Uber Maneuver

How taxis can better position themselves in NYC

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Introduction

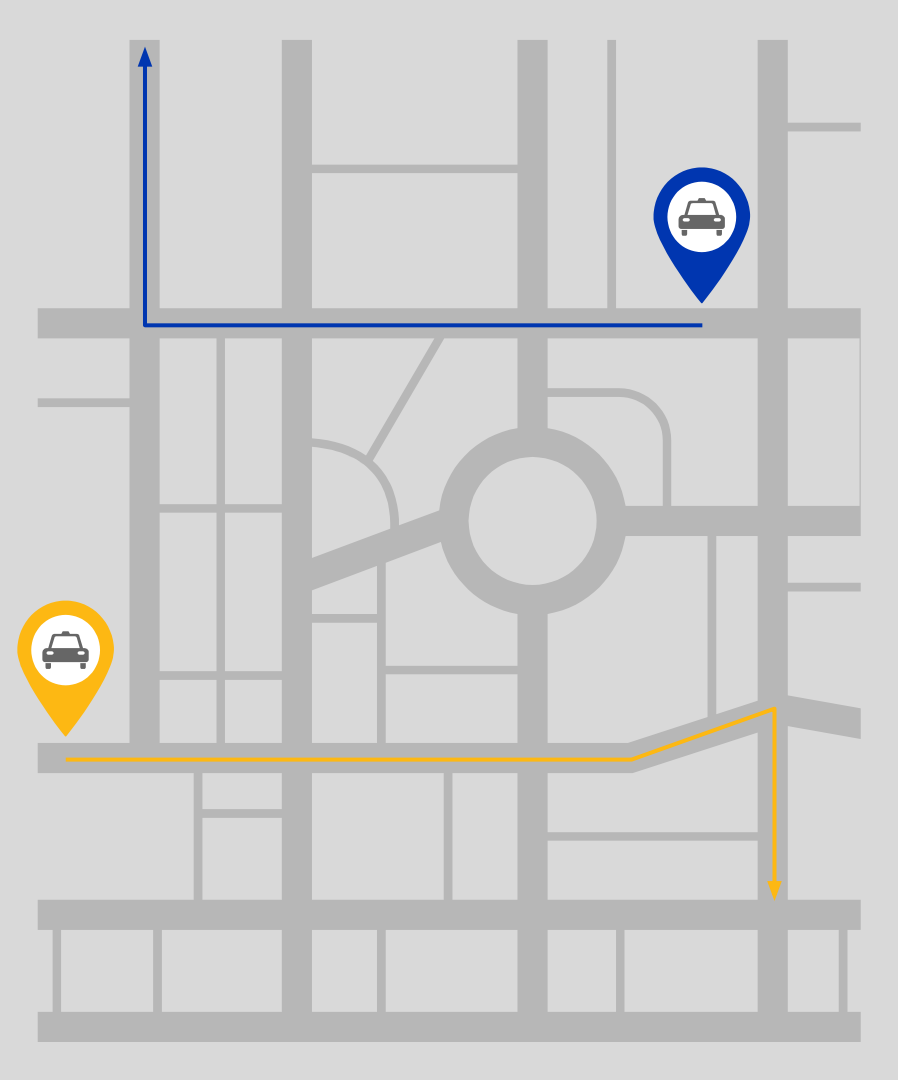
- Taxi ridership has **decreased** since ridesharing was introduced in NYC.
- Fluctuations during the pandemic → **surge pricing** helped taxis.

What happens when pricing levels out?

