enhance
Partnership for Risk Reduction

European Flood Insurance Market Structures: Present and Future Reforms

Paul Hudson, W.J.W. Botzen, J.C.H.J. Aerts

Disastrous impacts…

30 May to 19 June
Floods: Central Europe
Overall losses: US$ 15,200m
Insured losses: US$ 3,100m
Fatalities: 25

8 to 12 November
Typhoon Haiyan: Philippines, Vietnam, China, Taiwan
Overall losses: US$ 10,500m
Insured losses: US$ 700m
Fatalities: 6,235

18 to 22 May
Severe weather, tornadoes: USA
Overall losses: US$ 3,000m
Insured losses: US$ 1,800m
Fatalities: 28

Munich Re, 2015

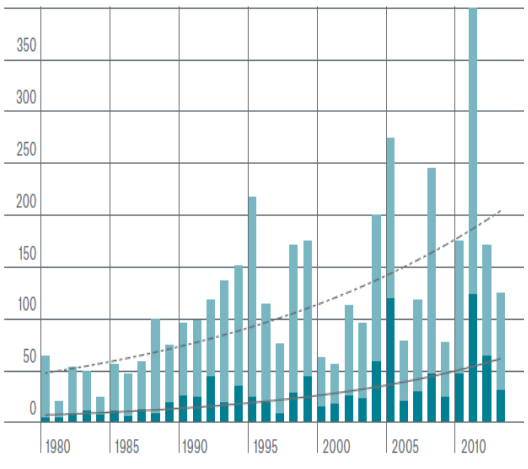
Insurance is useful…

…can spread financial impacts

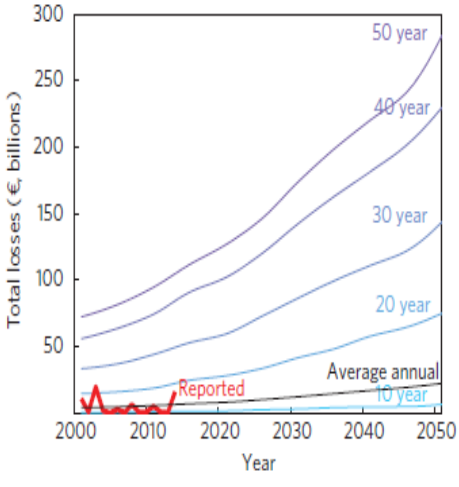
….offer incentive for risk reduction

But….the disastrous impacts…may be getting worse

Overall losses and insured losses 1980-2013 (in US$ bn)



Munich Re, 2014

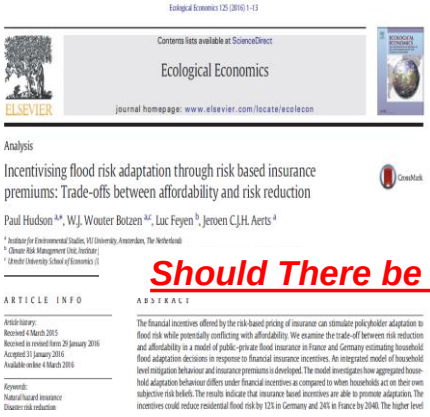


Jongman et al., 2014

Insurance is useful…

…but facings an increasing pressure
…more capital
…higher losses

This presentation brings to together two strands of work



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Analysis

Incentivising flood risk adaptation through risk based insurance premiums: Trade-offs between affordability and risk reduction

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ARTICLE INFO

ABSTRACT

The financial incentives offered by the risk-based pricing of insurance can stimulate policyholder adaptation to flood risk while potentially conflicting with affordability. We examine the trade-off between risk reduction and affordability in a model of public–private flood insurance in France and Germany estimating household flood adaptation decisions in response to financial insurance incentives. An integrated model of household level mitigation behaviour and insurance premiums is developed. The model investigates how aggregated household adaptation behaviour differs under financial incentives as compared to when households act on their own subjective risk beliefs. The results indicate that insurance based incentives are able to promote adaptation. The incentives could reduce residential flood risk by 12% in Germany and 24% in France by 2040. The higher level

Natural Disaster Insurance market Structures: Current and Future Suitability

Abstract

There is a debate over the most suitable market structure through which to provide flood insurance in light of the increasing impacts from flooding due to socio-economic development and climate change. [illegible]lic and private sector involvement or degree of solidarity between citizens. We offer policy relevant input into this policy debate by developing a model of insurer and consumer behavior coupled with an integrated flood impact model that models a collection of stylized insurance market structures across 12 European countries. The integrated model produces estimates of market outcomes that are used to evaluate the relative suitability of each stylized market structure. We find that that the majority of European insurance markets require reforms to best adapt to future flood risk. The most suitable insurance market structure features appear to include: (quasi-) mandatory purchase requirement; an active insurance incentive for household level self-protection; limited degree of sharing flood losses

Should There be Insurance Market Reforms?

Policy Debate – is big…and never ending…

- Examples:
  - DEFRA (2011)
  - EU level in a Green Paper on Disaster insurance (EC, 2013)
  - Schwarze and Wagner (2007)
  - Jaffee and Russell (2013)
  - Surminski et al. (2015)
  - Schwarze et al. (2011)
  - Poussin et al. (2013)
  - Kunreuther (2015)
  - Charpentier and Le Maux (2014)
  - Botzen and van den Beurg (2008)
  - ...
  - …

- The guiding principles or concerns can be summarised as follows:

  - *1) High Penetration Rate*
  - *2) Risk Reduction (Incentive)*
  - *3) Insurance should be equitable*
  - *4) How unaffordable is it?*

We measure and make these trade-offs

…we find the "best" market structure in which to provide insurance

Market Structures

- Voluntary
  - Fully
    - > Free choice of insurers and consumers to buy insurance
    - > Risk based premiums
    - > No support
  - Semi
    - > Purchase is tied to mortgage conditions
    - > Risk based premiums
    - > No support
- Non-Voluntary
  - Solidarity
    - > Everyone must buy
    - > Equal share of risk
    - > Supported by government reinsurer or grantee
  - Our Public-Private Market
    - > Purchase is tied to mortgage conditions
    - > Cross-subsidisation between high and low risk households

We also introduce the Public reinsurer more generally

How to measure / model the criteria?

- Insurance Penetration Rates
  - We make a model of insurance demand
  - We couple a flood risk model and insurance premium rule
- Risk Reduction incentives
  - Insurers offer premium discounts
  - Cost/Benefit analysis
- Equity
  - How much support do lower risk households have to offer
  - Is the person at risk…facing their risk
- Unaffordability
  - Residual income approach
    - > Does the premium exceed poverty adjusted income
  - Difference is how unaffordable

Results

Country	Current Insurance market Structure	Highest Scoring Insurance market Structure over 2015-2035	Highest Scoring Insurance market Structure over 2035-2055
Austria	Fully Voluntary		PPP
Belgium	Solidarit		ory (PPP)
Germany	Fully		
Denmark			
Spain			
Finland			
France			
Ireland			
Italy			
Netherlands			
Sweden	Sem		
United Kingdom	Semi-Vol		y (PPP)

Best Market Features: Today and tomorrow

1) Mandatory
2) Active link with Risk Reduction
3) Limited Loss sharing
4) Insurance Vouchers for low income households

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