Heideggerian Temporality and the Demand for Insurance

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August 6th 2013
I. Heidegger Temporality: The Past Affects Our Future

- Introducing Heidegger Temporality
- Heideggerian temporality in the insurance decision is to choose a weight $w$ between the index of prior experience ($d(\Sigma)$) and the insurance decision ($\alpha$) to minimize the mean square error of loss.
- Comparative statics: $\frac{\partial w}{\partial \text{Var}(\alpha)}$, $\frac{\partial w}{\partial \text{Cov}(d,\alpha)}$, $\frac{\partial w}{\partial [E(d-\tau)^2]}$.

II. Insurance Demand without Heideggerian Temporality

- Reviewing traditional insurance model.
III. Intuition about Lotter Structures: Mean Preserving Spreads and Lottery Certainty

- Constructing Lottery Certainty.
- General lottery certainty for a lottery \((w_1, \ldots, w_N; p_1, \ldots, p_N)\) is defined as \(\sum p_i \ln(p_i) + \lambda \sum p_i \ln(w_i)\).

IV. Mean-Variance Results with Lottery Certainty

- Lottery certainty for several cases.

V. Conclusion

- Not finished yet.
Suggestion 1: Heidegger Temporality

- More examples could help readers to understand how insured make decisions in Heidegger’s world.

- For example, let a young man would like to buy liability insurance for car accident. When does he would like to maximize his instantaneous expected utility as follows?

  \[
  \max_{\alpha_t} \quad p_{t+1} U(W_t - L_{t+1} - q_t \alpha_t + \alpha_t) + (1 - p_{t+1}) U(W_t - q_t \alpha_t)
  \]

  When does he would like to minimize the mean square error of loss as follows?

  \[
  \min_w \quad E \left[ (w d(\Sigma) + (1 - w) \alpha) - \tau \right]^2, \text{ where } d(\Sigma) \text{ is the index of experience, } \alpha \text{ is the insurance decision, and } \tau \text{ is the best insurance coverage.}
  \]

- Under Heidegger’s world, do the properties of preferences (e.g. transitivity) still hold? Could we still use traditional utility function to capture the preferences?
Suggestion 2: Insurance Demand without Heidegerian Temporality

- This part could be shorten.
Suggestion 3: Intuition about Lotter Structures: Mean Preserving Spreads and Lottery Certainty (1/2)

- Horizontal reduction of a lottery is fine but not vertical reduction. Why? How does Heidegger temporality work here?
  - Horizontal reduction: Compound lotteries could be reduced to simple lotteries.
  - Vertical reduction: Obtaining $x$ for sure could be extended as a lottery $(x, x; \pi, 1 - \pi)$.

- Lottery Certainty is defined as $\sum p_i \ln(p_i) + \lambda \sum p_i \ln(w_i)$ for the lottery $(w_1, ..., w_N; \pi_1, ..., p_N)$.
  - Does lottery certainty satisfy first- and second-order monotonicity?
    - If lottery A is better than lottery B in terms of first- (second-) degree stochastic dominance, then the lottery certainty of A is greater than that of B.

- How is lottery certainty related to Heidegger temporality?
Suggestion 3: Intuition about Lotter Structures: Mean Preserving Spreads and Lottery Certainty (2/2)

- In the insurance problem, does minimizing mean square error result in the same prediction while comparing lottery certainty?
- What is the relationship between lottery certainty and other risk measurement, e.g., VaR, and the indexes proposed by Aumann and Serrano (2008, JPE), Foster and Hart (2009, JPE), Bali, Cakici and Chabi-Yo (2011, MS)?