

The effects of adaptation measures on hurricane induced property losses

Objective

Measure the relative effectiveness of FEMA expenditures on hurricane induced property losses.

Approach

Compare the relative effectiveness of pre-disaster risk reduction activities and post-disaster response and recovery assistance by econometrically estimating a model of historical property damages. Model comprises 651 counties along the Atlantic coast that have incurred hurricane-induced property losses at least once during the period 1989-2009.

Impact

- Spending on FEMA ex-ante mitigation and planning projects leads to greater reductions in property losses than spending on ex-post adaptation programs.
- Marginal return from spending on programs that target long-term mitigation and risk management to be almost twice that from spending on ex-post recovery programs.
- There are important potential gains that could be realized from the further diversification of FEMA spending across project categories.

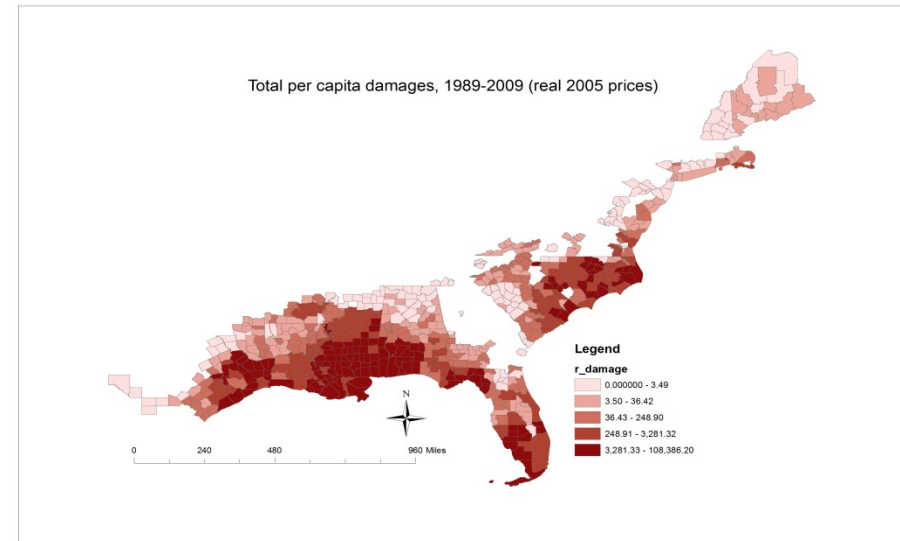


Table 5
Conditional and unconditional marginal effects.
Source: Author calculations.

	(1)	(2)
FEMA, ex-ante	-0.2071*** (0.0769)	-0.1674*** (0.0631)
FEMA, ex-post	-0.1187** (0.0517)	-0.0960** (0.0427)

Notes: Marginal effects are obtained using the delta method and are estimated at the sample means of all regression variables. Columns (1) and (2) are the conditional and unconditional marginal effects of the FEMA program variables, respectively, corresponding to the coefficients presented in column (2) of Table 4; standard errors are given in parenthesis.

* Significant at the 10 percent level.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

A one percent increase in annual spending on ex-ante risk reduction and warning projects reduces damages by 0.21 percent while a one percent increase in ex-post recovery and clean-up spending reduces damages by 0.12