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As Disaster Costs Rise, So Does Inequality

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Abstract

Across the United States, communities are experiencing increases in the frequency and severity of natural hazards. The pervasiveness and upward trajectory of these damages are worrisome enough, but equally disconcerting are the social inequalities they can leave in their wake. To examine these inequalities, the authors linked county-level damage data to a random sample of American households. The authors visualize the pervasiveness of natural hazards as well as their influence on racial wealth gaps over time. The results show that natural hazard damages and how relief is provided afterward exacerbate the growing gap between white and black wealth.

Keywords

natural hazards, wealth inequality, racial inequality

For the second year in a row, "once in a lifetime" storms have hit the United States. This year it was Hurricanes Florence and Michael. Last year, it was Hurricanes Harvey, Irma, and Maria, which combined to exceed $300 billion in direct damages, a new U.S. annual record (National Centers for Environmental Information, National Centers for Environmental Information 2018). Yet these storms represent only the most extreme natural hazards to hit the country. As the map in Figure 1 shows, all but four U.S. counties experienced substantial damage from some type of natural hazard between 1999 and 2013, with an average of $11 million in direct (noncrop) property damage, a figure that is projected to increase in coming years under even the most conservative of scenarios (Preston 2013).

The pervasiveness and upward trajectory of these damages are worrisome, but so too are the social inequalities they can leave in their wake. To examine these long-term dynamics, we merged county-level data on property damages from natural hazards (displayed in the map in Figure 1) with a random sample of approximately 3,400 American households surveyed every two years in the restricted geocoded version of the Panel Study of Income Dynamics between 1999 and 2013. Using a model first presented in Howell and Elliott (forthcoming), we simulate wealth accumulation over time for white and black respondents, net of average accumulation over this period and holding the following factors constant at their means: starting wealth in 1999, educational attainment, age, nativity, marital status, number of children, homeownership, residential mobility, annual insurance premiums paid, neighborhood socioeconomic status, and county population and index of urban development. As displayed in the graphs below, the results indicate that the more natural hazard damages accrue in a county, the more wealth white residents tend to accumulate, all else equal. Blacks, on the other hand, tend to lose wealth as local hazard damages increase.

To assess policy impacts, we next added county-level financial assistance received from the Federal Emergency Management Agency. Our findings indicate that, holding disaster costs constant, the more Federal Emergency Management Agency money a county receives, the more whites' wealth tends to grow and the more blacks' wealth tends to decline, all else equal. In other words, how federal assistance is currently administered seems to be exacerbating rather than ameliorating wealth inequalities that unfold after costly natural hazards.

These findings are robust across a variety of model specifications that include both random- and fixed-effects estimators for time-variant factors, including wealth and hazard damage. What remains less clear are the mechanisms connecting these dynamics. Prior research on both wealth inequality and disasters suggests that there is likely to be not one link but many that compound over time. These mechanisms include differential access to government assistance, differential disruption to housing and

