Uber Maneuver

How taxis can better position themselves in NYC

Devra Alper

Introduction

UBER

- Taxi ridership has **decreased** since ridesharing was introduced in NYC.
- Fluctuations during the pandemic → **surge pricing** helped taxis.
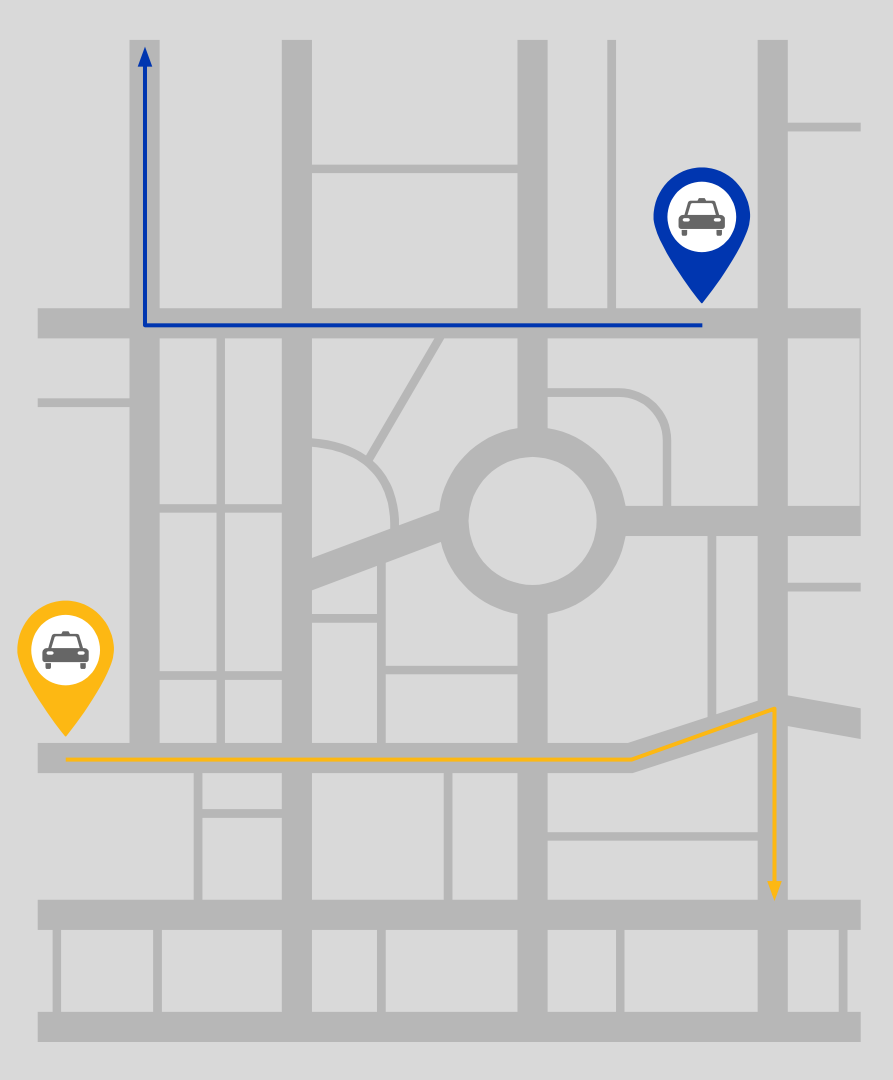
What happens when pricing levels out?

