



Abstract

Choice in the digital age is a paradox. Although individuals state that they want choice, they can be less happy with the experience resulting from their choice. Across 4 studies we reveal that leaving choice to an algorithm, instead of making consumers choose is critical in assuring consumer satisfaction in the case of a vending machine, a ride-hailing service, and an electric scooter sharing service. We discover two moderators for the negative effect of choice in these domains. Furthermore, we systematically study different platforms based on the benefits of digital choice, costs of digital choice, and consumer trust in the ability of a digital platform's algorithm to choose for them. We ascertain a gap between choice preference and choice satisfaction, when the benefits of digital choice are lower, irrespective of the choice costs and consumer trust. Our research suggests that automation and predictive algorithms replacing human endeavors like choosing might enhance satisfaction in certain digital domains. Therefore, digital domains should consider when and how to present consumers with choice.

Introduction

"One day we hope to get so good at suggestions that we're able to show you exactly the right film or TV show for your mood when you turn on Netflix"

- Reed Hastings, the CEO of Netflix (The Economist 2016)

Today, more than ever, we make countless choices in digital contexts. However, this might soon be eliminated. Some digital platforms, such as Netflix and Amazon offer personalized recommendations. However, in the future, Netflix will know what you want to watch through its improving machine learning algorithms and Amazon will know what you need to shop for (viz., its patented method and system for anticipatory package shipping, US8615473B2, 2013). This will eliminate consumer choice and turn the algorithms from decision-aids to decision-makers.

Before 2000s: Consumer Choice **Near Future:** Algorithms as Decision-Makers

Today: Algorithms as Decision-Aids

Research Questions:

- When do consumers prefer to make choices for themselves on digital platforms?
- How does the provision versus elimination of choice shape consumer satisfaction resulting from the experience provided by the digital platforms?
- Do initial preferences match subsequent satisfaction?

Pretest: Do Consumers Want Choice?

- **Participants:** $N = 761$ from Amazon's Mechanical Turk
- Random assignment to one of 9 digital domains:
 - Uber, Bird (an electric scooter sharing service), AirBnB, Netflix, Spotify, Google search, Zipcar, Zoom (a hypothetical multi-modal transportation platform), and vending machine
- **Measured:** (1) Preference for choice, (2) Choice among a few alternatives, (3) Benefits and costs of consumer choice, (4) Trust for the digital platform to choose for the consumer

Results:

