Does Viral Infection Affect Taxi Service Reliance?

MAST30034 Assignment 1

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TODO: Github Repository

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1 Introduction

Viral infection has been on everyone's mind in the past few years due to the COVID-19 pandemic. With lockdowns and the fear of the spread of infection, it is a natural assumption that many people-facing industries such as hospitality or ride-hailing have suffered in demand/reliance. This report aims to contribute to a body of works attempting to quantify the effect that the COVID-19 pandemic has had on the reliance on ride-hail/taxi services, and compare any derived trends to those based on another major viral infection: Influenza.

Throughout this research project, I will be investigating the impact that the COVID-19 pandemic has had on two measures of reliance on taxi services: usage frequency, and trip distance. First, the relationships between reliance statistics and COVID-19 case, hospitalization, and death rates measured in New York City are modelled and analysed. Next, a comparison is made to any trends that appear between the selected taxi reliance statistics and Influenza case rates. Finally, a regression model will be constructed using both COVID-19 and Influenza case rates to predict thing taxi trip counts.

TODO: What datasets are used?

- The New York City Taxi and Limousine Commission (TLC) has provided a dataset of taxi service trips which captures information such as travel distance and general pickup/dropoff locations [1]. Throughout this report, this is referred to as the TLC dataset.
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TLC dataset [1] COVID-19 dataset

TODO: What is the timeline?

The timeline of data considered starts in July 2019 and ends December 2021. This allows for comparisons at different stages of the pandemic (including a 6 month period before it happened). It is also more difficult to analyse the trip records of high-frequency taxi services such as Uber or Lyft, for which a dedicated dataset was started in February 2019.

Throughout this research project, I will be investigating the impact that the COVID-19 pandemic has had on two primary aspects of the use of different taxi services: usage frequency, and trip distance. Specifically, I will be modelling relationships between case, hospitalization, and death rates measured in New York City over the span of the timeline.

References

[1] New York City Taxi and Limousine Commission. *TLC Trip Record Data*. `https://www1.nyc.gov/site/tlc/about/tlc-trip-record-data.page`. Accessed: 2022-08-06.