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Country Mouse, City Mouse

Exploring the Differences in Rural and Urban Economic Recovery Postdisaster

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INTRODUCTION

> What I'm hearing which is sort of scary is that they all want to stay in Texas. Everybody is so overwhelmed by the hospitality. And so many of the people in the arena here, you know, were underprivileged anyway so this (chuckle)—this is working very well for them.
>
> —Former First Lady Barbara Bush, on the hurricane evacuees at the Astrodome in Houston, September 5, 2005*

In September 2005, the deadliest and most destructive hurricanes hit the Atlantic seaboard, making landfall in the state of Louisiana. Hurricane Katrina caused an estimated $81 billion worth of damage to the Gulf Coast, and Hurricane Rita, which followed a few weeks later, caused an additional $4 billion to $5 billion worth of damage (Bratton and Haynie, 1999; Bratton et al., 2006; Burby, 2006; Department of Homeland Security, 2006; Saulny, 2006). Nearly 2,000 lives were lost during the storms, and an additional 250,000 residents were displaced after the disaster, some permanently. In the wake of these natural disasters, disaster preparedness, mitigation, and postdisaster local revitalization took center stage as federal, state, and local government entities took stock and created plans to rebuild the Gulf region.

Scholarship on Hurricane Katrina is particularly concerned with the city of New Orleans and its response to managing the aftermath of the storms. New Orleans is certainly worth this type of rigorous analysis; however, this chapter expands the focus to the entirety of the affected Gulf Coast area and is unique because it draws conclusions that are applicable for rural and state policy makers in terms of economic disaster recovery. Another subject of investigation by social scientists is the operational failures of the Federal Emergency Management Agency (FEMA) and the overall failures of the emergency management systems in place before the storms hit (Eikenberry et al., 2007; Gerber, 2007; Petak, 1985; Schneider, 1995, 2005). Much of the scholarship to date, particularly on Hurricane

* Barbara Bush, "Marketplace NPR Interview," September 5, 2005, http://www.marketplace.org/shows/2005/09/05/PM200509051.html.

Katrina, has focused on failures of emergency disaster planning, namely, FEMA's lack of response (Eikenberry et al., 2007; Gerber, 2007; Petak, 1985; Schneider, 2005), the race and class divide after the storm (Elliott and Pais, 2006; Lavelle and Feagin, 2006; Stivers, 2007; Tynes et al., 2006), and difficulties that local and state governments face when attempting to rebuild after a natural disaster (Eckdish-Knack, 2006; Lewis, 2005; Liu, 2006; Olshansky, 2008). But public administration and policy scholars have largely been silent on issues of race and poverty in the aftermath of Hurricane Katrina. What has also been missing in this discussion is an examination of what less populated areas within the state of Louisiana did to recover economically. In particular, this chapter looks specifically at the effect of poverty on economic recovery in the entire state of Louisiana post-Katrina.

While some scholars have examined the effect of race on recovery in New Orleans (Baade et al., 2007; Comfort, 2006; Elliott and Pais, 2006), discussion of the storm's impact on other areas in the Gulf is not widely in evidence. Instead of focusing on the economic development of the city of New Orleans, this research compares the economic behavior of the city to that of the rural communities (i.e., counties) also affected by the storms.

This chapter also considers whether there is any evidence of systematic variations in the way communities recovered after the hurricane season of 2005. In particular, questions about poverty and its effect on economic development post-disaster are asked to ascertain whether there is a separate effect that can be attributed to this variable. Finally, this chapter assesses the effect of disasters on rural economies, a critical area of study often overlooked by scholars of emergency management and disaster policy.

LITERATURE REVIEW AND THEORY

Counties as Engines of Economic Growth

Many communities in the Gulf region suffer from high levels of poverty. Following the storm, media reports highlighted many issues that faced the area both before and after the 2005 hurricane season. The most striking to many outside observers was the intersection of race and class in the wake of a natural disaster (Bates, 2006; Casserly, 2006; Congleton, 2006). In the United States, race and class are closely intertwined, and public policy has, at times, promoted institutionalized racism (Better, 2008; Leon, 1979). In terms of economic health, cities with higher proportions of white, middle-class residents generally enjoy more stable housing and

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job markets and have less political complicated policy issues to debate. In places where there is a severe lack of an educated workforce coupled with high proportions of the working poor or minority residents, the literature repeatedly uncovers systematic problems in housing and economic development (Vergara, 1999a, 1999b; Olshansky, 2006; Newman, 2008; Rogers, 2008).

County-level governance, particularly in rural or sparsely populated areas, suffers from the same issues as those who control the political power and for what purpose they use the power to affect public policy. Counties typically coordinate public services, levy taxes to create area wealth, and work to draw new business to the area. Traditionally, counties perform state-mandated duties, which include property assessment, record keeping (e.g., property and vital statistics), road maintenance, election administration, and poor relief (National Association of Counties, 2008). Today, counties are moving into other areas, undertaking programs related to economic development, employment/training, planning and zoning, and water quality.

