

Disaster Recovery and the Role of Self-Governance

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ABSTRACT

DISASTER RECOVERY AND THE ROLE OF SELF-GOVERNANCE

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Each year in the US, natural disasters result in hundreds of deaths and injuries and tens of billions of dollars in damage to property. Total disaster declarations and federal funding for disasters has been increasing in recent decades, with average yearly allocations to the Disaster Relief Fund (DRF) now over \$5 billion. Those impacted by disaster are confronted with a variety of challenges, including questions about individual financial assistance, the task of cleaning up homes and businesses, the decision of whether to rebuild, and many more issues. Although federal funding following disaster has increased, there are still questions about how government assistance may or may not aid in recovery. Evidence from Hurricane Katrina, the tornadoes in Tuscaloosa, Alabama and Joplin, Missouri, and Hurricane Sandy suggest that other factors also contribute to community recovery. My dissertation brings together three papers that explore how individuals and communities engage in social cooperation to overcome difficult

challenges such as natural disaster and the various types of resources that they employ in the process.

The first chapter argues that a community's capacity for self-governance depends on the social coordination capacity of community organizations and associations, the ability of community members to effectively access both bonding and bridging social capital, the ability of community members to leverage their shared histories and perspectives, and the stability of social networks within the community. Jane Jacobs as well as Vincent and Elinor Ostrom have explored how a community's capacity for self-governance affects its ability to solve complex problems (for example, managing common pool resources or dealing with crime, the provision of public goods, and problems of neighborhood blight). The greater a community's capacity for self-governance the better able it is to deal with these complex challenges. This chapter examines how pre-disaster systems of self-governance aid in post-disaster community recovery. My analysis focuses on the Mary Queen of Vietnam (MQVN) community and Gentilly, examines the effectiveness of their systems of self-governance prior to Hurricane Katrina, and explores the role these systems played in promoting community recovery after the disaster.

Research has not adequately acknowledged the role of commercial entrepreneurs in overall disaster recovery. The second chapter examines the particular roles that commercial entrepreneurs play following disaster, including (a) supplying resources to disaster victims, (b) serving as "focal points" which allow others to make decisions about

recovery, (c) providing social spaces for victims to engage in knowledge exchange and reconstitute disrupted social networks, and (d) engaging in social entrepreneurship. The chapter offers evidence based on fieldwork conducted in New Orleans, Louisiana, following Hurricane Katrina and following the tornadoes in Tuscaloosa, Alabama, and Joplin, Missouri.

The final chapter investigates newly released federal disaster assistance data. The chapter asks the question, do factors aside from damage explain federal disaster assistance levels? Indeed, literature suggests that federal disaster assistance can be linked to political considerations and is related to other factors such as income, educational attainment, and whether the applicant is an immigrant. Using zip code level data on federal disaster assistance, we examine the FEMA Individuals and Households Program (IHP) following Hurricane Sandy. The analysis suggests that the extent of the damage does appear to explain much of the differences in the size of the federal disaster award that individuals receive. However, other factors, including educational attainment, are also important. In fact, findings suggest that a 1% increase in educational attainment leads to a 5% increase in total damage assessment and a 2% increase in average damage assessment. Arguably, complexities in the process for applying for aid may have disadvantaged less educated applicants. This is consistent with qualitative data collected in New Orleans after Hurricane Katrina where subjects expressed difficulties in navigating the disaster relief application process.

THE CAPACITY FOR SELF-GOVERNANCE AND POST-DISASTER RESILIENCY

A community's capacity for self-governance depends on the social coordination capacity of community organizations and associations, the ability of community members to effectively access both bonding and bridging social capital, the ability of community members to leverage their shared histories and perspectives, and the stability of social networks within the community. Jane Jacobs as well as Vincent and Elinor Ostrom have explored how a community's capacity for self-governance affects its ability to solve complex problems (for example, managing common pool resources or dealing with crime, the provision of public goods, and problems of neighborhood blight). The greater a community's capacity for self-governance the better able it is to deal with these complex challenges. This paper examines how pre-disaster systems of self-governance aid in post-disaster community recovery. My analysis focuses on the Mary Queen of Vietnam (MQVN) community and Gentilly, examines the effectiveness of their systems of self-governance prior to Hurricane Katrina, and explores the role these systems played in promoting community recovery after the disaster.

I. Introduction

The level of devastation wrought by Hurricane Katrina and the flooding which followed left many wondering whether residents of New Orleans would be able to

recover.¹ Katrina was the costliest hurricane to hit the United States, with total estimates of damages reaching \$108 billion (Knabb 2006). Over half of the households in New Orleans suffered major to severe damage or were destroyed. As a result, hundreds of thousands of residents were displaced and forced to temporarily resettle elsewhere.

Recovering from a disaster like Katrina is a major collective action problem (Chamlee-Wright and Storr 2009a). Although the costs associated with returning and rebuilding in the wake of Katrina were arguably easy to determine, the benefits associated with returning and rebuilding were far more ambiguous. Since part of the benefits that displaced residents would hope to attain had to do with their reconstituting disrupted social networks, each individual's decision to return and rebuild was (partially) dependent on the decisions of their family members, friends and neighbors. If key others plan on returning, it might make sense to also plan to return. If key others decide to permanently settle elsewhere, returning might not be the sensible option. Under such a scenario, the likelihood of a community successfully rebounding will depend in part on the ability of community members to signal to each other the likelihood that they will return if others do as well.

Not surprisingly, in the wake of disaster, there has been something of a checkerboard pattern to recovery in New Orleans post-Katrina.² Some communities have

¹ A version of this chapter was published in the *Review of Austrian Economics*. The published article is co-authored with Virgil Henry Storr.

² Arguably, New Orleans has always been something of a checkerboard city. The communities that make up New Orleans have diverse histories, varying levels of affluence and social circumstances and exhibit unique cultures. For instance, in 1999, New Orleans was the 4th most unequal city out of the 100 largest metro areas in the United States. Only New York, NY, McAllen--Edinburg--Mission, TX, and Miami, FL are more unequal. This data comes from "Income inequality- Gini Index." Diversitydata.org. Metropolitan Quality of Life Data. Harvard University. Online. Available. HTTP: <<http://diversitydata->

been better able than others to overcome this collective action problem associated with disaster recovery. Approximately one year after Hurricane Katrina (July 2006), the population of New Orleans was around half the population of the city prior to the storm. In April 2010, the population had increased to almost three quarters of the estimated population in 2000 (Schigoda 2011). Additionally, while the French Quarter and Garden District in August 2010 had 95 percent of the number of active households that it had pre-Katrina, Central City had 78 percent, Gentilly Woods had 65 percent and Desire had 41 percent. Some communities are well on their way to recovery post-Katrina and others are not doing as well.

There exists some debate as to why certain communities thrive and others do not (see, for instance, Borgas 1995; Grigsby and Corl 1983; Quigley et al 2008). There is also some disagreement as to why certain communities recover after disasters and others do not (Brown and Kulig 1996/1997; Burby 2006; Chamlee-Wright and Storr 2009, 2010; Colten 2008; Norris et al: 2006, 2008; Pipa 2006; and Rose 2004). Some of this literature suggests that government has a key role to play in disaster recovery and argue that government responses need to be enhanced when communities are slow to recover after disaster. Referring to recovery efforts post-Katrina, Burby (2006) suggests better government planning and more comprehensive local government plans would help to speed recoveries. Similarly, Pipa (2006) concludes that a high-level (government) coordinating body is needed to manage the activities of different actors including nonprofits. Coyne and Lemke (2011), however, point out that government players face

archive.org/Data/Rankings/Show.aspx?ind=49> (accessed 10 October 2011). The inequality is represented by a Gini coefficient of 45.2.

both incentive issues and knowledge problems when it comes to disaster relief. Because disasters on the scale of Hurricane Katrina are low probability events, politicians and government officials have less incentive to address infrastructure problems and disaster planning and have a greater incentive to focus on issues that are more likely to occur during their political tenure (ibid: 41-42; Shughart 2011; Sobel and Leeson 2006). Further, even if government players had the political will, they still suffer from a knowledge problem. Government players do not have the requisite knowledge to coordinate the efforts between suppliers and demanders of disaster relief (Sobel and Leeson 2006; Lemke and Coyne 2011).

A growing literature examines how communities recover using resources that are not provided by the government, such as social networks and social capital (Aldrich 2011; Beggs et al. 1996; Bolin and Stafford 1998; Chamlee-Wright and Storr 2009; Nakagawa and Shaw 2004). Comparing post-disaster settings Kobe, Japan and Gujarat, India, Nakagawa and Shaw (2004) find that communities with high levels of social capital and community leadership are efficient in rescue, relief, and recovery (also see Shaw and Goda 2004). Additionally, Chamlee-Wright and Storr (2009, 2010) argue that social capital in the form of collective narratives and community based organizations were important to community recovery in New Orleans after Hurricane Katrina.

In this paper I examine community resiliency post-disaster. My goal is to understand the characteristics that contribute to self-governance and determine whether these same characteristics are at play immediately after a disaster and during post-disaster recovery. The characteristics that make for a successful city neighborhood in mundane

times, I contend, are also likely to make for resilient city neighborhoods. Stated another way, those neighborhoods that engage in effective self-governance in normal times are also likely to have the capacity to effectively respond to and recover from disasters. I focus on two communities in New Orleans: the Mary Queen of Vietnam (MQVN) and Gentilly communities. I examine the effectiveness of their systems of self-governance prior to Hurricane Katrina and explore the role these systems played in promoting community recovery after the disaster. The remainder of the paper is organized as follows. *Section II* reviews the theoretical literature on self-governance and connects it with the literature on post-disaster recovery. *Section III* describes my research methods. *Section IV* and *V* examine the Mary Queen of Vietnam (MQVN) community and the Gentilly community's capacity for self-governance pre- and post-Katrina. *Section VI* offers concluding remarks.

II. Theoretical Considerations

There has been a considerable literature on how communities overcome complex challenges like managing common pool resources or dealing with crime, the provision of public goods and problems of neighborhood blight or responding to the challenges associated with post-disaster recovery. Elinor Ostrom, for instance, has written extensively on common pool resource (CPR) scenarios.³ CPR scenarios are situations in which a tragedy of the commons could lead to overuse of a resource. Ostrom, however, describes how local communities devise rules to monitor the use of a scarce resource and,

³ See, for instance, Ostrom 1965, Ostrom 1992b, and Ostrom and Gardner 1993. As Ostrom (1990: 30) explains, "The term 'common-pool resource' refers to a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from use."

therefore, overcome the tragedy of the commons. Ostrom's initial study focused on the development of public enterprises as well as associations to minimize saltwater intrusion into the groundwater basin near Los Angeles, California (Ostrom 1965). In addition to exploring several diverse natural resource management scenarios, Ostrom has also explored metropolitan organization (Advisory Commission on Intergovernmental Relations 1987, 1988, 1992; V. Ostrom, Tiebout, and Warren 1961; V. Ostrom, Bish, and E. Ostrom 1988), the theory of public goods (V. Ostrom and Ostrom 1977), and privatization in developed and developing countries (Oakerson et al. 1990).

Although there are no blueprints when it comes to solving common-pool resources (Ostrom 2005: 256), there are similarities among successful self-governing CPR institutions (Ostrom 1990: 89). As Ostrom (1990: 90) explains, robust CPR institutions tend to have clearly defined boundaries, appropriation rules that are consistent with local conditions, arrangements for making collective decisions, effective monitoring, graduated sanctions for rule violators, effective mechanisms for conflict-resolution, and the ability of community members to organize without outside interference to solve their common problems.

The greater degree of "community" a group exhibits, Ostrom (1992 a: 345) explains, the more likely a group is to develop robust institutional regimes that solve collective action problems. Stated another way, the greater degree of "community" that a group exhibits (before a challenge) the more likely the group is to solve complex problems like post-disaster recovery. Where "appropriators share generalized norms of reciprocity and trust" and "the group appropriating ... is relatively small and stable," the

greater “the likelihood of CPR appropriators adopting a series of incremental changes in operational rules to improve joint welfare” (Ostrom 1990: 211).⁴ While shared norms as well as small and stable social networks are not by themselves sufficient for the emergence of robust CPR institutions, they are positively correlated with the other group characteristics that Ostrom suggests might be more important. For instance, appropriators are more likely to share a “common judgment” about the problem and face lower enforcement costs when networks are stable and norms are shared.⁵

Vincent and Elinor Ostrom have also written about how communities work to solve complex challenges within polycentric orders and, specifically, why complex community challenges are more likely to be solved within polycentric orders than in monocentric orders. A polycentric order is one in which individuals are able to organize into multiple governing authorities at different scales i.e., there are multiple, formally independent, decision making entities (E. Ostrom 1999a). These governing authorities can be governmental or non-governmental bodies and their jurisdictions can and often do overlap. Although each of the multiple governing authorities enjoy a degree of autonomy in decision-making, the governing authorities within a polycentric order are constrained by overarching rules. This setting is in contrast to monocentric orders (or what V. Ostrom, Tiebout, and Warren 1961 refer to as “gargantua”) which consist of a single decision making body.

⁴ Singleton and Taylor (1992) have argued that Ostrom obscures the importance of community in her analysis. Singleton and Taylor identify several characteristics of a community: (1) shared beliefs, including normative beliefs and preferences, beyond those constituting their collective action problem, (2) a stable set of members, (3) an expectation of continued interaction between those members, and (4) the relationships between the members are direct and multiplex (1992: 315).

⁵ For Ostrom’s treatment of social capital, see Ostrom (1994) and Ostrom (1999).

According to V. Ostrom, community challenges are more likely to be solved within polycentric orders because authorities within orders are more adaptable and flexible than monocentric orders. Indeed, polycentric orders as opposed to gargantua allow for greater experimentation and are better able to adapt to local knowledge. Individuals within a large society have different preferences and different knowledge. Although V. Ostrom, Tiebout, and Warren (1961) explain that “no a priori judgment can be made about the adequacy of a polycentric system of governance as against the single jurisdiction” (838), there are advantages to polycentrism in dynamic scenarios. Coyne and Lemke (2011, 2012) point to two distinct benefits of a polycentric system in disaster relief. First, the authors argue that polycentric orders allow for flexibility to provide disaster relief at various scales. Second, polycentric orders tend to make more effective use of knowledge (2011: 46). While monocentric orders tend to crowd out local efforts to respond to challenges, polycentric orders increases the social coordination capacity of community organizations and associations by allowing them to utilize local knowledge as they respond to challenges. As E. Ostrom (1999: 182) explains, such monocentric government action can “crowd out” social capital.

Although there are certainly differences between post-disaster recovery and managing a common pool resource, both demonstrate a community’s capacity for self-governance. The community that is able to develop effective mechanisms for dealing with common pool resources is likely to develop effective responses to post-disaster challenges. Additionally, the degree of “generalized norms of reciprocity and trust” in a community is likely to be related to a community’s ability to both manage its common

pool resources as well as solve the collective action problems associated with disaster recovery. Moreover, local governing authorities (like community organizations and associations) operating within polycentric orders are more likely to solve the challenges associated with common pool resources and disaster recovery because of their access to local knowledge and their greater flexibility than more centralized governing authorities. Community groups can outperform gargantua in the management of common pool resources and post-disaster community recovery.

In her seminal work, *The Death and Life of Great American Cities*, Jane Jacobs convincingly describes city neighborhoods as loci of self-government. As such, successful city neighborhoods are ones where neighbors effectively respond to neighborhood-wide problems when they arise and unsuccessful city neighborhoods are ones where neighbors fail to adopt solutions to their collective problems. Neighborhoods are not judged based on the quality of their public areas, or homes, or schools. Instead, they are to be judged based on how effectively they react to neighborhood-wide concerns. As Jacobs (1961: 113) explains, it is possible for rich city neighborhoods to be unsuccessful and poorer communities to be successful at dealing with neighborhood-wide challenges as they arise. Similarly, neither better housing nor better schools necessarily leads to better behavior amongst inhabitants (1961: 113). Good houses and schools deteriorate in unsuccessful neighborhoods while poor houses and schools are improved in successful neighborhoods (through the collective efforts of their inhabitants). As Jacobs (1961: 114) writes, “city neighborhoods [are] mundane organs of self-government. Our failures with city neighborhoods are, ultimately, failures in localized self-government.

And our successes are successes in localized self-government. I am using self-government in its broadest sense, meaning both the informal and formal self-management of society.”⁶

According to Jacobs (1961: 117), the functions of self-government that these city neighborhoods perform differ depending on the size of the neighborhood in question. The functions of the different sized neighborhoods also overlap in complex ways. For instance, if they are functioning well, street neighborhoods are expected “to weave webs of public surveillance and thus to protect strangers as well as themselves; to grow networks of small-scale, everyday public life and thus of trust and social control; and to help assimilate children into reasonably responsible and tolerant city life” (1961: 119). They also perform another more vital function, “they must draw effectively on help when trouble comes along that is too big for the street to handle” (1961: 119).

Effective street neighborhoods must not only handle those issues that can be handled at the street level but must offer ways for neighbors to petition larger units for assistance when issues that cannot be handled at the street level arise. Good district neighborhoods help to organize street neighborhoods to district-wide problems. Good district neighborhoods also communicate the needs of street neighborhoods to the city and secure resources for street neighborhoods from the city. Districts, thus, act as intermediaries between the city as a whole and street neighborhoods. These need not, however, be contiguous with political units (that is, they need not be the same size as

⁶ Admittedly, Jacobs’ notion of what constitutes a successful city neighborhood is not so mono-faceted. Elsewhere in *The Death and Life of Great American Cities* (1961) she emphasizes diversity as being a key characteristic of success. Successful neighborhoods house a variety of activities. Weicher (1973) and others have found that there is little empirical support for Jacobs’ claims that diversity leads to successful neighborhoods in terms of crime, disease and death.

political wards or boroughs) but they have “to be large enough to count as a force in the life of the city as a whole ... [and] big and powerful enough to fight city hall” (Jacobs 1961: 122). Effective district neighborhoods “help bring the resources of a city down to where they are needed by street neighborhoods, and they have to help translate the experiences of real life, in street neighborhoods, into policies and purposes of their city as a whole” (ibid). Additionally, effective city districts “help maintain an area that is usable in a civilized way, not only for its own residents but for other users – workers, customers, visitors – from the city as a whole” (ibid).

Jacobs (1961) has highlighted several characteristics of good district neighborhoods. Successful district neighborhoods, she informs, have an array of public characters with meaningful links to key and often quite powerful individuals beyond their neighborhoods and throughout their districts. Stated another way, effective district neighborhoods are populated by community leaders whose social networks give them access to important bridging social capital. Jacobs (1961: 134) refers to these as hop-skip people and their links hop-skip links. As Jacobs (1961: 135) explains, “a city district requires a small quota of ... people who know unlikely people.” And, “these are working relationships among people, usually leaders, who enlarge their local public life beyond the neighborhoods of streets and specific organizations or institutions and form relationships with people whose roots and backgrounds are in entirely different constituencies, so to speak.” These links facilitate information transfer about available resources and resource needs as well as facilitate the provision and acquisition of available and needed resources.

Social networks in city neighborhoods, however, have to exhibit a certain degree of stability if city neighborhoods are to be successful. If neighborhoods are to be cohesive, Jacobs (1961: 139) explains, many individuals have to “stay put.” As she (1961: 138) writes, “if self-government in the place is to work, underlying any float of population must be a continuity of people who have forged neighborhood networks. These networks are a city’s irreplaceable social capital. Whenever the capital is lost, from whatever cause, the income from it disappears, never to return until and unless new capital is slowly and chancily accumulated.” Social networks in successful city neighborhoods can accommodate new residents and even some turnover but those “increments and displacements have to be gradual” (1961: 138). Stated another way, there needs to be a stable reservoir of bonding social capital if city neighborhoods are to be effective.

As the Ostroms and Jacobs explain, a community’s capacity for self-governance depends on (1) the social coordination capacity of community organizations and associations, (2) the ability of community members to effectively access both bonding and bridging social capital, (3) the ability of community members to leverage their shared histories and perspectives, and (4) the stability of social networks within the community. The greater a community’s capacity for self-governance the better able it is to deal with complex challenges such as issues with crime, the provision of public goods, or problems of neighborhood blight). Arguably, these pre-disaster systems of self-governance can and do aid in post-disaster community recovery.

