

# Uber and Lyft pricing algorithms charge more in non-white areas

TECHNOLOGY 18 June 2020 , updated 19 June 2020

By [Donna Lu](#)



Uber and Lyft seem to charge more for trips to and from neighbourhoods with residents that are predominantly not white

Gado Images / Alamy

The algorithms that ride-hailing companies, such as Uber and Lyft, use to determine fares appear to create a [racial bias](#).

By analysing transport and census data in Chicago, Aylin Caliskan and Akshat Pandey at The George Washington University in Washington DC have found that ride-hailing companies charge a higher price per mile for a trip if the pick-up point or destination is a neighbourhood with a higher proportion of [ethnic minority](#) residents than for those with predominantly white residents.

Typically, if you're going to a neighbourhood where there's a large African-American population, you're going to pay a higher fare price for your ride," says Caliskan.

[Learn more](#)

Unlike traditional taxis, ride-hailing services have dynamic fares, which are calculated based on factors including the length of the trip as well as local demand – although it is unclear what other factors these algorithms take into consideration because ride-hailing companies don't make all of their data available.

The researchers analysed data from more than 100 million trips taken in Chicago through ride-hailing apps between November 2018 and December 2019. Each ride contained information including pick-up and drop-off location, duration, cost and whether the ride was an individual or shared trip. The data doesn't include demographic details such as the ethnicity of the rider.

In that period, 68 million trips were made by individual riders, and the majority of these used Uber.

The duo compared the trip data against information from the US Census Bureau's American Community Survey, which provides aggregate statistics about neighbourhoods, including population, ethnicity breakdown, education levels and median house prices.

They found that prices per mile were higher on average if the trip pick-up or drop-off location was in a neighbourhood with a lower proportion of white residents, a lower median house price, or lower average educational attainment.



**Read more:** [Biased policing is made worse by errors in pre-crime algorithms](#)

“Even in the absence of identity being explicitly considered in how an algorithm’s results are decided, the structural and historical nature of racism and the way that it informs geography, opportunity and life chances mean that racial disparities can still appear,” says Os Keyes at the University of Washington in Seattle.

“Chicago, the site of this analysis, is a case in point: as a result of – amongst other things – redlining practices, it remains highly geographically segregated,” says Keyes. Redlining is practice in which mortgage lenders refuse to offer loans in certain neighbourhoods.

“This should cause us to further question studies of ‘fairness’ and ‘bias’ in algorithms which promise to end algorithmic racism by simply not mentioning race,” says Keyes.

The researchers found no statistical link to suggest that neighbourhoods with higher proportions of ethnic minorities had higher demand for rides, which could potentially explain the higher fare prices.

“We recognise that systemic biases are deeply rooted in society, and appreciate studies like this that look to understand where technology can unintentionally discriminate,” said a Lyft spokesperson. “There are many factors that go into pricing – time of day, trip purposes, and more – and it doesn’t appear that this study takes these into account. We are eager to review the full results when they are published to help us continue to prioritise equity in our technology.”

“Uber does not condone discrimination on our platform in any form, whether through algorithms or decisions made by our users,” said an Uber spokesperson. “We commend studies that try to better understand the impact of dynamic pricing so as to better serve communities more equitably. It’s important not to equate correlation for causation and there may be a number of relevant factors that weren’t taken into account for this analysis, such as correlations with land-use/neighborhood patterns, trip purposes, time of day, and other effects.”

Under US law, it is illegal to [discriminate](#) against an individual on the basis of protected attributes, including [race](#). The study’s findings are problematic, says Caliskan. “Even though these algorithms are supposed to be fair and they are not using protected attributes, they seem to have a significant impact on these neighbourhoods.”

“This study shows how algorithmic bias by postcode and race can creep into even the most protected places,” says Noel Sharkey at the University of Sheffield, UK. “It is yet another example in a long list of how ethnicity and race bias has found a new home in computer

software. There is no excuse for automation biases and such systems should be shut down until such time as they can demonstrate fairness and equality,” he adds.

**Reference:** [arxiv.org/abs/2006.04599](https://arxiv.org/abs/2006.04599)

---

**Article amended on 19 June 2020**

*We added a statement from Uber*

**More on these topics:** [TRANSPORT](#) [ARTIFICIAL INTELLIGENCE](#) [ALGORITHMS](#)

## Sign up to our newsletters

Enter your email address to get started

**SIGN UP**

