THE CHANGING PRICE OF RIDESHARING IN CHICAGO

Evidence from Randomly Selected Weekday Trips 2018 vs. 2019

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INTRODUCTION

Transportation network companies (TNCs) such as Lyft and Uber have gained considerable prominence in large metropolitan areas over a relatively short period. Within a span of fewer than nine years, these door-to-door service providers have expanded across most of the country and have introduced new options to customers, some of which allow several parties to share the same vehicle in exchange for a lower price.

To foster a greater understanding of the affordabiliy of this rapidly growing form of travel, this study explores the price changes of four TNC services—Lyft, Lyft Line, Uber, and UberPool (including the even lower priced Uber Express Pool)—between 2018 and 2019 in Chicago, IL, the third largest city in the United States. The study uses a stratified sample of roughly 6,358 prices over approximately 140 origin-destination combinations in Chicago that were 4 to 11 miles in length.

Throughout the report, *ridesourcing* (as well as the more commonly-used term *ridesharing*) refers to the wide range of app-based services provided by TNCs while *ridesplitting* refers to those particular TNC services, such as Lyft Line and UberPool, in which more than one travel party shares the same vehicle. These terms are used to provide consistency with shared-mobility definitions published by the Federal Transit Administration.[1]

BACKGROUND

Transportation network companies were nonexistent in many markets before Uber launched in the United States in 2010. Initially, Uber's offerings were primarily confined to UberX, a service taking passengers directly to their destinations in conventional automobiles in a manner similar to taxicabs, but using an app-based reservation system. Lyft launched a similar service in 2012 and, like Uber, it was soon available in most major cities. A variety of small operators also entered the market in the following years.

Starting in 2014, these major TNCs introduced services allowing several travel parties to share one vehicle at the same time, even when traveling between different origins and destinations.[2] Travel using these services typically includes multiple stops to serve other passengers in exchange for reduced fares. Uber formally launched its shared UberPool service in August 2014 after a successful test of the concept in California. This ridesplitting service was soon expanded to most large U.S. cities, although gaps remain; UberPool is still not widely available in many metropolitan areas with populations of less than 100,000. Lyft began a similar service, Lyft Line, in 2014, which now is also widely available in larger U.S. cities.

UberPool became available in Chicago in 2016 while Lyft Line (now called Lyft Shared) started at roughly the same time. Several years later, Uber launched Uber Express Pool offering greater discounts for passengers willing to walk short distances (typically one to two blocks) and from pickup and drop-off points. Users who agree to this option typically save between $1.5 and $3 per trip. Lyft launched a similar service, Lyft Shared Saver, earlier this year, but it is not yet available in Chicago. These services have characteristics analogous to jitneys, which have long been available in many densely populated corridors and similarly operate over flexible routes.

METHODOLOGY

For this study, data collectors recorded prices for trips with identical origins and destinations on Lyft, Lyft Share, Uber and UberPool using the downloadable apps the TNCs provide. Data were collected no more than a minute apart between the four travel options over each route considered. The analysis does not consider the discounts that Lyft and Uber offer only to select users of their apps (which are often in the 10 – 25% range). Unless discounts were determined to be available to all users of the app, they were excluded.

To identify origins and destinations, a geographic information system was used to categorize the geometric center of official community areas, as defined by the U.S. Census Bureau in various neighborhoods of Chicago. The nearest residential address to the geometric center of the area was then selected. For locations in the downtown and "outer downtown" areas, the centroids of zip code areas were used to identify the nodes (Figure 1).

These nodes fall into three categories based on a typology created for an earlier study by Schwieterman[3]:

- **Downtown core zone**: Nodes in this zone fall east of Canal Street and south of Kinzie Street (one of the first streets north of the Chicago River). Almost all points in this zone are within close proximity to CTA rapid-transit service.
- **Outer downtown zone:** Nodes in this zone are located outside downtown but east of the Dan Ryan/Kennedy Expressway and south of North Avenue, a prominent east-west street. Public transit service, particularly rail rapid-transit, is less pervasive in this zone.
- **Neighborhood zone**: These nodes are located outside of the greater downtown area, as depicted in Figure 1. This includes residential-, industrial-, and commercial-oriented areas north, west and southwest of Chicago's busy "Loop" (the downtown district).

