

Gauriot, Romain; Liu, Yang; McLaughlin, Jack; Miller, Joshua B.

**Working Paper**

## A Computational Reproduction of "Intrinsic Information Preferences and Skewness" by Masatlioglu, Orhun and Raymond (2023)

I4R Discussion Paper Series, No. 164

**Provided in Cooperation with:**

The Institute for Replication (I4R)

*Suggested Citation:* Gauriot, Romain; Liu, Yang; McLaughlin, Jack; Miller, Joshua B. (2024) : A Computational Reproduction of "Intrinsic Information Preferences and Skewness" by Masatlioglu, Orhun and Raymond (2023), I4R Discussion Paper Series, No. 164, Institute for Replication (I4R), s.l.

This Version is available at:

<https://hdl.handle.net/10419/303902>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

No. 164

I4R DISCUSSION PAPER SERIES

# **A Computational Reproduction of “Intrinsic Information Preferences and Skewness” by Masatlioglu, Orhun and Raymond (2023)**

Romain Gauriot

Yang Liu

Jack McLaughlin

Joshua B. Miller

**October 2024**

## I4R DISCUSSION PAPER SERIES

I4R DP No. 164

### **A Computational Reproduction of “Intrinsic Information Preferences and Skewness” by Masatlioglu, Orhun and Raymond (2023)**

**Romain Gauriot<sup>1</sup>, Yang Liu<sup>2</sup>, Jack McLaughlin<sup>3</sup>, Joshua B. Miller<sup>2</sup>**

<sup>1</sup>*Deakin University, Geelong/Australia*

<sup>2</sup>*The University of Melbourne/Australia*

<sup>3</sup>*Monash University, Melbourne/Australia*

OCTOBER 2024

Any opinions in this paper are those of the author(s) and not those of the Institute for Replication (I4R). Research published in this series may include views on policy, but I4R takes no institutional policy positions.

I4R Discussion Papers are research papers of the Institute for Replication which are widely circulated to promote replications and meta-scientific work in the social sciences. Provided in cooperation with EconStor, a service of the [ZBW – Leibniz Information Centre for Economics](#), and [RWI – Leibniz Institute for Economic Research](#), I4R Discussion Papers are among others listed in RePEc (see IDEAS, EconPapers). Complete list of all I4R DPs - downloadable for free at the I4R website.

I4R Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

#### **Editors**

**Abel Brodeur**  
*University of Ottawa*

**Anna Dreber**  
*Stockholm School of Economics*

**Jörg Ankel-Peters**  
*RWI – Leibniz Institute for Economic Research*

# A Computational Reproduction of “Intrinsic information preferences and skewness” by Masatlioglu, Orhun and Raymond (2023)

Romain Gauriot<sup>1</sup>, Yang Liu<sup>2</sup>, Jack McLaughlin<sup>3</sup>, and Joshua B. Miller<sup>2</sup>

<sup>1</sup>Deakin University

<sup>2</sup>The University of Melbourne

<sup>3</sup>Monash University

September 22, 2024

## Abstract

Masatlioglu et al. (2023) show a strong intrinsic preference for positively skewed information over negatively skewed information through three laboratory and two field experiments. Using the provided replication package, we successfully computationally reproduce these results. Additionally, we test the robustness of the findings by employing alternative statistical tests, which confirmed the original conclusions. We also make minor comments about the paper that may be useful to researchers building on Masatlioglu et al. (2023)’s work.

**Keywords:** replication; information preferences; skewness; information avoidance

## 1 Introduction

In “Intrinsic Information Preferences and Skewness” Masatlioglu et al. (2023) communicate two main findings. First, they find that people prefer “positively skewed information structures,” e.g., receiving a binary information signal that yields either good news or neutral-to-bad news, over “negatively skewed information structures,” e.g., receiving a binary information signal that yields either bad news or neutral-to-good news. Second, they find that many participants avoid more informative information structures, e.g., receiving an information signal that may yield news of any valence (i.e., good, bad, or neutral). For these participants, a significant minority would be willing to acquire information when it is restricted to delivering good news (or neutral-to-bad news).

