

# A PANDEMIC'S EFFECT ON MTA TURNSTILES

Exploratory Data Analysis Project

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# Introduction

- Motivation

- NYC was the epicenter of COVID-19, MTA was annihilated during the pandemic
- Going from being the main source of transportation for millions of New Yorkers, to people completely avoiding it during the pandemic

- Objective

- To explore MTA ridership levels before COVID and during COVID
- To explore the relationship between median property value and the change in ridership activity

- Goal

- To understand and analyze the effect the pandemic had on MTA ridership activity and where it was affected the most



# Methodology



- Data Collection

- MTA turnstile
- Median Recorded Property Value in NYC

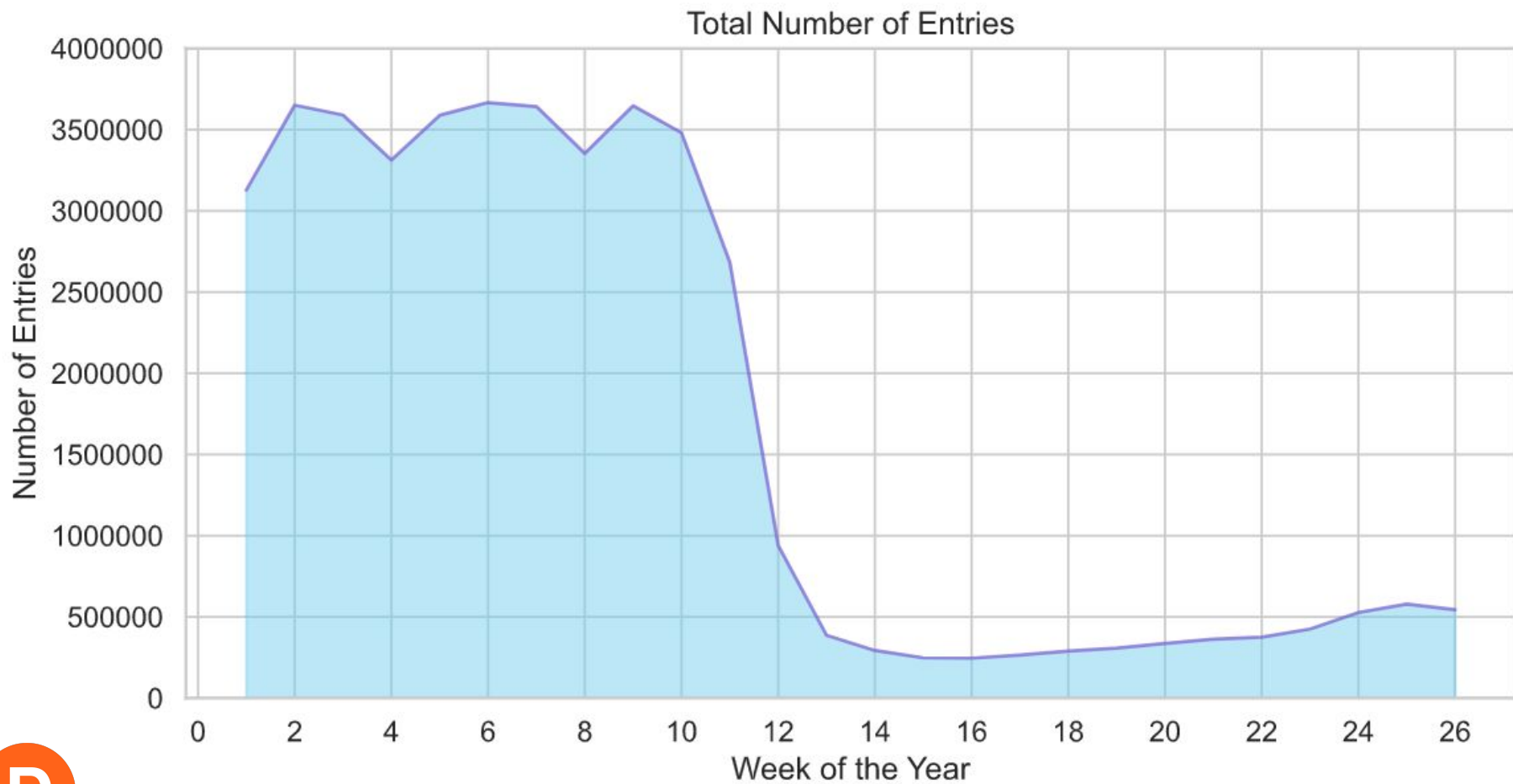
- Cleaning

- Looked at a specific train line
- Looked at neighborhoods where the train line passed through

