

A Janus-Faced Resource: Social Capital and Resilience Trade-Offs

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Much research has underscored the critical role played by social capital in building resilience in communities and organizations. In a time of crisis, we know that individuals with more connections embedded in communities that are more cohesive and better connected horizontally and vertically have higher survival rates and better recoveries compared to similar individuals and locations that are less connected. Yet, a more nuanced analysis reveals resilience trade-offs between types of these social connections. This piece investigates how different types of social ties, including bonding, bridging, and linking ties, create different resilience trajectories for neighborhoods and institutions, and how they impart dynamic effects on pre-disaster neighborhood vulnerability.

An introduction to community resilience

In the wake of mega-disasters in New Orleans, Kobe, Bangkok, and more, experts have increasingly highlighted the importance of building resilience over risk management alone. We define *community resilience* as the capacity of a neighborhood or geographically defined community to anticipate, absorb and manage stressors and efficiently return to daily activities in the wake of a shock to social, physical, or ecological systems (Aldrich, 2012; NAS, 2018; *Executive Order No. 13653*, 2013). Scholars have connected community resilience with a variety of outcomes: increased local capacity and social support, effective communication systems, good community physical and mental health and public involvement in governance (Patel, Rogers, Amlôt, & Rubin, 2017; Food and Agricultural Organization [FAO] 2011). By investing in community resilience, cities can better prepare themselves to bounce back better after disaster strikes.

Social capital - the ties that bind us - is a strong driver of resilience during and after disasters (Aldrich, 2012; Rackin & Weil, 2015). Following Hurricane Katrina, for example, the Vietnamese-American community quickly returned to New Orleans East despite having comparatively few financial resources and low levels of education. The strength of their connections, the leadership of the local Mary Queen of Vietnam (MQVN) Catholic Church, and connections with national co-ethnic institutions organized their evacuation, eased barriers to collective action and helped efficiently rebuild their community (Chamlee-Wright & Storr, 2009; Airriess et al., 2008). However, in some nearby communities throughout the Greater New Orleans area, recovery moved slowly, especially in terms of finding housing for residents in the first year after the storm. While many publicly agreed

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that temporary housing in the form of FEMA (Federal Emergency Management Agency) trailers contributed to recovery, residents viewed them negatively and sought to keep such facilities out of their neighborhoods. Utilizing and leveraging their ties, communities with higher levels of social capital were successful in keeping trailers - considered a 'public bad' - out of their backyards. Public bads are facilities that benefit the public but impart focused costs to the communities that host them, including FEMA trailers in disaster-struck towns, seawalls in coastal fishing communities, or controversial power plants. Opposition to these public bads slowed recovery throughout New Orleans as bureaucrats scrambled to find places for temporary housing (Aldrich & Crook, 2008; Aldrich, 2012). Without adequate housing, some residents may leave town, leaving local officials unclear of who reconstruction will serve. The longer residents stay away, the weaker their ties to home become, as stories of some New Orleans jazz musicians – who relocated to Chicago never to return – illustrate. These methods of disaster adaptation can weaken social ties, hindering recovery for communities overall.

These examples illustrate how a community can leverage different kinds of social capital in different ways to mitigate risk and improve resilience. The Vietnamese-American community used its close-knit ties to serve the people within its community, while communities throughout the Greater New Orleans area used their linking social capital to keep out 'public bads' and slow recovery elsewhere. To gain a greater understanding of the dynamic resilience outcomes of bonding, bridging and linking social capital, we investigate how these three types of social capital can create different resilience outcomes across communities faced with uncertainty and unexpected disturbances.

Social capital in community resilience

Because cities face an uphill battle when predicting the risk, scale, intensity, and timing of shocks and stressors, some communities have instead chosen to invest in community resilience and mitigate vulnerabilities before disaster strikes. Whereas risk management strategies, such as levies, only pay off if a city successfully avoids a shock, social capital and community resilience convey benefits before, during, and after disaster. As a result, scholars of community resilience increasingly describe risk and resilience in terms of the social capital of a community.

