



Behavioral Economics and Stated Preference Methods

Alan Krupnick
Resources for the Future
SRA CBA Conference
June 23, 2009

Taken as given that CBA needs monetary measures of preferences for health and environmental improvements



- What insights could a *behavior-based* sub-discipline possibly have for *stated preferences*?
- Or vice-versa?
- BE and Revealed Preferences – (see Kerry Smith)



The Basics

Behavioral economics: uses psychology and economics to explain, predict or influence judgment and choice (in real life) (Lowenstein)

Stated Preference research: explain and predict judgment (preferences) and choice (in a survey)



The Basics

Behavioral economics: using psychology and economics to explain, predict or **influence** judgment and choice (in real life)

Stated Preference research: explain and predict judgment (preferences) and choice (in a survey)

Philosophical Differences

BEs:

- People are Homo-Simpsons
- The true “invisible hand” is our irrationality
- Choices should be manipulated (Nudged: Sunstein and Thaler) in some cases: paternalism
 - Be wary of design choices and stated preference results (SP researcher is choice architect)

SPs:

- Homo economicus
- Choice is (mostly) rational
- Even if “irrational,” choices should NOT be manipulated (e.g., use of line drawings); they should be accommodated

Damage to Fish in the Southern Appalachian Mountain Region

The populations of six types of fish have declined or been eliminated in the streams of concern. Other species of fish are not affected. The six fish species (see list below) that are affected were once plentiful in the streams of concern. Although they are no longer plentiful here, they remain plentiful in healthy streams in the SAM Region.

Fish Species Affected	
Brook Trout	Longnose Dace
Rainbow Trout	Rosyside Dace
Mottled Sculpin	Fantail Darters

Brook Trout



Adult Length : 10-12 Inches

Longnose Dace



Adult Length : 4-6 Inches

Basic Commonality

BOTH BEs and SPs aim for clear communication and to account for irrationalities, biases and cognitive issues

Biases both BEs & SPs know

- Anchoring
- WTA vs. WTP
- Ordering effect
- Preference reversals
- Loss aversion
- Non-compensatory preferences
- Status Quo bias

Key Issues

- Coherent arbitrariness
- Experience utility
- Repetition
- Choice complexity
- Constructed values
- Household vs. individual



BE Insights for SP

BE: Coherent Arbitrariness

- SP: Account for/avoid starting point bias

BE: Experience utility vs. decision utility

Experienced subjects exhibit fewer anomalies
(List, 2003)

- Bring experience to SP.

From the SP literature

- Carlsson and Martinsson (2008): WTP study for avoiding power outages done both before and after storm. Lower WTP after the storm → avoid doing surveys after big events
- Sample people who claim experience (Krupnick and Cropper (1992)). But what about non-use values?
- Build in experience: Virtual reality (Harrison et al; Bateman et al)

