident type are used to search for articles in the New York Times index with a specific date search. Titles of the returned articles and the first 2-3 lines are scanned to make sure that the articles are about disaster events. When there are events such as storms, floods, and fires, extra care was given to make sure that they were not used in different contexts. The New York Times was used because it is the leading news source in the United States. Moreover, Van Belle (2003) found that both the New York Times coverage and network television news coverage "can be used reasonably as indicators of news media salience as an influence on bureaucracies, especially on U.S. foreign aid allocations decisions" (p.263).

**3.3 Results and Discussion**

Descriptive statistics in Table 3.1 show that a disaster took on average 33 days to get a major (presidential) disaster declaration. While the longest delay in disaster declarations was for a 2011 severe storm in Vermont taking 172 days, more than half of the disasters that presidents declared as major disasters had delays of less than 30 days.

Table 3.1 Descriptive Statistics (2000-2013).

| Variable | Mean | SD | Minimum | Maximum |
|---|---|---|---|---|
| Days taken to declare major disaster | 32.949 | 25.297 | 0.438 | 172.458 |
| Incumbent President Vote share | 51.314 | 8.637 | 32.366 | 71.846 |
| Electoral Importance | 9.110 | 9.550 | 0.747 | 54.756 |
| President Democrat | 0.470 | 0.499 | 0 | 1 |
| Governor from Democratic party | 0.470 | 0.500 | 0 | 1 |
| FEMA oversight congressional subcommittee members | 3.690 | 2.988 | 0 | 19 |
| Same party president and governor | 0.504 | 0.500 | 0 | 1 |
| FEMA reorganization(post 2003) | 0.850 | 0.360 | 0 | 1 |
| **Election Years** | | | | |
| 2000_elect | 0.040 | 0.200 | 0 | 1 |
| 2004_elect | 0.070 | 0.261 | 0 | 1 |
| 2008_elect | 0.090 | 0.281 | 0 | 1 |
| 2012_elect | 0.040 | 0.206 | 0 | 1 |
| **President-Governor** | | | | |
| Democratic-Democratic | 0.222 | 0.416 | 0 | 1 |
| Republican-Republican | 0.282 | 0.450 | 0 | 1 |
| Democratic-Republican | 0.244 | 0.430 | 0 | 1 |
| Republican-Democratic | 0.253 | 0.435 | 0 | 1 |
| Number of NY Times Articles | 4.080 | 8.903 | 0 | 120 |
| Percentage of counties declared | 30.052 | 26.790 | 0.394 | 100 |
| How Long the Incident Lasted | 17.582 | 25.570 | 0 | 168.763 |
| Real GDP Per capita ($2009) | 45093.200 | 8247.226 | 29063.00 | 72281 |
| **Incident Type** | | | | |
| Hurricanes | 0.096 | 0.295 | 0 | 1 |
| Flood/Tornado | 0.591 | 0.492 | 0 | 1 |
| Severe Storm | 0.274 | 0.446 | 0 | 1 |
| Earthquake | 0.010 | 0.100 | 0 | 1 |
| Fire | 0.028 | 0.165 | 0 | 1 |
| Valid N (list wise)= 788 | | | | |

Table 3.2 OLS Regressions: determinants of days taken to declare major disasters

| Independent Variables | Model I | Std. Error | Model II | Std. Error |
|---|---|---|---|---|
| (Constant) | 104.43 | (28.88) | 92.25 | (28.59) |
| Incumbent President Vote Share | -3.72** | (1.11) | -2.86* | (1.1) |
| Incumbent President Vote share squared | 0.04** | (0.01) | 0.03* | (0.01) |
| Electoral Importance | -0.27 | (0.11) | -0.44** | (0.11) |
| Same party President and Governor | 0.72 | (1.74) | 0.78 | (1.72) |
| President reelection year | -5.01 | (2.63) | - | |
| 2000 election Year | | | -10.90* | (4.36) |
| 2004 election year | | | -8.44** | (3.23) |
| 2008 election year | | | -7.81** | (2.94) |
| 2012 election year | | | -1.8 | (4.12) |
| Number of NY Times Article | | | 0.55** | (0.1) |
| Number of NY Times Article per day | -4.07** | (0.91) | - | |
| State Real GDP Per capita | 0.00** | (0) | 0.00** | (0) |
| Duration of incident (days) | 0.29** | (0.04) | 0.29** | (0.04) |
| Percentage of counties affected and declared | -0.08* | (0.04) | -0.10** | (0.04) |
| Hurricane | -12.26** | (3.56) | -4.20** | (3.29) |
| Flood or Tornado | -3.24 | (1.96) | -2.19 | (1.95) |
| Number of observations: 758 | Adj R$^2$: 0.195 | | Adj R$^2$: 0.204 | |

** $p<0.01$; *$p<0.05$

Table 3.3 OLS Regressions: determinants of days taken to declare major disasters

| Independent Variables | Model III | Std. Error | Model IV | Std. Error | Model V | Std. Error |
|---|---|---|---|---|---|---|
| (Constant) | 73.52 | (28.64) | 93.5 | (27.94) | 90.24 | (28.64) |
| Incumbent President Vote Share | -2.85** | (1.09) | -3.14** | (1.08) | -3.30** | (1.09) |
| Incumbent President Vote share squared | 0.03** | (0.01) | 0.03** | (0.01) | 0.03** | (0.01) |
| Electoral Importance | -0.23* | (0.10) | -0.21* | (0.10) | -0.18 | (0.16) |
| President Reelection year | -3.74 | (2.58) | -3.82 | (2.59) | -6.93** | (2.62) |
| NY Times Per Day Coverage | -4.27** | (0.89) | -4.25** | (0.89) | -4.22** | (0.90) |
| Republican President | | | -9.77** | (1.72) | | |
| President - Governor Party (reference group: Rep – Dem) | | | | | | |
| Dem - Dem | 10.36** | (2.43) | | | | |
| Rep - Rep | 4.76* | (2.29) | | | | |
| Dem - Rep | 14.20** | (2.43) | | | | |
| FEMA Reorganization in 2003 | | | | | 11.33** | (3.83) |
| FEMA oversight subcommittee membership | | | | | -0.41 | (0.94) |
| Reorganization and subcommittee membership interaction | | | | | 0.26 | (0.93) |
| State Real GDP Per capita | 0.00** | (0.00) | 0.00** | (0.00) | 0.00** | (0.00) |
| Duration of incident (days) | 0.28** | (0.04) | 0.29** | (0.04) | 0.30** | (0.04) |

| | | | | | |
|---|---|---|---|---|---|
| Percentage of counties affected and declared | -0.07 | (0.04) | -0.08* | (0.04) | -0.09* | (0.04) |
| Hurricane | -12.39** | (3.48) | -11.92** | (3.49) | -13.34** | (3.54) |
| Flood or Tornado | -2.29 | (1.92) | -2.74 | (1.92) | -4.18* | (1.95) |
| Number of observations: 758 | | | | | | |

** p<0.01; *p<0.05

Regression Results

   The regression results in model (II) indicate that media attention as represented by number of New York Times articles did not have the expected effect of reducing the delay in presidential disaster declarations. This is a surprising result especially in light of the findings in previous literature with regard to the effect of media coverage on disaster assistance decisions. To check robustness, random events were selected with more than 30-days delays in declaration and found that there does not exist a significant difference in terms of the number of news articles published with the longer time period. A separate specification in model (I) provides evidence for the expected opposite effect for the number of articles per day. The negative coefficient is also statistically significant at the 0.01 level.

   The negative coefficient on the Republican president dummy variable in model (IV) provides evidence that Republican presidents are more likely to declare a disaster with shorter delay than Democratic presidents, a result that runs counter to those obtained in the literature, which has found evidence that Democratic presidents award more disaster declarations with shorter delays (Husted & Nickerson, 2014; Langabeer et al., 2012).

   There is theoretical literature that predicts that political actors (presidents in this paper) would redistribute funds to marginal and swing states in order to maximize their chance of winning elections (Lindbeck & Weibull, 1987, 1993). Another strand of the literature (Cog & McCubbins, 1986) argues that ideological considerations would induce policymakers to allocate more funds to those districts where they enjoy more support. To test the latter argument, the current chapter hypothesizes that presidents would respond

faster in declaring major disasters if the disasters in question occurred in states that have higher proportions of voters who voted for the president. In the regressions run for this study, the main electoral incentive variables, the "vote share of incumbent president" and the "electoral importance" both take the expected negative sign and are statistically significant (though the significance of the electoral importance variable is low).

