

More generous for small favor? A field experiment on drivers' pro-social motivations of a spontaneous rural ride sharing service

Extended abstract (Please do not circulate)

Dianzhuo ZHU, PHD candidate, Paris 9 (Dauphine) University

Background

This paper uses a field experiment to learn the pro-social behavior of small and middle distance ride sharing drivers, in collaboration with a Parisian start up. Different from common ride sharing companies that match passengers and drivers via an online platform, this start up builds ride sharing stations in the suburb of “great Paris”, where public transport is not sufficient and ride sharing service is hard to deploy. Passengers come to the station and buy a ride share “ticket” to the place they want, as if they buy a metro ticket. Afterwards, the destination will appear on a connected board which is several hundred meters in front of the station. All the drivers passing by can see the announcement and can decide whether to pick up the passenger or not, without obligation to subscribe to the service or to have a smartphone. During the journey, the passenger gives the ticket to the driver so the latter can go to the website and encash the money paid by the passenger.

This model, which minimizes the effort of those who benefit less in the two-sided market (the drivers) and maximizes the effort of those who benefit the most (the passengers) during a ride share (Rochet & Tirole, 2004), offers an alternative to the solutions of small and middle distance ride sharing. Meanwhile, the introduction of destination signaling and payment system, comparing to traditional non-organized hitchhiking, also provides a great opportunity to observe and to learn various behaviors, which serves the understanding of the emerging collaborative economy (Botsman & Rogers, 2010). Do drivers discriminate passengers (Edelman & Luca, 2015) because the decision of picking up is made in a few seconds? Do different messages, for example, messages on social preference, on community or on competition, change the way how drivers behave (Chen et al., 2015)? Do drivers pick passengers up for money, for warm-glow or for simple kindness (Andreoni, 1990)? How do different motivations combine and change with time, experience and incentives? This paper tries to answer the last two questions by a small field experiment.

Design

Pro-social behaviors seem to exist among the drivers, both declarative (the questionnaire towards residents of a village shows that solidarity is the first reason for picking up a passenger) and in practice (very few drivers have ever encashed the ticket). However, if the low encashment rate is due to the willingness to not to be paid

(Titmuss,1970) for one's kindness or is due to other factors (not much money, forget to encash, ticket not given, resist to technology, etc.) is unknown. The experiment tries to isolate different possible reasons by crossing three factors: distance, price and donation, see the table below.

Table 1 Experiment design

	Short distance (5 km)	Long distance (20 km)
Week 1 (control)	0.45 euros, no donation	1.8 euros, no donation
Week 2	1.35 euros, no donation	5.4 euros, no donation
Week 3	0.45 euros, with donation	1.8 euros, with donation
Week 4	1.35 euros, with donation	5.4 euros, with donation
Week 5 (control)	0.45 euros, no donation	1.8 euros, no donation

Passengers are hired and trained before the experiment. From the 9th of January to the 12nd of February, each week, they launched demands for ride share from the same village to 2 destinations: a short-distanced one which is 5 km away from the village, and a long-distanced one which is 20 km away. During the trip, they talked with drivers naturally and tried to get enough information to answer the post-trip questionnaire. At the end of the trip, they left the ticket to the driver and told him the information on the ticket (price and if there's a donation option). The passengers acted naturally like a real passenger so that the drivers wouldn't know that it was an experiment. The passengers also made sure that the drivers learned all the information on the ticket and left them to decide freely whether to encash the ticket or not.

Each week, the information on the ticket changes. The first week is the original ticket with normal price (9 cents per km for drivers). Of course, the short and long distance have different prices on their tickets. In the second week, prices are tripled and become very attractive to test if the low encashment rate is due to a lack of monetary incentive. Starting from the third week, a donation option is added to the ticket. Drivers are told that they can either encash the ticket as usual, or to donate the money to an association.¹ The normal and tripled price under donation option are both tested. The fifth week is a post experiment control to see if there is a learning effect during the experiment. The hypothesis is that if the driver initially refuses to encash for pro-social motivations, whether it's pure altruism or warm-glow, he will be willing to donate the money to charity. Distance and price may influence the degree of pro-social motivations.

¹ Due to the limited space on the ticket, the name of the association is not specified. However, when drivers go to the website, they will find that it's *Les Restos du cœur*, a French charity that distributes free food to people in need. We chose a neutral association with a good reputation to avoid driver preference bias to the maximum.

Preliminary results

About 20 observations are obtained for each distance in each week, with a total of 199 observations. The preliminary results fit well with the hypothesis. Tripling the price will significantly increase the encashment rate of long distance tickets, but not for short distance. However, adding a donation option will significantly increase the donation rate of short distance tickets, both under normal price and tripled price, but long distance drivers seem not be interested in donating, even under a normal price. The long-distance drivers are more sensible to price, while the short-distance drivers are more sensible to donation. However, donation rate is only sensible to distance, not to price. The profile of the passenger seems not be able to influence the decision of drivers, but among drivers, those who are under 30 years old are more sensible to price—they encash more often when the distance is long or when the price is tripled. These effects are consistent even after controlling drivers who have participated more than once. Meanwhile, strong learning effects are proved. Drivers who have participated are easier to stop another time they see a demand, and are more likely to encash or to donate.

From the analysis, we can see clearly that both monetary incentive and pro-social incentive can induce treatment of the ticket of those who were initially in the “laziness/crowded-out” pool. However, for long distance, it’s the monetary incentive that works and for short distance, it’s the pro-social one. We may say that some people have both monetary and pro-social motivations, which are not contradictory. Which motivation resonates depends on the circumstances. They are more “generous” for a small favor, which is here represented by a short distance ride. Even though the tripled price of a short-distance trip is close to the normal price of a long-distance trip, some drivers are still happy to donate the money. However, when it comes to a 20km ride, drivers feel more justified to encash to share the oil cost. We might also deduct that pro-social motivations won’t easily be “crowded-out” by money, but more easily be replaced by distance, because the judgement of the status of the trip changes from a “favor” to a “service”. Still, we never achieved 100% ticket treatment rate, which means that there are people who are either completely lazy or altruist despite strong monetary or pro-social incentive.

Further research

Lots of improvements could be done for further research. Apart from the improvements in experiment implementation, it could be better if we’d set the same price for tripled price of a short distance trip and normal price for a long-distance trip to see if the difference in encashment and donation lies only in distance. There may be psychological differentiation between a price less than 1.5 euros and a price higher than 1.5 euros. Also, we could dig deeper in separating laziness and altruism of those who neither encashed nor donated. Some questionnaire data filled by passengers may help us get a first insight.

References

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The economic journal*, 100(401), 464-477.

Botsman, R., & Rogers, R. (2010). What's mine is yours. *The rise of collaborative consumption*.

Chen, R., Chen, Y., Liu, Y., & Mei, Q. (2015). Does team competition increase pro-social lending? Evidence from online microfinance. *Games and Economic Behavior*.

Edelman, B. G., Luca, M., & Svirsky, D. (2016). Racial discrimination in the sharing economy: Evidence from a field experiment.

Rochet, J. C., & Tirole, J. (2004). Two-sided markets: an overview. *Institut d'Economie Industrielle working paper*.

Titmuss, R. M. (1970). The gift relationship. *London*, 19, 70.