

# **ExpEcon Methods: Clever Elicitations & Choice Process Data**

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ECON 8877

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Parts thanks to Kirby Nielsen

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# Overview

1. MouseLab
2. Eye Tracking
3. fMRI
4. RTs
5. Krupka-Weber
6. Caplin Dean & Martin
7. Colin & Judd's audit study
8. Mistakes
9. Incompleteness
10. Strategy Method: conditional cooperators
11. Romero-Rosokha-Frechette
12. Advice/Muriel
13. Team Chat
14. Procedures

# Search & Satisficing

- Two conditions ensure that data is consistent with satisficing:
  1. Subjects must always switch to higher value alternatives
  2. There must be some  $u^*$  such that search stops if and only if the utility of the chosen value is above  $u^*$

- Design requires three things:
  1. Ranking of alternatives is clear to the experimenter
    - So we know that they switch to higher valued alternative
  2. But subjects still make mistakes
    - Still have to “search” through
  3. Can collect choice process data

# Choice Objects

- Subjects choose between ‘sums’  
four plus eight minus four
- Value of option is the value of the sum
- “Full information” ranking is obvious, but uncovering value takes effort
- 6 treatments
  - 2 x complexity (3 and 7 operations)
  - 3 x choice set size (10, 20, and 40 options)
- No time limit

## Size 10, Complexity 3

Round  
2 of 30

Current selection:

four plus eight minus four

Choose one:

- ☐ zero
- ☐ three plus five minus seven
- ☐ four plus two plus zero
- ☐ four plus three minus six
- ☒ four plus eight minus four
- ☐ three minus three plus one
- ☐ five plus one minus one
- ☐ eight plus two minus five
- ☐ three plus six minus five
- ☐ four minus two minus one
- ☐ five plus five minus one

Finished

## Size 20, Complexity 7

- ☐ zero
- ☐ seven minus four minus two minus four minus two plus eleven minus four
- ☐ six plus five minus eight plus two minus nine plus one plus four
- ☐ seven minus two minus four plus three plus four minus three minus three
- ☐ seven plus five minus two minus two minus three plus zero minus two
- ☐ six plus seven plus six minus two minus six minus eight plus four
- ☐ six plus two plus five minus four minus two minus seven plus three
- ☐ six minus four minus one minus one plus five plus three minus six
- ☒ two plus six plus seven minus two minus four minus two plus zero
- ☐ two minus three minus five plus nine minus one plus five minus three
- ☐ three plus zero plus two plus zero plus one minus three minus one
- ☐ four plus three plus zero minus two plus three plus four minus ten
- ☐ seven plus two plus seven minus seven plus three minus two minus two
- ☐ three plus three minus two plus zero plus zero minus four plus five
- ☐ two minus two plus zero plus nine minus two minus one minus one
- ☐ three plus four minus three plus three minus four plus three minus four
- ☐ three plus five plus seven plus five minus two minus seven minus ten
- ☐ three plus six minus eight plus one plus two minus two plus zero
- ☐ three plus five plus zero plus four plus three minus four minus two
- ☐ eight minus one plus one minus four minus four minus five plus six

# Results

Failure to choose optimal:

Size	Complexity	
	3	7
10	7%	24%
20	22%	56%
40	29%	65%



# Results

Average loss (\$):