Prefer Choice Indifferent between Choice and No Choice Prefer No Choice

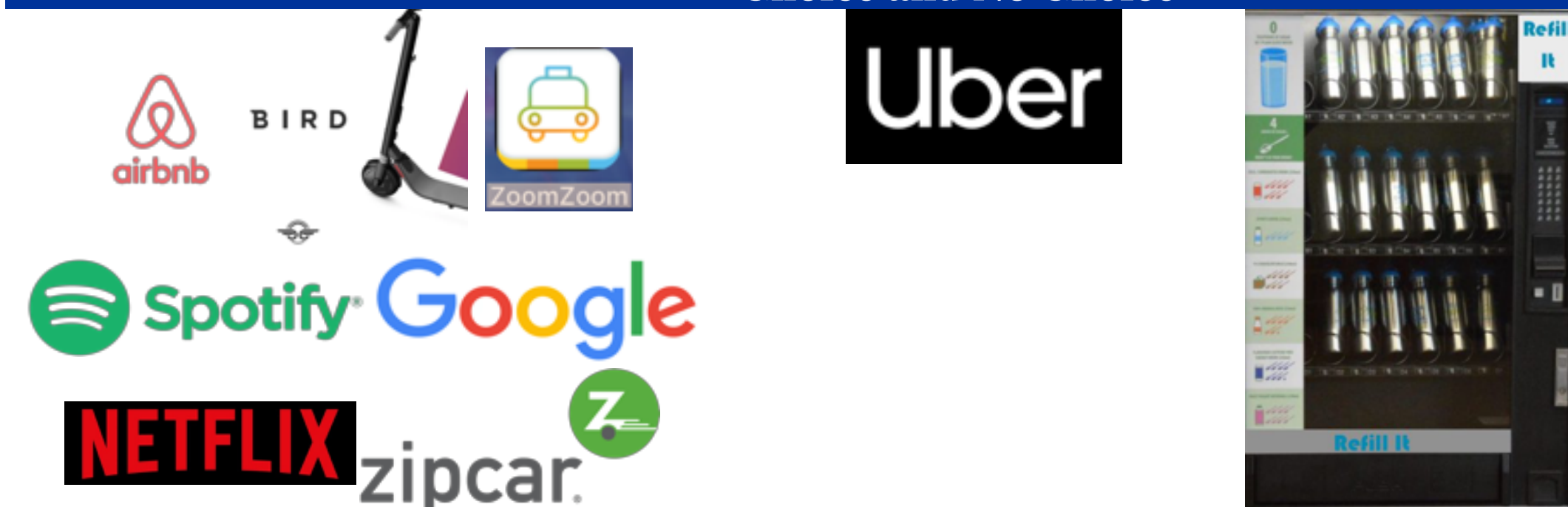


