The Role of Insurance in Reducing the Frequency and Severity of Fire Losses

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ORIGINAL RESEARCH QUESTIONS

1. What are the underlying risk factors that affect the frequency and severity of urban / structural fires for residential and small commercial properties?
   a. How do these factors vary geographically and demographically?
   b. Is there a role for insurance in mitigating these risk factors, especially for “at-risk” populations?
   c. What is the optimal public / private partnership to mitigate fire losses?
2. What are the challenges that arise from wildfire risk?
   a. Are these data captured in fire database?
   b. What is the optimal public / private partnership to mitigate fire losses?

FINDINGS

- Frequency Regression Results (AB, BC, ON):
  - Frequency measures within a census subdivision (CSD):
    - Number of fire incidents per 1000 dwellings
    - Number of fire incidents per 100,000 population
  - Likelihood of fire incidence is greater in economically challenged CSDs
    - First Nations communities (CSDs)
    - CSDs with higher unemployment, less education, lower income, higher median age
- Severity Regression Results (AB, BC):
  - Severity measures within a census subdivision (CSD):
    - Severity measured as dollar loss / cash value of building (AB)
    - Severity measured as dollar loss / cash value of building and contents (BC)
  - Residential properties have less severe fires than other property types
  - Lack of manual fire protection & less fire resistant construction are associated with higher severity fires
  - CSDs with lower education levels tend to have higher severity fires
- Appendix:
  - Theoretical, economic discussion describing the complementary roles of insurers and government in reducing fire losses
    - Insurance provides incentives for property owners & mortgage lenders to undertake mitigation activities.
    - Government may educate communities about fire risk & use subsidies to encourage fire mitigation

FUTURE WORK

- Results limited by data availability
- Improved data analyses:
  - Increase data set by including CSDs in which no incidents are reported.
  - Require data from more provinces and more complete data for reporting provinces
  - Seek out fire loss data that is more granular than the current CSD level data. Possible sources include NFID (either FSA of location or even location of initial responding fire station) and/or insurer level data and / or municipal data (for property values)
  - Add more explanatory variables: size of households, percentage of smoking, household sources of heating, amounts spent on home repair, languages spoken at home
- Explore role of government / insurers / policymakers in reducing fire risk for at identified at risk populations and locations.