To compare some of the present results with similar existing literature (Langabeer et al., 2012) that covers a different time period (1993-2005), a one-way ANOVA was performed on the mean "days to declare disasters" by combinations of presidents and governors who may or may not have different party affiliations. The main finding here is that the average number of days it takes for a presidential declaration changes significantly depending on the combination used. The shortest average delay for a presidential disaster declaration in the sample occurs when the president is a Republican and the governor is a Democrat. The longest average delay is found when the president is a Democrat and the governor is a Republican. This is in contrast to the finding by Langabeer et al. (2012) who provide evidence that the shortest delay occurs when the president is a Democrat and the governor is a Republican. In addition, they find that the longest delay occurred in their data when both the president and the governor were from the Democratic Party. Further regression results obtained in the sample used here show that the average number of days it takes for a presidential disaster declaration is significantly shorter for the Republican-president-cum-Democratic-governor combination than the Democratic-president-cum-Democratic-governor and Democratic-president-cum-Republican-governor combinations (both at $\alpha=0.05$), and Republican-president-cum-Republican-governor combination (at $\alpha=0.1$). Similarly, the Republican-

president-cum-Republican-governor combination takes significantly shorter to make a presidential disaster declaration than the Democratic-president-cum-Republican-governor combination. In short, the conclusion is that generally republican presidents declare disasters with a shorter delay than democratic presidents. The differences in results across the two samples likely reflect the effect of omitted variables. The finding that if the president and the governor belong to different parties it takes longer for the president to declare a major disaster is confirmed in other studies. Cox and McCubbins (1993) provide a theoretical explanation, while Arulampalam et al. (2004) argue that when the electoral returns from spending are shared between state and central government, central government loses part of the electoral benefit from spending if the transferred funds go to a governor of the opponent party.

Inclusion of the "FEMA oversight subcommittee membership" variable in the regressions allows an exploration of the relationship between the time it takes for a presidential declaration and the influence of oversight subcommittee members. Oversight committee membership was included as a predictor because several previous studies have suggested that membership on such a committee may positively impact the allocation of disaster assistance by FEMA. This is a specific instance of the general result found in the literature that states receive additional funds if their representatives are members of different congressional committees. For instance, Carsey and Rundquist (1999) found that states represented by Democrats on a defense committee receive statistically significant increases in per-capita military procurement awards. A similar finding is reported by Bickers and Stein (2000) who provide evidence that the Republican majority of the 104th Congress changed the composition of federal expenditures in favor of

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programs that are ideologically and politically compatible with the interests of republican representatives. Further, the theoretical literature emphasizes other channels through which oversight committees influence the budget allocation given their advantage in terms of both agenda-setting power and access to information (Shepsle & Weingast, 1987; McKelvey & Ordeshook, 1980; and Krehbiel, 1991). The empirical literature on the influence of congressional committees yield is vast. Typically, this literature focuses on specific spending categories rather than on aggregates[3]. The finding of the current paper with respect to the effect of membership in FEMA subcommittees on disaster declarations is consistent with the existing literature. As regression results reported in Model V, Table 3.3 show, the coefficient of the committee membership variable takes the expected sign, though the coefficient is not statistically significant.

To conclude, results from this study provide evidence that there is a strong link between presidential elections and disaster declarations. States showing a higher support in the previous election and highly competitive states experience a shorter delay in disaster declarations as expected. Additionally, presidential disaster declarations are also influenced by the election year: during the election year declaration delays are much shorter in comparison other years. The salience of the disaster events as measured by the media coverage provides important incentives to decision-makers who are interested in increasing their share of the overall vote. The results in this paper show that the influence of media coverage in domestic disaster assistance decisions depends on how media coverage is measured. The researcher found that while the total number of articles does

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[3] Some of the studies on committee influence are Aldrich and Rhode (2000), Alvarez and Saving (1997), Knight (2005), and Levitt and Poterba (1999).

not yield significant results, the number of articles appearing in *The New York Times* per

day is negatively and statistically significantly correlated with the time taken for

presidential disaster declarations.

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# CHAPTER IV

## CHARITABLE CONTRIBUTIONS AND FEDERAL PUBLIC WELFARE GRANTS

### Abstract

In this chapter, I explore whether private charitable giving crowds out federal government grants to states. Given the complex determinants of federal grants to states, it is difficult to identify the crowding out of federal grants by charitable giving at the state level, but under certain conditions the study shows that it is possible to find evidence that charitable giving leads to a change in the composition of federal grants to states. Using a panel of 50 U.S. states over a period 2005 - 2013, I find that there exists a statistically significant negative association between charitable contributions and the proportion of federal public welfare grants to state governments.

## 4.1 Introduction

Public goods, such as education, health, and welfare programs are typically provided by both the public (governmental) and private sectors. Non-governmental provision of public goods comes from different sources, the major funding sources being nonprofits, private foundations, religious institutions, and bequests. Because the governmental and non-governmental sectors interact as providers of public goods, an increase in the provision of these goods by one sector may lead to a reduction by the other. This is described as the notion of 'crowding out' in the context of public good provision. When, for instance, government spending on the social safety net increases, individual charities or non-profit organizations may decrease their spending on similar programs either as a result of reduced charitable contributions by the public or because of reduced efforts by charitable organizations to raise funds. This phenomenon can also

occur in the opposite direction. Governments may also reduce the amount of public goods they supply in response to an increase in the private provision of public goods by non-governmental organizations or charities.

Government contributions also come from a number of sources. By directly or indirectly financing the provision of public goods in the states of the union, federal government transfers to states make up at least partially the gap between the revenues and the expenditures of the states. According to the Census Bureau, around 35.5% of U.S. state government revenues in 2010 came from federal transfers and more than half of these were in the form of welfare grants. The 2010 State Government Finance Summary indicates that $315.5 billion out of the total of $555.3 billion federal grants to states were allocated as welfare grants. The "public welfare" category includes Temporary Assistance to Needy Families (TANF) and Medicaid among others. The major non-welfare sectors that received federal transfer grants were highways and education.

According to Giving USA (2011), there has been a dramatic increase in charitable donations in the United States over the last fifty years. Charitable donations grew from $91.2 billion in 1965 to $290 in 2010 and to $358 billion in 2014 (Giving USA, 2015). This amount is about 2% of the 2015 U.S. GDP[4]. The availability of significant amounts of charitable donations can make state-level policymakers less enthusiastic about going after more federal grants that are categorized as 'welfare' but more interested in obtaining federal grants allocated to non-welfare purposes (and vice versa).

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[4] According to a recent estimate by Giving USA, in 2014 major recipient organizations were categorized as religion, education, human services, gifts to foundations, and health, in order of magnitude. In terms of donors, biggest donors are individuals or households followed by bequests, foundations, and corporations.

The existing literature that focuses on the crowding out of charitable donations by government spending on public goods dates back to the early 1980s. Warr (1982) and Roberts (1984) provide evidence that redistribution by the government causes individual donors to reduce their voluntary contributions dollar-for-dollar. This perfect crowding out is based on a theoretical framework where individuals are purely altruistic and care only about the total amount of public goods provided. Other researchers provide mixed evidence on the relationship between government spending and charitable contributions. More realistic theoretical models, where individuals are impurely altruistic, have been developed by Andreoni (1989, 1990). Much of the work on the magnitude of the crowding out of private charitable contributions by government spending has found that though there is a crowding-out effect it is less than perfect. However, there are very few papers (Garrett & Rhine, 2007; Heutel, 2010; Sav, 2012) that try to identify the direction of the causal link that connects charitable donation and government spending, and hypothesize that causality is such that it is charitable donations that affect government spending. The mechanism suggested here is that a reduction in charitable giving may cause fundraisers to seek additional funding from other sources, namely the government. A similar line of reasoning is followed by Heutel (2014) who discusses a recent example from global public health initiatives that illustrates the phenomenon of the causality running from charitable giving to government welfare spending. Smith and MacKellar (2007) show that international assistance on health research and development and communicable disease control has crowded out recipient country government spending in these areas. Moreover, availability of philanthropic funds for medical research in less

developed countries is crowding out funding from developed country governments (Cohen, 2006).