The literature on post-disaster community recovery has focused on how communities develop systems of self-governance after a disaster as they respond to the challenge of disaster recovery. Bolin and Stafford (1998), for instance, found that community-based organizations aided in recovery after the 1994 Northridge, California earthquake by providing direct assistance and working with government agencies to funnel resources for the repair, rehabilitation, and development of homes to low and moderate income earthquake victims. Similarly, studying the aftermath of Hurricane Andrew, Beggs et al. (1996: 209) identified that individuals with diverse networks were more successful in gaining access to formal support-assistance from the Red Cross, the Federal Emergency Management Agency, churches, or other formal organizations. Likewise, Nakagawa and Shaw (2004) found that communities with high levels of social capital are efficient in rescue, relief, and recovery after the 2001 earthquake in Gujarat, India. Additionally, Chamlee-Wright and Storr (2009: 2010) explained how social capital in the form of collective narratives and community based organizations were important to community recovery in New Orleans after Hurricane Katrina. And, Aldrich (2011) showed that neighborhoods with linking social capital fared better in terms of recovery from disaster than neighborhoods with just bonding social capital.

These studies, however, have not specifically focused on how the capacity for self-governance that a community exhibits prior to a disaster impacts its ability to recover after a disaster. The next sections will fill this gap by focusing on two New Orleans communities and their experiences before and after Hurricane Katrina.

III. Research Methods

The analysis presented here is part of a multi-year study of the political, economic, and social factors affecting disaster preparedness and response.⁷ A key aim of the project was to discover why and how certain communities were able to rebound after Hurricane Katrina. Special attention was paid to how individuals reconstituted their social networks and deployed both bonding and bridging social capital after Hurricane Katrina to promote their neighborhoods' recovery. During the course of the study, the research team has conducted over 300 interviews in the Greater New Orleans area and Harrison and Hancock Counties, Mississippi.⁸

There was a concerted effort to reach out to a variety of stakeholders, including residents, business owners, and members of non-profit organizations. Many residents were identified by simply walking the neighborhoods of New Orleans. Businesses were selected at random. Contacts within the non-profit community came from a variety of sources, including mentions in local news articles, individuals identified from other interviewees as well as unplanned interactions with non-profits while conducting field research. Following the interview, participants received a \$25 check as a gesture of appreciation and thanks.

The Mary Queen of Vietnam and Gentilly communities were selected for this study because they exhibited a robust recovery after Katrina that could not easily be attributed to political or economic advantages. Thirty-nine (39) of the interviews were conducted in the Mary Queen of Vietnam community and seventeen (17) interviews were

⁷ For a description of the larger project, see Boettke et al (2007).

⁸ See Chamlee-Wright (2010) and Chamlee-Wright and Storr (2009 a, 2009 b, 2010 a and 2010 b) for several other studies that relied on different subsets of these data.

conducted in Gentilly. See Table 1 for demographic information on the interview subjects.

IV. The Mary Queen of Vietnam Community, New Orleans East

Mary Queen of Vietnam (MQVN) is located in New Orleans East in the Village de L'Est neighborhood (Planning District 10). The community is east of the Industrial Canal, borders Lake Pontchartrain to the north, and the Bayou Sauvage National Refuge to the east. Prior to Hurricane Katrina, Village de L'Est had a population of 12,912 and was ethnically diverse: 55.4 percent of the population was African American, 37.4 percent Asian, and 3.6 percent white.⁹ For the purposes of this paper, however, we will focus our attention on the Vietnamese community within Village de L'Est (approximately 4,777 people based on 2000 estimates).

As will be discussed below, the MQVN demonstrated a strong capacity for self-governance prior to Hurricane Katrina. Prior to Hurricane Katrina, the MQVN church played a central role in coordinating activities within the community. Similarly, prior to Hurricane Katrina, social networks were quite stable and community members proved able to access bonding social capital within the church as well as bridging social capital within the broader Roman Catholic community. Additionally, community members were able to leverage their shared histories and perspectives to address community challenges (see, for instance, the pre-Katrina organizations that catered to the specific needs of the Vietnamese community).

⁹ "Village de L'Est Neighborhood: People and Household Characteristics." The Greater New Orleans Community Data Center. Online. Available. HTTP: <<http://www.gnocdc.org/orleans/10/56/people.html>> (accessed 13 October 2011).

The MQVN community has a unique history. The community was founded by refugees from North Vietnam. The Geneva Conference of 1954 recognized Vietnam as a divided nation with Ho Chi Minh's communist government ruling the North and Ngo Dinh Diem's regime ruling the South from Saigon (later Ho Chi Minh City). As part of the agreement (Clause 14d), Vietnamese in the north had an opportunity to move to the south. An estimated nine hundred thousand refugees fled from the Red River delta diocese of Bui Chu to South Vietnam (Leong et al 2007). In 1975, Saigon fell and another wave of refugees moved to camps along the South China Sea coast. Out of these, some 1,000 Roman Catholic Vietnamese fled to the United States and with the aid of the Associated Catholic Charities moved into the Versailles Village Apartments in New Orleans East. The following year, approximately 2,000 additional refugees came to the area, with migrations continuing through the 1980s (Bankston and Zhou 2000).

Many of the refugees elected to stay in the area and moved into homes in Village de L'Est. From 1980 to 1990, homeownership among Vietnamese residents increased from 3 percent to 28 percent. Vietnamese developer, Hung Van Chu, built several new blocks and gave these new streets Vietnamese names, for example, Tu-Do (Freedom) and My-Viet (America-Vietnam) (ibid). The church was an important part of the community and, in 1983, the community received permission to build a larger church to accommodate 6,000 parishioners.¹⁰ Although homeownership rates were increasing, however, income was still low in the community. In 2000, average household income in Village de L'Est was \$36,856 (compared to Orleans Parish \$43,176) and the percentage

¹⁰ Father Luke notes that 6,300 people were registered with the church.

of those living in poverty was 29.9 percent (two percentage points higher than Orleans Parish).¹¹

Table 1. Demographic Information on Interview Subjects and Neighborhoods, MQVN

	Number of Subjects	Percentage		Number of Subjects	Percentage
Res/Non-Res			Homeownership*		
Residents	29	74%	Own	22	56%
Non-Residents	10	26%	Rent	4	10%
			Owned by family member	9	23%
Gender			Church housing	3	8%
Male	18	46%	Unknown	1	3%
Female	21	54%			
Race			Stakeholder Type*		
African-American	0	0%	Residents	29	74%
Caucasian	0	0%	Business owners/managers	9	23%
Asian	39	100%	Professional	4	10%
			Nonprofit directors/managers/volunteers	11	28%
Other	0	0%	Church leader	3	8%
Age			Generation*		
< = 29	9	23%	First Generation	32	82%
30-29	7	18%	Second Gen.	7	18%
40-49	11	28%	Estimated "Stradle Gen."	16 (of 32)	50%
50-59	5	13%			
60-69	7	18%	<i>*some categories overlap</i>		
> = 70	0	0%			

¹¹ In 2010, median income per family was \$38,295, compared to the average for New Orleans City, \$44,196. Census characteristic S1901, tract 17.41. 2006-2010 American Community Survey.

MQVN experienced some of the worst flooding in New Orleans, with eight to ten feet of flooding and in some areas, over ten feet of flood waters.¹² Despite the severe flooding, MQVN had some of the highest return rates in New Orleans. News stories described MQVN as “a remarkable success story in this misery-stricken city,” explaining that “they were among the first to start rebuilding their homes and reopening their businesses, and their community is recovering much more rapidly than some other parts of New Orleans” (Kunzelman, 2007, para 4). There are many reasons why MQVN was so quick to return, including the central role played by the church, which reached out to displaced members and made efforts to have electricity and shelter for returning community members. Residents also expressed an attitude of self-reliance. Because many residents had successfully navigated hardship in the past (namely, immigrating to the United States), they were financially, emotionally, and spiritually prepared for the task ahead. When specific challenges stood in the way of recovery – access to electricity, a nearby landfill – the community mobilized and petitioned for help from leaders and politicians outside the community.

Residents describe the MQVN community as being particularly close prior to Katrina. When residents were dispersed to other states and cities following the storm, many noted that they missed neighbors and friends and the regular activities that went on in their community. As resident HD¹³, explained, “before Katrina, we Vietnamese people met each other every day. We go to church. On weekends, we go to church in the

¹² A detailed map of the flooding was prepared by journalist and reporter Dan Swenson and is available online, HTTP: < <http://danswenson.com/paper/katrinagraphics/02how-much-water.pdf>> (accessed 23 October 2011).

¹³ The names of some residents have been provided as initials in order to protect their identity.

morning and in the evening, we get together and dine. We spend the whole day together.” In other words, there was a stability in the social networks that allowed people to make plans and offered predictability from day to day.

The church is at the center of community life. As Father Luke Nguyen explained, the church is not only used for religious activities but is “the center stage for social activities,” including festivals, community meetings, and religious classes. And, as he described, “The church is the center. The church is the anchor. The church is the center stage of communication. The church is where people find comfort, needs and everything.” Chamlee-Wright and Storr (2009 b) identified a number of club goods which the church provided in Village de L’Est, including (i) Vietnamese language religious services, (ii) Vietnamese language training, (iii) occasional weekend markets for selling Vietnamese produce, arts and crafts, (iv) a space where members of the community could socialize, (v) meeting spaces for religious and non-religious Vietnamese groups, (vi) an organizational structure that facilitated social coordination, (vii) community leadership that served as a focal point for community action and (viii) ethnically appropriate charitable aid. Access to these club goods was important to the functioning of this community prior to Katrina and was an important incentive for community members to return to MQVN after being displaced by Katrina.

In addition to the clergy, there were additional levels of leadership in MQVN that allowed it to act as an organ of social coordination. For instance, the congregation was divided into eight zones, each headed by a lay leader. The lay leaders were established leaders in the community and, together, they made up the Pastoral Council. Fundraising

and holiday preparation took place at the zone level. Participation by the laity extended to less formal responsibilities as well. BD, a volunteer, explained that as a “captain of security I watch for the church... Children come on... I watch against car theft and help find a place for you to park.”

MQVN community members also participated in various other community activities and organizations. One popular activity was the local farmer’s market. The market was located on Alcee Fortier Boulevard and was open every Saturday morning from six to nine. Gardening is an important part of Vietnamese culture and played a particularly important role when the first community members arrived in Village de L’Est. Many community members could not find the fruits and vegetables that they were familiar with at supermarkets and, therefore, decided to grow their own. Extra fruits and vegetables were sold at the market, which has been in operation since 1975. As Community Gardening Project Manager, Peter Nguyen described, the market was comprised of “...people selling rabbits and some vegetables- they grow from their own little garden at home. Whatever they have to bring out to sell. I don’t know if they make a profit, but just being out there, being able to-to involve themselves into an activity that- that you know, they don’t make money but they’re meeting people. It’s like a socialize time for them.” The farmer’s market was also a space where social ties were created and reinforced. Further, both the act of growing fruits and vegetables and also selling these products to the larger community reinforced the community narrative of self-reliance.

There were also several pre-Katrina organizations that catered to the specific needs of the Vietnamese community. The National Alliance of Vietnamese American

Service Agency (NAVASA), for instance, had a presence in Village de L'Est. The Agency offered many different services, including ESL classes, assistance with refugee settlement, and leadership training. NAVASA workers sometimes acted as case workers, connecting community members with different social service programs. NAVASA worked side by side with Catholic Charities and other active organizations in MQVN. Similarly, Vietnamese Initiatives in Economic Training (VIET), created in 2001, developed educational and economic training programs for the Vietnamese community. VIET ran the Afterschool Academy which provided homework assistance and structured activities for pre-K students through eighth grade at VIET, a local elementary and middle school, and also a charter school in the area. VIET offered summer programs for children. Other services included translation and interpreting services, SNAP program assistance, and citizenship services. The programs for adults offered by VIET helped “fill gaps for working families.” English was a second language for almost all adults in the MQVN community and English language proficiency can be a barrier to employment or further job opportunities. Related to English language proficiency, many community members also struggled with filling out official paperwork including employment applications, tax forms, and other government paperwork. VIET helped community members overcome these challenges.

The MQVN community demonstrated a strong capacity for self-governance prior to Hurricane Katrina. Specifically, prior to Hurricane Katrina, MQVN community organizations and associations exhibited a capacity for social coordination, MQVN community members effectively leveraged both bonding and bridging social capital as

well as their shared histories and perspectives, and the community was comprised of stable social networks.

This capacity for self-government was particularly important after Hurricane Katrina. Although the MQVN community had over twelve feet of flooding in some areas, the community was one of the fastest to rebound. By April 2006, 1,200 of the 4,000 residents living within a mile of the church had returned. One year after the storm, more than 3,000 residents had returned, and by the summer of 2007, almost 90 percent of MQVN residents had returned.¹⁴ The church and, specifically, the efforts of Father Vien were critical to the community's recovery. As resident CD says, "Father Vien, he's why we're staying. He put this community back together. He's a powerful man, too. The way he sounds, it's like he knows. We believe in him and we trust him too. What he says, we do it."

Following Katrina, there was great uncertainty about which areas of New Orleans would rebuild and also which areas would be allowed to rebuild. Those communities that experienced the most flooding were thought to be especially unlikely to rebound. In the weeks after the storm, however, the clergy of MQVN began to signal that their community was rebuilding. As Fr. Luke Nguyen explained,

First, my priority is to bring the people back and how we're going to do that by way of fixing the church. ... [we provided] updated news from the city because during that time there [were] mixed messages from the city. [There were reports that] they [were] go[ing] to bulldoze this [or that]. [Community members were considering] how they were going to come back, are we going to come back, [and] what if we come back, we build and they bulldoze it? What's the benefits of

¹⁴ See Dateline 'Postcard from New Orleans,' aired June 15, 2007. Available. Online. HTTP: <<http://video.msn.com/v/us/fv/msnbc/fv.htm?g=a379983e-fl87-4b40-af48-77178f4330a4&f=00&fg=email>> (accessed June 17, 2007).

it, what's the -- everything and so the church is the place where people rely on and where people meet together and so we decided to fix the church and set the church as the center stage of meetings, of uniting the people and so we fix up the church.

Numerous people refer to the church as “the center.” In other words, the church served as a focal point, or shared reference point, for community members. Fathers Nguyen and Vien recognized the church as a focal point and worked to ensure that the church's activity signaled an unambiguous return. The church also made sure that food was served to community members who remained in New Orleans or returned in the weeks after Katrina.

Additionally, the level of social organization and coordination proved important to maintaining the community while residents were dispersed. Father Vien travelled to Houston, Austin and other cities to visit community members. The Pastoral Council also helped locate church members and keep the channels of communication open.

Although there was no clean water or electricity in New Orleans, Father Vien was confident that his members would still come back because residents had a shared history of hardship and demonstrated ability to persevere. As he explained, “remember now, my people have migrated ...over here in 1975... And they are from there and know that running water and electricity would not be there. And then so I believe again and this is something that you need to expand on, for our elderly, anyone who's over 30 or 35, I mean you be back later and are seeing that after all this as a minor inconvenience. Because we've been . . . you know, we got damaged several times in our lives. And

therefore, we were not concerned that much still.” The resilience is described by community members as well. As AC describes,

I think with respect [to] Vietnamese people maybe ...background, our struggles, specifically about struggles where we have to for example... my parents they [had] to leave the [unintelligible] in the north from 1964 moved out to the south and reestablish themselves and then afterwards we have to leave ... again in 1975 ...establish here in the United States. So and Katrina is only about 30 years since we left Vietnam so a lot of the older generations you know they are used to kind of lack everything and to ...So this is not really beginning everything ...

There are many stories of MQVN residents returning and doing much of the clean-up and rebuilding themselves. AC, an attorney by training, also knows carpentry and replaced the carpeting in his business himself. AC mentions how many residents who had been fishermen before Katrina helped in rebuilding efforts before Lake Pontchartrain was open for fishing.

Another community member, CT describes how friends and family members helped each other rebuild,

Well, it was like you know, we had -- it was pretty much cousin helping each other, and close friend. So, we would have people coming by and say, “Oh, okay so where you’re working on this day?” And then so, they’ll look into, “Oh yeah, you are working on the roof?” You know what, from experience, this is what, I did and you can just really try to do it, in this, this way. So, it was more like, there’s nobody really have it, this is skill, but they also jumped in, and did it and they found out, and they learned from trial and error and they pretty much taught each other.

In addition, the MQVN community received help from friends and family members on the West Bank, which experienced minimal flooding.

Experience with hardship led residents to plan ahead and, although residents in MQVN are not wealthy, they did have savings. As AC explains, “you know several...

you know a lot of people did have a lot of cash on hand in order to repair. So, I think those are some of the characters that allow us and the community to come back. We didn't have to wait for FEMA to give us money." Residents also had stores of food. Speaking about her mom, CN stated, "She'd always have food prepared, water prepared, and things, I said 'Mom, you're never going to starve, you're never going to ...you know. Worse come to worse, you're going to have a few days of you know, without water and food."

Immediately following the storm, CT explains, the community also received help from Catholic Charities. Catholic Charities supported a number of case workers in the community, which helped individual community members access disaster assistance, find resources for building, and other challenges.

Following Katrina, NAVASA stepped in to help with community organization and activism. NAVASA representative, James Bui explained that NAVASA devoted resources to fighting the relocation of a landfill to an area neighboring their community, which threatened the recovery of the community. Additionally, NAVASA supported the elderly housing initiative, helped organize FEMA trailers, and work towards business revitalization. A second organization, the MQVN Community Development Corporation (MQVN CDC), was founded after Katrina. MQVN CDC has a broad mission which encompasses health care, environmental and agricultural concerns, education, housing, social services, economic development and culture and the arts. The corporation developed a trailer site for 199 trailer homes and hundreds of families; provided case

management services for over 1,200 community members; and helped secure over \$2 million in capital to rebuild or expand Village de L'Est business owners.

Lack of electricity, however, did threaten to slow recovery. The church took the issue on, reaching out to their local councilwoman. When the councilwoman said that electricity would not be restored for another two weeks, Father Vien approached Entergy directly. Father Vien began taking pictures at mass to illustrate that people had returned. When Entergy requested names, Father Vien made a list with names and addresses. Church leadership also worked to have FEMA trailers available for returnees. As Fr. Vien described,

We had our people call and our people knew the mayor. We had the archdiocese [inaudible] discussion. The mayor refused to sign it. He refused to sign it and I'm so . . . the first day before November 21st . . . November 21st was a Monday. And if they had to bring over the commission's meeting on the Monday. And so I called the archbishop, because I was on the commission. So I called the archbishop and told him that, unless the mayor signed it on that day, we will set a [inaudible] 'coz my people are living in the ____ waiting for that. And so, I watched that meeting. That evening, the archbishop called me and said, he said that he did it. He signed it. So I called FEMA the next day, Tuesday. FEMA says, they will send out the paper. So it could have been might be some delay tactics to go down here. So I called the archbishop again to contact the mayor and have the mayor fax it to his office. And have that out of that ____ the FEMA's office is right nearby. Okay. But nothing moved for a whole week. And so I . . . finally when I realized that what they were doing, they're calling my end and I said, that Monday, you know, if it ever happened.

At the time, 1,200 were living in the community and 2,300 to 2,600 were traveling back into the community for mass on Sunday. Frustrated by continuing hurdles, Father Vien attended a City Council Meeting and asked whether the community was being neglected because of their race. The question got the attention of several council members. By coincidence, Senators Hillary Clinton and Mary Landrieu were visiting

MQVN the following Sunday. Community members raised the issue with Clinton and Landrieu, who then brought it up with the Mayor the following day.

Several months later the community again had trouble with new FEMA leadership. “FEMA’s attorney,” Father Vien explained, “wrote [a] threatening letter saying either you will do it our way or we will withdraw the trailers because what was proposed was illegal. I find it tremendously strange in the sense of why was it that the previous group of FEMA personnel – because it was signed – their attorney prepared the documents. Why was it legal then and then three months later – six months later – became illegal?” Again, Father Vien relied on political leaders to assert pressure. When FEMA discovered that Father Vien had invited Senators Mary Landrieu and David Vitter to a meeting between the church leadership and FEMA, FEMA asked Father Vien to rescind the invitations. Eventually, the community received the trailers.