Other Considerations

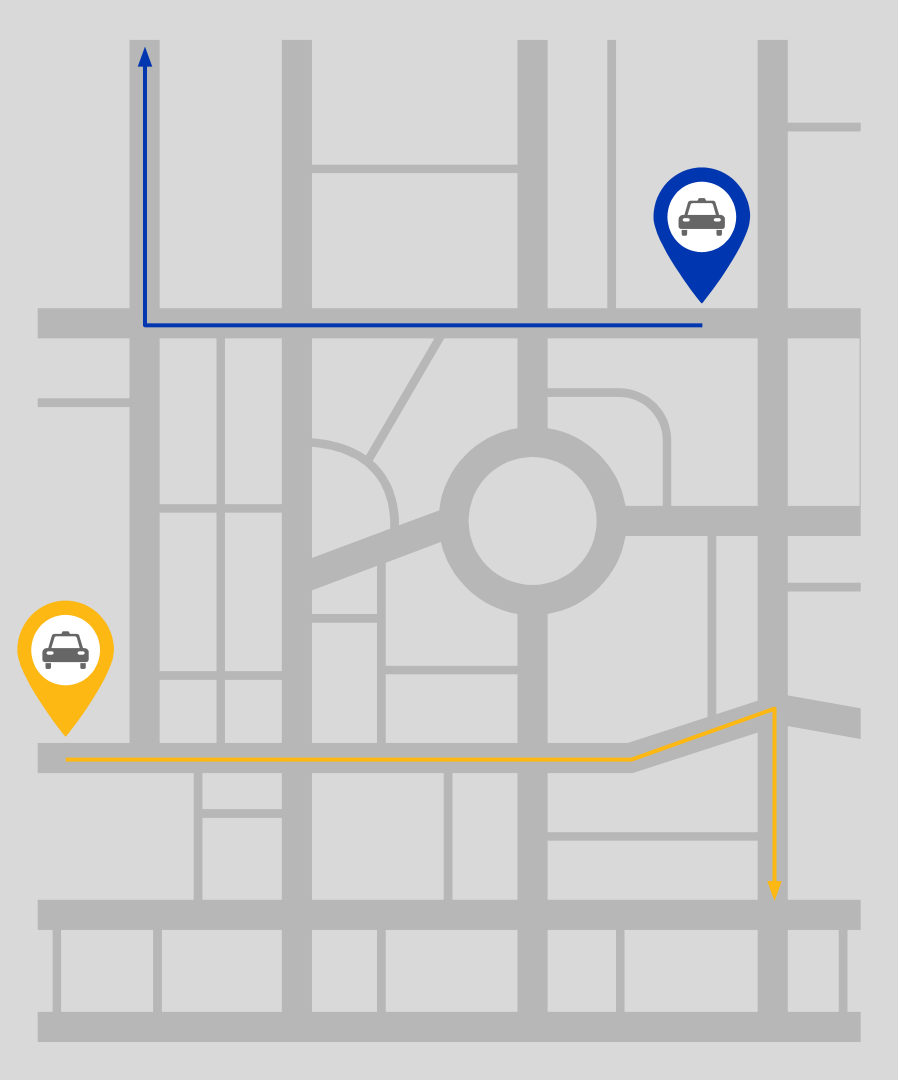
Gas Prices

Environment



Impact Hypothesis

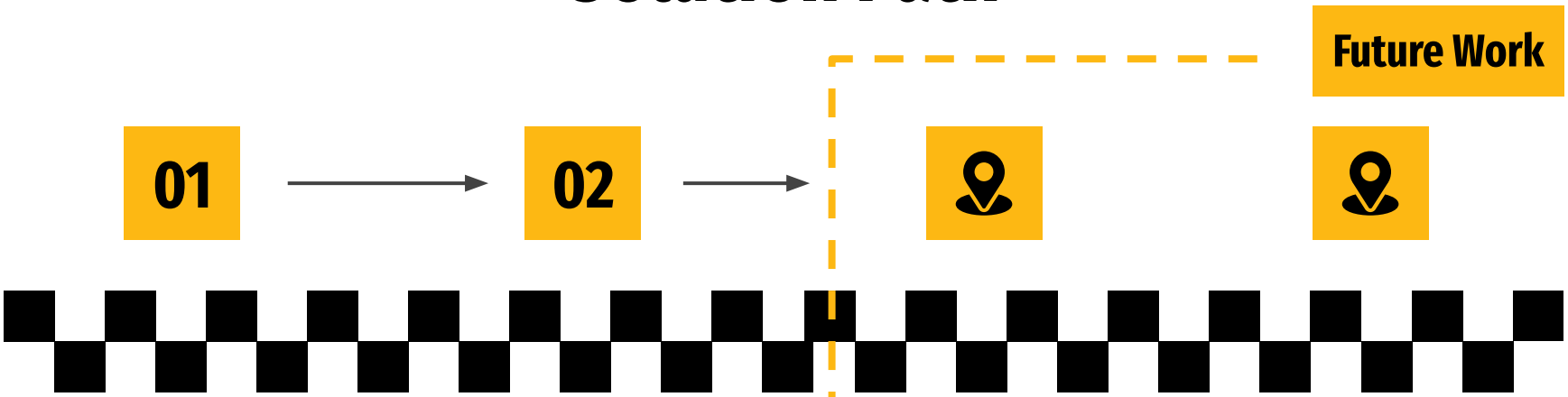
Positioning taxis in areas **when and where** Uber is used more than taxis will result in **increased ridership and revenue**.