All trips and nodes were weighted equally in the analysis.

Sample involving North and Northwest Sides

The characteristics of TNC and public-transit trips were measured across a stratified sample involving app-based searches between 105 origin–destination combinations. Data encompassing 4,625 fares were collected during three intervals involving trips from downtown Chicago to the North and Northwest sides as well as trips between points in these outlying neighborhoods. Data observed included:

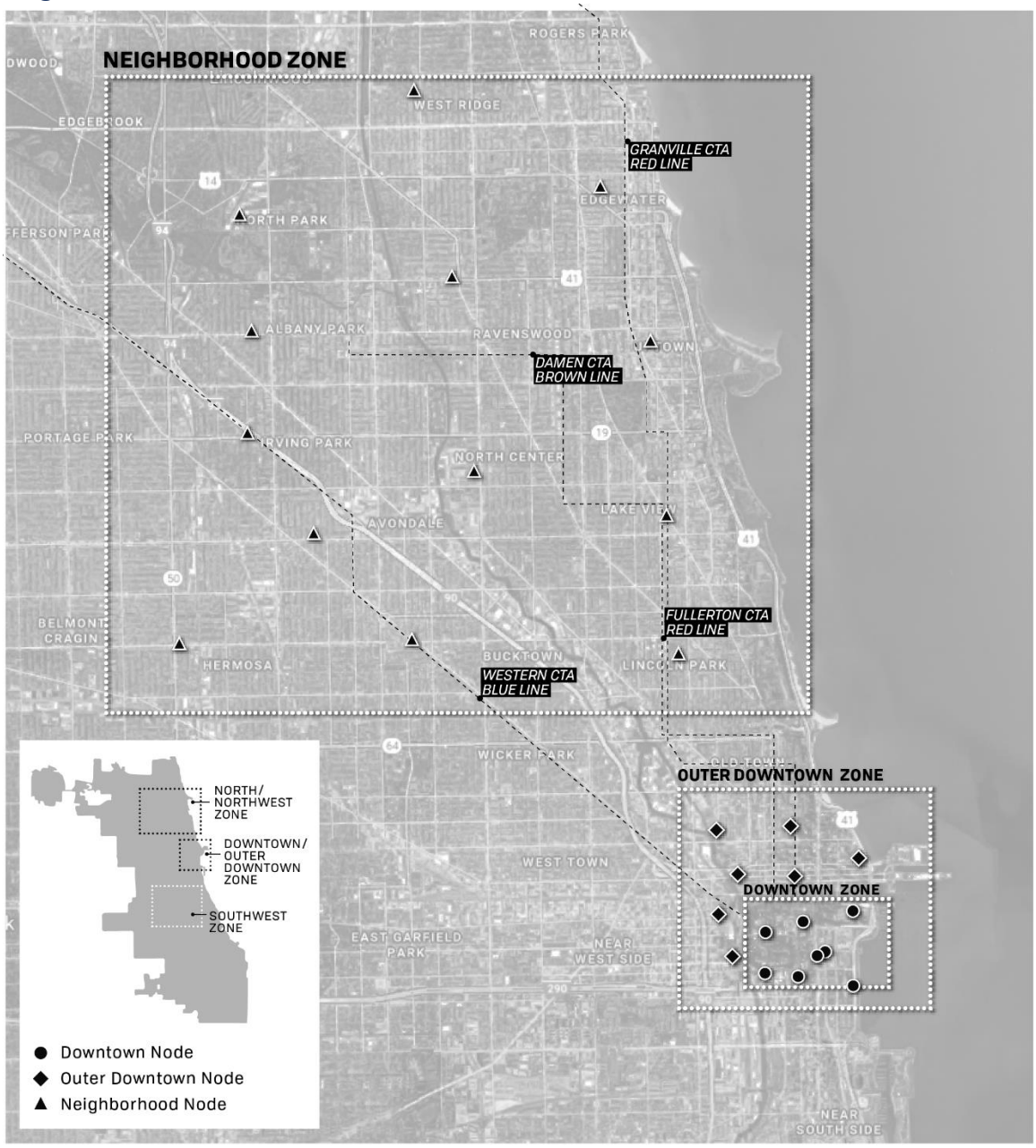
1. Fares available to consumers for 272 weekday trips from January – March 2018 between the Downtown Core Zone and the North and Northwest neighborhood zones as well as trips between these neighborhood zones; and
2. Fares on these same routes in early November 2019.