The opening of a landfill a mile from the MQVN community led to further political activism by Father Vien and community members. Following Katrina, the Mayor had given permission to open the landfill and to dispose of storm debris. Before long there were rumors that toxic debris was being dumped in the landfill. There were concerns that the landfill posed a health threat and also threatened to depress property values in the area. Community members worried that toxins from the landfill were getting into the water sources they used for community gardens, particularly because the landfill did not have a liner to prevent chemicals from seeping into the soil and ground water.

Again, the church, led by Father Vien, galvanized the community. NAVASA and community members also played a key role. The community joined up with Citizens for a

Strong New Orleans East and the Louisiana Environmental Action Network (LEAN) to petition the United States Federal Court that Waste Management Incorporation not be allowed to use the landfill.¹⁵ When the Court said that the community had not proved irreparable damage, they approached the New Orleans City Council and Mayor Ray Nagin. Parties agreed to have the landfill tested to determine what types of materials were being disposed there. The MQVN community believed that WMI and Louisiana Department of Environmental Quality (LDEQ) had not been honest in their analysis. Finally, the community approached the Louisiana State Senate and with the support of New Orleans senators and representatives, called for further testing. Under continued pressure, the Mayor ordered a cease-and-desist on Monday, August 14, 2006. Father Vien presented testimony to the United States Senate Committee on the Environment and Public Works.

V. Gentilly, New Orleans

Lake Pontchartrain borders Gentilly to the north and the Industrial Canal forms the eastern boundary of Gentilly (separating Gentilly from New Orleans East). The western boundary is formed by the London Avenue Canal. Gentilly has many green spaces, including golf courses and parks and three university campuses: Dillard University, Southern University at New Orleans (SUNO), and the University of New Orleans (UNO). Gentilly (Planning District 6) consists of Filmore, Milneberg, Lake Terrace/Lake Oaks, St. Anthony, Gentilly Terrace, Dillard, Gentilly Woods, and Pontchartrain Park. For the purposes of this article, we shall focus on Gentilly Terrace,

¹⁵ For Father Vien's full description of events, go to:
http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=9f2dc64f-ad5d-4fc9-8673-467c63fc3a9a

Gentilly Woods, and Pontchartrain Park as these are the primary sub-neighborhoods for which we collected interview data.

Gentilly, like many areas of New Orleans, was a swamp before the land was made inhabitable in 1896 through the use of levees and an advanced drainage system. Gentilly, however, did not become a major residential area until after World War II, when Gentilly Woods was developed in response to a residential boom in New Orleans. Developers constructed Gentilly Woods as a community of single family homes, and also provided space for schools, parks, and shopping centers. Public transportation was extended to Gentilly Woods and residents benefited from city utilities.

The area to the north of Gentilly Woods, Pontchartrain Park, consisted of single family ranch homes on large lots bordered by paved sidewalks and was developed explicitly for middle and upper class African-Americans. A 180 acre park with ball fields, playgrounds, club houses, and an eighteen-hole golf course occupied the center of the community. People moved to Pontchartrain Park for the combination of affordability and high quality amenities. Philip Baptiste, resident of Pontchartrain Park since 1958, remarked that, “it was the first time Negroes could buy what you’d call modern housing, with air conditioning ... We usually had the [style of houses called] shotguns and shotgun doubles, with no off street parking” (National Register of Historic Places).

Pontchartrain Park residents took pride in the neighborhood. The community was working class, both blue collar and white collar workers: “[Pontchartrain Park] was the first historical black district where 90 percent of the people that lived back here, they were either working for the post office or they were educators” explains resident MA.

Residents were also civic leaders, activists, politicians, and leaders in culture and the arts (Reese and Wolf 2008). Some of its most famous residents included two New Orleans' mayors, Ernest "Dutch" Morial (the first African American mayor of the city) and his son, Marc Morial, district attorney Eddie Jordan as well as the actor and producer Wendell Pierce and Grammy Award winning musician Terrence Blanchard.¹⁶

Pontchartrain Park provided middle class blacks with the houses and neighborhood layout that whites enjoyed in other parts of New Orleans. In fact, Pontchartrain Park was the lone black settlement among a sea of white neighborhoods. Later, Gentilly Woods went from an exclusively white neighborhood to one in which most residents are black. In the 1960s mandatory desegregation of public schools caused massive "white flight" away from the city. During the 1980s, Gentilly Woods and Pontchartrain Park began to form the collective identity of "Pontilly" - sharing the recreational spaces of Pontchartrain Park and establishing the Pontilly Neighborhood Association.¹⁷

Prior to Katrina, Gentilly had a high average income relative to other communities in New Orleans. Pontchartrain had an average income of \$44,070, Gentilly Terrace \$42,321 and Gentilly Woods \$41,497. Education statistics also demonstrate that the population was better educated (Pontchartrain, Gentilly Terrace and Gentilly Woods report 28.8 percent, 25.0 percent and 25.4 percent with bachelor's degrees or higher,

¹⁶ Wendell Pierce is also a leader in the Pontchartrain Park revival efforts.

¹⁷ See footnote 3 of (2008) "Ecological Crisis and the Modernist Residential Landscape: Pontchartrain Park, New Orleans, Louisiana" in *The Challenge of Change: Dealing with the Legacy of the Modern Movement*, ed Dirk Van den Heuvel, pp 196. IOS Press.

respectively) than much of New Orleans. Additionally, homeownership ranged from 68.7 percent in Gentilly Terrace to 92.1 percent in Pontchartrain Park.¹⁸

Table 2. Demographic Information on Interview Subjects and Neighborhoods,
Gentilly

	Number of Subjects	Percentage		Number of Subjects	Percentage
Res/Non-Res			Age		
Residents	17	100%	< = 29	0	0%
Non-Residents	0	0%	30-29	1	6%
			40-49	2	13%
Gender			50-59	6	35%
Male	9	53%	60-69	4	23%
Female	8	47%	> = 70	4	23%
Race			Homeownership		
African-American	15	88%	Own	17	100%
Caucasian	1	6%	Rent	0	0%
Asian	0	0%			
Other	1	6%			

Although a relatively large percentage of homes in Gentilly (77 percent) suffered major to severe damage as a result of Hurricane Katrina,¹⁹ Gentilly has recovered more quickly from Hurricane Katrina than many other areas. While other parts of New Orleans like Central City were only at 59 percent of its pre-Katrina population, Gentilly was near

¹⁸ Pre-Katrina data comes from the 2000 Census.

¹⁹ From report, "Current Housing Unit Damage Estimates: Hurricanes Katrina, Rita, and Wilma." Revised April 7, 2006. Data from FEMA Individual Assistance Registrants and Small Business Administration Disaster Loan Applications. Prepared by the US Department of Housing and Urban Development's Office of Policy Development and Research. Available. Online. HTTP: https://gnocdc.s3.amazonaws.com/reports/Katrina_Rita_Wilma_Damage_2_12_06_revised.pdf > (accessed May 29, 2012).

71 percent of its pre-Katrina population. As I will argue below, Gentilly exhibited the characteristics of a successful city neighborhood prior to Katrina, (that is, it was effective at self-government) and this positively impacted its resiliency post-Katrina.

Gentilly's capacity for self-governance seems to have translated into relatively low levels of crime, schools with engaged parents, attractive public spaces, well maintained homes with manicured lawns, and a high degree of social cohesiveness. Interviewees described Gentilly as a close-knit community made up of middle class professionals. LB, for instance, describing her relationship with her neighbors recalls that "we were close. We weren't the kind of neighbors that went in and out of each other's homes, but we were there if [we] needed one another." Similarly, AB described the neighborhood as "very closely knit. It's almost like a family atmosphere." She recalled that "everybody looks out for everybody else. They work to build up the community ... there's an atmosphere of family, of working together, a cohesiveness here in this particular area." And, describing Gentilly, DJ said that "this was an upper-middle class neighborhood. Teachers, attorneys, reporters, doctors and things like that lived all back here. People that were in government ... This was a very cohesive neighborhood." Gentilly residents appear to have created a community that residents were attached to and outsiders admired. As twenty-year Gentilly resident JL describes, Gentilly "is a pretty good [place] – even my relatives, when they come ... nobody wants to leave. They say, 'Oh, I like it around here. It's so clean and it's so quiet. It's so this and that.' So I said, 'Well, it always was like that, from the time we moved here.'" And, "people really try to

keep [up] their property and stuff like that for one thing. They keep their lawns manicured.”

Through its informal social networks and community associations, Gentilly demonstrated a strong capacity for self-governance prior to Hurricane Katrina. Interviewees explained that neighbors looked out for one another and felt connected in spite of differences. MA, for instance, explains that Gentilly residents maintained friendship across class differences. “There’s a whole bunch of us,” he suggested, “we always kept in touch with each other. I mean, it’s, like, no rivalry [even though some went] to public [school and] we go to private school... but we always maintain the friendship, you know, brotherhood amongst one another.” Similarly, JL describes how she and her husband would make sure that their neighbor who lived alone got into her house safely when she came home after dark. “She would always call us, me and my husband to say, ‘I’m on my way home. Look out for me.’,” she explains, and “we’d watch her from my bedroom... To see that she got in safely.”

Dozens of neighborhood and community associations also operated within Gentilly prior to Hurricane Katrina including Gentilly Woods Improvement Association, the Gentilly Woods Women's Club, Pontchartrain Park Home Improvement Association, and Gentilly Terrace Neighborhood Association. These associations met regularly to discuss community issues, to coordinate residents’ lobbying efforts and to voice community concerns to parish officials, to sponsor community events, to organize neighborhood watch programs, and to push for community improvements. As JL describes, “they would get everybody's name, address, phone number and stuff like that.

Then they would run them off and they'd give everybody a copy. ... They used to tell you, if you see anybody strange in the neighborhood who don't belong in this area, there's numbers to call." Specifically, the Pontilly Association, representing the Gentilly Woods and Pontchartrain Park neighborhoods, has focused on a variety of community issues including crime, blighted houses, trash dumping and zoning issues since the early 1960s. Similarly, for over 80 years, the Gentilly Terrace & Gardens Improvement Association has operated in the Gentilly Terrace & Gardens communities focusing on the same kinds of issues. Gentilly Terrace & Gardens Improvement Association, for instance, worked with the Historic District Landmarks Commission in the late 1990s to attempt to have the neighborhood designated a local historic district.

The churches in Gentilly also played a vital role in community self-governance by offering various community programs. Reverend Hadley Edwards of Bethany United Methodist Church, for instance, explains, that his church "is a community house. Always has been. We're nestled and set in the heart and the central of the community, and it has always been a community church." As he describes,

A typical day at Bethany Church Monday through Thursday – it's always humming with people from starting at about 8:00 in the morning to 9:00 or 10:00 at night. We had a senior citizens' program. This was a four-day a week program where seniors could come for – there was fellowship, food, family. They could come to get their blood pressure checked. It was a real sense of community. The afternoons – the school across the street, we had a tutoring program. That was probably a year – that was the school year before the storm in August of 2005, and that was a tutoring program where kids could come and get homework help and had retired teachers, had a sorority, somebody that was helping in the annex building next door that they could help them with homework help. Then the evening would be all the church's activities, which would be Bible studies, choir rehearsals, just your typical, run of the mill church activities that were for the local church.

Reverend Hadley Edwards could be considered a public character: not only does he provide spiritual guidance for his congregation, but he also is a “go to” person for church provided services.

In addition to offering religious and social programs, Gentilly churches helped to keep former Gentilly residents connected to the community. As Reverend Cotton of Jerusalem Missionary Baptist church describes,

What happened I think in most churches, the grandparents lived in [this] area. They were the parents. They brought their children to this church. So we had a great deal of membership out of the community. When the children grew up, went away to school, got jobs, they moved out of the community, and the connection that they had with the community is the church. So they became commuters, and that happens – that has happened across the board all over the area. Most of the members when I became a pastor were not living in the community.

The church was, thus, a social space where both bonding and bridging social capital was fostered.

As argued above, Gentilly was a thriving community with a strong capacity for self-governance when Katrina made landfall. It was, to follow Jacobs, a successful district neighborhood characterized by relatively stable social networks comprised of individuals who had access to both bonding social capital (through their neighborhood associations and churches) and bridging social capital (through their jobs and churches).

This capacity for self-government also seems to have served the community well after Hurricane Katrina. Hurricane Katrina, it should be noted, devastated Gentilly, displacing residents and disrupting social networks. During Hurricane Katrina, the London Avenue Canal Levees were breeched causing Gentilly to flood with water depths

as much as eight feet. The median level of damage for the ten thousand plus homes that suffered flood damage was over one hundred thousand dollars. Gentilly's recovery was not swift. Unlike the MQVN community which was almost fully recovered, only 22 percent of the households in Gentilly (Planning District 6) were active within two years of Katrina.²⁰ Five years after Katrina, however, most of Gentilly's pre-Katrina residents had returned.

Residents of Gentilly have leveraged these tools -- community networks, civic and religious organizations -- in post-Katrina recovery efforts. The early returnees within Gentilly, for instance, kept track of who had returned and also shared important recovery information with those who were still living elsewhere. Gentilly resident WT explains,

Many of our neighbors, as they would pass and stop to see me, some of the couples, either the wife or the husband didn't want to return. When they first came home to see their homes like they looked and how they were, it was a big hurt to everyone. Some people regrouped quicker than others. Some just said, 'No, we're not coming back.' But after being away for a while, they began to become homesick, and they would call me and ask what was going on in the neighborhood. More and more people began to come back. Each one would ask, 'Who are you using for the electrician? Who's doing this, and who's doing that? How are you -- what do you do to clean up? What products do you use?' All those type of things. Being good neighbors, we share all the information that we can with one another to help others come back and rebuild.

This use of strong social ties to both share and gather information is typical after disasters (Chamlee and Storr 2010 b).

Gentilly's history as a community of civic leaders, activists, politicians, and leaders in arts and culture also benefited the community post-disaster. These individuals

²⁰ This figure is for Planning District 6, which includes Lake Terrace and Lake Oaks, Filmore, St. Anthony, Milneburg, Dillard, Pontchartrain Park, Gentilly Terrace, and Gentilly Woods. Figure calculated from the Greater New Orleans Community Data Center's information on returns, based on zip codes. The provided figure was taken as a percentage of 2000 Census population.

could be considered “hop-skip people,” in that they are connected to diverse networks outside of the local community. Celebrities who grew up in the area used their fame to bring greater attention to needs within Gentilly. For instance, actor Wendell Pierce, who stars in "The Wire" on HBO and appears in "Treme," also on HBO, worked with the New Orleans Redevelopment Authority to demolish and rebuild sections of Pontchartrain Park and Gentilly Woods.²¹ Similarly, former Mayor Marc Morial, current President and CEO of the National Urban League (NUL), spoke to national media about the disaster and created a Katrina Relief Fund through the NUL. These key community members have leveraged their networks of outside contributors to aid in the rebuilding of their local community and New Orleans.

Faith based organizations also played a key role in bringing about recovery in Gentilly after Katrina. Stressing that there is “longstanding tradition of African American churches as centers of the social, political, economic and religious life of their members and communities,” DeVore (2007) describes the efforts of the Reverend Hadley in community organizing in the aftermath of Katrina. “To reconnect the web of relationships that formed the very fabric of the church communities,” he writes, “religious leaders used the technologies available to them. For example, the Reverend Hadley R. Edwards, the senior pastor of Bethany United Methodist Church, searched his e-mail files to retrieve the e-mail addresses of church members. He used that information to locate church members, and to inquire about their safety, spiritual and emotional

²¹ Lailla Morcos. (2009) “Jumpstart to Gentilly recovery.” Available. Online. HTTP: <http://www.abc26.com/news/local/wgno-jumpstart-to-gentilly-recovery-244573.0,2357288.story>. (accessed May 29, 2012).

health, and families, and to send them daily messages.” While local churches organized local members, churches from all over the United States extended a helping hand. The Presbytery of South Louisiana, for instance, established Project Homecoming in the aftermath of Katrina. Project Homecoming organized volunteers to rebuild the homes of the uninsured, under insured, elderly and disabled Katrina survivors. Working through Gentilly’s First Union Presbyterian Church, Project Homecoming has worked to rebuild over 300 homes in Gentilly and elsewhere in New Orleans.

Additionally, the neighborhood organizations in Gentilly worked to bring about recovery. In November 2005, twenty Gentilly based neighborhood associations formed the Gentilly Civic Improvement Association as an umbrella association. The Association’s chief goal is to facilitate cooperation between Gentilly neighborhood associations and also organization in addressing the neighborhood’s needs. The association has also been involved with the planning process, providing input and feedback to The Unified New Orleans Plan (drafted by various stakeholders, including the Bring New Orleans Back Commission, FEMA F-14, individual neighborhood organizations, and the City’s Planning Commission). Moreover, in January 2010 The Gentilly Civic Improvement Association launched “Rebuild Gentilly, Phase 2,” which is a marketing campaign to find buyers for Road Home properties now owned by the Louisiana Land Trust.²² Community members are trying to address the remaining vacancies and move towards pre-Katrina occupancy rates. GCIC, along with its member associations, continue to hold weekly meetings and remain a key resource in Gentilly.

²² Denise Walter McConduit “Dreux Avenue home team stages a comeback.” *Times Picayune*. January 7, 2010.

VI. Conclusion

This study adds to our understanding of how communities rebound following natural disasters. We know that local knowledge and knowledge transfer is important in communities during mundane times as well as in post-disaster environments. My findings are consistent with existing literature, including Beggs et al. (1996: 209), Chamlee-Wright and Storr (2009: 2010), and Aldrich (2010). From our interviews with members of the MQVN community, it is clear that there was never a question of whether residents would return. Father Vien visited members displaced in cities throughout the south, relied on the Pastoral Council to share information, and gave a signal that the church was open for services. Although the Bring New Orleans Back Commission had marked New Orleans East as green space, it became clear that the MQVN community would return. Organization in Gentilly was not as centralized but key community members made commitments to rebuild. Neighborhood associations connected residents and shared information about who had returned. From my investigations of the MQVN community and Gentilly, we see that communities leveraged different forms of self-governance to overcome unique challenges following Hurricane Katrina.

My findings also have implications for our understanding of governance more generally. Specifically, they support the view that communities can take on complex challenges without commands from a central authority. In my study, voluntary associations are key drivers of change and the success of community recovery. A community's capacity for self-governance depends on (1) the social coordination capacity of community organizations and associations, (2) the ability of community members to effectively access both bonding and bridging social capital, (3) the ability of

community members to leverage their shared histories and perspectives, and (4) the stability of social networks within the community. Disasters present major collective action problems and our analysis illustrates how community members used pre-existing structures of self-governance to overcome collective action challenges. Churches, neighborhood associations, and other organizations have established lines of communication. In some cases, these take the form of church leaders discussing return status with fellow members at mass. In other cases, I saw organizations utilize phone trees to contact neighbors. By accessing bridging social capital, including political leaders, the archdiocese, and leaders in culture, community members were able to make more credible commitments to recovery. As I saw in both communities, a shared history and common expectations were critical to the collective action problem.

My findings also point to the advantages polycentric orders over monocentric orders in solving the complex challenges like post-disaster recovery. Community organizations and associations, for instance, can play a critical role in addressing crime in a community or building and managing a neighborhood park. Although they may resource challenged compared to larger more centralized governing authorities, these decentralized structures tend to more flexible and better able to utilize local knowledge. These centralized structures have also proven true in post-disaster contexts. Although there is a tendency to call for top-down approaches to solve post-disaster recovery challenges, community groups have proven quite effective in promoting recovery. In the MQVN community, for instance, the church did everything from providing ethnically appropriate aid to organizing the community to lobby the government for additional

resources. Similarly, in Gentilly, early returnees kept track of those who had returned and shared important recovery information with those who were still displaced. These community groups outperformed more centralized authorities that were less flexible and more divorced from local knowledge like FEMA. Although polycentric orders may appear chaotic, these complex relationships are able to address collective action problems and help in disaster recovery.

COMMERCIAL ENTREPRENEURSHIP, COMMERCIAL ENTERPRISES AND POST-DISASTER COMMUNITY RECOVERY

Post-disaster recovery constitutes a major social coordination challenge. Research has not adequately acknowledged the role of commercial entrepreneurs in overall disaster recovery. I focus on the four key roles which commercial entrepreneurs and commercial enterprises play post disaster: (a) supplying resources to disaster victims, (b) serving as “focal points” which allow others to make decisions about recovery, (c) providing social spaces for victims to engage in knowledge exchange and reconstitute disrupted social networks, and (d) engaging in social entrepreneurship. I offer evidence based on fieldwork conducted in New Orleans, Louisiana, following Hurricane Katrina and following the tornadoes in Tuscaloosa, Alabama, and Joplin, Missouri.