Size	Complexity	
	3	7
10	0.41	1.69
20	1.10	4.00
40	2.30	7.12

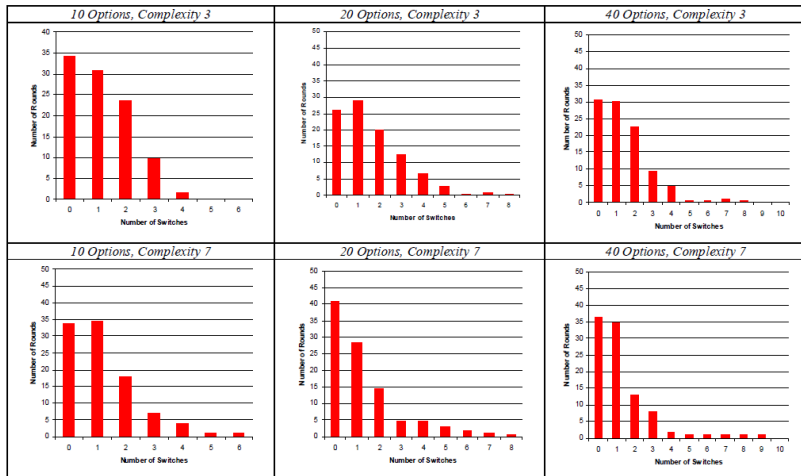
# Results

- People frequently did not choose the best option, and left money on the table
- Presumably they do not prefer less money as things get bigger/more complex...
- Can satisficing explain it?

# Eliciting Choice Process Data

1. Allow subjects to select any alternative at any time
  - Can change as often as they like
2. One random time between 0 and 120 seconds will be selected, unknown to subjects
  - Subjects will be paid whatever they had selected at this random time
  - Incentivizes subject to keep current best alternative selected
  - Treat sequence of selections as choice process data
3. Round ends in two ways
  - After 120 seconds
  - When subject presses the finish button
  - Discard the former

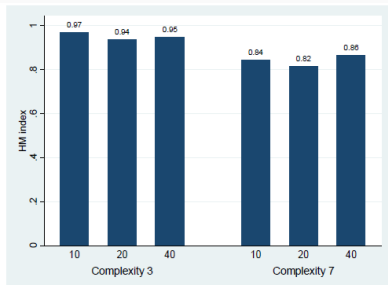
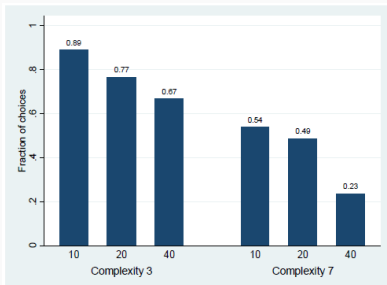
# Benefit of Process Data



## Condition 1

- Satisficing condition 1: Must always switch to higher-valued objects
- Graph the fraction of switches that satisfy this condition
- Compare to the fraction of choices that satisfy optimality

# Condition 1



# Satisficing

- Does seem to be that subjects are searching sequentially
- Switch when they find a better option

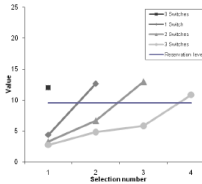
# Satisficing

- Does seem to be that subjects are searching sequentially
- Switch when they find a better option
- But are they satisficing?
- Do they stop searching after encountering some value,  $u^*$ ?



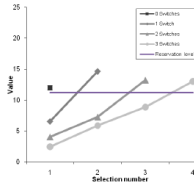
# Condition 1

10

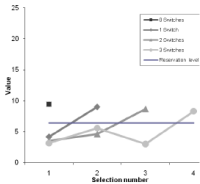
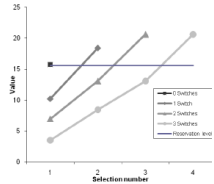


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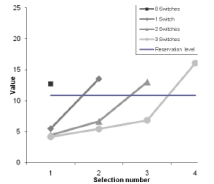
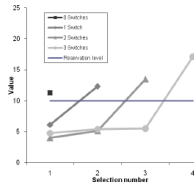
20



40



7



## Estimating Reservation Levels

Size	Complexity	
	3	7
10	9.54	6.36
20	11.18	9.95
40	15.54	10.84

# Estimating Reservation Levels

- Reservation levels decrease with complexity
  - Predicted by theory
  - Increasing  $k$
- Reservation levels increase with choice set size
  - Not predicted by theory

- It looks “as if” individual are satisficing... do they know they are? How would we elicit this?
- Does it matter?