These observations involved trips starting or ending on the city's North and Northwest sides due to the study's goal of holding constant as many factors as possible when comparing travel times and costs. However, the origins and destinations vary, with some trips confined to the neighborhood zone while others linking the neighborhood zone to the downtown or outer downtown zone. Approximately 60% of observations involved travel between the downtown and outer downtown zones and the neighborhood zones, while the remaining 40% were between neighborhood locations.

Sample Involving Southwest Side

A smaller sample was collected for trips between downtown and the Southwest side. In contrast to the North and Northwest neighborhoods evaluated above, many parts of the city's South and Southwest sides are less extensively served by transit.[4] The market for UberPool service on the South and

Figure 1: Neighborhood Nodes on Chicago's North and Northwest Sides serving as Origins and Destinations for Paired Observations



This map shows the nodes used for randomly generated trips involving travel to the North and Northwest side. The Southwest zone evaluated in shown in the inset box. Altogether, the sample consisted of 105 unique origin-destination combinations.

Southwest sides of Chicago appear less well-developed than those on the North and Northwest sides, as population densities and average incomes tend to be lower and transit service more sporadic in some neighborhoods

Like the earlier sample, journeys were evaluated to and from the geographic centroids of eight community areas: Archer Heights, Back of the Yards, Bridgeport, Brighton Park, Gage Park, McKinley Park, Southside, and West Elson. This second sample consists entirely of trips between these neighborhoods and the Downtown and Outer Downtown zones (See Figure 1, inset map) and does not

include trips within the neighborhood. The data in this sample included:

1. Fares available to consumers on 92 weekday trips between downtown to nodes on the Southwest Sides were collected between October 1 and November 13, 2018; and
2. An identical sample trips was collected November 6-14, 2019.

This sample is less extensive than the North/Northwest sample, encompassing 1,734 fares. Both samples, however, have a similar mix of peak and off-peak trips.

Timing of data collection

Observations were made during two periods: the weekday peak period (defined as 7:30-8:59am, and 4pm-5:30pm), the weekday off-peak period (9:00am-3:59pm). The sample does not include late-night or early-morning trips, which are often widely associated with surge pricing, to remain consistent with the desire to focus on periods when public transit use is more abundantly provided and commonly used by urban travelers. Nor does it consider trips during summer or during periods of extreme weather. As such, the results should be interpreted as being indicative of trip pricing during normal and largely off-peak times.

Length of Trips in Sample

The sample focuses exclusively on trips with a total distance between 4 and 11 miles, as measured by highway distances. This range was chosen to allow the analysis to focus on routes in which TNCs and transit extensively compete for certain types of passengers. For shorter trips, a disproportionate share of travel time among transit users can be spent walking to stations and waiting for buses and travel; in these instances, the speed of the transit vehicle can be less important than the proximity of the passenger to the transit route. On trips over 11 miles, the cost of using TNCs can become prohibitive. Of course, a more comprehensive account of changes in price would need to account for travel at different distances, at other times of the week or day, and during different seasons. As such, the analysis should be regarded only as a snap of prices during two periods of time.

FINDINGS

The results show similar patterns of price changes between the two geographic samples.

Changes in Fares for Trips involving North and Northwest Side

Between 2018 and 2019, the average price decreased for three of the four services: UberX, Lyft and Lyft Shared. For UberX trips, prices fell from $17.57 to $16.34. Prices rose on 39.3% of the observations, and they fell or stayed the same on the remainder. Prices for Lyft similarly fell, declining from $17.53 to $16.60 per trip, a decline of 15.3%. Lyft price rose on 36.0% of trips and fell or stayed the same on 64.0% of trips.

Interestingly, the direction of pricing diverged between Lyft Shared and UberPool. Lyft Shared prices *fell* from an average of $13.92 to $11.79, a 7.0% decline. These trips became more expensive on just 17.6% of observations. Conversely, average UberPool prices *rose* by more than $3.50 per trip, rising from $8.94 to $12.65, an increase of $41.6%. Observations of UberPool average trip prices were more expensive in 2019 than in 2018 on 82.7% of trips.