I. Introduction

The post-disaster environment presents a massive collective action problem (Schelling, in Gosselin 2005; Chamlee-Wright 2010).²³ An individual’s decision about how and when to rebuild their home and property after a natural disaster like a hurricane, earthquake or tornado, is necessarily tied to the decision of others. In such a scenario, an independent first mover carries a significant risk. While the costs of rebuilding are high and include significant time, physical and mental effort as well as considerable material

²³ A version of this chapter has a revise and resubmit to a journal. This revise and resubmitted article is co-authored with Virgil Henry Storr.

resources, the benefits associated with rebuilding a damaged or destroyed home after a disaster are unclear. If a community member rebuilds and others do not, the benefits associated with rebuilding are likely to be much less than they would be if the community member rebuilds and key members of her social network also return and rebuild. Faced with considerable costs and unclear benefits, many people rationally adopt a “wait and see” strategy.

A growing literature focuses on non-market efforts to address the collective action problem and provide relief in the wake of disaster. Specifically, scholars have explored the use of social capital to coordinate recovery (Aldrich 2011; Beggs et al. 1996; Nakagawa and Shaw 2004; Chamlee-Wright and Storr 2009, 2011a, 2011b), the ability of social entrepreneurs to contribute to social coordination post-disaster (Chamlee-Wright and Storr 2010; Kaufman et al 2007; Storr and Haeffele-Balch 2012), and the role of government assistance in recovery efforts (Galbraith and Stiles 2006; Pipa 2006; Zolin and Kropp 2007). Although there is a significant literature that focuses on non-market sources of social coordination in the wake of disasters, research has not adequately acknowledged the role of *commercial* entrepreneurs and enterprises in overall disaster recovery.²⁴ Commercial entrepreneurs and enterprises, after all, are the source of the goods and services necessary for a community’s vitality during mundane times. They provide employment opportunities. They also contribute to local tax revenues. They

²⁴ See Rosegrant (2007), Horwitz (2009a, 2009b) and Johannisson and Olaison (2007) for exceptions. Throughout the article, we will use the terms entrepreneur and commercial entrepreneur interchangeably to refer to entrepreneurs who are operating in market settings and are motivated, in part, by the desire to earn profits. We will describe entrepreneurs in non-market settings who have primarily social or political aims as social entrepreneurs. See Austin, Stevenson and Wei-Skillern (2006) for a discussion of the differences and similarities between commercial and social entrepreneurs.

provide essential goods, including housing, food, clothing and transportation, as well as labor saving services, such as childcare, home repair (e.g. plumbers, electricians, and general contracting), and vehicle maintenance. Of course, many of the goods and services that commercial entrepreneurs and enterprises provide are sources of enjoyment and entertainment (e.g. the local coffee shop, cinema, or bicycle shop). In fact, business spaces – restaurants, grocery stores, and boutiques – are places where important social interactions take place and where community members engage in knowledge exchange (e.g. two neighbors are in conversation at the grocery store and discuss an upcoming school board meeting) (Duneier 1994; Anderson 2003; Storr 2008).

Surprisingly, much of the literature on entrepreneurship post-disaster ignores the multifaceted role of commercial entrepreneurs and businesses. For example, scholars have tended to focus on the entrepreneur as a supplier of needed goods and services post-disaster (Horwitz 2009a, 2009b). Further, scholars have discussed ways in which governments or aid agencies can provide assistance to commercial entrepreneurs. See, for instance, Régnier et al. (2008) on post-tsunami India and Indonesia and Schramm (2010) on post-war Afghanistan and Iraq. Similarly, Kunreuther (1968), Kunreuther and Miller (1985) and Jefferson et al. (2007) have evaluated efforts by the Small Business Administration (SBA) to assist entrepreneurs in the post-disaster setting. And, Gotham and Greenberg (2008) have examined various publicly funded programs available after September 11th, 2001 in New York and Hurricane Katrina in New Orleans (e.g. Community Development Block Grants, the Liberty Zone, the Gulf Opportunity Zone, and Housing and Urban Development grants). Others have pointed to the price gouging

behavior of entrepreneurs in the immediate aftermath of a disaster and have examined the effectiveness of anti-gouging laws (Bae 2010). Finally, Chamlee-Wright (2007) and Smith and Sutter (2013) have emphasized that unclear or inconsistent government policies regarding occupational licensing, the boundaries of flood zones, and rebuilding permissions, can make it difficult for commercial entrepreneurs to begin the recovery process.

This article fills a gap in the current literature by developing a theory of entrepreneurship in post-disaster contexts which recognizes the embedded nature of entrepreneurs, and by doing so points to the specific roles that commercial entrepreneurs and enterprises play post-disaster to bring about community rebound and recovery. I focus on four key roles which commercial entrepreneurs and enterprises play post-disaster. Those four roles include (a) supplying resources to disaster victims, (b) serving as “focal points” which allow others to make decisions about recovery, (c) providing social spaces for victims to reconstitute social networks and engage in knowledge exchange, and (d) engaging in social entrepreneurship.

This article, by focusing on the role of entrepreneurship in post-disaster contexts, also adds to the growing literature on entrepreneurship in hostile environments. Hostile environments include places affected by terrorism, civil war, or natural disaster (Bullough et al. 2013; Galbraith and Stiles 2006). Although one might assume that such environments eliminate the possibility for commercial entrepreneurship, studies illustrate that entrepreneurs are able to conduct business in these environments (Bullough et al. 2013). Higher prices may entice entrepreneurs, and many studies emphasize that

commercial entrepreneurs tend to be better suited to cope in adverse environments compared to others (Baron and Markman 2000; Branzei and Abdelnour 2010: 806; Joseph and Linley 2008; Markman et al. 2005; Tedeschi and Calhoun 2004).

The remainder of the paper is organized as follows. In section 2, I provide a theory of entrepreneurship and explore the existing literature on commercial entrepreneurship and enterprises in a post-disaster setting. I extend this literature by identifying the specific roles that commercial entrepreneurs and enterprises play following disaster. Section 3 is a description of research methods and the data used for our empirical analysis. My data comes from fieldwork conducted in New Orleans, Louisiana, following Hurricane Katrina and following the tornadoes in Tuscaloosa, Alabama, and Joplin, Missouri. In section 4, I present my empirical data. I show that in the wake of disaster, commercial entrepreneurs play a variety of roles above and beyond supplying goods and services. In several interviews, community members pointed to commercial entrepreneurs as focal points in recovery, although they used slightly different language. Time and again residents referred to local businesses as places where people reconnected after disaster. And, in many cases commercial entrepreneurs took on the role of a social entrepreneur to help those in their community. Finally, in my discussion and conclusion (Section 5), I offer some implications of this more expansive view of commercial entrepreneurship post-disaster.

II. A Theory of Post-Disaster Entrepreneurship

A Theory of Embedded Entrepreneurship

Indeed, research on entrepreneurship has increasingly focused on the context in which entrepreneurship takes place and the embedded nature of entrepreneurship

(Granovetter 1985; Lavoie 1991; Portes and Sensenbrenner 1993; Dacin et al. 1999; Storr 2004; McKeever et al. 2015). This emphasis on embeddedness is in sharp contrast to neo-classical treatments of the economic actor. Robinson Crusoe's world is characterized by scarcity and the (almost) complete absence of other actors (an "undersocialized" explanation of economic action). Although there are situations where such abstractions are helpful, the sorts of questions which drive my analysis require consideration of context.²⁵ For instance, I am interested to know *how* entrepreneurs identify an opportunity? What accounts for differences in the types of entrepreneurial activities across various scenarios? How does a particular environment encourage or hinder entrepreneurial activity? The approach is much closer to Weber's *Sozialökonomik* or "social economics." Weber (ibid.: 64) explains, "The basic element in those phenomena which we call ... 'social economic' is constituted by the fact that our physical existence and the satisfaction of our most ideal needs are everywhere confronted with the quantitative limits and the qualitative inadequacy of the necessary external means, so that their satisfaction requires planful provision and work, struggle with nature and the association of human beings."

What does it mean to say that the entrepreneur is socially embedded? Examining how scholars have discussed the relationship between economic action and the social structure, Granovetter (1985) explains that there are undersocialized views (more common in economics) and oversocialized perspectives (more common in sociology).

²⁵ For instance, Kirzner's 1973 theory of entrepreneurship does not incorporate context. Instead, Kirzner is careful to note that his theory applies to a single commodity, single time period scenario and provides insight into how prices converge toward equilibrium. For Kirzner, the entrepreneur is the actor who is alert to differences in price and exploits those differences (i.e. arbitrage).

Embeddedness, then, maintains individual agency but recognizes that decision-making takes place within a social structure and is informed by social factors, such as personal networks (ibid: 504). Since Granovetter's 1985 article, there has been considerable research on the embedded entrepreneur. Portes and Sensenbrenner (1993) point out that in addition to personal networks, there are a variety of other aspects of social life that are relevant, including enforceable trust and solidarity, which can assist or constrain an economic actor. Further, Dacin et al. (1999: 317) associate embeddedness with structure, culture, learning, and trust. McKeever et al. (2015: 60) investigate how sense of place - a "socialized appreciation and understanding for the nature and habits of their place" - influences entrepreneurship.

By drawing attention to the entrepreneur as embedded in a social context, we do not have to abandon earlier discussions of entrepreneurship. Schumpeter has described entrepreneurship "as the carrying out of new combinations" (2011: 75). Further, he explained that an entrepreneur acts as an entrepreneur through the following activities,

(1) The introduction of a new good – that is one with which consumers are not yet familiar – or of a new quality of a good. (2) The introduction of a new method of production, that is one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. (3) The opening of a new market, that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. (4) The conquest of a new source or supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created (ibid.: 66).

I should note here that for the purposes of my research, I discuss entrepreneurs as *commercial* entrepreneurs, which I define as individuals who exchange goods and services for monetary benefit (i.e. commercial entrepreneurs are profit-seekers).

Indeed, by incorporating context into our analysis, we can begin to understand perhaps how an entrepreneur chooses to bring X to market and not Y. In response to Kirzner's theory of entrepreneurship, Lavoie (1991) argued that the embedded nature of entrepreneurship is critical, "Entrepreneurship necessarily takes place within culture, it is utterly shaped by culture, and it fundamentally consists in interpreting and influencing culture" (ibid: 36; also see Storr 2004; Storr and John 2011). By incorporating context in the theory of entrepreneurship, scholars have made strides in our understanding of entrepreneurship. For example, how do social resources (e.g. personal networks) aid in opportunity identification? How does an individual's "stock of knowledge" or life experiences contribute to their interpretation of possible opportunities? Or, is it possible that entrepreneurial success is being more attuned to the needs of others, or as Fligstein (2001: 106, emphasis ours) suggests, "*creating* meanings that appeal to a large number of actors"? (also see Lavoie 1991: 49).

I am interested to examine the particular roles that commercial entrepreneurs play in their communities during mundane times and in the most challenging of circumstances (i.e. the "hard case"). From my explanation of theories of embeddedness and entrepreneurship, I extend these theories to consider particular roles that commercial entrepreneurs perform in the social ecology. I shed further light on McKeever et al.'s (2015) question, "what is the nature of the entrepreneurial engagement with place and community?"

What Role Does the Embedded Entrepreneur Play in his/her Community?

Storr (2008) has engaged Lefebvre's *The Production of Space* (1991) to draw attention to the role of economic actors (including entrepreneurs) as producers of space and to note that the space that they create is a space characterized by friendships, mutual-support, and even romantic relationships.²⁶ "A complete concept of the market, in my view, requires that we appreciate that the market is a social space where both economic and extra economic relationships are developed and maintained. Markets are not only embedded in the community but can also promote and sustain the community" (ibid.: 143). The physical buildings constructed to support the plan of an entrepreneur may be a local coffee shop, a fitness center, or an open-air market during the summer months. A local coffee shop may serve as the physical space where community members come together to strengthen existing social ties by meeting a childhood friend for an afternoon latte. The fitness center may support the random meetings of less-strong ties and the spontaneous conversations about a community sports team. Further, the entrepreneur who conceives and organizes the open-air market establishes connections and even friendships with the vendors who travel from neighboring areas to sell their produce. This conceptualization, as Storr (ibid.: 143-144) notes, shifts analysis from the economic significance of social relations to the social significance of economic relationships.

²⁶ Storr (2009: 280) lists further examples of how relationships are created and bolstered in the market: Coworkers often develop strong bonds because of their common experiences and circumstances; office romance, that has nothing to do with harassment, is a common phenomenon in the contemporary workplace; principal-client, seller-buyer relationships can develop into deep friendships; master-apprentice and mentor-protégé relationships can sometimes grow into social friendships and even father-son, mother daughter type relationships; family businesses can serve the income, fulfillment, and identity needs of family members; competitors can even develop relationships with each other; shopping and consuming can be social activities that provide an opportunity for friends to deepen their bonds; and geographically dispersed communities and friendships are made possible by the communication and transportation services available because of the market.

The entrepreneur contributes to the social ecology. We can see that other actors in the social ecology observe the actions of the entrepreneur. For example, imagine again the entrepreneur who establishes the open air market. The market may be a focal point during the summer month, “the equilibria that people sometimes just naturally focus on” (Kreps 1990: 415). The market is the natural spot for Saturday meet-ups. Morning coffee is served at the market. When in-laws come to visit, the market is the first destination for weekend activities.

An understanding of the embedded commercial entrepreneur, we argue, narrows the distinction between commercial entrepreneur and social entrepreneur. There is a growing literature around “social entrepreneurship.” And, various definitions of social entrepreneurship have been put forth. Dees (1998) views social entrepreneurs as “change-agents,” who perform their role by “recognizing and relentlessly pursuing new opportunities to serve that mission, engaging in a process of continuous innovation, adaptation, and learning, [and] acting boldly without being limited by resources currently at hand” (ibid: 4). Zahra et al. (2010: 522) explain that social entrepreneurs “exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner.” Others have referred to social entrepreneurship as entrepreneurship which has “a double bottom line” of monetary profit and social profits. Indeed, there are several ways in which commercial entrepreneurs can be viewed as enhancing social wealth, (1) by contributing the physical buildings in which social interactions take place and (2) creating the opportunity for social relationships to form (through the workplace, as colleagues, or in the marketplace

as buyer and seller). Further, studies in philanthropy illustrate that the commercial entrepreneur gives significant resources to charity, and therefore, can be considered a social entrepreneur (Thompson et al. 1993).

Embedded Entrepreneurship in the Post-Disaster Scenario

There is a growing literature on entrepreneurship in hostile environments (Branzei and Abdelnour 2010; Bullough et al. 2013; Galbraith and Stiles 2006).²⁷ Hostile environments include areas which have political instability, increased risk of terrorism or other kinds of physical violence, adverse weather conditions (e.g. severe drought), or areas recovering from natural disaster. Scholars have shown that entrepreneurs tend to be better suited to cope in adverse environments and are generally more optimistic compared to non-entrepreneurs (Baron and Markman 2000; Branzei and Abdelnour 2010: 806; Joseph and Linley 2008; Markman et al. 2005; Tedeschi and Calhoun 2004). Further, many studies discuss entrepreneurs as exhibiting resiliency, “an ability to go on with life, or to continue living a purposeful life, after hardship or adversity” (Tedeschi and Calhoun 2004).

What are the challenges in a hostile environment? The literature identifies several challenges for entrepreneurs, including increased uncertainty, difficulty in learning because there are fewer models of entrepreneurial ventures, increased risk of physical violence and/or confiscation or destruction of assets, lack of basic infrastructure to support a business (e.g. roads, electrical grid), and increased corruption (i.e. increased

²⁷ This literature is somewhat related to the literature on depleted communities, however, depleted communities are defined as communities undergoing hardship because of changes in the larger economy.

cost of doing business because of necessary side payments) (Bullough et al. 2013; Lévesque et al. 2009).

Literature on entrepreneurship post-disaster has also focused on understanding the recovery process for entrepreneurs and what factors determine the ability of a business to rebound following disaster.²⁸ Fewer studies have considered how entrepreneurs contribute to post-disaster recovery. Horwitz (2009a, 2009b), for instance, has written that entrepreneurs are well suited to address post-disaster needs, and that the profit and loss environment both incentivizes entrepreneurs to act and also provides feedback on entrepreneurial activity (also see Rosegrant 2007). Horwitz, however, does not engage the literature on embedded entrepreneurship, although his empirical evidence illustrates that he does recognize context to be an essential part of understanding entrepreneurship.

My theory of the various roles that entrepreneurs play in their communities can also be considered in the post-disaster context. While the literature does present entrepreneurs and businesses as key to post-disaster recovery and redevelopment, relatively little has been said regarding the particular roles that commercial entrepreneurs and enterprises play. Commercial entrepreneurs and enterprises perform important social

²⁸ Indeed, Alesch and Holly (1996), Dahlhamer and Tierney (1998), Tierney (1996), and Miles and Chang (2006) have all tried to identify specific factors that lead to recovery among businesses. According to these efforts, following a disaster, businesses may experience (i) damage to buildings, vehicles and other important assets, (ii) interruption of essential services such as water, electricity, and telecommunication services, and (iii) difficulty in finding both workers to help with recovery and consumers to ensure continued revenues (Dahlhammer and D'Souza 1997; Tierney and Dahlhamer 1998; Alesch et al. 1993; Zang et al. 2009). Surprisingly, some research finds that reported damage could be a poor indicator of survival (Alesch and Holly 1996). Instead, scholars have found that those businesses that are more likely to recover are those which are larger and well established (i.e. new businesses are more likely to fail), those that were doing well before the disaster, and those businesses that retained demand for their goods and services (Alesch and Holly 1996; Zolin and Kropp 2007; Zhang et al. 2009). Miles and Chang (2006), however, found that business recovery was dependent on the extent of the damages experienced, in addition to available finances, physical infrastructure, and the recovery of community households.

and economic functions before, during and after a disaster. Before a disaster, they are an important source of the goods and services (e.g. canned goods, batteries, etc.) that individuals utilize as they prepare for and weather a disaster. In the immediate aftermath of a disaster, commercial entrepreneurs and enterprises can be critical sources of the materials and services needed to repair damaged homes. In the months and years following a disaster, they perform a number of functions that displaced residents rely on to return and rebuild their communities. In particular, commercial entrepreneurs and enterprises play four key roles after a disaster:

- a. supplying goods and services to disaster victims,
- b. serving as “focal points” in the recovery process,
- c. providing social spaces for victims to reconstitute social networks and share information, and
- d. acting as social entrepreneurs in addition to their role as commercial entrepreneurs.

This list is, of course, not exhaustive nor does it cover the full range of activities that commercial entrepreneurs engage in as they facilitate the rebuilding of communities after a disaster. Still, we contend that these are key post-disaster roles for commercial entrepreneurs.

III. Research Methods

In my study, I focus on three natural disasters (2005 Hurricane Katrina and the 2011 tornadoes in Tuscaloosa, Alabama and Joplin, Missouri) and rely primarily on interview data collected following the three natural disasters. The interview data was originally collected as part of a five-year study of the political, economic, and social

factors affecting disaster preparedness and response after Hurricane Katrina.²⁹ The study was carried out by Mercatus Center scholars and researchers. What was originally the Gulf Coast Recovery Project, then, expanded as Mercatus Center researchers investigated disasters in Tuscaloosa, Alabama and Joplin, Missouri.³⁰ Indeed, there is a growing interest in post-disaster recovery. According to the Centre for Research on the Epidemiology of Disaster (CRED), there has been an increasing number of natural disasters worldwide.³¹ I focus my study on natural disasters in the US for two reasons. The first reason is data availability. I was able to access both quantitative and qualitative data from three major natural disasters in the US, including hundreds of interviews conducted with individuals affected by the disasters. In addition to the interview transcripts, I have information about the communities that were affected by the disaster. Second, by focusing on the US, I control for some institutional factors that are relevant. For example, in the US Federal Emergency Management Agency (FEMA) has a strong presence after disaster, and there is also an expectation that federal and state assistance will be provided. Within the US, however, there still is variance among the three case studies that I include in my analysis. In order to explore some of those differences, I provide further contextual details below (see section 4.1).

