Econometrica Supplementary Material

SUPPLEMENT TO "RANDOMIZE AT YOUR OWN RISK: ON THE OBSERVABILITY OF AMBIGUITY AVERSION"

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APPENDIX A: REVEALED AMBIGUITY ATTITUDE IN THE SIX CHOICE PROBLEMS

THE FULL CHOICE PATTERNS (beyond the choices in Red 1 and Blue 4) in the Before-6 and After-6 treatments provide more information on subjects' ambiguity attitudes. All possible choice patterns can be assigned a (unique) six-letter code. For instance, we denote "acebdf" the choice pattern of a subject preferring "a" in Red 1, "c" in Red 2, and "e" in Red 3, but then "b," "d," and "f" in the Blue problems of Figure 2. Based on observed choice patterns, we can classify subjects into one of the following six categories:

- Ambiguity Averse (AA^r): subjects who always choose bag K (KKKKK), or choose bag K whenever it pays at least as much as bag U, and choose bag K at least once when it pays less than bag U (KKKUKK or UKKKKK).[1]
- Ambiguity Seeking (AS^r): Subjects who exhibit exactly the opposite pattern than ambiguity-averse subjects: UUUUUU, UUUUUK, or UUKUUU.
- Weak Ambiguity Averse (WAA^r): Subjects who choose bag K whenever it pays at least as much as bag U and choose bag U when bag K pays strictly less than bag U (UKKUKK). Choosing K in Red 2 and in Blue 5 suggests disliking Bag U (and therefore ambiguity aversion) but it can also be that such subjects are indifferent (ambiguity neutral).
- Weak Ambiguity Seeking (WAS^r): Subjects who choose bag U whenever it pays at least as much as bag K and choose bag K when bag U pays strictly less than bag K (UUKUUK).
- Ambiguity Neutral (AN^r): Subjects whose choices can be rationalized by subjective expected utility with arbitrary beliefs. For instance, a subject who chooses "KKKUUK" can be ambiguity neutral, believing that it is more likely that a blue chip will be drawn from Bag U. Similarly, a subject who chose "UKKUUK" might have been indifferent in problems Red 2 and Blue 5 but chose K in the former and U in the latter. Alternatively, the same subject may have held a belief that drawing blue from bag U is slightly more likely than drawing red.

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[1]Note that AA^r may differ from SAA^r (as displayed in Figure 5). For comparability with the Single, After, and Before treatments, we only considered problems Red 1 and Blue 4 to determine SAA^r, therefore including all patterns of the form K - - K - -. The difference, however, is negligible. There were 25 SAA^r and also 25 AA^r subjects in the After-6 treatment and there were 25 SAA^r and 24 AA^r subjects in the Before-6 treatment.

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TABLE A.I

AMBIGUITY ATTITUDE CATEGORIZATION BY CHOICE PATTERN.

Category	Choice Patterns
AA^r	KKKKKK, KKKUKK, UKKKKK
AS^r	UUUUUU, UUUUUK, or UUKUUU
WAA^r	UKKUKK
WAS^r	UUKUUK
AN^r	UKKUUK, UUKUKK, KKKUUU, UUUKKK, KKKUUK, UUKKKK, UKKUUU, UUUUKK
NM^r	all the others

- Nonmonotonic or nontransitive preferences (NM^r): Within all the Red (Blue) problems, the Bag K bet becomes better, whereas the bag U bets become worse from left to right, subjects satisfying monotonicity, once choosing bag K in one option, should no longer switch to bag U. For instance, a subject who chooses "UKUUKU" violates monotonicity or transitivity.

Table A.I presents the full categorization of all possible choice patterns in the 6-choice-problem treatments.