Competition, Cooperation, and Rural Governance

The earliest research on local governance and policy discusses the issues of pluralism and elitism as they affect the policy-making process (Abney and Lauth, 1985; Cooper et al., 2005; Davis et al., 1997; Truman, 1951; Mills, 1956). The theory and literature that follow here discuss some critical issues that affect emergency response in disasters. As this research is concerned specifically with how race and class may interact with the initial emergency management policy-making process and subsequent recovery after a natural disaster has passed, complementary theories of cooperation and competition, bias in policy making, and the difficulties in planning for natural disasters in general will be reviewed.

The argument presented in this chapter is that heterogeneous areas (those with high concentrations of minorities and less educated and poor residents) have more difficulty determining what issues should be on the policy agenda, as opposed to their more homogenous counterparts, resulting in uneven emergency planning for disasters (Nemeth, 1986; Nemeth et al., 1974; Park and Vargas-Ramos, 2002). This heterogeneity also plays a significant role in how areas recover economically since intergroup conflict before a disaster may be exacerbated after disaster. Thus, it is assumed that most areas with high levels of poverty will have difficulties not only

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in determining how emergency planning and execution should occur, but also in recovering economically poststorm.

The earliest research in politics debates the importance of power (Cooper et al., 2005; Dahl, 1961; Hunter, 1953; Kettl, 1993; Moe, 2005; Ordeshook and Schwartz, 1987). The question of who gets what and when remains central in most political research. The connection to public policy lies in who maintains political power within cities, counties, states, and nations. The majority has the power to dictate the direction of policy, and if the minority is not cohesive or large enough to make a significant dent in the desires of the majority, public policy will be slanted toward majority desires (Nelson, 1979; Oliver, 2000; Pelissero, 2003).

Early pluralist scholars noted that in the United States, ethnic integration is unavoidable in a pluralistic democracy (Dahl, 1961). As minority groups gained their independence, public policies changed to meet the demands of these newly enfranchised groups. Pluralists determined that in a representative democracy, in order to have policy preferences realized, ethnic groups should compete through electoral contests and economic development in order to be assimilated into the mainstream of urban political life. Additionally, those who occupy the lower classes within the United States are typically disorganized when it comes to political participation. Myriad factors, such as crowded policy agendas, lack of access to policy makers, and conversely, a lack of outreach effort directed at understanding many important political issues, result in policies that may not necessarily benefit these groups. In the case of county governance, where voting coalitions and neighborhood cohesion are particularly feeble, one can only surmise that this issue would be more problematic.

When looking at class variables in the local context, we find that local government institutions also affect the ability of citizens to access the political system. Banfield and Wilson's *City Politics* (1963) was one of the first forays to explore the effects of municipal reforms. Their political ethos theory pitted private-regarding immigrant working class values, which favored sustaining traditional political machines, against public-regarding white Anglo Protestant middle-class values, which supported municipal reform. Thus, lower-class workers had very different policy preferences than white-collar counterparts, but institutional reforms made it difficult for poorer residents to participate in the political process. This theory also left little role for African Americans in the municipal reform movement since, at the time, African Americans could not vote. Since the adoption of municipal reforms like the city manager–council form of government, short ballots for local elections, nonpartisan ballots,

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and professionalized management of public services, scholars examining black voter turnout have often found low rates of participation by blacks and other minority groups (Oliver, 2000; Verba, 1993; Wolfinger, 1965; Wood, 2002). Additionally, those in the lower economic classes also had dismal voting participation rates.

Cohen and Dawson (1993), in their exploration of the effects of neighborhood poverty, found that the devastation of the urban core, as first described by Banfield and Wilson (1963), propagated a decline in black voting, particularly in areas that are well below the poverty level. This decline affects blacks in particular, because decades after the massive influx of freed slaves during emancipation, the city core continues to be populated by African Americans and poor whites who do not have the economic resources to move from the city center (Banfield and Wilson, 1963). This situation decreases the effectiveness of institutions that promote political behavior in these areas (community groups, party offices, or churches that support political candidates), thus reducing the political efficacy of residents.

J. Eric Oliver and Tali Mendelberg (2000; Oliver, 1999, 2000, 2001) studied in depth the effects of socioeconomic status, city size, and segregation on political participation. In considering the social composition of American localities, Oliver convincingly showed the impacts on the dynamics of democratic government. His findings indicate that individual political behavior varies systematically across economic contexts. He does not find a positive relationship between affluence and participation; instead, he finds that political participation is lower in cities with higher median household incomes and in those that are more economically homogeneous. Therefore, while homogeneous municipalities participate less, they also seem to have fewer things to debate. What this theory means, contextually, is that in rural America, it is assumed that the economic and political value systems of residents are largely the same, regardless of one's racial or ethnic background, so poverty is assumed to trump all other types of social circumstance. This research tries to unpack these assumptions and test this colloquialism using economic data over a sustained period of time.

