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Social Science Research 35 (2006) 295–321
Social Science RESEARCH
www.elsevier.com/locate/ssresearch

Race, class, and Hurricane Katrina: Social differences in human responses to disaster

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Available online 24 April 2006

Abstract

Hurricane Katrina pounded the Gulf South at the end of August 2005, devastating lives and raising questions about how race and class influence human, as well as institutional, responses to disaster. This study uses survey data collected from over 1200 Hurricane Katrina survivors to examine these influences on a wide array of responses, ranging from evacuation timing and emotional support to housing and employment situations and plans to return to pre-storm communities. Results reveal strong racial and class differences, indicating that neither of these dimensions can be reduced to the other when seeking to understand responses by survivors themselves. This intersection renders low-income black home owners from New Orleans those most in need of targeted assistance as residents work to put themselves and the region back together.

Keywords: Racial and class stratification; Disasters; Evacuation and recovery

1. Introduction

The devastating and seemingly arbitrary nature of disasters such as Hurricane Katrina can reinforce the popular notion that such events are random in their social dimensions. After all, if the physical infrastructure of our communities cannot withstand such catastrophe, how can the social infrastructure that also gives them shape?

Countering this perspective is the view that natural disasters actually provide an ideal setting in which to examine core dimensions of social life. In fact, during the early days of disaster research, Merton (1969, xi) observed that, "sociological theory and research not

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0049-089X/$ - see front matter © 2006 Elsevier Inc. All rights reserved.
doi:10.1016/j.ssresearch.2006.02.003

only helps us to identify and to understand what goes on when disaster strikes but also, conversely, the investigation of these phenomena can extend sociological theories of human behavior and social organization." In this way, hurricanes and other calamities offer "strategic research sites" for sociological inquiry.

Within this scholarly vein, a growing body of research has begun to document how social identities and resources shape human responses to natural disasters (for reviews, see Drabek, 1986; Peacock et al., 1997). While diverse and relatively new, this literature, along with that emerging around issues of environmental justice, builds from the core premise that communities and regions are not homogeneous, unified systems but rather mosaics of overlapping subsystems cross-cut by social and economic inequalities. Within these subsystems, individuals and families make sense of the threats posed by environmental hazards and respond to them in ways reflective of varying social and economic resources at their disposal. The primary objective of this paper is to contribute to this line of research by examining the extent to which racial and class differences influenced human responses to Hurricane Katrina—the costliest natural disaster ever to hit the United States.

This inquiry is consistent with a core principle of contemporary social scientific research on disasters. This principle, outlined by Klinenberg (2002, 23–24) and tracing to classic observations by Mauss and Durkheim, is that extreme events such as Hurricane Katrina offer "an excessiveness which allows us better to perceive the facts than in those places where, although no less essential, they still remain small-scale and involuted" (Mauss, [1916]/1979). Our research focuses specifically on the "social facts" of racial and class differences in the Gulf South before and immediately following Hurricane Katrina.

2. Background

To set the stage, we begin with a brief history of the Gulf South and then review general hypotheses regarding racial and class differences in social opportunities and behavior. Following this background, we present and analyze data from a survey of over a thousand Katrina survivors administered roughly one month after the storm hit the Gulf coast.

2.1. The Gulf South: A peripheral history

As Elliott and Ionescu (2003) point out, the Gulf South region of Louisiana, Mississippi, and Alabama has long been demographically and economically subordinate to other parts of the country, including today's "new" New South. To appreciate the historical underpinnings of this peripheral status, it is useful to review the development of the US settlement system as a whole.

Broadly speaking, the collection of towns and cities that comprise the US settlement system, although long including southern port cities of Charleston, Mobile, and New Orleans, took root and spread principally from colonial cities in the Northeast, specifically Boston, Providence, New York, Philadelphia, and Baltimore. According to Eysberg (1989) this uneven geographic development resulted more from historical accident than from regional differences in raw materials and transportation options. Central to this "accident" was the British Crown's policy of encouraging migration of wealthy Anglicans—who, among other things, could afford slaves—to the southern colonies, while encouraging migration of religious refugees to northern colonies. This policy, rather than innate topographical differences, set into motion the development of two distinct socio-economic systems.

As port cities in the Northeast grew and developed their own entrepreneurial and industrial middle classes, they also began to attract middle-class immigrants, who tended to arrive in kinship groups that generated demand for urban goods and services, which in turn fueled the development of a new urban-based, capitalist economy. By contrast, the disproportionate settlement of British, French, and Spanish aristocrats in southern colonies during the same time period contributed to the development of a caste-like society there with an economy based almost entirely on agriculture (specifically cotton, sugar, and indigo), slave labor, and mercantilist exchange with Europe. As a result of these differences, urban centers in the South failed to develop strong entrepreneurial networks and remained largely confined to harbor areas such as New Orleans, Mobile, and Charleston.

This uneven geographic development became increasingly hierarchal during the middle to late 1800s, as the growth of transcontinental railroads not only connected southern agriculturalists with northern markets but also rendered them increasingly beholden to northern elites who controlled these railroads and markets. These uneven relations, in turn, helped to reduce the importance of the Mississippi River for trade with growing industrial centers in the Midwest, and made the South, especially the Deep South, economically dependent on northeastern cities, particularly New York, for commerce.

This peripheral status continued in large measure until the late 1960s, at which time "core" urban centers in the Northeast and Midwest began to deindustrialize, pushing millions of people away from pink slips and high heating bills toward booming metro areas in California, Texas, and Florida. These and more recent economic booms in Georgia and the Carolinas have since rendered southern cities such as Charlotte, Atlanta, Miami, Dallas, and Houston more prominent players in the US settlement system, while at the same time largely bypassing the Gulf South, where historic port cities such as New Orleans, Biloxi, and Mobile have experienced little demographic and economic growth by comparison (see Glasmeier and Leichencko, 2000).

These historic developments have coalesced to produce a peripheral region characterized by deep and complex relations of racial and class division. Because comparably few "outsiders" of either native or foreign birth have moved into this area during recent decades, these relations have been left to unfold largely of their own inertia, undisturbed by mass in-migration from other parts of the country and the world. These events mean that the region devastated by Hurricane Katrina is very different from say, San Francisco prior to the massive earthquake of 1989, or Miami prior to Hurricane Andrew of 1992, or Los Angeles prior to the brush fires of 1993, or Chicago prior to the heat wave of 1995. Within this context we examine general hypotheses regarding race, class and human responses to disaster.

2.2. Race, class, and disaster

Prior research leads us to expect that although residents of the Gulf South share a common region, their responses to Hurricane Katrina varied in non-random ways reflective of racial and class divisions that have taken root and grown in the area over time (for a review see Fothergill et al., 1999). In the present paper, we treat this expectation as a matter for empirical investigation. Focusing specifically on race and class, we ask which, if either, dimension of social life most differentiated human responses to Hurricane Katrina before and shortly after it hit the Gulf coast. Logically, the answer to this question can take one of three general forms: (1) class differences were more prominent than racial differences; (2)

racial differences were more prominent than class differences; or (3) neither dimension was more prominent. We review grounds for each hypothesis below.

2.2.1. Hypothesis 1: Class differences were more prominent than racial differences

For decades, social scientists have debated which is more salient for explaining observed inequalities in the US society: race or class? They have also wrestled with whether this "race versus class" framework is too simplistic for understanding the intricacies of social inequality, since race and class, while analytically distinct, constitute overlapping systems of social stratification that remain experientially entangled and causally circular. Our position is that both approaches—the analytically simple and the theoretically cautious—are useful: the first for identifying basic patterns of variation; the second for interpreting them.

