

An Interdisciplinary Approach to Household Strengthening and Insurance Decisions

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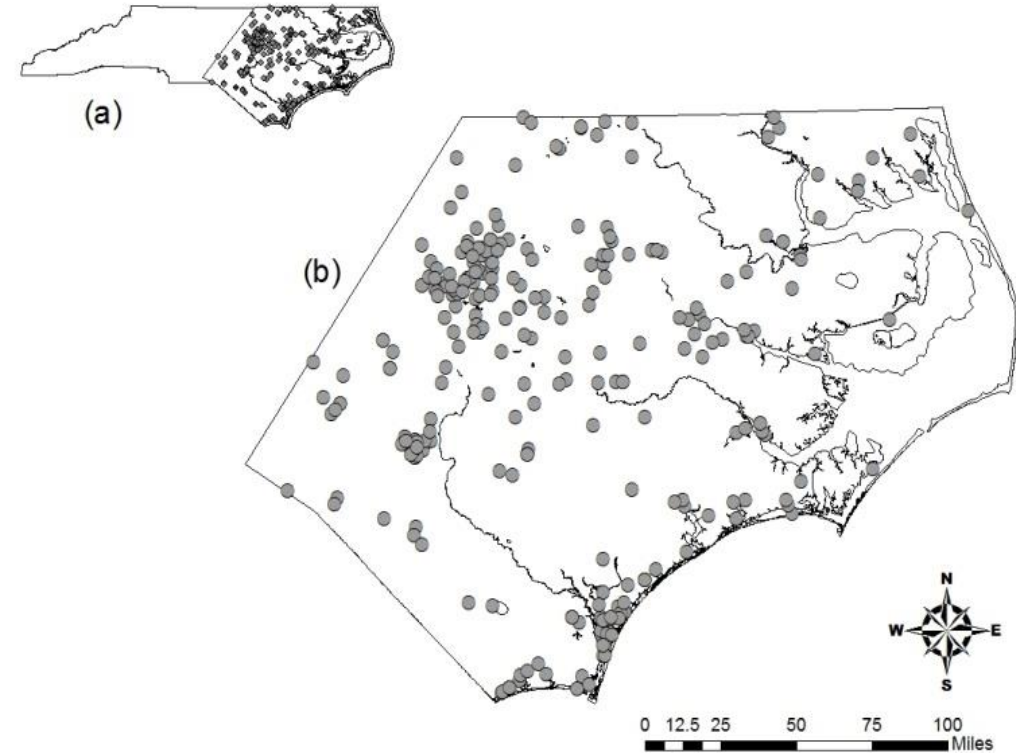
CRC 1st Annual Meeting: March 2-3, 2016
Chapel Hill, NC

Project Overview

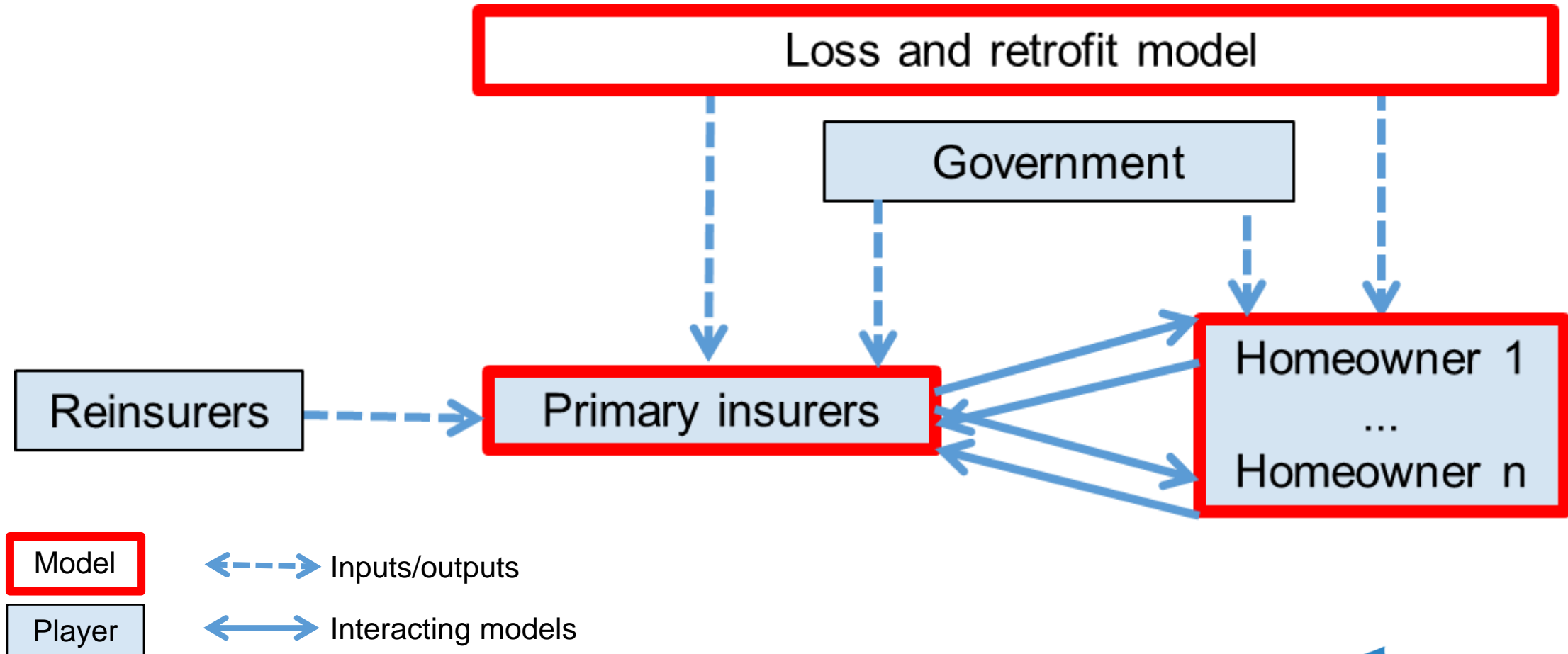
- Advance understanding of **homeowner insurance purchase and retrofit** decisions and role they play in system-wide efforts to **manage coastal hurricane disaster risk**
- Key building blocks
 - Rich survey dataset as basis for homeowner decision models
 - Math modeling framework that includes:
 - Insurance and retrofit
 - Multiple stakeholders
(homeowners, insurers, reinsurers, government)

