

Mitigating Customers’ Reactions to Surge Pricing in Ride-hailing Platforms

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Introduction

Management of surge pricing in ride-hailing services is an important application of algorithmic decision making that consumers commonly encounter. With the rapid rise in availability of ride-hailing services, they have displaced other forms of pay per ride services, such as taxis. The market size of the global ride-hailing services is expected to reach \$480 billion by 2032.

Ride sharing services employ dynamic pricing, wherein algorithms manage demand for rides and supply of drivers through pricing mechanism to clear the market, i.e., match the demand and supply, to ensure availability of rides for critical customer needs during periods of high demand. Proliferation of mobile phones and networks has further enhanced the availability of rides for customers (Lee, et al. 2022). Overall, surge pricing may deliver better service, when the availability of rides is crucial for customers (e.g., to catch a flight or an important appointment). However, customers may not fully grasp the role of price surge in ensuring efficient, reliable service. Surge pricing may be viewed by consumers as unfair given their lack of visibility in the operations of ride-hailing platforms.

This leads to the key research question: RQ: How do algorithmic explainability and transparency impact customers’ perception of fairness of surge prices on ride-hailing platforms?

Method

We plan to conduct within subject scenario-based survey by presenting different recommendation systems biases to respondents and assessing their perceptions of fairness, satisfaction, and loyalty toward such systems.

We plan to control for respondent demographics and use structural equation modeling for data analysis. We plan to access US based ride-hailing services’ consumers via Prolific or Mturk. The research procedures and instruments will be utilized after they have been approved by the University IRB.