Data in the State Government Finances Summary (2010) shows that the percentage of welfare grants in total federal grants differs between states by a large margin. As an example, in 2010, 73.5% of the total federal grants to Nebraska were designated as welfare grants, whereas welfare grants were 21.3% of total grants to Wyoming. This paper empirically tests the suggestion by Garrett and Rhine (2007) that charitable donations could be an important factor in explaining the difference in the proportion of federal welfare grants to U.S. states. Garrett and Rhine (2007) show that as more private contributions flow to charitable institutions as a result of increased fundraising efforts, these institutions reduce their efforts to obtain federal grants with the consequence that federal fund to the institutions decrease. In the empirical model set up below, I expect that as a state receives more charitable donations, the amount of federal grants/transfers it receives for welfare spending decreases (perhaps as a result of reduced effort to obtain such federal funding).

Following a similar logic, Sav (2012) examines the effect of private giving on the state government funding of more than 1000 U.S. public colleges and universities and finds that, after controlling for changes in the business cycle and changes in possible government spending priorities over time, private donations partially displace state government funding at the rate of 83 cents on the dollar (see also Sav (2010) for a similar study on the same topic). Another study by Heutel (2010) which examines whether the federal government alters its grants in response to the level of private contributions, found no evidence of an effect of private donations on government grants. In addition to

exploring the mechanism that links government's response to private charities, Heutel (2014) used the signaling model, which posits that government grants function as a signal about the quality of nonprofits and result in a crowd in of private donations.

Heutel (2010) used a large panel data set gathered from the tax returns of nonprofit organizations to examine if when the government observes that private donations to a charity have risen, there is an effect of a reduction in the government support in the area where the charity operates. Heutel (2010) provides evidence that in regressions estimating the effect of private donations on government grants, the coefficient is not significantly different from zero. Likewise, Garrett and Rhine (2007) use co-integration tests to test for long-run relationships between several categories of both charitable giving and government spending. They also carried out Granger causality tests to find out about the direction of causality in the short-term link that connects government spending to charitable giving. Granger causality allowed Garrett and Rhine (2007) to examine not only how government spending influences charitable giving, but also to look at the possibility that charitable giving can influence government spending. While the majority of the causality tests reveal no evidence that charitable giving influences government spending, charitable donations in education are shown to influence federal spending on education. Using time-series (for the period of 1965 to 2003) from the United States, Garrett and Rhine (2007) show that a decrease in aggregate state and local education spending leads to an increase in charitable donations that goes to the education sector, which in turn, leads to a decrease in federal spending on education.

Most of the literature on the response of the government to private donations has characterized the government's response as "free riding". In an article on the crowding-

out of government spending due to private charity, Becker and Lindsay (1994) examine

the response of state and local governments to voluntary charitable giving and find

convincing evidence that private charity donations crowd out spending by these

governments.

In what follows, I examine the effect of charitable giving on government spending

on welfare. The study differs from the existing literature in that its focus is on the

composition of federal grants rather than their absolute level and how the composition is

influenced by the level of charitable donations. The next section will discuss the types of

federal aid to state and local governments and is followed by a section that gives a

general overview of charitable giving in the U.S. After presenting the data and the

empirical methods used, I set up the empirical model and present the main results

concerning the causal link between federal grants in public welfare and charitable giving.

The final section presents the conclusions from the empirical model and its limitations.

### 4.1.1 Federal Aid to State and Local Governments

As reported in the Office of Management and Budget, Historical Tables, the

percentage of the federal budget allocated to grants to state and local governments has

fluctuated significantly over time, going from 7.6% in 1960 to 15.5% in 1980, falling

back to 11 percent in 1990, then rising to almost 17% in 2011. Moreover, in 2010, 55%

of federal grants were provided by the Department of Health and Human Services. The

next largest department is Education with 12% of grants, then followed by Transportation

with 10 percent of the total grants. According to the document "Federal Aid to States for

Fiscal Year 2010", the resources that the federal government allocates to state and local

governments takes one of the following six forms:

- Direct cash grants to state or local government units which can take the form of either categorical grants for specific programs (like Head Start) or block grants for a general purpose or policy area (like education).

- Payments for grants-in-kind. Examples include purchases of commodities distributed to state or local government institutions, such as food for school lunch programs.

- Payments to non-government entities when such payments result in cash or in-kind services passed on to state or local governments. One example is payments to the American Printing House for the Blind.

- Payments to regional commissions and organizations that are redistributed at the state or local level. Examples include programs such as the Panhandle Regional Narcotics Trafficking Task Force (which was disbanded in 2004) or regional commissions on environmental quality.

- Federal government payments to state and local governments for research and development. These are an integral part of the provision of public services. Examples are research on crime control financed from law enforcement assistance grants or research on mental health associated with the provision of mental rehabilitation services.

- Federal revenues shared with state and local governments. These payments to state or local governments are computed as a percentage of the proceeds from the sale of certain federal property, products, or services (e.g., payments from receipts for Oregon and California grant lands) or are other collections by the federal government that are passed on to state or local governments.

The first of these types, direct cash grants to state or local governmental units, represents the most important single type of federal aid. Direct cash grants in turn can be divided into two types: categorical grants for specific programs and block grants (for general purposes or policy areas that might include a number of related programs).

Since state and local governments are in the best position to more efficiently and effectively implement programs that require localized knowledge and because benefits from those programs may extend beyond their jurisdictions, the federal government makes grants to state and local governments. Federal grants are also used to redistribute resources among communities and individuals. Furthermore, some federal grants can also help stabilize the economy and can be used by the federal government to implement its priorities (CBO, 2013).

### 4.1.2 Charitable giving in the USA

There are four primary sources of charitable gifts to nonprofit organizations in the United States. These are individual or household donations, independent or private foundations, corporations, and charitable bequests. Individual gifts are the largest source of gifts to charitable causes in the United States. Giving USA 2012 estimates around 73% of charitable donations in the U.S. are given by individuals or households.  In 2011, estimated individual or household contributions were $217.79 billion an estimates of giving by foundations, corporations, and bequest were respectively $41.67 billion, $14.55 billion, and $24.41 billion.
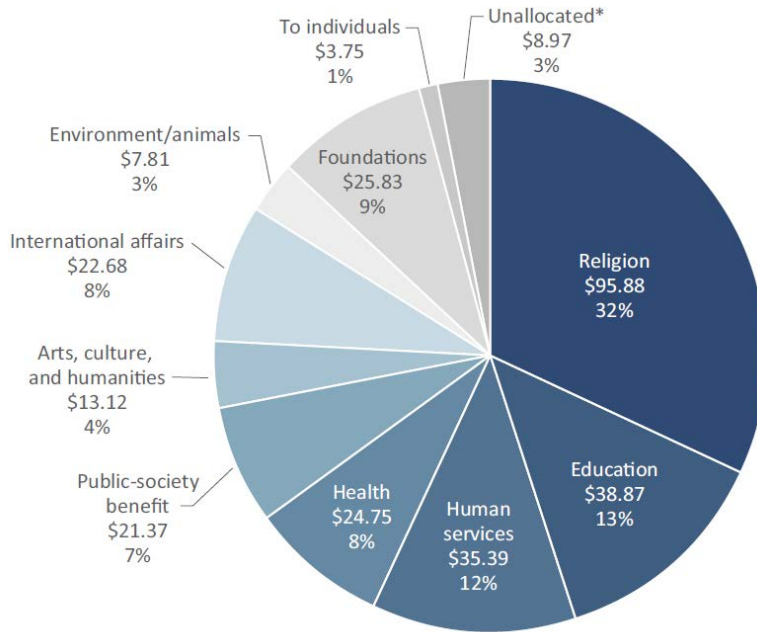
*Figure 4.1.* 2011 contributions by the type of recipient organization (in billions of dollars –all figures are rounded) (Source: Giving USA, 2012)

As shown in Figure 4.1, the major recipient organizations operate in fields categorized as religious, educational, human services, foundations, and health. Estimates by Giving USA indicate that the relative size of donors and recipient types have remained somewhat the same for several years.

Because the focus in this study is on the impact of charitable giving in a state, a discussion on the workings of nonprofit charitable organizations engaged in public welfare is helpful in understanding the importance of charitable giving. First, investment income, contributions, and program service revenues are the three major sources of revenues for nonprofit charitable organizations exempt from the income tax under Internal Revenue Code (IRC) section 501 (c) (3). Of the total reported revenue of $1.6 trillion in 2010, $344.9 billion was received from donors and grant makers (Arnsberger,

2014)[5]. The National Center for Charitable Statistics classifies tax-exempt entities into nine major categories. According to this classification, the three major categories of nonprofit charitable organizations in terms of total assets and revenue in 2010 are health, education, and human services. Other major areas where tax-exempt nonprofit organizations serve functions are the arts, culture and humanities, the environment, animal welfare, international and foreign affairs, mutual membership benefit, public societal benefit, and religion related.

