Navigating the Digital Divide: Exploring the Relationship Between Technology Access and COVID-19 Deaths in the United States

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Why Technology Access?

- As technology advances at a rapid pace in the US, many Americans are falling behind affecting access to education, healthcare, food, and other basic needs improved with technology
- Many avenues to receiving modern healthcare transitioned towards digital preference at the height of the COVID-19 pandemic
- Access to different internet types, computing devices, and basic knowledge of how to use modern technology is not consistent across the country, causing accessibility concerns for some communities

Highlights:

- Internet distribution by households in the US
  -87.2% of households report any type of broadband internet
  -0.2% of households report dial-up internet
  -12% of households report no internet
- There are over 3000 counties in the US, due to the newness of COVID data and general reporting differences, we were limited to just 827 counties after joining data sets from the Census and CDC

Data and Data Processing:

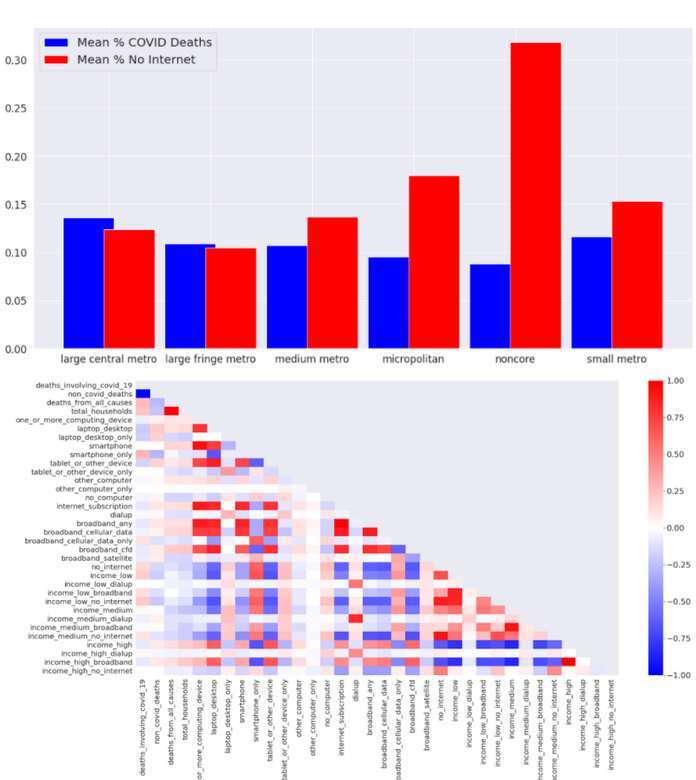
We utilized publicly available data from the U.S. Census and the National Center for Health Statistics, a subset of the CDC—*Types of Computers and Internet Subscriptions, 2019 American Community Survey 1-Year Estimate* and *Provisional COVID-19 Death Counts in the United State by County*. Both data sets were cleaned to improve usability and joined at the county, state combined level. EDA and modeling were conducted in Google Colaboratory and visualizations were built using Tableau Desktop.

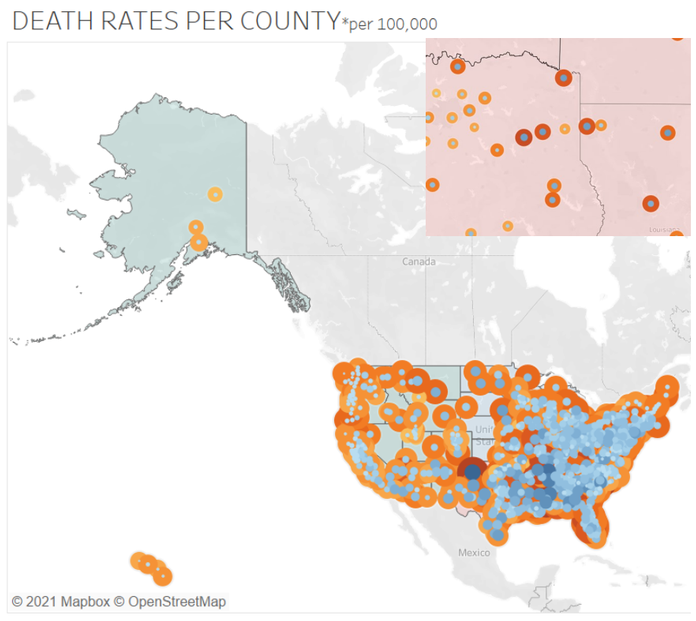
Modelling and EDA:

The R squared obtained from the OLS regression analysis was 15%. We struggled with regression variance because of collinearity concerns. There is not a strong correlation between COVID-19 death and Internet Subscription type—85% of the R^2 is likely to be attributed to confounding variables.

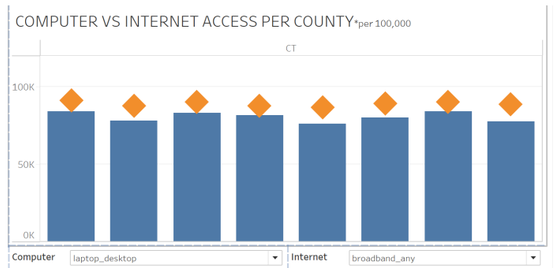
Challenges:

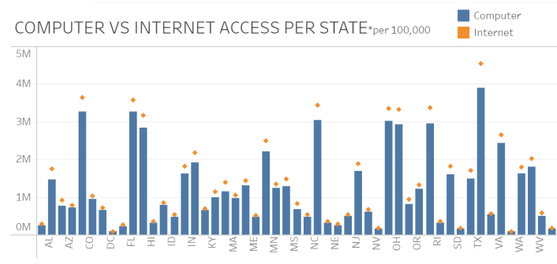
The US Census data utilized categories and subcategories which presented some challenges to navigate with collinearity when modelling and building our dashboards—for example, *Internet Subscriptions* represented *Broadband* and *Dial-up*.





Map of all deaths and COVID-19 deaths in the US. Orange represents total deaths and blue represent COVID-19 deaths per county





Conclusions:

- The impact of technology access is more visible when viewed on the basis of smaller geographic areas such as counties and neighborhoods. Through our analysis we saw that technology access only explains 15% of COVID-19 deaths. This leads us to believe exploring other variables to the analysis would help provide a better understanding of what factors make a person more or less likely to die of COVID-19.