Governmental Response Postdisaster

The issue, in regard to whether coalitional or competition-based politics is at work, speaks to the heart of this query. When a natural disaster occurs, the operational capacity of government is threatened. As groups

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begin to reassert themselves after such an event, there is a question of whether new groups are able to permeate the political system for policy change. Schneider (1995) theorized that the key to successful governmental response after a natural disaster depends on how much postdisaster human behavior corresponds to expectations. Thus, if response patterns do not correspond to preplanned structures, disconnects (both politically and socially) occur. If we know that minority groups (in this case, this attribute could be either a racial or class construct), regardless of what type of theoretical perspective adopted, have a difficult time affecting the political and policy processes, then we can expect their economic outcomes after a natural disaster to be different from those of their more educated, richer counterparts as per Oliver's theory.

This effect should be prevalent in counties with high levels of poor residents. The best way to examine this issue is to make a direct comparison between counties with high levels of the poor and those with low levels of the poor. Conversely, if we expect the premise of group theory to hold, places with high levels of poverty will suffer from the same problems of political participation and influence on economic recovery postdisaster. The area of emergency planning and disaster relief policy would also be affected by a lack of consideration of these groups' needs. Hurricane Katrina is a prominent example of this disconnect: once local emergency response capacity was overloaded, the failure of disaster response continued up to the federal level. Thus, the question remains, after a natural disaster, how does policy respond and whom does it respond to?

As stated above, the economic health of an area is integral to its survival. Without jobs, residents cannot buy or rent homes, buy goods within a jurisdiction, or pay taxes. Thus, tracking the types and number of jobs created postdisaster is one indicator of policy response. The question of those economically disadvantaged to affect their own circumstance postdisaster can be tracked by looking at changes in an area's class makeup in terms of employment after a disaster.

Theory: Rural versus Urban Economic Development

There is some literature that deals with the effects of minority and poverty population on the economic outputs of a locale and the effects of diversity, which are critical to the theory developed in this analysis, because emergency management policy is connected to returning economic normalcy in an area once a disaster has passed. The theoretical perspective presented here has two parts. The first concerns the racial composition of a locale,

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which connects to the power structure theories of local politics; the second uses the frame of poverty to test similar assumptions that in either case act as large impediments to economic recovery postdisaster and cannot be overcome with a large influx of funding. Consistent with the group theory of policy making, it is hypothesized that poverty acts as a deterrent to cooperation, resulting in postrecovery measures favoring one group over another. Thus, this study seeks to determine the ratio of poverty-stricken residents within a locale to the number of jobs created postdisaster.

Alesina and La Ferrara (2005) surveyed the literature on the economics of diversity and found that the production of public goods in ethnically and racially fragmented societies, regardless of the size of the location, be it a city, county, or village, is lower than that in places where racial and ethnic homogeneity is present. Additional work by Alesina and LaFerrara (2000, 2002) determined that trust and social capital are critical to ameliorating issues of public goods production. Looking at economic outputs and demographic fragmentation, the authors found that private investment is lower in places that have high fragmentation.

Paul Collier (2000) found that diversity is tied to lower overall economic growth in places where political rights are limited. Given the South's history of suppressing the political participation of minorities in various ways, and the current positions of both Louisiana and Mississippi at the lower ends of economic investment compared to other states in the nation,* the conclusions Collier presented are worth mentioning here. Finally, Ferraro and Cummings (2007) found the economic behavior in societies is directly related to differences in ethnicity, race, and religion. Research into the effects of income stratification has yielded similar results (Tomaskovic-Devey and Roscigno, 1996; Moller et al., 2009). Thus, higher fragmentation on racial, ethnic, and poverty lines yields lower economic investment and outputs at the state, city, and country levels (Ottaviano and Peri, 2005).

There are several factors that contribute to economic growth in rural areas: levels of taxation, public spending, wage levels, unionization levels, proximity to higher education, access to highways, airports, and other transportation, per capita or family income, and population size and density, among others (Aldrich and Kusmin, 1997; Kusmin, 1994). One study found that the percentage of African Americans living in rural areas

* A Wallethub report in 2014 showed that in terms of taxpayer return on investment (ROI), Louisiana ranked 49th in providing infrastructure, public services, educational resources, and economic stability out of all 50 states (http://wallethub.com/edu/state-taxpayer-roi-report/3283/).

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contributed to slow growth, as the study empirically tested the social and economic variables listed above on economic outputs in rural areas throughout the United States (Aldrich and Kusmin, 1997). Additionally, stagnant growth in per capita income in rural areas is consistently found to contribute to overall sluggish economies in rural areas (Porter, 2004, 2005; Rozelle, 1996). Much like the theories of group participation and racial competition inform the debate over policy development in local government, these same theories of group participation, organization, and mobilization of bias in decision-making patterns also shed light on how local economic decisions are made in rural and urban areas. This research will explore the effectiveness of economic recovery in two areas with very different racial and poverty compositions predisaster, focusing on the impacts of state and federal investment in the wake of such an exogenous shock. It will also explore the dynamics of economic recovery in rural and exurban communities located far from the central core cities during Hurricane Katrina utilizing the same metrics of racial and class composition.

