

Gov 50.08: Prospect Theory

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1

Learning Objectives

- Define/describe/explain prospect theory. Differentiate prospect theory from rational choice.
- Explain the prospect theory value function.
- Explain preference reversals using prospect theory.
- Explain the two stages of decisions under risk – editing and evaluation.
- Analyze and explain a foreign policy decision using prospect theory.

2

Rational Choice Approaches

- **Instrumental rationality**: “actors making decisions that maximize their expected utility in light of structural constraints”
- Actors must form preferences over outcomes, based on the **utility** of each (the value they anticipate from a choice).

$$EU/EV = \sum p \cdot v$$

- **EU/EV**: the weighted average of the possible outcomes
- **p**: the likelihood that a given outcome will occur
- **v**: the value of the outcome (payoff)

3

Rational Choice Approaches

- **Instrumental rationality**: "actors making decisions that maximize their expected utility in light of structural constraints"
 - Actors must form preferences over outcomes, based on the **utility** of each (the value they anticipate from a choice).
 - These preferences are **transitive** and **invariant**.
- **Procedural rationality**: individual assesses all available options and maximizes on the basis of careful deliberation.

4

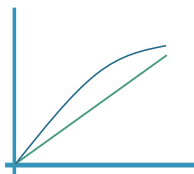
Discussion

- Do international relations theories need a "rational baseline"? In other words, should all theories compare outcomes to what a rational model would expect? Why or why not?
- Do psychological and rational choice approaches complement or compete with each other?

5

Expected Utility Theory

- Rational choice theory tells us that people maximize expected utility.
- They are also risk-averse.



6

Expected Utility vs. Prospect Theory

	Expected Utility	Prospect Theory
Objects of Preference	Final end state (\$ in your pocket at the end)	
Utility Function (risk aversion/risk-taking)	Risk averse everywhere	
Loss aversion	No theory of loss aversion	
Framing	Framing should not change the outcome (invariance)	

7

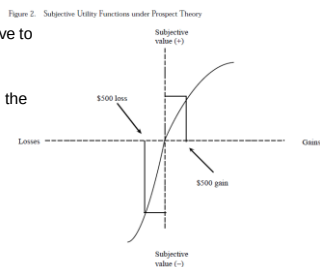
Starting with the punchline:

- In a nutshell:
 - "Individuals tend to be risk averse in a domain of gains, or when things are going well, and relatively risk-seeking in a domain of losses, as when a leader is in the midst of a crisis" (McDermott 1998, p. 18).
- Big takeaways:
 - The way a problem is framed can affect decisions.
 - People evaluate outcomes as gains or losses relative to a reference point.
 - Above the reference point: domain of gains
 - Below the reference point: domain of losses
 - People are risk-averse in the domain of gains and risk-acceptant in the domain of losses (relative to the reference point).
 - Losses loom larger than gains.

8

Value Function

- Three features:
 - Gains/losses are relative to the reference point
 - The curve is S-shaped
 - The slope is steeper in the domain of losses.



Berejikian 2002, p. 171

9

Expected Utility vs. Prospect Theory

	Expected Utility	Prospect Theory
Objects of Preference	Final end state (\$ in your pocket at the end)	?
Utility Function (risk aversion/risk-taking)	Risk averse everywhere	?
Loss aversion	No theory of loss aversion	?
Framing	Framing should not change the outcome (invariance)	

10

Framing: Classic Illustration

- Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. One possible program to combat the disease has been proposed. Assume that the exact scientific estimate of the consequences of this program is as follows:
 - A: If this program is adopted, 200 people will be saved.
 - B: If this program is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

11

Framing: Classic Illustration

- Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. One possible program to combat the disease has been proposed. Assume that the exact scientific estimate of the consequences of this program is as follows:
 - A: If this program is adopted, 200 people will be saved. **72%**
 - B: If this program is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved. **28%**

12

Framing: Classic Illustration

- Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. One possible program to combat the disease has been proposed. Assume that the exact scientific estimate of the consequences of this program is as follows:
 - A: If this program is adopted, 400 people will die.
 - B: If this program is adopted, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die.

13

Framing: Classic Illustration

- Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. One possible program to combat the disease has been proposed. Assume that the exact scientific estimate of the consequences of this program is as follows:
 - A: If this program is adopted, 400 people will die. **22%**
 - B: If this program is adopted, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die. **78%**

14

Preference Reversal

- A change in preference that occurs when:
 - You change the **description** of the problem without changing the content of the problem
- This doesn't make sense from a rational choice perspective (preferences are **invariant**).



15

Preference Reversal

- A change in preference that occurs when:
 - You change the **description** of the problem without changing the content of the problem
- This doesn't make sense from a rational choice perspective (preferences are **invariant**).
- How can we understand it using prospect theory?

16

PT vs. EUT

	Expected Utility	Prospect Theory
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Utility Function (risk aversion/risk-taking)	Risk averse everywhere	
Loss aversion	No theory of loss aversion	
Framing	Framing should not change the outcome	?

17

Editing Phase

- Editing: the "preliminary analysis of the offered prospects" (Kahneman & Tversky, p. 274).
- In the editing phase, the actor:
 - Identifies the reference point
 - Identifies the available options and possible outcomes
 - Identifies the value and probability of each outcome

18

Evaluation Phase

- Decision-makers make their choice.
- They choose riskier options if editing puts them in the domain of losses, and less risky options if editing puts them in the domain of gains.

19

Prospect Theory & Foreign Policy Decisions

- Both Farnham (1992) and McDermott (1992) use prospect theory to explain foreign policy decisions.
- For each:
 - **Editing:** How were the options framed? Where did the frames come from? How do they know? What was the reference point?
 - **Evaluation:** What was the decision-maker's domain? What did the decision-maker choose, and why?
 - How do the authors account for alternative explanations?
 - What are the strengths and weaknesses of their evidence?

20

Prospect Theory & Foreign Policy Decisions

- **Counterfactual:** If Carter's re-election campaign had been going well, would the Iran hostage crisis have ended differently? Why? How?

21

PT vs. EUT

	Expected Utility	Prospect Theory
Objects of Preference	Final end state (\$ in your pocket at the end)	Gains or losses relative to a reference point
Utility Function (risk aversion/risk-taking)	Risk averse everywhere	Risk averse for gains, risk-seeking for losses
Loss aversion	No theory of loss aversion	Losses loom larger than gains (steeper slope)
Framing	Framing should not change the outcome	Framing changes the reference/domain, which changes the definition of gains/losses, which affects preferences
Probability Evaluation	Linear probability evaluation	Non-linear probability evaluation (weighting function)

22

Other Implications of PT in IR

- Can you think of other ways that prospect theory could inform our understanding of international relations?

23

Other Implications of PT in IR

- Can you think of other ways that prospect theory could inform our understanding of international relations?
 - Status quo bias – leaders will risk more to maintain their position than to enhance it
 - Loss aversion
 - Public will punish a leader more for loss than failure to gain
 - Leaders will take excessive risks to recover after a loss
 - It's easier to deter an adversary from making gains than from recovering losses or to compel them to accept losses.

24

Fin.

Next time: Heuristics & Analogies