Other Considerations

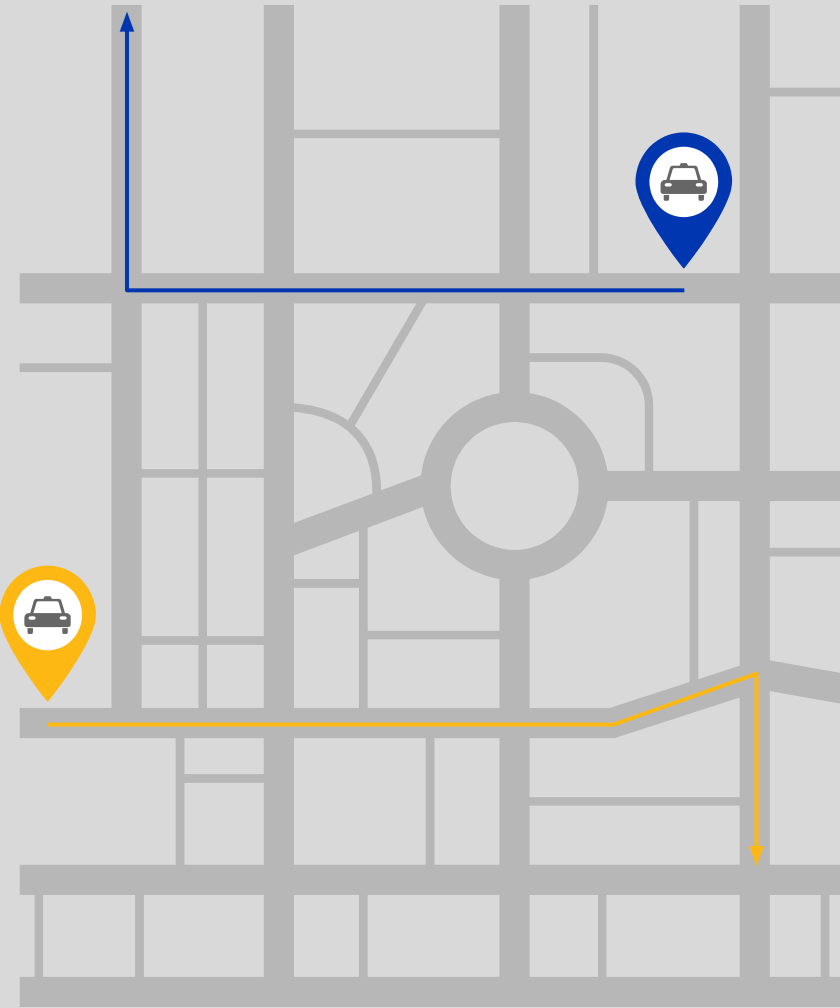Gas Prices   Environment

Impact Hypothesis

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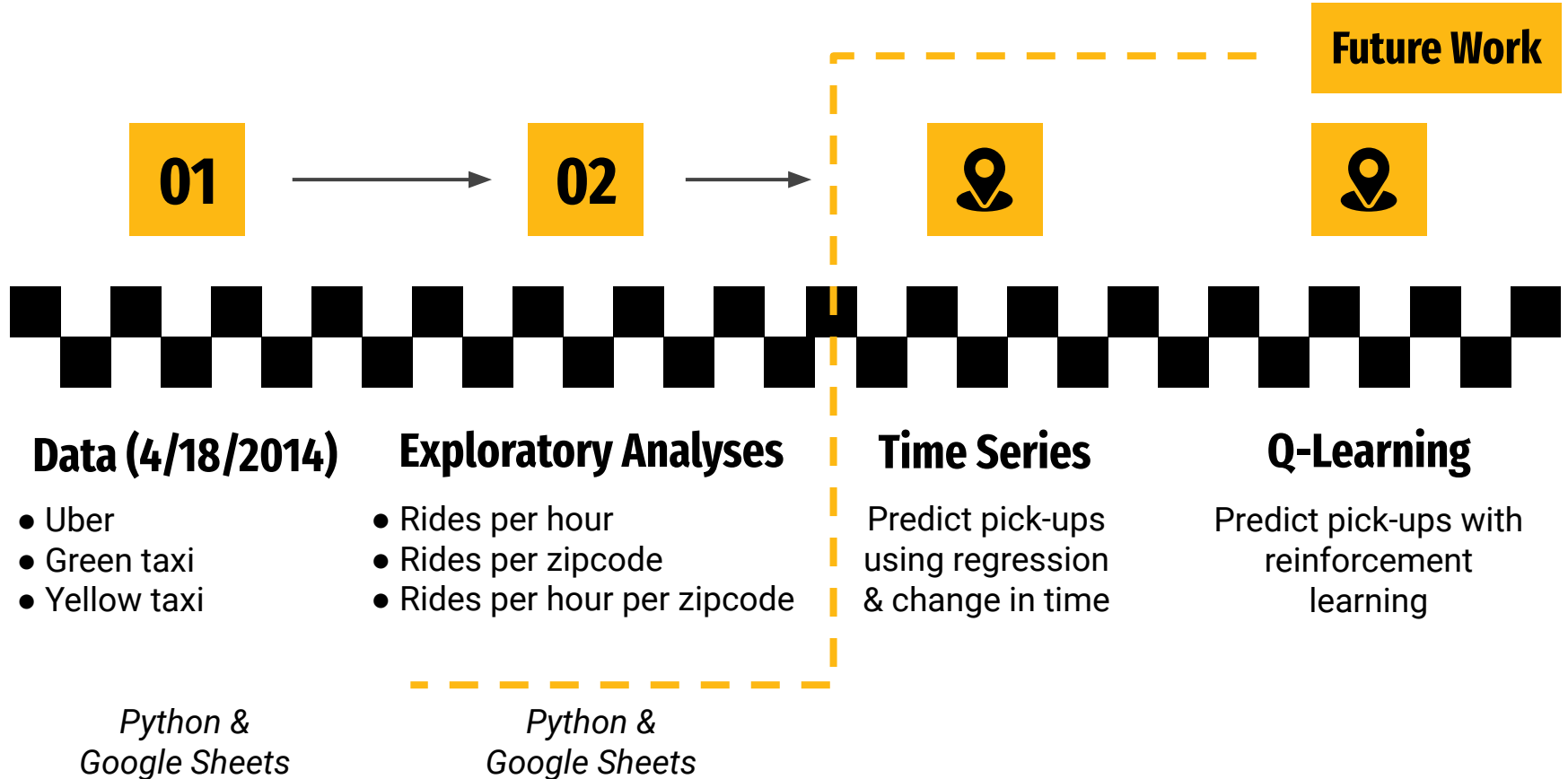
Goal