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HYPOTHESES

Based on the literature discussed and the case comparison at hand, the following hypotheses are tested:

- H1: Higher percentages of African Americans decrease the amount of economic recovery postdisaster.
- H2: Higher percentages of residents under the poverty line decrease the amount of economic recovery postdisaster.
- H3: Higher levels of outside federal and state funding produce a more robust postdisaster economic recovery, regardless of racial and economic disparities.
- H4: Rural places will have decreased economic recovery in comparison to urban or suburban places.

DATA AND METHODS

Case Descriptions

For this analysis, all 37 parishes designated by FEMA as eligible for receiving public or individual assistance were selected, and a full listing

of the parishes included in the analysis is listed in the appendix. This analysis compares economic recovery data for New Orleans and the state of Louisiana from 2004 to 2010. For New Orleans, the seven-parish metropolitan statistical area (MSA) is used to make direct comparisons with the rest of Louisiana. The parishes included in this group are Jefferson, Orleans, Plaquemines, St. Barnard, St. Charles, St. Tammany, and St. John the Baptist.* The population of these seven parishes accounts for over 1.3 million residents.

New Orleans' poverty rate in 2000 was 28% compared to 12% for the entire nation (U.S. Census, 2008). This rate dropped to 23.4% from 2005 to 2008, while the average rose to 18.4% in the United States. In 2010, the overall poverty rate for the city was 24.1% (U.S. Census Bureau, 2011). The black poverty rate was more than three times the white poverty rate (35% vs. 11%), and 43% of blacks lived in high-poverty neighborhoods in 2010.

The dissimilarity index, a measure of racial segregation, ranks New Orleans high among large-city minority populations. Blacks and whites live in different worlds, marked by geographical separation as well as other measures of socioeconomic status. At the time Katrina hit, New Orleans was one of the poorest and most segregated cities in America. Residential segregation was so prevalent that in order for the city to have an equal distribution of blacks and whites in every neighborhood within the city, 69% of black residents would have had to relocate. Additionally, poverty played a large role in the stratification of New Orleans, with the city experiencing a 12% unemployment rate in 2004, which at the time of Katrina was double that of the nation (Holzer and Lerman, 2006).

In Louisiana, the racial composition is very different from that in New Orleans. Overall, the state is whiter (approximately 63% compared to 55% in New Orleans). In terms of per capita income, Louisiana residents earned approximately $22,500 on average during the years 2005–2009 compared to the average per capita income of $27,000 in the United States for the same time period. Compared to residents of New Orleans, whose average income was $25,000 during the same time period, rural residents earned approximately 14% less than their urban counterparts. The state's poverty rate in 2000 was 17.2% and rose to 21.6% in the year 2010 (U.S. Census, 2013). The National Assessment of Educational Progress (2013), which measures several education outcomes, consistently ranked Louisiana below average in terms of literacy; basic proficiency in reading, writing,

* A table of all cases, including population and other socioeconomic variables, can be found in Table 3.1.

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science, and math; and overall educational attainment (i.e., high school and college graduation rates).

Variables

Studies of aggregate-level economic impacts have used many methodologies to determine the short- and long-term effects of natural disasters on the economy. Some studies have used indicators such as the employment or unemployment rate, the number of small businesses created postdisaster, personal income changes, tax receipts, and gross regional product (Skidmore and Toya, 2002, 2013; Tierney, 1997, 2012; Tierney and Oliver-Smith, 2012; Xiao, 2011). This work largely shows that in the aggregate, areas are fairly resilient to natural disasters, but they do little to ascertain the more localized effects of natural disasters.

The main dependent variable—the net number of new jobs—is defined by the census as employees in newly created jobs who were not employed by the same employer in the previous quarter. This information is divided by the total number of jobs in each place minus the total number of job separations (i.e., firings, leaves of absence, or downsized positions) for each year and each location in the data set to create a rate of net new hires.

$$\text{Net new hire rate} = \frac{\text{New jobs added} - \text{Job separations}}{\text{Total jobs}}$$

This indicator was chosen as the measure of economic recovery for several reasons. First, it acts as an index variable because it simultaneously tracks the new job activity within an area, job separations, jobs created, and total jobs in each local economy for each quarter throughout the time period under examination as a dynamic percentage, meaning that it changes from quarter to quarter with a range of –0.50 to 0.50, indicating a net job shift of half a percentage in either direction. This information is provided by the Quarterly Workforce Indicators survey as part of the Longitudinal Employee Household Dynamic data set for the Census; it is frequently used to determine overall economic performance in terms of the strength (or weakness) of the American labor market.

There are some limitations to this measure. First, the way the census collects these data is dependent on county and state agencies reporting information in a timely manner, and in some cases, certain counties or parishes did not submit their information, and therefore no economic

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data could be entered for certain periods. Second, the measure does not track individuals identified by the census as being singularly affected by the storms. The census does have a subset of individuals surveyed post-Katrina, but these data weren't collected on a quarterly basis after the storm, nor did they include all residents in the state; thus, they cannot be included here.