Proposed Model

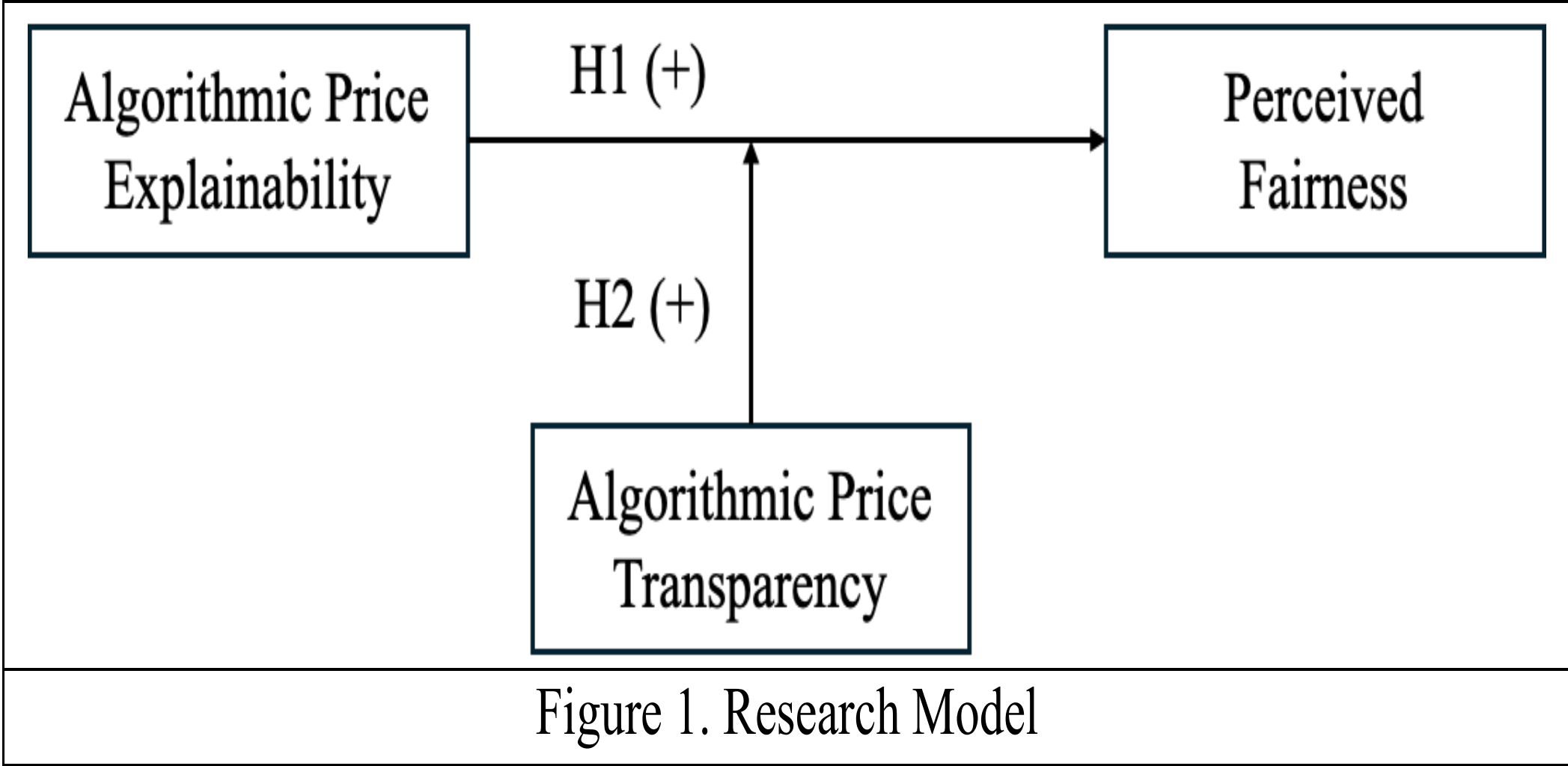


Figure 1. Research Model

		Algorithmic Transparency	
		No	Yes
Algorithmic Explanation	No	Group 1	Group 2
	Yes	Group 3	Group 4

Table 1. Experiment groups

Theoretical Foundations

The basic tenet of dual entitlement theory is that firms are entitled to a fair profit, and customers are entitled to a fair price (Kahneman, et al., 1986). Price increases that cannot be attributed to cost increases can be viewed as unfair by consumers. Kahneman et al., (1986) identified three determinants of consumers’ perceived fairness: 1) reference transaction, 2) outcomes of the firm and the transactors, and 3) the context.

Customers assume that they are entitled to the reference transaction price and firms are entitled to their reference profit (the profit firms have been making recently as viewed by the customers). The fairness of reference transaction is not questioned and is perceived as a norm. It may be noted that judgments of fairness of customers are influenced by the explanation about the price provided by the firm to its customers (Kahneman, et al, 1986). Therefore, we posit the hypothesis H1.

H1: A consumer’s perception of surge pricing as unfair will be mitigated when the ride-hailing platform provides an explanation, compared to situations where no such explanation is provided.

While algorithmic explainability provides information related to the rationale for the decision, transparency provides information about the process and the data involved in the decision-making process. Although ride-hailing services do not provide such disclosures, we posit that providing transparency as an element in their interface design will improve customers’ perceptions of fairness. Further, the disclosure of historic prices for the time span around their requested ride would let customers decide the best time for their ride depending on their flexibility. Therefore, we posit the following hypothesis H2.

H2: The algorithmic transparency will positively moderate the relationship between algorithmic explainability and perceived fairness.

Figure 1 depicts the hypothesized relationships in the proposed model.

Discussion and Conclusions

Ride-hailing services have become a critical resource of daily life for commuters, offering conveniences that consumers increasingly expect and rely on. With rising car ownership costs and expected introduction of robotaxis, the ride-hailing market is expected to grow substantially alongside intensified competition.

In this competitive landscape, it is important for ride-hailing services to maintain high levels of consumer perceived fairness and trust. This research aims to provide insights into consumer perspectives and offer actionable recommendations to enhance consumers’ perceptions of fairness and service. By examining various levels of disclosures and visibility, this research aims to evaluate their effectiveness in shaping consumer perceptions. It explores the role of explainability and transparency in shaping consumers’ attitudes. It will also explore the role of demographic variables in the proposed relationships to help focus the interface more effectively to different demographics.

Selected Literature Cited

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