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Using data on more than 300 census blocks from across New Orleans, Louisiana, this article investigates two steps in the placement of temporary housing after Hurricane Katrina. First, the authors seek to understand the factors that determined whether census blocks were selected for Federal Emergency Management Agency (FEMA) trailers. Then, in light of the widespread resistance to the trailers, they focus on variables that influenced whether trailers were successfully placed on those sites. Despite past research arguing that race, collective action potential, and political factors are the primary determinants of facility placement and the success or failure of the attempt, these data show that technocratic criteria dominated. Interestingly, although census blocks in less vulnerable areas were more likely to be selected as locations for FEMA trailer parks than ones in more vulnerable areas, it was precisely the former areas where siting success was less likely. Flood-resistant areas that decision makers chose for housing were less willing to accept such projects than more flood-prone ones.

Once search and rescue has been completed after a disaster, housing remains the top priority for survivors and decision makers alike (Peacock, Dash, and Zhang 2007). Several recent examples drive home this point. Following the devastating January 2010 earthquake in Haiti, scores of survivors crowded together in makeshift tent cities, and some 600,000 remained in shoddy shelters 10 months after the event (*The Economist* 2011). More recently, the Japanese government struggled to provide sufficient temporary housing for the hundreds of thousands of people displaced by the March 11, 2011, earthquake, tsunami, and nuclear crisis (Aldrich 2012). On August 29, 2005, a combination of factors, including storm surge from Hurricane Katrina, poor design, mismanagement, and overtopping, caused the collapse of the levees surrounding New Orleans, Louisiana, submerging much of the existing housing (ASCE 2007).

The floodwaters, which covered 80 percent of the city, destroyed 140,000 homes and damaged another 430,000. U.S. Coast Guard Vice Admiral Thad Allen, then Gulf Coast director for the Federal Emergency Management Agency (FEMA), argued that "[w]e say that our No. 1 priority is housing, our No. 2 priority is housing, and after that, at No. 3, we'd put housing" (quoted in Varney and Carr 2005). Despite public pronouncements about the importance of temporary and permanent housing, a number of local residents, political figures, and interest groups in New Orleans openly challenged attempts to place FEMA temporary trailers and mobile homes in their backyards, while others quietly campaigned to block the process.

This article uses a new, large-scale data set of more than 300 census blocks[1] within New Orleans to track which locations were selected as hosts for FEMA trailers and mobile homes and which areas actually ended up receiving these controversial facilities. Past research on the question of controversial facility siting has regularly used data at geographically larger levels of analysis, primarily the zip code level. Given that zip codes in the New Orleans area can range in size from 0.4 square miles (1 square kilometer) to more than 440 square miles (1,140 square kilometers), with a mean of more than 75 square miles (194 square kilometers), studies relying solely on this information may face challenges in making robust inferences. To avoid such problems, this article uses the census block as the level of analysis and includes more observations than recent peer-reviewed studies on the topic (Aldrich and Crook 2008; Davis and Bali 2008). With the census block data, our maximum area per observation is 31 square miles (80 square kilometers), with a mean area of 3 square miles (8 square kilometers). Using a micro-level data set (as opposed to a meso- or macro-level one) allows us to make more precise inferences about decision making at the site level, rather than having to analyze the outcomes across more than 75 square miles of territory. Additionally, we enhance our analysis by moving beyond standard columns of coefficients to graphics that illustrate core relationships between our quantities of interest and incorporate information about uncertainty about our predictions (King, Tomz,

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and Wittenberg 2000; Spiegelhalter, Pearson, and Short 2011; Tomz, Wittenberg, and King 2001).

Controlling for a large number of factors at the census block level, including area (square kilometers), total population, population density, percentage of the population that is nonwhite, percentage of the population that is unemployed, median household income, median house value, vote share for Ray Nagin in the 2006 mayoral runoff election, and voter turnout in presidential elections, we find that water depth serves as the best predictor in both stages of the siting process. That is, more than race, socioeconomic conditions, or mobilization potential, a technocratic factor—the depth of floodwaters after the disaster—was most important. In the siting process, during which authorities selected locations for trailers and trailer parks, higher-ground census blocks were the most likely targets. But once authorities began trying to actually construct temporary shelters in these locations, siting successes were mostly in vulnerable low-lying areas. These findings are important because they inform several ongoing academic and policy debates.

First, scholars have long debated the degree to which the public has a "voice" in policy processes often dominated by technocrats (McAvoy 1999), and this research indicates that scholars should be careful to pinpoint precisely where in the policy process the public is expected to contribute. Our analysis underscores how greater participation in standard channels of the political arena—voting, for example—did not measurably alter policy outcomes in this area. Rather, political pressure ensured that the forces of technocracy and democracy continued to struggle after Katrina (McAvoy 1999). Second, while scholars have argued that socially and medically vulnerable groups—such as the elderly, infirm, and developmentally disabled—are most likely to bear the brunt of disasters (Cutter 2006, 2010; Flanagan et al. 2011), this research shows that the placement of trailers was most likely in geographically vulnerable areas. That is, authorities were able to place FEMA trailers primarily in more flood-prone, low-elevation areas. Finally, these findings underscore the gap between abstract policy making and actual implementation, especially in the field of controversial facilities; while FEMA and New Orleans city hall personnel clearly had hoped to build trailers in safer areas, these visions were challenged across the city by both decision makers and local communities.

Trailers as Controversial Projects

Observers typically envision massive and potentially environmentally catastrophic projects, such as U.S. military garrisons (Cooley 2008; Yeo 2009), nuclear power plants (Jasper 1992), and large-scale wind turbines (Evans, Parks, and Theobold 2011), as the ones most likely to encounter resistance from local residents. Reasons for opposition in such cases include concerns about health effects or catastrophic failures, the aesthetics of the project, declines in property values, and other accompanying negative externalities (Rabe 1994). However, smaller-scale and less obviously hazardous facilities, including affordable housing developments (Salsich 2000), university campus expansions, and kindergartens, have also aroused the ire of communities around the world. Temporary housing facilities such as the FEMA trailer parks under study here involve aluminum-sided trailers that have faced opposition in New Orleans and other disaster-affected communities.[2, 3]

Observers give three main reasons why local residents resist trailer parks: racism, fear of increased crime, and decreased property values. Large-scale surveys of Southern residents after Katrina confirmed the negative views that most citizens have of such facilities. In interviews with more than 1,000 local residents in East Baton Rouge Parish (located close to the city of New Orleans), Lee, Weil, and Shihadeh (2007, 752) found that more than half of the respondents envisioned trailers parks as bringing trash and litter, increasing crime, and driving property values down. Logistic regression models show that white respondents were particularly sensitive to the issues of trash, litter, and crime and would be more likely to engage in "avoidance behaviors" such as changing their driving routes to avoid contact or, if necessary, going so far as to sell their homes. One local resident explained her opposition to trailer parks by stressing the uncertainty and potential danger that would come with FEMA mobile homes, saying, "My concern was strangers coming into my neighborhood that I knew nothing about. It's a nice and quiet and safe neighborhood, and that's how I'd like to keep it. I don't want my neighborhood ruined because theirs is" (quoted in Nelson and Varney 2005).

