Internal migration of floodplain populations in four riverine U.S. Cities

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Introduction

Internal migration has been characterized by a population shift from rural to urban areas. In the United States, the portion of the population that lives in urban areas has risen steadily from 30% in 1910 to more than 70% in 1990. Population-environment interactions often motivate such internal migratory movements. For example, ranchers and farmers in the nineteenth and early twentieth centuries aggressively exploited the land and set up the region for ecological disaster. As a result, 60 percent of the population was driven from the region, first to other agricultural areas and then to cities, especially in the Far West. This paper deals with a more recent type of population-environment interaction that motivates internal migratory movements: the acquisition and removal of repetitively flooded properties (houses and businesses) as a result of federal programs aimed to mitigate the devastating impact of flooding. Although the impact of this migratory push is relatively small to the population at large, these shifts can be significant to the structure, form, and culture of small towns and cities or neighborhoods within larger metropolitan areas. In addition, due to the predicted rise of ocean levels due to global warning, better understanding of the socio-demography of floodplain populations is of increasing significance to larger metropolitan regions.

Of all natural hazards, flooding remains the most frequent and injurious (Mileti 1999). It is also the most costly (Mileti 2000; NSF 1980). Despite billions spent on flood control measures, flood losses continue to mount, as more people and property become exposed to flooding (Godschalk et al. 1999). Today, about 53% of the US population resides along its coastal fringe on about 17% of the land area in contiguous U.S, and fourteen of 20 largest U.S. cities are located in coastal zones. For many of these vulnerable communities, it is not uncommon for flood-damaged homes to be repaired or rebuilt, only to be damaged or destroyed again by a subsequent flood. These so-called "repetitively-damaged" properties account for a disproportionate share of the losses incurred by the National Flood Insurance Program (NFIP). Under the NFIP, Congress makes affordable flood insurance available to property owners in communities that agree to adopt and enforce floodplain management ordinances that meet the minimum criteria established by the Federal Emergency Management Agency (FEMA).

One way to break the cycle of development-destruction-redevelopment is through public acquisition of developed and vacant floodplain property. Since the early 1970s, acquisition and relocation programs have been implemented in hundreds of communities across the United States, including the purchase of 1,400 parcels in Rapid City, South Dakota following the 1972 flood and relocation of 80 families from the Salt Creek floodplain in DuPage County, Illinois (Burby et al. 1988). It was not until the devastating midwestern flood of 1993, however, that public acquisition of flood-prone property really took off. Since that record-breaking flood, voluntary buyouts, which include purchase of vacant property in floodplains, purchase and relocation of existing structures, and purchase and demolition of flood-damaged structures, have become a major new focus in FEMA's overall strategy to mitigate flood losses (FEMA 1998). Since 1993, FEMA has purchased, from willing sellers, more then 20,000 properties in 36 states and one territory and acquired easements on approximately 400,000 acres of flood prone farmland in 14 states (NWF 1998).

This paper aims to answer two questions. First, what populations are impacted by buyout and acquisitions programs? Secondly, to what extent did this demographic displacement help property owners relocate to better off areas? FEMA's working assumption is that the vulnerability of local population was indeed reduced. Yet, very little is known about these buyout populations while no follow-up monitoring of conditions for populations after relocation is done. This paper will fill this gap by providing a descriptive socio-demographic and geographic overview of a buyout population sample from four U.S. Cities that experienced flooding and decided to participate in a buyout program in order to relocated elsewhere. The surveyed Cities are Austin (TX), Grand Forks (ND), Kinston (NC), and Greenville (NC). In addition, qualitative information of some of the political dynamics will be used to contextualize the motivations behind these urban shifts.

Method

The data for this paper are based on data from Fraser et al. (2003), who conducted a study in these sites during 2001-2003. The study results are taken from interviews and a survey that was conducted with a randomly selected set of home owners previously located in the 100-year floodplain, highlighting key factors that were found to influence homeowners' decisions about participating in a buyout program as well as buyout staff reports of these programmatic efforts. The sample population was determined by the geographical boundaries employed by each locality to determine household eligibility (i.e., 100-year floodplain maps), and complete lists of all the households that fell within this area. From these lists households were selected randomly. The selection of respondents from within each household was the adult, over the age of eighteen, who actually made the decision of whether or not the household would participate in the buyout program or not. The survey included a series of questions that asked respondents about: their attachment to their neighborhood prior to the flood, including household characteristics; the amount and type of flood damage that they experienced during the most recent flood; their perceptions of future risk of flooding; the complexity of their decision-making as it related to seeking input from potential significant other including neighbors, family, government officials, city planners, faith-based organizations, and other community-based groups; their experiences with staff operating the buyout programs; and, demographic information on the individual household respondents. The total number of relocated households sampled was 281, with a response rate of just over seventy percent. The flooded and relocated locations for each household was geocoded and mapped. The sample size and total number of relocated households per City are shown in Table 1.