Figure 1: Choice Costs and Benefits for the Higher Trust Domains

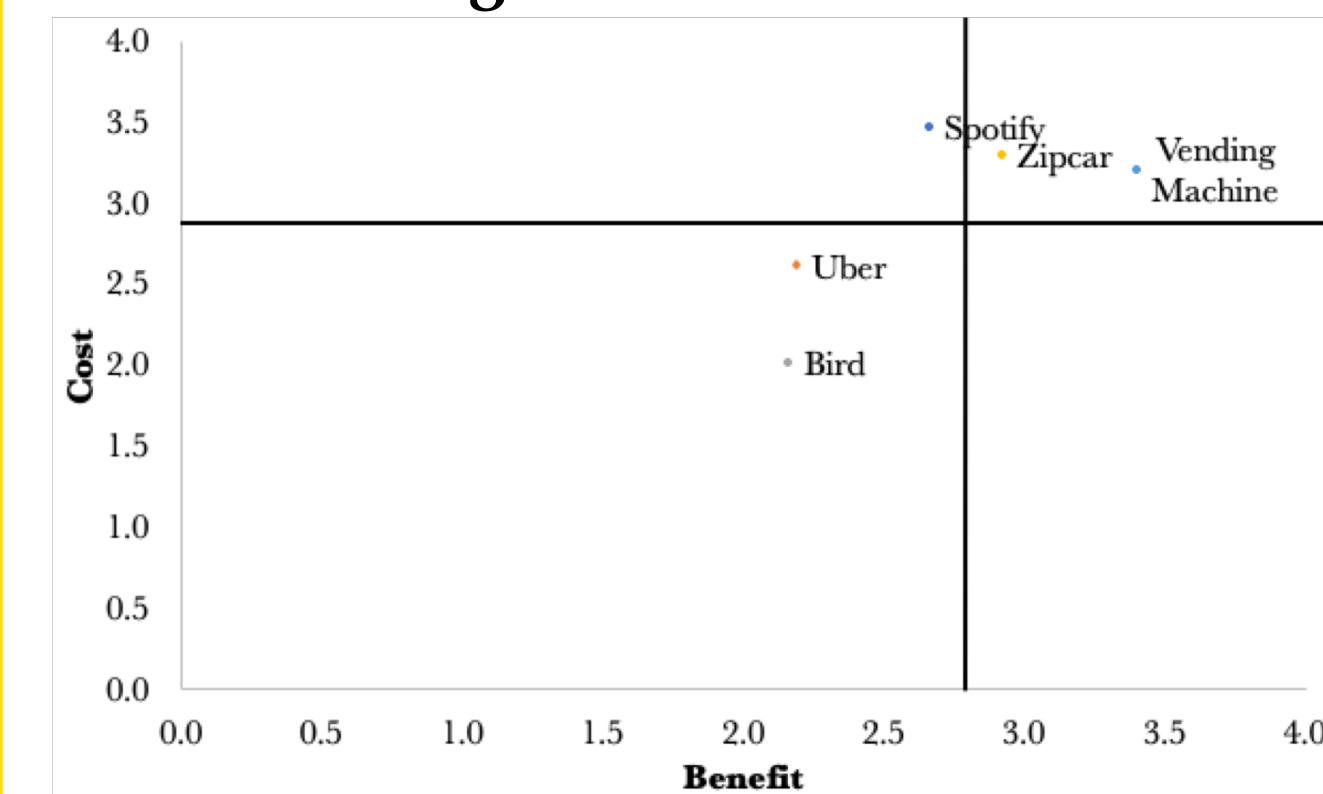
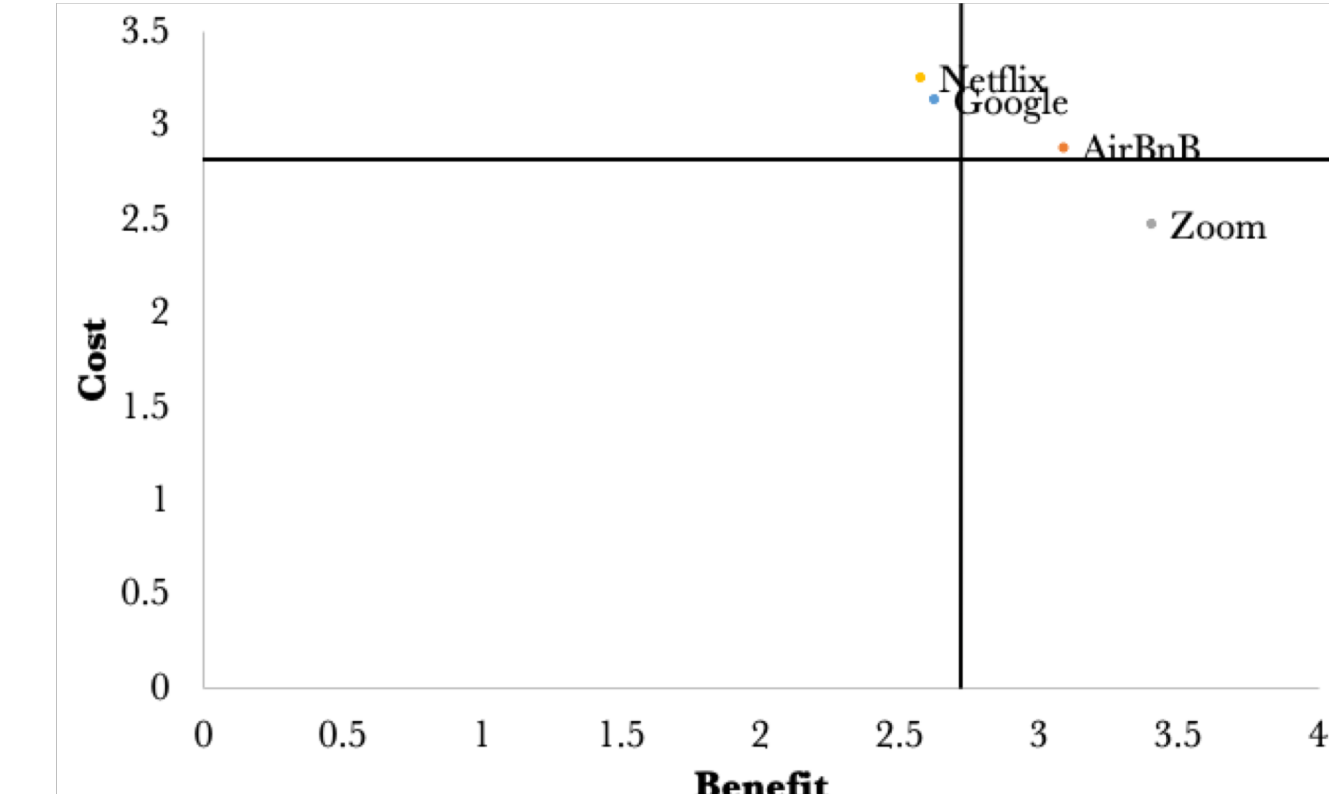