The data underlying Masatlioglu et al. (2023)’s findings come from their two main lab experiments and two online Mturk studies. To illustrate the evidence of their first finding, in the two lab experiments participants are found to prefer (i) receiving information that reveals that their chance of winning \$10 is likely (or reveals that their chance is uncertain) over (ii) receiving information that reveals that their chance of getting \$0 is likely (or reveals that their chance is uncertain). In a stated preference survey, participants state that they prefer (i) taking a genetic test that reveals that their chance of avoiding Alzheimer’s disease is relatively high (or reveals that their chance is uncertain) over (ii) taking a genetic test that reveals that their chance of avoiding Alzheimer’s disease is relatively low (or that that their chance is uncertain). In an online experiment in which participants take an IQ Test, after guessing their own rank out of 100 participants, say 40th, participants reveal that they prefer (i) being informed whether or not their IQ rank is more than ten positions better (30th), over (ii) being informed whether or not their IQ rank is more than ten positions worse (50th). The evidence for the second finding is based on similar measures, but we omit the detailed description here.

In this report prepared for the Institute for Replication (Brodeur et al., 2024), we successfully computationally reproduce all of Masatlioglu et al. (2023)’s results, which support these findings.

## 2 Replication package

The replication package is of excellent quality. The code is well-documented, runs without issues, and reproduces all results in the paper.

The original code is in Stata. The results are replicated when the statistical tests are re-coded in R and when using parametric equivalents of the non-parametric tests.

All figures, tables, and values referred to in the text reproduce. Alternative tests, such as Bayes factor t-tests, replicate the same outcomes as originally reported. Given that the original authors chose the appropriate tests, we find little value in providing the results of the alternatives here.

Due to the nature of the study and without access to the raw data, there are limited robustness checks we could conduct. Table 1 summarizes the computational reproduction.<sup>1</sup>

---

<sup>1</sup>The replication package includes intermediate data, but not the raw data. An example of raw data that the authors reasonably exclude from the intermediate data used for analysis are the responses from Mturk participants in both of the field experiments (Alzheimer’s and IQ test) who did not complete the study, failed the attention checks, or admitted to not having made much effort.

	Fully	Partial	No
Raw data provided			x
Cleaning code provided			x
Analysis data provided	x		
Analysis code provided	x		
Reproducible from raw data		x	
Reproducible from analysis data	x		

Table 1: Computational reproduction summary. The computational reproduction was successful based on the data provided. The fifth row indicates that reproducibility is partial because the raw data was not provided (see footnote 1).

### 3 Minor Comments

In this section, we share some observations we made while exploring Masatlioglu et al. (2023)’s replication package. We do not see those observations as challenging the paper’s conclusion. However, they may be useful to researchers’ building on Masatlioglu et al. (2023).

In Experiment 1, participants are asked for their minimum willingness-to-accept in order to switch from their preferred information structure to their non-preferred information structure. This is referred to as the “minimum compensation required to switch” (MCTS), and it is elicited using a multiple price list in which participants are presented with 10 Yes/No decisions of whether they are willing to switch for  $c$  cents, where  $c = 1, 5, 10, \dots, 50$  (Holt and Laury, 2002). The MCTS is measured by the first time the participant clicks “Yes,” because a rational participant that clicks “Yes” to a compensation of  $c$  should also click “Yes” to any compensation greater than  $c$ . The multiple price list is among the most widely used methods to elicit individual preferences on risk, time, and commodity pricing. Despite its popularity, one empirical difficulty that it is often observed in the field is that participants often exhibit “multiple switching,” which in this case would amount to switching from “No” to “Yes” and then back to “No.” This behavior incompatible with standard assumptions on preferences and creates noise in data (Charness et al., 2013), yet has it been found to happen at a rate of 17.1 percent in a sample of 6315 subjects over 54 published papers (Crosetto and Filippin, 2016; Filippin and Crosetto, 2016). One method commonly used to avoid the issue of multiple switching points is only to ask the subjects to indicate which row on the list they are willing to switch instead of deciding between lotteries in each row (Andersen et al., 2006). We did not find such restrictions in the experimental instructions and program screenshot provided in the online appendix. We checked the data from the replication package, and no participant exhibited multiple switching. Given the typical prevalence of multiple switching, its absence suggests that the experimenters either took measures to prevent participants from doing so in a way that has not been documented—e.g., by

using a validation check in the experimental software—or this data was excluded from the intermediate data, as it was in the Alzheimer’s disease study (Masatlioglu et al., 2023, p. 2631).

