The Impact of Changing Wildfire Risk on the California Residential Insurance Market

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Research Questions

• What is the current wildfire risk in the study areas and how might climate change affect it through the end of the century?
• How well is the residential insurance market currently working in the higher-risk fire areas?
• How might the climate-induced changes in wildfire risk affect the residential insurance market?
• What factors can affect how the residential insurance market will be affected by climate change?
Two study areas

Sierra Foothills study area
Area: 1.9 M acres
Population in 2016: 650,000
Projected population in 2095: 1.3M
Policies in force: 197,000
Insured value: $134 billion

San Bernardino study area
Area: 0.86 M acres
Population in 2016: 1.46 M
Projected population in 2095: 1.97 M
Policies in force: 375,000
Insured value: $201 billion
Structure risk by zip code in the Sierra Foothills Study Area

Legend

Structure risk index

- 0
- 0.01 to 0.20
- 0.21 to 0.50
- 0.51 or higher
Insurance Market Indicators Examined

- Market shares of admitted insurers, surplus lines market, and the FAIR Plan
- Premium per $1000 coverage
- Nonrenewal rates for policies in the admitted market
- Ratio of coverage to insurable value
- Number of insurers writing coverage in the admitted market
- Insurance take-up rate
- Size of deductible
- Underwriting profit
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Market share of admitted insurers is lower in high-risk areas
Market share of FAIR Plan and surplus lines market has been growing in recent years.
Premiums per $1,000 coverage are higher in high-risk areas

Premiums have been increasing faster in high-risk areas
Wildfire risk affects nonrenewal rates and coverage-to-value ratio

• Renewal rates vary by wildfire risk, but the differences are not great
  – Insurer-initiated non-renewals tend to be higher in high risk areas
  – Insured-initiated non-renewals tend to be lower in high-risk areas

• There is some evidence that coverage-to-value ratios are lower in high-risk areas
# Issues that can reduce insurer willingness to write in high-risk areas

<table>
<thead>
<tr>
<th>Issue</th>
<th>Insurer Perspective</th>
<th>CDI Perspective</th>
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<tbody>
<tr>
<td>Inability to use probabilistic wildfire models in rate setting</td>
<td>Past loss experience is not representative of actual risk and lags change in risk</td>
<td>Difficult to assess accuracy of models; models are open to manipulation and misuse</td>
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<td>Constraints on variation of rates by wildfire risk</td>
<td>Approved rate “relativities” are flatter than they should be</td>
<td>Substantial increase in high-risk areas have been approved; insurers have not provided sufficient evidence to support requested differentials</td>
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<td>Exclusion of net reinsurance costs in rate setting</td>
<td>Reinsurance is needed to reduce the risk of financial impairment and bankruptcy</td>
<td>CDI cannot ensure reinsurance margins are reasonable; insurers may use reinsurance to circumvent Prop 103; CDI already allows insurers to charge a catastrophe load</td>
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Carbon emission forecasts used to project changes in wildfire risk
Substantial increase in acres burned is expected in Sierra Foothills study area

Assumes RCP 8.5

Work in progress. Do not cite.
But little change in acres burned in San Bernardino study area

Assumes RCP 8.5
Lower carbon emissions make a difference in Sierra Foothills Study Area