Goal

Determine **when and where** Uber **picks up more passengers** than taxis.

Solution Path



Data (4/18/2014)

- Uber
- Green taxi
- Yellow taxi

Python & Google Sheets

Exploratory Analyses

- Rides per hour
- Rides per zipcode
- Rides per hour per zipcode

Python & Google Sheets

Time Series

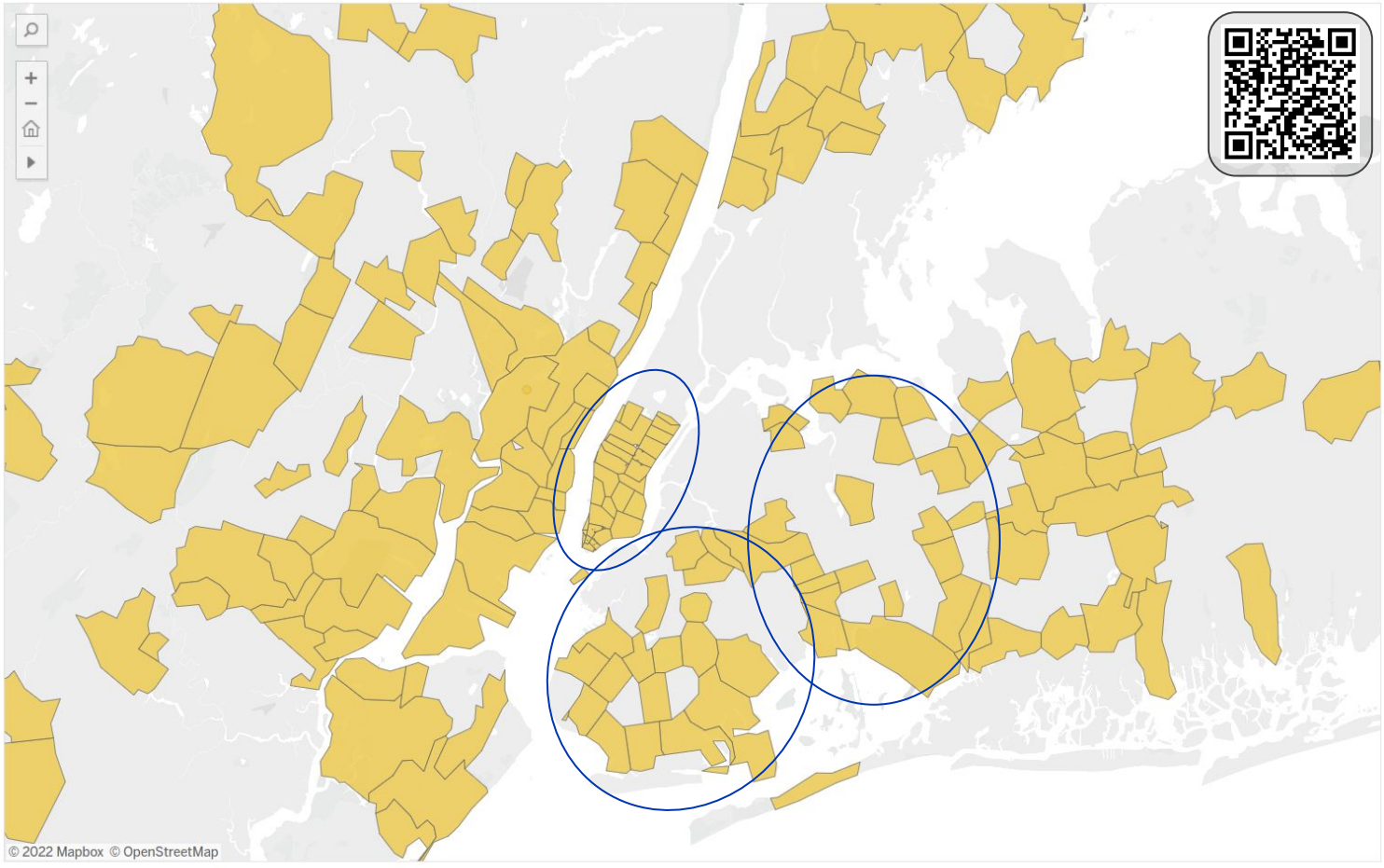
Predict pick-ups using regression & change in time

