

The Influence of Option Complexity on Risky Judgment and Choice

Yvonne Oberholzer¹, Sebastian Olschewski², Benjamin Scheibehenne¹

(1) Karlsruhe Institute of Technology
(2) University of Warwick

Contact: [Zoom Office Hours](#)
yvonne.oberholzer@kit.edu
@YvonneOberholz



Abstract

In two studies, we investigated the influence of option complexity (i.e. number of outcomes) on valuations and choice. We found that complexity was disliked especially in choice (-7.5% value), but also in valuations (-3.3% value).

Introduction

Previous research revealed that complexity is disliked in risky choice [1,2,3] and potentially also in valuations [4,5]. The consistency of the effect and the underlying mechanism are unclear. We investigated:

- if complexity aversion exists in judgment and choice,
- if so, what the underlying mechanism is (not on this poster) and
- which individuals within the population are most affected by it.

Methods

complex	simple
139 with 18%	20 with 26%
127 with 16%	123 with 74%
84 with 11%	
110 with 18%	
54 with 9%	
105 with 19%	
224 with 9%	

Study 1 (n = 112):

Valuations, marketing

students 

Study 2 (n = 279):

Valuations, Choice & Cognitive

Ability (HMT-S [6], $\alpha =$

0.65), strat. nat. sample 

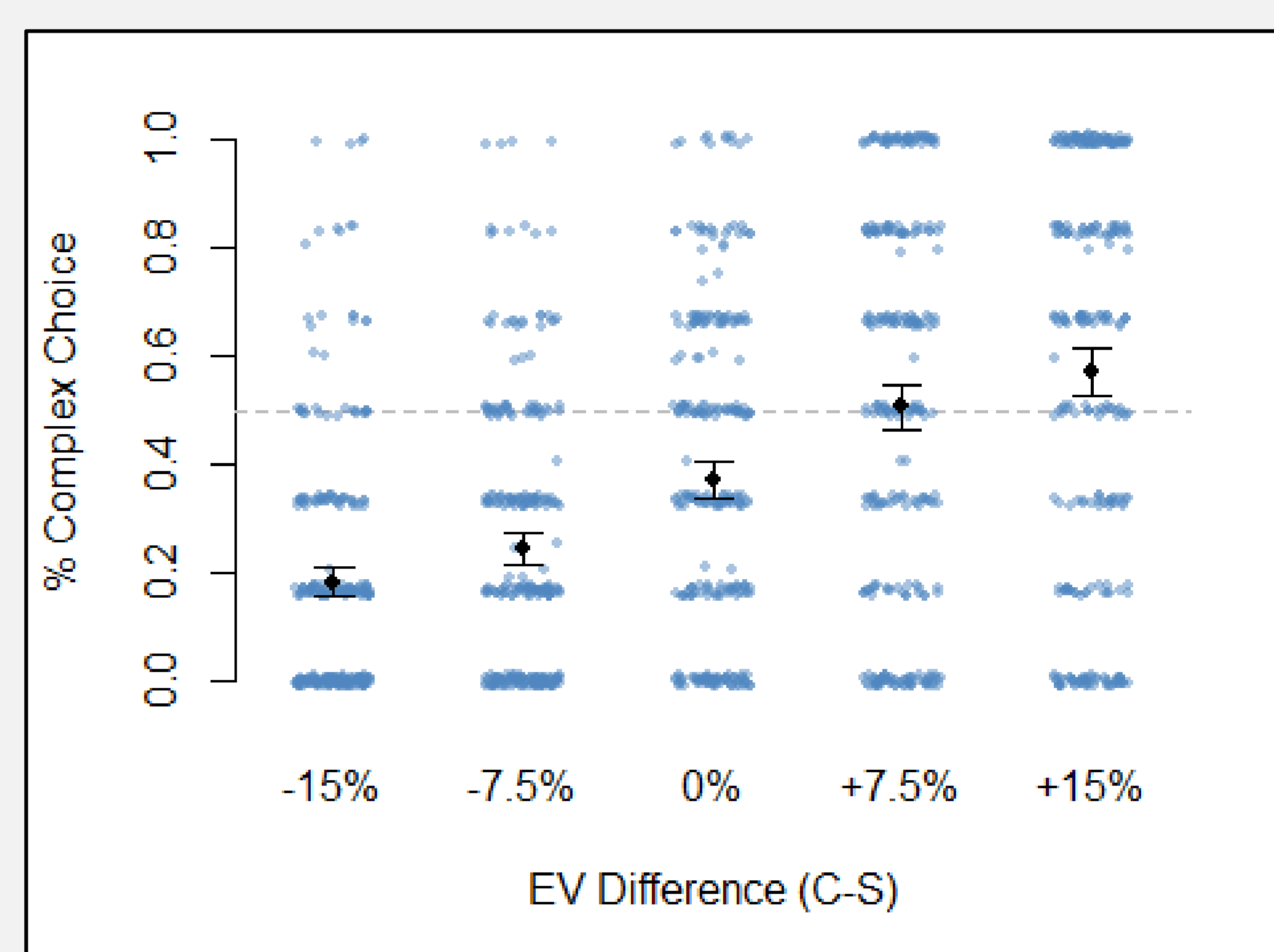
Risky Lotteries matched on EV (expected value), variance and skewness.

Results

Main Effects (Bayesian MLM):

Study 1: No effect of complexity on valuation.

Study 2: Negative effect of complexity on valuation and choice.