From this starting point, perhaps the most influential work in the "race–class" debate is Wilson's (1978) *The Declining Significance of Race*. In this work Wilson argues that by the 1970s blacks' status in the US society had become largely a function of economic resources rather than race and racism, as in the past. This historic shift, Wilson contends, derived from a number of social and political developments (declines in white bigotry, the Civil Rights Act, affirmative action), which now allow growing numbers of blacks to pursue and attain professional, middle-class status. The catch, Wilson points out, is that as this change has occurred, it has also produced the unintended consequence of a poor black "underclass," which has become socially and culturally isolated from mainstream society as jobs, taxes, and upwardly mobile blacks have left historically black ghettos. The plight of this new "underclass," Wilson argues, is not a contemporaneous function of racial antipathy but rather a function of concentrated poverty that operates through a host of non-racialized mechanisms, from under-funded school districts, to ineffective job networks, to inappropriate role models.

Although Wilson's thesis has generated much debate and complex analyses, the analytical implication is straightforward. In research that Wilson calls "the best contribution to the race–class debate in the past two decades," Conley (1999, 7, 23) explains that, "It is not race per se that matters directly; instead, what matters are wealth levels and class positions that are associated with race in America," and "It just happens that the class structure overlays very well onto skin color, which is a lot more visible than someone's investment portfolio." To support this claim, Conley analyzed longitudinal data from the Panel Study of Income Dynamics. He found that after statistically controlling for class differences in family background, racial differences on a wide array of social indicators—from educational attainment to employment outcomes to welfare dependence—actually "disappeared," that is, they became statistically negligible, leaving class standing as the more salient, or direct, cause of observed differences and inequalities.

This "class-trumps-race" perspective also appears in recent research on hurricane response. For example, in their study of Hurricane Andrew, which hit the Miami area in 1992, Peacock and Girard (1997, 173) explain that, "Minorities, particularly Black households, are disproportionately located in poor-quality housing segregated into low-valued neighborhoods. This segregation creates *communities of fate* (Logan and Molotch, 1987; Stinchcombe, 1965) that can take on added salience in a disaster context." The authors go on to explain that, "Race and ethnicity are linked to housing quality—not because of ethnically based cultural variations in housing preferences … but because race and ethnicity are still important determinants of economic resources, such as income and credit, critical for obtaining housing." Similarly Gladwin and Peacock (1997, 66) contend that, when

faced with hurricane warnings, "Ethnic minorities are less likely to evacuate than Anglos … probably as a result of economic conditions rather than race or ethnicity per se." In other words race "matters" but through more proximate, or direct, factors associated with class resources.

This perspective is echoed in Molotch's (2005) commentary on events immediately following Hurricane Katrina. Answering his own opening question, "Would so many white people struggling for life be ignored for so long?" Molotch writes that, "Racism explains some of what went on, but its route was indirect." Raising several possibilities, Molotch explains that, "One of the race-based explanations is that those left behind are consistently the most deprived. The legacy of slavery, exclusion, and segregation corrals those with least resources into a vulnerable space, natural, and economic."

Commenting on the same events in the wake of Hurricane Katrina, Reed (2005, 31), a political scientist, put matters more bluntly. "Granted, the images projected … seemed to cry out a stark statement of racial inequality. But that's partly because in the contemporary US, race is the most familiar language of inequality or injustice. It's what we see partly because it's what we're accustomed to seeing, what we look for." Reed (2005, 31) goes on to assert that,

> [C]lass—as income, wealth, and access to material resources, including a safety net of social connections—was certainly a better predictor than race of who evacuated [New Orleans] before the hurricane, who was able to survive the storm itself, who was warehoused in the Superdome or convention center or stuck without food and water on the parched overpasses, who is marooned in Houston or elsewhere, and whose interests will be factored into the reconstruction of the city, who will be able to return.

Reed and others from this perspective are not arguing that racial differences are inconsequential to human behavior and outcomes, even in times of natural disaster. Instead, they are asserting that what *look* like racial differences are more fundamentally class differences that are difficult to see without informed analysis. Supporting this perspective is the reality that thousands of working-class whites in St. Bernard Parish also suffered terribly from Hurricane Katrina. However, sparse settlement, difficult surface access, and imposition of a military no-fly zone helped to render their plight less visible to national media following the storm, thereby magnifying *apparent* racial divisions in human response to the storm and its immediate aftermath.

2.2.2. Hypothesis 2: Racial differences were more prominent than class differences

Critics of the "class" perspective contend that although economic resources certainly influence individual opportunities and outcomes, racial differences persist and shape how people organize, interpret, and respond to opportunities and outcomes around them. From this perspective, emphasis falls less on material differences among individuals and more on distinctive affiliations, institutions, and world views that inform modes of thinking and knowing and doing. We might call this influence loosely "culture."

In writing about the role of culture in human response to natural disaster, Erikson (1976) explains that in addition to shaping how people think, act and feel, culture influences what people will *imagine*, and one of the persistent curiosities of human life is that the same mind that imagines a cultural form also tends to imagine (i.e., "creates") its opposite. "Thus," Erikson (1976, 82) asserts, "the idea and its counterpart become natural

partners in the cultural order of things, setting up … an *axis of variation* that cuts through the center of a culture's space and draws attention to the diversities arrayed along it." In this way, Erikson (1976, 82) explains, "the term 'culture' refers not only to the customary ways in which a people induce conformity in behavior and outlook but the customary ways in which they organize diversity."

In US society, especially the Deep South, few "axes of variation" are as salient as racial identities, especially those contrasting white from black. Research continues to show that while white bigotry and overt discrimination may be on the decline, close friendships, neighborhoods, churches, and social clubs remain highly segregated by race (for a review at the national level, see Anderson and Massey, 2001). These divisions are important for understanding human response to natural disasters because people respond to disasters not as isolated individuals but as members of these overlapping forms of social affiliation, which interpret, affirm and support particular definitions and responses to the situation. Moreover, research shows that these social units, particularly the family, are not restricted to local life but also influence extra-local networks called upon in times of crisis. Morrow (1997, 143), for example, likens the family unit in times of disaster to "an octopus extending its tentacles outward to connect with other social units." She also explains that whether these tentacles are called "social webs" (Drabek et al., 1975), "defenses in depth" (Hill and Hansen, 1962), or "institutional and kinship embeddedness" (Bolin, 1982), they remain critical for determining human perception and response to natural disasters. They also remain racially divided and thus potentially differentiating in their operation and effects.

One example of this difference lies in how blacks and whites understand race itself. Research has long shown that blacks think and talk about race much more often than whites, in part because whites have difficulty recognizing the privilege that their skin color generally affords them in the US society (see Brown et al., 2003). Moreover, blacks of high class standing often maintain a higher level of distrust of mainstream institutions than their white or even low-income, black counterparts. Cose (1995), for example, details how black professionals, despite their class standing, are commonly frustrated and enraged by racism in contemporary America. From this perspective, it is unsurprising that Kanye West, a wealthy pop star, who also happens to be black, seized the opportunity during a televised fund raiser for Hurricane Katrina victims to proclaim to the nation that, "[President] George Bush doesn't like black people."

For our purposes, the veracity of West's claim is unimportant. What matters is the fact that even if racial hatred ceases, persistent social patterns can endure over time, affecting whom we marry, where we live, what we believe, and so forth. These patterns, in turn, bind racial subgroups across class lines, helping to forge common responses to life events, including natural disasters, in ways that differ from racial "others" in the same region. From this perspective, "communities of fate" are bound as much by racial experiences and affiliations as by common material resources. This is not to say that class differences are unimportant, but rather that in times of crisis, class differences are likely to shrink and racial differences expand as individuals define, interpret and respond to the situation before them.

2.2.3. Hypothesis 3: Class and racial differences were equally prominent

A final possibility is that racial and class differences mattered equally in short-term responses to Hurricane Katrina either because neither mattered or because both mattered to more or less the same degree. The first possibility will serve as our null hypothesis. The

second can be interpreted as providing weak support to the "race" perspective, since the "class" perspective asserts that economic differences are more proximate, or direct, determinants of human response than racial differences. Thus, if both factors appear to be equally influential, this would suggest that race matters *in addition* to class, not because of strong correlation between the two.