Public perceptions of temporary trailers remain overwhelmingly negative. MacTavish (2006) underscored that residents who live in trailers are viewed as living on the "wrong side of the tracks" and struggle with issues of stigmatization. Her interviews with 85 households found that one in five of the children living in trailers in "Prairieview" (the name she gave to her fieldwork site) believed that social stigmatization "defined their residential experiences in the park and village." As other scholars have underscored in their studies of marginalized populations such as HIV-positive and homeless populations (Takahashi 1998), homeowners, parents, and long-term residents fear changes in the status quo, especially ones that bring in what they see as potentially harmful or heterogeneous populations.

Local political leaders moved quickly to take the side of concerned residents who felt that these facilities were negative, not positive, developments. New Orleans councilwoman Cynthia Hedge Morrell was quoted as saying, "You are not consulting the council people who have direct contact with the community . . . You can't rebuild a community if you are taking sacred parts of that community and destroying it" (quoted in Varney and Carr 2005). Councilman Jay Batt openly advertised his opposition to FEMA trailer parks during his post-Katrina campaign in flyers that "crossed out" FEMA trailers with red circles. Batt publicly told reporters, "It's moronic to even think about putting trailers in the patch where 3,000 kids play soccer" (WWLTV, December 1, 2005). Opposition from residents slowed down the postdisaster housing process tremendously; although the city and FEMA had hoped to place 30,000 trailers in New Orleans by December 2005, they were able to locate only slightly more than 1,600 by that time. Given the broader opposition to temporary trailer parks, this article seeks to illuminate the patterns in both site selection and success or failure in completion.

Explanations for Siting Decisions

Why decision makers choose one location over a similarly suitable alternative has been hotly debated in academic and policy circles. We group these explanations into four main categories: technocratic, social vulnerability (further divided into discrimination against minorities and socioeconomic characteristics), social capital, and political choices (cf. Aldrich 2008).

The first category of siting explanations—technocratic—argues that decisions about where to site unwanted or controversial projects depend primarily on unchanging, nonpolitical factors in the local physical environment. These include geographic, geological, and meteorological conditions in the area. For nuclear power plants, relevant technocratic factors may include bedrock that is resistant to seismic activity and distance to the existing electricity grid. For postdisaster temporary housing, authorities may look at the vulnerability of the site to future disasters, especially focusing on factors such as topography and height above sea level. Additional technocratic explanations for siting include the amount of space in the area; temporary housing may be more likely to be placed quickly in rural, as opposed to urban, areas because of the availability of open tracts of land. Here, we focus primarily on census block area, population density, and water depth as our three proxies for technocratic factors.[4]

A second way of understanding the process rests on studies of social vulnerability, which recognize that various factors can increase exposure to a hazard event and further intensify its impact. As Cutter argued, "Social vulnerability is partially a product of social inequalities—those social factors and forces that create the susceptibility of various groups to harm, and in turn affect their ability to respond, and bounce back (resilience) after the disaster" (2006, 1). Social vulnerability can be further divided into *discrimination against racial and ethnic minorities* and *socioeconomic status* (with strong correlations between these two categories) (Cutter, Boruff, and Shirley 2003; Flanagan et al. 2011). In North America, for example, scholars have regularly argued that minority populations, including African Americans, Hispanic Americans, and Native Americans, are more likely than their white counterparts to receive a disproportionate burden of unwanted projects (Bullard 1990). The fields of environmental racism and environmental justice combine scholarly studies of siting procedures and outcomes with social activism on these issues (Turaga, Noonan, and Bostrom 2011; Walker and Burningham 2011). Previous research on trailer siting after Katrina has argued that race played a significant role in decision making, so that at zip-code-level African American communities were more likely to receive trailers than similar white areas (Davis and Bali 2008). Lee, Weil, and Shihadeh (2007) explored the relationship between race and associations with trailers, finding that being white was a strong predictor of concern about crime from FEMA trailer parks. The same research found that individuals who identified with evacuees were less bothered by the presence of trailer parks.

Socioeconomic status characteristics may include wealth, education, income levels, and home property values (Mohai and Bunyan 1992). Sociologists have argued that poorer communities may envision potentially controversial facilities as positive developments for their neighborhoods, as they can bring in jobs, property tax revenue, and the possibility of longer-term economic development. In New Orleans, local commentators argued that poorer neighborhoods would be the ones most likely to receive the largest number of FEMA trailers and that attempts to move trailers out of New Orleans could be seen as a "poor-person eradication program" (quoted in Burdeau 2010). In our analysis, we create a social vulnerability index that combines various measures of racial composition with socioeconomic indicators to reflect these theoretical approaches and to reduce the overall collinearity between factors in our models. We also measure the effect of these social vulnerability variables independently in our models to ensure that the outcome is not an artifact of the index.

Other researchers have argued that the connections between local residents, along with their translocal ties to power brokers and authorities outside their communities, strongly determine siting outcomes. In research on social capital, scholars have argued that communities with more homogeneity and stronger social ties will mobilize collectively to push out unwanted projects (Clingermayer 1994). Such areas can better work as a group in their fight against controversial facilities than more fragmented locales. In past studies of FEMA trailer siting in New Orleans at the zip code level, some have argued that measures of social capital—such as voter turnout—best predicted which communities would receive the facilities (Aldrich and Crook 2008).

A final argument rests on the role of politics and political intervention based on swing voters. Many cynical observers believe that powerful politicians can strongly sway the siting process. The death of the decades-old attempt to create a high-level nuclear waste repository at Yucca Mountain in Nevada has been attributed to the political power of the U.S. senator from Nevada, Harry Reid, who has tirelessly opposed the measure. Alternatively, in Japan, the powerful prime minister from Niigata Prefecture—Tanaka Kakuei, also known as the "computerized bulldozer"—openly bragged about bringing home seven nuclear power reactors to his constituency (cf. Schlesinger 1999, 103). In New Orleans following the mayoral election, some argued that political support for incumbent Ray Nagin during the runoff against Lieutenant Governor Mitch Landrieu would assist communities fighting against the FEMA trailers. This was seen as especially relevant given that Nagin had moved to block trailer construction after initially agreeing to the plan and the fact that neither candidate had secured a strong majority in the first round of voting (Associated Press, April 5, 2006). Using data on the 2006 mayoral runoff, we calculated support for Mayor Nagin, recognizing that he might use his mayoral capacity to redistribute benefits to supportive areas to keep trailers out of their backyards.

