Social Capital and Recovery: The Influence of Community Social Institutions

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ABSTRACT

Social capital plays an important role in post-disaster recovery outcomes. Social institutions provide a unique opportunity to quantify social capital as they allow community members to interact with each other to build trust and act collectively. This study uses a novel measure of social institutions, utilizes publicly available point data on social institutions across the entire United States, and adds a dimension of institutional diversity. The influence of social institutions, such as civic, religious, and educational institutions, on disaster recovery outcomes in the Gulf Coast Child and Family Health Study is examined. Using business pattern data from the Dun and Bradstreet Million Dollar Database, we geocoded 63,947 social institutions in ArcGIS 10.2. A factor analytic approach reduced the 68 types of social institutions to seven factors. A measure of social institutional quantity and diversity at the neighborhood level was developed using an additive model. We found community level social institutions had little impact on individual level disaster recovery outcomes. At the individual level social support, self-efficacy, income, and food security are important for better recovery. These findings expose one of the perpetual tensions in concepts of recovery, that the fates of individuals and households can be very different from that of the community as a whole. The implications of this evidence for policy makers is that they must maintain an ambidextrous approach to disaster recovery planning and activities in terms of what scales at which they wish to make an impact.

Introduction

Social capital, defined as “the norms and networks that facilitate collective action” or the “resources embedded in social networks and social structure that can be mobilized by actors”, is a critical component of disaster recovery and resilience\textsuperscript{1}. Social capital is viewed by disaster scholars as essential for responding to the new and unexpected problems that arise in disasters\textsuperscript{1} and is distinct from other types of capital that communities maintain. Social capital is less affected than physical and human capital in a disaster as it is not a physical asset that can be damaged in a hazard event. Consequently, social capital is a critical pre-existing resource that

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can be leveraged in a disaster to respond to the novel problems that arise rather than setting up new systems, structures, and norms solely for emergency response purposes 1. Establishing a mechanism where communities can foster collective responsibility, identify community capacities, and become involved in planning increases social capital1,2. Social capital has been viewed as powerful for influencing community recovery, even more important than the level of aid a community receives 3.

We hypothesize that communities with greater numbers and diversity of community social institutions provide greater opportunities for individuals to interact to build networks and relationships in their communities. Social institutions are a quantifiable mechanism for building social capital at the community level. This community social capital can be leveraged following a disaster to take the collective action necessary for recovery. This study examines on the influence of a community’s social fabric on individual disaster recovery by examining the impact of the quantity, types, and diversity of social institutions present in a community on individual disaster recovery. I base this line of inquiry on two assumptions. First, neighborhoods matter. They influence a wide range of community and individual health outcomes, including disaster recovery. Second, community factors such as social capital also influence disaster recovery.

Methods

Exploratory factor analysis and principal component analysis were used to develop a novel Social Institutions Index that measures the number, types, and diversity of social institutions at the census block group level. Social institutions data were obtained from the Dun and Bradstreet Million Dollar Database and include libraries, schools, medical facilities, and civic, professional, and religious groups. Recovery data were obtained through a collaboration with the National Center for Disaster Preparedness using data from the Gulf Coast Child and Family Health (G-CAFH) Study conducted between 2006 and 2010. Hierarchical logistic modeling were used to investigate the contextual effects of community social institutions on disaster recovery outcomes in a sample of households heavily impacted by Hurricane Katrina. Analyses were conducted using ArcGIS 10.1 and Stata 13.1. We first explore whether social institutions were associated with demographic characteristics at the community level and then examine the individual level outcome of perceived disaster recovery.

