What can U.S. Travel Data tell Planners about Opening the Economy during COVID-19?

Shirgaokar, Manish[1], Misra, Aditi[2], Nobler, Erin[1], and Muresan, Diana[1]

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1 University of Colorado Denver, 2 University of Michigan

BACKGROUND

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- Americans have been disproportionally impacted by the novel coronavirus (COVID-19); African Americans were hospitalized at a higher rate than White Americans. As of April 2020, 44% of African American households experienced wage or job loss attributed to COVID-19.
- The literature suggests that the COVID-19 pandemic has reduced travel in almost all locations, but some areas have seen a growth in travel for essential needs and recreation; however, little is known about how economic needs and travel have interacted among various socio-demographic groups during the early stages of COVID-19.
- Research objectives: 1) to show that travel has not stopped and some groups are more vulnerable than others; 2) to help policymakers come to resource allocation decisions given the unequal location impacts of COVID-19; 3) to help planners follow protocol for opening the economy.

ANALYTIC APPROACH

- Using travel information in Google Community Mobility Reports at the county level, we studied factors associated with mobility trends under the ongoing pandemic and shelter-in-place conditions.
- We selected a Wednesday in the middle of February, March, April, and May to model the mobility trend for travel to grocery/pharmacy and retail/recreation to avoid confounding effects of weekend travel, and month start and end spending impacts.
- Grocery/pharmacy trips were used as s proxy for non-discretionary travel while retail/recreational trips were used as a proxy for discretionary travel.
- We used nested mixed effects models to account for the panel nature of the data with county effects nested under state effects. The models were tested with and without random effects.

RESEARCH QUESTIONS

- How have economic needs and travel interacted among various socio-demographic groups during the early stages of COVID-19?
- Given that COVID-19 has impacted subsections of the population differently, are location-specific effects also evident based on the demographic makeup of places and the type of travel?
- What did the variation in revealed travel at the county level indicate about planning for COVID-19?
- Is there a difference between discretionary and non-discretionary travel among various socio-demographic groups at the county level?

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QUESTIONS FOR CONSIDERATION

- By focusing local policy and resources on necessary travel, can we ensure that the most vulnerable are being protected while also keeping economies afloat?
- Can a better understanding of who lives in the county, what kind of jobs exist, and how political beliefs impact adherence to health policies, inform county-level policies?
- How might the increase of app-based delivery services impact these outcomes?
- How might the difference between discretionary and non-discretionary travel impact these policies?

MODEL RESULTS

	Grocery/Pharmacy Non-Discretionary Trips	Retail/Recreational Discretionary Trips
Locations with more **African American households**	-0.11% +0.13%	-0.11% +0.23%
Locations with more **households in poverty**	-0.11% -0.20%	-0.22% -0.19%*
Locations with more **Leisure and Hospitality jobs**	+1.65% -3.11%	+2.59% -5.94%

Legend

- February observation date, unless otherwise noted
- April observation date, unless otherwise noted
- Indicates an increase in trips
- Indicates a decrease in trips

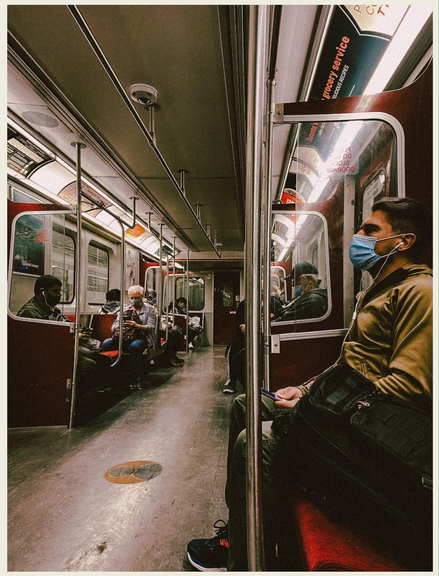
*Retail/recreation trip information was taken from the May observation date, rather than April, because May's finding was statistically significant, while April's was not

All findings shown have significance at least at 0.1 level.

FINDINGS & DISCUSSION

1) Political inclination was found to be the most important predictor of whether the mobility trend is going up or down, followed by the change in percentage of African-Americans (increase in percentage of African-American residents increases mobility during pandemic), percentage of residents under poverty level (higher percentage of people under poverty level is related to decreased mobility during pandemic), and number of COVID cases (increase in number of cases decreases mobility).
2) Counties with more White residents show a decreasing mobility trend from February to May, while counties with more African-American residents show an increase in mobility.
3) Higher median-income counties have decreasing mobility trends as do counties with a higher percentage of renter occupied units.
4) The biggest drop in mobility is in counties with more leisure/hospitality or professional/business services concentration.

- Not everyone has access to smartphones; certain populations may be underreported in these findings.
- In testing interactions between poverty and race, we found a positive, though not always significant, interaction between African American and poverty. This will be explored further in future research.



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