

Privacy Decision-Making in Digital Markets: Eliciting Individuals' Preferences for Transparency

Nikolai Sachs, Daniel Schnurr
(University of Passau)

Abstract

We investigate whether individuals prefer transparency about privacy risks in a randomized controlled online experiment. We use an Ellsberg-type design where subjects repeatedly choose between a lottery with known risk and an ambiguous lottery. When subjects lose the lottery, their personal data is possibly disclosed to others.

Background

- Transparency is a prerequisite for individuals to make informed privacy decisions in digital markets
- Research gap: Whether and when do people prefer and choose transparency about privacy risks?
- The literature suggests that there are situations in which people prefer ambiguity (i.e., non-transparency) over risk (i.e., transparency)

Method

- Incentivized online experiment with student subjects (n = 172)
- Ellsberg (1961) urn task with disclosure of a subject's result from a 16-question logic test as the outcome
- Treatment:** Between-subjects variation of number of colors between two and ten colors to compare different likelihoods of data disclosure
- Measurement of ambiguity attitude with a choice list using matching probabilities (Dimmock et al., 2016)
- Subjects categorized based on their switching behavior into those that seek disclosure and those that perceive it as a loss

Ambiguity aversion for the uncertain disclosure of personal data reverses for highly likely losses and for perceived gains. Thus, people facing high privacy risks may seek ambiguity and avoid transparency.

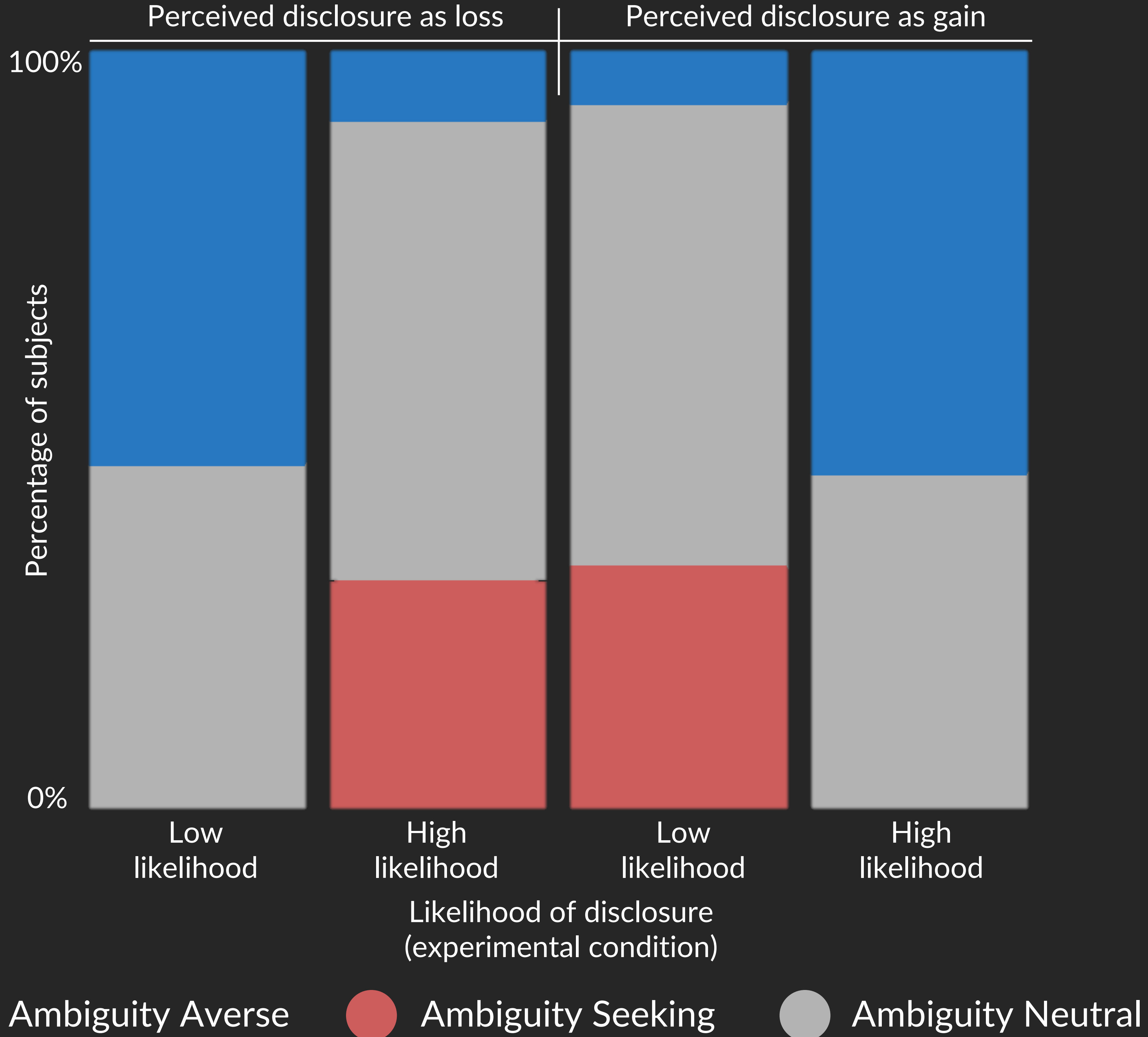


Figure 1: Ambiguity attitude of subjects (n = 148) displayed by likelihood of disclosure and perceived outcome domain. Likelihood of disclosure was varied between-subjects. Perceived outcome domain was categorized based on a subject's switching direction. Ambiguity attitude was categorized using matching probabilities (neutrality was categorized for matching probabilities between 0.45 and 0.55 for the high likelihood condition, and 0.07 and 0.13 for the low likelihood condition).