### 4.1.3 Charitable giving and itemized deductions

Because state-wise charitable giving is key to the study, individual or household itemized contributions reported by the Internal Revenue Service (IRS) will be used in our analysis instead of the national aggregates estimated by Giving USA Foundation, which are not decomposed to the state level. A widely used and readily available measure of state-wise charitable giving in terms of both the extent and depth is provided in Gabler et al., (2012). The percentage of tax filers who donate to charity indicates the extent of generosity, while the percentage of aggregate personal income donated to charity indicates the depth of charitable giving. 2011 tax return data indicates that nationwide 26% of tax filers donated to charity, while the percentage of aggregate income donated was at 2.09%[6].

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[5] Private foundations, religious organizations and nonprofit with less than $50,000 revenue that are not required to file tax return are not included in this amount.

[6] Although here the motivations behind charitable giving and particularly motivations for itemized deductions are not considered here, the fact that "as your income tax bracket increases, the real cost of your charitable gift decreases, making contributions more attractive for those in higher brackets" helps explain why high income individuals and households are likely to opt for an itemized deduction rather than a standard deduction in their tax returns.

Another measure of charitable giving used by Havens and Schervish (2005) calculates the ratio of the share of contributions to the share of the income of the state, indicating how the charitable giving by the residents of a state is related to their income. The authors use three measures of aggregate household income: gross household income, gross household income after taxes, and gross household income after taxes adjusted for cost of living. Average charitable contributions per return and average charitable contributions per return with itemized charitable contributions are also used to make comparisons across states. Statistics of Income (SoI) IRS (2011) shows that West Virginia with $620 and Utah with $2,515 had respectively the minimum and the maximum average charitable contributions per return. Similarly, Rhode Island with $2,789 and Wyoming with $9,870 are the states with the minimum and the maximum average charitable contributions per return with itemized charitable contributions.

In what follows the first of these methods assesses the relative position of a state in terms of charitable giving. Percentage of adjusted gross income donated and reported in IRS itemized deductions will be the main variable of interest. As the percentage of charitable contributions in the state of Utah is exceptionally higher in all sample years compared to the rest of U.S. states, Utah is considered to be an outlier with a special culture of charity and it is excluded from the sample in our regression models.

## 4.2 Data and Method

Following the theoretical literature on crowding out (Andreoni, 1989 and 1990; Warr, 1982) and the empirical literature that focuses on the causal link running from charitable giving to federal welfare grants (Garrett & Rhine, 2007; Heutel, 2010; and Sav, 2012), in this chapter I tested two main hypotheses: (1) charitable giving in a state will

crowd out the proportion of public welfare federal grants allocated to state and local

governments, and (2) charitable giving in a state will crowd out the proportion of public

welfare federal grants allocated to state governments.

This study uses State Government Finances, and State and Local Government

Finance, U.S. Census Bureau for data on dependent variables: percentage of federal

grants allocated to public welfare, per-capita public welfare grants, and public welfare

expenditures as percent of direct general expenditures. Data for the main explanatory

variable, that is annual charitable contributions as percent of adjusted gross income, are

drawn from the Statistics of Income, Internal Revenue Service. Party affiliations of state

Governors are obtained from the National Governors Association. Percentage of state-

wise congressional delegates from the Democratic Party comes from the U.S. Congress

website. All other demographic variables are obtained from the U.S. Census Bureau.

Federal public welfare grants are a part of total federal grants allocated to

different spending categories such as public welfare, highways, education, and health and

hospital. Public welfare expenditures are calculated as the percentage of State and Local

government direct general expenditures[7]. All expenditures, charitable donations, and

incomes denoted in dollars are per capita figures and have been converted to 2011 dollars

using the Consumer Price Index (CPI). Controls for economic, demographic, and political

conditions include the following variables: the age dependency ratio, child dependency

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[7] Direct general expenditures by state and local governments are allocated to the following functions:
education services, social services and income maintenance, transportation, public safety, environment and
housing, governmental administration, interest on general debt, and other general expenditures. Only
"general" state and local revenues and expenditures have been included (leaving out liquor stores, utilities,
and insurance trust funds, which comprise approximately 7.5% of total expenditures and 11.5% of total
revenues).

ratio, old-age dependency ratio, percent of state population below 100%, 135%, and 150% poverty, percent of homeowners, miles per-capita, the fraction of the states' U.S. Congress and Senate delegations that are Democrats, a dummy for whether the state governor is a Democrat, and the non-white population[8]. The next section discusses the reasons why these control variables are included in the regressions.

As Table 4.2 shows, the differences in the proportion of federal grants allocated to public welfare can be substantial among states. In one sample year, for example, public welfare grants accounted for 70% of the federal grants received by Ohio, whereas in the same year for North Dakota this proportion was only 42%. While this difference may be due to a number of different factors, it is useful to ask how much of it can be attributed to nonprofit charitable activity in the state, measured here by charitable giving as percent of adjusted gross income. For this purpose I estimated the following equation:

$$PRFEDPW_{st} = \alpha_s + \beta_t + \gamma_R + \theta_1 CHARGIV_{ist-2} + \theta\, Z_{st-1} + \varepsilon_{st},$$

$$s = 1, \ldots .50; \quad t = 2005, \ldots ..2013; R$$

$$= MidWest, NorthEast, South, and West$$

where, $PRFEDPW_{st}$ denotes the proportion of federal grants to a state that is allocated to public welfare in state $s$ in year $t$. State-fixed effects, year dummies, and region dummies are denoted by $\alpha_s$, $\beta_t$, and $\gamma_R$ respectively. $CHARGIV_{ist-2}$, the main explanatory variable, is the percentage of adjusted gross income that is reported as charitable giving in IRS tax filings two years previously, but are reported to the public in

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[8] The age dependency ratio is derived by dividing the combined under-18 and 65-and-over populations by the 18-to-64 population and multiplying by 100. The child dependency ratio is derived by dividing the population under 18 by the 18-to-64 population and multiplying by 100. The old-age dependency ratio is derived by dividing the population 65 and over by the 18-to-64 population and multiplying by 100.

the current year in Statistics of Income (SOI). $Z_{st-1}$ is a vector that includes all economic, political and demographic control variables. These are the percentage of population below 100%, 135%, and 150% ; age dependency ratio, child dependency ratio, old age dependency ratio, percent of non-white population, percent of homeowners, miles per-capita, percent of congressional delegates from the Democratic Party in a state, and dummy variables indicating whether the U.S. president and the state governor are democrats.

In an effort to use as reliable information as possible on annual charitable giving in a state, an attempt was made to extract the tax return information of 501 (c) (3) public charities. Such tax-exempt organizations file Form 990. The problem with the forms 990, Return of Organization Exempt from Income Tax and the 990-EZ worksheet available from IRS is that, they report aggregates on the form as "Contributions, gifts, grants and other similar amounts" which is composed of (1a) Federated campaigns, (b) Membership dues, (c) Fundraising events, (d) Related organizations, (e) Government grants (contributions), (f) All other contributions, gifts, grants, and similar amounts not included above, and (g) Noncash contributions included in lines 1a-1f. To obtain more granular information, data on charitable donations was used from individual and household itemized deductions in the IRS form 1040. Because gifts and contributions above $250 or more can be deducted from taxable income all contributions above $250 or more are reported on Form 1040 if the filers have itemized the deduction instead of choosing the standard deduction. The drawback of using the Form 1040 individual returns to obtain data on charitable giving is that only about 33% of U.S. taxpayers chose to itemize deductions on their tax return in 2010. However, this may not be a significant drawback

as Giving USA estimates that giving through individual itemized deductions represents about 80% of all individual or household giving in the U.S.

The dependent variables used in the empirical model are specific revenue and expenditure components of state and local governments. Government finance statistics reported by the U.S. Census Bureau categorize the government fiscal activity in four broad sectors: general government, utilities, liquor stores, and insurance trust. Our main dependent variable, the proportion of public welfare grants in total federal government grants, and public welfare expenditures are calculated using the 'general government' category amounts as the denominator. The "general government" quantities reported include all government revenue and expenditure activities related to general government functions such as public protection, education, health and welfare.

### 4.1.1 Modeling Federal aid to state and local government in the presence of charitable giving

The hypothesis that there exists a reverse causality running from charitable giving to federal welfare grants is in part motivated by the work of Garrett & Rhine (2007), and Heutel (2014). In these papers the question of reverse causality is treated as an extension to the main empirical model, which tests the effects of government spending in specific sectors on charitable giving. Garrett & Rhine (2007) hypothesize that a reduction in charitable giving may cause fundraisers to seek additional funding from other sources such as the federal government. Thus, the mechanism they consider is an indirect one. Heutel (2014), on the other hand, focuses on the efforts of individual charity administrators to substitute funds from federal grants for money received from individual donors.