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Rural Economic Data

The Local Economic and Household Dynamics (LEHD) and Local Employment Dynamics (LED) data sets, as well as the Bureau of Labor Statistics (BLS), collect data only periodically from sparsely populated places, making an analysis of rural recovery very difficult. While not a comprehensive measure of economic recovery, new hires provide a viable relative measure on which municipalities can be compared because all counties have to report this information at least once a year to the LEHD and the BLS, the measure comes directly from businesses located within each county (i.e., it is not collected from secondary sources), and numbers are verified by each state's bureau of labor before being sent to the BLS.

For each geographic entity included in the data set, the new jobs variable represents the estimated number of workers who started a new job (Abowd et al., 2011, pp. 4–6). Specifically, new hires represents the total number of workers that, though they worked for an employer in the specified quarter, were not employed by that same employer in any quarter of the previous year. The total jobs component of the dependent variable reflects the beginning of the quarter estimate of the total number of jobs in the economy on the first day of the reference quarter (Abowd et al., 2011). Thus, a worker is counted in the total jobs figure if he or she has positive earnings in both $t-1$ and t. Finally, the job separation variable is calculated as the estimated number of workers who had a job for at least one previous full quarter and then the job ended (Abowd et al., 2006, pp. 75–77). The number is an estimate due to the fact that actual separation data are not available until the following quarter, when reports from each state are received by the census. Thus, a worker is defined as separated if he or she had positive earnings in t or $t-1$, but no earnings in $t+1$; this identifies the separation in the current quarter distinct from the previous one.

New hires as a variable are used in other research measuring recovery from natural disasters. For example, Brookings and the Greater New Orleans Community Data Center (GNODC) have tracked various

recovery indicators since the disaster, including, but not limited to, new firm development, average wages, and increases and decreases in various employment sectors (Liu et al., 2011). Although Brookings followed additional indicators, such as gross metro product per job created, nonfarm jobs by sector, and average annual wages over a 6-year period, these were not viable for use in this study due to the fact that the Brookings Institute has done little comparative work on rural parishes. Additionally, most data on the counties and parishes located outside the New Orleans MSA are collected sporadically by the census, and therefore researchers have shied away from conducting this type of work.

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Independent Variables

The main independent variables for this study are the amount of turnover experienced in each location during the time period under examination (turnover), the yearly percentage of black residents in a county, the percentage of residents living under the poverty level in each county for the years under study, the percentage of residents with a high school diploma, and the federal and state investment postdisaster. The percentage of minority residents is measured as the percentage of African American, non-Latino residents in each location for each year in the data set. Included as control variables are the average black earnings for all jobs in the area under examination, average earnings of residents with less education than a high school diploma, and high school graduate earnings, as well as the overall percentage of new hires for the same categories (i.e., the number of black earnings in period 1, the high school graduate earnings in the period, and so on). The regression models were estimated by sorting the counties in terms of their urban–rural continuum codes as recorded in the 2003 census by the U.S. Department of Agriculture (USDA). These are coded as ordinal variables ranging from 0, representing urban counties with 1 million or more residents in the metropolitan area, to 3, representing nonmetropolitan counties with less than 25,000 residents adjacent or nonadjacent to metropolitan counties. This variable was added to establish whether the amount of "rural-ness" throughout the affected state had a significant difference on the amount of job recovery postdisaster. The percentage of residents living in poverty is taken directly from the Small Area Income and Poverty Estimates data set. Finally, a regression model was run substituting the average new hire earnings for three populations: African American, those residents with less than a high school diploma, and those with a high school diploma. The idea was to ascertain

the differential effects of minority and less educated job seekers over the same time period.*

Federal disaster funds are the total amount of funds approved for each county during the period 2006–2007. This information came from the office of Research and Special Projects housed in the Louisiana Recovery Authority (Office of Community Development, 2008) and through a Freedom of Information request to FEMA. The dollar amounts include individual and household assistance (IA), which also include FEMA's Individuals and Households Program (IHP) and public assistance (PA) funds dedicated to recovery in each county. IHP assists homeowners and renters with reconstruction after a declared disaster (FEMA, 2008). Funds help applicants pay for temporary housing, repair, replacement, and disaster-related medical services, burial costs, and moving expenses. FEMA's public assistance (PA) grant program directs funding to states, local governments, tribal areas, and certain nonprofit organizations to assist in helping them respond during and after a declared disaster. For this study, the percentage of each state's total funds received by each parish/county was calculated. Another control variable measuring catastrophic housing damage collected by FEMA in collaboration with the Small Business Administration and the U.S. Department of Housing and Urban Development (HUD) in 2006 for each parish was also included.

The Louisiana Road Home program was designed as a separate state-level effort to provide payment to homeowners affected by Hurricane Katrina. It offered up to $150,000 in compensation to homeowners for losses sustained after the hurricanes. It also provided reparation to owners of rental properties in the form of loans and grants for rebuilding. The amount of funds contributed under the Road Home program was recorded for each county. Again, the percentage of total funding received for each parish was used. For the years affected (2005–2009), the variable is coded 1, and the previous years are coded 0. A year dummy variable was added to ascertain the magnitude of difference of the race or poverty effect on new jobs for each year since the storm had passed. The appendix lists all the variables used in the research as well as their source.