Q-Learning

Predict pick-ups with reinforcement learning

Uber Rides per Hour & Zipcode

Zipcodes with a greater proportion of Uber pick-ups than taxis (sum of rides per hour, 4/18/2014)

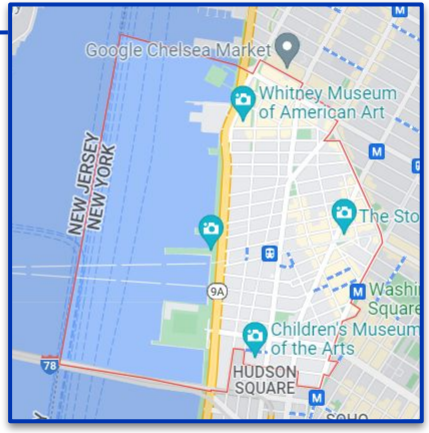


12:00 AM 0 43
12:00 PM 0 40
1:00 AM 0 26
1:00 PM 0 44
2:00 AM 0 18
2:00 PM 0 53
3:00 AM 0 19
3:00 PM 0 82
4:00 AM 0 15
4:00 PM 0 75
5:00 AM 0 16
5:00 PM 0 67
6:00 AM 0 25
6:00 PM 0 86
7:00 AM 0 39
7:00 PM 0 84
8:00 AM 0 54
8:00 PM 0 77
9:00 AM 0 33
9:00 PM 0 114
10:00 AM 0 31
10:00 PM 0 140
11:00 AM 0 41
11:00 PM 0 142

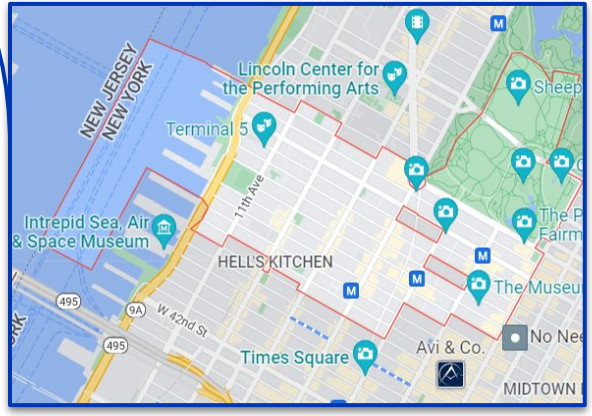
Recommended Zipcodes and Hours for Pick-up

Zipcodes with a greater proportion of Uber pick-ups than taxis, and with the most rides per hour (sum of rides per hour, 4/18/2014)

	Zipcode						
Hour of pick-up	10003	10009	10011	10012	10014	10019	11430
12 AM					43		
1 AM					26		
2 AM					18		
3 AM			19				
4 AM					15		
5 AM							16
6 AM							25
7 AM		39					
8 AM		54					
9 AM						33	
10 AM						31	
11 AM						41	
12 PM						40	
1 PM						44	
2 PM	53						
3 PM						82	
4 PM					75		
5 PM				67			
6 PM					86		
7 PM					84		
8 PM					77		
9 PM					114		
10 PM					140		
11 PM					142		