The mechanism I hypothesize here is that in response to changes in charitable giving state administrators themselves attempt to change the composition of the federal grants that the state receives and may also do the same for state spending by changing its allocation to different areas that are important for their constituents. This would especially be true in cases where the federal government is largely unaware of changes in charitable giving and the private provision of public goods (such as welfare, safety net) in a state. As assistance from the private sector becomes an important part of total welfare spending within a state9, the burden on public sector safety net programs (which are also known as welfare programs) eases, which in turn may lead state administrators to reduce the state expenditure in these areas.10

Federal provision of social services may be direct or indirect. While direct federal provision of social services is relatively minor, the federal government delivers a significant amount of social services indirectly through state and local governments and nonprofit non-governmental organizations. The latter receive funds from the federal, state, and local governments as well as from private donors. State governments take into consideration these different providers of services within their state when making decisions on how much of their own resources to allocate to these services and how much federal assistance to ask for.

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9 According to Crowe (2015), in 2010, there were approximately 124,360 public charities that registered as human service organizations with the IRS. With reported $189.9 billion in expenses they comprised 34% of the entire non-profit sector (Blackwood et al. 2012). These community based organizations work to meet the needs of low-income families and bridge the gap by offering services not provided by the government programs. Major assistance provided by the community-based organizations are food, clothing, housing and cash assistance.

10 Note that, although service provided by non-profits that receive reimbursement grants under government contract is significant part of spending for some non-profits, such reimbursements are not treated as part of charitable giving in a state.

In this chapter our focus is on the federal provision of social services (aka 'welfare') through grants to state governments and their interaction with the services provided by nonprofit organizations.  To understand the complex web of interactions involving these three actors (namely, the federal and state governments and charitable organizations), it is important to understand how federal government grants to states are defined and measured as well as the resources that the states can marshal to fund their own welfare spending. In terms of measurement the present chapter takes a somewhat different approach than the previous literature on the subject.[11] Thus, while Garrett and Rhine (2007) use the dollar amount of grants and spending in response to charitable giving in a state, here this study uses the proportion of welfare grants and spending allocated by federal and state governments in response to charitable giving in a state. This particular form for the response variable is borrowed from Livingston (2012), who focuses on the change in charitable spending rather than the change in donations in response to changes in government poverty relief spending. Livingston's belief that in response to government spending "charity managers may choose to smooth out spending by either having a surplus or deficit at the end of the year, utilizing other revenue sources, or spending additional time fundraising" seems relevant here as well. I hypothesize that instead of the absolute change in the dollar amount of the grants and spending, the change in its proportion will provide more reliable information as to whether there is crowding out or crowding in of government spending. It is, for instance, conceivable that total

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[11] Garrett and Rhine (2007) is the only article that tests for crowding out of government grants and spending in response to charitable giving in a state. There is however a small literature (see Sav, 2010, 2012) that looks at the response of state education spending to the level of fundraising by colleges and universities.

federal government grants to a state may rise while the proportion allocated to welfare

spending fall in response to an increase charitable giving.

Although there may be several different reasons for government spending to

crowd out private contributions, crowding out in the opposite direction occurs as state

governments choose to reallocate their limited resources to other areas of need.

Theoretically, this is a situation where the state government chooses an optimal level of

the provision of a public good and the contributions from the private sector or individual

donors induces the state government to adjust its funding to attain a new optimal. To see

what is involved in principle, observe Figure 2.2 adapted from Steinberg (1989). The

figure illustrates simple crowding-out where government spending on public goods

responds to a change in private charitable giving.
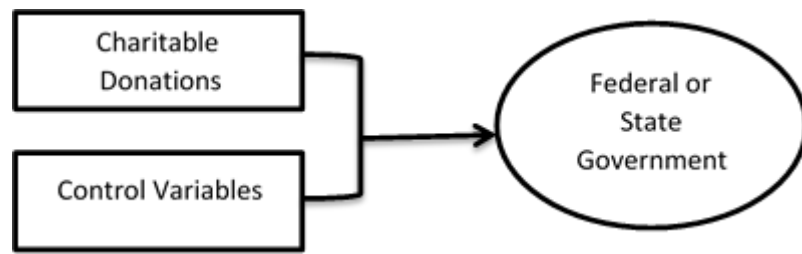
Figure 4.2 Simple crowd-out model.

While the effect of spending by the state government is controlled in the simple

crowding-out model, the joint crowding-out model, as shown in Figure 4.3 adapted from

Steinberg (1989), estimates the total effect of charitable donations in a state. The total

effect comes from two sources; directly from charitable donations to federal government

spending, and charitable donations indirectly affecting federal spending through state

spending. Joint crowding-out is based on the assumption that both the federal government

and the state government react to the level of provision of public goods by nonprofit

organizations in the state. Thus joint crowding-out estimates the sum of direct and

feedback or indirect effects.
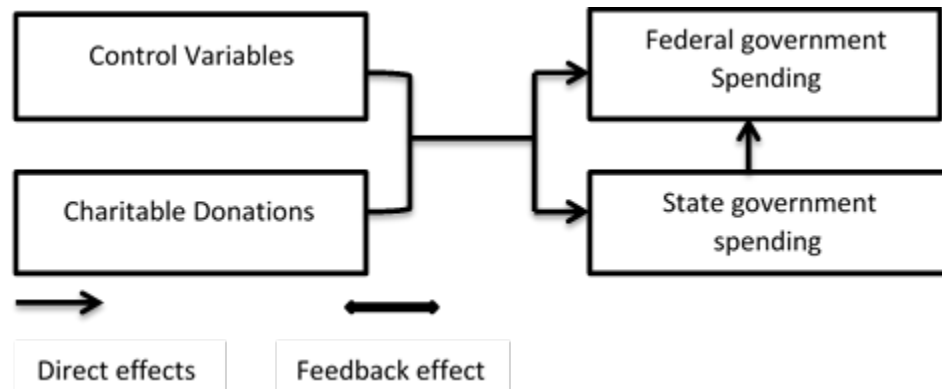


Figure 4.3 Joint crowd-out model

While simple and joint crowding-out are appropriate when estimating changes in

per-capita government spending in response to a change in charitable donations,

aggregate crowding-out will estimate the combined effect on the proportion of

government (federal and state) spending allocated to a specific area in response to a

change in charitable donations. Aggregate crowding-out takes a weighted average of

proportions of spending allocated by the state and federal governments, so that there is

only one equation in the aggregate crowding-out model. The aggregate crowding-out

model is based on the assumption that in making their spending decisions the federal and

state governments take into account each other's reactions to a change in charitable

giving.

In crowding-out models where charitable contributions are affected by

government spending, endogeneity is a serious empirical problem in running an OLS

(Ordinary Least Squares) (Horne, 2006).  Sources of endogenous government spending

may stem from some events that raise demands for both government and private

contributions, such as natural disasters. This problem is less likely to occur in the

empirical setup here, which focuses on the reverse crowding-out. Moreover, it is the

lagged values of charitable donations that are hypothesized to affect federal and state

spending. Specifically, charitable donations in the two previous years can be considered

to be exogenous to current events that may determine current federal and state

government spending.

### 4.2.2 Political factors

The allocation of federal grants to state and local governments in the U.S. is the

outcome of a complex process involving many institutional players and state level

demographic and economic factors. In this section is a brief survey of the relevant

literature to see which political factors come into play in determining federal grants to

states.

In an examination of the consequences of senate apportionment for the

geographical distribution of federal funds, Lee (1998) found that states that are

overrepresented in the Senate are likely to receive greater amount of per capita federal

funding, controlling for other factors. Hoover and Pecorino (2005) obtain a similar result

using a different and longer time period. They find the strongest effect of senate

representation in procurement. Moreover, they present evidence that presidential

influence is also important in awarding project grants. Larcinese et.al. (2006), in their

examination of the allocation of revenues to states as affected by presidential politics,

find that a greater amount federal aid goes to states that support the party of the current

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president. In addition, states that have governors and legislators who are affiliated with the party of the current U.S. president or the party that has the majority in the Senate or the house receive favorable treatment in terms of amount of federal aid (see Hankins et.al., 2015, Lazarus and Steigerwalt, 2009 and Carsey and Rundquist, 1999).

