EXPLORING THE IMPACT OF RIDER-DRIVER ETHNICITY MATCH/MISMATCH IN RIDEHAILING

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ABSTRACT

Ridehailing is a shared-mobility service that has proliferated over the last decade. The rapid growth of ridehailing services brings out the need for operations managers to focus on the effects of social dynamics to enhance the ridehailing experience of riders and drivers. Drawing on the social identity theory, we explore the impact of rider/driver ethnicity match on the driver's expected ride satisfaction and willingness to perform. The results of this study can offer theoretical contributions to the literature addressing ridehailing operations and bolster the scarce stream of supply chain and operations management research exploring the impact of ethnicity.

Keywords: Ridehailing service, ethnicity, ethnic identity, satisfaction.

INTRODUCTION

Ridehailing is a shared-mobility service that uses a digital platform to connect riders with drivers willing to provide trips at posted prices [17]. Ridehailing is different from ridesharing. Ridehailing refers to services such as Uber and Lyft that allow customers to book and pay a private transportation service using a smartphone app, while ridesharing refers to app-based services that let customers book a shared vehicle [3]. Also called on-demand ride services or transportation network companies (TNCs), ridehailing is one of the fastest-growing transportation business models [2]. According to a Pew Research Center survey conducted in 2018, the popularity of the ridehailing services more than doubled in the United States in three years, as 36% of U.S. adults stated that they have utilized a ridehailing service such as Uber or Lyft, up from 15% in 2015 [4].

The technology-enabled linkage between a driver and a rider is an essential part of the ridehailing service triad with characteristics of social interaction [12] [19] [30]. After a rider requests a trip on a phone app, the platform matches the rider with a nearby driver. The driver then receives an alert for the request on his/her/their phone app. To accept the request, the driver must tap the phone screen in 15 seconds. The trip request alert provides information regarding the rider's rating and pick-up distance. For Lyft drivers, it also displays the rider's name and picture (if allowed by the rider). Thus, the driver has only limited information on the rider before accepting the ride.

Typically, only at the time of pick-up does the driver meet the rider in person and becomes aware of the rider's ethnicity. Considering that an average trip distance is about six miles [18], individual

similarities/differences may play an influential role in the trip experience of the driver and rider. Studies in other domains have long established that individual differences such as skin color impacts individual's behaviors and experiences [8] [20] [21] [26], suggesting that the absence of research on the role of ethnicity match/mismatch between rider and driver limits our understanding of how drivers behave when racial differences exist. The drastic growth of ridehailing services, combined with the ethnic diversity of the U.S. riders, reinforce the need for operations managers to focus on the effects of these social dynamics.

To help address these considerations, we draw on the social identity theory [31] to explore the impact of rider-driver ethnicity match/mismatch on the driver's expected ride satisfaction and willingness to perform. Driver's expected ride satisfaction and willingness to perform are important constructs to explore because ridehailing companies experience high driver turnover, especially during crisis times such as the COVID-19 [25]. To better understand the relationship between the driver-rider ethnicity match/mismatch and the driver's expected ride satisfaction and willingness to perform, we also consider the potentially moderating role of the driver's ethnic identity and relational identity orientation in this relationship.

Ethnic identity refers to an individual's sense of belonging to a specific ethnic group [28] [23] and has been found to moderate various effects in the context of ethnicity match/mismatch conditions [9]. Relational identity orientation refers to the inclination of an individual to place importance on interpersonal relationships with others [10]. In the context of this study, it is argued that relational identity orientation will mitigate the impact of ethnicity mismatch as drivers with strong relational identity orientation will have higher predisposition to relate and connect with riders from different ethnic groups.

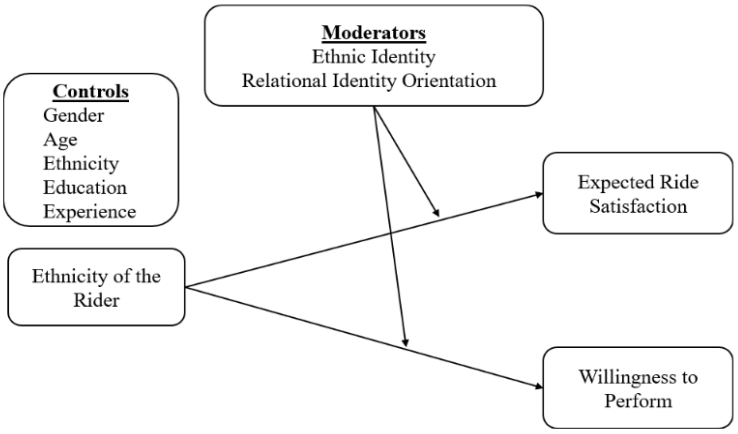
The study relies on scenario-based online experiments to test the conceptual model and the associated hypotheses. The results of the experiments allow us to derive noteworthy theoretical contributions for the literature on ridehailing operations and the literature addressing the impact of ethnicity. This research also provides unique insights for operations managers and offers novel directions for further research.