Data: Breaking New Orleans into 10,000 Pieces

Creating an appropriate data set of census blocks throughout New Orleans—some of which had been targeted for trailers and others, with the same geographic characteristics, that had not—required several rounds of work. Broadly speaking, we undertook an equal shares sampling process using random geographic selection of zero cases to generate our data set of cases. In simpler terms, we selected all of the census blocks within the city that had been chosen as sites and then used a variety of methods based on geographic information systems (GIS) to add similar sites that could have received trailers but did not.

To do so, we first geocoded (i.e., transferred from standard address form into GIS data) the addresses of the existing, proposed, and rejected trailer park sites on the TAC-RC-1A Master List, dated June 29, 2006, provided by the Governor's Hurricane Housing Task Force and New Orleans Housing Department, and integrated that information onto a full-scale map of New Orleans. By focusing on larger-scale trailer parks in New Orleans, we narrowed our scope from the trailers sited beyond the city limits in nearby parishes and in other Louisiana cities such as Baton Rouge. Our analysis does not look at the siting of trailers on driveways and other private property by city residents repairing their homes, for example, but instead focuses on larger-scale trailer parks operated by FEMA and New Orleans city managers. Roughly one-third of the total number of trailers sited after Hurricane Katrina were placed outside the city, and in this sense, the siting processes in New Orleans could reflect different factors than siting done elsewhere. Bali and Davis (2008), for example, found differences between Orleans Parish and other areas in their research, as did Aldrich and Crook (2008). Our overall findings for New Orleans–based siting, fortunately, resonate with several of their conclusions, including the strong role of technocratic criteria in the siting process.

Nevertheless, the TAC data set did not reflect those areas in the city that were not initially selected for trailer parks, for whatever reasons (technocratic, political, or demographic). That is, the list provided to us showed only the locations where authorities had sought to place postdisaster FEMA housing. Analyzing only those sites would not provide an accurate picture because it would not be based on the full universe of possible cases. In order to compile locations where no trailers had been placed, we used ArcGIS (a GIS software package) to divide New Orleans into roughly 10,000 equal-sized cells. From these myriad same-sized areas across the Big Easy, we programmed the software to randomly sample 150 census blocks within the city limits. We avoided selecting points among the initial geocoded locations for trailers to be certain that these sites had not already been picked by city authorities for trailer parks, and then we visually checked the results using detailed aerial maps of the city and Google Earth to gain additional information about the sites. Once we used detailed information to confirm that the area could—according to technocratic criteria—support a FEMA trailer park, we entered all of the matching data on these nonselected census blocks to complete our data set.

The U.S. Census Bureau's Web site provided data for many of the demographic and socioeconomic variables under investigation, and the Web site of the National Oceanic and Atmospheric Administration provided data on post-Katrina flooding depth, but several factors required additional data collection. To gain information on voter turnout across the city, we matched voting precincts with census blocks using 2004 presidential election data available on the Louisiana Secretary of State's Web site. Finally, to gain traction on the potential of political intervention in the context of swing voters, we used data on the vote share for Mayor Ray Nagin in the May 20, 2006, mayoral runoff election between Nagin and Landrieu. Descriptive statistics about the full data set are provided in table 1.

Methodology: Poststratification Weighting and Analysis

Choice-based sampling, a process colloquially known as selection on the dependent variable (cf. King, Keohane, and Verba 1994, sec. 4.4), saves valuable resources and time in data collection. Rather than collecting irrelevant data—in our case, putting together data on census blocks across New Orleans where FEMA trailer siting would not be possible—choice-based sampling provides a data set that contains only relevant cases. There are two main methods for correcting estimates when deliberately selecting on the dependent variable. These are prior correction and weighting, in which we "compensate for differences in the sample ($\hat{y}$) and population (τ) fraction of ones induced by choice based sampling" (King and Zeng

Table 1 Descriptive Statistics for the Full Data Set

	Observations	Mean	SD	Min.	Max.
Dependent variables					
Three-category ordinal outcome	301.00	0.95	0.77	0.00	2.00
Binary outcome of siting success or failure	205.00	0.40	0.49	0.00	1.00
Binary outcome of selected or rejected	301.00	0.68	0.47	0.00	1.00
Technocratic criteria					
Water level (raster map)	301.00	2.95	2.42	0.33	8.50
Water level (point calculation)	301.00	3.13	2.43	0.31	8.22
Water level (LIDAR estimate)	301.00	3.01	2.19	0.03	8.12
Area (sq km)	301.00	8.26	22.63	0.08	82.11
Population density (people/sq km)	301.00	2,612.57	2,609.61	22.93	19,269.00
Discrimination against minorities					
Percentage of population that is nonwhite	301.00	0.72	0.30	0.02	1.00
Socioeconomic indicators					
Percentage of population over age 65	301.00	0.12	0.07	0.01	0.39
Percentage of population that attended college/university	301.00	0.20	0.16	0.00	0.67
Percentage of population that attended high school	301.00	0.72	0.15	0.24	1.00
Percentage of population that is unemployed	301.00	0.06	0.07	0.00	0.59
Median household income (in 10,000s)	301.00	3.21	2.84	0.41	14.62
Percentage of population below poverty line	301.00	0.31	0.19	0.00	0.84
Median house value (in 10,000s)	299.00	11,207.44	11,462.18	1,644.20	100,000.00
Socioeconomic/minority population index					
Social vulnerability	301.00	0.00	0.91	–2.53	1.72
Political indicators					
Nagin share of mayoral runoff vote	301.00	0.24	0.11	0.00	0.45
Strength of social capital					
Voter turnout	301.00	0.56	0.11	0.16	0.78
General variables					
Total population	301.00	1,343.10	1,098.30	368.00	6,576.00

2001, 144). As prior correction can produce large errors without proper model specification, it is slightly disadvantageous compared with weighting (Xie and Manski 1989); we use weighting instead.