2.3. Issues of environmental justice

During recent years this "race–class" debate has become particularly acute in the emergent literature on environmental justice. In this literature, researchers begin with the common and well-documented observation that low-income minority communities bear a disproportionate share of environmental hazards in our society, particularly when it comes to the siting of toxic facilities (e.g., Bryant and Mohai, 1992; Bullard, 1990; Szasz, 1993). They then proceed to disagree over the primary cause of these patterns. On the "race" side of the debate, scholars who charge "environmental racism" contend that industry and government officials locate environmental hazards in low-income, minority communities because these communities lack the social, political, and economic power to resist such treatment. On the "class" side of the debate, scholars counter that low-income minority communities often emerge and solidify around environmental hazards because property values are lower and opportunities for homeownership greater than in other parts of town (e.g., Been, 1994; Been and Gupta, 1997). Under the first scenario, the key mechanism is racial discrimination in siting; under the second scenario, it is economic inequalities and market pressures that encourage "minority move-in" (Pastor et al., 2001).

In the Gulf South, researchers have documented ample evidence of both processes in the siting and development of toxic facilities (see Roberts and Toffolon-Weiss, 2001). However, as Hurricane Katrina attests, these are not the only environmental hazards in the region. In addition to polluting industries and toxic landfills, the region has long been spatially uneven with respect to elevation and flood protection, especially in and around the city of New Orleans. This unevenness, however, has never neatly conformed to racial or economic lines.

During the early 1900s, for example, the development and proliferation of new pumping stations allowed developers to drain and build new communities in New Orleans' traditional "low-land swamps" at the historic rear of the city, where significant African-American neighborhoods subsequently grew and solidified despite high vulnerability to flooding and levee failure. The same system of environmental modifications also enabled middle-class whites to expand toward the city's northern lakefront, where they used restrictive covenants to block African-Americans from the newly drained but still low-lying, and thus vulnerable, subdivisions abutting Lake Pontchartrain. Similar modifications later facilitated residential expansion into St. Bernard Parish, where working-class whites have since developed a strong and lasting attachment to land that remains largely below sea-level and compromised environmentally by the Mississippi River-Gulf Outlet (a.k.a. "Mr. Go"), a 76 mile navigational channel cut through local wetlands to permit large-hulled ships that now rarely traverse it.

These historic and geographic developments mean that exposure to the environmental hazards of hurricanes and flooding, while geographically uneven throughout the region (see Logan, 2006), are not race- or class-exclusive. Large numbers of affluent and working-class whites and blacks all lost homes, jobs and community when Hurricane Katrina hit

and the levees failed. To assess their responses to this disaster, and the extent to which race and class differentiated these responses, we now turn to the data.

3. Data

When Hurricane Katrina struck the Gulf Coast on August 29, 2005 with winds of 145 miles/hour, it damaged an estimated 90,000 square miles of housing throughout southern Louisiana, Mississippi, and Alabama. After the storm passed, news sources placed the total number of evacuees, or "internally displaced persons," at approximately one million, with nearly half coming from the city of New Orleans, which remained under full mandatory evacuation for weeks following the storm due to failed levee systems and subsequent flooding. The US Federal Emergency Management Agency (FEMA) has since reported that 1.36 million people filed for federal assistance as a direct result of the hurricane.

In the US history, there are no precedents for this degree of sudden devastation and outmigration from a major urban region. The Galveston Hurricane of 1900 killed an estimated 10,000 residents—the highest total of any US natural disaster—but the spatial impact remained highly localized. The Great Mississippi Flood of 1927 displaced nearly 500,000 persons, but it did not demolish a major city, instead ravaging wide, often disconnected swaths of rural hinterland. Other contenders—the 1906 San Francisco earthquake, which displaced 200,000 residents, and the 1871 Chicago fire, which displaced 100,000 residents—were catastrophic in their own rights, but neither resulted in near complete evacuation of their local populations, nor did they send so many people to so many places for relief. Two weeks after Hurricane Katrina struck the Gulf Coast, the American Red Cross reported operating 707 temporary shelters for Katrina evacuees in 24 states and the District of Columbia.

Ideally, data for examining the influences of race and class on human responses to this disaster would include residents from communities throughout the affected region. A survey conducted by the Gallup Organization offers such a source. Roughly one month after the storm, Gallup teamed with the American Red Cross to conduct a telephone survey of 1510 randomly selected Hurricane Katrina survivors, ages 18 and over (Gallup Poll #2005-45). This sample was drawn from a database of over 460,000 Katrina survivors who sought assistance from the American Red Cross as a result of the storm. With the aid of affiliate charitable organizations, this assistance took many forms: food and water, temporary housing, medical screening, mental health services, legal assistance, postal change of address, unemployment and social security filings, FEMA registration, and "additional support," including survivor registration and family reunification services, which could be engaged on-line and by phone, as well as in person.

Methodologically, Gallup took several steps to ensure the representativeness of its sample. First, it conducted a pilot survey to determine the usefulness of the Red Cross lists for contacting survivors and for assessing the responsiveness of those contacted. Next, using results from this pilot survey, Gallup refined its survey administration in several ways. First, for sampled survivors lacking phone numbers, it conducted reverse number searches on the addresses provided. Second, for sampled survivors who could not be reached at their reported phone numbers, interviewers sought updated contact information, including cell phone numbers. Third, Gallup extended its field period to ten days to include up to nine contact attempts (September 30–October 9), increasing its final response rate to over 90%. Upon completion, no geographic or other weighting corrections were deemed necessary by the survey's primary investigators.

The resulting data set is the best available for our purposes, but it is not without potential bias when trying to generalize from the Red Cross population to the population of the entire affected region. For example, all else equal, one might expect wealthier survivors to have been less likely to register with the Red Cross than poorer survivors, given their greater personal resources and the stigma attached to receipt of charitable assistance among those who could afford to help themselves. However, a couple of factors help to minimize this bias. First, survivors registered with the Red Cross not just for material assistance but also to alert friends and family of their safety and whereabouts during a time when regional telecommunications were crippled. In this sense, everyone was affected by the storm and in need of some sort of assistance. Second, many survivors registered with the Red Cross not to obtain help, but to give it, and in so doing, were asked to register with the local chapter if they were from the affected region. (The authors fall into both of these categories.) The end result is that some bias may be present in generalizing to the entire survivor population, but this bias is likely to be smaller and less systematic than might otherwise be expected.

To gauge this assumption empirically, we compared race, gender, age, homeownership, and income distributions for Gallup respondents from the City of New Orleans with data available for the City of New Orleans in the 2000 census. We chose this spatial comparison because it provided more reliable spatial boundaries and estimates than comparisons made across the entire affected region. Results (not shown) suggest that the Gallup survey oversampled women in the affected region by a rate of roughly 5% and oversampled blacks, non-senior citizens, and non-homeowners by roughly 15%. Results also indicate that the average household income among respondents in the Gallup survey is approximately 14% lower than that recorded by the 2000 census. These comparisons suggest that minorities and less affluent residents were indeed more likely to be sampled by the Gallup survey than whites and more affluent residents. However, they also indicate that this bias is not extreme and that the sheer number and diversity of respondents in the Gallup survey is sufficient to estimate accurately basic social differences in human responses to the storm. The fact that we statistically control for many of these differences in our regression analyses further minimizes this bias, leaving us with conservative estimates of race and class differences among residents of the affected region (see Winship and Radbill, 1994).

3.1. Sample and measures

Because survey subsamples for Asians, Latinos, and racial "others" are relatively small ($n = 26$, 65, and 41, respectively), we focus exclusively on differences between blacks and non-Hispanic whites who reported valid data for measures of class standing (see below). The latter restriction reduced our sample of white and black respondents by 5%, yielding a working sample of 1294 survivors.

3.1.1. Evacuation timing

The Gallup survey reports evacuation timing in four categories: before, during and after Katrina, and not all. We collapse "during" and "after" responses because "during" was not a verbal option provided by interviewers and because only 3% of our sample provided this response. Moreover, the protracted nature of the disaster makes it difficult to determine if respondents who volunteered "during" were referring to the hurricane itself, or to the flooding and disarray that followed. None of the sampled respondents refused or did not know their evacuation timing.