Religious beliefs and political ideology also play a role in determining the level of charitable giving in a given state. A recent analysis by the Chronicle of Philanthropy finds evidence that people in red states are more generous in their charitable contribution and that the 17 most "generous" states voted for Mitt Romney in the last presidential election, while, the seven states at the bottom of the list voted for Barack Obama. It has also been hypothesized that states whose residents prefer redistribution tend to elect representatives who allocate a higher proportion of spending on public welfare. With these two issues in mind, I analyzed the correlation between levels of charitable giving and the percentage of democrat congressional delegates from a state on the one hand and whether the state governor is a democrat on the other hand. The correlation coefficients were within the acceptable range and multicollinearity in regressions was not an issue.

A few papers also study the percentage of each state's House and Senate delegations separately to determine whether they align with majorities in the House or the Senate and whether such alignments affect how federal funds are allocated (Hankins, et.al. 2015; Hoover and Pecorino 2005; and Young and Sobel 2013). These studies find that Senate-level variables affect federal spending differently than House-level variables. This study next examines the proportion of federal funding in specific categories and focuses on the percentage of democrats elected to the House from the state to assess voter preferences for welfare spending.

### 4.1.2 Demographic control variables

State welfare spending depends crucially on economic factors, among which poverty thresholds and levels are the most important determinants of welfare spending. In what follows I use the poverty level reported for each state for each year in the Annual Social and Economic Supplements of Current Population Survey. The Survey categorizes individuals or families as 'poor' if their annual pre-tax cash income is below a dollar amount, or a poverty threshold, which is calculated each year at the federal level. As poverty thresholds are historically used as yardsticks for progress in antipoverty efforts and guide the planning and formulation of antipoverty measures, they are important factors in public welfare spending.

To see what is involved when poverty thresholds are used, observe Table 4.1 which provides an illustration of the poverty threshold in the most recent estimates of the Census Bureau.

Table 4.1 Preliminary estimate of weighted average poverty thresholds for 2014.

| Size of Family Unit | Estimated Threshold |
|---|---|
| 1 person (unrelated individual) | $12,081 |
| Under 65 years | 12,316 |
| 65 years and over | 11,354 |
| 2 people | $15,388 |
| Householder under 65 years | 15,933 |
| Householder 65 years and over | 14,324 |
| 3 people | $18,853 |
| 4 people | 24,221 |
| 5 people | 28,724 |
| 6 people | 32,443 |
| 7 people | 36,974 |
| 8 people | 41,141 |
| 9 people or more | 48,845 |

The Census Bureau preliminary estimate for 2014 considers a four-person family poor if its annual cash income is below $24,221 when income is measured as a weighted average. A four-person family with two adults and two children is categorized as poor if its cash income is below $24,008 when the poverty threshold is measured by the size of family and the number of related children under 28 years (not shown in Table 4.1). The poverty thresholds used in this chapter are percentages of population that fall below different percentage-level poverty thresholds. The reference percentages of poverty threshold used in this chapter are 100%, 135% and 150%.

There are many federal programs categorized as public welfare spending that use different levels of poverty thresholds as guidelines in determining eligibility. Some of these are Community Service Block Grants, Head Start, Supplemental Nutrition Program (SNAP, formerly Food Stamp Program), National School Lunch Program, and Child and Adult Care Food Program. Major mean-tested programs such as Temporary Assistance for Needy Families (TANF), Supplemental Security Income, the Earned Income Tax Credit (EITC), and Social Service Block Grants do not use poverty guidelines in determining eligibility

One issue that arises when using poverty thresholds as regressors is that poverty levels can potentially be thought of as endogenous. The validity of the poverty level as a regressor in our empirical model is based on the observation that it takes several years for the intended effect of government spending to be realized. Moreover, this study uses lagged values of poverty levels to deal with the potential problem of endogeneity. It is hard to argue convincingly that current welfare spending affects poverty levels in previous years.

Interstate and year-to-year differences in the proportion of welfare spending can be further controlled either by including separate dummy variables for the states and years in the regression equation or by using demographic variables that are likely to explain the variation of tastes across states. Even after controlling for state demographic variables, including state and year fixed-effects will help capture any effects of unobservable variables across states and years.

Including the proportion of non-white population in the empirical model may have two effects. First, this population may have a different perceived need for public

welfare spending that may be due to special affirmative action needed beyond those associated with poverty. Second, voters and policy makers in a state may have different preferences for public welfare if recipients of such programs are non-white. The importance of including the proportion of non-white population in determining the level of welfare spending is discussed in length in Alesian et.al. (2001), who find that race is the most important predictor of the support for welfare. The proportion of the immigrant population can be another explanatory variable that helps determine the proportion of welfare spending. However, there is empirical evidence that immigrants tend to live in states that offer the highest welfare benefits (Borjas, 1999). If this is the case, including the proportion of the immigrant population in the regression will give rise to the endogeneity problem.

Following the previous literature (Lindsey and Steinberg 1990), I include road mileage per capita by state in the regressions as a regressor to control for the possible effect of population dispersion on state spending on public welfare. A population that is more dispersed throughout the state is expected to increase the cost of welfare spending and, thus, lead to higher spending ceteris paribus.

Finally, the study includes a variable representing the percentage of homeowners in the state as a regressor. Homeowners tend to be more sensitive to increases in property taxes than renters. Moreover, as homeowners prefer to allocate more resources to programs associated with housing, such as mortgage credit, they tend to prefer, ipso facto, reduced welfare spending.

## 4.3 Results and Discussions

Table 4.2 Descriptive Statistics

| Variables | N | Min | Max | Mean | Std. Dev. |
|---|---|---|---|---|---|
| Public welfare grant as % of total federal grants to State and Local Governments | 400 | 16.10 | 66.43 | 49.01 | 9.55 |
| Real per-capita public welfare grant to State and Local Governments (2011 dollars) | 400 | 344.73 | 2024.47 | 955.00 | 304.29 |
| Public welfare as % of state and local government direct general expenditure (including own source) | 400 | 9.76 | 27.00 | 17.96 | 3.64 |
| Real per-capita public welfare expenditure by state and local governments (including own source) | 400 | 654.13 | 2616.02 | 1457.40 | 399.27 |
| Public welfare as % of total federal grants to states | 450 | 17.05 | 74.33 | 54.11 | 10.14 |
| Real per-capita public welfare grant to states | 450 | 344.71 | 2016.62 | 953.46 | 304.77 |
| Public welfare as % of state direct general expenditure (including own source) | 450 | 14.20 | 41.34 | 26.72 | 5.08 |
| Real per-capita public welfare expenditure by states (including own source) | 450 | 631.39 | 2892.45 | 1479.44 | 411.55 |
| Charitable contributions as % of Adjusted Gross Income (as reported in IRS itemized deductions) | 450 | 1.22 | 5.21 | 2.21 | 0.60 |
| Real per-capita charitable contributions (2011 dollars) | 450 | 249.16 | 1234.80 | 578.36 | 165.66 |
| Percent of population below 100% poverty | 450 | 5.43 | 23.11 | 12.89 | 3.28 |
| below 135% | 450 | 8.91 | 31.88 | 19.16 | 4.35 |
| below 150% | 450 | 10.46 | 35.55 | 21.95 | 4.75 |
| Age dependency ratio | 450 | 51.42 | 68.43 | 59.21 | 3.25 |
| Child dependency ratio | 450 | 30.91 | 52.90 | 38.53 | 3.44 |
| Old age dependency ratio | 450 | 9.78 | 29.76 | 20.68 | 3.10 |
| Percent of non-white population | 450 | 3.28 | 74.35 | 18.44 | 12.04 |
| Percent of homeowners | 450 | 53.60 | 81.30 | 69.72 | 4.88 |
| Miles per-capita | 450 | 0.007 | 0.277 | 0.048 | 0.049 |
| Percent of congressional delegates from democrats | 450 | 0.00 | 100 | 48.82 | 26.16 |

| | | | | | |
|---|---|---|---|---|---|
| President-Democrat | 450 | 0.00 | 1.00 | 0.44 | 0.50 |
| State Governor- Democrat | 450 | 0.00 | 1.00 | 0.47 | 0.50 |

The descriptive statistics in Table 4.2 show that dependent variables that measure grants received by and spending done by 'state and local government' contain 400 observations, whereas dependent variables that pertain only to states and all other explanatory variables have 450 observations. The reason for this difference is the unavailability of data pertaining to 'state and local' for the most recent year in the sample. Despite the availability of 400 and 450 observations, the regression models presented in Tables 4.3 and onwards consider only 392 and 441 observations respectively. The smaller number of observations is due to exclusion of an outlier state (Utah) from the sample. As can be seen in Table 4.2, the independent variable 'charitable contributions as % of Adjusted Gross Income (AGI) takes a maximum value of 5.21%. The state of Utah has this considerably higher level of charitable contributions as % of AGI for all the sample years and is excluded from the sample.