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

Solution Path

Future Work

01 → **02** →

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
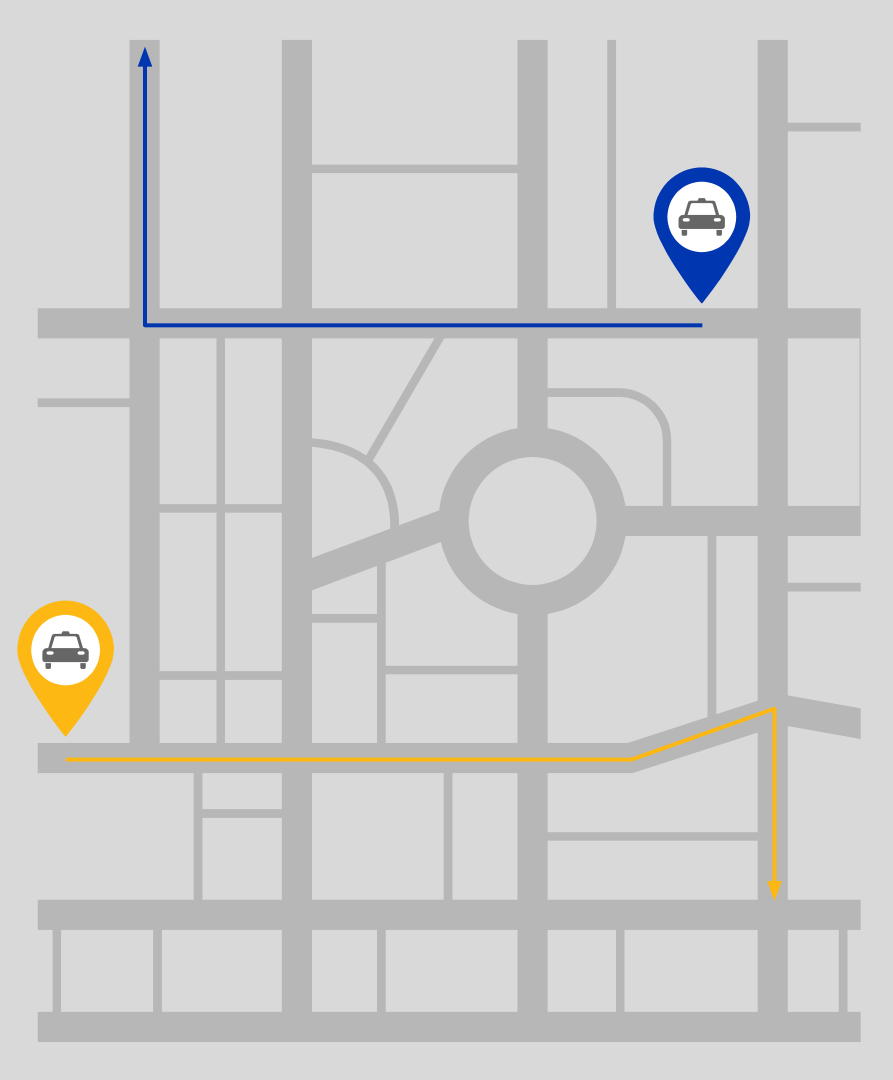
Q-Learning

