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Social vulnerability as a proxy indicator for economic impacts of natural disasters

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Economic methodologies aid planning for measures to reduce the impact of natural hazards. Some gaps exist, however, which hinder the ability to understand the degree of economic impact and the vulnerability of different demographic groups to natural hazards. Economic impact information available in most cases is aggregated, often stated in terms of GDP per capita losses or estimates of direct damage in currency terms. Risk indices provide some insight into the economic impacts of disasters, and help indicate spatial areas where particular planning measures may be needed but may not be able to provide insight into patterns of losses, such as what groups are relatively more affected when hazards occur.

This paper suggests using a proxy to complement current economic valuation techniques of the impacts of hazards, while also providing insight about the vulnerability of particular groups. The approach examines the degree to which economic and social assets are substitutes or compliments. The paper suggests a measure of social relational strength, and assigns an economic value to that measure in terms of time or capital. The paper hypothesizes that social assets are relatively fungible with economically valued assets like time and capital; that is, people fill the gap that arises when hazards destroy capital assets with social assets, inasmuch as those assets are substitutes for those economic assets destroyed. The remaining gap which cannot be filled with social assets is characterized as a proxy for economic impacts of natural hazards at a disaggregate level.

Survey data among a Hispanic immigrant community in New Orleans following Hur-

ricane Katrina indicates the relative value of social ties to those affected by natural hazards. A proxy value of these social relations (the absence of which is social vulnerability) is estimated in terms of time and capital. With this data, more differentiated view of the economic impacts of Hurricane Katrina emerge, as well as additional information about vulnerability patterns during and after that particular event. The approach sheds insight into how able social networks are to overcome the negative affects of natural hazards on shocks to economic assets.

The approach provides insight into aspects of vulnerability and coping capacity vis-à-vis natural hazards. The approach contributes to hazard management and planning activities by first exploring the degree to which economic and social assets are fun. Next the approach examines how social assets deteriorate under stress situations. Then the approach measures the gap between economic and social assets following a natural hazard occurrence. The approach contributes to understanding of how natural disasters affect groups and households and can thus facilitate more targeted vulnerability reduction measures.