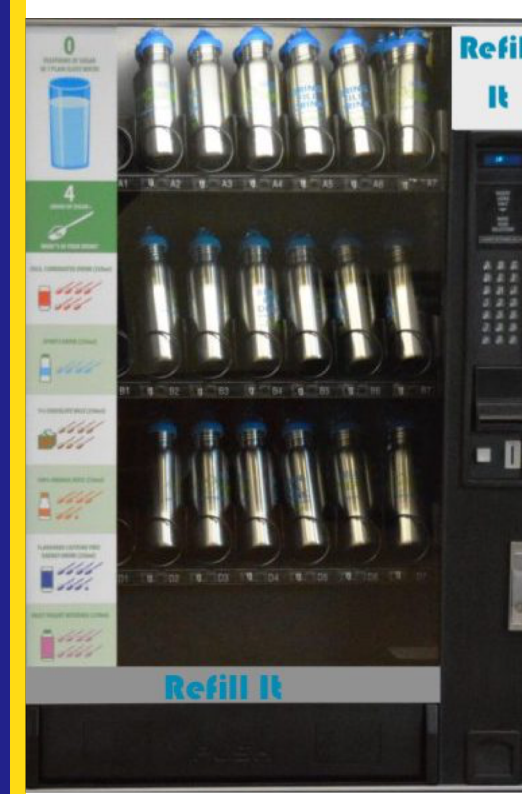
Figure 2: Choice Costs and Benefits for the Lower Trust Domains



Note. The contexts above average of the trust index are in the "higher trust" category, and the contexts below average are in the "lower trust" category. Solid lines indicate benefit and cost averages.

Results

Study 1: Happier with Algorithm Choice in a Higher Benefit, Higher Cost, Higher Trust Setting (Vending Machine)



- **Scenario:** Choosing vs. receiving a reusable water bottle from a vending machine ($N = 2000$ from Google Consumer Surveys)
- **Choosers reported lower purchase excitement than nonchoosers**
 - $M_{\text{Choice}} = 3.65, M_{\text{No Choice}} = 3.86, t(1998) = -2.14, p = 0.03$
- **No gap between stated preferences and contentment:**
 - Pretest of the vending machine context: preference for no choice
 - Study 1: higher contentment with no-choice

Study 2: Happier with Algorithm Choice in a Lower Benefit, Lower Cost, Higher Trust Setting & Information as a Moderator

- **Scenario:** Hypothetical Uber ride
- **2** (driver choice, no choice) \times **2** (driver information, no driver information) between-subjects design ($N = 644$, MTurk)
- **Main effect of choice:**
 - Nonchoosers tipped the driver more than choosers: $F(1, 638) = 3.73, p = .05$
 - Nonchoosers were willing to pay (WTP) marginally more for the ride than choosers: $F(1, 564) = 3.36, p = 0.07$.
 - **Gap between stated preferences & satisfaction:**
 - Pretest of Uber context: indifference between choice and no choice; Study 2: higher satisfaction with no-choice