* It should be noted here that the U.S. Census collects data on either race and ethnicity attributes or educational attainment for all new hires in each period, but does *not* collect the data together. This makes it impossible to ascertain whether a new hire is both African American and has less than a high school diploma as one "hire." For this reason, all new higher earning data are separated out by either race or educational attainment for each period.

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METHODS AND ANALYSIS

The first part of the analysis compares counties based on their rural continuum score. The definition of rural that guides this analysis is taken from their classification on the rural–urban continuum.

This analysis employs descriptive summary statistics, reports the Pearson's correlation coefficients to test the linear relationships between race, poverty, and funding within the state, and incorporates ordinary least squares (OLS) regression using robust standard errors for each county over the 8-year period. OLS regression typically assumes that the residuals are independent. In the case of this analysis, the data collected on each county or parish during the time period may not be independent, thus violating the independent principle of regression that states that errors associated with one observation are not correlated with the errors of any other observation. In this case, it is likely that job creation within one parish will tend to follow a predetermined path, or be more like one another than the kinds of jobs created in a parish located right next door. A robust standard error indicates that the observations are clustered by some unit, in this case county/parish, and that the observations may be correlated *within* units, but would be independent *between* county and parish. The use of robust standard errors, or the Huber–White estimation, relaxes the assumption that errors are independent and identically distributed. Essentially, the use of the clustered function in an OLS regression model is to make adjustments in the estimates that take into account some of the flaws in the data (Davidson and MacKinnon, 1993; Wooldridge, 2010).

Prior to delving into the analyses, a comment about the role of race and class as separate variables in the analysis should be made. Traditionally, researchers have utilized race as a proxy for class as African Americans are traditionally overrepresented among socioeconomically disadvantaged groups (Banfield and Wilson, 1963; McIlwain and Caliendo, 2011; Gilens, 1999, 2012). Class, typically measured by poverty level in the census, acts as a severe impediment to housing and jobs and also affects residential mobility. However, because poverty levels are measured only in the decennial census for many areas, and some of the more rural counties included in this analysis have no reliable data for poverty levels throughout the period under examination, high school education levels are used as a proxy.

Race and class as variables, however, are separate phenomena and are appropriate to analyze separately in the following analyses for three reasons. First, the majority of the poor in the United States are whites. Second, using race without class in analyses or vice versa encourages the

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illusion that class confounds racial differences. Race, in the United States, is an ascriptive characteristic and acts as an antecedent to class in various settings (i.e., job placement, college admissions, housing, etc.) (Rank, 2004). Finally, in sociological research as well as in the health professions, race often acts as a "caste" within American politics and policy making, limiting access to goods and service; class is largely an invisible quality that acts as an impediment to services or access but is not a visible indicator of discrimination (Cox, 2000; Kawachi et al., 2005).

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FINDINGS

New Orleans and the State of Louisiana

By comparing the MSA* to the state and the counties that are most urbanized within the affected area, we see that the New Orleans area had a higher proportion of minorities, suffered greater damage during and after the storm, and received more individual and public assistance. Table 3.1 shows the wide variation in funding received between the New Orleans MSA and the rest of the state, while Table 3.2 presents the summary statistics of minority and poverty percentage, percentage major damage as reported by HUD, and percentage of federal and state funding received by each parish.

Per capita funding received by residents outside the New Orleans MSA (i.e., mostly urban parishes) was less than half that received by residents inside the city. Additionally, within the New Orleans metropolitan statistical area there are slightly higher percentages of minorities and slightly lower percentages of poor residents (see Table 3.2). Housing damage was the greatest in New Orleans; the New Orleans MSA also received the most outside investment from federal and state-level programs.

Table 3.1 Per Capita Expenditures by State[a]

	FEMA Funds	State Funds	Per Capita
Suburban and rural parishes	$8,139B	$896M	$4,711.97
New Orleans metropolitan area	$6,546B	$6,271B	$11,553.53

[a] Through FY 2007

* The New Orleans MSA includes the following parishes: Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, and St. Tammany.

Table 3.2 Descriptive Statistics of Affected Parishes

	Minority Ratio (%)	Class Ratio (%)	Housing Damage (%)	FEMA IA Funds (out of 100%)	FEMA PA Funds (out of 100%)	Road Home Funds (out of 100%)	Rural–Urban Continuum Code
Ascension	22	12	16	0	0	0	0
East Baton Rouge	46	19	11	1	1	0	0
East Feliciana	46	22	17	0	0	0	0
Iberville	51	22	21	0	0	0	0
Jefferson	30	15	53	22	8	16	0
Lafayette	27	16	29	0	1	0	0
Livingston	6	13	22	0	0	0	0
Orleans	68	25	72	54	42	47	0
Plaquemines	29	16	80	2	8	2	0
Point Coupee	38	22	11	0	0	0	0
St. Bernard	12	17	81	7	24	12	0
St. Charles	29	13	50	1	1	0	0
St. Helena	53	22	45	0	0	0	0
St. John the Baptist	49	17	46	0	0	0	0
St. Tammany	13	11	71	8	11	0	0
Vermillion	17	19	39	0	0	1	0
West Baton Rouge	37	17	14	0	0	0	0
West Feliciana	51	21	9	0	0	0	0
Iberia	35	21	26	0	0	1	0