10014
West Village



10019
Hell's Kitchen

Future Work

Modeling

- Time series regression
- Q-Learning

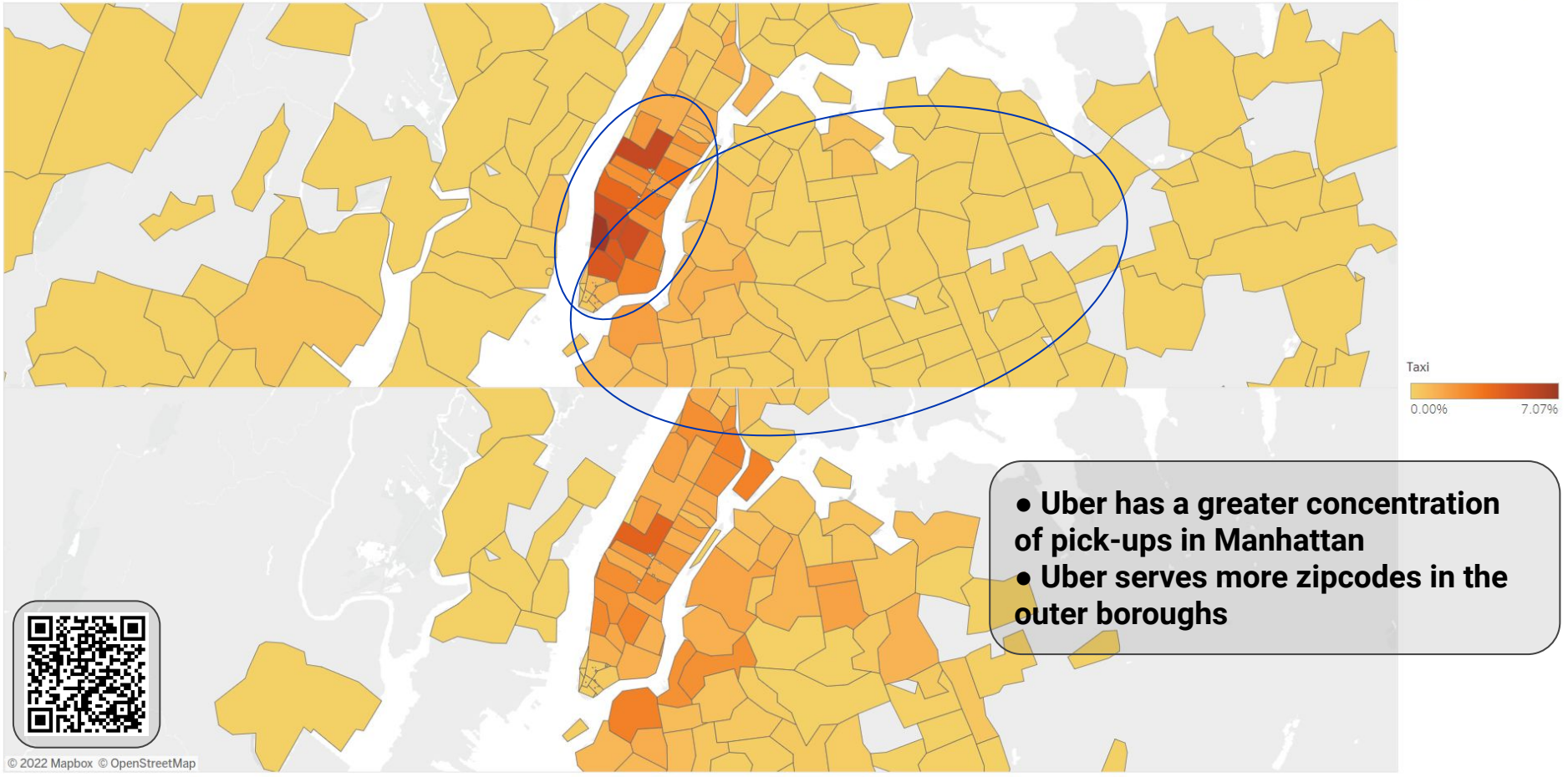
Other Questions

- Analyze drop-offs (unavailable for Uber)
  - Certain areas associated with further trips & more money?
- Address marketing in other hailing apps
  - Improve hailing via Curb, Transit?