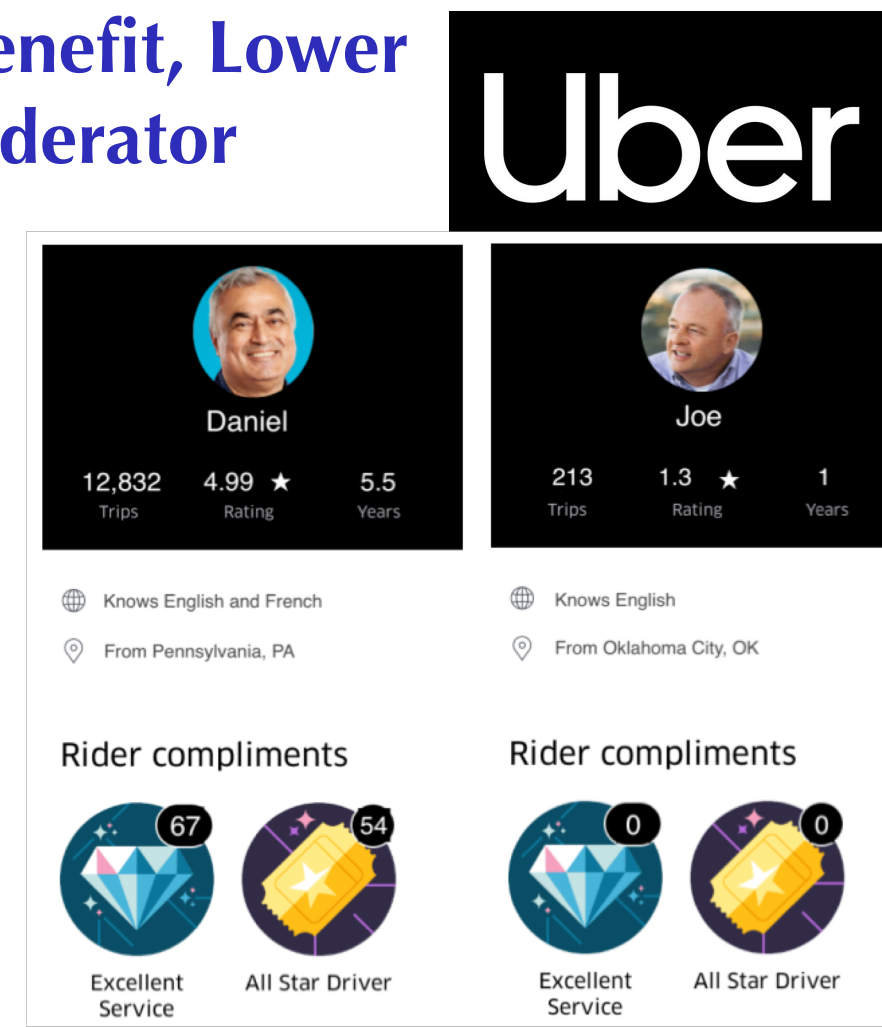