Effect on Choice

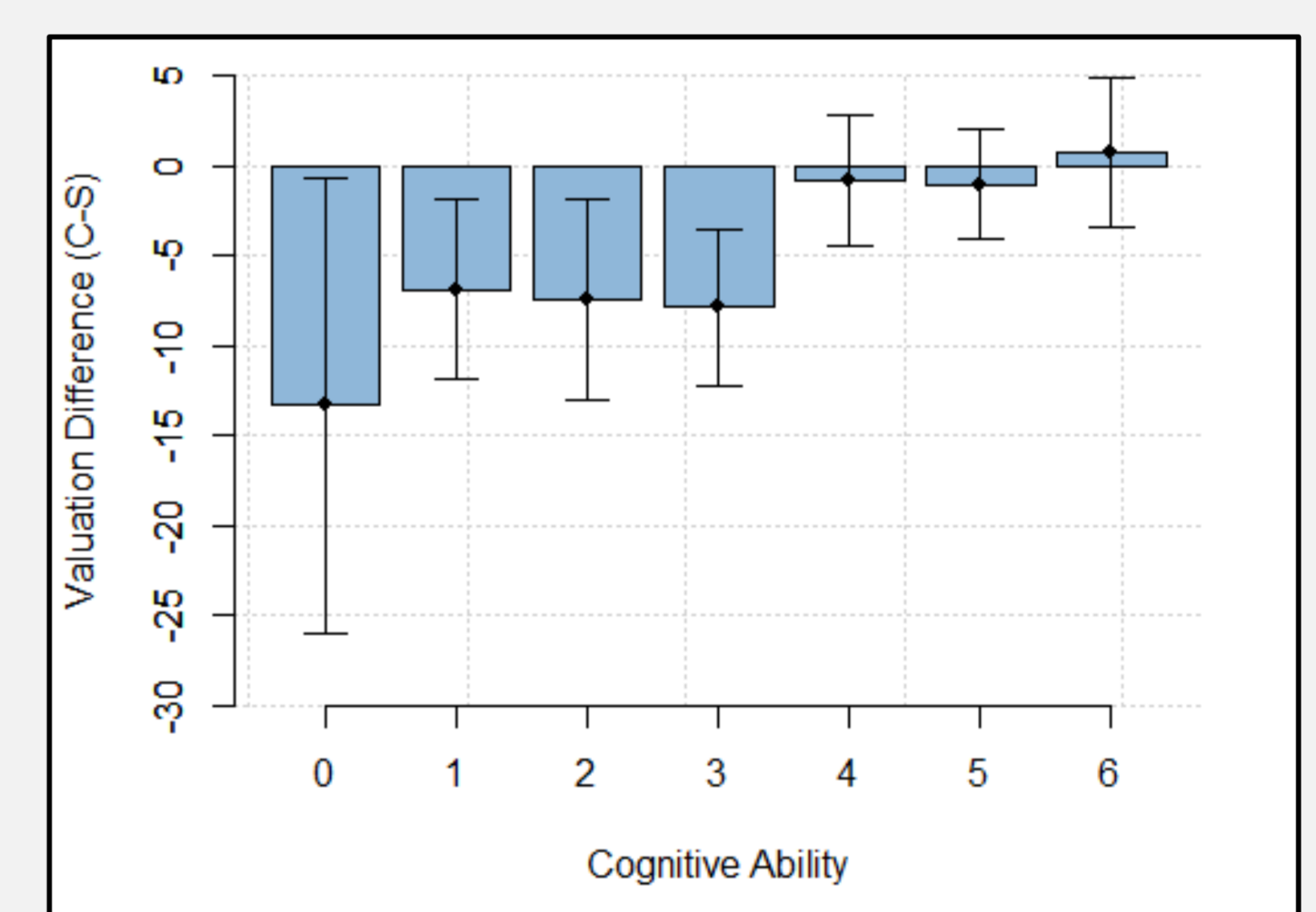
Individual aggregated data (n = 279) for choice in study 2. Overall M = 0.38, 95% CI [0.35, 0.40]. Arrows denote 95% CI based on std. errors.

Moderator (Interaction in Bayesian MLM):

Study 2: Cognitive Ability moderates the influence of complexity. No complexity aversion at cognitive ability level of 6 in choices and 4 in valuations.

Cognitive Ability and Valuation

Descriptive plot for cognitive ability and complexity aversion in valuation based on individual aggregated data. Arrows denote 95% CI based on std. errors.



Discussion / Conclusion

- Complexity aversion exists in choice and to a lesser degree in valuations.
- Complexity affects people with higher cognitive ability less (e.g. university students).
- Ideally, experiment designs should control for complexity to avoid bias.

References:

[1] Huck, S., & Weizsäcker, G. (1999). Risk, complexity, and deviations from expected-value maximization: Results of a lottery choice experiment. *Journal of Economic Psychology*, 20(6), 699–715. [https://doi.org/10.1016/S0167-4870\(99\)00031-8](https://doi.org/10.1016/S0167-4870(99)00031-8)

[2] Sonsino, D., Benzion, U., & Mador, G. (2002). The Complexity Effects on Choice with Uncertainty—Experimental Evidence*. *The Economic Journal*, 112(482), 936–965.

[3] Zilker, V., Hertwig, R., & Pachur, T. (2020). Age differences in risk attitude are shaped by option complexity. *Journal of Experimental Psychology: General*

[4] Bruce, A. C., & Johnson, J. E. V. (1996). Decision-Making under Risk: Effect of Complexity on Performance. *Psychological Reports*, 79(1), 67–76.

[5] Mador, G., Sonsino, D., & Benzion, U. (2000). On complexity and lotteries' evaluation – three experimental observations. *Journal of Economic Psychology*, 21(6), 625–637.

[6] Heydasch, T., Haubrich, J., & K.-H. R. (2020). Short Form of the Hagen Matrices Test (HMT-S). *ZIS - The Collection of Items and Scales for the Social Sciences*.