Appendix

Uber vs. Taxi Rides per Zipcode

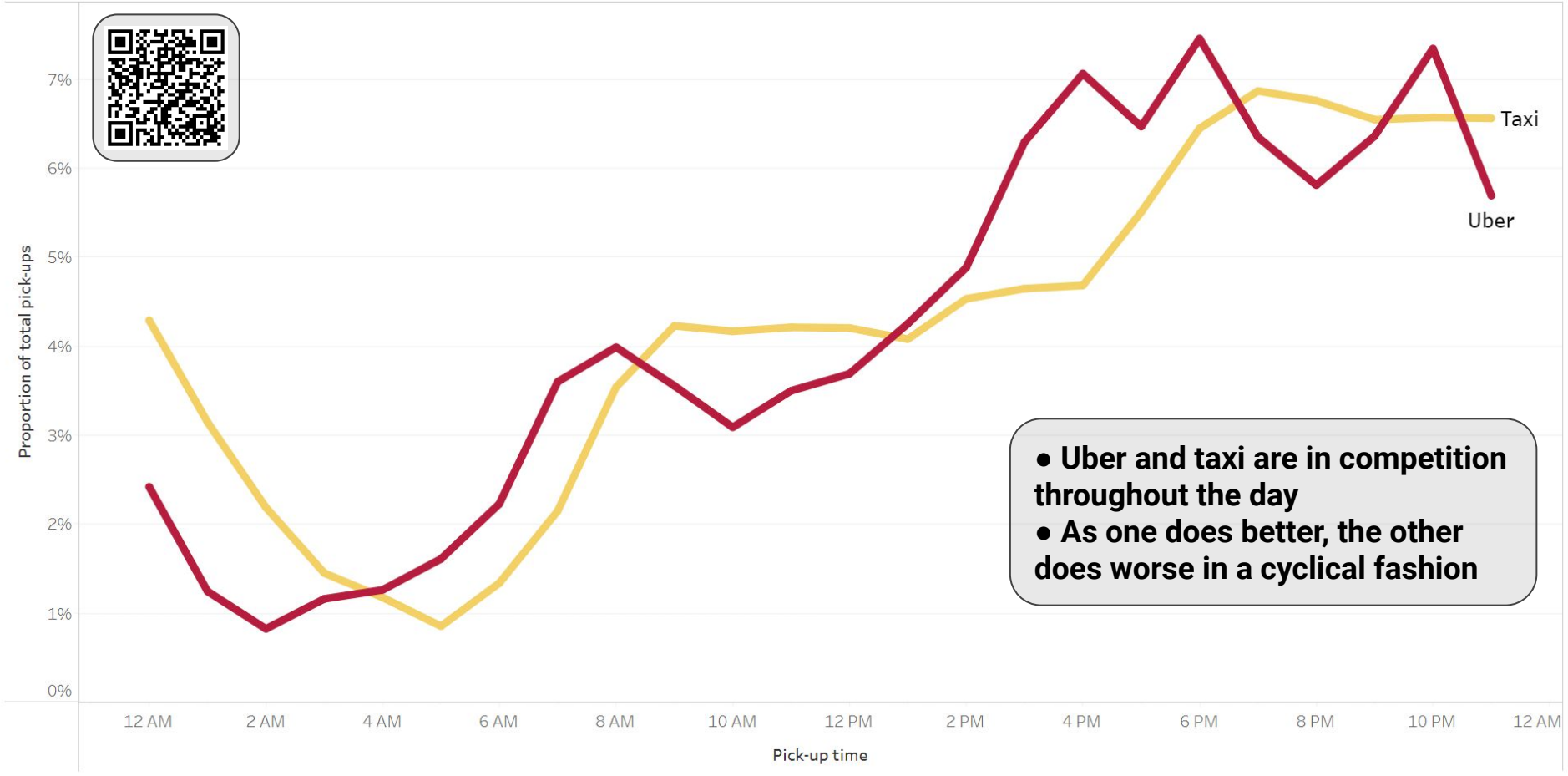
The proportion of total pick-ups per zipcode (4/18/2014)



- **Uber has a greater concentration of pick-ups in Manhattan**
- **Uber serves more zipcodes in the outer boroughs**

Pick-ups per Hour

Measured as a proportion of total Uber and taxi pick-ups (4/18/2014)



Uber data:
https://github.com/fivethirtyeight/uber-tlc-foil-response/blob/master/uber-trip-data/uber-raw-data-apr14.csv

Green taxi data:
https://data.cityofnewyork.us/Transportation/2014-Green-Taxi-Trip-Data/2np7-5jsg

Yellow taxi data:
https://data.cityofnewyork.us/Transportation/2014-Yellow-Taxi-Trip-Data/gkne-dk5s

Google Sheets:
https://docs.google.com/spreadsheets/d/1dB2dYPXcaLBm-1CG_Z2v-hsiCVzvDjckjZp5VxWZfOo/edit?usp=sharing

Tableau story:
https://public.tableau.com/app/profile/devra2843/viz/UberManeuver/UberManuever

News Sources:

Uber and Lyft drivers get squeezed by high gas prices: ‘I barely broke even’, March 14, 2022
As Uber and Lyft fares surge, NYC taxis are becoming popular again, August 27, 2021
Uber and Lyft are cutting even further into the taxi market during the pandemic, July 20, 2021
You Can’t Find a Cab. Uber Prices Are Soaring. Here’s Why, June 16, 2021

Thank you!

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