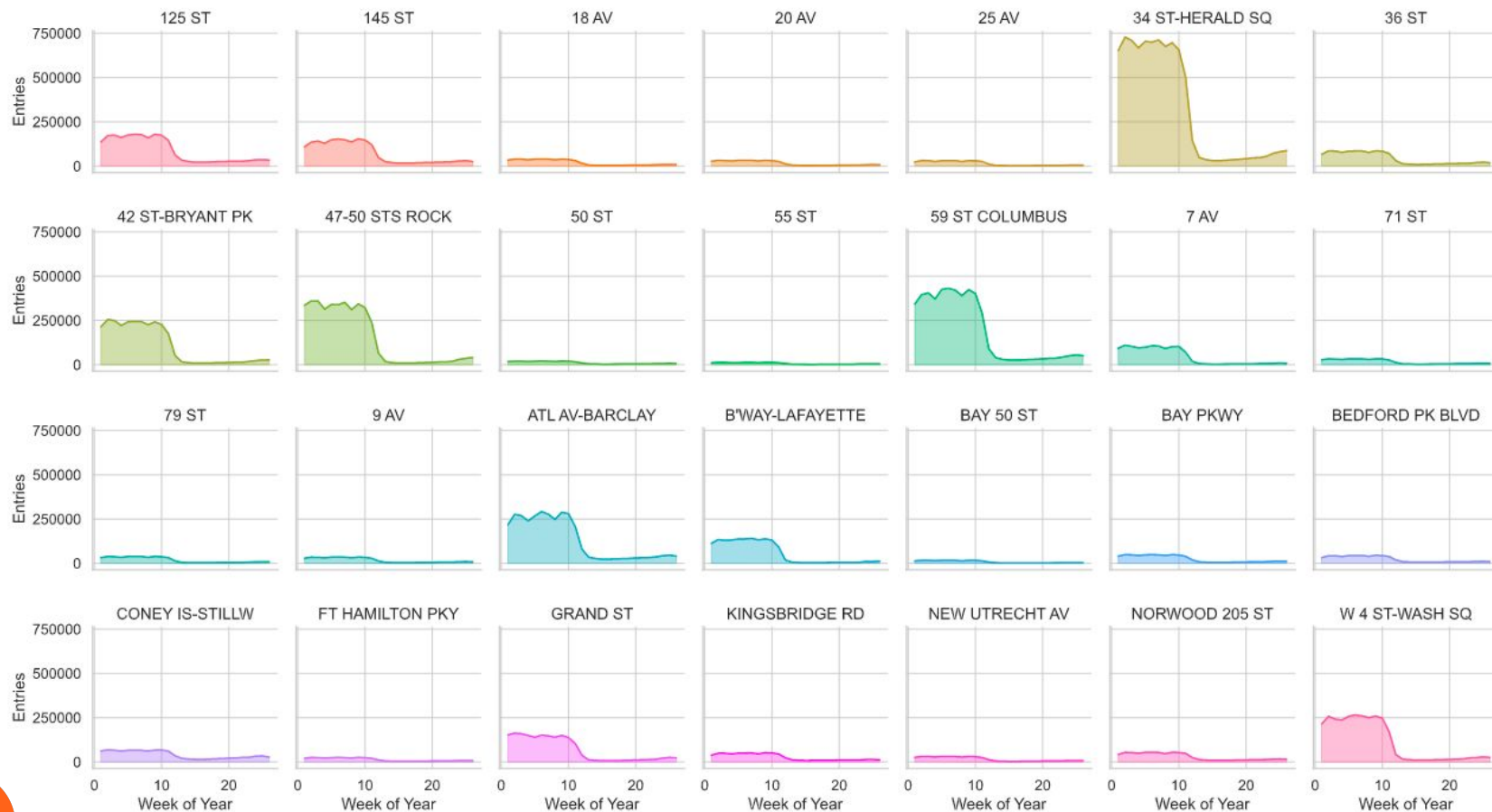
- Exploration

- Isolated into two time periods (pre and present)
- Averaged the median property value for the 6 months
- Calculated the percent difference in ridership
- Visualized changes and relationship with seaborn, matplotlib, and plotly