Table 1: Average Prices, Routes to/from North and Northwest Side Neighborhoods

	Average Price, all observations			% Trips more expensive in 2019
	2018	2019	% Change	
UberX	$ 17.57	$ 16.34	-7.0%	39.3%
UberPool	$ 8.94	$ 12.65	41.6%	82.7%
Lyft	$ 17.53	$ 16.60	-5.3%	36.0%
Lyft Shared	$ 13.91	$ 11.79	-15.3%	17.6%
Group Avg.	$ 15.72	$ 14.19	-9.7%	26.8%

Sample size: 272 routes, weekdays 8:30 a.m. – 5:30 p.m.

Across all four services combined, average prices fell by $1.59, or 9.7%, to $14.19. Prices became more expensive on 26.8% of trips and decreased or stayed the same on 73.2%.

Changes in Fare for Trips involving Southwest Side

Similar changes were observed on trips to and from the Southwest side. As previously noted, this sample – unlike the North/Northwest sample – involved only trips between downtown and neighborhoods in Southwest part of the city and excluded trips within these neighborhoods.

Another important difference is that this sample measured the price of Uber Express Pool trips, in which the passenger agreed to walk short distance to pickup and drop-off points, rather than the price of regular UberPool trips.

Table 2: Average Prices, Routes to/from Southwest Side Neighborhoods

	Average Price, all observations			% Trips more expensive in 2019
	2018	2019	% Change	
UberX	$ 20.09	$ 19.10	-4.9%	26.3%
UberPool	NA	$ 13.06	NA	NA
Uber Express Pool	$7.01	$10.34	47.4%	100.0%
Lyft	$ 21.40	$ 20.70	-3.3%	23.8%
Lyft Shared	$ 16.75	$ 14.73	-12.1%	21.3%
Group Avg.	$ 19.08	$ 17.72	-7.1%	42.8%

Sample size: 102 routes, weekdays 8:30 a.m. – 5 p.m.

The results largely echo those from the North/Northwest side. The price went down for UberX, Lyft and Lyft Share but went up markedly on Uber Express Pool. Average UberX prices decreased from $20.09 in 2018 to $19.10 in 2019, a decline of 4.9%, while the average price for Lyft trips decreased from $21.40 to $20.70 – a decrease of 3.3% respectively. Around 26% of UberX trips became more expensive, whereas 23.8% of Lyft trips did so.

Lyft Share prices dropped from $16.75 to $14.73, or 12.1%, while Uber Express Pool prices increased sharply, rising by 47.4% to $10.34 per trip, or 47.4%. Remarkably, prices became more expensive on all Uber Express Pool trips in the sample and on 21.3% of Lyft Shared trips. The average price of all four services combined fell from $19.08 to $17.72 in 2019, a 7.1% reduction, with 42.8% of observed trips becoming more expensive this year.

POSSIBLE EXOGENOUS FACTORS AFFECTING PRICING DIFFERENCES

This study holds constant a variety of factors, e.g., time of day, weekday vs. weekend, origin/ destination, and the travel option selected. The sampling process also avoided days close to major holidays and involved enough prices to make error margins associated with estimate price changes relatively small (less than +/- 3%). The stability in prices observed for Uber X, Lyft and Lyft Shared provide evidence that variables not considered did not greatly skew the results.

The dramatic price increases observed for Uber Pool and Express Pool, however, stand out, and call for additional investigation of possible intervening factors. Several factors could be significant.

1. Temperatures were below normal during most of the period, particularly on day the Southwest data were collected, with midway highs of 12 and 13, respectively on November 12 and 13. The possibility exists that inclement weather (with snow covering parts of sidewalks) pushed the prices upward markedly. Nevertheless, the effects of unseasonably cold weather on daytime prices are unclear. The average prices in a smaller follow up smaller sample on Wednesday November 18 and Thursday, 19 (which were much warmer, with midday highs around 50 degrees) were actually slightly *higher* than those observed during these two colder days. Nevertheless, the effects of weather differences clearly warrant additional consideration.

2. *Although the sampling process avoided summer months and holiday periods, and other peak period times, they involved different times of the year*. The possibility exists that the November days in which the 2019 data were collected covered a period in which demand was stronger than that during the 2018 sample, which involved January to March and October to November. In future analysis, we will collect data on the same month to hold this factor constant.