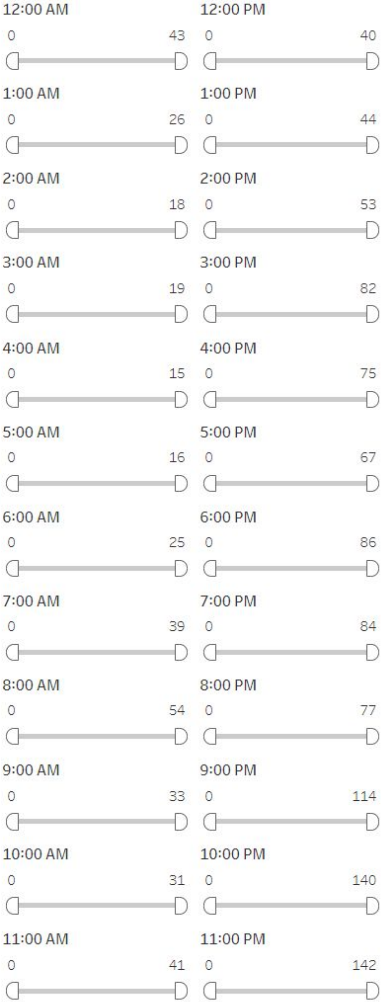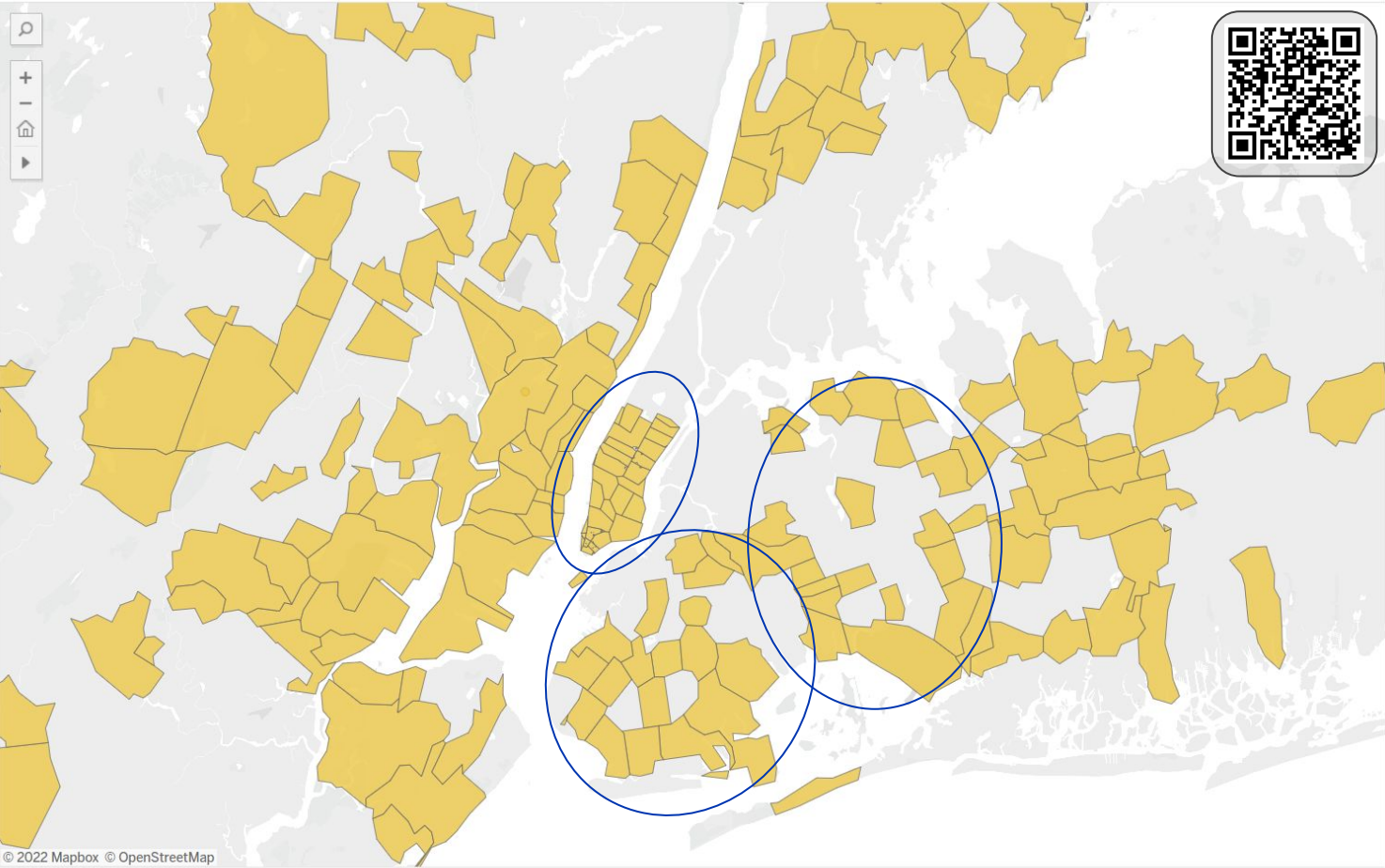Predict pick-ups with reinforcement learning

