



Behavioral and Experimental Economics

ELICITING RISK ATTITUDES: LAB SESSION

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Menu

- ▶ A look at yesterday's risk elicitation session
- ▶ A look at the raw data
- ▶ Data cleaning (pre-coded)
- ▶ **choices**: a look at your results
- ▶ Translating data to the r parameter (pre-coded)
- ▶ r : a look at your results

Remember yesterday's tasks?

The tasks you ran



Questionnaires: SOEP

How likely are you to take risks in general, on a scale from 0 (not taking any risks) to 10 (taking many risks)?



Questionnaires: DOSPERT

Domain Specific Risk Taking Scale

- ▶ 6 domains: investing, gambling, health/safety, recreational, ethical, and social
- ▶ 1 to 7 scale: *how likely are you to engage in X?*

Examples:

- ▶ Riding a motorcycle without a helmet.
- ▶ Engaging in unprotected sex.
- ▶ Investing 10% of your annual income in a moderate growth diversified fund.



RETs, I: Holt and Laury

Ten binary lottery choices – risk attitude as switching point

| Option A | | | | | Option B | | | |
|-----------|-------|-----|------|-------|----------|-------|------|-------|
| 1 | 1/10 | 4 € | 9/10 | 3.2 € | 1/10 | 7.7 € | 9/10 | 0.2 € |
| 2 | 2/10 | 4 € | 8/10 | 3.2 € | 2/10 | 7.7 € | 8/10 | 0.2 € |
| 3 | 3/10 | 4 € | 7/10 | 3.2 € | 3/10 | 7.7 € | 7/10 | 0.2 € |
| 4 | 4/10 | 4 € | 6/10 | 3.2 € | 4/10 | 7.7 € | 6/10 | 0.2 € |
| 5 | 5/10 | 4 € | 5/10 | 3.2 € | 5/10 | 7.7 € | 5/10 | 0.2 € |
| 6 | 6/10 | 4 € | 4/10 | 3.2 € | 6/10 | 7.7 € | 4/10 | 0.2 € |
| 7 | 7/10 | 4 € | 3/10 | 3.2 € | 7/10 | 7.7 € | 3/10 | 0.2 € |
| 8 | 8/10 | 4 € | 2/10 | 3.2 € | 8/10 | 7.7 € | 2/10 | 0.2 € |
| 9 | 9/10 | 4 € | 1/10 | 3.2 € | 9/10 | 7.7 € | 1/10 | 0.2 € |
| 10 | 10/10 | 4 € | 0/10 | 3.2 € | 10/10 | 7.7 € | 0/10 | 0.2 € |

Risk neutral should switch after 5 choices. > 5 safe \rightarrow risk averse



RETs, II: Binswanger

A single choice among 50-50 lotteries – chosen lottery is played.

| | Event | Probability | Outcome |
|---|-------|-------------|---------|
| 1 | A | 50% | 4 € |
| | B | 50% | 4 € |
| 2 | A | 50% | 6 € |
| | B | 50% | 3 € |
| 3 | A | 50% | 8 € |
| | B | 50% | 2 € |
| 4 | A | 50% | 10 € |
| | B | 50% | 1 € |
| 5 | A | 50% | 12 € |
| | B | 50% | 0 € |

Risk neutral should choose lottery 5. Extreme risk aversion to choose lottery 1.



RETs,IV: Investment game

Endowment X

How much would you like to invest?

Safe account
1 : 1

Risky investment
1 : {1/2: 2.5; 1/2: 0}

Risk-neutral should invest all, as $E(\text{risky}) = 1.25 > 1$.



RETs, VI: BRET

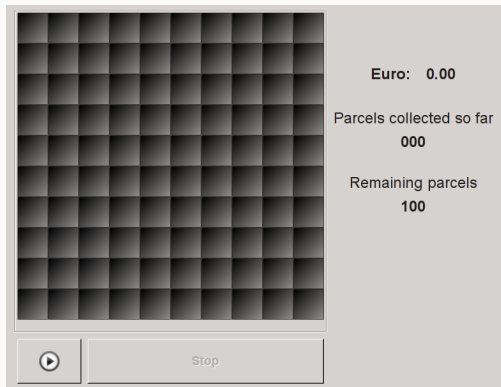
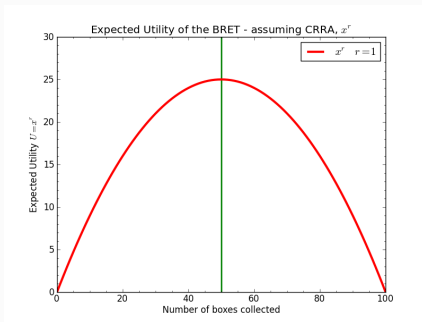


Figure: The BRET interface at the start of the experiment



BRET: solution for the expected value maximizer



The expected value is maximized at $k^* = 50$.

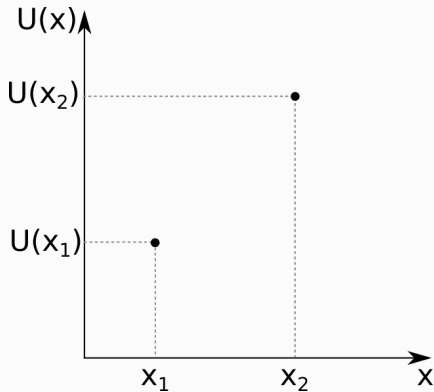
Assuming a power CRRA utility function x^r , the optimal stopping point is:

$$k^* = 100 \frac{r}{1+r}.$$

But how do we compare across methods?