4. Prices appear quite volatile during peak periods. Average prices were skewed due to the relatively small number of days in which peak prices were collected. When observations during peak periods are excluded from the North/Northwest sample, the price increase for Uber Pool diminished to around 30%, well below the 41% observed for the entire sample. Unfortunately, however, the 2019 sample is too small to reliably explore for peak/off-peak differences.

5. The analysis does not account for promotional discounts that Lyft and Uber selectively offer, which was especially prevalent over the 2019 data collection period. In November 2010, Uber offered a 25% discount to some of its users during part of the sample period. However, because this discount was not universally available, it was not incorporated into the price data collected. We acknowledge that the changing prevalence of such discounts could affect the results. If, hypothetically, half of Uber users received the 25% discount this year and none did so last year, increases in Uber Pool and Uber Express Pool fares in the North/Northwest and Southwest would fall to xx and xx, respectively.

6. Uber Express Pool was a fairly new service offering when the 2018 Southwest side sample was collected. It is possible that fares were artificially low at the time due to Uber's desire to raise awareness of the new offering.

To conclude, the evidence is strong that Uber Pool/Uber Express Pool prices have risen appreciably since 2018. If the omitted variables are fully considered, however, it is possible that the price increases are closer to the 20 – 25% range observed in the ridesharing data sets maintained by the City of Chicago. The Chaddick Institute plans to conduct additional research to more fully understand these issues.

CONCLUSIONS

Three conclusions from the above analysis stand out.

1. The costs of solo ridesharing trips during daytime hours on weekdays has decreased marginally in the last year, with average declines in the 3 – 7% range. A combination of factors, ranging from intense competition and greater efficiencies in optimizing vehicle use to a healthy supply of available drivers are likely responsible for the reductions.

The observed reduction in fares is particularly noteworthy considering that gasoline prices were approximately the same between the period, in part due to an increase in the state taxes that offset reductions in the price of oil. Moreover, as previously noted, the analysis does not consider the discounts that Lyft and Uber are offering to users, which are often in the 10 - 25% range and remain a pervasive part of the pricing landscape. More research on this issue is clearly warranted.

2. The rising cost of UberPool and Uber Express Pool, which were the lowest-priced service available in 2018, warrant further research. Prices for both services rose appreciably in the respective sample of routes observed. The price changes have particularly important implications for travelers who travel on tight budgets and those willing to accept longer travel time in exchange for a discount.

3. Lyft has made significant moves to close the gap with Uber in the prices of its ridesplitting service. The analysis suggests that Lyft Shared prices have fallen significantly in both the North/Northwest and Southwest region since 2018 while UberPool prices have risen. Any gaps that remain between Lyft and Uber service now appear quite small.

More analysis is needed to understand how prices have changed on trips outside of the 4 – 11 mile trip distance range evaluated in this study. Further studies could also foster understanding of how fares change during late-night hours and weekends, as well as during periods of inclement weather and special events, which are often associated with surge pricing. The aggregated data sets on ridesharing trips maintained by the City of Chicago could help shed light on these issues.

Our analysis only considers fares that are offered to consumers rather than those actually selected and paid for. As such, this system offers a snapshot of one aspect of a complex pricing environment.

Regardless, the results suggest that the "value proposition" TNCs offer consumers remains robust, and that they will likely continue to experiment with new pricing strategies.

[1] Federal Transit Administration (2019). Shared Mobility Definitions. https://www.transit.dot.gov/regulations-and-guidance/shared-mobility-definitions

[2] Murphy, S. F. and C., Transit Cooperative Research Program, Transportation Research Board, and National Academies of Sciences, Engineering, and Medicine. *Shared Mobility and the Transformation of Public Transit*. Transportation Research Board, Washington, D.C., 2016

[3] Schwieterman, J. & Livingston, M. (2018 May). Uber Economics: Evaluating the Monetary and Nonmonetary Tradeoffs of TNC and Transit Service in Chicago. https://las.depaul.edu/centers-and-institutes/chaddick-institute-for-metropolitan-development/research-and-publications/Documents/Uber%20Economics_Live.pdf

[4] Center for Neighborhood Technology, *Transit Deserts in Cook County*, 2016