3.1.2. Short-term recovery: Housing and employment

To assess recovery one month after the storm, we focus on two fundamental dimensions: housing and employment. To measure the housing dimension, we create a three-category variable from the question, "which of the following best describes where you are *currently* living?" (original emphasis). The three categories include: (a) living in the same home as before Katrina; (b) living in someone else's home; or (c) living in a post-storm rental property, hotel/motel, or emergency shelter.

Gallup restricted questions about employment to respondents who were actively employed at the time Hurricane Katrina hit. Again, we create a three-category variable, this time from the question, "Which best describes your *current* employment situation?" (original emphasis). The three categories include: (a) employed in the same job as before the storm; (b) employed in a different job; or (c) now jobless. Of the 907 respondents employed at the time of Katrina (70% of our full sample), only 7, or less than 1%, refused to answer this question.

3.1.3. Post-disaster coping: Stress and emotional supports

By all accounts, disasters create stress. In this study, we examine three indicators that tap current (at the time of the survey), short-term and long-term stress among individuals. Our indicator of "current stress" is a composite score derived from the following three-part question, "As a result of Hurricane Katrina, to what extent are you *currently* experiencing each of the following: (a) trouble sleeping, (b) feelings of anxiety, and (c) feelings of depression?" Answers to each part are scaled from 0 (none) to 4 (a great deal), summed, and divided by three to preserve the original range of 0–4. (Cronbach's α for this multi-item indicator is 0.79.) Our indicator of "short-term stress" derives from the close-ended question, "Now, looking ahead, how worried are you about what will happen to you in the next *few months*?" (emphasis in the original). Similarly, our indicator of "long-term stress" derives from the question, "How worried are you about what will happen to you in the *next five years*?" (emphasis in the original). Each of these two indicators is coded from 0 (not worried at all) to 3 (very worried) and analyzed separately to gain insight in the temporal nature of stress experienced by those affected by Hurricane Katrina.

To assess whom respondents turned for emotional support after the hurricane, we draw from open-ended responses to the question, "what, if anything, has helped you to get through this difficult emotional time?" Respondents could provide up to three open-ended responses, which we code into four binary variables (0 = no; 1 = yes): (a) personal faith and/or prayer; (b) family and/or friends; (c) neighbors and/or other community ties; and (d) formal organizations, public or private. Formal organizations include FEMA, the Red Cross, and other charitable organizations, and again, the key issue is emotional, not material, support.

3.1.4. Likelihood of return

Finally, to assess the likelihood of return to pre-Katrina communities, we construct an indicator for respondents who had not yet returned home to live by the time of the survey (48% of our sample). This indicator comes from the question, "As of now, which best describes your plans for the future?" Responses are coded as follows: (0) "definitely will not return;" (1) "probably will not return;" (2) "don't know or unsure;" (3) "probably will return;" or (4) "definitely will return."

3.1.5. Independent variables

Our chief independent variables of interest are race and class resources. For reasons stated above, we restrict our racial comparisons to blacks and whites, using a simple binary indicator for self-reported traits (0 = white; 1 = black). To measure class resources, we use two indicators: self-reported household income and home ownership. The first comes from the question, "What was your total annual household income in 2004 before taxes?" The survey provided a choice of eight categorical responses, ranging from "less than $10,000" to "$100,000 and over." Consistent with past research on disaster response, we assigned each respondent to their categorical midpoint (Hurlbert et al., 2000). So, for example, we assigned a respondent reporting the bottom interval of "less than $10,000" to a value of $5000. Those reporting the top category were assigned a value of $112,250, reflecting half of the $25,000-interval used for incomes over $50,000. Although specific values would be preferable to such midpoint estimation, they are unavailable in the Gallup survey. Comparisons of this measure against interval-specific dummy variables in our regression analyses indicate robust fit, which improves when we take the natural log of the midpoint values. For this reason and because, relatively speaking, absolute differences in income matter less at higher levels, we use the logged values of income midpoints in our analyses.

Our second indicator of class resources is a binary indicator of home ownership (0 = no; 1 = yes). We include this measure because class standing is about assets as well as income and because housing represents the single largest investment, or financial asset, for most Americans. Moreover, prior research shows that home ownership influences human responses to hurricanes, regardless of household income (Morrow, 1997). By including this indicator in our analyses, we can assess the generalizability of these prior findings, while simultaneously testing the relative importance of home ownership versus household income for predicting variation in human response to disaster. In our sample, 57% of survivors report owning their own homes and the correlation between this indicator and our measure of household income is 0.33, supporting the contention that these two indicators of class resources, while correlated, measure distinct aspects of social class for the purposes of our study. Additional indicators of class standing, such as educational attainment and occupational status, were unavailable in the Gallup survey.

3.1.6. Control variables

To help isolate the independent effects of race and class on human responses to Hurricane Katrina, we include the following statistical controls in our regression models, following prior research: gender (0 = female; 1 = male); age (measured in years); and parental status (1 = "personally has a child under age 18;" 0 = otherwise). Where appropriate we also statistically control for the condition of respondents' homes (1 = completely destroyed and/or unlivable; 0 = otherwise) because this condition can affect individuals' relative ability to return home as well as their psychological states. Data show that roughly one-third of survivors in our sample had homes that were completely destroyed or otherwise unlivable one month after the storm. For means and correlations of these and all other variables in our analysis, see Tables 1 and 2.

4. Results

To test general hypotheses regarding racial and class differences in human responses to Hurricane Katrina, we use logistic and ordinary least squares regression to estimate the

Table 1
Descriptions and distributions for variables, by pre-Katrina residence

Variables	Description		City of New Orleans	Other areas
Evacuation timing	"Did you evacuate your house or apartment *before* Hurricane Katrina hit your local area, *after* it hit, or did you not evacuate your house or apartment at any time?"	Yes, before	70.4%	65.8
		Yes, during/after	25.4	14.8
		No, did not evacuate	4.2	19.4
		N	331	963
Short-term recovery				
Housing	"Thinking about your current situation, which of the following best describes where you are currently living ____, or are you living somewhere else?	Same home	5.0%	67.3
		Other's home	41.9	18.4
		Rental/hotel/shelter	53.1	14.3
		N	322	957
Employment	"Which best describes your *current* employment situation?" (Asked only of those employed at time of Katrina)	Same Job	25.9%	68.2
		Different job	5.4	8.0
		No job	68.6	23.8
		N	239	661
Stress-related responses				
Current stress	At time of survey: "Trouble with sleeping?" "Feelings of anxiety?" "Feelings of depression?" (0 = "none" to 4 = "a great deal")	Mean	2.69	2.24
		N	326	946
Short-term worry	"Now looking ahead, how worried are you about what will happen to you in the next few months?"	Mean	2.21	1.77
		N	330	961
Long-term worry	"…five years?" (0 = "not worried at all" to 3 = "very worried")	Mean	1.70	1.65
		N	321	948
Post-disaster emotional supports	"What if anything has helped you get through this difficult emotional time?" (Up to three open-ended responses recoded as 1 = yes, or 0 = not mentioned)	Family/friends	39.3%	44.2
		Religious faith	31.4	26.2
		Neighbors/ community ties	19.0	16.5
		Formal organizations	5.1	6.4
		N	331	963
Plans to return	"As of now, which best describes your plans for the future?" (0 = "definitely won't return" to 4 = "definitely will return") Analyzed only for those not already back	Mean	2.18	2.50
		N	315	963
Independent variables		Means		
Race	1 = black; 0 = white		.88	.48
Household income	Natural log of midpoints (in logged $): <$10,000; $10,000–19,999; $20,000–29,999; $30,000–39,999; $40,000–49,999; $50,000–74,999; $75–99,999; $100,000+		9.99	10.09
Homeownership	1 = yes; 0 = no		.38	.48
Gender	1 = male; 0 = female		.43	.38
Age	In years		41.9	42.9
Parenthood	1 = personally has child under 18 years of age; 0 = otherwise		.46	.55

