Challenges of Yield Cover Pricing: A reinsurer view

Fanny Rosset
IARFIC, 23.06.2014
In theory…

- Historical yield data
- Covered yield
- Level of deductible

As-if loss history → Final rate

Source: Canola yield, Manitoba, Canada
In practice: in an emerging market
An Indian example

- Historical yield data: *block and crop level*
- Covered yield: *7 years average at block and crop level*
- Level of deductible: *10% to 20%*

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As-if loss history → Final rate

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**Issue: yield trend**

**Solution: detrending**

- Which method to use?
- Over which period?
- Sensitivity of the results?

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**Questions**

- Possible reason for the trend? (e.g., farm practice, technology, loss assessment methodology, other?)
- Why do we see jumps in 2001 and 2006?
- Will the trend continue?

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*Source: Wheat yield, Vikasnagar, India*
As-if loss history

- Historical yield data: block and crop level
- Covered yield: 7 years average at block and crop level
- Level of deductible: 10% to 20%

Final rate

Issue: yield heterogeneity
- Actual yield: assessed at Village level

Consequences
- Potential inadequacy of covered yield,
- Underestimation of the yield volatility.

Source: Wheat yield, Vikasnagar, India
In practice: In mature markets
Some similarities

- **Yield trend:**
  - Change in farm practices, increase of farm size
  - Detrended yield coverage

- **Heterogeneity:**
  - Coverage at farm level vs. rating at a higher geographical level

- **Loss adjustment:**
  - Change in the methodology
  - Change in indemnification table

- **Policy wording:**
  - Inclusion of new perils
  - Change in the waiting periods, date of coverage
… In practice
How to deal with these challenges?

- Loadings?

- Lower coverage level?

- Crop yield model? (Plant model/ Weather/ Satellite)

- Others?