The Effects of Covid-19 on Mobility in Hawaii

Ratul Debnath, Department of Urban and Regional Planning, University of Hawai'i at Mānoa

NDPTC NATIONAL DISASTER PREPAREDNESS TRAINING CENTER at the UNIVERSITY of HAWAI'I

Introduction

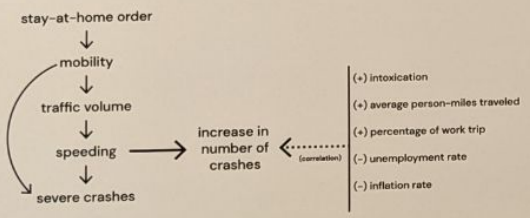
The COVID-19 pandemic dramatically changed travel behavior. Both stay-at-home orders and the unwillingness to travel affected overall volumes as well as trip destinations, modes choices, speeds, and congestion.

This poster presents mobility patterns across six categories of trips before and after the stay-at-home orders were issued in Hawai'i.

Key research questions

How are the mobility changes in different categories of trips due to Covid-19 pandemic in Hawaii? Which category was mostly affected?

Major concepts



Purpose

The main purpose of the study is to investigate mobility and traffic volume changes across the four counties in the state over the period February 2020 to February 2022.

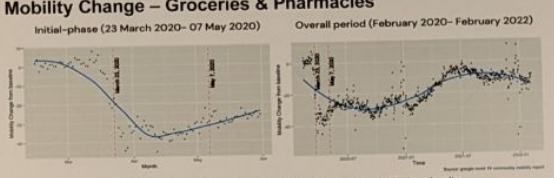
Objectives

Examine the mobility changes in different categories of trips with Google mobility data and measure the extent to which stay-at-home orders helped to curb rates of infection.

Methods

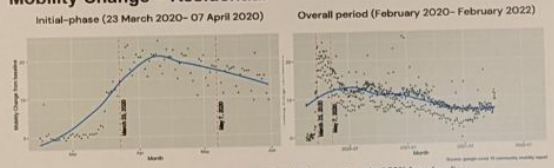
- Collect data from Google COVID-19 Community Mobility Reports
- Analyze mobility change during COVID-19 by plotting the mobility data and create trendlines using local polynomial regression method.

Mobility Change – Groceries & Pharmacies



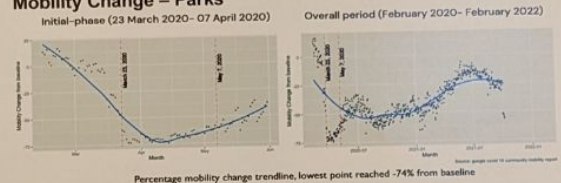
Percentage mobility change trendline, lowest point reached -38% from baseline

Mobility Change – Residential



Percentage mobility change trendline, highest point reached 22% from baseline

Mobility Change – Parks



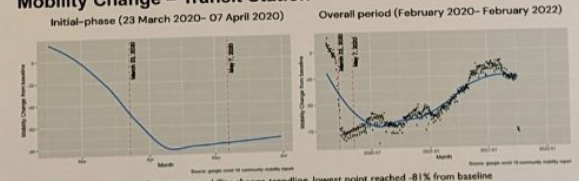
Percentage mobility change trendline, lowest point reached -74% from baseline

Mobility Change – Retail and Recreation



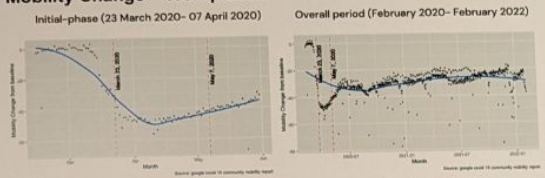
Percentage mobility change trendline, lowest point reached -61% from baseline

Mobility Change – Transit Station



Percentage mobility change trendline, lowest point reached -81% from baseline

Mobility Change – Workplaces



Percentage mobility change trendline, lowest point reached -45% from baseline

Conclusions

- As a tourist destination, the most affected trip categories in Hawaii after transit station are parks, retail, and recreation.
- Hawaii residential mobility increased and increased residential mobility has a negative effect on COVID-19 cases (Asweto et al., 2020)
- COVID-19 mobility change does not have significant effect on traffic fatalities.

Acknowledgements

I would like to thank my advisor, Dr. Karl Kim, and all others who helped me throughout the project.

Key References

Stiles, J., Kar, A., Lee, J., & Miller, H. J. (2021). Lower Volumes, Higher Speeds: Changes to Crash Type, Timing, and Severity on Urban Roads from COVID-19 Stay-at-Home Policies. Transportation Research Record. https://doi.org/10.1177/03611981211044454

China Data Lab. (2020). Google Community Mobility Reports with Basemap (US) (V58 ed.). Harvard Dataverse. https://doi.org/10.7910/DVN/1CLYWS

Keywords

Mobility, Traffic volume, Google mobility data


24th Annual
Emergency Management
Higher Education Symposium
Coming Together to Chart a New Path:
Empowering the Higher Education Community to
Create Transformational Change
June 6 – 9, 2022
FEMA