http://www.rff.org/Documents/RFF-DP-07-21.pdf

Edit Go To Favorites Help

Glenn Harrison virtual reality

Search

Bookmarks

Check

AutoFill

Glenn

Page

70 / 93

102%

Find

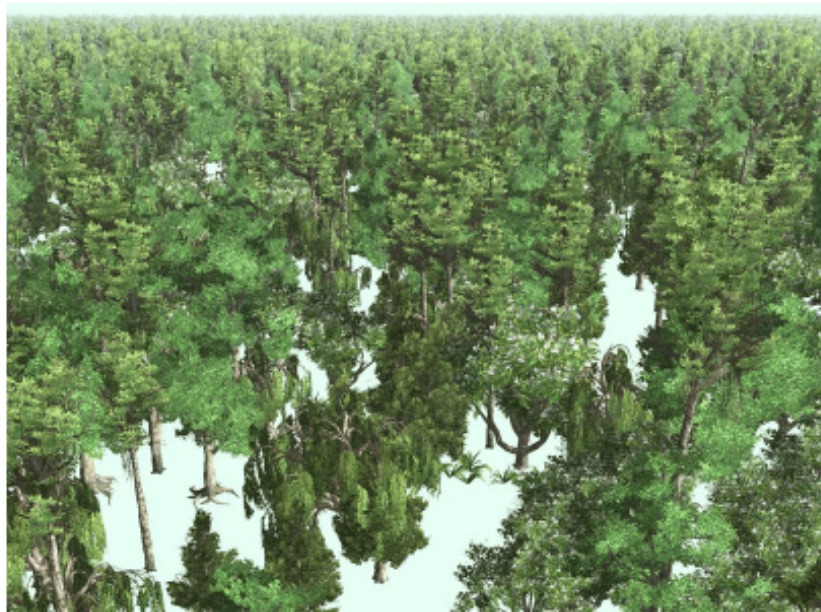


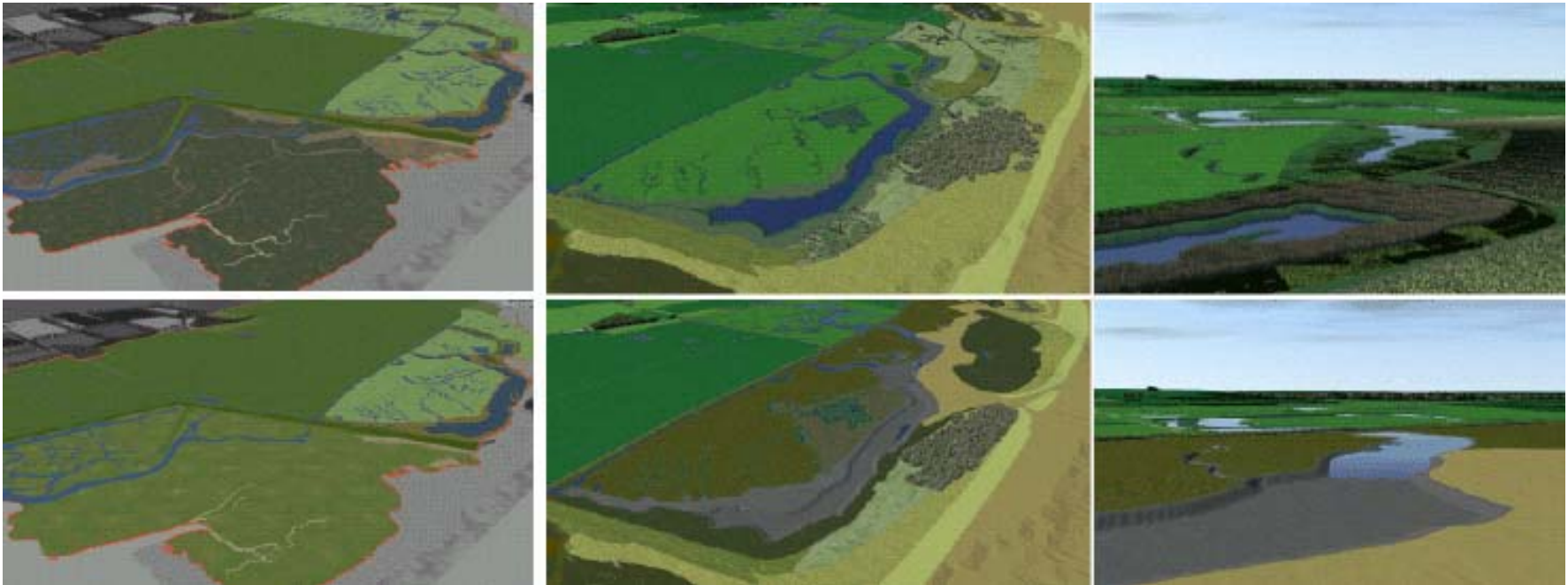
Figure 20: *SpeedTree* rendering of a forest from a distance



Figure 21: *SpeedTree* rendering of the same forest up close.

Example from Bateman et al

Before



After

Insights, cont.

BE: Repetition

Plott (1996), List (QJE): Practice and repetition produce stable and theoretically consistent preferences.

SP

- Provide practice questions
- Drop first response
- Favors CE over CV?



	No Program	Improvement Program
Streams and fish	240,000 healthy streams; 60,000 streams of concern. Up to 6 species of fish harmed in streams of concern.	10% of all streams (30,000 streams of concern) will improve and be stocked with these fish.
Forests	13% (780,000 acres) of SAM Region has damage to red spruce and sugar maple trees.	1% (260,000 acres) of SAM Region improves
Bird populations	Three songbird species are 65% of what they once were.	Three songbird species improve to 85% of what they once were.
Your household's additional state tax	\$0	\$500 in total (\$50 per year for 10 years)
Your Vote?	<input type="checkbox"/>	<input type="checkbox"/>

Choice/complexity overload

BE: Too many choices makes people less happy and can lead to bad decisions.

SP:

- CE vs. CV
- Limit columns (alternatives)/rows (attributes) in CE

Constructed Values

BE: Context matters

- SP: our problems with context dependence are not unique, even to environmental goods.

BE: People will value something they spend a lot of time doing.

- SP: Keep respondent effort constant across treatments

But does context matter more in SP than in RP?

Alpizar et al (2008)

- Natural field experiment and SP survey
- Voluntary contributions to a national park
- Treatments on anonymity and information about the behavior of others →
 - Hypothetical bias
 - But not social context bias

Individual vs. Household Choice/Preferences

BE tends to focus on unrelated individuals

- Social norms and group decisionmaking

SP's focusing on related individuals, i.e., the family

- Bateman and Munro (2005):
 - Joint decisions are more risk averse than spouses' individual decisions
 - Joint decisions depart from standard theory
- Hoffmann, Krupnick and Adamowicz

Shadow Prices on Child IQ Level Resulting from Change in Lead Exposure

(Utility function coefficient on IQ/coefficient on cost)

	Husbands	Wives	A Couples	B Couples
\$ Per IQ Point gain	4,068	2,417	5,110	3,718

Conclusions

- BE focus on psychological foundations of behavior applies to behavior in surveys
- BE shows that biases/anomolies in SP literature are not unique, but occur in the “real world” as well
- In their concern for cognitive biases, SP and BE have much in common and both literatures can contribute to progress in the other
- SP has an advantage over RP because an SP researcher has more control over information provision than an RP researcher (who faces the invisible hand of irrationality).