LITERATURE REVIEW

Our literature review reveals that a large number of studies focus on the optimal pricing of ride-hailing services [6] [11] [16], the optimal matching of riders with drivers [27], the effect of pickup times on the capacity planning and efficiency of ride-hailing services [7] [13], and the impacts of flexible working hours provided by the ride-hailing services on the drivers [15] [24]. There are a few studies that focus on social dynamics in the context of sharing economies [22] [29], and the majority of them examine the factors influencing the adoption of ride-hailing services and investigate the potential effects of ride-hailing services on travel behavior [1]. The gender-pay differences of ridehailing drivers [17], and the effects of crowdsourced delivery driver's ethnicity on customer satisfaction [30] have also been investigated. However, the impact of rider-driver ethnicity match/mismatch on the driver's expected ride satisfaction and willingness to perform has not been examined. This paper fills this gap in the literature.

CONCEPTUAL MODEL AND HYPOTHESES

Figure 2: Conceptual model



H1a: A driver who matches the rider's ethnicity will display a higher level of expected ride satisfaction than a driver who does not match the rider's ethnicity.

H1b: A driver's ethnic identity will moderate the relationship between the rider's ethnicity and the driver's expected ride satisfaction.

H1c: A driver's relational identity orientation will moderate the relationship between the rider's ethnicity and the driver's expected ride satisfaction.

H2a: A driver who matches the rider's ethnicity will display a higher willingness to perform than a driver who does not match the rider's ethnicity.

H2b: A driver's ethnic identity will moderate the relationship between the rider's ethnicity and the driver's willingness to perform.

H2c: A driver's relational identity orientation will moderate the relationship between the rider's ethnicity and the driver's willingness to perform.

METHODOLOGY

We employed a scenario-based experiment that simulated a ridehailing service to test the hypotheses of interest. Participants were ridehailing company (Uber and Lyft) drivers operating in the United States. We focused on Caucasian and African American drivers since these ethnic groups account for more than 55% of the ridehailing service drivers within the United States and they represent two predominant ethnic groups [32].

We adopted a similar research design to that of Ta et al. [30] since their study shows similarities in terms of research subject and constructs. We followed a three-phase procedure. In phase 1, we employed a pre-qualifying survey as utilized with other studies exploring ethnicity issues [30] [5] [14]. This preliminary survey collected background and demographic information including the ethnicity of the driver. Phase 2 involved a scenario describing a ridehailing operation. A balanced sample of participants based on their ethnicity was randomly assigned to one of the two scenarios. The scenarios contained a picture of a male rider, his name, and rating. The same information was provided in both scenarios, except for the rider's picture and name. The first scenario included a picture of a Caucasian rider and a commonly used Caucasian name, while an African American rider's picture and a name were used in the second scenario. During Phase 3, the participants were asked to answer survey questions to measure our latent variables, participants' social desirability tendencies and survey attentiveness.

FINDINGS

MANOVA was used to test the impact of ethnicity match/mismatch on the driver's expected ride satisfaction (Hypothesis 1a) and willingness to perform (Hypothesis 2a). Significant MANOVA results (Pillai's Trace=0.11; Wilks' λ=0.89; $p<0.05$; partial $\eta 2$=0.11) indicate that a driver who matches the rider's ethnicity will display a higher level of expected ride satisfaction and greater willingness to perform than a driver who does not match the rider's ethnicity.

Moderation effect was examined using multiple linear regression. Standardized values of moderator variables were used to construct the interaction terms. The results for the moderation effect of ethnic identity provided support for the Hypotheses 1b and 2b, as the interaction term was statistically significant for expected ride satisfaction (β=1.624; SE = 0.362; $p < 0.05$) and willingness to perform (β=1.605; SE = 0.412; $p < 0.05$). The results were also significant for the moderation effect of relational identity orientation on the driver's expected ride satisfaction and willingness to perform, supporting both Hypothesis 1c (β=-1.571; SE = 0.316; $p < 0.05$) and 2c (β=-1.694; SE = 0.334; $p < 0.05$). The negative coefficient of the interaction term indicates that relational identity orientation mitigates the impact of ethnicity match/mismatch on the driver's expected ride satisfaction and willingness to perform.

REFERENCES

References are available upon request from Yavuz Idug, yavuz.idug@unt.edu.