The main variable of interest, 'the percentage of federal grants that is dedicated to public welfare', takes the minimum of 16% and the maximum of 66% for state and local governments, these figures for state governments are 17% and 74% respectively. Finally, the main explanatory variable 'charitable contribution as percent of AGI' takes a mean of 2.21% (SD=0.6) while the 'real per-capita charitable contribution (2011 dollars)' takes a mean of $578 (SD= $166).

Table 4.3 Effects of charitable contributions on federal public welfare grants and own source expenditure of state and local governments.

| Independent Variables | Public Welfare as % of Total grants to State and Local Governments | | | | Real Per-capita public welfare grant to State and Local Governments | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | |
| Charitable Contribution as % of AGI or Per capita Charitable Contributions | -3.762** | (1.112) | -0.54 | (0.974) | 0.022 | (0.110) | -0.414** | (0.098) |
| Percent below 135% poverty | -0.009 | (0.100) | 0.70** | (0.111) | 1.751 | (3.701) | 38.574** | (4.251) |
| below 100% # | -0.098 | (0.121) | 0.807** | (0.143) | 2.330 | (4.477) | 46.553** | (5.334) |
| below 150% # | -0.011 | (0.097) | 0.649** | (0.101) | 2.132 | (3.573) | 35.987** | (3.888) |
| Age dependency ratio | -0.209 | (0.164) | 0.752** | (0.144) | -4.020 | (6.062) | -13.259** | (4.94) |
| Child dependency ratio# | -0.452* | (0.270) | 0.191 | (0.191) | -19.357* | (10.703) | -5.607 | (6.362) |
| Old age dependency ratio# | -0.045 | (0.165) | 0.575** | (0.138) | 2.496 | (6.026) | -8.893** | (4.725) |
| Percentage of Non-white population | 0.475 | (0.275) | -0.121** | (0.039) | -2.842 | (10.095) | 5.554** | (1.332) |
| Percentage of homeowners | -0.100 | (0.141) | -0.095 | (0.096) | 2.947 | (5.142) | 11.053 | (3.424) |
| Miles Per-capita | 93.039 | (79.46) | -99.11** | (8.350) | 4153.743 | (3031.816) | 278.858 | (292.771) |
| Percentage of Democrat Congressional Delegates | -0.008 | (0.008) | 0.055** | (0.014) | 0.611** | (0.282) | 0.54 | (0.486) |
| Democratic President -dummy | -1.779** | (0.492) | -- | | 162.182** | (18.669) | -- | |
| Democratic Governor -dummy | -0.253 | (0.443) | 0.392 | (0.711) | 33.172** | (16.17) | 21.203 | (24.511) |
| Region- dummies | -- | | | | -- | | | |
| Northeast | | | 1.027 | (1.265) | | | 329.331** | (43.25) |
| South | | | -4.748** | (1.349) | | | -181.325** | (46.216) |

Table 4.3 continued.

| | | | | |
|---|---|---|---|---|
| West | | -11.118** (1.114) | | -84.877** (42.426) |
| State Fixed Effect | Yes | No | Yes | No |
| Year Fixed Effect | No | Yes | No | Yes |
| Number of Observations: | 392 | 392 | 392 | 392 |

Table 4.3 columns continued.

| Independent Variables | Public Welfare as % of State and Local Governments general expenditure | | Real per-capita public welfare expenditure by State and local Governments | |
|---|---|---|---|---|
| | (5) | (6) | (7) | (8) |
| Charitable Contribution as % of AGI or | | | | |
| Per capita Charitable Contributions | -1.133** (0.3531) | -1.737** (0.422) | -0.162 (0.106) | -0.385** (0.128) |
| Percent below 135% poverty | 0.072** (0.032) | 0.193** (0.045) | 10.389** (3.755) | 13.956** (5.583) |
| below 100% # | 0.097** (0.038) | 0.252** (0.06) | 13.874** (4.456) | 16.538** (6.964) |
| below 150% # | 0.07** (0.031) | 0.166** (0.041) | 10.08** (3.603) | 11.96** (5.11) |
| Age dependency ratio | 0.168** (0.056) | 0.009 (0.062) | 5.805 (6.404) | -29.154** (6.450) |
| Child dependency ratio# | 0.039 (0.086) | -0.423** (0.07) | -55.212** (9.044) | -11.565 (8.06) |
| Old age dependency ratio# | 0.144** (0.055) | 0.308** (0.06) | 28.213** (5.942) | -19.26** (6.2) |
| Percentage of Non-white population | 0.33** (0.087) | -0.072** (0.017) | 47.565** (9.993) | 4.68** (1.734) |
| Percentage of homeowners | -0.13** (0.048) | 0.084 (0.038) | -5.066 (5.412) | 4.574 (4.465) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Miles per-capita | 98.962** | (25.291) | -21.855** | (3.727) | -3733.751 | (2936.628) | -315.688 | (382.593) |
| Democratic Governor -dummy | -0.042 | (0.151) | 0.281 | (0.345) | 25.724 | (17.083) | 31.776 | (32.064) |
| Region- dummies | -- | | -- | | -- | | | |
| Northeast | | | | | | | 482.52** | (56.734) |
| South | | | | | | | -211.429** | (60.715) |
| West | | | | | | | -133.398** | (50.376) |
| State Fixed Effect | Yes | | No | | Yes | | No | |
| Year Fixed Effect | No | | Yes | | No | | Yes | |
| Number of Observations: | 392 | | 329 | | 392 | | 392 | |

** p<0.05, *p<0.1; numbers in parenthesis are standard errors.

# are the coefficient from separate regressions, corresponding coefficients for other variables are not reported here.

Table 4.4 Effects of charitable contributions on federal public welfare grants and own source expenditure of state governments.

| Independent Variables | Public Welfare as % of Total Federal grants to State Governments | | | | Real Per-capita public welfare grant to State Governments | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | | (2) | | (3) | | (4) | |
| Charitable Contribution as % of AGI or per-capita Charitable Contributions | -2.198* | (1.164) | -1.828* | (1.032) | 0.019 | (0.107 | -0.408** | (0.095) |
| Percent below 135% poverty | -0.042 | (0.105) | 0.393** | (0.106) | 1.184 | (3.543 | 39.262** | (4.066) |
| below 100% # | -0.168 | (0.127) | 0.571** | (0.140) | 1.831 | (4.291 | 47.243** | (5.111) |
| below 150% # | -0.111 | (0.101) | 0.341** | (0.096) | 1.588 | (3.427) | 35.844** | (3.753) |
| Age dependency ratio | 0.041 | (0.155) | 1.263** | (0.148) | -4.595 | (5.241) | -14.241** | (4.756) |
| Child dependency ratio# | -0.517* | (0.271) | 0.108 | (0.194) | -8.894 | (9.519) | -3.813 | (6.102) |
| Old age dependency ratio# | 0.196 | (0.150) | 1.188** | (0.149) | -1.772 | (5.067) | -10.732** | (4.539) |
| Percentage of Non-white population | 0.750** | (0.269) | -0.201** | (0.040) | -6.046 | (9.070) | 5.056** | (1.260) |
| Percentage of homeowners | -0.220 | (0.138) | -0.125 | (0.090) | 5.153 | (4.662) | 12.518** | (3.234) |
| Miles Per-capita | 99.144 | (74.75) | -121.87** | (8.8) | 4459.3* | (2608.17) | 283.533 | (279) |
| Percentage of Democrat Congressional Delegates | -0.010 | (0.008) | 0.082** | (0.016) | 0.689** | (0.274) | 0.795* | (0.464) |
| Democratic President -dummy | -1.848** | (0.518) | - | | 159.192** | (17.838) | | |
| Democratic Governor -dummy | -0.331 | (0.413) | -0.110 | (0.811) | 23.828* | (13.848) | 12.581 | (23.389) |
| Region- dummies | | | | | | | | |
| Northeast | | | | | | | 313.737** | (41.171) |
| South | | | | | | | -189.024** | (43.982) |
| West | | | | | | | -84.996** | (36.526) |

| | Yes | No | Yes | No |
|---|---|---|---|---|
| State Fixed Effect | Yes | No | Yes | No |
| Year Fixed Effect | No | Yes | No | Yes |
| Number of Observations: | 441 | 441 | 441 | 441 |