(Continued)

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Table 3.2 Descriptive Statistics of Affected Parishes (Continued)

	Minority Ratio (%)	Class Ratio (%)	Housing Damage (%)	FEMA IA Funds (out of 100%)	FEMA PA Funds (out of 100%)	Road Home Funds (out of 100%)	Rural–Urban Continuum Code
Acadia	20	22	25	0	0	0	0
Calcasieu	26	17	64	0	0	5	1
Cameron	5	14	90	0	0	1	1
Lafourche	17	16	29	0	1	0	1
Tangipahoa	30	23	44	1	1	1	1
Terrebonne	25	18	32	0	0	1	1
Allen	27	22	45	0	0	0	2
Evangeline	30	27	13	0	0	0	2
Sabine	25	19	16	0	0	0	2
St. James	50	17	35	0	0	0	2
Assumption	33	20	25	0	0	0	2
Beauregard	15	26	51	0	0	0	2
Jefferson Davis	19	19	50	0	0	0	2
St. Landry	43	27	16	0	0	0	2
St. Martin	33	20	15	0	0	0	1
St. Mary	36	22	24	0	0	9	2
Vernon	20	17	24	0	0	0	2
Washington	32	25	68	1	4	0	2

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Moving to the regression analysis results, the analysis proceeds with two models (see Table 3.3). The first model estimates the effects of the funding and damage variables, while the second model represents the estimates without these variables. This procedure was employed for two reasons. First, utilizing the clustered regression model allows us to group observations by parish or year, but not both. Therefore, once these variables were found to be nonsignificant in a number of iterations, it was determined that they should be dropped. Second, and more importantly, the variables measuring damage and funding received by parishes from FEMA or the Road Home program were recorded in 2006 due to an artifact in the data received from the government agencies from which the data were requested. Both reports showed the total numbers of dollars given, not the year or month in which these dollars were distributed. So in effect, these variables are artificially time bound due to data restrictions.

We can summarize the following trends in economic recovery post-Katrina throughout the affected parishes. First, in terms of economic recovery, the amount of job turnover in each parish, regardless of urbanity, is the most significant factor in determining robust recovery throughout the examined time period. Next, for suburban communities, both the percentage of African American residents and the number of residents employed with less than a high school education also dictated the strength of economic recovery. In urban areas, the average earnings of the black population had a significant and negative drag on economic recovery, and in the suburban areas, again education; in this case, higher numbers of those employed with just a high school diploma negatively impacted economic recovery. Interestingly, in rural parishes, none of the variables of interest, save job turnover, had significant effects in either model. The overall fit of the models for urban parishes was moderate, and although the R^2 values for the suburban parishes are high in the first model, we should interpret this with caution, as this particular category had very few observations for both clustered regression models.

DISCUSSION AND CONCLUSIONS

Hypothesis 1—whether high proportions of African Americans within a parish had a negative effect on the net new jobs created—was confirmed in the urban parishes under observation. In suburban parishes, however, economic recovery was also statistically affected by high percentages of African American residents, but only when the time-bound variables

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Table 3.3 Two Models of Urban, Suburban, and Rural Economic Recovery

	Model 1			Model 2		
	Urban	**Suburban**	**Rural**	**Urban**	**Suburban**	**Rural**
Percentage of job turnover	–1.086***	–0.943	–0.501	–0.783***	–0.927**	–0.719***
	(–0.1239)	(–0.3105)	(–0.6494)	(–0.0504)	(–0.0867)	(–0.0889)
Percentage of high school graduates	–0.0000169	–0.0053	–0.00159	0.000328	0.0000474	0.000722
	(–0.0009)	(–0.0097)	(–0.0017)	(–0.0004)	(–0.0013)	(–0.0005)
Percentage of African American non-Latinos	0.444	–0.732	0.0228	0.0997	–0.216**	–0.00134
	(–0.3643)	(–0.4659)	(–0.0949)	(–0.0918)	(–0.0174)	(–0.0413)
Percentage of residents under poverty level	–0.0133	–0.0287	–0.00369	–0.00233	0.000631	0.00171
	(–0.0103)	(–0.0259)	(–0.0074)	(–0.0022)	(–0.0028)	(–0.002)
Percentage of FEMA individual assistance	1.518	0	–28.01			
	(–1.5403)	(.)	(–24.4229)			
Percentage of FEMA public assistance	–3.563	0	0			
	(–3.6414)	(.)	(.)			
Percentage of Road Home assistance	–1.528	0	0.389			
	(–1.5374)	(.)	(–0.3664)			
Percentage of catastrophic housing damage	0.0129	0	0.0118			
	(–0.0106)	(.)	(–0.0059)			

(Continued)

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Table 3.3 Two Models of Urban, Suburban, and Rural Economic Recovery (Continued)