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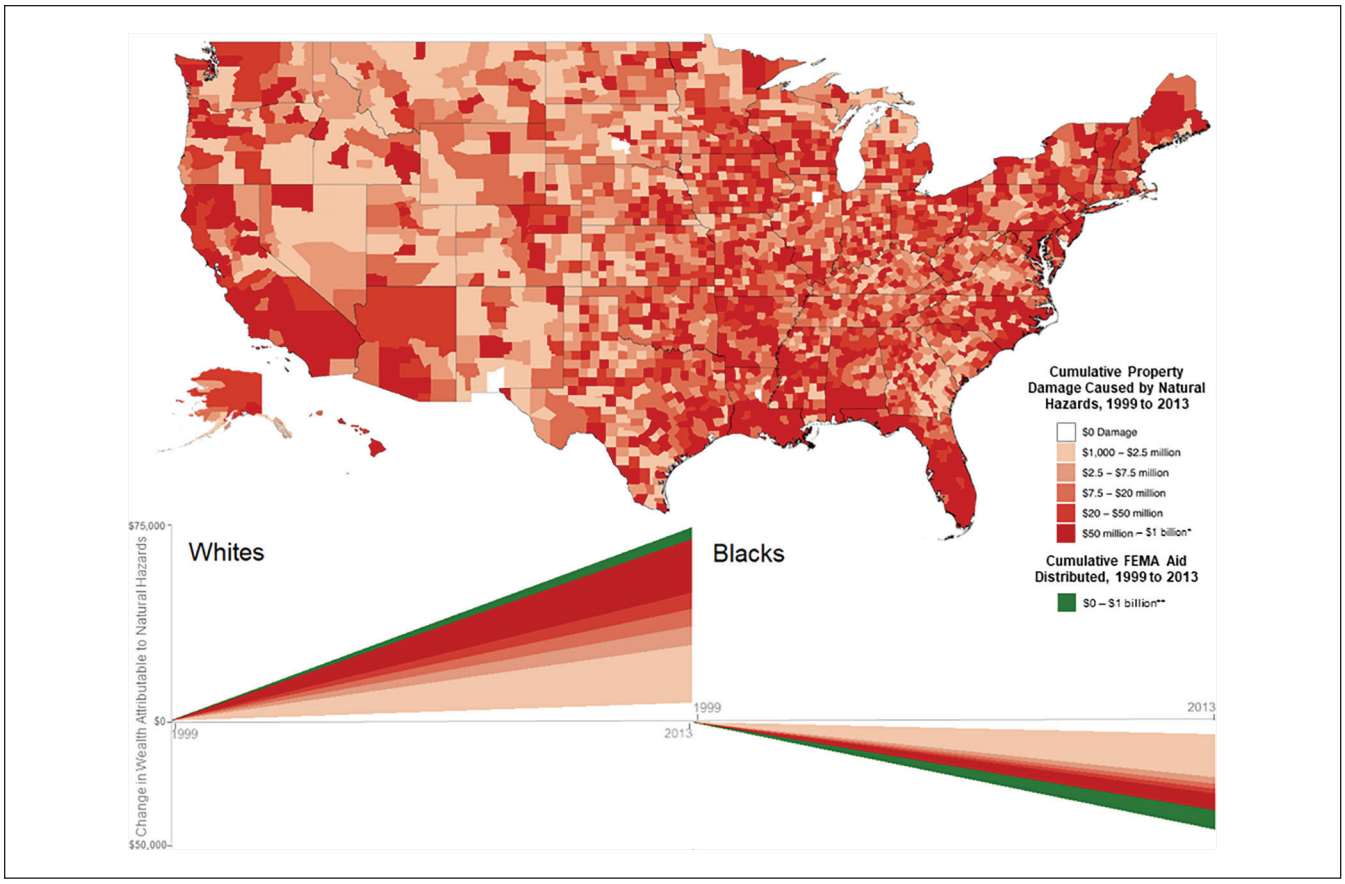

Figure 1. Cumulative property damage from natural hazards and its effects on racial wealth gaps in the United States, 1999-2013. The map displays the cumulative property damage caused by natural hazards in each county from 1999 to 2013.

Source: SHELDUS Data, version 15.2. The graphs below the map display the predicted wealth accumulation attributable to natural hazards for Whites and Blacks. The models used to create the simulations hold educational attainment, age, nativity, marital status, number of children, homeownership, residential mobility, annual insurance premiums paid, neighborhood socioeconomic status, and county population and index of urban development constant.

Model 7 of Table 2 and Model 5 of Table 4 in Howell, Junia and James R. Elliott. 2018. "Damage Done: The Longitudinal Impacts of Natural Hazards on Wealth Polarization in the United States." *Social Problems*. DOI: 10.1093/socpro/spy016.

*Some counties in the map experienced more than $8 billion in natural hazard damages. For our simulations, we use an upper limit of $1 billion to illustrate a more common scenario.

**Although we do not display FEMA aid allotments in the map, we add a final ban to the graph projecting the influence of FEMA aid on wealth accumulation. This ban represents families living in a county with $1 billion in natural hazard damages who received $0 (bottom of ban) in FEMA aid to $1 billion (top of ban) in FEMA aid.

income, and unequal opportunities to tap into substantial flows of recovery capital that stream into damaged areas, regardless of whether one is immediately affected or not. As we continue to sort through these mechanisms, one thing seems clear: two major challenges of our age—how we respond to rising wealth inequality and how we respond to rising disaster costs—are connected. Moreover, few places are immune, which not only raises new scholarly questions but also encourages us to reconsider how we provide relief after disasters, large and small.

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Author Biographies

Junia Howell is an assistant professor of sociology at the University of Pittsburgh. Her research investigates how local and national policies perpetuate racial and socioeconomic inequality. By applying critical race theory to urban sociological investigations of neighborhood effects, racial residential segregation, home appraisals, and natural hazards, her work illuminates how policies and practices enable opportunity hoarding.

James R. Elliott is a professor of sociology at Rice University. His research focuses on the dynamic intersections of urbanization, social inequality, and the environment. His recent coauthored book with Professor Scott Frickel was published as part of the American Sociological Association's Rose Series in Sociology. It is titled Sites Unseen: Uncovering Hidden Hazards in American Cities, published by the Russell Sage Foundation in Fall 2018.