This brings to light the importance of the replicability of the experimental design and its implementation. Camerer et al. (2016) evaluated 18 experimental studies published in *American Economic Review* and *the Quarterly Journal of Economics* between 2011 and 2014. Compared to other fields of economics studies, they find that experimental studies have a higher rate of replication success. At the same time, they call for authors to provide comprehensive descriptions of the experimental procedures, including materials, methods, and protocols, which is critical to making the replication process easy and can significantly increase the study’s credibility. We propose that the computer code used to conduct experiments be included in future replication packages. This way, in future replication games, attendees can also role-play as participants in the experiments themselves, which would simulate the collection of raw data.

In the Alzheimer’s disease field experiment, demographic data is collected along with reported family history and other reasons for expecting to be of higher risk.<sup>2</sup> However, no findings related to this data are reported in the manuscript or online Appendix. We find that both family history ( $p < 0.01$ ) and other reasons ( $p < 0.001$ ) predict being an “information taker.” This is as expected; Alzheimer’s is a genetic disease, and having direct family members with a history of it would likely increase the salience and perceived benefit of diagnosis. We do not find a significant correlation between being an information taker and other demographic data, including age, gender, and expected age at death. Given that age is a selection criterion, its insignificance within this sample is expected.<sup>3</sup>

## References

- Andersen, S., Harrison, G. W., Lau, M. I., and Rutström, E. E. (2006). Elicitation using multiple price list formats. *Experimental Economics*, 9:383–405.
- Brodeur, A., Mikola, D., Cook, N., Brailey, T., Briggs, R., de Gendre, A., Dupraz, Y., Fiala, L., Gabani, J., Gauriot, R., et al. (2024). Mass reproducibility and replicability: A new hope. Technical report, The Institute for Replication (I4R).

---

<sup>2</sup>This question had four potential answers on their perceived risk: diagnosed with it, think they are high risk, think they are low risk but still worry, and do not think they have a reason to be higher risk than average.

<sup>3</sup>We also checked to see whether demographic variables and family history also relate to the willingness to pay (WTP) for a genetic test of Alzheimer’s risk. In a linear regression model of the WTP for a genetic test—either positive, negative, or exact—we explore the correlation with age, gender, family history, other risk reasons, and information-taker status. These explanatory variables do not relate to willingness-to-pay for exact or risky information. On the other hand, there is a significant relationship between other risks and WTP for positive information ( $p < 0.001$ ).

- Camerer, C. F., Dreber, A., Forsell, E., Ho, T.-H., Huber, J., Johannesson, M., Kirchler, M., Almenberg, J., Altmejd, A., Chan, T., et al. (2016). Evaluating replicability of laboratory experiments in economics. *Science*, 351(6280):1433–1436.
- Charness, G., Gneezy, U., and Imas, A. (2013). Experimental methods: Eliciting risk preferences. *Journal of economic behavior & organization*, 87:43–51.
- Crosetto, P. and Filippin, A. (2016). A theoretical and experimental appraisal of four risk elicitation methods. *Experimental Economics*, 19:613–641.
- Filippin, A. and Crosetto, P. (2016). A reconsideration of gender differences in risk attitudes. *Management Science*, 62(11):3138–3160.
- Holt, C. A. and Laury, S. K. (2002). Risk aversion and incentive effects. *American economic review*, 92(5):1644–1655.
- Masatlioglu, Y., Orhun, Y., and Raymond, C. (2023). Intrinsic information preferences and skewness. *American Economic Review*, 113(10):2615–2644.