While the data that we collected on census blocks contained a ratio of $Y = 2$ (successful siting outcome) to $Y = 1$ (attempted but failed) to $Y = 0$ (block not selected as a site) of approximately 1:1.5:1 , the actual population of cases in the real world is closer to 1:1:7. That is to say, out of the 485 census blocks in New Orleans used as the level of analysis for these data, when a FEMA trailed was sited in one census block, there were roughly seven other locations with the same suitable geographic and geologic criteria that were not selected. We calculated the population of outcomes to potential sites in the actual population (i.e., the fraction of localities in New Orleans that met the geographic and geologic requirements) using GIS data and existing geographic and geological maps. Those estimations allowed us to reweight the data set to create a population as equivalent as possible to that found in the real world. Table 2 lays out how we calculated our poststratification weights.

Having weighted the observations in the data set to ensure that they better reflected the full universe of cases, we chose from among several possible different models of siting. A full discussion of potential models for data analysis can be found in the appendix. Sequential logit models make the fewest assumptions about relationships between the variables and allow us to represent the involvement of two sets of decision makers in the two separate outcomes. We follow the lead of Davis and Bali, who argued in their analysis of FEMA trailer siting after Hurricane Katrina that "site selection is a two stage process of consideration and approval" (2008, 1192). They used two separate models in their analysis, one of consideration (what we label "inclusion") and one of approval (which we label "success"). Further, as Dow and Endersby argued, "we must not underestimate the importance of the logit's simplicity" in terms of model-building and hypothesis testing (2004, 120).

Our first-stage logit model analyzes which variables led decision makers to select one census block over another as a potential site for FEMA trailers. In this initial analysis, we seek to understand whether technocratic factors, race, socioeconomic factors, or mobilization capacity, among other potential explanations, best predict which areas were chosen. This initial model uses our entire data set of cases, including census blocks that were not selected for sites along with those that were selected and then either failed or succeeded. Our second-stage logit model looks at the second stage, that is, whether those census blocks selected by federal and city authorities had successful or failed sitings. Here we seek to understand which, if any, of the theories laid out earlier influenced the outcome of the siting attempt.

To ensure that our results are not an artifact of our model type, and recognizing that our data may resemble a selection process, we also ran a Heckman selection model to triangulate our findings. The Heckman selection model can provide estimates when data sets involve sample selected outcomes, that is, when some condition (in this case, a successful trailer siting) is observed only if a previous condition is defined (here, whether the census block was considered for siting) (Heckman 1979). Several scholars have stated a number of potential concerns with using the Heckman model, particularly focused on its sensitivity and strong assumptions (Brandt and Schneider 2004; Sartori 2003), and therefore we use its outcomes to better evaluate the outcomes of the logit models. Given the similar results produced by the Heckman selection model (reported in the tables and discussed below), we feel that our findings are relatively robust across model types and that other model types would not generate radically different outcomes.

Results

We first report the outcome of our analysis of the factors that led to the inclusion or exclusion of census blocks as potential sites for FEMA trailers. Table 3 reports the estimated coefficients from the model.

We tested for multicollinearity between variables and found little connecting race and socioeconomic status to water depth but stronger correlations (as high as .34) between socioeconomic status and race. To reduce the multicollinearity in the models and to better reflect the theory of social vulnerability discussed earlier, we used factor analysis and factor rotation to create a new social vulnerability index incorporating racial composition, the percentage of the census block below the poverty line, the percentage of the census block that is unemployed, and median house income. The variable inflation factor (VIF) in our final logit model was 2.6, which is acceptable according to Rabe-Hesketh and Everitt (2007, 69).

Notice that of all of the variables tested in this part of the analysis, only two demonstrated statistical significance (with p values of less than .01) across all four models (the three logit models and the single Heckman selection model): the water level (i.e., how high water was in the census block because of flooding after Hurricane Katrina) and the area of the census in square kilometers. One of the four models—the Heckman selection model—suggested that the social vulnerability index played a role in the inclusion or exclusion of census blocks, but this finding was not robust to the other model specifications (none of them found the factor significant, nor its components significant) and was significant only at the .05 level. This anomalous finding suggests that there may be some underlying connections between selection and race/socioeconomic status that should be further investigated. Nevertheless, given that the water level variable proved significant in all models, we demonstrate its effect in figure 1, which holds all other constants at their means and shows the 95 percent confidence intervals for predicted probability of a census block being selected based on floodwater height.

Table 2 Calculation of Poststratification Weights in Sample

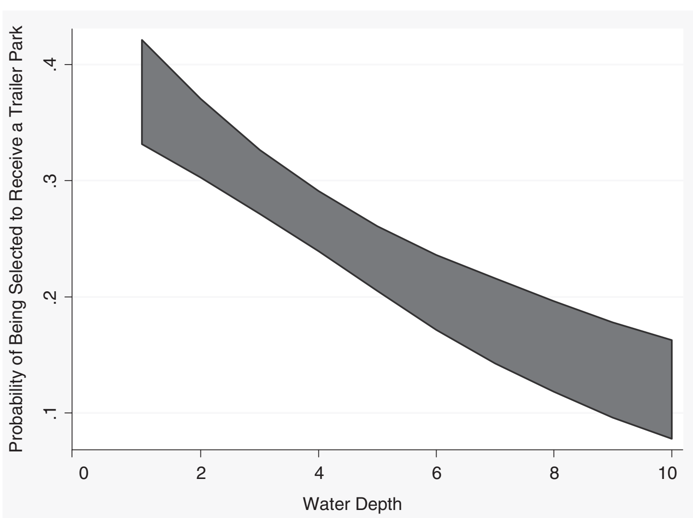
Type of Block Group	Population Proportion of Block Groups	Sample Proportion of Block Groups	Population/Sample	Poststratification weight (pweight)
No attempt to site	367/485 = .76	96/301 = .32	.76/.32	2.35
Unsuccessfully tried to site	53/485 = .11	124/301 = .41	.11/.41	.27
Succeeded in siting	65/485 = .13	81/301 = .27	.13/.27	.48

Note: Table structure adopted from Johnson (2008).

