Facing Wildfire Insurance Challenges: Five Lessons from the National Flood Insurance Program

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Resource for the Future

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Challenges for insurers from catastrophic wildfire losses

California Homeowner Estimated Industry Profits Since 1991

Source: Figure 1, “Wildfire catastrophe models could spark the changes California needs”, Milliman White Paper

Insurance availability and affordability issues

Insurer Nonrenewal Rate in CA by ZIP Code in 2019

Source: Figure 3, "Insurance Availability and Affordability under Increasing Wildfire Risk in California", RFF Issue Brief 22-09

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State Farm has stopped accepting homeowner insurance applications in California

May 28, 2023 · 11:32 AM ET

Juliana Kim

CPR News

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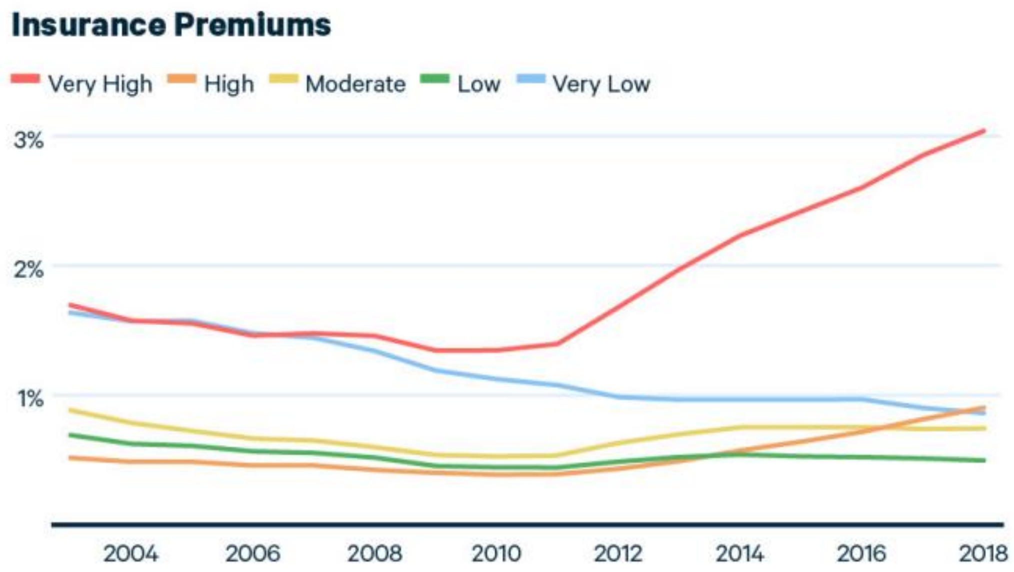
Home insurance is getting more and more expensive in Colorado. Wildfires and hail are to blame

By Anthony Cotton · Aug. 5, 2023, 4:00 am

More homeowners have turned to state FAIR Plans

- State-mandated “last resort” plans
- High-risk properties
- More expensive with limited coverage
- Backed by all admitted insurers in the state
- California, Oregon, Hawaii, and recently Colorado

Market Share of FAIR Plan in California by Risk Category



Source: Figure 4, “Insurance Availability and Affordability under Increasing Wildfire Risk in California”, RFF Issue Brief 22-09

Perspectives from the history of flood insurance

- Flooding has been the costliest disaster in the U.S., 1980-2022
- Flood coverage is challenging to provide due to correlated losses
- The National Flood Insurance Program (NFIP) was created in 1968, when no private coverage existed

Our question

What lessons can we draw from the NFIP's experiences in insuring flood to help insurers and state regulators make wildfire damages insurable?

Institutional background

	FLOOD	WILDFIRE
Coverage provider	• Over 90% of policies by the NFIP, (Federal, single-peril program)	• Bundled coverage in homeowner's insurance by private insurers
Coverage mandate	• NFIP must offer coverage to most	• No insurers required to offer coverage
Purchase mandate	• Some mandated to purchase	• Mandated by mortgage lenders
Regulation/oversight	• Administered by FEMA with oversight by Congress	• Admitted insurers regulated by each state
Alternative	• Private flood insurance	• Surplus lines, state-mandated FAIR Plan

Lesson 1. Stand-alone disaster coverage, unbundled from homeowner's insurance, may lead to a significant coverage gap

- Large flood insurance coverage gap
  - When there is no mandate, the voluntary take-up of flood insurance is low (Kousky, 2018; Netusil et al., 2021)
  - Recent pricing reforms has increased premiums and may have substantially reduced demand (Wagner, 2022; Hennighausen et al. 2023)
- A similar gap might emerge for wildfire if
  - FAIR Plan premiums continue to increase rapidly and
  - Standalone coverage is no longer mandated by mortgage lenders

Lesson 2. A tension exists between risk-based and affordable insurance pricing in high hazard areas

- Risk-based pricing is important because
  - It conveys the right price signal of risk
  - Private insurers can withdraw coverage if revenues do not cover costs
- However, risk-based pricing can make the premium unaffordable to low- and middle-income households
  - Might contribute to a greater coverage gap and financial vulnerability

Lesson 2. A tension exists between risk-based and affordable insurance pricing in high hazard areas (cont.)