Table 1 (*continued*)

Variables	Description	City of New Orleans	Other areas
Housing condition	1 = pre-Katrina housing destroyed or currently unlivable; 0 = otherwise	.63	.22
Jobless	1 = no job; 0 = has job	.77	.48
Already back	Already back in pre-Katrina home (1 = yes; 0 = no)	.05	.68
	N	331	963

Table 2
Correlation matrix for independent variables[a]

	1	2	3	4	5	6	7	8
1 Black	—	−.348*	−.223*	−.038	−.110*	.184*	.005	.080*
2 ln (income)	−.233*	—	.315*	.112*	−.024	.037	.025	−.281*
3 Homeowner	−.036	.344*	—	.046	.331*	−.147*	−.128*	−.117*
4 Male	−.018	.190*	.009	—	.047	−.005	−.020	−.078*
5 Age	.070	.194*	.296*	−.019	—	−.456*	−.067*	.178*
6 Parenthood	.135*	−.134*	−.163*	−.090	−.339*	—	−.008	−.174*
7 Housing destroyed	.120*	.047	.066	−.026	−.014	.021	—	.206*
8 Jobless	.264*	−.267*	−.174*	−.088	.036	.105	.050	—

[a] Correlations for respondents from the City of New Orleans below the diagonal; correlations for respondents from other affected areas above the diagonal.
* $p < .05$.

effects statistically attributable to indicators of each. Because the City of New Orleans experienced not just the immediate wind and rain brought by Hurricane Katrina but also the after-affects of levee failure that subsequently flooded 80% of its land mass, events inside and outside the city differed markedly. For this reason, we estimate our models of evacuation timing and current housing and job statuses separately for respondents from the City of New Orleans ($n = 331$) and for respondents from outside the city ($n = 963$). Thereafter for models of stress, sources of emotional support, and likelihood of return, we pool all respondents and include a dummy indicator of city residence for theoretical reasons discussed below.

4.1. Evacuation timing

Perry et al. (1980, 151) assert that three factors are critical for deciding whether to evacuate in the face of a hurricane: (1) "definition of the threat as real …, (2) level of perceived personal risk …, and (3) presence of an adaptive plan." Researchers have since shown that while perceived risk and prior planning are important, other factors also shape evacuation decisions, such as economic resources and the social milieu in which individuals and families make sense of the options before them (see Drabek, 1986; Peacock et al., 1997). Here, we focus on timing of evacuation.

Descriptive statistics in Table 1 confirm that the vast majority of residents in the affected region evacuated before the storm and that this response was actually more common in the City of New Orleans than outside it (70% compared with 66%). Consistent with subsequent levee failures, results also indicate that 96% of New Orleanians eventually left their homes, compared with only 80% of survivors residing outside the city. To assess the extent

to which this behavior varied by race and class, we estimated a multinomial regression model for each geographic population.

Results appear in Table 3 and reveal strong racial, but not class, differences in evacuation timing outside New Orleans. Taking the inverse log of 0.45 indicates that, net of other factors, blacks outside the city were 1.5 times more likely than similar whites to evacuate after, rather than before, the storm. Within the city, there were also strong racial differences, but these were restricted largely to a small subpopulation that reported never leaving the area—a subpopulation comprised almost entirely of African-Americans. Beyond this small group (less than 5% of the city's sample, see Table 1), household income played a strong and consistent role in predicting evacuation timing from the city. Appropriate calculations show that independent of other factors, New Orleanians with household incomes in the $40,000–50,000 range were nearly twice as likely as those in the $10,000–20,000 range to evacuate before, as opposed to after, the storm. This class difference climbs to nearly threefold when predicting odds of not evacuating the city at all.

Overall, these findings support both the race and class hypotheses and confirm that it was specifically low-income blacks, not blacks or low-income folks generally, who were most likely to remain in New Orleans through the disaster. Media accounts have offered numerous explanations for this type of response: inadequate personal transportation; limited spatial networks; lack of hotel reservations; and desire to remain in the city to collect government checks dispensed at the end of the month. Follow-up questions in the Gallup

Table 3
Multinomial regression coefficients predicting evacuation timing (with standard errors), by pre-Katrina residence

	"When did you evacuate your home?"			
	City of New Orleans		Other areas	
	During/after storm vs. before	Not at all vs. before	During/after storm vs. before	Not at all vs. before
Black	.477	19.727***	.450*	.222
	(.490)	(3.319)	(.207)	(.183)
ln (income)	−.526**	−.966**	−.070	−.197
	(.169)	(.364)	(.125)	(.111)
Homeowner	−.370	.970	−.186	.397
	(.316)	(.641)	(.215)	(.206)
Controls				
Male	.650*	1.068	.243	.474**
	(.277)	(.599)	(.193)	(.172)
Age	−.003	−.033	.002	.013
	(.022)	(.022)	(.007)	(.006)
Parent	.213	.399	.219	−.007
	(.287)	(.608)	(.217)	(.196)
Intercept	3.629*	−12.777	−1.263	−0.372
	(1.748)	(⋯)	(1.322)	(1.188)
N	330		962	
LR χ^2 (df)	38.84 (12)		36.24 (12)	
Pseudo R^2	.08		.02	

* $p < .05$.
** $p < .01$.
*** $p < .001$.

survey indicate that the most common reason that New Orleanians gave for not evacuating prior to the storm was that they did not believe the hurricane would be as bad as it eventually was (49%)—more than double the share reporting that they were too poor or lacked the necessary transportation to leave (21%). Further analysis (not shown) indicates that this disbelief did not vary by race or class within the City of New Orleans, which suggests that income played a key role in predicting not only who left prior to the storm but also who was able to leave during and after the storm hit: wealthier stragglers eventually left the city under their own power, often from unflooded parts of town; poorer stragglers awaited help that was slow in coming to their deeply flooded districts.

4.2. Short-term recovery: Housing and employment

Regardless of how and when residents evacuated, they need to recover, and housing and employment are critical to this process. Table 1 indicates that city residence plays a key role in both dimensions of recovery. Beginning with housing, results show that one month after the storm, only 5% of New Orleanians reported being back in their own homes, compared with two-thirds of non-city residents. Among remaining New Orleanians, most reported living in an apartment, hotel or temporary shelter (53%) or in someone else's home (42%). To determine if racial and class differences influenced these housing arrangements, we again estimated a multinomial regression model separately for those from inside and outside the city of New Orleans. For each model, in addition to our usual control variables (gender, age, and parenthood), we add a binary control for whether the respondent's home was destroyed or otherwise unlivable (1 = yes; 0 = no), since this circumstance likely affects individual motivation and ability to return to pre-storm housing and work arrangements.

Results appear in Table 4 and indicate that home ownership plays a strong and consistent role in predicting respondents' housing situation a month after the storm. Outside the City of New Orleans, renters and boarders were 3.5 times more likely than homeowners to report living in someone else's home and 2.9 times more likely to report living in an apartment, hotel or other temporary shelter (inverse log of 1.244 and 1.072, respectively). But for New Orleanians, these differences are more stark, with renters and boarders 6.8 times more likely to be in someone else's home and 7.9 times more likely to be in some sort of post-storm rental. Results also indicate that the latter odds—most notably hotel and apartment rental—were higher among wealthier than poorer New Orleanians, that is, among those who could more readily afford market alternatives. This finding is consistent with prior research, which has found that "the lower the social class of the family, the greater the tendency to evacuate to homes of relatives" (Drabek and Boggs, 1968, 447; see also Morrow, 1997).

