Discussion of "Premiums or Peril?"

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Disclaimer: The views expressed herein are those of the author and do not necessarily reflect those of the ECB.

Summary

Research question: How do weather risk and insurance premiums affect house prices?

Setting:

- 465,000 Florida home sales, 2012–2024
- Property-level insurance premiums and modeled weather losses.
- ML controls for location, house characteristics, and sale conditions.

Main results:

- House prices respond to expected non-flood weather losses (elasticity -0.048).
- Smaller elasticity to insurance premiums (-0.016), conditional on expected losses.
- Small additional effects of past hurricane exposure.

Discussion: Elasticities, identification, and rational capitalization.

Point 1: Insurance Elasticity Compared to the Literature

	House-price response	Variation / approach
This paper	-0.016	Premium elasticity conditional on modeled weather losses; ML controls
Eastman, Kim, Zhou (2026)	≈ -0.65	IV: homeowners insurance in Florida
Ge, Lam, Lewis (2025)	≈ -0.5	NFIP subsidy reform
Damast, Kubitza, Sorensen (2026)	≈ -1	IV: homeowners insurance in U.S. states (upper bound)

What explains the large differences? Endogeneity?

Point 2: Identifying Variation

2024 catastrophe model predicts expected losses from location and structure:

$$\log AAL_i^{2024} = f_{2024}(\text{coordinates}_i, \text{structure}_i, \text{site conditions}_i, \ldots).$$

But the regressions also control for coordinates and house characteristics.

After partialling out controls, identifying variation is:

$$\widetilde{R}_i = \log AAL_i^{2024} - E[\log AAL_i^{2024} \mid X_i].$$

- If X_i contains *all* model inputs, a perfect prediction leaves $\widetilde{R}_i = 0$.
- Residual variation reflects unobserved house characteristics (e.g., mitigation measures).
- Some of these characteristics may also affect house prices directly.
- What would be "perfect exogenous variation?" Hurricane risk (location!) holding fixed the structure?

Informative: R^2 for predicting $\log AAL$ from the controls; effects of including controls successively.

Point 2: What Would Be the Ideal Experiment?

Conceptually: Randomly disclose property-specific information about future risk to prospective buyers.

Feasible alternative: Changes in catastrophe risk projections that become available to buyers.

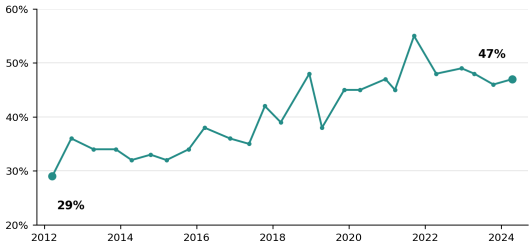
$$\log P_{it} = \alpha_i + \lambda_{g(i),t} + \beta \left(\Delta \log AAL_i \times Post_t\right) + \varepsilon_{it}.$$

- Property FEs absorb fixed location and structure characteristics.
- Local market $\times$ time FEs absorb changing local demand and amenities.

Question: Is there variation from catastrophe-model updates that is plausibly independent of property characteristics and local housing demand (e.g., salience via news or social media)?

Point 2: Does the Timing Matter?

2024 catastrophe risk model is applied to sales from 2012 to 2024.



Americans saying global warming is already harming people in the U.S.

Source: Leiserowitz et al. (2024), p. 12; figure reconstructed from reported series.

1. Did catastrophe risk change between 2012 and 2024?
2. Shouldn't house prices' sensitivity to the 2024 risk measure change as beliefs evolve?

Simple extension:

$$\log P_{it} = g(X_{it}) + \sum_t \beta_t \log AAL_i^{2024} \cdot \mathbf{1}\{year = t\} + \varepsilon_{it}.$$

Point 3: Capitalization Benchmark with Insurance

How to incorporate the fact that houses are insured?

$$HP = \underbrace{\frac{H_0}{\delta}}_{\text{Baseline}} - \underbrace{\frac{(1-q)L}{\delta}}_{\text{Uninsured}} - \underbrace{\frac{q\lambda\pi}{\delta}}_{\text{Insurance premium}}$$

Then, implied discount rate is

$$\delta = -\frac{L}{\beta_{AAL}P}\left[(1-q)+\lambda q\right]$$

Two cases:

(A) $\lambda = 1$ (full pass-through) or $q = 0$ (no insurance) $\Rightarrow \delta = 2.1\%$

- If fully insured, impact of risk depends on how risk is priced into insurance premiums.
- If estimate for β_{AAL} is conditional on insurance premiums (as currently) and houses are highly insured, β_{AAL} may only capture future premium changes
  $\Rightarrow$ Preferable use estimate that does not control for insurance

(B) Partial pass-through: $\lambda = 0.5$ and $q = 0.7$ (Jung and Jung, 2025) implies
$\delta = \frac{300}{300000 \times 0.056}((1-0.7)+0.5*0.7) = 1.2\%$
$\Rightarrow$ Quite low, overreaction by house buyers?
(Damast et al., 2026, suggest $\lambda \approx 0.25$)

Conclusion

The paper combines unusually detailed insurance and catastrophe risk data with granular house sales.

$\Rightarrow$ Important step toward better understanding how climate risk is priced.

Main suggestion: Clarify the source of identifying variation and how insurance coverage affects the pass-through of risk exposure to house prices.

Additional Point: Selection into Housing Transactions

All estimates are based on **completed sales with a mortgage**.

- Higher premiums or catastrophe exposure can affect *whether* a property sells.
- Insurance costs may also affect mortgage approval and borrower selection.
- Transaction-price estimates need not describe changes in the value of the full housing stock.

Possible extension: Estimate effects on transaction volumes, time on market, and the probability of an insured, mortgaged sale.

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