Table 1. Surveyed sample size of relocated household population

City	Sampled relocated household	Total relocated households	Total household in City
Grand Forks (ND)	104	800	19,658
Greenville (NC)	63	450	16,594
Kinston (NC)	84	700	9,885
San Antonio (TX)	41	400	405,887
Total	281	2350	

Results

The results show a diversity of population and political characteristics for each site, while regional difference can be seen in terms of the relocation patterns. The paper will relate population descriptions to the larger mean for the Cities in order to assess to what extent population differ from the mean. Generally, the oldest buyout households before relocation were found in Kinston and Greenville were the average length of stay was 22 and 20 years respectively, followed by 16 years in grand Forks, and 9 years in San Antonio. Family sizes however were reversed, with the largest size in San Antonio, and the smallest in Kinston and Greenville, which could be explained by the difference in age. Another crucial differences was the racial make up of the sites, with mostly all of the residents in Kinston being African-American, those in Greenville both Caucasian and African-American, those in Grand Forks all Caucasian, while in San Antonio a mixture of Hispanic, African-American, and whites was seen. In terms of relocation, most of the households relocated within City limits due to FEMA program restrictions. Of those in Kinston, 20% chose however not to (bypassing major benefits of the program), of which 8% relocated within the County, 8% somewhere else in the State, and 4% out of state. With regards to upwards mobility, most residents in eastern North Carolina showed some upward mobility in terms of the median housing value in their neighborhood. This was not the case for Grand Forks nor San Antonio.

For most that participated in the buyout, life was still getting back to normal, and residents felt a mixture of relief and sadness over their new start and the community and connections they left behind. For some homeowners, moving into a new home was a blessing; many residents noted that they were in better quality housing, were in a better neighborhood or more desirable location, or were closer to family members. Several Kinston and Greenville homeowners said they were pleased because their new neighborhood was quieter, had well maintained roads, and had less drug use and crime. Many Kinston residents were also pleased because they were relocated along with many of their old neighbors, and were able to retain some neighborhood cohesiveness. Other residents expressed that they were slowly fitting into their new neighborhood, were getting to know their neighbors, and were finding ways to contribute to their community. One Kinston homeowner was particularly happy that his neighbors were proud of his "handyman abilities." Complaints residents had about their new neighborhoods included being farther away from old neighbors or family members, being farther away from church, from shopping facilities, from their place of employment, a lack of transportation, and increased traffic or noise. For many residents the most difficult aspect of their relocation was feeling they were not a part of the neighborhood, and lacked the sense of home they felt before.

Local officials administering the buyout noted that the buyout had other important community benefits, such as making homeowners out of some renters, moving people out of the floodplain, renewing a sense of community pride and connection, and changing some individuals' perceptions of local government for the better. Buyout administrators also added that as a result of the buyout, cities were able to acquire property that they could use for recreational space for the community, they were able to improve downtown infrastructure and revitalize public housing, they were able to help improve the infrastructure of their downtown, and save money in the long run, as lessons were learned that could be applied during the next disaster. In addition, many city staff commented

that positive working relationships among agencies and residents were built and cultivated, and that, in some cases, community residents were able to organize around the buyout issue and create new leadership. Negatives of the program that buyout staff highlighted were the loss of much-needed, affordable housing stock, a heightened mistrust of government by residents, and the inability to remove everyone from the floodplain. Some officials also noted that the time and effort needed to administer the program took away from the provision of normal city services, and took a heavy toll emotionally on residents and buyout staff. Interestingly, most residents interviewed felt that they were unable to advocate for themselves regarding buyout participation; the vast majority (79%) stated that they felt they had no choice but to participate in the program, since any options presented to them were simply not practical or financially feasible. Many residents also felt that they had no say in where they could relocate, and were angered that there was no discussion over this issue. Further, 42% of the households interviewed reported that, if given the opportunity, they would have stayed and rebuilt.

Discussion

Diversity can be seen among the relocation patterns across the four sites. Generally, affected populations tend to be older minorities on the lower side of the economic scale in the southeast. Although the removal of population from floodplain areas shows a general upward mobility for those who are at the lower end of the socio-economic spectrum, there is considerable ambiguity over the extent to which these migratory processes were voluntary or not. Certainly the perception of success as stated by officials in interviews seems somewhat overstated. For many City officials, the neighborhood cleansings often meant a community development strategy helpful in cleaning up “old” or “dilapidated” problem areas, in particular in North Carolina. For citizens on the other hand, it not infrequently meant a loss of community and sense of place. In particular in the southeast, this geographic redistribution meant a loss of community culture in the oldest minority neighborhoods in the Cities.

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