Risks & Assumptions

- One day of analyses from 2014 is not generalizable → **Proof of Concept**
- Assuming resources are available to increase taxi presence in certain areas.
- Hopefully, **risk will be minimal** as an increase in revenue should happen quickly.

Uber Rides per Hour & Zipcode

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

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12:00 AM		12:00 PM	
0	43	0	40

1:00 AM		1:00 PM	
0	26	0	44

2:00 AM		2:00 PM	
0	18	0	53

3:00 AM		3:00 PM	
0	19	0	82

4:00 AM		4:00 PM	
0	15	0	75

5:00 AM		5:00 PM	
0	16	0	67

6:00 AM		6:00 PM	
0	25	0	86

7:00 AM		7:00 PM	
0	39	0	84

8:00 AM		8:00 PM	
0	54	0	77

9:00 AM		9:00 PM	
0	33	0	114

10:00 AM		10:00 PM	
0	31	0	140

| 11:00 AM		11:00 PM	
0	41	0	142

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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		
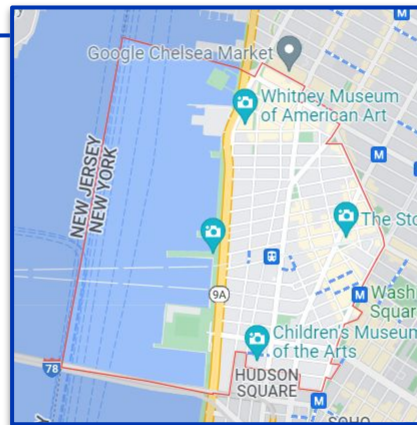
10014
West Village
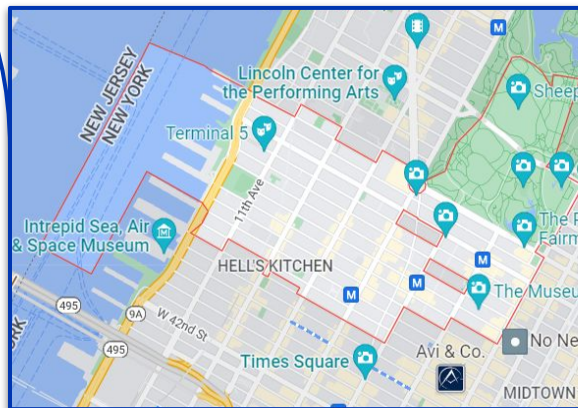
10019
Hell's Kitchen

