On Information and the Demand for Insurance

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The Bottom Line

- The amount of uncertainty (rather than just the level of risk/risk aversion) is important for insurance decisions
- Failure to account for this can lead to bias in empirical studies of insurance

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⇒ Proper accounting must *jointly* assess risk, risk aversion and information frictions

The Main Idea

- WTP for insurance is a general function of risk (p), risk aversion (θ) and information frictions ($\mu(I)$)
    - Risk aversion pins down the *risk premium* $\mu(p)$ over p
    - The *information premium* pins down WTP over $\mu(p)$ given uncertainty

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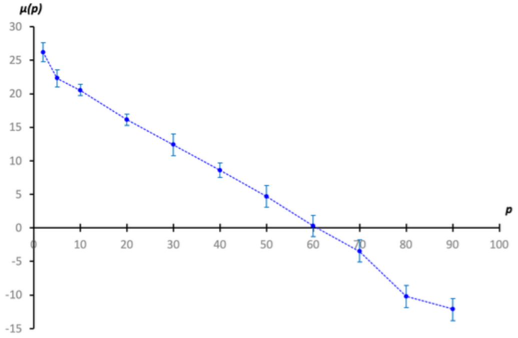

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  $\Rightarrow$ **Could we guess?**

A Brief Digression

- Suppose individuals have (locally) CARA utility functions:

$$u(x;\theta) = -\frac{1}{\theta}e^{-\theta x}$$

- The WTP for p is then:

$$W(p) = \log[1 + p(e^{\theta} - 1)]$$

and the the risk premium:

$$\mu(p) = W(p) - p$$

- Suppose agents are given a distribution I :

$$\tilde{p} = \begin{cases} p - \epsilon & \text{with probability } q \\ p + \epsilon & \text{with probability } (1-q) \end{cases}$$

- The WTP for I is

$$W(I) = \left(2 - \frac{\log\left[1 + (e^{\theta} - 1) \cdot (p - \epsilon(2q - 1))\right]}{\theta}\right)$$

and the information premium:

$$\mu(I) = W(I) - W(p)$$

A Brief Digression

- Rewrite θ in terms of $\mu(p)$:

$$\theta(\mu(p)) = \log\left(1 + \frac{e^{\mu(p)+p} - 1}{p}\right)$$

- Rewrite $\mu(I)$ in terms of $\mu(P)$...

$$\mu(I) = 2 - \log\left(e^{\mu(p)+p}\right) - \frac{\log\left(e^{\mu(p)+p} - \frac{\epsilon(e^{\mu(p)+p}-1)(2q-1)}{p}\right)}{\log\left(\frac{(p-1)+e^{\mu(p)+p}}{p}\right)}$$

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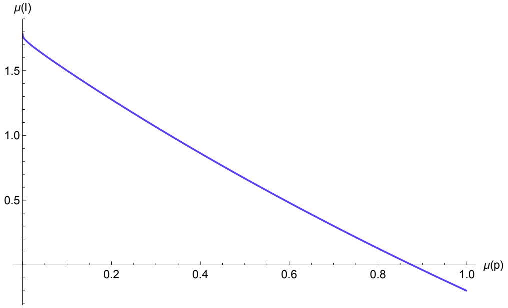

Why might an exercise like this be useful?

- Gives a “structural” interpretation to “information frictions”
  - No additional (behavioral) friction here – only p and θ
  - But clear prediction for a negative relationship b/w $\mu(p)$ and $\mu(I)$

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  - Could you capture all of the empirical patterns by making θ a simple function of p and q or ϵ?

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  - Could you capture all of the empirical patterns by making θ a simple function of p and q or ϵ?
- Might help discipline thinking about welfare
  - Higher WTP reveals higher value, but here we’re interpreting it as wasteful...

What is the experiment capturing?

- Experimental Design:
  - Probabilities p are fixed
  - Information frictions (e.g. uncertainty re: p) are fixed

  $\Rightarrow$ Choices reveal the *joint* preference for risk and uncertainty over risk
- Not Included:
  - (Heterogeneous) prior beliefs
  - Bayesian updating over price menus + information
  - Costly information acquisition

Closing thoughts + suggestions

- This is a really nice, thorough experimental framework for measuring WTP across different levels of underlying risk and uncertainty about the risk
- The paper makes a compelling argument that capturing correlations b/w preference for risk and for uncertainty re: risk is important, and shows how to use this in demand analyses
- I found myself struggling re: how to think about the WTP model:
  - Which relationships should I expect vs be surprised by?
  - Do the normative interpretations of "over-provision" and "under-provision" of insurance make sense here?
- I also wondered: Could we use this framework to correct for biases in empirical work, given the prevalence of priors and confounding forces?

Thank You