Supplemental analyses (not shown) indicate that 75% of all homeowners who reported their properties as "damaged but still livable" had already returned to them one month after the storm. Among renters, the same return rate was less than 25%. This lower rate may reflect not only lower attachment to place among renters and boarders but also less power over decisions about whether to re-enter and/or re-develop damaged properties. Landlords, for example, may be reluctant to readmit renters for a variety of reasons, including a fear of lawsuits involving unsafe conditions, a lack of capital and/or labor needed to repair damaged units, a desire to break leases and re-rent at higher rates in a high-demand market, and/or plans to demolish and rebuild alternative housing on the same space.

Of course, employment dynamics will also affect people's return to pre-storm communities. Here again descriptive statistics in Table 1 show stark differences by city residence.

Table 4
Multinomial regression coefficients predicting current housing situation (with standard errors), by pre-Katrina residence

	"Which best describes where you are currently living?"			
	City of New Orleans		Other areas	
	Other's home vs. own home	Rental/shelter vs. own home	Other's home vs. own home	Rental/shelter vs. own home
Black	.077	1.238	.220	.412
	(.789)	(.820)	(.242)	(.258)
ln (income)	.591	.795*	.053	.326*
	(.362)	(.364)	(.145)	(.158)
Homeowner	−1.915**	−2.065**	−1.244***	−1.072*
	(.656)	(.659)	(.250)	(.265)
Controls				
Male	−.175	−.503	−.034	.053
	(.570)	(.572)	(.226)	(.240)
Age	.003	−.015	−.003	−.029**
	(.021)	(.021)	(.009)	(.010)
Parent	−.369	−.291	−.017	−.096
	(.609)	(.609)	(.248)	(.258)
Home destroyed	2.076**	2.276**	4.377***	4.352***
	(.687)	(.686)	(.322)	(.335)
Intercept	−3.444	−5.465	−1.998	−4.151
	(3.484)	(3.522)	(1.534)	(1.673)
N	321		956	
LR χ^2 (df)	42.76 (14)		502.68 (14)	
Pseudo R^2	.08		.31	

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Among New Orleanians who were employed at the time of the storm, only a quarter report having the same job one month later, compared with over two-thirds of respondents from outside the city. To assess the role of race and class in this outcome, we again estimated a multinomial regression model, controlling for age, gender and parenthood, in addition to the condition of respondents' pre-Katrina homes (1 = inhabitable; 0 = uninhabitable).

Results appear in Table 5 and again show that among workers from outside New Orleans, renters faced greater disadvantage than homeowners. Net of other factors, renters were 1.9 times more likely than homeowners to report having lost their jobs by the time of the survey, although some had since secured alternative employment. Within the city, where home ownership rates are generally lower, this indicator of class resources mattered little for post-storm employment outcomes. Instead, the chief factors were race and income. Specifically, results show that, all else equal, black workers from New Orleans were 3.8 times more likely to report having lost their pre-Katrina jobs than white workers. Moreover, if these same black workers had a household income of $10,000–20,000, they were nearly twice as likely to have lost their jobs as black workers from household incomes of $40,000–50,000. In other words, as prior labor market research has repeatedly documented, low-income blacks specifically—not blacks or low-income workers generally—have the most tenuous hold on their jobs, leaving them highly vulnerable to joblessness in

Table 5
Multinomial regression coefficients predicting current employment situation (with standard errors), by pre-Katrina residence

	"Which best describes your current employment situation?" (Asked only of respondents employed when Hurricane Katrina hit)			
	City of New Orleans		Other areas	
	Different job vs. same job	Lost job vs. same job	Different job vs. same job	Lost job vs. same job
Black	.130	1.336**	−.317	.211
	(.769)	(.450)	(.339)	(.230)
ln (income)	−.165	−.539*	.319	−.197
	(.473)	(.238)	(.337)	(.148)
Homeowner	1.102	−.483	−.970**	−.619**
	(.698)	(.354)	(.337)	(.235)
Controls				
Male	.239	−.287	.334	−.333
	(.643)	(.336)	(.300)	(.218)
Age	−.011	−.004	−.022	−.003
	(.028)	(.014)	(.014)	(.010)
Parent	.920	.454	.049	−.099
	(.658)	(.348)	(.331)	(.235)
Home destroyed	−.307	.341	1.365***	2.119***
	(.640)	(.342)	(.334)	(.226)
Intercept	−.503	5.402	−4.347	.910
	(4.661)	(2.416)	(2.525)	(1.536)
N	238		661	
LR χ^2 (df)	43.76 (14)		142.90 (14)	
Pseudo R^2	.12		.13	

* $p < .05$.
** $p < .01$.
*** $p < .001$.

times of disaster. (For a recent discussion of these dynamics see Western and Pettit, 2005; see also Jencks and Peterson, 1991.)

4.2.1. Post-disaster coping: Stress

When such disasters do occur, individuals understandably become stressed, and prior research suggests that this stress tends to be higher in technological disasters than in natural disasters (Erikson, 1994; Freudenberg, 1997; Norris et al., 2001). This pattern is pertinent to Hurricane Katrina because many observers now view events within the City of New Orleans as primarily a technological disaster (levee failure) and events outside the city as primarily a natural disaster (wind, rain, and storm–surge destruction). To the extent that this general distinction is meaningful, which some dispute (Alexander, 1993; Quarantelli, 1998), it would suggest that New Orleanians may experience greater post-disaster stress than residents outside the city.

To test this hypothesis, we modify our analytical approach slightly. Instead of stratifying analyses by New Orleans residence, we pool all respondents and include city residence as an explanatory variable (1 = New Orleans City resident; 0 = otherwise). Because evacuation timing, home damage and job status (non/employed) can affect stress levels as well, we

also include these variables in our models as statistical controls, in addition to age, gender and parental status. We fit each model using ordinary least squares regression, which treats the dependent variable as a continuous measure ranging from low to high stress.

Results for all three indicators of stress (current, short-term, and long-term) appear in Table 6 and are remarkably consistent. They show that race, not class, has a strong influence on post-disaster stress associated with Hurricane Katrina, with blacks generally reporting higher stress levels than whites, all else being equal. Moreover, this racial difference increases the further into the future respondents are asked to look. For example, the average black–white differential in stress is greater when respondents are asked to look five years ahead (0.20) than when they are asked to look only a few months ahead (0.15).

To place these findings in context, prior research on stress and mental health has produced inconsistent evidence of racial and ethnic differences (for a review, see Schnittker and McLeod, 2005; Vega and Rumbaut, 1991). So the findings reported here are not necessarily reflective of greater stress among racial minorities generally. Instead, they appear to be regionally and event specific. However, they also lend support to Kessler's (1979, p. 259) general assertion that, "Socially disadvantaged persons will be both more highly exposed to stressful experiences and also more highly influenced by stressful experiences than socially advantaged persons." In Kessler's study, this claim was supported by the finding that racial minorities were much more likely than whites to report "extreme distress" in times of crisis. In our analyses, it is supported by the consistency of blacks' reports of greater stress than whites following Hurricane Katrina.

In addition to these findings, results also reveal no significant difference in stress between New Orleanians and other affected respondents, all else equal. This statistically non-significant finding suggests that the technological/natural disaster distinction may be irrelevant to stress levels associated with Hurricane Katrina, at least over the short term. However, research by Picou et al. (2004) suggests that this situation could change over coming years, especially if levee failures in the city eventually lead to protracted litigation and personal time with attorneys, both of which they find contribute significantly to post-disaster stress.

In addition to these core concerns, findings for our control variables also indicate several patterns worth acknowledging: women report more stress than men following the storm, as do parents, residents with severely damaged housing, those not yet back home, and those without jobs. Results also indicate that, all else equal, residents who evacuated express more concern about the future than those who did not evacuate, perhaps raising important issues for future evacuation planning.

4.2.2. Post-disaster coping: Emotional supports

With this in mind, it is useful to examine where respondents turned for emotional support during the weeks immediately following the disaster. Respondents could provide up to three open-ended answers to this query, which we coded into four binary, non-exclusive variables. Results in Table 1 show that the most common response, regardless of pre-Katrina residence, involved family and friends, followed by religious faith, community ties, and formal organizations, such as FEMA and the Red Cross. To assess racial and class variation in these responses, we used logistic regression to predict each type (1 = yes; 0 = no). To assess sources of geographic variation, we again pooled all respondents and included a dummy indicator for New Orleans residence.