Table 3 Factors Influencing the Rejection or Inclusion of a Census Block as a Site for Trailers

	Model 1 (logit)	Model 2 (logit)	Model 3 (logit)	Model 4 (Heckman selection model)
Variable	Coef.	Coef.	Coef.	Coef.
Water level (point calculation)	–0.184***	–0.186***	–0.172***	–0.107***
	0.065	0.064	0.063	0.036
Area (sq km)	–0.0277***	–0.0273***	–0.0280***	–0.0147***
	0.007	0.007	0.007	0.004
Total population	0.00002	0.00001	0.00001	0.00003
	0.0001	0.0001	0.0001	0.00008
Population density (people/sq km)	–0.00002	0.00002	0.000000	–0.00001
	0.00008	0.00000	0.00000	0.00004
Percentage of population that is nonwhite	0.950			
	1.090			
Percentage of population that is unemployed	–0.793			
	3.450			
Percentage of population below poverty line	0.052			
	1.450			
Median house value (in 10,000s)	–0.00002	–0.00003	–0.00003	
	0.00002	0.00003	0.00003	
Median household income (in 10,000s)	–0.126			
	0.096			
Social vulnerability		0.351	0.205	0.313**
		0.356	0.300	0.125
Nagin share of mayoral runoff vote	1.003	0.792	0.818	0.718
	1.149	0.881	0.901	0.429
Voter turnout	1.237	1.452		0.958
	2.210	1.888		0.925
Constant	–0.848	–1.123		–1.110
	1.622	1.393		0.562

Note: ****p* < . 01, ***p* < .05; *N* = 299; standard errors listed below coefficients.



Notes: *N* = 299, number of simulations = 1,000, logit model. All variables (area of the census block, total population, percentage of population that is not white, percentage of population that is unemployed, median household income, median house value, Nagin vote share, and voter turnout) held at their means except for water depth, which varied between 0 and 10 feet. The shaded area indicates the 95 percent confidence interval around the predicted value.

Figure 1 Census Blocks on High Ground More Likely to Be Chosen for FEMA Trailers

Census blocks in New Orleans that were on higher ground were more likely to be chosen than census blocks in more vulnerable sea-level locations. Areas with no flooding or only 1 foot of flooding had, all else being equal, roughly a 35 percent chance of being chosen as a site for a FEMA trailer park. Census blocks that had 9 or more feet of water, on the other hand, had only a 15 percent chance of being selected. Holding all else constant, including variables for race, demographic and socioeconomic conditions, and mobilization capacity, FEMA decision makers and city hall employees looked to place temporary housing in safer areas after the storm. The next question to answer is, how did these placement attempts turn out?

Table 4 shows the estimated coefficients for our second-stage analysis, which seeks to illuminate the factors that influenced the success or failure of the attempt to site in the census block. Several results stand out from the list of coefficients. First, two coefficients are statistically significant in determining the outcome of siting attempts across both of the logit models, namely, water depth. Additionally, the results of the Heckman selection model found that area (in square kilometers) was significant at the .05 level, while model 1 (without the social vulnerability index) found that median house value (in $10,000 units) was also significant at the .05 level. Within model 1, we can compare the effects of these two factors by using odds ratios; the odds ratio for water depth is 1.4, while for median house value (measured in $10,000 units), it is 1.0001. Holding other factors equal, the increase of a single foot of floodwater increased the likelihood of a census block having a successfully sited trailer park far more than an increase in the median house value of $10,000. Being higher and drier influenced the outcome more than income.

Interestingly, though, although the effect of water level on failure or success is large, the sign accompanying the coefficient in this model is in the opposite direction from our first-stage model. That is, where in the first model, higher, drier areas were more likely to be picked for sites, the coefficient on water depth in the second-stage model shows that precisely those areas were less likely to see a successful siting outcome. We believe that residents in these "safer" and

Table 4 Factors Influencing the Failure or Success of the Siting Attempt

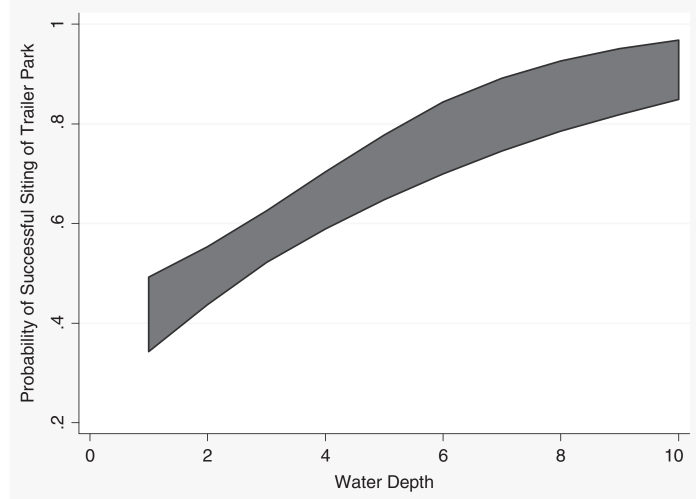
Variable	Model 1 (logit) Coef.	Model 2 (logit) Coef.	Model 3 (Heckman selection model) Coef.
Water level (point calculation)	0.334***	0.3351***	0.134
	0.081	0.084	0.083
Area (sq km)	–0.027	–0.026	–.0205**
	0.019	0.018	0.009
Total population	–0.0002	–0.0002	–0.0001
	0.0001	0.0001	0.0001
Population density (people/ sq km)	0.0001	0.0001	0.00005
	0.00007	0.00006	0.00004
Percentage of population that is nonwhite	1.885		
	1.198		
Percentage of population that is unemployed	–2.120		
	3.053		
Percentage of population below poverty line	–0.422		
	1.698		
Median house value (in 10,000s)	0.00011**	0.00006	
	0.00005	0.00004	
Median household income (in 10,000s)	–0.189		
	0.215		
Social vulnerability		0.513	0.224
		0.411	0.163
Nagin share of mayoral runoff vote	–0.973	–0.512	
	1.089	0.951	
Voter turnout	–2.220	–0.843	
	2.123	1.900	
Constant	–0.601	–0.686	
	1.737	1.464	

Note: ***$p < .01$, **$p < .05$; $N = 203$; standard errors listed below coefficients.

less vulnerable census blocks were more motivated to fight against proposed trailers and hence blocked these attempts with more vigor than in lower, more flood-prone areas.

As before, we translate this hard-to-interpret list of numbers into a graph that incorporates measures of uncertainty about the outcome. Figure 2 holds all of the other variables at their means and displays the 95 percent confidence interval around the predicted probability that a census block would have a successful siting attempt of FEMA trailers based on water depth. Attempts at siting FEMA trailers in areas with 1 to 2 feet of water had only a 40 percent chance of success, while attempts at constructing temporary housing in areas with 9 or 10 feet of water had close to a 90 percent success rate. Census blocks on higher ground were more likely to be selected by decision makers as locations for temporary housing, but they were also less likely to see those plans come to fruition.