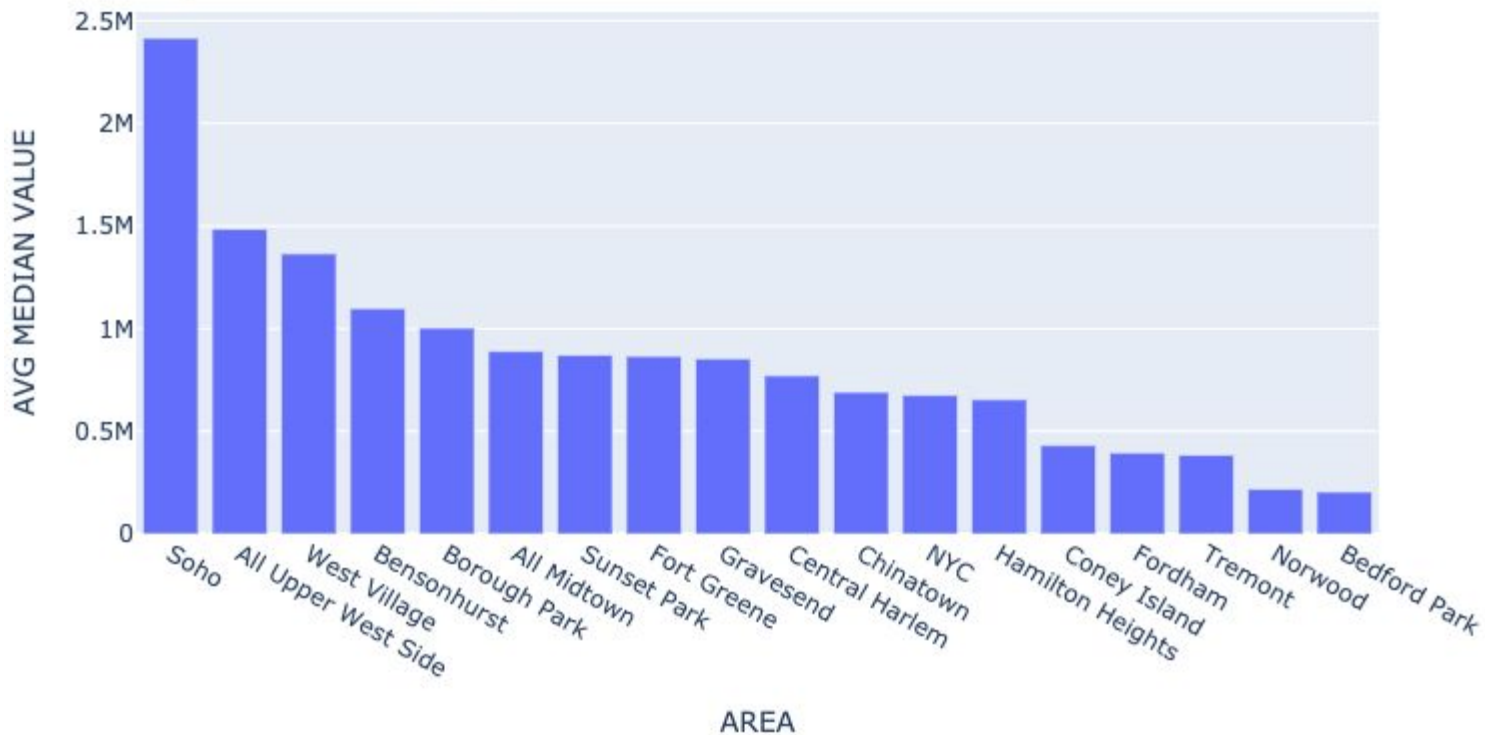




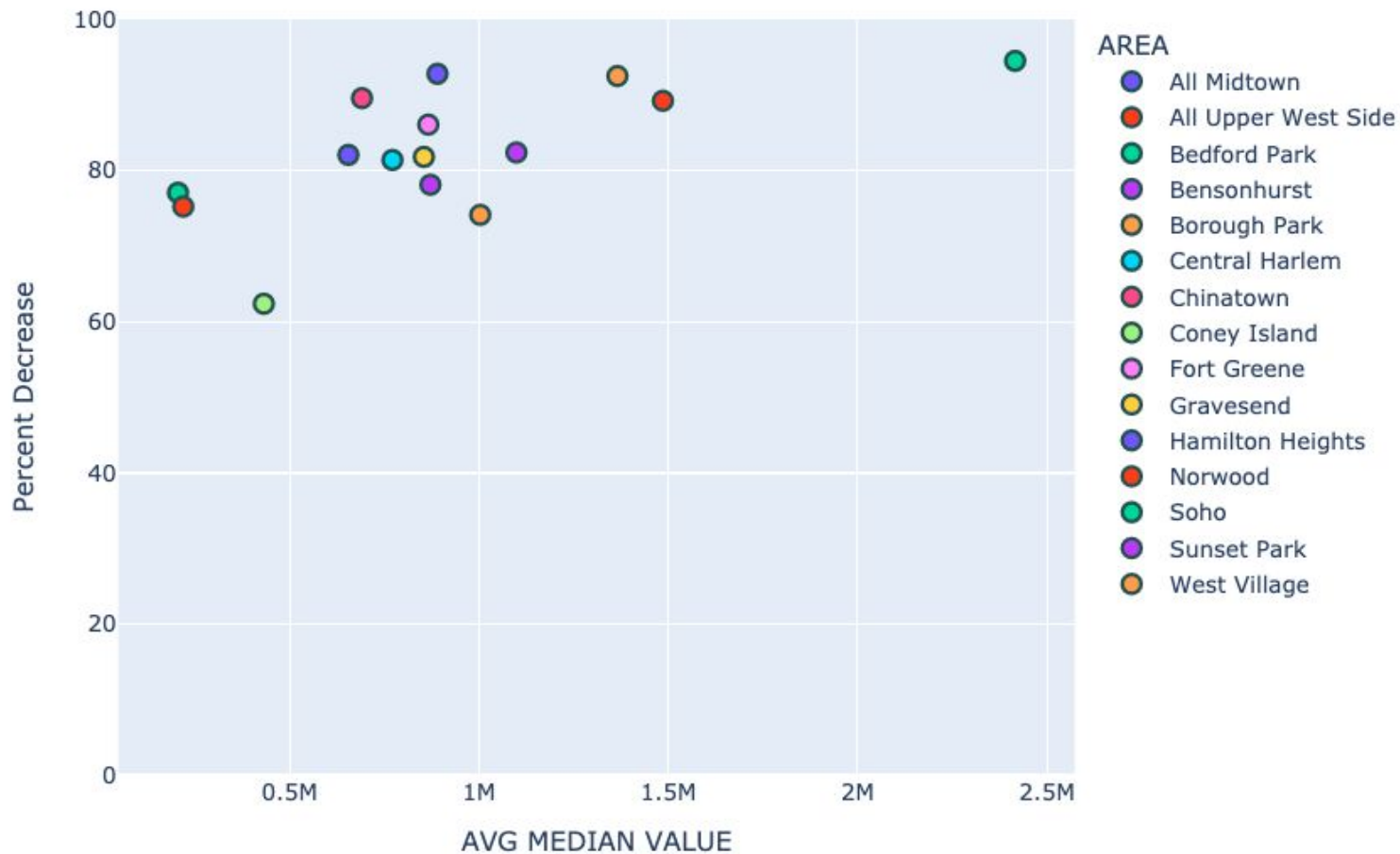
# Weekly Entries Per Station



### Average Median Property Values



## Ridership Activity in D Line Neighborhoods



# MTA Ridership Weekly Average Difference





# Results

- Overall, for the D line, there was a 89% decrease in ridership between pre and present COVID for all full-time stations
- Minimum change was in Coney-Island station with a percent decrease of 62% with a median value of \$431,750
- Maximum change was Broadway-Lafayette station with a percent decrease of 95% with a median value of \$2,415,697



# Conclusions

- The change in ridership level between the pre-covid and present covid is astronomical
- Stations in more affluent areas tend to have a larger percent decrease than stations in less affluent areas
- However, correlation does not imply causation!



# Future Work

- Vaccination
  - When?
- Average household income
  - Bigger picture?
- When will ridership levels go back to pre-covid numbers?



# Appendix

- mta.info
- <http://web.mta.info/developers/turnstile.html>
- <https://data.cityofnewyork.us/Transportation/Subway-Stations/arq3-7z49>
- <https://streeteasy.com/blog/data-dashboard/>

