Chpater 2: Reference-Dependent Preferences and Risk Preferences

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Overview: Focus

Title: "Reference-Dependent Preferences and Risk Preferences"

Focus: We'll interpret "reference-dependent preferences" to mean models with gain-loss utility derived from how realized outcomes compare to some reference point.

- Not much focus on other forms of reference dependence.
    - Habit formation
    - State-dependent preferences

But we'll also focus on related, non-reference-dependent models—most notably probability weighting, also a few others.

Overview: Style

Style: "Textbooky" with some history and assessment mixed in.

- Intended audience: Faculty or graduate students who want to work with these models.

- We'll describe a series of reference-dependent models.
  - Formulation of each model
  - Motivation/history behind each model
  - Some implications of each model

- We'll then describe relationships between these models, and relationships to non-reference-dependent models (e.g., probability weighting, salience).

- Finally, we'll describe applications of these models.

Overview: Some General Issues

- How much to focus on explaining anomalies vs. describing predictions?

- How much to focus on evidence that compares models vs. applications of models?

- How much detail on probability weighting?

- How much detail in explaining the basics of the models vs. detail in describing applications?

- How much to include "riskless choice"?

- How much decision theory (axioms) to bring in?

Section 2: Expected Utility

- Formulation of the model

- History and motivation for the model

- Implications of the model

- Axiomatic foundation

- Early anomalies (e.g., Allais)

- Possibly later anomalies here as well?

Section 3: Prospect Theory

3.1: Basic prospect theory

- Simplest version of the model:

$$V(x_1, p_1; x_2, p_2) = \pi(p_1)v(x_1) + \pi(p_2)v(x_2)$$

  - Discuss value function $v(x)$ and motivation
  - Discuss probability weighting function $\pi(p)$ and motivation

- Describe how basic prospect theory accommodates/rationalizes various anomalies.

- Describe additional implications of the model.

Section 3: Prospect Theory

3.2: Rank dependence and cumulative prospect theory (CPT)

- The probability weighting feature of prospect theory can generate issues—violations of dominance, inability to split outcomes.
  - Original prospect theory addresses these issues in editing, but not very elegant.

- Quiggin's solution: rank dependence (RDEU).
  - Formulation of the RDEU model.
  - Implications of the model.

- Kahneman & Tversky incorporated rank dependence into CPT
  - Formulation of CPT model.
  - Implications of the CPT model.

Section 3: Prospect Theory

3.3: Riskless choice

- It's natural to extend the use of the value function to riskless choice.

- In doing so, natural to permit both gain-loss utility and intrinsic utility.
  - Describe different ways in which one might do so.

- In addition, often multiple dimensions/attributes around which one might experience gain-loss utility (e.g., gain-loss utility for mugs vs. money).
  - Approach 1: Permit different gain-loss utility for different dimensions.
  - Approach 2: Assume a universal gain-loss utility (as in KR).

Section 3: Prospect Theory

3.4: Editing

- Kahneman & Tversky (1979) includes an editing stage with various operations.
  - Some designed to correct for issues with the evaluation stage.
  - Some designed to explain anomalies (i.e., reflect a real psychology).
    - Note: editing stage creates the potential for framing effects.

- In latter category, perhaps the two most important are:
  - "Bracketing": What choice am I making? Which options are worth considering? What features are relevant?

  - Coding: What is the reference point?

- The reference point is a key feature of the model, but it is not fully specified what the reference point is—a big degree of freedom in the model!

Section 3: Prospect Theory

3.5: Exogenous reference points

- Many applications assume a reference point that is exogenous to the choice at hand (although it might depend on own past behavior). Some examples:
    - "status quo"
    - initial/current wealth
    - ownership/non-ownership of objects
    - purchase price of an asset (disposition effect, houses)
    - zero return on portfolio (Benartzi & Thaler)
    - risk-free return on assets (Barberis, Huang, & Santos)
    - zero balance due on taxes (Rees-Jones)

Section 4: Expectations-Based Models

4.1: Expectations-based reference points

- Motivation: Judge outcomes relative to expectations.
  - Discuss open question: Expectations vs. aspirations

- In practice, expectations will frequently involve uncertainty.

- Raises question: How to deal with a reference lottery?
  - Given a reference lottery R, there are two approaches:
    - convert R into a reference point (e.g., $r = ER$) and use $V(X|r)$.
    - use R directly by defining $V(X|R)$.
  - What is the intuitive/psychological difference?
  - When do they make different predictions?

Section 4: Expectations-Based Models

4.2: Endogenous expectations 1: choice becomes reference lottery

- Two models: Koszegi-Rabin CPE and disappointment aversion (DA)
  - Developed (and motivated) differently, but really reflect same basic idea: When one makes a choice, the realized "utility" from that choice depends on how the realized outcome compares to everything that could have happened given that choice—i.e., the chosen option determines the reference lottery.

- Formulation of KR-CPE.

- Formulation of DA.
  - Bell/Loomes-Sugden version vs. Gul version

- Differences and similarities between the two approaches.

- Predictions of the two approaches (including violations of dominance)

Section 4: Expectations-Based Models

4.3: Endogenous expectations 2: planned choice becomes reference lottery

- In their original work, Koszegi & Rabin propose a somewhat different approach. When one thinks about a future decision and formulates a plan for what one might choose, that planned choice determines the reference lottery.

- Formulation of KR-PE and KR-PPE.

- Differences and similarities between KR-PPE and KR-CPE/DA.
  - Differences in predictions
  - Differences in psychology/motivation—when is each relevant?

Section 5: Relationship to Other Models

- There exist other models that can make predictions similar to models of reference-dependent preferences.
  - One we've already discussed: RDEU
  - Ambiguity aversion
  - "Regret" models
  - "Salience" models

- Differences and similarities between these models and models of reference-dependent preferences.
  - KR-CPE is equivalent to a special case of RDEU.

- Evidence that could (or does) tease these models apart?

Section 6: Applications

- How much detail? And how exhaustive?

- Discuss theoretical and empirical applications

- Discuss laboratory and field applications

- Discuss applications to risky choice and to "riskless" choice
  - endowment effect and exchange asymmetries