Table 6
Unstandardized OLS regression coefficients predicting current-, short-, and long-term stress indicators (with standard errors)

	At the time of the survey		
	Current stress[a]	Stress about the next few months[b]	Stress about the next five years?[b]
Black	.142*	.152*	.201**
	(.071)	(.063)	(.066)
ln (income)	−.055	−.035	−.041
	(.041)	(.037)	(.039)
Homeowner	.081	−.014	.057
	(.073)	(.065)	(.067)
New Orleans resident (0:1)	.048	.009	−.114
	(.088)	(.079)	(.082)
Controls			
Male	−.306***	−.166**	−.131*
	(.064)	(.056)	(.059)
Age	.009***	−.002	.003
	(.002)	(.002)	(.002)
Parent	.164*	.136*	.102
	(.069)	(.061)	(.063)
Home destroyed (0:1)	.270**	.190*	.106
	(.086)	(.076)	(.079)
Evacuation timing			
Before the storm	.084	.310***	.242**
	(.092)	(.081)	(.084)
During/after the storm	.231*	.368***	.314**
	(.112)	(.099)	(.103)
Did not evacuate [ref.]	—	—	—
Jobless (0:1)	.187**	.219***	.085
	(.070)	(.062)	(.065)
Back in pre-Katrina home (0:1)	−.317**	−.279**	.002
	(.095)	(.084)	(.088)
Intercept	1.298	1.907	1.548
	(.454)	(.402)	(.419)
N	1270	1289	1267
R^2	.12	.14	.03

[a] The indicator for current stress is a composite measure summed from inquiries regarding "trouble with sleeping," "feelings of anxiety," and "feelings of depression" at the time of the survey. The indicator ranges from 0 ("none") to 4 ("a great deal"). Cronbach's α for the multi-item indicator is 0.79.

[b] These indicators regarding stress about the future are single-item measures from the following question, "Now looking ahead, how worried are you about what will happen to you in the next few months [next five years]?" The indicator ranges from 0 ("not worried at all") to 3 ("very worried").

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Results appear in Table 7 and once again reveal strong racial, but not class, differences. In general, whites are much more likely to report relying on family or friends to get through these difficult emotional times, whereas blacks are much more likely to report relying on religious faith. Additional analyses (not shown) reveal that the largest of these racial

Table 7
Logistic regression coefficients predicting sources of emotional support (with standard errors)

	Sources of emotional support			
	Family/friends	Religious faith	Neighbors/ community ties	Formal organizations
Black	−.651***	.939***	.130	.421
	(.136)	(.157)	(.174)	(.269)
ln (income)	.051	.021	.167	.126
	(.080)	(.087)	(.104)	(.163)
Homeowner	.051	−.124	.087	.309
	(.140)	(.155)	(.180)	(.286)
Controls				
Male	−.153	−.486***	.116	.155
	(.121)	(.138)	(.153)	(.241)
Age	−.024***	.019***	.008	.015
	(.005)	(.005)	(.006)	(.010)
Parent	−.208	.210	−.095	.180
	(.132)	(.151)	(.169)	(.272)
Home destroyed (0:1)	.003	.392*	−.409	.121
	(.163)	(.187)	(.209)	(.317)
New Orleans resident (0:1)	−.074	.202	.278	−.616
	(.168)	(.187)	(.218)	(.336)
Evacuation timing				
Before the storm	.609**	−.436*	−.029	.168
	(.180)	(.186)	(.220)	(.364)
During/after the storm	.263	−.300	.039	−.795
	(.219)	(.226)	(.268)	(.535)
Did not evacuate [ref.]	—	—	—	—
Jobless (0:1)	−.115	.052	−.261	−.185
	(.133)	(.150)	(.171)	(.267)
Back in pre-Katrina home (0:1)	−.155	.602**	−.154	−.600
	(.179)	(.211)	(.230)	(.350)
Intercept	.421	−2.661	−3.453	−4.778
	(.868)	(.964)	(1.138)	(1.801)
N	1292	1292	1292	1292
LR χ^2 (df)	88.15 (12)	91.73 (12)	18.00 (12)	21.26 (12)
Pseudo R^2	.05	.06	.02	.04

Each binary dependent variable is created from answers to the following question, which allowed for multiple responses: "what if anything has helped you through this difficult emotional time?" (1 = mentioned; 0 = not mentioned).

* $p < .05$.
** $p < .01$.
*** $p < .001$.

differences occurred among New Orleanians, wherein whites were 4.7 times more likely than blacks to cite family or friends, while blacks were 2.6 times more likely than whites to cite religious faith. Further investigation indicates that this reporting of religious faith (and downplaying of family and friends) was high even among blacks who reported staying in someone else's home after the storm. Among whites, the opposite is true: those who reported religious faith for emotional support were unlikely also to report staying with or relying on family or friends.

These findings coupled with informal discussions with white and black survivors who have since returned to the region suggest two divergent models of cultural interpretation and reporting of emotional support in the wake of Hurricane Katrina. Among blacks in the region, religious faith seems to be part of a communal glue that individuals and families use to cement social relationships and to ensure the emotional support that such relationships provide. So even when helping one another to cope, African-Americans from the area are likely to report that it is God that has made this type of network assistance possible, not family or friends themselves. Among whites, by contrast, self-reports about sources of emotional support seem to be more exclusive or dichotomous. If family or friends helped with evacuation, then whites are likely to report them as an important source of emotional support, and not religious faith. However, if family or friends did not help with evacuation, then whites are more likely to report religious faith, and not family and friends, as an important source of emotional support. These patterns suggest that in the regional "black" model, faith is at the interpretive forefront, making all things possible; whereas, in the "white" model, faith operates more like a metaphorical backstop, offering the last line of emotional defense when friends and family seem absent.

Remaining results show no significant racial or class difference in reliance on community members or formal organizations for emotional support after the storm, regardless of residence, leaving "strong" ties and personal faith as not only the primary modes of emotional coping after Hurricane Katrina but also the most different by race.

In addition to these findings, results for our control variables indicate that emotional support from family and friends was much stronger among the young than the old and among those who evacuated before rather than after the storm. By contrast, emotional support from religious faith was significantly stronger among residents who did not evacuate before the storm, the elderly, women, residents whose homes were destroyed, and those able to return to their pre-Katrina housing.

4.3. Likelihood of return

Finally, there remains great interest in evacuees' intentions to return to their pre-Katrina communities. To measure these intentions one month after the storm, we estimated the reported likelihood of return for respondents who were still displaced from their pre-Katrina homes ($n = 624$) at the time of the survey. The mean for this indicator is 2.3, indicating relative uncertainty among those still displaced one month after the storm. Results in Table 8 indicate no significant racial differences in such intentions, all else equal. What matters, instead, are homeownership and household income.

Generally speaking, we would expect these two indicators of class resources to point in the same direction, but here they do not. Instead they indicate that lower-income homeowners are more likely to report plans to return to their pre-Katrina communities than higher-income homeowners, both of whom are more likely to report plans to return than renters. These patterns hint that less-affluent homeowners will be the vanguard of secondary waves of return migration, perhaps not out of choice afforded by superior class resources but precisely the opposite: their mortgage obligations coupled with lower household incomes afford them less opportunity to pursue options elsewhere. Presumably this situation will intensify as mortgage companies begin suspending temporary forbearances and demanding monthly payments, regardless of insurance settlements or housing conditions.

