

Impacts of climate on the financial stability and security of older adults

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Components of climate change and climate shocks

Physical dimensions:

Wind
Rainfall / drought
Humidity
Temperature
Sea level / tides
Ground saturation

Event parameters:

Speed of onset
Predictability
Duration
Scale
Chronic vs acute

Impacts:

Property damage
Exposure to physical threats
Change in work opportunities
Disruption to daily activities
Disruption to social networks
Reduced access to health care
Rising prices

Climate change and climate shocks:

increasing frequency and intensity of extreme events against a backdrop of changing baseline conditions (pulse and press)

“New Normal” in the United States

- Temperatures and sea levels are rising
- Eastern half of the United States is getting wetter
- Western half of the United States is getting dryer

Stronger fires, storms, hurricanes

Greater climate variability

Does the biology of aging or the evolution of SES that accompanies aging diminish the ability to respond and adapt?

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Reduced physical mobility

More frailty

Diminished thermal regulation

Cognitive decline

Limited economic resources

Limited social/family networks

Reliance on a fixed income

(Perhaps) heightened anxiety induced by uncertainty

(Perhaps) more attachment to place

Social and Economic Impacts of Climate

Carleton and Hsiang, *Science*, 2016

Measurement and Methods:

Accurate measurement of climate-related physical forces

evidence from populations observed before and after a climate event
longitudinal data is critical

“dose-response” relationships using a natural experiment framework

Economic systems:

Agricultural yields, Labor Productivity, Trade, General equilibrium effects

Evidence suggests that higher temperatures and greater climate variability reduce yields and labor productivity and increase costs

Landscapes illustrating the physical forces accompanying events

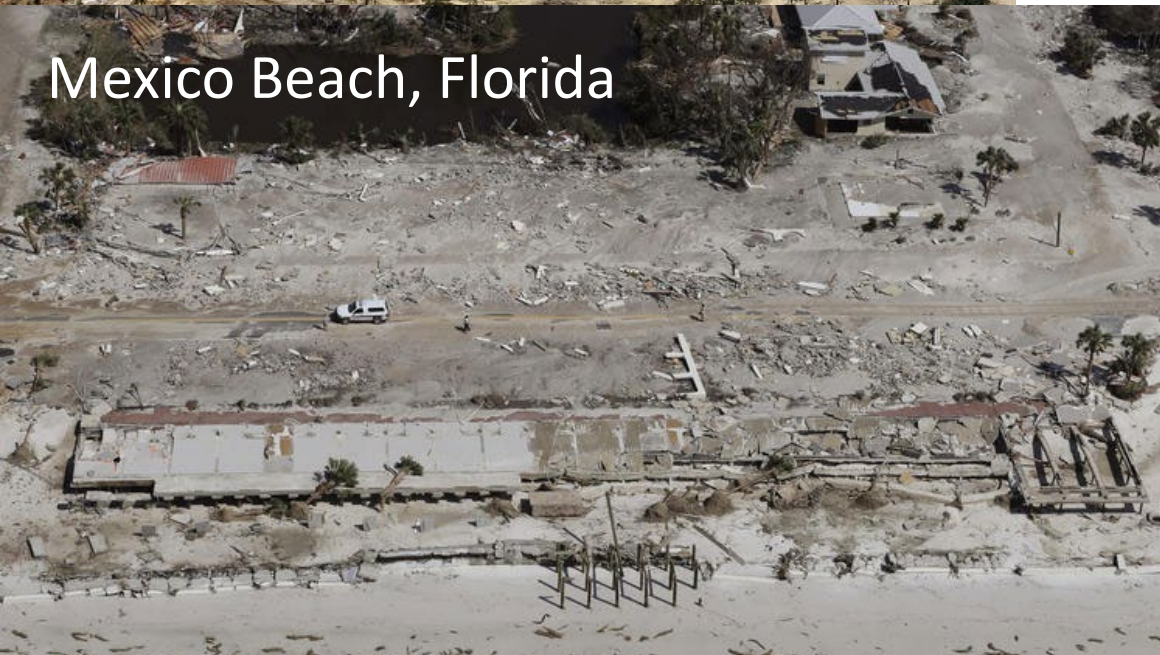
Aceh, Indonesia



Aceh, Indonesia



Mexico Beach, Florida



Coastal North Carolina



United States

- Fires
- Floods
- Tornadoes
- Blizzards / ice storms
- Heat waves

Survey-based approaches:

STAR (Study of the Tsunami Aftermath and Recovery)
has followed a large sample differentially exposed to the Indian Ocean Tsunami, for 15 years (Aceh, Indonesia)



DEEPP (Dynamics of Extreme Events, People, and Places)
ongoing pilot following individuals in Eastern North Carolina differentially exposed to Hurricanes Florence and Dorian



STAR



- For men age 40-60 at the tsunami and directly exposed: ten years later earnings are still 30% lower than before the tsunami and 30% lower than for same age men not directly exposed
- For men 20-29, earnings recover, though earnings are 12% lower for the directly exposed relative to not directly exposed
- Much of the recovery in earnings is driven by reconstruction
- Spending levels decline 13% in the year after the tsunami, directly affected are still spending 8% less 10 years later (others recover)
- Short term increase in willingness to take on financial risk among the exposed, concentrated in younger individuals

Mechanisms:

women enter the labor force, households start new businesses, assets are sold (and wealth goes down)

- Preliminary results from ongoing survey in areas in NC that are vulnerable to hurricanes and flooding from rivers and storm surge
- Intensity of inundation is increasing and becoming more frequent, causing property damage and regular significant disruptions to work and daily activities
- For many adults deep ties to place limit the desire to move
- Mitigation measures are expensive
- Home values continue to rise (along with property taxes and other prices)



Discussion

- The financial, social, and human resources that people enter mid-life with are likely to be critical for how old-age unfolds with respect to the implications of climate change for health and economics
- Long exposures to housing that creates vulnerability to climate impacts is likely in many areas
- Important questions remain about:
 - the extent to which people recover from large negative climate shocks and/or less severe but more frequent “press” events
 - the general equilibrium effects on economic and social systems
 - How these dynamics intersect with the aging process to generate differential vulnerability

References and Acknowledgements

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