Are ride-hailing platforms keeping their drivers honest?

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Credit: MIT Sloan School of Management

The rise of digital ride-hailing company Uber and its clashes with traditional taxi services is often cited as one of the classic stories of digital disruption, but is the platform also helping keep passengers from

getting ripped off?

That's the conclusion a group of MIT Sloan and industry researchers arrived at when they examined the levels of moral hazard present in similar trips taken in traditional taxis versus Ubers across New York City.

The researchers—visiting assistant professor of marketing at Washington University in St. Louis, Missouri, and former post-doctoral associate at MIT Sloan Meng Liu; professor Erik Brynjolfsson; and Uber policy economist Jason Dowlatabadi—looked at the extent to which taxi and Uber drivers completing comparable trips through the city deviated from the optimal route and engaged in speeding.

Both behaviors are considered opportunistic in certain situations: detouring extends the length of a distance-metered trip, which boosts the fare—and how fast or slow a driver goes, depending on the conditions of the trip, can have the same effect.

The study used detailed trip-level data to analyze thousands of Uber and taxi rides from two time periods in 2013 and 2016, matching drivers from each service whose trips began and ended around the same time and who ferried customers between similar destinations. That ensured that both drivers would have been subject to the same real-world conditions during the trip.

In 2016, Uber changed its fare calculation system from one that calculates both the driver and rider's fares at the end of the trip to one that charges the rider an upfront amount on a credit card, with the company paying the driver any differentials for distance and time.

The researchers found that taxi drivers are more likely than Uber drivers to take advantage of a situation that offers opportunities to earn a higher

fare by detouring or speeding, and when a taxi driver switched over to driving Uber, their behavior also changed to match the effect.

On trips where the fare is metered by distance, taxi drivers were more likely to detour from the optimal route, extending a trip's distance by about 7.4 percent on average when traveling to or from an airport. The difference was even larger when the driver knew the passenger was from out of town. Taxi drivers also tend to speed more than Uber drivers, the research found.

Though more likely to follow the optimal route than taxi drivers, Uber drivers do tend to be susceptible to detouring or driving more slowly to extend a metered airport trip when surge multipliers—temporary increases applied to the platform's fares when rider demand rises—are high, the researchers found.

The speeding behavior, the authors wrote, is typically an attempt to make up the deviation in distance with time, or to stay above slow speeds. Under New York's taxi regulations, drivers are typically paid $2.50 plus 50 cents per fifth of a mile traveled, but that fare switches to a lower 50 cents per minute rate once they begin driving below 12 miles per hour.

The researchers noted that taxi drivers can actually make more money by alternating between stopping and rocketing forward at 24 miles per hour in traffic.

Both drivers detoured less on short-distance trips in highly saturated markets, where making fast trips benefits drivers by allowing them to pick up new rides more quickly.

"When taxi fares are metered as a two-part tariff, taxi drivers tend to detour on longer routes because the variable part of the fare can justify

the detour," the paper reads. "On the other hand, taxi drivers tend to detour less in short routes, especially in thick markets like Manhattan, because it is in their best interest to take as many trips as possible to exploit the proportionately larger fixed component of the fare."

For Uber, technology enhances transparency

Part of what helps keep Uber drivers on the literal straight and narrow are the technologies native to the platform, which make the cost for detouring higher than for taxis, the researchers wrote. Those include global positioning technology, user rating and digital feedback systems, and technology-assisted monitoring capabilities, all of which increase market transparency.

Similar technologies are in use by Uber's main competitors, like Lyft.

"The Uber technology platform and pricing scheme reduce driver moral hazard behavior where taxi moral hazard return is high, but at the same time create other margins for driver moral hazard," the authors wrote.

Passengers can monitor the route being taken if it is displayed on a smartphone screen, and they can more easily file a complaint or score the driver lower on the app's rating system if they're displeased with the service.

As a result of these tech-aided market designs, "the Uber driver's routing is likely more efficient than that of the comparable taxi driver in situations with high moral hazard payoffs for both drivers," the authors write.

But those technological aspects that make Uber drivers less prone to moral hazard when taxi rewards for such behavior are high might make them less likely to take a better route in situations where the GPS may

not be as accurate as their own traffic knowledge, precisely because riders tend to dislike deviation from the guided routes. Doing so is disincentivized because it can lead to lower ratings, even if the driver-chosen route is the better one.

A platform's transparency could increase consumer welfare

Liu said the Uber and taxi data offer a prime opportunity to measure the effects of a prevalent platform and how reducing information asymmetry can lead to increased consumer and societal welfare.

"Many, many digital platforms are popping up and gaining market share, so it's crucially important to understand whether and how, exactly, they lead to enhanced consumer welfare. That is really one of the central questions for us to understand welfare in the digital economy," Liu said.

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