

# Climate Change, Catastrophes, and the Macroeconomic Benefits of Insurance

Discussion by Francesco Mazzola (ESCP Business School)

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# Summary

- Contribution: insurance **mitigates** the negative macroeconomic and welfare impact of catastrophes;
- Channels: Insurance **shortens** recovery period;
- Results:
  - (i) theoretical growth model
  - (ii) country-level empirical estimation;
    - 1%-GDP-damage catastrophe ↓ GDP growth by 0.25pp;
    - effect drops to 0.06pp if 50% insured;
  - (iii) scenario analysis;

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  - (iii) scenario analysis;
- Comments: channels, identification, policy implications.

# Comment #1: OVB

- Complexity of climate-related risks;
  - Govt support in the form of federal disaster insurance? e.g. California FAIR Plan, or Spanish CCS;
  - Migration: following a catastrophe, people may (be forced to) move to another place.
  - Pricing: insurance premium reacts to natural disasters;
    - Regulation: frictions for rate adjustm. (Oh et al., 2022);
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- Suggestions: focus on 1st occurrence by country;
  - Include time-varying country controls;
  - Validate Insurance coverage with Reconstr. costs (EMDAT);

## Comment #2: Identification

- Insurance markets (both demand and supply) react to natural disasters and climate change;
  - Besides hazard incidence, uncertainty, regulation, and adverse selection affect the supply of property insurance (Boomhower et al., 2024);
  - Natural disasters affect claim filing (fraud) behavior (Johnson et al., 2024 wp)

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  - Natural disasters affect claim filing (fraud) behavior (Johnson et al., 2024 wp)
- Identification from interaction valid when interacted variables uncorrelated (Nizalova and Murtazashvili 2016);
  - check relationship between insurance coverage and catastrophe damage (both in the cross-section of countries, and in the time-series within-country);

## Comment #3: Policy recommendations

- As a society, do we want reconstruction vs. relocation?
  - Key: Adaptation (Insurance) vs. Mitigation (Zoning)
  - Discouraging building in very risky areas?  
(Gislain-Letremy and Villeneuve, 2019)



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- A few additional thoughts:
  - Timing: it may take  $\geq 18$ -24m to repair/rebuild home and replace their possessions post major disaster (NAIC);
  - Breakdown by GDP components (OECD data);
  - Not sure whether  $W_t$  is included in the regression;
  - Breakdown by disaster type;
  - assumption: all investment is devoted to reconstruction of destroyed capital rather than build new capital;

# Conclusion

- Very interesting and neat paper, well-executed analysis, and relevant results;
- Important for **climate risk adaptation** and optimal design of **climate transition plans**;
  
- To sharpen: identification, confounding channels;
- Looking forward to the next version. Good luck with the paper!