²⁹ For a description of the larger project, see Boettke et al (2007).

³⁰ The tornadoes in Tuscaloosa, Alabama and in Joplin, Missouri provided further opportunity to study the post-disaster recovery process. Early interviews suggested that the two communities (Tuscaloosa and Joplin) had divergent strategies for recovery. The disasters then presented a natural experiment and comparative study of post-disaster recovery. See...

³¹ And, unsurprisingly, some areas of the world have been more affected than others. Considering the period 1950-2000, many of the reported natural disasters hit parts of Asia, with 11 reported in 1950 (46 percent of total), 26 in 1975 (40 percent), and 195 in 2000 (37 percent). Some of this can be attributed to the lower elevation in many parts of Asia, which leads to increased risk of flooding.

In order to locate interview subjects, the research team deployed a mix of random sampling and purposive sampling. Some interview subjects were randomly selected, however, there were some limitations to this strategy because in the post-disaster context many homes are unoccupied. For example, in a neighborhood where only a third of residents had returned, a random sampling of every fifth house could mean that researchers spent considerable time and effort knocking on doors before locating a resident that (1) had returned, (2) was at home, and (3) was willing to answer questions. Therefore, we also used snowball sampling in which we asked an interview subject to identify others who may be available for an interview. Still, in order to avoid being tracked within a narrow band of the social spectrum, we complemented the purposive sampling with random sampling. We also made a deliberate effort to talk to a variety of stakeholders, including residents, business owners, non-profit leaders, and religious leaders. I make no claims that the sample is representative.

The interview instruments used across the three cases consisted of several key parts, including questions about the interview subject's personal story and what the particular community was like before the disaster, the interview subject's "storm story" or experience during the natural disaster, their "come-back story" including resources leveraged to return, and finally, questions about post-disaster community life. Interviewees were asked, what social networks and other elements of civil society were active before the disaster? Had the community experienced other hardships (including other natural disasters) in the past? If so, what are the memories of these events, and how had they responded to those events? What were the expectations about resources for

response and recovery? And, what was the role of commercial entrepreneurs and commercial enterprises in helping displaced residents return and rebuild after disasters?

Interviews lasted between 15 minutes and two hours.

All interview subjects signed consent forms agreeing to have the interview recorded. Following the interviews, the audio recordings were transcribed. The transcribed interviews were then coded for key themes. In order to protect personal identities, many of the names presented in the following section are pseudonyms.³² In cases where a person's position is important to understanding the statements, and in providing that information, the interview subject's identity is revealed, we received permission, and I have opted to use actual names.

A total of 353 individuals were interviewed following Hurricane Katrina. In Tuscaloosa, Alabama 30 individuals were interviewed and in Joplin, Missouri 36 individuals were interviewed. Eighty per cent (53 out of 66) of the interviewees in the Joplin and Tuscaloosa studies mentioned entrepreneurship as being critical to their recovery efforts. Similarly, seventy-three per cent (258 out of 353) of the interviewees in the Katrina study referenced the role played by entrepreneurs in bringing about community recovery. Although this suggests that entrepreneurship proved important to a number of displaced residents as they attempted to recover, my analysis is focused on the specific roles that commercial entrepreneurs performed when they did prove important to recovery.

³² The † symbol is used to denote a pseudonym.

Context: New Orleans, Louisiana, Tuscaloosa, Alabama, and Joplin, Missouri

New Orleans, Louisiana and Hurricane Katrina

Although parts of Florida and Mississippi were affected by Hurricane Katrina, my interview data focuses on communities in New Orleans, Louisiana. New Orleans experienced the worst of the damage following Hurricane Katrina. The population in New Orleans affected by the storm was more often African American and low-income. In fact, damaged areas were 45.8 percent African American compared to 26.4 percent in undamaged areas. Similarly, in damaged areas poverty rates were 20.9 percent compared to 15.3 percent in undamaged areas.³³ As a city, New Orleans had a population of approximately 485,000 in the year 2000 (the last Census year before the storm hit in 2005). The median household income was \$27,133 (compared to the US average of \$41,994) and the percentage of people living in poverty was just under 28 percent (compared to the US average of 12.4 percent). Below, I offer a few demographic statistics about the communities in New Orleans which I highlight in my empirical analysis.

Table 3. Demographic Information for Communities in New Orleans

	Median household income	Percentage households at or below poverty level	Race: percent white/percent black	Pre-Katrina population
Orleans Parish	NA	NA	NA	198,232
<i>Lower Ninth Ward</i>	\$19,567	34.00%	9.4/88.8%	20,191
<i>Central City</i>	\$12,048	45.30%	4.2/94.3%	4,033
<i>Gentilly</i>	\$31,104	19.90%	23/73.2%	18,233
St. Bernard Parish	NA	NA	NA	25,604
<i>Chalmette</i>	\$36,699	9.20%	92.7/2.4%	12,969

³³ Data available online at <http://www.s4.brown.edu/Katrina/report.pdf>

Hurricane Katrina struck the Gulf Coast on August 29, 2005. Much of the damage in New Orleans was caused by flooding. The city was constructed on top of swampland, and many parts of the city are between 4 and 6 feet below sea-level. Further, bodies of water surround the city: to the east is Lake Borgne (which opens out to the Gulf of Mexico), Lake Pontchartrain is to the north, and the Mississippi River weaves from the northwest, traveling south of the city and into the Gulf. A complex system of levees was designed to protect the city from flooding.³⁴ As Hurricane Katrina hit New Orleans, the storm brought two devastating surges.³⁵ One surge, caused by the counter-clockwise winds of the storm, entered Lake Borgne, and breached the MRGO levee, sending floodwater into the city from the east. A second surge was caused by storm winds in the Gulf and northern winds across Lake Pontchartrain, which penetrated the Industrial Canal, London Avenue Canal, and 17th Street Canal, causing levee breaches. Communities bordering Lake Pontchartrain (including Lakeview, Gentilly, New Orleans East) had over 10 feet of flooding. The most severe flooding, however, occurred as a result of breaches along the Industrial Canal where a surge from Lake Borgne overcame the MRGO levee leading to flood waters in excess of 12 feet in the Lower Ninth Ward.

Tragically, over 1,800 people lost their lives as a result of Hurricane Katrina (most deaths were in Louisiana and Mississippi). Hurricane Katrina was the costliest

³⁴ The Mississippi River Gulf Outlet (MRGO) levee runs down the western boundary of Lake Borgne. At the top of the levee is the Intracoastal Waterway, which then connects to the Industrial Canal, running north to south, joining Lake Pontchartrain and the Mississippi River.

³⁵ A storm surge is caused by a few different factors, including cyclonic winds and low pressure. Storm surges can cause extensive flooding and can affect areas tens of miles from the coast. According to the National Hurricane Center, storm surges are the greatest threat to life and property during a hurricane. The information about these two surges comes from testimony provided by Peter Nicholson, Ph.D, PE, on behalf of the American Society of Civil Engineers.

natural disaster in US history, with total estimates of damages reaching \$108 billion (Knabb 2006). An estimated 134,000 housing units, or 70 percent of all occupied housing units, were damaged.³⁶ The extreme devastation resulted in a slow recovery process (see recovery rate statistics in table above). Our research, however, suggests that damage alone does not determine the rate of recovery. A few communities offer prime examples. The Mary Queen of Vietnam community in New Orleans East had over 10 feet of flooding, but rebounded relatively quickly (Chamlee-Wright and Storr 2009).

Tuscaloosa, Alabama and the 2011 EF4 Tornado

Tuscaloosa is located in west central Alabama one hour southwest of Birmingham. Tuscaloosa has a population of 91,605 (2011 Census Data) and is the fifth largest city in the state. The city is home to the University of Alabama, which in fall 2014 had 36,000 undergraduate and graduate students. The city's economy is supported by higher education, as well as employment in manufacturing (15 percent of the labor force) and government (25 percent of the labor force).³⁷

Tuscaloosa has a median household income of \$38,519 (2009-2013 American Community Survey 5-year estimate, US average was \$53,046) and 26.3 percent of individuals were at or below the poverty rate (also 2009-2013 estimate, US average was 15.4 percent). The city is racially mixed: 53.8 percent identified as white and 41.5 percent identified as African American. Although Tuscaloosa, Alabama is not a stranger to tornadoes (an EF3 tornado hit the city in 1998), the EF4 tornado that tore through Tuscaloosa on April 27, 2011 was the worst in the city's history. The tornado had winds

³⁶ Data available from The Data Center (formerly the Greater New Orleans Community Data Center), available online at <http://www.datacenterresearch.org/data-resources/katrina/facts-for-impact/>.

³⁷ Data available from the Bureau of Labor Statistics, http://www.bls.gov/eag/eag.al_tuscaloosa_msa.htm

of up to 190 mph, and a path that was one and a half miles in width in places. The tornado initially touched down in northern Greene County, before traveling through Tuscaloosa and Jefferson Counties. The tornado travelled through the city of Tuscaloosa and into the suburbs of Birmingham before it dissipated northeast of downtown Birmingham.³⁸ In Tuscaloosa the tornado travelled over seven miles. Approximately 1,500 people were injured as a result of the tornado and 65 killed.³⁹ As a result of the tornado, some 7,000 buildings were damaged or destroyed, 5,100 of which were housing units. Overall, 12 percent of the city was destroyed.⁴⁰

Joplin, Missouri and the 2011 EF5 Tornado

Approximately one month later, an EF5 tornado destroyed much of Joplin (striking May 22, 2011). The city of Joplin is in southwest Missouri, near the border with Kansas and Oklahoma to the west and Arkansas to the south. The city has a population of 50,150 (2010 Census Data). Because of its central location, many are employed in transportation industries (the Bureau of Labor Statistics reports that roughly 20 are employed in “trade, transportation, and utilities”), and other employment areas include manufacturing (12.8 percent) and education and health services (12.7 percent).⁴¹ Median household income is \$37,912 (2009-2013 American Community Survey 5-year estimate) and the poverty rate is 19.2 percent. According to the 2010 Census, Joplin is mostly white (87.6 percent) with a small minority identifying as African American, 3.3 percent.

³⁸ Available online at http://www.srh.noaa.gov/bmx/?n=event_04272011tuscibirm

³⁹ Data available online at http://www.srh.noaa.gov/bmx/?n=event_04272011tuscibirm.

⁴⁰ Available online at http://blog.al.com/tuscaloosa/2011/10/tuscaloosas_april_27_tornado_b.html

⁴¹ Data available online at http://www.bls.gov/eag/eag.mo_joplin_msa.htm

On May 9, the President declared Butler, Mississippi, New Madrid, St. Louis, and Taney Counties as disaster areas following severe storms, tornadoes, and flooding (DR-1980). The tornado in Joplin, which is located in Jasper and Newton Counties, was added to the disaster declaration.⁴² The Joplin tornado proved to be far more destructive than earlier weather emergencies. The tornado resulted in over 1,000 injuries and 158 deaths, making it the most deadly tornado to hit the US since 1947.⁴³ The path of the tornado, three-quarters of a mile in width, damaged or destroyed over 7,500 housing units and 550 businesses.⁴⁴

IV. Commercial Entrepreneurship Post-Disaster

In the qualitative data I find evidence that commercial entrepreneurs played a variety of roles post-disaster. Below, I highlight those roles, incorporating examples from Hurricane Katrina and the tornadoes in Tuscaloosa, Alabama and Joplin, Missouri.

Supplier of Needed Goods and Services

Affected and displaced residents, if they are to return and rebuild, need to purchase building materials and to hire contracting services. Entrepreneurs work to supply the concrete, wood, sheetrock, tiles, pipes, wires, screws and nails as well as the building, plumbing, electrical and painting services that affected residents need to recover. Similarly, they work to provide the food, clothing and other basic goods that affected residents require. When interviewed, both entrepreneurs and displaced residents emphasized how critical these goods and services were to recovery. They also spoke to

⁴² In total, 6,448 individual assistance applications were approved and total individual and household program expenditures were \$37,115,639.63. Total housing assistance was \$22,611,430.42. And total public assistance grants were \$176,190,930.92.

⁴³ Data available online at http://www.crh.noaa.gov/sgf/?n=event_2011may22_summary.

⁴⁴ Data available online at <http://www.joplinmo.org/DocumentCenter/View/1985>

the challenges that entrepreneurs had to overcome to meet the increased demand for these materials and services in a post-disaster context.

Recall, the tornado that passed through Joplin damaged or destroyed nearly 7,500 homes. Securing building materials like lumber in the quantities needed was a particular challenge following the tornado. Tony Calderone[†], a manager of the local lumber and hardware store, described his efforts to respond to the disaster by ensuring that Joplin residents could secure the building materials that they needed to rebuild their damaged or destroyed homes. The store that Tony managed was one of seven hardware stores in Joplin. The store chain has been operating in Missouri since 1920. The store was not affected by the tornado.

Tony's experience as a manager enabled him to reasonably anticipate his community's demand for supplies, and he recognized in the aftermath of the disaster that he would have to add more staff and extra machinery (forklifts, trucks, etc.). Tony noted that he was aware that because of the economic downturn other company stores had capital equipment that was unutilized. He reached out to other company stores and was able to secure the equipment he needed.

While the lumber and hardware store was busy supplying the resources necessary to rebuild, local real estate broker, Alan Sharpe[†] was helping other local businesses find temporary locations. At the time of the tornado, Alan had been a real estate broker in Joplin for almost forty years. Born in Joplin, he married his high school sweetheart, and as he explains, he and his wife love the city and are committed to stay in the area. After the tornado struck, Alan and his wife wanted to help those in their community that had

lost everything. Ultimately, they decided that the best way to help was to do their jobs. Over 500 businesses were damaged or destroyed in the tornado. Alan took an inventory of available facilities that had not been destroyed. The real-estate opportunities in the city had changed dramatically. Prior to the tornado, the real estate market was struggling; there were many industrial, retail, and office spaces available to lease or to buy. After the tornado hit, Alan explains, it quickly shifted from a buyer (or leaser) market to a seller's market.

Alan describes how the owner of a national flooring company desperately needed a place to run his business. The flooring company building had been in the middle of the tornado's path. Alan was able to find office space and a warehouse for the owner the same day. The paperwork was completed and he closed on the property fourteen days later. In the meantime, Alan received a dozen phone calls about the same property. Although the environment had changed, Alan was able to adjust and do his job, aiding other business owners in the process of recovery.

Pharmacist and pharmacy owner, John Payton[†], (also in Joplin) was eager to get his business up and running after the tornado. Community members had very little time to react once the tornado sirens sounded, and for those whose home was damaged or destroyed, life-saving medications were lost in the debris. John explains that seven pharmacies were destroyed by the tornado. The remaining pharmacies, then, had to fill all the orders for Joplin residents, including prescriptions to replace medications that had been destroyed in the storm. All of the remaining pharmacies were trying to work together, and John describes how some pharmacist volunteers, in partnership with the

Missouri Pharmacy Association, organized an emergency dispensary pharmacy for area doctors. Pharmacies also offered tetanus shots.

John describes how his wholesaler representative and a fellow franchise owner helped John get his store back up and running. Because Joplin was declared a disaster area, certain state, federal, and DEA requirements were temporarily waived. The tornado hit Joplin Sunday afternoon. The next day, John's wholesaler representative was already working to supply the medications that he would need. Because the wholesaler works with a variety of people in the pharmaceutical industry and has experience in the industry, he was also able to help John navigate the cleanup challenges, including special requirements around destroying narcotics and controlled substances. In addition, the wholesaler representative volunteered labor hours and brought twenty fellow fraternity brothers to help assemble shelving at the new pharmacy location. A fellow franchise owner also stepped forward and donated some supplies to John. He had recently remodeled his store and had left over light fixtures that he did not need.

Hurricane Katrina was a disaster of greater scale than the tornado in Joplin. In fact, Hurricane Katrina and the flooding that followed it destroyed 300,000 homes. With floodwaters over 12 feet in some areas, the contents of many homes – furniture, televisions, appliances, clothing, and keepsakes - were contaminated with raw sewage and other toxins, including oil. Commercial entrepreneurs, similarly, proved critical in providing these services in the Greater New Orleans region after Hurricane Katrina.

Mary Ann Patrick[†], owner of a furniture store in St. Bernard Parish, for instance, shifted her products to accommodate what people needed most- mattresses, washers, and

dryers. For those who had lost all of their furniture, having something to sleep on was their first priority. And, for those homeowners who had experienced lower levels of flooding, mattresses were often contaminated. Mary Ann explains that customers came and bought washers and dryers, which they hooked up outside of FEMA trailers. Unfortunately, Mary Ann had a difficult time getting her business up and running after the storm. Local officials would not approve her building, and therefore, she had difficulty getting a business license. Finally, after hiring her own architect to determine the structural integrity of the building, she was approved and reopened her store in December 2005. Mary Ann did not let the hurdles stop her, explaining, “My dad taught me how to work.”

On the other side of Lake Pontchartrain, Mike Dean[†] was working to reopen his grocery store, which his family has run for over 70 years. He reopened in February 2006. Like Mary Ann, he was alert to what his customers needed following the storm: a critical need was access to fax machines. Following the storm, customers used the fax machines to submit paperwork to insurance companies and FEMA. Customers also used the store to pay utility bills and make copies. In addition, Mike’s store had an ATM, a ready to eat barbeque, and an array of food and household items. This was particularly important because in the months after Hurricane Katrina there were few places to purchase cooked food in the area. The store opens at 6 AM, and many day laborers would stop in early to purchase ice and grab breakfast in front of the store. By filling gaps in the market and providing necessary goods and services, Mike and other entrepreneurs helped their community to rebuild and recover from Hurricane Katrina.

A Focal Point for Recovery

Overcoming the post-disaster collective action problem can be difficult. A displaced resident's decision about whether or not to return after a disaster is tied to the decisions of others. For example, the decision to return is a function of various considerations, including whether neighbors will also return, if local schools will reopen and the quality of the local schools when they do reopen, and whether the church and church congregation will decide to come back. Moreover, the first mover carries significant risk. Following a major disaster, then, the question of whether any given community will recover is uncertain.

Although overcoming the collective action problem is a complex task, evidence suggests that commercial entrepreneurs can and do play a role. In Joplin, for instance, seeing the local Walgreens start to rebuild uplifted spirits and reassured people that things would return to normal. Resident Rose McLain[†] explained that the return of Walgreens, Walmart, and Chick-fil-A were big events for the community. The reopening of businesses on main thoroughfares, including Main Street, was a particularly strong signal. Many residents drive along Main Street to and from work and being able to see the reconstruction process reassures residents that the community will rebuild, and that they can expect to have the same goods and services that were available before the tornado.

Similarly, commercial entrepreneurs acted as focal points following Hurricane Katrina. Casey Kasim is the owner of several gas stations and convenience stores in the New Orleans area, including one in the Lower Ninth Ward. His enterprise in the Lower Ninth Ward offers gasoline, basic food items, and coin operated laundry services. The Lower Ninth Ward suffered significant damage as a result of the storm. Multiple levee

breaches along both the Industrial Canal and the Mississippi River Gulf Outlet (MRGO) Canal brought a surge of water into the community and led to extensive flooding. The surge pushed homes from their foundations and literally flattened neighborhood blocks. Prior to Hurricane Katrina, the neighborhood had high levels of poverty, in fact, approximately 30 percent of households reported income levels at or below \$15,000 a year in 2000.⁴⁵ The combined level of destruction and high poverty led many – including government officials – to conclude that the neighborhood would not rebuild. Moreover, the Bring New Orleans Back Commission, which was tasked with coming up with a post-Katrina recovery plan for the city, initial proposal seemed to support converting at least portions of the neighborhood to green space.

In spite of these challenges, Casey says that his customers encouraged him to rebuild. He describes how customers came to the store and said, “[P]lease, we will give you as much of the business, support you and stay with you, but just be patient and things will be back because we need your service.” The customers also knew that if Casey reopened, other businesses would notice that Casey was optimistic about the community recovery. He, for instance, recalled his customers saying, “So if you are staying, you are going to encourage other businesses to come back.” Although it took Casey almost a year and a half to return, he did successfully reopen his business.

In Central City, Mike Dean recognized that his grocery store would signal return to the community. He explains,

...we’re like a little heartbeat in the city. We had so many customers that [ask], ‘Ya’ll open?’, and by us saying, ‘Yeah, we’re open, come on back,’ I think that

⁴⁵Data available online at <http://www.gnocdc.org/orleans/8/22/income.html>

has been a worm on a hook type thing to get people back. It has been instrumental in bringing people back here.