We ran two different postestimation tests to evaluate the goodness of fit for these logit models. First, we ran goodness-of-fit *F*-tests on the two models and found that we cannot reject the models, as the tests are not statistically significant (values of .643 and .379, respectively). (If the values had been statistically significant at the .05 or lower level, this would have indicated that the models did not fit the data.) Next, we ran logistic receiver operating characteristic tests for sensitivity on the models and found that both final models (stage one and stage two) produce values close to .75. While the models are far from perfect (a model in which predicted values match each actual data point would produce a value of 1), they also are not insensitive to the data (a model with no sensitivity to the actual values would provide a value of .5). Overall, while we no doubt omitted some variables from our models, the overall models



Notes: $N = 203$, number of simulations = 1,000, logit model. All variables (area of the census block, total population, percentage of population that is not white, percentage of population that is unemployed, median household income, median house value, Nagin vote share, and voter turnout) held at their means except for water depth, which varied between 0 and 10 feet. The shaded area indicates the 95 percent confidence interval around the predicted value.

Figure 2 Vulnerable Areas more Accepting of Trailer Parks

seem to fit the data, and their results overlap well with the Heckman selection model outcomes.

Discussion and Conclusions

This article used a new data set at the census block level that provides us with better leverage on questions of siting of postdisaster housing than past zip-code-level research; in doing so, we illuminated the difficulties of taking the high ground in post-Katrina New Orleans. In our investigation, we found little evidence for standard theories predicting which areas would be selected as the hosts for FEMA trailer parks and for the outcomes of such siting attempts. Past research has argued that race, socioeconomic factors, political factors, and mobilization potential explain where unwanted projects are sited and then whether those siting attempts are successful.

Davis and Bali, for example, showed that damaged housing (which we would interpret as correlating with water depth) and area mattered in the first stage of siting and that damaged housing and government-owned land mattered during the approval stage, but they focused their attention on the role of race and politics in FEMA trailer siting. They argued that "the racial composition of a neighborhood had a substantial effect on both the consideration and approval stages" and spoke of a "huge effect of race in the approval process" (Davis and Bali 2008, 1175, 1192). Aldrich and Crook, in contrast, demonstrated that population density and flood damage determined the number of trailers eventually sited in a zip code but found that race was not a consistent and significant factor across the entire siting process. Further, our earlier article focused on the role of mobilization potential, as measured by voter turnout; we pointed out that "civil society worked simultaneously to bring citizens together while mobilizing them against the threat of trailer parks in their backyards" (Aldrich and Crook 2008, 378). This new research, in contrast, found little support for arguments about race, socioeconomic status, or politics and instead found that water depth proved the strongest factor across both stages of the siting and outcome processes.

We believe that one critical reason for the divergence of our findings from past studies rests on our ability to use a micro-level as opposed to a meso-level of analysis. For example, where local groups may be able to mobilize collectively at the larger zip code level (as underscored by Aldrich and Crook 2008), at the census tract level, any groups that could mobilize would, by definition, be far smaller and hence less likely to alter public policy. Decision makers in New Orleans and elsewhere view relevant actors in civil society in terms of the number of individuals involved (Schattschneider 1960, 2), precisely because their numbers may strongly correlate with their ability to influence outcomes at the neighborhood and city level (Ekiert and Kubik 1999, 85; Fung 2004; Sheingate 2001, 27). While voter turnout may capture mobilization potential and hence potential electoral threats and political influence at a more meso level of geography (Hamilton 1993), even highly politically active communities with fewer participants may have less success in the policy arena. As a result, our data found support only for theories connected to technocratic decision making, where authorities base their decisions on unchanging environmental conditions, such as elevation and topography.

Future research on the critical issue of postdisaster housing could better integrate the long list of potential factors used by FEMA personnel in their decision-making processes, including the cost of land, past land use, whether the area was planned for development, and access to utilities. Local factors, such as whether any residents from the community itself were sited in these trailer parks, may have also made a difference in levels of acceptance from the neighborhood (cf. Lee, Weil, and Shihadeh 2007), but these data may be more difficult to collect because of privacy concerns. Additionally, our focus on siting within New Orleans may have overlooked differences present in siting procedures outside the city, so future work could pursue a larger-*N* data set of cross-parish and cross-city census blocks. Indeed, Cutter (2006, 2010) and other scholars have begun creating broader maps of social vulnerability across the Gulf Coast and other portions of North America, and such GIS-based research fits well with the approach used in this article.

We believe that three larger conclusions for the broader field of public policy emerge from these findings. First, many scholars of controversial facility siting have envisioned the core warring philosophies in the field as technocracy and democracy (McAvoy 1999). Scholars have seen similar struggles in discussions of climate change science in Washington, D.C. (Lahsen 2005), and in the patterns of economic policy making (Freeman 2002). In these policy arenas, citizen input and feedback from local residents has often been ignored in favor of theories and evidence brought by the scientific elite and high-level bureaucrats. In the case of post-Katrina FEMA trailer siting, scientifically based "rational" decision makers selected less vulnerable areas, but local residents and politicians responded by blocking these attempts. In areas where residents' homes survived because of their height above sea level, they zealously protected these areas from encroachment by temporary housing promoters. The battle between top-down, rational administration and bottom-up responses clearly was alive and well even when politicians and residents agreed that housing was a top priority. This point is an important one for administrations at home and abroad to consider after future disasters and crises.

Next, at the end of the day, FEMA trailers ended up in geographically vulnerable areas—not necessarily socially vulnerable ones (although there may be overlap; cf. Cutter 2010). While scholars have criticized government officials for using race (Bullard 1990), socioeconomic factors (Mohai and Bunyan 1992), and other demographic conditions as the basis of siting, these arguments were not supported by our data. Rather, as siting these facilities in lower-ground areas proved easier, residents in temporary trailers faced both health risks (as mentioned previously) and vulnerability to future flooding. The terrible irony for Katrina survivors placed in these trailers would be their revictimization should New Orleans flood again before they found more permanent shelter. These patterns of revictimization are important for social scientists to understand and prevent (cf. Finkelhor, Ormrod, and Turner 2006).

Finally, these findings underscore the gap between abstract policy making and actual implementation, especially in the field of controversial facilities. As one multinational aid agency argued, "policy implementation is not a linear, coherent process" (USAID 2001). Research has often demonstrated the tremendous barriers between initial planning and eventual outcomes, including the political and social environments (Haines, Kuruvilla, and Borchert 2004, 726). Supporting these findings, this study of postdisaster study has underscored how difficult it can be to move from a coherent idea (siting trailers where they will stand a better chance of surviving future flooding) to outcomes (actually placing the housing on the ground). In a world certain to face greater numbers of disasters that will cause higher levels of damage, dealing sensitively and farsightedly with local sentiment and community concerns about housing should be a priority for decision makers.