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Future Work

Modeling

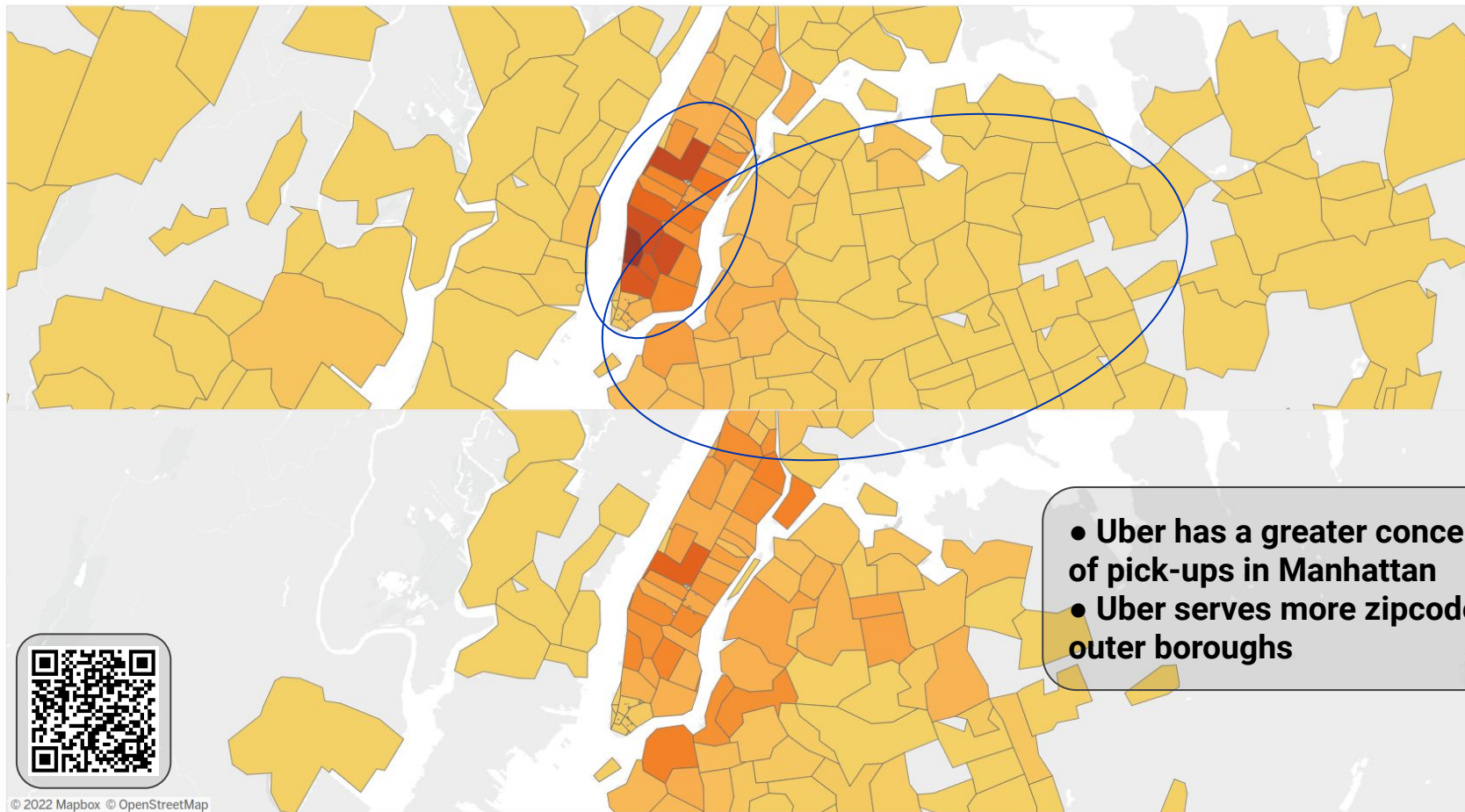- Time series regression
- Q-Learning

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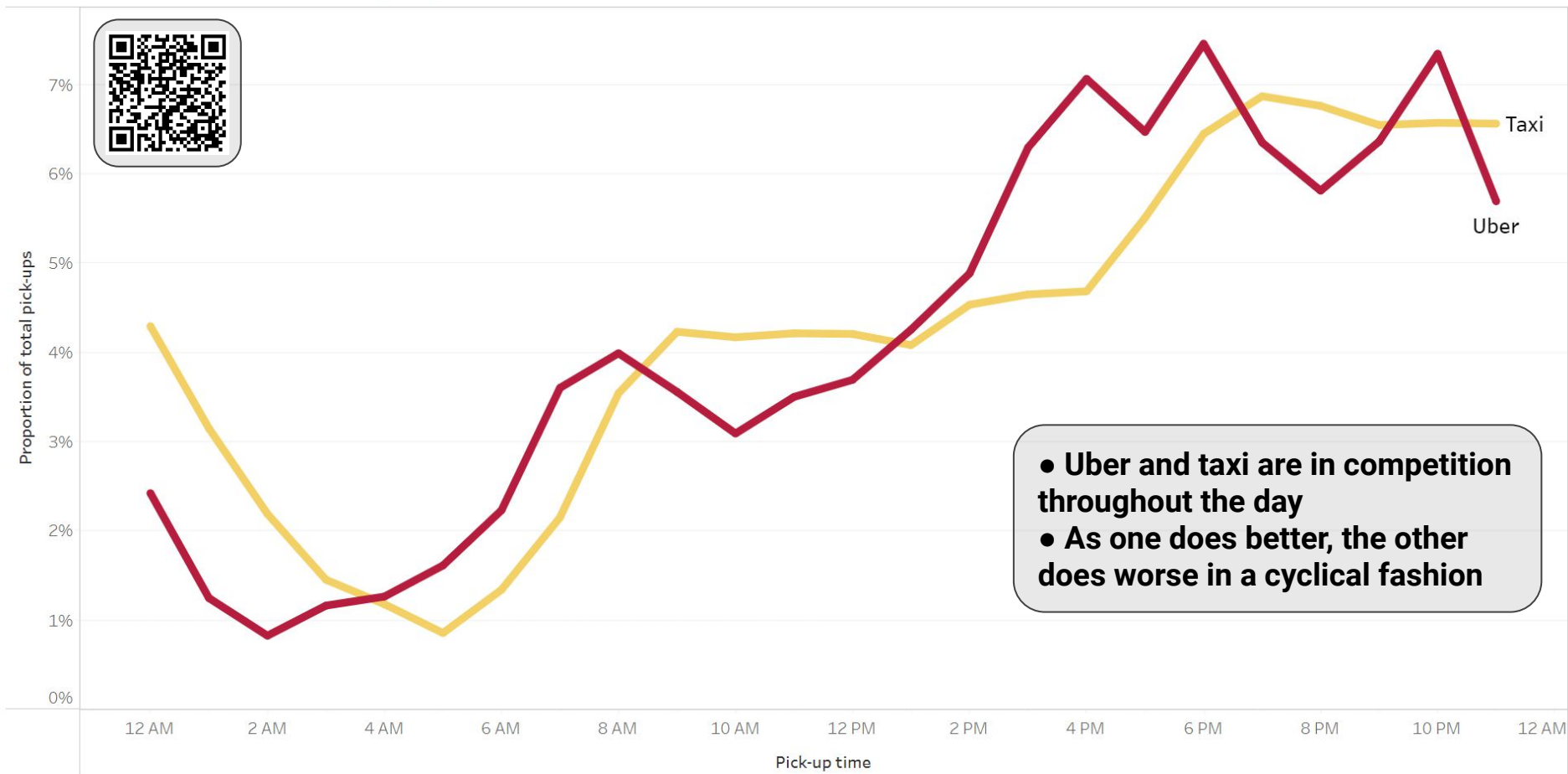The proportion of total pick-ups per zipcode (4/18/2014)

Uber
0.00%   7.07%

Taxi
0.00%   7.07%

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

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Pick-ups per Hour

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

Proportion of total pick-ups

- Uber and taxi are in competition throughout the day
- As one does better, the other does worse in a cyclical fashion

Taxi

Uber

12 AM 2 AM 4 AM 6 AM 8 AM 10 AM 12 PM 2 PM 4 PM 6 PM 8 PM 10 PM 12 AM

Pick-up time

7%
6%
5%
4%
3%
2%
1%
0%

+ a b l e a u

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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https://medium.com/@devra.alper