Social capital matters to community resilience because social ties in a community can offer a kind of communal insurance or capital where members can share information and resources, increasing the capacity of communities to respond to crisis (Tierney, 2014). Social capital comes in three types: bonding, bridging, and linking. Bonding social capital describes homophilous relationships between family, close friends, members of a social group or those who share ethnic or class ties (McPherson, Smith-Lovin, & Cook, 2001). In contrast, bridging social capital refers to relationships between people across different social and ethnic groups, and these ties are often built by civic and political institutions such as parent-teacher associations and advocacy groups (Small, 2010). Bonding and bridging social capital typically describe horizontal relationships among equals, whereas linking capital describes vertical relationships of respect and trust between persons and officials or ranking community members who exercise authority over them (Szreter & Woolcock, 2004). Access to these relationships with community officials means better representation of residents' wants and needs in disaster-related planning.

Trade-offs of social capital in community resilience

Social capital in its three forms can impart unique and sometimes detrimental effects on community resilience, especially in communities that have developed more bonding social capital than bridging social capital. Social capital does not increase the appetite of communities for risk, but it can engineer uneven recovery across cities. In this way, building resilience can produce moral hazards of its own.

This is particularly clear in the effect of social capital on post-disaster poverty rates in the United States. When residents try to rebuild homes, community recovery carried out through bonding social capital-based groups tends to absorb resources and impoverish the overall community. In contrast, bridging and linking groups assist at the county level over time. For example, after Hurricane Harvey in 2017, a wealthy church in the River Oaks neighborhood ceased its financial support for a local low-income church in order to help its own congregants, disrupting the flow of social and financial resources for low-income communities more than the disaster did itself. Broader analysis shows this to be true over time and space. Between 1985 and 2015, US counties heavily damaged by natural hazards developed higher poverty rates afterwards if they developed more religious or civic organizations that facilitate bonding ties, while developing more advocacy organizations that boost bridging ties *reduced* poverty rates (Smiley, Howell, & Elliott, 2018, p. 18).

These trade-offs are evident in disasters abroad as well. During the Great Floods in Thailand in 2011, government agencies, community and faith-based organizations, and private enterprises that were more closely connected in urban and suburban areas delivered worse disaster aid than those groups in rural areas. These rural organizations benefited from stronger bridging ties, which afforded better coordination among organizations (Andrew et al., 2016).

Yet an excess of bonding capital at the expense of bridging capital is not the only problematic resilience trade-off. If communities have significant bonding capital *and* linking capital, but lack bridging capital, the resulting unequal access to local officials can compound disparities in recovery rates.

For example, following the Indian Ocean Tsunami, coastal hamlets throughout the southern state of Tamil Nadu with high levels of bonding and linking social capital had more access to aid and assistance from NGOs and government officials (Aldrich, 2012). These villages had a higher percentage of new and rebuilt homes. Villages that had to rely solely on bonding social capital experienced greater difficulty securing aid and assistance. Compared to villages with both bonding and linking social capital, families holding only bonding ties remained in shelters for an extended period of time and had fewer resources to rebuild or build anew.

Likewise, in New Orleans, communities only with strong local, bonding social capital did not receive resources necessary for effective recovery (Elliott, Haney, & Sams-Abioudun, 2010). Residents of the Lower Ninth Ward, a disproportionately poor community, suffered significant setbacks because they were unable to access their translocal ties, compared to the residents in Lakeview, a neighborhood in New Orleans considered to be well off. This neighborhood had strong local ties along with a higher share of white residents, income levels, house prices, and education levels, compared to New Orleans's many more diverse, often poorer neighborhoods. In a time of crisis, local ties can serve an important role when one needs help from someone nearby; however, in the event of an evacuation or forced egress, translocal ties spatially located outside of the affected area can provide

uninterrupted support because they are unaffected by the crisis. For Lakeview, these translocal ties expedited their evacuation and eventual return to New Orleans. Additionally, as discussed above, their greater linking ties with local officials helped the neighborhood avoid hosting unwanted FEMA trailers to other communities, improving their own recovery while forcing other communities to host more of these public bads (Aldrich & Crook, 2008; Aldrich, 2012).