Of course, access to basic food items is a critical factor in the decision to return. When gasoline is also scarce and public transportation not available, being able to get food nearby is even more important.

If commercial entrepreneurs reopening businesses is a signal of return and recovery, when commercial entrepreneurs do not reopen businesses or experience hurdles along the way, recovery can be delayed. Following the 2011 tornado in Tuscaloosa, Alabama, rebuilding efforts were sluggish. Bruce Walker[†], the owner of a local garage, mentions how he followed the lead of his friend, who owns a local McDonalds in Tuscaloosa. As Bruce described, “So, me, not knowing the ground rules and all this stuff, how you go about getting a building permit and doing whatever, I started watching him ... he had a plan. McDonalds had a plan, and this started in about June.” The city, however, decided that Walker was not going to be allowed to rebuild. His business was on a list of 14 that were deemed undesirable. Several other businesses moved to Northport, north of Tuscaloosa, because of hurdles related to city redevelopment efforts, building permits, and local bureaucracy.

Provider of Social Spaces

In addition to acting as focal points, commercial entrepreneurs provide much needed social spaces. Following Hurricane Katrina, residents and homeowners were confronted with problems and challenges of which they had little or no experience. For example, how to effectively and safely remove mold damage, and how much drywall must be removed? In addition to filing private insurance claims, many were learning how

to navigate applications for federal disaster assistance. Others were trying to coordinate childcare and trying to get information about when schools may reopen and where to send children in the meantime. Businesses provide important social spaces for knowledge exchange to take place. Either as the location of informal or formal meetings, businesses are places where people discuss what contractor they are using, where their child is going during the day, and whether church friends have returned. Further, when individuals do have moments to rest or unwind, they want to be able to go to their favorite restaurants. Being able to go to a local restaurant, coffee shop, or boutique brings a sense of normalcy.

After Hurricane Katrina, Ben Cicek noticed that there was no place to get coffee in Chalmette, the parish seat of St. Bernard Parish. “I know a lot of people... we had no coffee shop here so they used to go to the French Quarter or Slidell to get coffee, travel like 40 minutes – 50 minutes.” So Ben opened a coffee shop. His customers vary in age, income level, and occupation. Many people come in for a break from their day. While in the coffee shop, customers often talk to Ben and others about what is going on in their lives, and following Hurricane Katrina, the conversation was often about homeowner’s insurance, FEMA applications, and other challenges. People would share stories and experiences, exchanging information. Ben explains how customers have become his friends. “Everybody has different problems,” he remarked, “That's what – they talk, we talk, I listen.”

Others interviewees have highlighted how their enterprises served as social spaces after the disaster. Mike Dean, for instance, acknowledges that his grocery store is also a

social space in Central City. Many workers stop at his store for breakfast early in the morning, sipping coffee and socializing outside the store. Similarly, Leslie Waples manages a women's clothing shop in Gentilly, New Orleans, explained that she knows many of her customers. Her store caters to African American women from teenagers to elderly women in Gentilly, Desire, and New Orleans East neighborhoods. Leslie's store contributes to the social ecology of the neighborhood, and based on the reactions from her customers, it is clear that community members value the store for its products and space as a center of social activity. As Leslie explains,

It – you know, it's unbelievable, but I would say about 75 to 85 percent of my customers, pre-Katrina, are back in some form. If they're not back in the area, they're back checking on property. They'll come in when they're checking on property. A lot of it is social. They come in to socialize, see how everything's doing. They wanna see familiar faces when they come home.

Leslie explains that while she and her family were busy cleaning up their home and trying to get the store reopened, she discovered that she missed her customers. She found herself worrying about her elderly customers in particular. “And when I see them [elderly customers], it's a load off my chest, ... you wonder how they're doing. And when you see them, and to know that they're okay, it's a good feeling. And they're resilient, they're bouncing back” she comments. Although many are bouncing back, Leslie also notes that many residents were suffering from extreme stress following the hurricane. Leslie was someone that they could talk to and trust.

In Joplin, pharmacy owner and pharmacist, John Payton described similar reunions with customers who were also friends. John and his wife have owned the pharmacy for almost 30 years and have personal relationships with many of their

customers and even know the extended family of customers. It was not a surprise, then, when customers began to come through the doors and talk with John as a trusted friend. “We had customers just coming by to see us and give us a hug and say, ‘Glad you're okay. We’re sorry you lost your business.’” People came by to talk and offer a helping hand.

In Tuscaloosa, Brian Thomas[†], owner of an insurance agency, described how his business was overwhelmed with claims and quickly realized that they had a new role to play as well: providing reassurance and sympathy to customers who had lost loved ones and material possessions. Brian explained,

We have people that lost homes and businesses, their whole life. They have to start all over... A lot of [our work] was counseling, just telling people, ‘You’re going to make it through this, just hang in there, hold on, things are going to get better, and the insurance company is going to help you get back in your feet.’ A lot of people coming in our office crying just scared and not knowing what’s going to happen.

The sincere and caring exchanges between commercial entrepreneurs and customers suggests that there is more to the relationship than entrepreneur, supplier of goods and services, and customer, purchaser of goods and services. In many cases, commercial entrepreneurs went above and beyond, donating money, products, and volunteer hours to help their communities rebuild.

And a Social Entrepreneur

Following Hurricane Katrina, the private sector raised over \$2.5 billion for disaster victims. While much of this money came from churches and other philanthropic organizations, businesses also made significant contributions. For example, estimates of

corporate contributions to Katrina relief reached over \$1 billion.⁴⁶ Wal-Mart alone donated \$30 million to Katrina victims.⁴⁷ These figures do not include volunteer hours as representatives of businesses and volunteer activities as community members.

Commercial entrepreneurs have access to supply chains. Although an extreme example, again, Walmart was able to bring in thousands of semi-truck loads of goods from warehouses beyond the affected area. Walmart managers on the ground knew what their local communities needed and were able to communicate to headquarters.

Describing how big box stores made significant donations to local communities, Horwitz (2009b: 514) quotes the Mayor of New Orleans suburb, Kenner, saying, “the only lifeline in Kenner was the Walmart stores. We didn’t have looting on a mass scale because Walmart showed up with food and water so our people could survive.” Efforts by Walmart and other big box stores, including Home Depot, to deliver disaster relief have been well documented. Walmart CEO Lee Scott allowed local managers autonomy to be alert to needs within their communities and urged them to “above all, do the right thing.” The assistant manager of a Mississippi Walmart store, Jessica Lewis, ran a bulldozer through her store to pick up basic items that had not been water damaged and emptied the store’s pharmacy, donating the drugs to a local hospital.

New Orleans has some of the busiest ports in the world and a vibrant maritime industry. Ed Connelly[†] owns an industrial park and boat manufacturing company in Houma, Louisiana, which is about an hour southwest of New Orleans. Boats travel in

⁴⁶ This statistic was provided in: http://money.cnn.com/2005/09/13/news/fortune500/katrina_donations/

⁴⁷ <http://www.arkansasbusiness.com/article/85498/hurricane-katrina-defining-moment-in-wal-mart-giving?page=all>

and out of Houma via the Houma Navigation Canal, a forty-mile long passage connecting Houma to the Gulf of Mexico. Ed explains that when Hurricane Katrina hit, the surge of water from the Gulf traveled up the Canal and brought with it thick mud. Dozens of boats were stuck at the Houma Port. Ed contacted the Parish government, hoping that they would order the Army Corps of Engineers to dredge the Canal. Unsatisfied with the response, Connelly decided to take matters into his own hands and do it himself. Ed donated \$750 thousand dollars to hire a crane, barge, and tugboat to dredge the Canal. He explains,

“It’s gonna cost some money, but the amount of money these boats can make if they have to stay there a month or two would be different... I paid the guy extra. I said, ‘If you get close to these boats, reach out there and put a nylon rope around and pick the little boats up and set it in the water for them.’”

Two weeks later, the Canal was navigable. Ed estimates that 75 fishing boats were able to exit the Port after the dredging. Although Ed did need the Canal to carry out his own business, he went above and beyond, instructing the contractors to rescue fishing boats that they came across along the way.

On land, hundreds of thousands of homes were damaged or destroyed as a result of Hurricane Katrina. Many New Orleans residents evacuated to other states, including Alabama and Texas, and were slow to return because they could not find temporary housing. In order for residents to return and begin work on homes or return to pre-Katrina employment, they need a place to live. After Katrina, commercial entrepreneurs opened up their homes and provided housing to employees. For instance, Ed Connelly, owner of an industrial park and maker of fishing boats, was able to get several FEMA trailers

delivered to his home. He made them available for employees. Similarly, furniture storeowner Mary Ann Patrick opened her own apartment to an employee and her son. The employee had worked for Mary Ann for over 17 years, and Mary Ann knew that her store and the community would not be able to recover without individuals lending a helping hand. And, hardware store owner, Bruce Frank, also of New Orleans, invited his store manager to live with him for over eight months following Katrina. Bruce also had another couple and two small kids staying at his home.

Commercial entrepreneurs associated with much smaller businesses also acted as social entrepreneurs. In Joplin, Tony Calderone, a manager of the local lumber and hardware store, had more experience in building than others because of his line of work and anticipated the supplies that individuals would need. As he explains, “In the first week or so, we have been driving around handing out water and tarps, and gloves, and hammers, and--we didn't sell anything we were just trying to give--tried to help the community as much as we possibly could.” Tony estimates that the company gave away about \$50,000 in products. In addition, Tony and employees donated \$15,000 cash to victims.

Joplin Assistant City Manager, Sam Anselm, talks about two attorneys who had helped in New Orleans following Katrina and are now donating their time to help those affected by the tornado in Joplin. Because of their experience with post-Katrina and expert legal knowledge, the partners have been able to help disaster victims navigate insurance claims and various regulations. Further, many commercial entrepreneurs from nearby cities, including Jefferson City, came to the assistance of Joplin residents. The

owner of a mattress store in Jefferson City, for instance, donated 32 mattresses.

Similarly, city banks donated tens of thousands of dollars to the Red Cross for Joplin

disaster assistance.⁴⁸

V. Discussion and Conclusion

Entrepreneurs do more than simply establish and manage enterprises that provide goods and services to customers. They also perform an important social function. Their efforts are key to the vibrancy of any community. After a disaster like a hurricane, tornado or flood, commercial entrepreneurs and commercial enterprises can be an important source for community resilience and can perform several key roles in helping individuals to rebuild and rebound. Indeed, our research suggests that the distinction between commercial entrepreneurship and social entrepreneurship is often exaggerated. Many of the commercial entrepreneurs that we spoke to articulated something like a “double bottom line.” For example, Alan Sharpe (Joplin), John Payton (Joplin), and Mike Dean (Central City) were just a few of those interviewed who explicitly described their role as helping their community to rebuild. Recognizing that the distinction between commercial and social entrepreneurship is exaggerated, future research and in particular, future attempts to improve entrepreneurship theory, may consider ways in which a single theory of entrepreneurship could be crafted that would encompass what is now referred to as social entrepreneurship, political entrepreneurship, ideological entrepreneurship, and commercial entrepreneurship. And, such a theory would require an emphasis on context (Zahra 2007).

⁴⁸ Data available online at <http://www.komu.com/news/jefferson-city-businesses-donate-to-joplin/>

My research also has several implications for disaster studies. By focusing on entrepreneurship and entrepreneurship in the post-disaster scenario, I (implicitly) lend support to a particular view of the social system and processes of social change. In other research (Grube and Storr 2014; Storr, Haeffele-Balch, and Grube forthcoming) we adopt the view that the social system is best described as a polycentric order (E. Ostrom 1990, 2005; V. Ostrom, Tiebout, and Warren 1961). Rather than have a single system of rules carried out by a single entity, polycentric orders have a general system of rules and numerous entities that operate within. There are competing and overlapping jurisdictions. And, polycentrism offers a level of self-governance, or decision-making within a state, community, or other body by its members. There is an emphasis on individual agency and a recognition that social orders are ever evolving. V. Ostrom, Tiebout, and Warren (1961) first applied the idea of a polycentric order to municipal governments in an attempt to capture a more accurate picture of how municipal governments function in reality (and point out the strengths in the perceived chaos of service duplication and overlapping jurisdictions). E. Ostrom (1990) has applied the theory of polycentric order to shed light on how local communities overcome challenges associated with common-pool resources, how localities provide public goods, and specifically, how communities create effective policing (E. Ostrom 1990, 2005; with Baugh, Guarasci, Parks and Whitaker 1973; with Whitaker 1973; E. Ostrom and V. Ostrom 2002).

In studies of post-disaster recovery, much of the literature tends to adopt a monocentric view, focusing on the efforts of the government to provide disaster relief and aid in the recovery process (specifically the Federal Emergency Management Agency

(FEMA)).⁴⁹ Burby (2006), referring to Hurricane Katrina, suggests better government planning and more comprehensive local government plans would help to speed recoveries. Additionally, Pipa (2006) finds that a high-level government coordinating body is needed to manage the activities of the various actors involved in relief and recovery. Numerous studies investigate federal assistance programs such as Department of Housing and Urban Development block grants and Small Business Administration loans, calling for ways to improve these programs (Kunreuther 1968; Kunreuther and Miller 1985; Jefferson et al. 2007).

Alternatively, a polycentric view suggests that communities thrive because of decentralized processes which give agency to local actors (including entrepreneurs). There need not be a single provider of any good or service and duplication may achieve differentiation and help to reach diverse populations. Coyne and Lemke (2011) have described the benefits of polycentric orders in disaster relief. They point to two key advantages: (1) flexibility to adapt disaster relief up to a larger scale and (2) the unique ability of polycentric orders to make effective use of dispersed knowledge (ibid: 46). Focusing on the experience of Hurricane Katrina, the authors note that there were indeed thousands of businesses, schools, churches, and other community organizations that contributed post-disaster assistance. These local groups knew of the particular challenges

⁴⁹ Notable exceptions include Aldrich (2011), Beggs et al. (1996), Bolin and Stafford (1998), Chamlee-Wright and Storr (2009, 2010) and Nakagawa and Shaw (2004) all of whom discuss the role of social capital in post-disaster recovery. For example, comparing post-disaster settings Kobe, Japan and Gujarat, India, Nakagawa and Shaw (2004) find that communities with high levels of social capital and leadership are efficient in rescue, relief, and recovery. Similarly, Chamlee-Wright and Storr (2009, 2010) argue that social capital in the form of collective narratives and community based organizations were important for recovery in New Orleans following Hurricane Katrina.

that residents faced and were able to adapt to changing needs in the community (also see Chamlee-Wright 2010).

An approach that adopts a monocentric view has the potential to ignore other relevant actors (e.g. embedded entrepreneurs) and even cause harm to these other actors by putting forth policy recommendations that make it more difficult for entrepreneurs to operate. Recall that the hostile environment literature identifies several reasons why entrepreneurship is more difficult in such an environment, including increased uncertainty, difficulty in learning because there are fewer models of entrepreneurial ventures, increased risk of confiscation of assets, lack of basic infrastructure to support a business, and increased corruption. Chamlee-Wright (2007) emphasizes that in the post-disaster context governments can cause further harm by contributing to what she calls “signal noise.” The signals that Chamlee-Wright refers to are messages (in various forms) that come out of civil and commercial society and provide information about who is coming back. The noise, then, are things that make the messages hard to read or distort the message. Chamlee-Wright explains how regulatory rigidity delays and adds to the complexity of rebuilding; government management of flood-protection and flood insurance programs often result in outdated information; and widescale post-disaster redevelopment plans can lead individuals wondering they will be allowed to rebuild and if so, when (ibid).

WHEN A HIGH SCHOOL EDUCATION SHOULD NOT MATTER: AN EMPIRICAL STUDY OF POST-DISASTER ASSISTANCE

Federal disaster assistance should only reflect damage sustained. Literature, however, suggests that federal disaster assistance can also be linked to political considerations and is related to other factors such as income, educational attainment, and whether the applicant is an immigrant. Using zip code level data on federal disaster assistance, this paper investigates the factors that determine federal assistance to individuals after a disaster. Specifically, it examines the FEMA Individuals and Households Program (IHP) following Hurricane Sandy. Hurricane Sandy hit the East Coast on October 29, 2012, resulting in over \$60 billion in property damage. This study shows that the extent of the damage does appear to explain much of the differences in the size of the federal disaster award that individuals receive. However, other factors, including educational attainment, are also important. I find that a 1% increase in educational attainment leads to a 5% increase in total damage assessment and a 2% increase in average damage assessment. This paper argues that complexities in the process for applying for aid may have disadvantaged less educated applicants. This is consistent with qualitative data collected in New Orleans after Hurricane Katrina where subjects expressed difficulties in navigating the disaster relief application process.

I. Introduction

Hurricane Sandy plowed into the East Coast on October 29, 2012, bringing the greatest damage to the heavily populated states of New York, New Jersey, and Maryland. Hurricane Sandy was the second costliest hurricane in US history (after Hurricane Katrina).⁵⁰ Total estimated property damage was \$60 billion. Federal Emergency Management Agency (FEMA) spending was approximately \$7 billion, with \$1.2 billion provided through the Individuals and Households Program (IHP), \$5 billion through the Small Business Administration loans (SBA), and approximately \$800 million through Public Assistance (PA).

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (hereafter, Stafford Act) was enacted in 1974 and provides federal assistance following natural disasters. The Federal Emergency Management Agency (hereafter, FEMA) was created five years later. Since the passage of the Stafford Act and creation of FEMA, the number of disaster declarations and amount of federal disaster spending has been increasing. From 1989 to 2004, total Disaster Relief Fund (DRF) spending exceeded \$5 billion twice (1992 total DRF was \$5.3 billion; in 2002 total DRF was \$8.7 billion).⁵¹ In 2005, the year of Hurricane Katrina, total DRF spending was \$39.8 billion. From 2006-2013, total DRF spending was only below \$5 billion twice (2007 total DRF was \$4.8 billion; in 2011 total

⁵⁰ In August 2005, Hurricane Katrina struck the Gulf Coast. The Hurricane resulted in over 1,800 deaths and approximately \$108 billion in property damage. Admittedly, 2005 is an extreme value. However, even if we examine disaster spending since Hurricane Katrina, we see that there have still been large increases over pre-Katrina levels of disaster spending.

⁵¹ Figures presented are real, with a base year of 2000.

DRF was \$2 billion).⁵² The average total DRF spending from 2006-2013 was \$6.7 billion.

The number of declared severe weather events has also been increasing. According to FEMA data, in 2013 there were 61 major disaster declarations, 5 emergency declarations, and 28 fire management assistance declarations (total of 94).⁵³ And, if we consider the trend in disaster declarations, the number of total declarations has been increasing since 1974. From 1974-1979, the average was just over 50 declarations per year. During the 1980s, the average yearly declarations declined to approximately 29. However, in the 1990s the figure is approximately 74, in the 2000s it was almost 127, and between 2010 and 2013, it was 139.⁵⁴

The increased number of disaster declarations and increased spending on federal disaster assistance provides even more reason (a) to better understand if there are factors aside from damage that influence federal disaster assistance and (b) to investigate the connection between federal disaster assistance and post-disaster recovery. For the purposes of this paper, I take on the first question. For example, do individuals with lower incomes receive lower levels of assistance? Does the racial makeup of a community have any relationship with assistance awards? Does a community's political

⁵² The DRF is funded annually and is a "no-year" account, meaning that unused funds are carried over to the next fiscal year. Years following Hurricane Katrina do include continued Hurricane Katrina assistance. However, this is not the only driver of the increases. If we look at the spending figures for specific natural disaster events in the ten years before Hurricane Katrina and spending figures for specific natural disaster events in the ten years since Hurricane Katrina (not even including Hurricane Sandy), the figures for the latter are greater. See relevant Congressional Research Service document, available online at <http://fas.org/sgp/crs/homsec/R43537.pdf>.

⁵³ Available online at <https://www.fema.gov/disasters/grid/year/2013>

⁵⁴ There is some literature that suggests weather is becoming more extreme. Indeed, if there is more extreme weather, we would predict disaster declarations and disaster assistance to increase. This question, however, is outside the scope of my research.

makeup have any relationship with disaster assistance to that community? Is there a relationship between educational attainment and disaster assistance?