SJDM Poster Session #1 – Friday, February 11, 9:30-10:30am Eastern Time
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Method (cont'd)

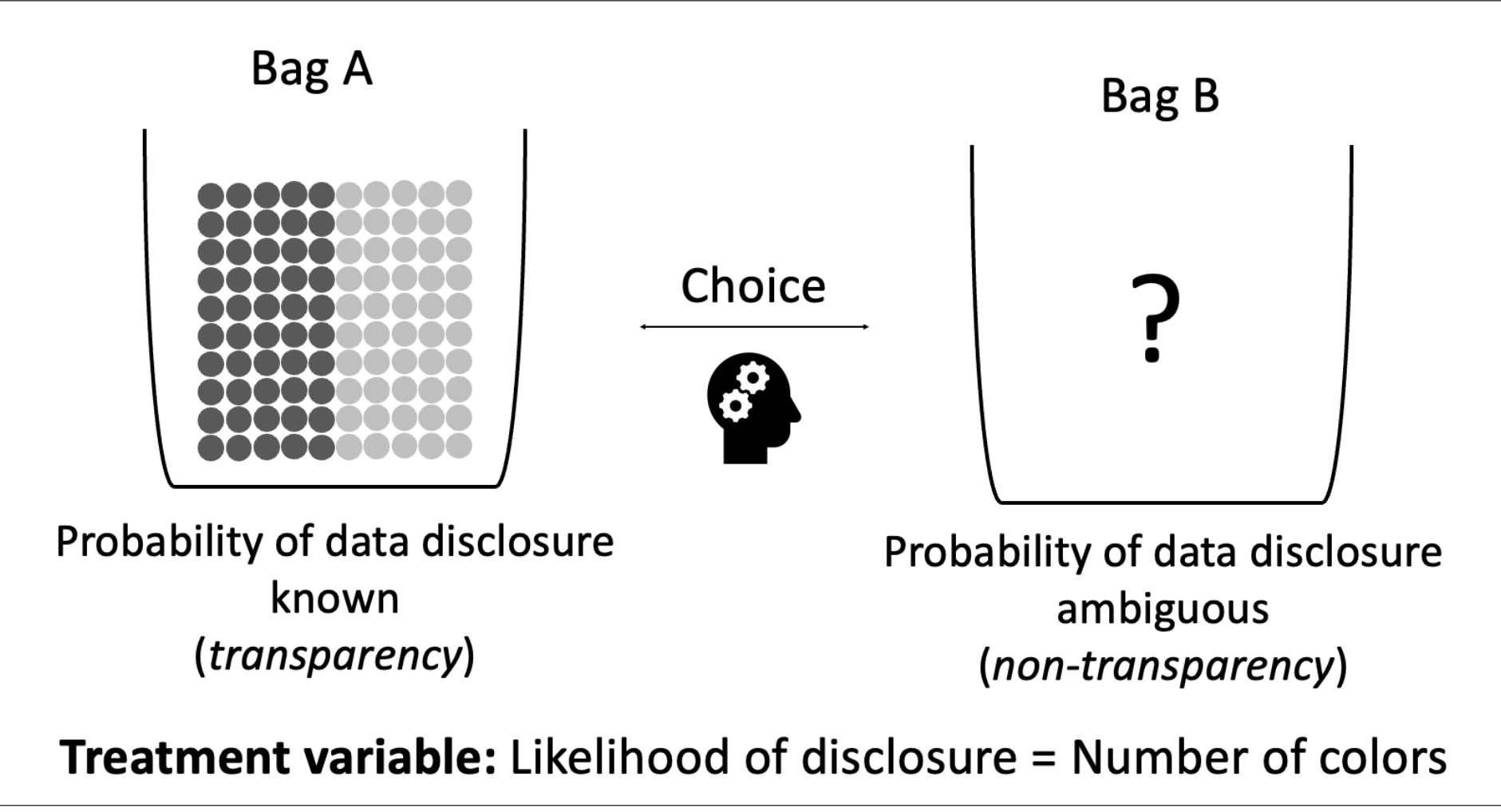


Figure 2: Experimental setup based on an Ellsberg (1961) urn task. Subjects chose between two bags filled with chips of either two or ten different colors.

Preliminary Results

Subjects that perceived disclosure as a loss:

- In the low likelihood condition, subjects are on average ambiguity averse ($p < 0.001$)¹
- In the high likelihood condition, subjects are on average ambiguity seeking ($p < 0.05$)¹

Subjects that perceived disclosure as a gain:

- In the low likelihood condition, subjects are on average ambiguity neutral ($p = 0.45$)¹
- In the high likelihood condition, subjects are on average ambiguity averse ($p < 0.001$)¹

Discussion

- Ambiguity attitudes for uncertain disclosure of personal data follow the same patterns identified for monetary outcomes (Kocher et al., 2018)
- As several individuals seek ambiguity (i.e., avoid transparency) when the likelihood of data disclosure is high, market incentives for transparency provision might not suffice in these situations. Stronger regulatory obligations might be necessary.

References

Dimmock, S. G., Kouwenberg, R., & Wakker, P. P. (2016). Ambiguity attitudes in a large representative sample. *Management Science*, 62(5), 1363-1380.

Kocher, M. G., Lahno, A. M., & Trautmann, S. T. (2018). Ambiguity aversion is not universal. *European Economic Review*, 101, 268- 283.

Ellsberg, D. (1961). Risk, ambiguity, and the Savage axioms. *The quarterly journal of economics*, 643-669.

¹Two-sided t-tests against neutral probability