Table 4.4 columns continued.

| Independent Variables | Public Welfare as % of State Governments General Expenditure | | | | Real per-capita public welfare expenditure by State Governments | | | |
|---|---|---|---|---|---|---|---|---|
| | (5) | | (6) | | (7) | | (8) | |
| Charitable Contribution as % of AGI or per-capita Charitable contributions | -1.308** | (0.501) | 0.073 | (0.495) | -0.035 | (0.096) | -0.260** | (0.127) |
| Percent below 135% poverty | 0.166** | (0.046) | 0.213** | (0.053) | 8.123** | (3.352) | 25.932** | (5.478) |
| below 100% # | 0.220** | (0.054) | 0.321** | (0.069) | 10.203** | (3.987) | 29.127** | (6.867) |
| below 150% # | 0.130** | (0.045) | 0.173** | (0.048) | 7.489** | (3.237) | 22.859** | (5.056) |
| Age dependency ratio | 0.200** | (0.071) | 0.296** | (0.073) | 6.824 | (5.125) | -35.030** | (6.366) |
| Child dependency ratio# | -0.043 | (0.116) | -0.380** | (0.085) | -50.285** | (7.706) | -11.091 | (7.975) |
| Old age dependency ratio# | 0.194** | (0.067) | 0.568** | (0.069) | 23.582** | (4.653) | -24.744** | (6.135) |
| Percentage of Non-white population | 0.433** | (0.115) | -0.174** | (0.019) | 51.936** | (8.324) | 4.837** | (1.679) |
| Percentage of homeowners | -0.153** | (0.063) | -0.164** | (0.045) | -5.154 | (4.536) | 4.281 | (4.331) |
| Miles Per-capita | 147.35** | (32.17) | -56.074** | (4.371) | 631.905 | (2344.11) | -334.93 | (374.54) |
| Democratic Governor -dummy | -0.100 | (0.191) | 0.131 | (0.401) | 35.524** | 13.613 | 45.146 | (31.216) |
| Region- dummies | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Northeast | | | | 503.622** | (55.318) |
| South | | | | -241.581** | (59.266) |
| West | | | | -111.692** | (49.167) |
| State Fixed Effect | Yes | No | Yes | No | |
| Year Fixed Effect | No | Yes | No | Yes | |
| Number of Observations: | 441 | 441 | 441 | 441 | |

** $p < 0.05$, *$p < 0.1$; # are the coefficient from separate regressions, corresponding coefficients for other variables are not reported here.

A panel of 49 U.S. states (with Utah excluded as an outlier in terms of annual percent of charitable contributions) over a 9 year period (2005-2013) is used to run a panel regression. The panel structure allows using state-fixed effects and region-fixed effects to account for state and region-specific unobserved heterogeneity. The year fixed-effects capture anything that is specific to certain years but common to all the states (such as a nationwide recession).

The chapter's primary contributions are summarized in Table 4.3, model (1) and (2) and Table 4.4, model (1) and (2). Models (1) and (2) examine the effect of charitable contributions in a state in the previous two years on the of proportion of federal grants dedicated to welfare spending in the current year (in state and local government budgets for Table 4.3 and the state government alone for Table 4.4). Models (3)-(8) examine the effect of charitable giving on per-capita federal public welfare grant (3and 4), public welfare as a percentage of general expenditure (5 and 6), and per-capita public welfare expenditure (7 and 8). Thus, models (1)- (4) use only federal grants to calculate the proportional and per-capita effects and models (5)-(8) use general expenditures of state governments (which includes state's own revenues in addition to federal grants) to do the same.

The results provide evidence that the effect of charitable contributions (as a percentage of adjusted gross income) on the proportion of federal grants allocated to welfare spending is statistically significant and in the expected direction. In Table 4.3, model (1), a coefficient of -3.762 indicates that a one percent increase in charitable contributions in a state reduces the proportion of federal grants dedicated to welfare by 3.76 percent ($p<0.05$). In other words, charitable giving leads to a significant crowding

out of federal welfare spending in the state. This model includes state fixed effects but no year effects. In Model (2), which introduces year fixed effects and region dummies, but leaves out state fixed effects and the Democratic President dummy, the effect of charitable giving on the proportion of welfare grants becomes statistically insignificant. However, the inverse relationship still persists.

The effect of charitable contributions on the proportion of federal grants dedicated to welfare programs to state governments is also found to have the expected negative sign and to be statistically significant. In table 4.4, model (1), a coefficient of -2.198 shows that a one percent increases in charitable contributions reduces the proportion of public welfare grants by the federal government to the states by 2.198%. This result can also be interpreted as indicating that an increase in charitable giving by one standard deviation (an increase of 0.6 percent in sample) would lead to a reduction in the proportion of public welfare grants to state government by 1.32 percentage points.

A sensitivity analysis was conducted for the effects of income and demographic variables that are considered to be important factors in determining eligibility into many state and federal public welfare programs. Different measures of the percentage of population below federal poverty level were tested, and dependency ratios for their effect on the main explanatory variable. The results were reported in tables 4.3 and 4.4 where percentages below 100% and 150% of the federal poverty level were used, as well as child dependency and old age dependency ratios in place of the percentage below 135% of the federal poverty level, and age dependency ratio in the baseline model. Focusing on model (1) in table 4.3 and 4.4, it can seen that the only instance where the effect of the poverty level or the dependency ratio becoming significant is the case where the child

dependency ratio replaces the age dependency ratio. In model (2) in both tables 4.3 and 4.4, the effect of the dependency ratio becomes insignificant if using the child dependency rather than the age dependency ratio in baseline model. For state and local government aggregates, whose regression results are shown in table 4.3, the coefficients of the main explanatory variable all fall into a 95% confidence interval. Changes in the significance levels of the coefficients in any of the regressions were not observed in cases of the state or local aggregates. The only exception is presented in table 4.4, which reports only the results of state regressions, where the coefficient of the main explanatory variable changes significantly when both child dependency and old age dependency ratios are included as opposed to the baseline model where only age dependency ratio is considered.

No previous studies exist that examine the effect of charitable giving on government public welfare spending at the state level. The study that comes closest this study is that of Garrett and Rhine (2007) who use aggregate time series data for all states in the U.S. to study the causal effect of education giving on federal spending on education. They find that a dollar increase in charitable giving reduces federal education spending by $0.56. Although, the results here are not directly comparable to those of Garrett and Rhine (2007), coefficients presented for model (1) in tables 4.3 and 4.4 (3.76% and 2.2%) indicate that charitable giving crowds out government welfare spending much more than it does federal education spending.

Overall, the empirical findings support the hypothesis that the level of charitable contributions in a state significantly affects the proportion of public welfare grants. This phenomenon of crowding-out through reallocation of grant funds to different areas

supports the idea that private funding of public goods through non-profits relaxes the

budget constraints faced by state policymakers enabling them to reallocate federal grants

funds to preferred uses.

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# CHAPTER V

## CONCLUSIONS

This dissertation focuses on the fiscal relationship between three tiers of governments in the United States: federal government, state government and the local government. Three independent essays in this dissertation each focus on a different issue of interest in public finance: the response of school districts and county governments to changes in state government grant allocations; political determinants of presidential disaster declarations; and the crowding out of federal transfers to states by private charitable donations.

In the first essay, I test the hypothesis that county governments and school districts change property tax levies to counteract the effects of changes in state government revenue/grants to local government. My results indicate that there is indeed a statistically significant inverse relationship as expected between state government grants and property taxes levied by local governments and school districts. Another major result from this study is that property taxes, a major funding source for public education, decrease when the proportion of the young population increases. This could have important consequences for public education funding.

The second essay analyzes the political determinants of the time it takes for presidents to declare major disasters, paying particular attention to political determinants of federal emergency management. The results obtained provide evidence that the average number of days for presidential disaster declarations is lower when the president is a Republican and the governor is a Democrat, while the longest time delay in presidential disaster declarations occurs when the president is a Democrat and the

governor is a Republican. Results show that the higher an incumbent president's vote share, the shorter is the delay in presidential disaster declarations. Additionally, I find that the more salient the disaster event is (as measured by the number of newspaper articles per day), the shorter it takes for presidents to declare major disasters.

The third essay provides evidence that state-level charitable contributions correlate significantly with federal public welfare grants to states. An increase in charitable contributions leads to a decrease in the proportion of federal grants allocated for public welfare, controlling for political and demographic factors. I also show that the level of crowding out that occurs is significantly higher than that predicted by the previous literature on the subject.

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