These questions are important for several reasons. First, if assistance is intended to go to those who have damaged property as a result of a disaster and there are factors other than damage that are significant, then there is a question about whether federal disaster assistance programs are effectively carrying out their stated missions. Second, if assistance is determined by factors other than damage, there may be further concerns about what consequences this may have on the ability of different communities to recover.

There is a growing literature around the political economy of disaster assistance and the various socioeconomic indicators that affect who receives disaster aid. Several contributions to the political economy of disaster literature utilize public choice theory (Garrett and Sobel 2003; Sobel and Leeson 2006; Leeson and Sobel 2008; Shughart 2011). Scholars have demonstrated that there are political influences in disaster declarations and federal disaster assistance (Garrett and Sobel 2003). Another growing literature considers how factors such as income, educational attainment, and origin may affect disaster assistance. Vulnerable populations can be more greatly impacted by natural disasters and for a variety of reasons may also be less likely to receive assistance (Pilisuk et al. 1987; Rovai 1994; Fothergill and Peek 2004; Logan 2006; Masozera et al. 2009).

Using zip code level data about federal disaster assistance, this paper investigates the factors that determine federal individual assistance after a disaster. Specifically, it

examines the FEMA IHP following Hurricane Sandy. The extent of the damage does appear to explain much of the differences in the size of federal disaster assistance awards. Educational attainment, specifically the percentage of individuals with at least a high school degree in a particular zip code, is also important. I find that a 1% increase in educational attainment leads to a 5% increase in total assessed damage and a 2% increase in average damage assessment. Results suggest that the magnitude of the impact is large.

This paper argues that complexities in the process for applying for aid may disadvantage less educated applicants. This interpretation of the results is consistent with qualitative data collected in New Orleans after Hurricane Katrina where subjects expressed difficulties in navigating the disaster relief application process. In *section 2*, I briefly review the existing discussions around disaster assistance in the literature, focusing on the two major strands of literature (i.e. the public choice and the vulnerable populations approaches) that address the question of what determines disaster assistance if not solely damage resulting from the disaster. Next, in *section 3*, I describe the application process for the IHP assistance. In *section 4* and *5*, I overview the data and methods used to conduct the study. I adopt a mixed methods approach utilizing both quantitative and qualitative data. In *section 6*, I report and interpret the results. *Section 7* offers concluding remarks.

II. A Look at Existing Literature

There is a growing literature on the political economy of disaster and how socioeconomic indicators may affect the impact of a disaster as well as the amount of federal disaster assistance that certain individuals and communities receive. Although I do consider some existing literature that compares federal disaster assistance with non-

government-provided disaster assistance, for the purpose of this paper, I focus on federal disaster assistance.

Scholars have pointed to a number of public choice issues related to federal disaster assistance (Garrett and Sobel 2003; Sobel and Leeson 2006; Leeson and Sobel 2008; Shughart 2011). Because natural disasters are low probability events, politicians, facing short time horizons, may be inclined to de-prioritize or delay actions that help to reduce the risk or severity of natural disasters (Shughart 2011; Coyne and Lemke 2011). In addition, local officials are responsive to the wishes of local developers and have little incentive to consider how such projects may increase their community's vulnerability to severe weather (Shughart 2011: 524).

Additionally, Garrett and Sobel (2003) have shown that disaster assistance is not necessarily distributed based on damage. The authors locate two avenues for political influence to impact federal disaster assistance. First, the Stafford Act gives the President power to declare an emergency following a natural disaster and because there are no strict criteria of emergency, the President may use personal discretion. Second, states represented on FEMA oversight committees may receive more disaster assistance. The authors examine disaster declarations and disaster assistance in the US from 1991-1999 and find that states politically important to the President and states with congressional representatives on the FEMA oversight committees are more likely to have disaster declarations and receive more aid. Following September 11th, FEMA was placed under the Department of Homeland Security. Sobel, Coyne, and Leeson (2007) investigate whether this change affected the political economy of disaster assistance. The authors

find that representation on FEMA oversight committees no longer has an impact on disaster assistance.

Other public choice scholars have pointed out the tremendous bureaucracy that exists surrounding government relief and refer to “the tragedy of the anti-commons” (Sobel and Leeson 2006). “The tragedy of the anti-commons” is when too many political actors have decision-making power, making it difficult to take action. Bureaucracies are slow moving and disaster relief is something that requires a quick response. Sobel and Leeson (2006) provide evidence from Hurricane Katrina to support their argument. The authors quote Louisiana Governor Kathleen Blanco, who publicly admonished FEMA’s bureaucracy as a key reason for failures. Individuals and organizations that were more effective at disaster assistance like the US Coast Guard and the Sheriff of Wayne County Michigan tended to have less bureaucracy or to ignore the bureaucratic process when taking action (ibid: 57).

This paper does consider a possible public choice explanation of disaster assistance after Hurricane Sandy. Zip code level political contributions are included as an independent variable in several specifications. To anticipate the results, it does not appear to explain differences in the size of awards made to particular communities. This finding may not contradict Garrett and Sobel (2003) nor Sobel, Coyne, and Leeson’s (2007) research, however, because the authors consider political influences on disaster declarations and the amount of assistance offered to particular states. The political variable considered in this paper, political contributions within a zip code, examines possible bias *after* the disaster declaration and the amount of assistance to the state has

been determined. If the variable used here proved to be significant it would indicate that a possible bias existed at the level in which individual assistance is distributed to applicants. There are, however, state fixed effects that are significant, which could be driven by political factors (of the variety noted by Garrett and Sobel (2003) and Sobel, Coyne and Leeson (2007)), although given that only three states are included, no conclusions can be drawn (see appendix B for information on committee membership).

There are other factors that may also influence how federal disaster assistance is distributed. Research indicates that (a) individuals of lower socioeconomic status are more likely to be impacted by natural disasters and (b) that individuals of lower socioeconomic status may also find it more difficult to get assistance after disasters. According to Fothergill and Peek (2004), for example, the impact of natural disasters appears to be related to characteristics of housing. Unsurprisingly, lower quality construction is more likely to be severely damaged following a disaster (ibid). Mobile homes, which are more likely to be occupied by low-income individuals, are the most dangerous types of dwellings during a tornado (Fothergill and Peek 2004: 94). In fact, the authors note that 40 % of all tornado fatalities in 1994 occurred in mobile homes (ibid). Older buildings are also more vulnerable, as they are more likely to have existing structural problems and be in disrepair. Structures with old or decaying roofs may experience considerable damage during a hurricane or tornado.

Individuals of lower socioeconomic status may similarly find it difficult to get assistance following disaster. Individuals may be less likely to receive communications about available assistance (Pilisuk et al. 1987), they may find it difficult to travel to

centers to register or receive information (Fothergill and Peek 2004), and they may face challenges in navigating the assistance process (Rovai 1994; Fothergill et al. 1999).

Consider, for example, the experiences of individuals affected by Hurricane Katrina. The scope and severity of Hurricane Katrina and the resulting floods are unmatched in US history. As much as 85 % of the City of New Orleans flooded and some areas experienced flood levels over 12 feet. The particular demographics of the City contributed to further challenges. Indeed, within the literature on vulnerable populations and disaster, several studies focus on the Hurricane Katrina case (Logan 2006; Masozera et al. 2009). Logan (2006) identifies that 20.9 % of households in damaged areas were below the poverty line and 45.8 % of households in damaged areas were African American. Additionally, Masozera et al. (2009) find that transportation was an issue for individuals with low income in New Orleans. The authors also indicate that lack of savings and no flood insurance were additional challenges.

Similarly, a Congressional Research Service report indicates Hurricane Katrina “disproportionately impacted where the poor and minorities... resided.”⁵⁵ The Department of Homeland Security’s performance review acknowledges several failures, including several that may have had an impact on those of lower socioeconomic status.⁵⁶ For example, even the most basic response assistance of water, ice, and “meals ready to eat” (MREs), was undersupplied by FEMA. According to FEMA officials, Mississippi received less than half of the commodities requested between August 27 and September

⁵⁵ Congressional Research Service Report for Congress. “Hurricane Katrina: Social –Demographic Characteristics of Impacted Areas.” November 4, 2005. Quote from page CRS-14.

⁵⁶ The Department of Homeland Security. “A Performance Review of FEMA’s Disaster Management Activities in Response to Hurricane Katrina.” Available online at http://www.oig.dhs.gov/assets/Mgmt/OIG_06-32_Mar06.pdf

5, 2005, the days surrounding Hurricane Katrina. Also, there is evidence that there were problems related to disaster relief registration following Hurricane Katrina. FEMA had established several National Processing Service Centers (NPSCs) that were staffed with agents who responded to inquiries regarding disaster assistance. These NPSCs, however, were overwhelmed with calls. Efforts were then made to steer disaster victims to the FEMA website to register for assistance. Here, again, disaster victims encountered problems as the website “froze” or “timed out.” It is possible that some gave up on the process because of continued problems.

As will be discussed below, New Orleans residents interviewed following Katrina expressed a great deal of frustration with FEMA’s disaster assistance efforts. Zip code specific data about reported damage and individual assistance awarded after Hurricane Sandy allow us to explore whether or not factors besides damage may have influenced the level of assistance individuals received.

III. Federal Disaster Assistance after Hurricane Sandy

There were at least three federal disaster programs offered through FEMA available to residents, enterprises and organizations, and public entities affected by Hurricane Sandy. The IHP is the assistance program that offers assistance to residents. IHP assistance is both housing assistance and other needs assistance and is available to cover expenses not covered by insurance. Within housing assistance, individuals can qualify for money to cover temporary housing, repair or replace damaged housing, or for semi-permanent or permanent housing construction. Other needs assistance includes medical and dental expenses, funeral and burial costs, replacement of clothing or other

household items, repairing or replacing damaged vehicles, and moving and storage expenses related to disaster.

Understanding the application process for IHP is important to consider how individuals may have successfully or unsuccessfully navigated the system. The application process begins with registration, which may be completed over the phone or online. Affected residents must have a valid registration before they can apply for disaster assistance. To qualify for IHP, you must be U.S. Citizen, Non-Citizen National, or Qualified Alien. A valid registration also requires that the individual (a) is a resident of a state and county that has been declared a disaster (by the President), and (b) has registered for assistance within the designated FEMA registration period.

From here, the application is considered. One possibility is that the application is considered, and the applicant is determined ineligible. From here, the applicant can accept the determination (and end the process) or appeal for reconsideration.

Alternatively, the application may be considered, and it may be determined that the individual is eligible, at which point an inspector is sent to view the damaged property. The inspector's report is considered, and FEMA may approve for individual assistance or FEMA may not approve for individual assistance. This marks a potential for an applicant to end the process. Alternatively, the applicant can appeal the decision and re-navigate the steps outlined.

A third possibility is that the application is considered, and FEMA requests more information. If the applicant sends the information and then becomes eligible, an inspector is sent to view the damaged property (which can result in the application being

approved or denied for IHP). The applicant may also send the information, and FEMA may request more information or may determine that the applicant is ineligible.

When FEMA requests more information, they may request the applicant to show proof of the following,

- They have filed for all applicable insurance benefits.
- A member of the household is a citizen of the United States, a non-citizen national, or a qualified alien.
- Their damaged home in the disaster area is where they usually live and where they were living at the time of the disaster.
- They cannot live in the home now, they cannot get to their home due to the disaster, or their home requires repairs because of damage from the disaster.
- They have necessary expenses or serious needs because of the disaster.
- They have accepted assistance from all other sources for which they are eligible, such as insurance proceeds or SBA loans.
- Other disaster-specific eligibility criteria may also apply.

FEMA notes that sometimes applicants receive a letter in the mail indicating that they are ineligible. However, “receiving a denial letter does not necessarily mean an applicant is not eligible for disaster aid and can be an indication that further information is needed, or that the applicant’s insurance claim needs to be settled first.”⁵⁷

Applicants who were determined ineligible before inspection may include those who have private insurance and private insurance covered damages, or individuals who had damages to their private business, in which case they were redirected to the application process for Small Business Administration (SBA) assistance. Applicants who

⁵⁷ Available online at: <http://www.fema.gov/news-release/2012/11/12/federal-family-and-partners-continue-support-states-impacted-sandy>

were determined to be ineligible after the inspection may have had damage that did not endanger the safety of the applicant or rendered the property uninhabitable.⁵⁸

IV. Data

This paper adopts a mixed methods approach utilizing both quantitative and qualitative data related to Hurricane Sandy (2012) as well as qualitative data related to Hurricane Katrina (2005). Specifically, it uses qualitative data regarding complications in negotiating the FEMA disaster relief application process to corroborate and interpret the quantitative results in observable differences among which communities receive the highest levels of disaster assistance.

The qualitative data comes from fieldwork conducted following Hurricane Katrina and following Hurricane Sandy. The interviews are part of a larger research program that attempts to understand how individuals and communities recover following natural disasters. The research is funded by the Mercatus Center at George Mason University and is conducted by Mercatus Center scholars and researchers. The Hurricane Katrina interviews were conducted between 2006 and 2008 in New Orleans, Louisiana and in Houston, Texas. Altogether, 300 interviews were completed. A variety of stakeholders were interviewed, including residents, leaders of local civic organizations, and business owners. The Hurricane Sandy interviews were conducted in July and August 2013 and July 2014 in New York (focusing on the Far Rockaway community). In total, sixteen individuals were interviewed, and many were interviewed two times. These interviews were focused on residents and leaders of local civic organizations.

⁵⁸ A New York FEMA official notes that some of these were damages that resulted from not having power for an extended period. Other examples may include fences that were destroyed by falling trees, in which case the safety of the applicant is not compromised.

The quantitative data comes from OpenFEMA data resources, specifically archived registration intake and individuals and households program data. Following Hurricane Sandy, both property owners and renters registered for assistance. Two sets of data were reported, one for owners and another for renters. The renters' data does not give precise damage estimates, but instead provides categories of the number of rentals with "no damage," "moderate damage," and "substantial damage." Individual assistance is also reported in categories of the number of renters who received "no assistance," "between \$1 and \$10,000", "between \$10,001 and \$25,000", and "above \$25,001."

For the purposes of this study, only owner data was used.⁵⁹ The data is all valid registrations for IHP following Hurricane Sandy. Three states are represented, New Jersey, New York, and Maryland. Data is reported at the level of zip code. Because only valid registrations are captured, those who experienced property damage but did not have a valid registration with FEMA are not considered.

In total (including New Jersey, New York, and Maryland), there were 304,002 valid owner registrations after Hurricane Sandy. Of these, 175,321 (58%) dwellings were inspected, and 115,011 (66%) of the inspected homes were approved for assistance.

⁵⁹ The Furman Center at New York University reports that many who experienced damaged were low income renters. Because I do not investigate the individual assistance for renters, I wanted to ensure that I was not neglecting a group that was potentially lower income compared to owners. 2010 Census data by zip code, however, provides a different picture. In fact, when I averaged the median household income numbers for the zip codes for owners and those for renters, I found that owners had an average of \$76,434.63 and renters an average of \$98,535.50. I was surprised to such a difference in the figures, and that the average for renters exceeded that of owners.

Table 4. Valid Registrations, Inspections, and IHP Approvals by State

	New Jersey	New York	Maryland
Valid registrations	150,243	152,805	954
Inspections	70,319	104,221	781
Approved for IHP	39,347	75,181	483
Zip code count	624	615	11

There are 1,250 unique zip codes in the dataset. However, when other variables are added, data availability reduces the total number of zip codes considered in this study to 897 zip codes; 476 from the state of New Jersey, 413 from New York, and 8 from Maryland. The population of the various zip codes ranges from 94 to over 100,000. For owners, total damages (in dollars) and total assistance was reported. Also reported was the number of valid registrations, the number of inspections, and the total approved for IHP.

In addition to the variables captured from the FEMA data, I also gathered zip code level data from the 2010 Census (recall that Hurricane Sandy occurred on October 29, 2012). These data are population, the percentage with a high school education, median household income, and the percent foreign-born (i.e. in Census language, “origins and language,” or the size of the immigrant population). High school education was added in order determine whether those zip codes with fewer individuals with a high school education may receive less assistance potentially because it may be more difficult for them to navigate the FEMA process.⁶⁰ The percent foreign-born was selected for similar reasons. A housing CPI was included to control for the possibility that some

⁶⁰ The poverty rate was excluded because it is highly correlated with high school education and median household income.

individuals with more damage may have had greater damage because they have larger, more expensive dwellings. Median household income was added for similar reasons. Population was also added as a control variable.

Political contributions were considered for a possible bias in the distribution of disaster assistance.⁶¹ The variable is a dummy variable, where 1 = political contributions for the Democratic Party represent the majority in the given zip code, and 0 = political contributions for the Republican Party represent the majority in the given zip code.

In addition, two zip code level weather variables were included, storm surge (reported by the National Oceanic and Atmospheric Administration (NOAA)) and maximum wind speed (reported by FEMA in knots). Storm surge is the rise of water generated by the storm in each zip code. A storm surge is caused by a few different factors, including cyclonic winds and low pressure. Storm surges can cause extensive flooding and can affect areas tens of miles from the coast. According to the National Hurricane Center, storm surges are the greatest threat to life and property during a hurricane.⁶² Hurricane Sandy devastated the central and northern New Jersey coast with much of the damage caused directly by the storm surge. The storm surge pushed water through New York Bay and up the Hudson River, bringing flooding to Jersey City. Approximately 305,000 homes were destroyed in New York, mostly by the storm surge. The highest storm surge measured was at Kings Point on Long Island Sound, and the storm surge was 12.65 feet above normal tide levels.⁶³

⁶¹ Data available online at <http://www.campaignmoney.com/>.

⁶² Data available online at <http://www.nhc.noaa.gov/surge/>

⁶³ Data available online at http://www.nhc.noaa.gov/data/tcr/AL182012_Sandy.pdf

Although the wind speed reflected only a category 1 hurricane, winds still caused significant damage. Wind breached windows, doors, and external walls.⁶⁴ Wind-borne debris also caused damage. Additionally, fallen trees destroyed roofs and caused other damage.

⁶⁴ http://www.fema.gov/media-library-data/1386850803857-025eb299df32c6782fdcbb6f69b35b13/Combined_Sandy_MAT_Report_508post.pdf

Table 5. Descriptive Statistics for Variables, by zip code

Variables	Minimum	Maximum	Mean	Standard Deviation	Label
Total individual assistance	0	\$58,400,000.00	\$912,155.70	\$4,526,825.00	<i>TotalIHP</i>
Total damage	0	\$101,000,000.00	\$1,860,640.00	\$8,444,968.00	<i>TotalD</i>
Average damage	0	\$206,651.30	\$6,855.04	\$17,331.57	<i>AveD</i>
Population	94	109,931	19,184	19,240	<i>Population</i>
High school education	45.50%	100.00%	89.03%	8.25%	<i>HSEdu</i>
Median household income	\$13,370.00	\$234,932.00	\$83,206.02	\$32,207.69	<i>Income</i>
Housing CPI	215	256	245.44	16.01	<i>HousingCPI</i>
Percent foreign-born	0	76.44%	17.21%	13.25%	<i>PercentFB</i>
Political contributions	0	1	0.63	0.48	<i>Political</i>
Storm surge	0	99.60%	7.70%	14.90%	<i>Surge</i>
Maximum wind speed	25.47	66.77	44.10	7.63	<i>Maxwind</i>

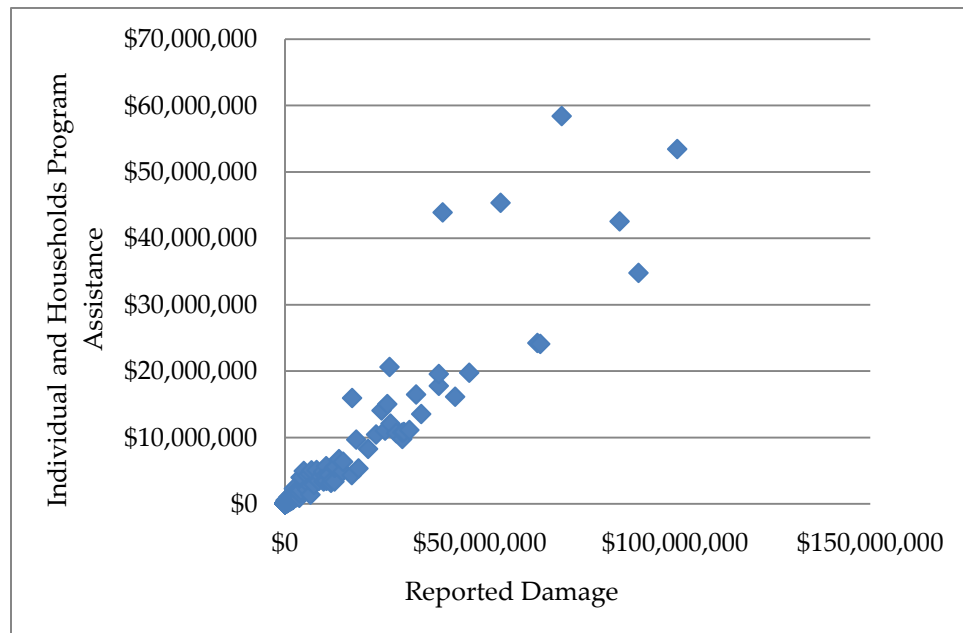
*n = 897 for all variables.