APPENDIX B: BAYESIAN POSTERIORS IN THE FOLLOW-UP STUDY

To further analyze the strength of our empirical evidence, we followed the approach of Jamil, Ly, Morey, Love, Marsman, and Wagenmakers (2017) to obtain the Bayesian posterior of the difference in the SAA^r proportion of subjects between every pair of treatments.[2]

Comparing Single to Single-BL and Before-B to Before-BL (the two top posteriors) suggests that participants did not mentally randomize. Had they done so, it would have resulted in positive differences in Figure B.1, but the posteriors point to negative or null differences. Comparing the Single controls to the corresponding Before treatments, we find that there is a 92.1% chance that Before-B led to fewer SAA^r participants than Single and an 84.4% chance that Before-BL led to fewer SAA^r participants than Single-BL. This is consistent with our finding above that there are many ambiguity-averse subjects who satisfy reversal of order.

[2]The estimation was done using the function for contingency tables in the BayesFactor package in R. The posteriors were obtained from Markov chain Monte Carlo simulations.

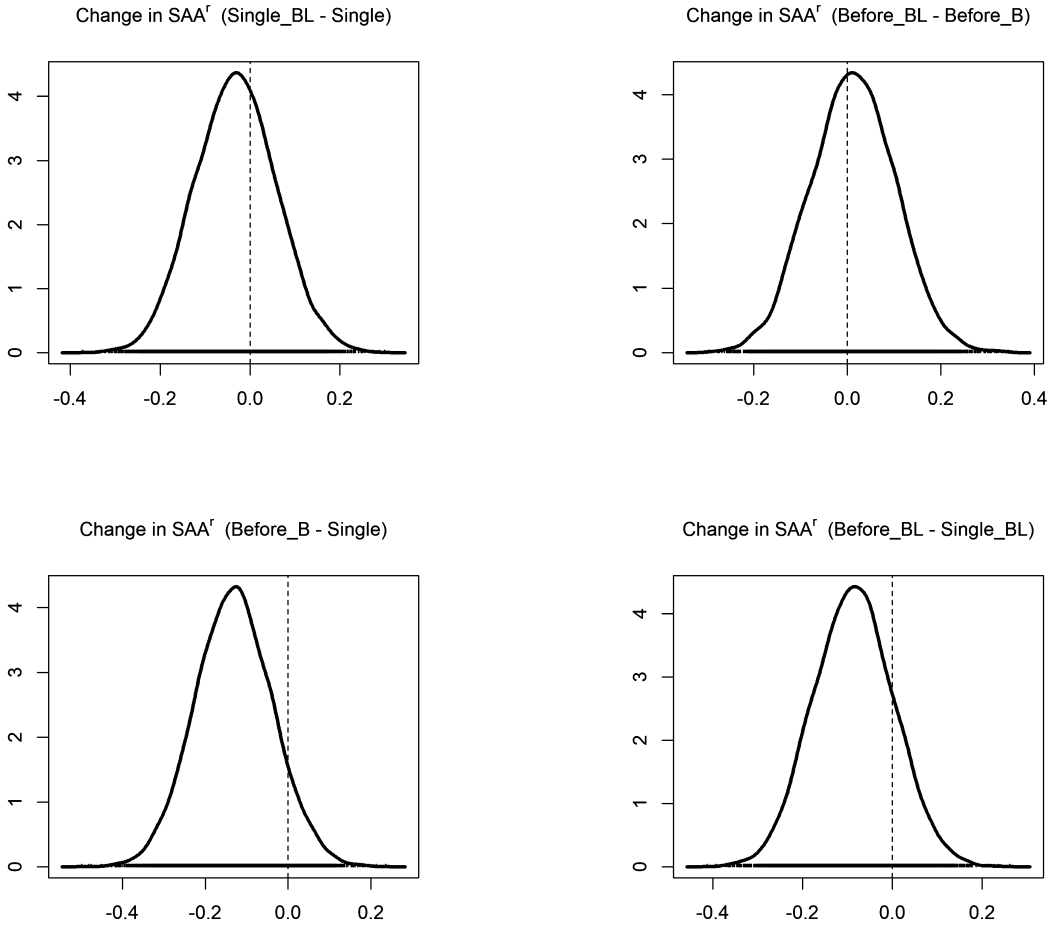

FIGURE B.1.—Bayesian posteriors in the follow-up study.

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