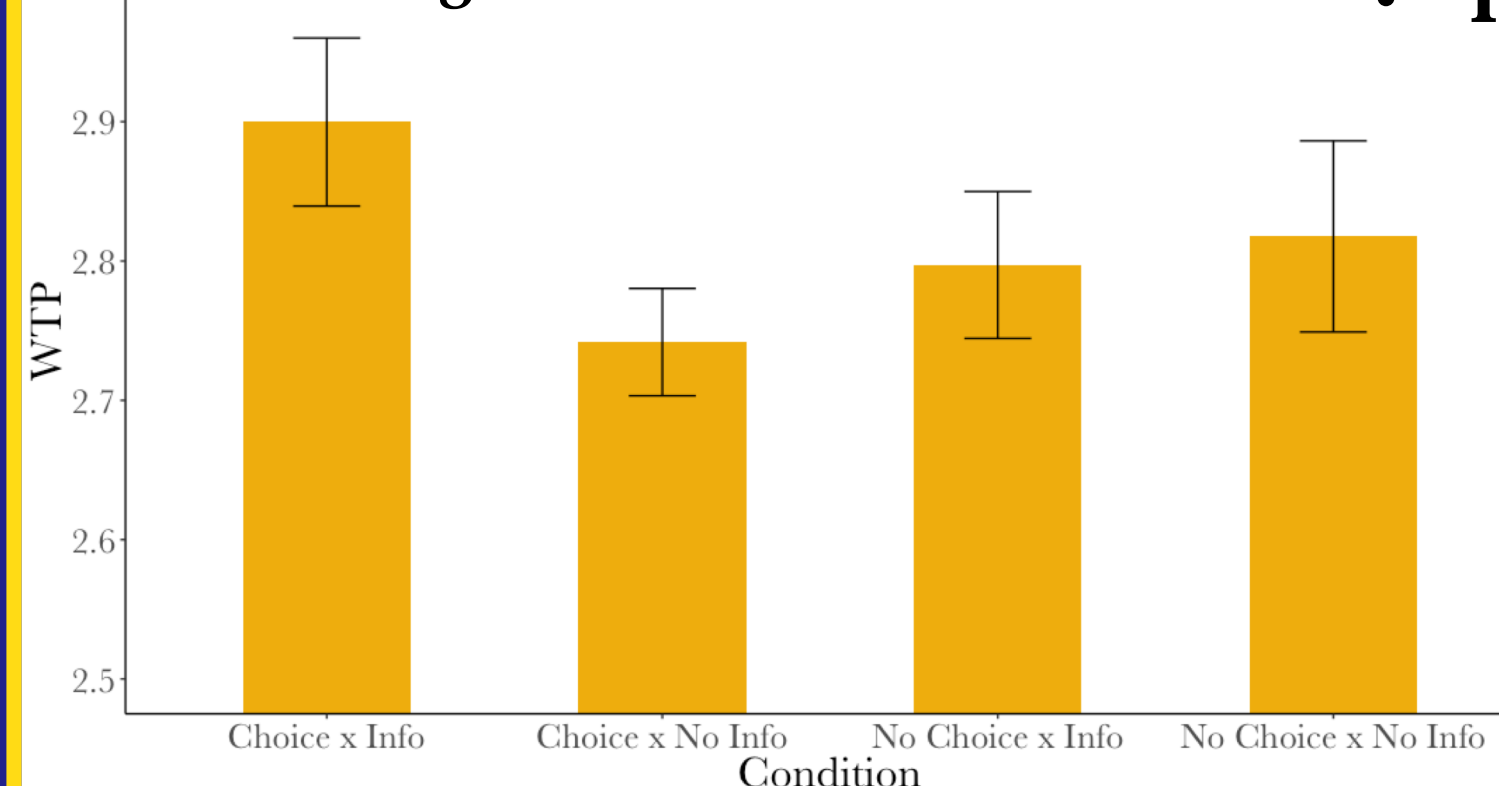


