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Abstract

Our group is analyzing the Level 2 Behavioral Changes During COVID-19 dataset. We explore several guiding questions in our analyses. First, how do the socio-demographic characteristics of the respondents relate to their behavioral changes (such as online shopping behavior, commuting behavior, and physical activity level) from the pandemic? Second, does clustering by place of residence and its urbanization coordinates (such as population density, land use diversity, and street walkability) reveal differences in the way respondents travel to work before and after the pandemic? Finally, how does sex of respondents with children affect behavioral changes? In other words, is childcare significantly unequally distributed between men and women during the pandemic, leaving one with less time for self-care activities such as physical activity? Since our data is mostly categorical, we use Chi-Squared tests, McNemar-Bowker tests, histogram binning and visualizations for our analysis. We use external datasets to obtain indices of rurality vs. urbanization and average income for the ZIP codes in order to investigate the relationship between these socio-demographic dimensions and behavior changes. We also use text analysis to understand the reasons respondents provided for why they went out during the pandemic. As part of our analysis, we also look into biases within the provided dataset. For example, we find that nearly 100% of respondents in the survey live in a metropolitan area, and a vast majority live in major urban regions with populations over 1 million, meaning our conclusions are low powered with respect to respondents in rural parts of the country. We find that wealth, as determined by zip code, does not have a significant relationship in predicting online shopping behavior. We also find that fathers, on average, exercise slightly more than mothers, although both groups exercise slightly more during COVID-19 times. Additionally, age or having kids does not have a statistically significant relationship with physical activity.