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Hurricane risk perceptions among Florida's single family homeowners

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Abstract

Hurricanes and associated storm damage remain a constant threat to the health, safety, and welfare of residents in Florida. Hurricane risk perception has been found to be an important predictor of storm preparation, evacuation, and hazard adjustment undertaken by households, such as shutter usage. Planners and policy makers often employ expert risk analysis to justify hazard mitigation policies, yet expert and lay risk assessments do not always agree. Because the public is increasingly involved in planning and policy decision-making, consistency between "expert" risk assessments and lay perceptions of risk are important for policy legitimization and compliance. This article examines factors contributing to hurricane risk perceptions of single-family homeowners in Florida. Utilizing data from a statewide survey, we first map and spatially analyze risk perceptions throughout Florida. Second, we examine the influence of location on shaping homeowner perceptions along with other factors, such as knowledge of hurricanes, previous hurricane experience, and socio-economic and demographic characteristics. The findings suggest there is a good deal of consistency between residing in locations identified by experts as being high hurricane wind risk areas and homeowner risk perceptions. Finally, we discuss the implications of these findings for land use and hazards planning.

Keywords: Land use planning; Risk perception; Hurricane risk; Building codes

1. Introduction

There is a growing recognition that natural disasters "signal a serious breakdown in sustainability" (Burby, 1998, p. 1). Specifically, researchers and practitioners increasingly acknowledge natural disasters occur, in part, because of a failure to promote community develop that appropriately recognizes the nature of hazard risk in a manner consistent with sustainable development (Mileti, 1999). Land use planning policies and tools can be an important element in sustainable community development; however, the public must support these plans and policies for them to be effectively implemented. Public perception of risk is an important predictor of how citizens will prepare for and respond to hazard threats. Furthermore, because the public is increasingly involved in planning and policy decision-making, perceptions of risk can influence the content of hazard mitigation programs and

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associated strategies. Public perception can also have important consequences for the perceived legitimacy of and compliance with land-use planning policy.

The first step in the development of effective land use hazard mitigation policy is hazard assessment. A critical element in any hazard assessment is risk analysis. Risk analysis seeks to define or specify the probability or likelihood of hazard events of varying magnitudes impacting specific areas (Cutter, 2001; Deyle et al., 1998). Recognized "experts" with respect to the specific hazard or hazards under consideration generally undertake such analysis for policy makers. A critical problem for land use policy development and implementation is the consistency between expert risk analysis and public risk perception. If the two are not consistent, then the public may not support and perhaps even thwart policy development. Furthermore, if policy lacking public support is developed, its legitimacy will be brought into question and compliance may well be low.

This article examines the major factors contributing to hurricane risk perceptions of residents in Florida focusing on the consistency between "expert" risk assessment and public perceptions. Florida represents a unique opportunity for examining the consistency between public risk perception and expert risk assessment adopted in land-use policy[1]. In March of 2002, a Statewide Building Code was fully adopted and implemented in Florida. A critical element of that new building code was the adoption of stricter building standards based upon wind hazard associated with hurricanes. To establish variable building standards for locales throughout Florida, the American Society of Civil Engineer's Standard 7 for the 1998 (ASCE 7-98) was adopted. The ASCE 7-98 provides wind risk assessments for areas throughout Florida along with associated building standards. Utilizing data from a statewide survey, we map and spatially analyze risk perceptions statewide based upon a household's location vis-à-vis wind hazard contours prescribed by ASCE 7-98. We then examine the influence of location on shaping risk perceptions along with other factors, such as knowledge of hurricane threats, previous hurricane experience, socio-economic and demographic characteristics.

[1] Following Burby (1998), we are considering building codes as a form of land-use policy.

The basic research questions guiding this paper are: (1) does location or proximity with respect to wind vulnerability zones influence hurricane risk perceptions? (2) what are the major characteristics explaining hurricane risk perceptions such as previous experience, knowledge regarding hurricanes and hurricane risk, socio-economic variables; and (3) how do the results help guide planning processes and policy formulation for hurricane damage mitigation?

2. Public risk perception, expert risk analysis and public policy

Understanding of the public perception of risk is increasingly being recognized as an important aspect of the decision making process for several reasons. First, public risk perception now plays a key role in shaping natural hazards policy and management response systems (Slovic, 2000). Because the regulation and management of risks, such as hurricanes and floods are subject to public debate and input, the perception of these risks are of considerable interest to planners and policy makers (Fischhoff et al., 1981; Johnson and Tversky, 1984). The growing importance of public participation in hazards planning is well documented (Wood et al., 1985; Brody, 2003; Brody et al., 2003; Burby, 2003; Godschalk et al., 1999) to the point that it is argued the public perception of risk is driving policy as much as technological and scientific risk assessments (Correia et al., 1998; Slaymaker, 1999; Tierney et al., 2001). Second, public risk perception is positively correlated with public response and adjustment to a particular hazard event. In their review of the literature on seismic hazard mitigation and emergency preparedness, Lindell and Perry (2000) found that perceptions of hazard types and different hazard adjustments significantly affects intentions to adopt these adjustments as well as subsequent behavior, such as hazard adjustment[2] (Mileti and Fitzpatrick, 1993; Mileti and O'Brien, 1992; Showalter, 1993). Risk perceptions are also positively related to warning response

[2] As is so often the case in social science research, there are also examples of research where the relationships between risk perception and adjustment was weak or non-existent (Farley, 1998; Lindell and Prater, 2000; Mileti and Darlington, 1997). Some of these inconsistencies, as pointed out by Lindell and Perry (2000, 2004) may well be due to different measures of risk.