- NFIP experience
  - Tension between providing affordable premiums and the program's financial situation
  - FEMA's proposed legislation: means-tested discounts, a revenue equalization payment and a catastrophic loss backstop might be a public role for FAIR programs
- Similar public interventions needed for wildfire
  - E.g., means-tested affordability program, state reserve fund to ensure FAIR Plan's solvency, a public backstop option, etc.

Lesson 3. Catastrophe modeling can play an important role in calculating risk-based premiums

- Originally, NFIP pricing was deterministic and based on historical claims
  - Insufficient to cover tail events (Michel-Kerjan, 2010)
  - Inequitable cross-subsidies (Kousky et al, 2016; Gourevitch and Pinter, 2023)
- New rating method (Risk Rating 2.0) informed by three catastrophe models
  - Probabilistic approach based on simulations of hazard events
  - Calculates average annual loss (AAL) and its distribution for individual properties
  - Better able to reflect current and future events

Lesson 3. Catastrophe modeling can play an important role in calculating risk-based premiums (cont.)

- Recent wildfire losses raise similar questions about retrospective rating
- Cat models are being developed and deployed for wildfires
  - Inconsistencies across models (Xu et al., 2019)
  - Barriers in adoption – only used by selected insurers (Boomhower et al., 2023)
  - Regulatory restrictions on use for rate setting in CA
- Movement toward use of cat models
  - How built environment affects wildfire hazard and spread
  - How to use cat model output to price risk mitigation features (Brinkmann et al., 2022)
  - Regulators play an important role in facilitating use of cat models (9/21/2023 CA E.O.)

Lesson 4. Risk communication, including mapping of high hazard areas and disclosure, affect household decisions and overall levels of risk

- Risk communication is the foundation for informed decisions about where to live, whether to insure and mitigate risk

- Flood risk disclosure
  - Flood Factor score on real estate website affect home search behavior (Fairweather et al, 2023)
  - State disclosure laws significantly affect buyer's valuation of risky properties (Hino and Burke, 2021; Gourevitch et al., 2023)

- California's wildfire disclosure requirement has a similar price effect (Ma et al., 2023)
  - Only California and Oregon currently have disclosure requirements

Lesson 4. Risk communication, including mapping of high hazard areas and disclosure, affect household decisions and overall levels of risk (cont.)

- How the risk information is presented is important
- NFIP flood maps depict the Special Flood Hazard Areas (SFHAs)
    - The SFHA boundaries have miscommunicated flood risk by providing only a binary signal of “yes/no” on risk (Kousky et al., 2020)
    - Many property owners outside of the SFHAs are unaware of their flood risk
    - FEMA is working on providing graduated risk information
- Continuous risk measures can convey risk more precisely
    - Risks in financial terms: property-level AAL or the average damage ratio

Lesson 5. Facilitating investments in risk mitigation requires multiple approaches

- Risk mitigation can increase insurability
- Flood hazard mitigation is motivated through a combination of:
  - NFIP premium discounts (building elevation, foundation vents, etc.)
  - NFIP coverage is only available in communities that adopt floodplain management practices
  - Community Rating System
- But the incentives alone are not enough – flood adaptation investments are heavily dependent on federal funding
  - Various programs by the Army Corps and FEMA

Lesson 5. Facilitating investments in risk mitigation is important but challenging (cont.)

- More low-cost options exist for wildfire risk mitigation, but incentives are decentralized and under-utilized
  - Only 14 out of 102 CA insurers offered discounts for parcel-level mitigation, 15 for community actions
  - Property-level risk mitigation generates spillover benefits for neighbors, which might not be captured by the same insurer (Baylis and Boomhower, 2022)
- Needs to be a combination of federal funding, financial incentives, and land use regulations
  - IIJA: $3.5 billion for fuels treatment, mechanical thinning, and community grant program
  - State insurance regulator might serve as a coordinator between communities and industry (e.g. California's Safer from Wildfire Regulation)
  - Statewide regulations on land use and building codes in high hazard areas

Conclusion

1. Problem with moving to standalone coverage
2. Public intervention may be needed to balance affordability and availability
3. Catastrophe models are new, improving, and can inform risk-based rate calculation
4. Risk communication can motive purchase of insurance and risk mitigation investments, but care must be taken in communication to avoid misinterpretation
5. Premium discounts can motive risk mitigation, but public spending will also be needed

Thank you! Contact: yliao@rff.org