	Model 1			Model 2		
	Urban	**Suburban**	**Rural**	**Urban**	**Suburban**	**Rural**
Black new hire average earnings	–0.000191*	0.0000192	0.000209	–0.00000999	0.0000626	–0.000071
	(–0.0001)	0	(–0.0002)	0	0	0
Less than high school diploma average earnings	0.0000813	–0.00163*	–0.000301	0.00000983	0.0000865	0.0000171
	(–0.0001)	(–0.0004)	(–0.0003)	0	(–0.0001)	(–0.0001)
High school graduate average earnings	0.000087	0.00157*	0.0000911	–0.0000156	–0.000103	0.0000937
	(–0.0001)	(–0.0005)	(–0.0002)	0	(–0.0001)	(–0.0001)
Constant	0.16	1.443	0.198	0.0381	0.106	–0.0743
	(–0.0766)	(–1.5465)	(–0.2099)	(–0.029)	(–0.0772)	(–0.0548)
Number of clustered observations by rural continuum code	68	16	28	352	80	140
R-squared	0.414	0.774	0.228	0.231	0.253	0.179
Adjusted *R*-squared	0.299	0.576	–0.227	0.216	0.181	0.135

Note: Standard errors are below the coefficients in parentheses. All models estimated using clustered standard regression.
p values: *$p < .05$; **$p < .01$; ***$p < .001$

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measuring emergency management funds distributed and catastrophic housing damage were removed from the model. In terms of residents living under the poverty line, the analyses did not show a significant effect on net new job creation in any urban–rural continuum classification. Finally, regarding the fourth hypothesis, economic recovery when controlling for disaster assistance was not significant in any case.

Based on the findings just discussed, several conclusions are drawn. In New Orleans, race, rather than class, does appear to be related to new job creation postdisaster. In other words, larger African American populations appear to hinder disaster recovery, particularly in very urban places. Inside and outside the New Orleans metropolitan area, federal and state assistance dollars also had no statistical effect.

Overall, high poverty does not seem to affect job recovery postdisaster. However, it should be noted that once the sample was split, significances in terms of education level and average earnings based on race and education level reveal themselves. In all, it seemed that the disaster assistance sent throughout the state of Louisiana and to residents (and public agencies who qualified for public assistance) in New Orleans had no effect on the creation of new jobs. These dollars helped in other ways, but the impact of funding was not captured by the job recovery data tested here. Taken together, these findings suggest that racial diversity challenges economic recovery after a disaster more than poverty, but only in areas that have relatively less racial diversity overall (e.g., rural areas and less segregated metropolitan areas). In short, while postdisaster media coverage dramatically captured the plight of African American residents trapped in New Orleans, minorities in more isolated areas suffered greater damage in the long term.

There should be some discussion on why public assistance dollars appear to have had a larger impact on the economic fortunes of these places than state disaster programs did, as revealed in the state of Mississippi results. Public assistance dollars were funds directed at local governments, nongovernmental organizations (NGOs), quasi-public entities, school districts, and other units of government to repair infrastructure damaged after the hurricanes. Additionally, existing contracts, staff capacity, and expertise and organizational infrastructure may have aided these public organizations in promoting recovery. Additionally, these organizations and local government units receiving PA funds could have been directly responsible for job creation. Why this effect was not seen in Louisiana is a puzzle that should be explored in future research. There could have been additional policy-related factors or other unobserved variables that were at play in the economic fortunes of the state of Louisiana than are

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presented here. Additionally, future analyses that look at the quality of the job market prior to and following a natural disaster would be of interest to researchers interested in economic development postcrisis.

What can be learned from the analysis here? First, high concentrations of African Americans have depressing effects on job creation postdisaster in certain circumstances. Second, federal and state funding programs have very little effect on helping areas to recover quickly postdisaster unless they are targeted or include funding to organizations and governments as well as individuals. The mixed results of funding also imply that not enough money was spent on disaster recovery or it was not spent effectively. Or, they indicate that funding in general had a limited effect on job creation due to the fact that the path by which money was sent to local governments to spend on job creation was not linear. Local government units may not necessarily use money received postdisaster to create new positions; instead, they use it in other ways (i.e., to replace infrastructure or equipment, or to pay salaries of returning workers) not directly connected to new job creation. The private sector saw the most new job creation postdisaster, but in rural parishes, the longevity and quality of these jobs are difficult to ascertain due to data constraints.

Policy Implications

What does this mean for policy? In considering the use of federal funds, policy makers should consider the use of targeted funding for rural communities and focus on providing programs for the development of economies in these sparsely populated areas. Further, it suggests that policy makers and planners need to explicitly consider concentrated relief programs for minorities and those with less access to quality education in more remote communities. Stabilization of earnings and the quality of the job market both matter; therefore, once recovery efforts that are directed at reconstruction are complete, policy makers and local leaders should ask themselves what residents are doing to keep themselves gainfully employed postdisaster. Policy makers involved in the mitigation stage of emergency management planning should focus on individual job sectors and their vulnerabilities to recovery when disaster strikes. Additional focus on those industries that employ the most minorities in rural and urban areas should also be inventoried to better serve these sectors. Preparing emergency managers and policy makers at the local, state, and federal levels by making them aware of the critical need to focus effort in rural economic development is necessary to prepare better for future disasters.

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