Literature Review:

Effects of the COVID-19 lockdown and recovery on People's

mobility and air quality in the United Arab Emirates using satellite

and ground observations.

This literature shows that the reduction in NO2 due to COVID-19 is estimated to be between 13% and 23% globally (Keller et al., 2021). Nitrogen dioxide accumulates in the air, mainly due to the combustion of fossil fuels in automobiles, industry and power generation facilities (US EPA, 2021)

Therefore, based on this literature, the hypothesis that The impact on traffic due to Covid-19 lockdowns can be used as a reliable proxy for calculating the potential impact of EV adoption and a The impact on traffic due to Covid-19 lockdowns can be used as a reliable proxy for calculating the potential impact of EV adoption and a clean air zone.

Data Description

For the air quality measurements we retrieved the Air quality data from Open Data Bristol where there are indices of NOx, NO2, Air Quality, Air Pollution, Pollution, Traffic, PM10, PM2.5, Date, etc. The indices are based on World Standard Time throughout the year. Therefore, for the proposed hypothesis, we only need to intercept the time before and after the occurrence of the first new crown and the second new crown, we do not need to compare all of them.

For data on the impact of the new crown blockade on transport and other activities, we have taken the Mobility data COVID-19 from GOV.UK, which records the Percent change from baseline in transit stations.

Preparation.

Operational overview.

Firstly observe the impact of the COVID-19 outbreak closure on traffic, and secondly observe the NO2 and NOx indices during this period. Observe whether there is a correlation between the two data trends. If there is a high correlation, then the transit station does have an effect on air quality due to the effects of the COVID-19 blockade.

1. Sort the Mobility data COVID-19 data by quarter, calculate the tie values for each group, sort the data by time and store them in a dataframe pending plotting.

2. Do the same for the Air quality data, but the format of the Date data here is Universal Standard Time, so in order to merge the data smoothly in the future the format of the Date data with that of the Mobility data COVID-19 needs to be harmonised here. Finally, the trend of NO2 from 2019 to 2023 is plotted.

3. Finally, after eliminating the NA data, use the pd.merge function to merge the data and find the correlation matrix between Percent change from baseline and NOx and NO2.

4. (Final assessment: improve the accuracy of the data, find the outliers, and after finding and eliminating the noise, select the decisive feature or metadata and reprogram the correlation matrix)

Result&Discussion.

Potential changes in traffic due to the closure of the epidemic affect air quality positively, but policies cannot positively affect air quality by restricting people's activities over long periods of time. It is possible, however, to impose restrictions or other controls on certain high pollutant emitting activities.

Further work and improvement

It is possible to look at the time periods when other restrictions were in place and check the correlation to find the best policy to improve air quality.

conclusion

1. The use of EVs and the COIVD-19 closure policy have a positive impact on air quality, and the quality of life in Bristol is positively impacted by good air quality, leading to an overall improvement in The quality of life in Bristol is positively impacted by good air quality, leading to an overall improvement in citizens' quality of life.

2. Therefore, it is suggested that the government can adopt policies to support EVs on the road and control fuel vehicles to improve air quality and thus improve people's quality of life.