However, communities need not be well-off to gather these social resources and navigate these resilience trade-offs. After the Kobe earthquake in 1995, disparities in bridging, bonding, and linking capital cost Kobe, Japan valuable time in the recovery process. In spite of Kobe planners' bold efforts to redesign damaged wards and apply for national subsidies, the city's top-down reconstruction planning exacerbated disparities between communities, focusing on waterfront and high-rise development rather than rebuilding existing communities (Edgington, 2010). This lack of linking social capital between citizens and government left communities to take recovery into their own hands. Neighborhoods that built more nonprofits after the quake undertook reconstruction planning on their own terms, using these organizations to rebuild and pressure City Hall to include their preferences. In this case, not only wealthy communities managed to build these linking ties. Anti-pollution advocacy campaigns in the working-class neighborhood of Mano had built stronger bridging and linking ties than in nearby Mikura, such that Mano regained much more of its original population after the disaster (Aldrich, 2012). Communities can build these strong civil society and community resilience even without financial resources.

Navigating trade-offs in adaptation and risk mitigation

These trade-offs among bonding, bridging, and linking capital are especially relevant to communities because they cannot only affect crisis response but can also exacerbate disparities in health and infrastructure, creating setbacks to recovery. Instead, effective resilience policy takes advantage of social capital trade-offs to mitigate pre-disaster vulnerabilities and enable new social and physical adaptations.

Scholars have highlighted the dark side of bonding social capital in their effect on health. In Okayama City, Japan, residents with more bridging capital tended to have better health outcomes than those with strong bonding social capital (Iwase et al., 2012). In another city, bridging capital helped the elderly maintain cognitive abilities and avoid depression more than bonding capital (Murayama et al., 2013). After the Great East Japan Earthquake in 2011, some community development projects factored this into their decision-making, embedding elderly Japanese residents in disaster zones into larger social networks. These programs substantially improved elders' social capital among each other and across age groups (Kiyota et al., 2015). Similarly, in New York City disease prevention efforts, Buddhist and Christian communities with more bridging capital among members were more engaged in HIV/AIDS prevention programming than those with just bonding capital (Leung et al., 2016).

The trade-offs between bonding and bridging social capital are also important for preparing societies for disaster through decentralized technologies. In Yasu City, Japan, citizens built a bottom-up sustainable development economy focused on locally sourced biomass, all when local government created meaningful networking organizations that bridged environmentalist groups. However, similar sustainable development efforts in a neighboring city failed to achieve their goals, because they focused on community groups with high bonding social capital but fewer bridging ties (Kusakabe, 2013). Similarly, some city governments created quasi-private organizations to locate,

correspond with, and invite external renewable power companies to their towns. Towns that fostered these bridging and linking ties built hundreds more renewable power plants than those that relied on their existing relationships with utilities to deploy renewable power, boosting the resilience of their energy systems (Fraser, 2018).

As a result, cities that foster bridging and linking capital will see better community resilience. However, doing so will also mitigate the vulnerabilities and disparities in community networks created by high bonding capital. Mitigating these vulnerabilities will further improve cities' capacity for adaptation and transformation.

Decision-makers regularly prioritize spending on physical infrastructure over social infrastructure pre- and post-disaster. However, residents and policymakers can actively improve the social infrastructure and resilience of their communities through conventional interventions, such as hosting block parties, or with more novel approaches, such as supporting the growth of online hyperlocal online communities (Page-Tan, forthcoming). Yet for those few who do seek to increase social ties, as with San Francisco's NeighborFest program or Colorado's BoCo Strong programs, these communities may have to make trade-offs. Bonding, bridging, and linking social ties have different effects on residents.

Going forward, certain metrics can help policymakers compare social ties in one community with those of others. Communities with strong bonding ties tend to have lower crime rates and more religious and civic organizations per capita, while those with strong bridging ties tend to have higher voter turnout, more political activity, and more advocacy organizations per capita. Finally, more support for the majority party, frequent neighborhood visits by local officials, or collaborations between local officials and community groups can indicate strong linking ties. Policymakers can monitor gaps or differences between these rates and incorporate these vulnerabilities into decision analysis and policy evaluation phases for disaster planning (Linkov & Moberg, 2011). We should look to invest heavily in bridging and linking ties which are harder to create and have an overall positive impact on societies and neighborhoods.

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