Appendix: Potential Models for Facility Siting

One way to envision the siting process for FEMA trailers (or any controversial project) is as a latent, continuous variable that indicates the probability of successfully siting a project in the area. This might be thought of as a continuum of resistance potential or likelihood of mobilization, moving along the spectrum from an initial cut point at which resistance is high (and hence successful completion is unlikely) to a point at which resistance is weaker (and successful completion more likely) to one at which inhabitants actually want the project and do not resist (and success is all but guaranteed). A latent variable model with ordinal outcomes (as measured here) could be captured by an ordered probit or ordered logit model (cf. Long 1997, chap. 5). These regression models assume that the relationships between pairs of outcome groups are the same—the coefficients capturing the relationship between 0 and 1 also describe the relationship between 1 and 2. This is a strong assumption, and we look for other ways to capture these processes.

One alternative to the ordered logit/ordered probit models would be a multinomial logit model that assumes that the categories are nominal and not ordinal; for mlogit (multinomial logit) models, a Hausman test can be performed on the independence of irrelevant alternatives. However, in this case, the results are certainly "ordered" in that the three outcomes we measure (census block not selected for a site, census block selected but failed siting attempt, census block selected and successful siting outcome) are sequential. Further, a test model fitted on these data failed to meet the asymptotic assumptions of the Hausman test.

Another seemingly strong option would be a nested logit model that frames a decision process in which initial choices limit later ones; in the field of management operations, for example, the decision to use public transportation as opposed to a private vehicle limits the final choices available to commuters. However, for these siting data, decision makers are only making an initial decision—whether to place a facility in the site—while the political, social, and demographic environment makes the final "decision"—whether the attempt is successful. Hence there are different decisors for the different nests, and this violates the underlying framework of the nested model. An additional requirement for a nested logit model is full information on the subset of potential choices for each "nest"; for this investigation, it would require knowing the menu of potential trailer sites under consideration by city officials when they made their decisions about siting. To our knowledge, such data are not available. The nested model would also assume that the same decision makers who selected a site then decided whether to accept the site, which would not reflect empirical reality. Given these requirements and assumption, a nested logit seems inappropriate for these data.

Notes

1. Our unit of analysis throughout the article is the census block, defined by the U.S. Census Bureau as the smallest geographic unit of analysis (above the level of individuals and individual households).
2. Some have labeled these types of projects "public bads" because of their focused costs and diffuse benefits (see Aldrich 2008).
3. The potential negative health effects from the presence of high levels of formaldehyde and other toxic chemicals in the trailers (see Maddalena et al. 2009) have motivated many survivors to take legal action against FEMA (Associated Press, January 21, 2011).
4. Because of a lack of data, we did not include several other potential technocratic factors that FEMA officials may have used in their decision-making processes, including demand for temporary housing, cost, past land use, whether the land was planned for development, access to utilities, and engineering feasibility.

References

Aldrich, Daniel P. 2008. *Site Fights: Controversial Facilities and Civil Society in Japan and the West.* Ithaca, NY: Cornell University Press.

———. 2012. Post-Crisis Japanese Nuclear Policy: From Top-Down Directives to Bottom-Up Activism. *AsiaPacific Issues,* no. 103. http://www.eastwestcenter.org/download/4342/33250/api103.pdf [accessed April 3, 2013].

Aldrich, Daniel P., and Kevin Crook. 2008. Strong Civil Society as a Double-Edged Sword: Siting Trailers in Post-Katrina New Orleans. *Political Research Quarterly* 61(3): 378–89.

American Society of Civil Engineers (ASCE). 2007. *The New Orleans Hurricane Protection System: What Went Wrong and Why.* Reston, VA: ASCE.

Brandt, Patrick, and Christina Schneider. 2004. So the Reviewer Told You to Use a Selection Model? Selection Models and the Study of International Relations. Working paper. polisci2.ucsd.edu/cjschneider/working_papers/pdf/Selection-W041.pdf [accessed April 3, 2013].

Bullard, Robert. 1990. *Dumping in Dixie: Race, Class, and Environmental Quality.* Boulder, CO: Westview Press.

Burdeau, Cain. 2010. New Orleans Moves to Get Rid of Last FEMA Trailers. Associated Press, December 31. http://usatoday30.usatoday.com/news/nation/2010-12-31-new-orleans-fema-trailers_N.htm [accessed April 3, 2013].

Clingermayer, James C. 1994. Electoral Representation, Zoning Politics, and the Exclusion of Group Homes. *Political Research Quarterly* 47(4): 969–84.

Cooley, Alexander. 2008. *Base Politics: Democratic Change and the U.S. Military Overseas.* Ithaca, NY: Cornell University Press.

Cutter, Susan. 2006. The Geography of Social Vulnerability. Understanding Katrina: Perspectives from the Social Sciences, Social Science Research Council. June 11. http://understandingkatrina.ssrc.org/Cutter/index.html#e4 [accessed April 3, 2013].

———. 2010. Social Science Perspectives on Hazards and Vulnerability Science. *Geophysical Hazards: Minimizing Risk, Maximizing Awareness,* edited by Tom Beer, 17–30. New York: Springer.

Cutter, Susan, Bryan Boruff, and W. Lynn Shirley. 2003. Social Vulnerability to Environmental Hazards. *Social Science Quarterly* 84(2): 242–61.

Davis, Belinda, and Valentina Bali. 2008. Examining the Role of Race, NIMBY, and Local Politics in FEMA Trailer Park Placement. *Social Science Quarterly* 89(5): 1175–94.

Dow, Jay K., and James W. Endersby. 2004. Multinomial Probit and Multinomial Logit: A Comparison of Choice Models for Voting Research. *Electoral Studies* 23(1): 107–22.

The Economist. 2011. Nowhere to Go: Haiti's Tent Cities. September 10. http://www.economist.com/node/21528627 [accessed April 8, 2013].

Ekiert, Grzegorz, and Jan Kubik. 1999. *Rebellious Civil Society: Popular Protest and Democratic Consolidation in Poland, 1989–1993.* Ann Arbor: University of Michigan Press.

Evans, Bob, Judith Parks, and Kate Theobald. 2011. Urban Wind Power and the Private Sector: Community Benefits, Social Acceptance and Public Engagement. *Journal of Environmental Planning and Management* 54(2): 227–44.

Finkelhor, David, Richard K. Ormrod, and Heather A. Turner. 2006. Re-Victimization Patterns in a National Longitudinal Sample of Children and Youth. *Child Abuse and Neglect* 31(5): 479–502.