V. Method

Two ordinary least squares (OLS) regression models are presented below. As is clear in *Graph 1*, total individual assistance awarded in particular communities is highly correlated with total assessed damage in those communities (e.g. a simple regression where *TotalIHP* is the dependent variable and *TotalD* is the sole independent variable has

an R-squared of 88%). Indeed, the data points in *Graph 1* do suggest a linear relationship. As such, the OLS regressions below focus on the determinants of those damage assessments.

Figure 1: Reported Damage and Individual and Household Program Assistance



Total Damage as the Dependent Variable

The application process for IHP, as outlined in *section 3*, illustrates that there is application consideration that takes place before the property is inspected for damage, and also before the level of assistance is determined. FEMA reported total damage is the dependent variable. Recall that FEMA reported damage is the FEMA inspector's damage assessment based on his/her review of the property as well as documentation provided by the applicant. The null hypothesis is that FEMA reported total damage is in fact equal to sustained damage. In order to determine sustained damage, two additional variables were

considered. These two variables are percentage of the zip code affected by the storm surge and maximum wind speed.

The percentage of the zip code affected by the storm surge (labeled *Surge*) has a minimum value of zero percent and a maximum value of 99.65%. Maximum wind speed (labeled *Maxwind*) has a minimum value of 25.46 knots and a maximum value of 66.76 knots.⁶⁵ The correlation between *TotalD* and *Surge* is .42. The correlation between *TotalD* and *Maxwind* is .16.

In this OLS regression, then, total damage is the dependent variable. Independent variables are *Surge*, *Maxwind*, *HSEdu*, *Income*, *Housing CPI*, *Population*, *PercentFB*, and *Political*. The null hypothesis is that there is a direct relationship between the two weather variables (*Surge* and *Maxwind*) and *TotalD*. Otherwise, the null hypothesis for the remaining independent variables is that there is no correlation.

Equation 1. Total Damage

$$\begin{aligned} TotalD_{si} = & \beta_0 + \beta_1 Surge_{si} + \beta_2 Maxwind_{si} + \beta_3 HSEdu_{si} \\ & + \beta_4 Income_{si} + \beta_5 HousingCPI_{si} \\ & + \beta_6 Population_{si} + \beta_7 PercentFB_{si} + \beta_8 Political_{si} + \delta_s + \varepsilon_{si} \end{aligned}$$

And $i = 1, 2, 3, \dots n = 897$ zip codes (in three different states). I also include state fixed effects (δ_s). *Models 1, 2, and 3* in *Table 3* contain total damage; in *model 4* the log of total damage was used.

Average Damage per Valid Registration as the Dependent Variable

⁶⁵ 1 knot is equal to 1.151 miles per hour.

In this regression average damage is the dependent variable. Average damage is the total damage divided by the number of valid registrations. The OLS regression is,

Equation 2: Average Damage

$$\begin{aligned} AveD_{si} = & \beta_0 + \beta_1 Surge_{si} + \beta_2 Maxwind_{si} + \beta_3 HSEdu_{si} \\ & + \beta_4 Income_{si} + \beta_5 HousingCPI_{si} + \beta_6 Population_{si} + \beta_7 PercentFB_{si} \\ & + \beta_8 Political_{si} + \delta_s + \varepsilon_{si} \end{aligned}$$

And $i = 1, 2, 3, \dots, n = 897$ zip codes. I also include state fixed effects. Again, *models 1, 2, and 3* in *Table 4* contain average damage; in *model 4* the log of average damage was used.

VI. Results and Interpretation

The findings of the OLS regression analysis using Hurricane Sandy IHP data show that less educated populations received lower damage assessments and so lower levels of assistance. These regressions controlled for damage, income, housing prices, percent foreign-born, population, and political contributions. *Table 3 model 4* illustrates that when there is a 1% increase in high school educational attainment, this results in a 5% increase in total damage assessment. *Table 4 model 4* illustrates that when there is a 1% increase in high school educational attainment, this results in a 2% increase in average damage assessment. These results suggest that certain individuals had difficulties navigating the FEMA IHP application process.⁶⁶ That the larger the percentage of

⁶⁶ To better understand the magnitudes, consider that the average (mean) educational attainment, or the percent of individuals with at least a high school level education in a given zip code, is 89.03%. Typically,

foreign-born, the smaller the reported damages may also speak to this.⁶⁷ The percent foreign-born variable remains significant at the 1% level in both tables and has a negative relationship with damages.

High school education is arguably a reasonable proxy for the ability to navigate the IHP application process for a few reasons. First, those with at least a high school degree are more likely to be employed in jobs that require that they frequently read through paperwork and fill out forms. As other scholars have identified, the ability to fill out forms and “deal with bureaucracies” is important for navigating the assistance process (Morrow 1997; Fothergill et al. 1999). If an individual regularly does these types of tasks at work, they may be more proficient in these tasks and have fewer challenges navigating the process.

Second, those without a high school education are more likely to be of a lower socioeconomic status. There may, thus, exist some social distance between the inspector

we look to see the impact of a change of one standard deviation, in this case 8.25%, on the dependent variable. There is reason to suspect that the variable high school education is truncated, or tightly clustered around 90%. Rather than consider the impact of a full standard deviation, I take the impact of a 4% increase (i.e. living in a zip code with a mean educational attainment of 89% rather than 85%). Referencing *Table 3 model 3*, this implies a \$436,784 increase to total damage. Further, dividing this figure by the mean zip code population, 19,184, this can be translated to an increase of \$23 per person. Recall that the mean total damage per zip code is \$1,860,640.00. When the zip code population is the mean population, 19,184, the damage assessment per person is then approximately \$97. This 4% increase in educational attainment therefore leads to a 24% increase in mean damage assessment. The figure does indicate a large magnitude.

⁶⁷ There are a few challenges with the percent foreign-born data. The first is that information about where these immigrants are from is not provided, and given that this is a percent foreign-born figure for New York City, there is a huge diversity in the immigrant population (compared to other parts of the US where the immigrant population is more homogeneous). Immigrants in the City come from all over the world, work different kinds of jobs, and have varied income levels. For example, a report by the NYC Department of City Planning provides some further information about immigrant populations in the City. In the year 2000, the City’s immigrant population was 2.87 million out of a total population of approximately 8 million (36 %). Of these 2.87 million immigrants, Latin America account for nearly 32% of the city’s foreign-born, followed by Asia (24 %), the nonhispanic Caribbean (21 %), Europe (19 %), and Africa (3 %) (available online at http://www.nyc.gov/html/dcp/html/census/nyy_exec_sum.shtml). Second, it is unclear how to interpret the negative coefficient for the percent foreign-born variable. To qualify for IHP, you must be U.S. Citizen, Non-Citizen National, or Qualified Alien. It may be that many within the immigrant population did not qualify.

and the applicant that impacts the damage assessment. Moreover, drawing from the social capital literature, individuals of lower socioeconomic status tend to have strong ties and fewer weak ties (Campbell et al. 1986: 108; Smith 2000: 514). And, following the idea of “networks as resources,” individuals with strong ties do not have access to the same volume or diversity of information as those with strong ties *and* weak ties.⁶⁸ Therefore, these individuals may be less likely to access an acquaintance who might have information about how to navigate the federal disaster assistance process.⁶⁹

⁶⁸ Beggs et al. (1996) find that individuals with strong ties are more likely to rely on informal sources of assistance. Beggs et al. 1996, page 207-8 also note, “Residents of areas with poorer economic conditions are less likely to possess information about material aid from professional and bureaucratic arenas and, therefore, they are less likely to receive formal recovery support than their counterparts in areas with better local economic conditions.”

⁶⁹ Indeed, early discussions of social capital by James Coleman, Mark Granovetter, and Ronald Burt explored how weak ties can provide individuals with information about job opportunities.

Table 6. OLS Regression Analysis with Total Damage as Dependent Variable, with State Fixed Effects

	(1)	(2)	(3)	(4)
Percentage of zip code affected by storm surge	230,757.30*** (45,123.57)	236,785.40*** (46,027.56)	245,624.80*** (45,722.06)	0.07*** (0.01)
Maximum wind speed	65,671.33** (28,000.43)	67,121.38** (28,214.52)	-14,789.08 (28,861.27)	0.07*** (0.01)
High school education		75,797.14*** (25,314.25)	109,196.40** (42,923.72)	0.05*** (0.01)
Median household income			-1.81 (8.34)	-0.00*** (0.00)
Housing CPI			39,645.22*** (13,265.38)	0.04*** (0.01)
Population			113.89*** (30.82)	0.00*** (0.00)
Percent foreign-born			-9,931,751.00*** (3,188,216.00)	-2.85*** (0.68)
Political contribution			-208,908.90 (543,708.60)	0.20 (0.13)
Constant	-2,805,769.00** (1,142,215.00)	-9,664,501.00*** (2,798,531.00)	-19,000,000.00*** (4,294,359.00)	-5.79*** (1.40)
Adjusted R-squared	0.18	0.19	0.23	0.47

*** significant at 1% level; ** significant at 5% level; * significant at the 10% level

Robust standard errors in parentheses

The dependent variable in model 4 is log(total damage)

Table 7: OLS Regression Analysis with Average Damage as Dependent Variable, with State Fixed Effects

	(1)	(2)	(3)	(4)
Percentage of zip code affected by storm surge	420.64*** (73.11)	438.44*** (74.38)	441.84*** (73.04)	0.04*** (0.00)
Maximum wind speed	266.83*** (98.89)	271.11*** (99.15)	178.07* (107.85)	0.04*** (0.01)
High school education		223.73*** (53.27)	190.58** (77.52)	0.02*** (0.01)
Median household income			-0.05** (0.21)	-0.00*** (0.00)
Housing CPI			152.03*** (36.82)	0.01*** (0.00)
Population			0.11* (0.06)	0.00*** (0.00)
Percent foreign-born			-29,956.89*** (6,889.96)	-2.50*** (0.42)
Political contribution			931.01 (1,074.19)	0.11 (0.08)
Constant	-8,139.47** (4,051.41)	-28,384.82*** (7,293.05)	-52,419.64*** (13,472.06)	1.28 (0.88)
Adjusted R-squared	0.16	0.17	0.21	0.32

*** significant at 1% level; ** significant at 5% level; * significant at the 10% level

Robust standard errors in parentheses

The dependent variable in model 4 is log(average damage)

This interpretation of the results, i.e. that complexities in the process for applying for aid may have disadvantaged less educated applicants, is consistent with qualitative data collected after Hurricane Sandy and Hurricane Katrina where subjects described difficulties in navigating the disaster relief application process. Stated another way, qualitative data regarding complications in negotiating the FEMA disaster relief application process corroborate and help to explain the quantitative results concerning the relationship between educational attainment and disaster assistance. Several examples from subject accounts appear below.

The population affected by Hurricane Sandy was hugely diverse. Indeed, images in the days and weeks following Hurricane Sandy presented multi-million dollar mansions in New Jersey destroyed by the storm surge and, in other places, including the Rockaway Peninsula, low-income individuals stranded in large public housing complexes. Others who lived in basement apartments in areas affected, including Staten Island and Queens in New York and Hoboken, New Jersey, lost everything in the storm.

Two years after the storm, there are a few studies that attempt to understand the extent of the damage and how it affected different populations. According to a report by the Furman Center at New York University, 55 percent of those affected by the storm surge were low income renters with an average income of \$18,000. There are also several indications that socioeconomic status played a role in how disaster assistance was distributed. Latino Action, for instance, is one of three groups that filed a complaint with the US Department of Housing and Urban Development, claiming that minority

applications for the Reconstruction, Rehabilitation, Elevation and Mitigation Program were wrongly rejected.⁷⁰ A \$215 million settlement was reached.

Interviews with non-profit leaders at the frontline of post-Hurricane Sandy assistance echo these concerns. Margaret Smith⁷¹ works for Catholic Charities of Brooklyn and Queens (CCBQ) and lives on the Rockaway Peninsula. She is stationed at the CCBQ office in the Rockaway Peninsula. Brady explained that following Hurricane Sandy many people did not know about the assistance available through FEMA. She notes,

I guess people had different levels of access to information, you know, depending on whether you're involved in a church, if you have a job – people that don't have a job, of course they don't have that connection you know. There were organizations where people were getting a lot of assistance, ... You know when you're not employed or you're not involved in those kinds of groups, you miss out on a lot of those things.

Indeed, a large literature establishes that social networks are important sources of information and assistance following disaster and that different individuals had access to differing levels of resources through their social networks (Beggs et al. 1996; Nakagawa and Shaw 2004; Chamlee-Wright and Storr 2009; Storr and Haeffele-Balch 2012). Smith also mentions two groups that experienced increased hardship following Hurricane Sandy- those with mental health issues and those who are part of the undocumented population. CCBQ tries to reach those in the community who suffer from mental health problems. Unfortunately, Smith explains, some individuals with mental illness isolate

⁷⁰ Available online at <http://www.northjersey.com/news/minority-victims-of-superstorm-sandy-to-get-215m-in-aid-to-settle-complaint-1.1026797>

⁷¹ Pseudonyms are used throughout to protect the identity of interviewees.

themselves and do not take steps to seek out help. Undocumented individuals are not eligible for federal disaster assistance.

Social worker Karen Miller, also with CCBQ and located in the Queens office, describes how much of her time is devoted to helping clients with paperwork. Miller expresses frustration with a particular government program that was supposed to help disaster victims rebuild their homes. There were multiple required meetings, and the organization would lose paperwork along the way. Individuals are already dealing with a lot, having lost personal possessions, a home, and trying to make it by on savings, and then are confronted with, as Miller states (repeating a message from the government organization), “We don’t know where your documentation is. You’re going to have to bring it in again.” Interestingly, Miller notes that one of the challenges for social workers at CCBQ was working with middle-class clients who had different expectations of what disaster assistance should provide.

Evidence from qualitative interviews conducted after Hurricane Katrina suggests that individuals also had difficulty navigating the various disaster assistance application processes. After Hurricane Katrina, tens of thousands needed a safe place to live. Some disaster victims that were sent to Texas or neighboring states elected to stay in those locations. For those who remained in New Orleans, however, there was a need for temporary housing. And, many needed assistance to help rebuild damaged or destroyed homes.

Residents expressed confusion around what they felt were inconsistent answers to inquiries and lack of clarity in general about what was required to receive full assistance

under the assistance programs. Cindy McAfee of St. Bernard Parish explained, “You can call them 20 times in one day and ask the same question each time, and we can record it too, and you will get 20 different answers.” Leonard Hamilton, a resident of the Ninth Ward, stated, “My experience – like I said, it’s just a waiting game to see if you’re eligible. I mean, they give you information to read up on, but it’s just confusing.”

The back and forth between residents and FEMA was also frustrating and confusing. Nancy Coleman of New Orleans East, explained, “FEMA was giving me so many problems. [FEMA] was like, ‘oh, we can’t prove this, and we need to go in and inspect and well, we can’t do an inspection because of this and we got to do an aerial inspection.’” One resident of Broadmoor, Michael Harris, explained that he and his wife spent several months sending documents to FEMA to prove that the home that they had declared was in fact their home. “I guess they just didn’t believe me. I had a copy of the license, insurance papers, everything. So they just kept [sending letters].” Again, in St. Bernard Parish, McAfee was communicating back and forth with FEMA trying to explain that she had rented an apartment that was attached to a home in the Parish. Finally, McAfee was asked to send in rental receipts for her apartment.

So we faxed them our rental receipts several times. They said, ‘oh, well if your rental receipts are more than one page then you’re going to have to fax a cover page, a rental receipt cover page.’ It seem[ed] like [FEMA was] purposefully losing us.

McAfee does not understand why she did not get assistance for the property. Her efforts to obtain a FEMA trailer were also unsuccessful.

Many interviewees expressed difficulties with obtaining FEMA trailers, which following Hurricane Katrina, was one way that the federal government addressed the need for temporary housing. Barbara Hayes had contacted FEMA and explained that she did not need assistance. After a home inspection in October, Hayes received a phone call from FEMA, asking if she was ready for her FEMA trailer. Hayes explained to the caller, “I have [a] letter at my home that says I am not eligible to anything so —I said but I am in a room with about eight friends, all of whom need FEMA trailer, can you help one of them?” The FEMA official replied that because they were not on his list, he could not do anything. In New Orleans East, Father Luke of the Mary Queen of Vietnam Church, explained that numerous elderly people in the community were being evicted from the trailers. “[FEMA] just disqualify [them], and I don’t understand the reason... the reason I have not encountered the reason but we’re talking about a lot of elderly.” The qualification criteria for a FEMA trailer remained unclear to many.

VII. Conclusion

The number of disaster declarations and the amount of federal disaster assistance has been increasing. Hurricane Katrina, which occurred just a decade ago, was the costliest natural disaster in US history; Hurricane Sandy was the second costliest. Given that billions of dollars are allocated toward post-disaster assistance each year, there is motivation to understand who receives this assistance. Using newly available data, Hurricane Sandy disaster assistance, specifically IHP assistance, was examined. Controlling for damage, income, population, and political contributions, high school education proved to be significant determinants of damage, and therefore, disaster assistance. In fact, I find that a 1% increase in educational attainment leads to a 5%

increase in total damage assessment and a 2% increase in average damage assessment.

This paper uses a high school education as a proxy for the ability of individuals to negotiate the disaster assistance application process. Qualitative evidence from Hurricane Katrina and Hurricane Sandy support this interpretation and also suggests that individuals have difficulty navigating the federal disaster assistance programs.

There are, admittedly, several limitations to the approach adopted above. The first limitation is that the data is presented at the level of zip code. Ideally, this data would be specific to an applicant. As noted, the zip codes included in this study have populations as small as 94 residents and as large as 109,931 residents (according to the 2012 Census). It is possible that the applicants within a given zip code have attributes that are quite different from the average resident in another zip code. It could be that actual applicants had very different high school educational attainment, median household income, or immigrant status than the zip code on average. FEMA does not release the data for individual applicants because of privacy concerns.

A second limitation comes from the unavailability of private insurance data and voting data. Private insurance data would have provided additional information about the severity of damage in the various zip codes. When Garrett and Sobel (2003) conducted their research on disaster assistance, the authors gathered data from the American Insurances Group, Inc. This group no longer exists. The data is now owned by another company and could not be accessed. Voting records by zip code were also not available. Voting records could be used to determine whether a public choice theory explanation of disaster assistance applies, i.e. areas that tend to vote for one political party receive more

assistance than areas that tend to vote for another political party. Instead, this study used political contributions to get to this possible bias and found no relationship.

This study raises several possible research questions. As my analysis illustrates, and I mention above, there appears to be no relationship between political contributions and disaster assistance. However, I do find that state fixed effects are significant. Because only three states are represented, it is impossible to offer an explanation. If FEMA does release further data for other disasters, it may become possible to better understand what the state fixed effect actually is identifying. And, here, public choice explanations may be tested. For instance, is there a connection between politics and disaster assistance at the state level? Using zip code level data could ensure that there are controls at the level of zip code for educational attainment, median household income, and origin.

The percent foreign-born variable raises additional questions. The negative relationship between percent foreign-born and disaster assistance could illustrate that the foreign-born were simply ineligible (based on legal status) for assistance. Alternatively, it could illustrate that the foreign-born also had difficulty navigating the assistance process (Bolin and Bolton 1986). Or, perhaps foreign-born individuals are less likely to seek federal disaster assistance? And if so, this could be because they rely on other sources of informal assistance (Chamlee-Wright and Storr 2009). More information is required to better understand this finding.

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