Findings

We placed the factors from our exploratory factor analysis and principal component analysis into an additive model to compute a summary score for total number of social institutions (range 1-351, median 8.00), and total diversity of social institutions (range 1-36, median 5.0) and by individual factor. Spearman’s rho nonparametric correlations were computed to examine the relationship between demographic characteristics and quantity and diversity of social institutions for each census block group. Greater numbers of social institutions in the neighborhood were associated with fewer males greater Hispanic/Latino populations, greater households with children, and higher median age, per capita income, employment, and occupied housing units. Similar patterns were seen when social institutional diversity was examined with demographic factors.
To further explore the relationship between social institutions and census block group demographic characteristics, we examined each of the social institutional summative and diversity components individually. While we observe low correlations between the overall quantity of social institutions and demographic characteristics, for many of the individual factors we observed stronger relationships. For communities with greater Hispanic and Latino populations, greater quantity of households with children, higher median age, and greater total occupied housing units we observe that the association with total number of social institutions is driven by stronger correlations with Child and Elder Care and Recreational institutions. For communities with greater employment over the age of 16 we observe that the association with total number of social institutions is driven by greater quantity of institutions in the Medical Care, Voluntary Social Organizations, and Recreation institutions. We also observe that most of correlation between per capita income and total social institutions in the community is driven by the association with Recreational institutions. When examining the correlations between social institutional diversity and demographic characteristics we observed the same patterns.

When investigating the relationship between social institutions and perceived disaster recovery outcomes, we fit a hierarchical logistical model with social institutions at the ecological level and perceived disaster recovery and demographic characteristics at the individual level. We found that the number $[\beta \ 0.0024, \ 95\% \ CI \ (-0.016, \ 0.020)]$ and diversity $[\beta \ 0.0277, \ 95\% \ CI \ (-0.049, \ 0.104)]$ of social institutions in the neighborhood were not associated with individual level recovery outcomes after accounting for the individual level factors. Certain individual level factors are strongly associated with positive disaster recovery outcomes. At the individual level, we found that social support, self-efficacy, income, and food security are important for better recovery outcomes. In general, people recover better following disasters when they have enough food and money and they feel like they have the skills and resources to handle the situation.

This study takes an important step to break up the construct of social capital and explore its influence at multiple levels. Dynes describes social capital as a community level construct that accumulates at the community level \cite{1,7}. Our study finds that this effect does not trickle down to influence individual level disaster recovery outcomes. This raises concerns about overemphasizing social capital as the solution that communities can focus on building prior to a disaster and that will make recovery easier, faster, or result in better outcomes.

**Conclusion**

These findings expose one of the perpetual tensions in concepts of recovery, that the fates of individuals and households can be very different than that of the community as a whole. The implications of this evidence for policy makers is that they must maintain an ambidextrous approach to disaster recovery planning and activities in terms of what scales they wish to make an impact. At the community level there may be value in community based institutions however individual recovery trajectories are determined by individual level characteristics such as income and employment, housing, and household make up that are not easily manipulated by policy interventions. One implication of this which is suggested by both this study and other literature is that policy makers and emergency managers should orient their recovery planning around how to connect people who are generally underserved with community based organizations to meet their needs in the absence of disaster as it is community development in the absence of disaster that is
the path to improving disaster resilience. Faith in social capital is not going to be the panacea that delivers us to community recovery and resilience at least not without a more nuanced understanding of the scale in which it plays out.

We were limited in the exploration of the role of community social institutions on disaster recovery outcomes by the use of secondary data. While the Dun and Bradstreet database categorizes businesses in the U.S. allowing researchers to investigate specific types of organizations, it does not contain information on organizational capacity, services, or service area. This investigation was less hampered by using secondary data from the G-CAFH Study as the outcome of interest was disaster recovery and the G-CAFH Study aimed to assess this outcome.

This study builds on the existing disaster science scholarship by adding a novel measure of community social institutions as a mechanism for building social capital that can be aggregated to any meaningful scale of analysis and includes a more comprehensive set of social institutions than previous research studies. Applying a measure of community social institutions to individual level disaster recovery outcomes data using both survey and administrative data to empirically investigate the relationship between factors at different levels of analysis takes an important step towards addressing existing gaps in the literature on disaster recovery, social institutions, and social capital. Our next steps in this investigation are to apply the social institutions measure in communities impacted by a different scale event, a different hazard type, and in a different geographic area, to conduct interviews with social institutions in a few communities where respondents reside to explore the capacity, services offered, and service area and explore a theoretical grouping of institutions to learn more about the role of social institutions in disaster impacted communities.

References