Flanagan, Barry E., Edward W. Gregory, Elaine J. Hallisey, Janet L. Heitgerd, and Brian Lewis. 2011. A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management* 8(1): Article 3.

Freeman, John R. 2002. Competing Commitments: Technocracy and Democracy in the Design of Monetary Institutions. *International Organization* 56(4): 889–910.

Fung, Archon. 2004. *Empowered Participation: Reinventing Urban Democracy.* Princeton, NJ: Princeton University Press.

Haines, Andy, Shyama Kuruvilla, and Matthias Borchert. 2004. Bridging the Implementation Gap between Knowledge and Action for Health. *Bulletin of the World Health Organization* 82(10): 724–32.

Hamilton, James. 1993. Politics and Social Costs: Estimating the Impact of Collective Action on Hazardous Waste Facilities. *RAND Journal of Economics* 24(1): 101–25.

Heckman, James J. 1979. Sample Selection Bias as a Specification Error. *Econometrica* 47(1): 153–61.

Jasper, James. 1992. Three Nuclear Energy Controversies. In *Controversy: Politics of Technical Decisions,* 3rd ed., edited by Dorothy Nelkin, 97–111. Beverly Hills, CA: Sage Publications.

Johnson, David. 2008. Using Weights in the Analysis of Survey Data. Presentation prepared for the Population Research Institute, Pennsylvania State University, November.

King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research.* Princeton, NJ: Princeton University Press.

King, Gary, Michael Tomz, and Jason Wittenberg. 2000. Making the Most of Statistical Analyses: Improving Interpretation and Presentation. *American Journal of Political Science* 44(2): 347–61.

King, Gary, and Lanche Zeng. 2001. Logistic Regression in Rare Events Data. *Political Analysis* 9(2): 137–63.

Lahsen, Myanna. 2005. Technocracy, Democracy, and U.S. Climate Politics: The Need for Demarcations. *Science, Technology, and Human Values* 30(1): 137–69.

Lee, Matthew, Frederick Weil, and Edward Shihadeh. 2007. The FEMA Trailer Parks: Negative Perceptions and the Social Structure of Avoidance. *Sociological Spectrum* 27(6): 741–66.

Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables.* Thousand Oaks, CA: Sage Publications.

MacTavish, Katherine. 2006. We're Like the Wrong Side of the Tracks: Upscale Suburban Development, Social Inequality, and Rural Mobile Home Park Residence. Working Paper no. 06-03, Rural Poverty Research Center.

Maddalena, Randy, Marion Russell, Douglas P. Sullivan, and Michael G. Apte. 1999. Formaldehyde and Other Volatile Organic Chemical Emissions in Four FEMA Temporary Housing Units. *Environmental Science and Technology* 43(15): 5626–32.

McAvoy, Gregory E. 1999. *Controlling Technocracy: Citizen Rationality and the NIMBY Syndrome.* Washington, DC: Georgetown University Press.

Mohai, Paul, and Bryant Bunyan. 1992. Environmental Racism: Reviewing the Evidence. In eds., *Race and the Incidence of Environmental Hazards: A Time for Discourse,* edited by Bunyan Bryant and Paul Mohai, 163–76. Boulder, CO: Westview Press.

Nelson, Rob, and James Varney. 2005. "Not in My Back Yard" Cry Holding Up FEMA Trailers. *Times-Picayune* (New Orleans, LA), December 26.

Peacock, Walter, Nicole Dash, and Yang Zhang. 2007. Sheltering and Housing Recovery Following Disaster. In *Handbook of Disaster Research,* edited by Havidán Rodríguez, Enrico L. Quarantelli, and Russell R. Dynes, 258–74. New York: Springer.

Rabe, Barry G. 1994. *Beyond NIMBY: Hazardous Waste Siting in Canada and the United States.* Washington, DC: Brookings Institution.

Rabe-Hesketh, Sophia, and Brian Everitt. 2007. *A Handbook of Statistical Analyses Using Stata.* 5th ed. Boca Raton, FL: Chapman & Hall/CRC Press.

Salsich, Peter W. 2000. Affordable Housing: Can NIMBYism Be Transformed into OKIMBYism? *St. Louis University Public Law Review* 19: 453–74.

Sartori, Anne E. 2003. An Estimator for Some Binary-Outcome Selection Models without Exclusion Restrictions. *Political Analysis* 11(2): 111–38.

Schattschneider, E. E. 1960. *The Semisovereign People: A Realist's View of Democracy in America.* New York: Holt, Rinehart and Winston.

Schlesinger, Jacob M. 1999. *Shadow Shoguns: The Rise and Fall of Japan's Postwar Political Machine.* Stanford, CA: Stanford University Press.

Sheingate, Adam D. 2001. *The Rise of the Agricultural Welfare State: Institutions and Interest Group Power in the United States, France, and Japan.* Princeton, NJ: Princeton University Press.

Spiegelhalter, David, Mike Pearson, and Ian Short. 2011. Visualizing Uncertainty about the Future. *Science* 333(9): 1393–1400.

Takahashi, Lois. 1998. *Homelessness, AIDS, and Stigmatization: The NIMBY Syndrome at the End of the Twentieth Century.* Oxford, UK: Oxford University Press.

Tomz, Michael, Jason Wittenberg, and Gary King. 2001. CLARIFY: Software for Interpreting and Presenting Statistical Results. Version 2.0. http://gking.harvard.edu/publications/clarify-software-interpreting-and-presenting-statistical-results [accessed April 3, 2013].

Turaga, Rama Mohana, Douglas Noonan, and Ann Bostrom. 2011. Hot Spots Regulation and Environmental Justice. *Ecological Economics* 70(7): 1395–1405.

U.S. Agency for International Development (USAID). 2001. *Policy Implementation: What USAID Has Learned.* Washington, DC: Center for Democracy and Governance.

Varney, James, and Martha Carr. 2005. FEMA Drafting Trailer Park Map: Uptown, West Bank Sites on Initial List. *Times-Picayune* (New Orleans, LA), October 26.

Walker, Gordon, and Kay Burningham. 2011. Flood Risk, Vulnerability and Environmental Justice: Evidence and Evaluation of Inequality in a U.K. Context. *Critical Social Policy* 31(2): 216–40.

Yeo, Andrew. 2009. Not in Anyone's Backyard: The Emergence and Identity of a Transnational Anti-Base Network. *International Studies Quarterly* 53(3): 571–94.

Xie, Yu, and Charles Manski. 1989. The Logit Model and Response-Based Samples. *Sociological Methods and Research* 17(3): 283–302.