Phone Survey

- 358 households in eastern North Carolina
- Administered in fall 2012 and spring 2013
- Core elements of survey
 - Socio-demographic characteristics
 - Physical characteristics of the building, type of past retrofit undertaken, and insurance policies purchased
 - Risk perception and hazard experience
 - Willingness to insure under different hypothetical premiums and deductible offerings
 - Willingness to retrofit under different incentives



Math Modeling Framework



Technical Approach/Major Research Milestones

Develop discrete choice models for homeowner retrofit	August 2016
Develop discrete choice models for homeowner insurance purchase	May 2017
Test hypotheses based on PADM	Sept. 2016
Replace utility-based homeowner model with discrete choice models in modeling framework	February 2017
Compare model results with current utility model and those with discrete choice models	August 2017

Anticipated Results

Outcomes

- Answer questions about homeowner preferences, e.g.,
 - Factors with greatest influence?
 - Likely effect of retrofit incentives?
 - Decisions for flood vs. wind?
 - Discrete choice vs utility?
- Models to predict homeowner behavior
- Advance understanding of homeowner protective actions via PADM

Products

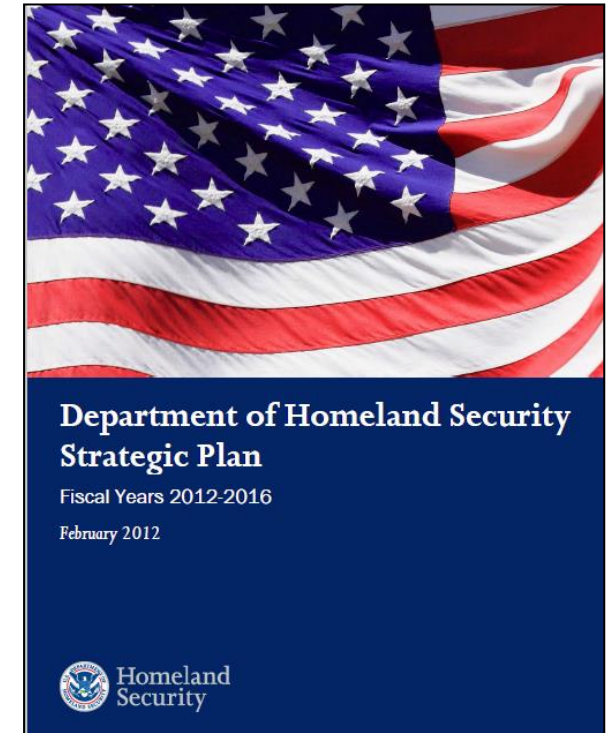
- 4 journal papers
 - Insurance decisions
 - Retrofit decisions
 - PADM hypotheses
 - Utility vs discrete choice
- 2 policy briefs & 1 white paper
- 2 graduate students
- 1 undergrad summer intern

Relevance to DHS S&T Mission

Objective 5.2.1: Improve individual, family, and community preparedness

Highlighted Mission 5 Performance Measures

Percent of households surveyed reporting they have taken steps to be prepared in the event of a disaster (FEMA)



- Motivate risk mgmt actions among homeowners and others
- Identify win-win opportunities engaging multiple stakeholders
- Incorporate insights from behavioral research into economic analysis of community resilience

Translational Activities and End Users

Advisory Panel

Acting Division Director	FEMA Federal Insurance and Mitigation Administration, Risk Analysis Division
Senior Policy Advisor	FEMA Individual and Community Preparedness Division, National Preparedness Directorate
Executive Director	Association of State Floodplain Managers (ASFPM)
Research Economist	NIST Applied Economics Office/ Community Resilience Group
Disaster Resilience Lead	NIST Materials and Structural Systems Division

Group conference calls
Policy briefs & white paper

Major End User Milestones

System win-win white paper

August 2016

Incentive policy brief

December 2016

Expected utility vs. empirical homeowner
model policy brief

November 2017

CRC Project Integration



TOUGALOO
1869
COLLEGE

1-2 Undergrad
interns
Summer 2016



UNIVERSITY of DELAWARE



**Disaster
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