Table 8
Unstandardized OLS regression coefficients predicting likelihood of return (with standard errors)

	Likelihood of return
Black	−.219
	(.144)
ln (income)	−.169*
	(.075)
Homeowner	.720***
	(.131)
Controls	
Male	.049
	(.121)
Age	−.001
	(.004)
Parent	−.095
	(.126)
Home destroyed (0:1)	−.357**
	(.120)
New Orleans resident (0:1)	−.161
	(.129)
Evacuation timing	
Before the storm	.437
	(.325)
During/after the storm	.571
	(.341)
Did not evacuate [ref.]	—
Jobless (0:1)	−.253
	(.137)
Intercept	3.998
	(.830)
N	624
R^2	.09

The dependent variable is computed from answers to the following question, "As of now, which best describes your plans for the future?" The indicator ranges from 0 ("definitely won't return") to 4 ("definitely will return"). Analyses are conducted only for respondents who had not returned to their pre-Katrina residences by the time of the survey.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

5. Conclusion

Like other disasters before it, Hurricane Katrina offers a unique laboratory in which to study the social infrastructure of its affected region. In this case, it is a region cross-cut by deep and complex divisions of race and class that have hardened over time without direct, excessive interference from outsiders. As media images streamed from the region to the nation and the world following the storm, a public debate emerged over the relative importance of class and race for shaping individual, as well as institutional, responses to the disaster. In the absence of hard data, this debate came to sound much like a skit famously performed by Richard Pryor. In this skit, the comedian tells the story of his wife coming

home to find him in bed with another woman. Incredulous, Pryor leaps from the mattress, denies the scene, and blurts, "Come on, baby, who're ya gonna believe, me or your own lying eyes?" As television screens filled hour after hour, day after day, with images of black Americans desperate for assistance after the storm, many viewers could not help but "see" race and racism at work. Others explained that their eyes were lying to them, and that what looked like race was in fact class in disguise. As commonly occurs in such situations, however, the vigor and volume of this debate soon dwarfed the quantity and quality of information available to assess it.

In the present study, we have sought to fill some of this empirical gap by using data from the largest, most comprehensive survey of Hurricane Katrina survivors currently available. This source cannot determine why the levees failed in New Orleans or why government officials took so long to respond, but it can begin to answer questions about how residents themselves responded to the nation's costliest natural disaster during and shortly after it occurred. Overall, results indicate that both race and class played important roles in shaping these responses and that neither can be readily reduced to the other. Thus the real issue is not either/or, but where and to what degree.

With respect to race, there are two broad areas where racial differences seem to have mattered. The first involves timing of evacuation and sources of emotional support, that is, behavior more or less under the control of individuals themselves. Our findings indicate that blacks across the region were less inclined than whites to evacuate before the storm, mostly because they did not believe that the hurricane would be as devastating as it eventually was. Previous experience and public assurances suggest that this personal risk assessment may not have been as irrational as it now appears. Reports indicate that had the levees been built and inspected with the integrity typically expected of the Army Corps of Engineers, they would have likely survived the storm, sparing the city from the massive flooding that eventually covered 80% of its area.

As for emotional support, our findings indicate that blacks and whites differed, at least over the short term. Specifically, blacks were more likely to report "leaning on the lord" while whites were more likely to report relying on friends and family. We have suggested that this difference might be more a matter of interpretation and world view than actual differences in network support. Another possibility is that blacks' friends and family were more likely to be adversely affected by the storm and even more widely dispersed than whites', making them more a source of concern than support. Both scenarios could easily have worked together to produce the strong racial differences observed throughout the region.

The second and more troubling set of racial difference involves something largely outside survivors' control, namely job security. Our findings indicate that black workers from New Orleans were four times more likely than white counterparts to lose their jobs after the storm, all else equal. But of course, all else is not equal. When we factor income differences and their effects into the equation, results indicate that the "average" black worker in New Orleans is actually closer to seven times more likely to have lost his or her job than the "average" white worker. This disparity will certainly have a strong effect on who is able to return to the city as it rebuilds and who is not.

This issue of return is also where class standing, specifically home ownership, exhibits its strongest and most consistent effect. We suspect that this effect cuts two ways. On the one hand, home ownership provides survivors power over when and to what extent personal return and rebuilding will occur; on the other hand, it can also create a financial weight in

the form of mortgage obligations that limit resettlement options elsewhere. This interpretation is supported by the consistent effects of home ownership across the region and by aggregate analyses which indicate that less affluent home owners are more likely to say they will return than more affluent homeowners. This pattern is also consistent with findings from Hurricane Andrew in the Miami area during 1992. In reflecting on the post-storm plight of many low-income home owners, Morrow (1997, 168) explained that, "While they may have acquired some of the trappings associated with economic success, they may lack the 'defense in depth'—the economic security, political and social influence, and personal power of the professional classes which can be especially crucial in times of crisis."

Overall, these findings refute the apparent randomness of natural disasters as social events as well as the notion that racial differences are somehow reducible to more "fundamental" class divisions when considering human responses to such disasters. Both "axes of variation"—race and class—appear to have mattered in response to Hurricane Katrina, and while the entire region will continue to require the nation's ongoing support for years to come, results here indicate that it is low-income homeowners in particular who will need the most assistance in putting their lives and the region back together again. This will be especially true for black residents of New Orleans, who are the most likely to need new jobs as the city recovers, revives, and rebuilds. Failing this targeted assistance, mortgage foreclosures and precarious employment opportunities threaten not only working-class residents from the region but also the futures of children and grandchildren for whom they still care.

In addition to these and related assistance programs, more general efforts to improve policy and planning initiatives for future disasters may benefit from considering the following possibilities. First, with respect to evacuation, our results affirm that poor inner-city residents are often the least likely to heed formal evacuation warnings, some because they lack transportation and others because they fail to take such warnings seriously. Our findings regarding the centrality of religious faith for racial minorities, women, and the elderly coupled with the negative association of this centrality for early evacuation, suggest that emergency planning initiatives can be improved by assisting local civic and faith-based organizations in developing a coordinated, grass-roots system of hazards education and warning dissemination. The basic idea would be to buttress top-down warnings with ongoing planning and preparedness orchestrated through trusted local associations, similar to how school teachers help to educate and evacuate their own groups of students when an ominous but distant fire bell sounds and the entire school must evacuate. At a regional level, such efforts would require a great deal of organizational creativity, money, and time, but if communities are serious about disaster mitigation and saving lives, such investments seem well worth the expense, effectively reinforcing official proclamations in times of emergency with bottom-up planning and social organization.

Second, after the evacuation is over and residents begin returning to the damaged region, housing and jobs are critical to individual and community recovery, almost by definition. While such adjustments produce stress, secondary results from our analyses also indicate that the mere act of evacuation can create high levels of anxiety about the future, regardless of one's job and housing situation. In the case of New Orleans, this heightened anxiety has taken many anecdotal forms, from (even heavier) drinking and swearing to (even greater) gun purchases and racial paranoia. While it is difficult to pinpoint how or when to intervene to ameliorate such stress and its myriad manifestations, one possibility

might be to rethink how military personnel are deployed and organized in post-disaster settings. Borrowing concepts and practices from community policing, one could imagine a proliferation of local substations or mobile command units that integrate themselves into respective neighborhoods over the first six to twelve months following initial search and rescue operations. Through the cultivation of sustained and highly localized relations with residents in the region, these substations could help to serve as well as protect, while simultaneously minimizing the distressful sense of living in an occupied territory, which the passing of anonymous military vehicles and the hovering of distant aircraft helped to produce after Hurricane Katrina.

Surely these will not be the last or only policy lessons proffered in the wake of the Hurricane Katrina, but one thing does appear certain: How the nation responds to this current and ongoing problem will help to define it not only as a society but as a civilization capable of communal expression of awakened conscience.

Acknowledgments

In the region devastated by Hurricane Katrina, it is local custom to address and acknowledge respected others with a polite title and first name. In this tradition, we thank Mr. Jim, Miss Cindy, Mr. Otis, Mr. Malcolm, and Miss Laura for their special assistance in this project. We also thank the resilient people of the Gulf South, who somehow managed to stop and answer pollsters' questions as they stared down much more pressing ones of their own. This work was partially supported by the National Science Foundation Grant Number 0554818.

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