Figure 3: Interaction in WTP

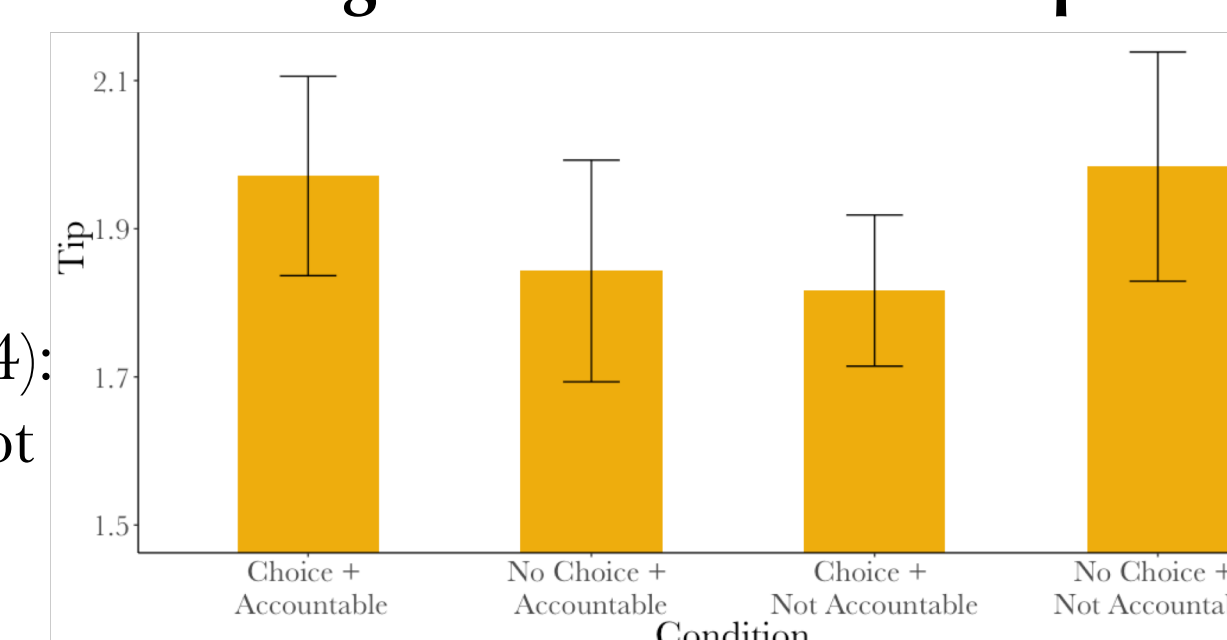


- **Information:**
 - Information increased tip ($F(1, 638) = 3.96, p = 0.05$) and WTP ($F(1, 564) = 5.34, p = 0.02$).
- **Information moderates the negative effects of choice in Uber (Fig. 3):**
 - Information about the driver increased WTP only when there was choice: $F(1, 564) = 9.28, p = .02$.

Study 3: Accountability as Another Moderator

- **2** (driver choice, no choice) \times **2** (accountability to a friend, no accountability); $N = 640$, MTurk
- **Replicated the previous finding in S2:** choice hurts happiness when people are not accountable
- **Accountability moderates the negative impact of choice** ($F(1, 636) = 4.52, p = 0.03$; Fig. 4):
 - Choice hurts enjoyment when people are not accountable but helps when they are accountable

Figure 4: Interaction in Tip



Study 4: Uniqueness is not a Boundary Condition in a Lower Benefit, Lower Cost, Higher Trust Setting



- **Scenario:** Hypothetical Bird ride
 - Some choices in the digital world involve identical alternatives, such as Bird scooters
- **2** (Unique, Identical) \times **2** (Choice, No Choice) between-subjects, $N = 419$, UCLA subject pool
- **We again replicated our main effect of choice:** no-choice participants were more satisfied ($F(1, 417) = 5.82, p = .02$).
- **Another gap between choice preference and choice satisfaction** in a different lower benefit, lower cost, and higher trust digital medium.
- **No effect of uniqueness:**
 - Offering non-identical scooter options neither increased satisfaction nor moderated the effect of choice on satisfaction.

Discussion

In answering our three main research questions, we find a paradox of choice: individuals state preference for choice, but they might be less satisfied with choice than when the digital environment makes the choice for them. Specifically, we observe this gap between choice preference and choice satisfaction when the choice costs and benefits are lower and trust is higher, such as in the case of Uber and Bird. We observe no such gap when the digital domain has higher choice benefit, cost, and trust such as a vending machine.

These series of studies indicate that digital domains should work meticulously to ascertain satisfaction with choice for their product and that a simple survey of consumers for their choice preferences could lead to the implementation of erroneous solutions.

Ongoing Research

1. We will uncover the choice satisfaction for Zipcar, Spotify, Netflix, Google, and Zoom. Algorithm choice could be a *delighter* and consumer choice could be a *friction* in some of these domains. Our upcoming studies will reveal whether a gap between choice preference and choice satisfaction exist in these domains.
2. Given all of our studies were either lab or online experiments, participants did not actually experience the product or service they either chose or did not choose. Therefore, in order to further validate our important findings, we will run studies in which the participants go through the experience after either choosing or getting assigned an option by an algorithm.
3. Third, we manipulate consumers' trust to the platform by making the algorithm random, instead of intelligent. We investigate whether the negative effect of choice on experience enjoyment can be diminished if we decreased trust with a random algorithm.

Conclusion

Inasmuch as our findings that there could be a gap between choice preference and choice satisfaction, our studies validate that the endeavor of uncovering utility of choice has to be more than a straightforward consumer survey asking whether or not they prefer a certain choice on their platforms. Therefore, in this research we aimed to systematically analyze where such a gap could exist and discover the key elements that can assist a novel digital platform in deciding whether they should automatize a process or involve consumer choice.

References

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Questions & comments are welcome!

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