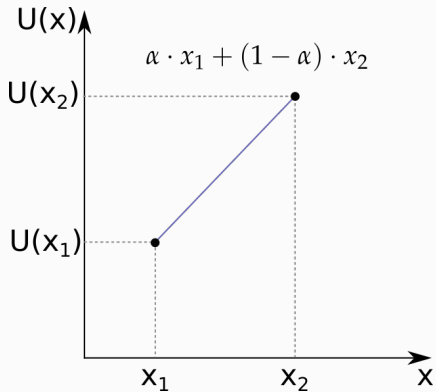


Risk: expected utility framework



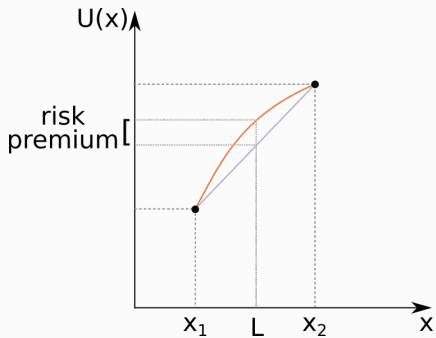


Risk: expected utility framework



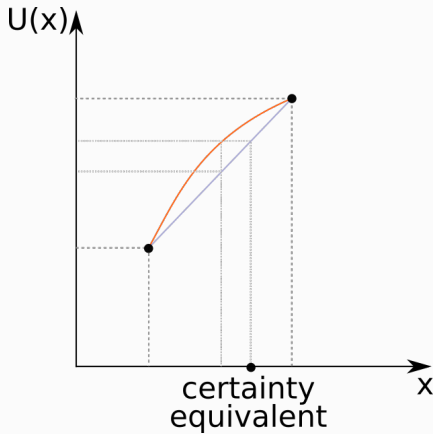


Risk: expected utility framework



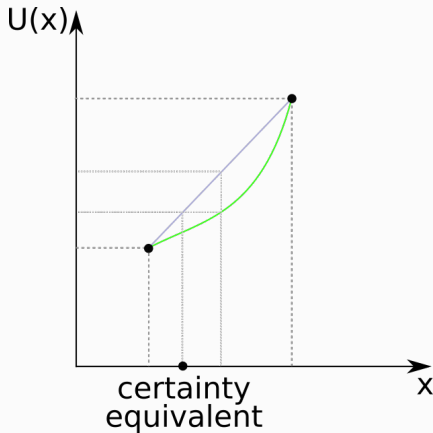


Risk: expected utility framework





Risk: expected utility framework

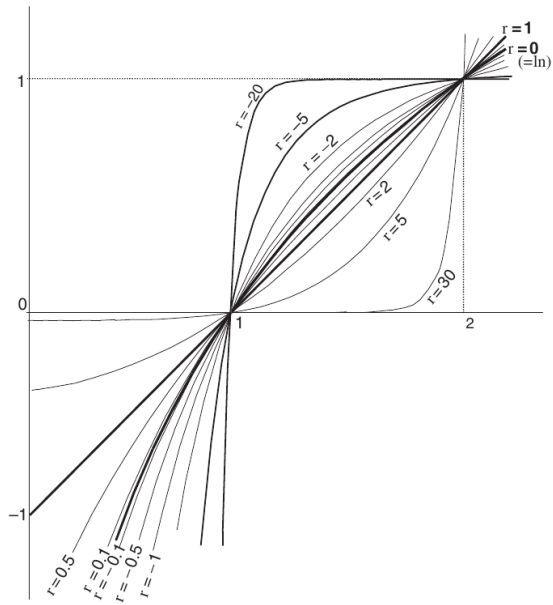




CRRA (à la Wakker)

$$u(x) = x^r$$

- ▶ simple
- ▶ captures risk aversion
- ▶ makes different tasks comparable

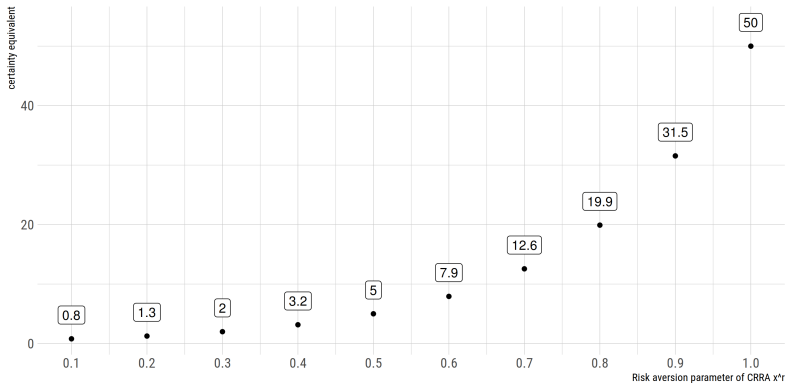




How big are these differences?

Certainty Equivalent of {0.5: 100; 0.5: 0} lottery

CRRR x^r





Mapping choices to r : risk levels

