

RELATIONSHIP BETWEEN DENSITY AND COVID-19 PANDEMIC

William L Kiskowski, PhD

DOES DENSITY AGGRAVATE THE COVID-19 PANDEMIC?: EARLY FINDINGS AND LESSONS FOR PLANNERS

- Collaboration between University of Utah and JHU academics to find the relationship between density of community settlements and the spread and fatality of the COVID-19 virus.
 - Shima Hamidi, Sadegh Sabouri & Reid Ewing (2020): Does Density Aggravate the COVID-19 Pandemic? Journal of the American Planning Association, DOI: 10.1080/01944363.2020.1777891
- Key Findings
 - Density lead to a statistically significant reduction in the mortality rate of COVID-19
 - Density lead to a non-statistically significant increase in the rate of infection of COVID-19

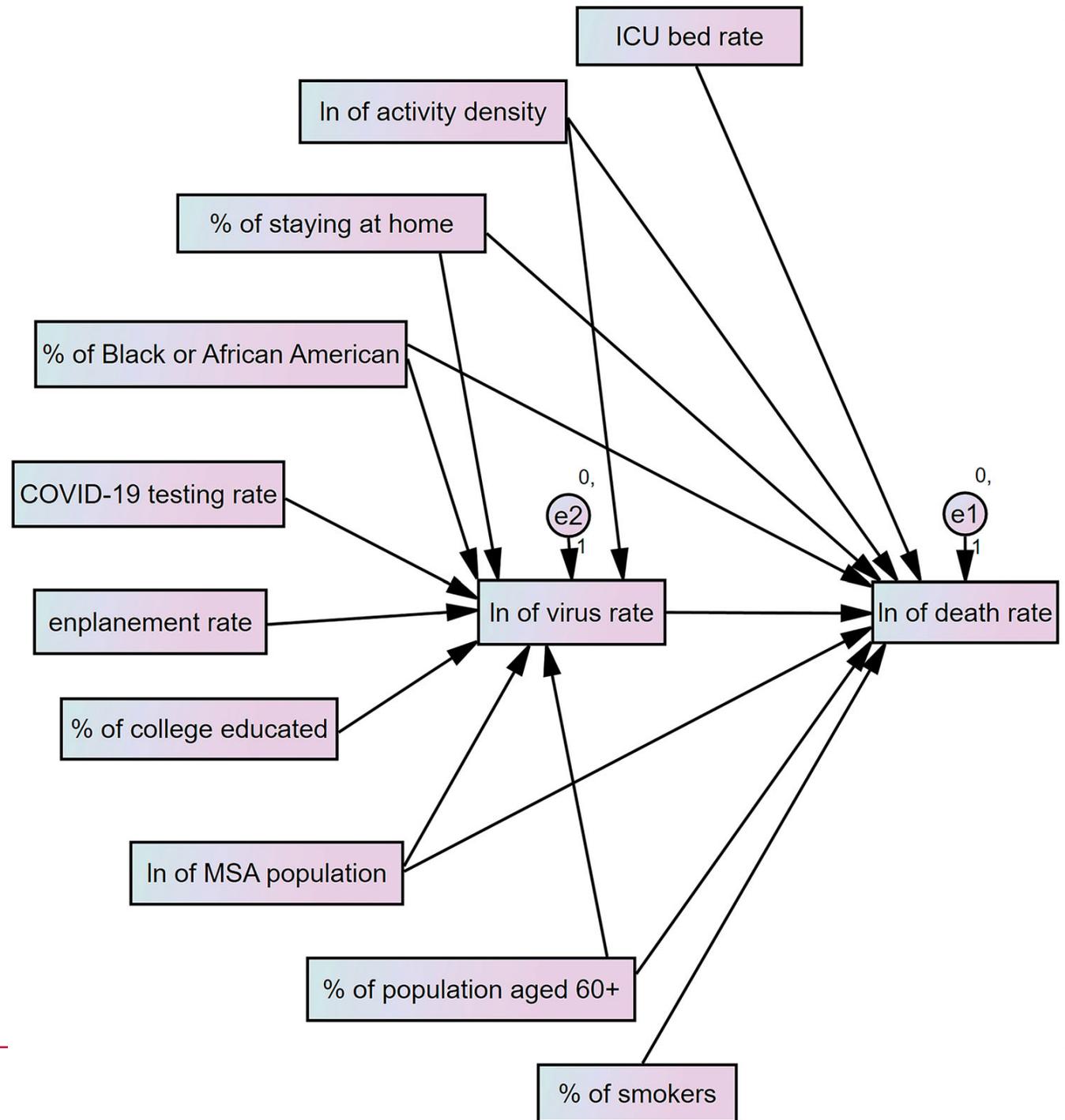
KEY VARIABLES

- Primary Variable - Raw “density” discounted in favor of “connectivity”
 - Two measures of “connectivity” used to supplement or replace density as a more-weighted variable
- Two New Measure for “Connectivity”
 - Metropolitan Connectivity
 - Number of jobs accessible within a 45-minute travel time in 2010
 - Enplanement Rate
 - Number of passengers flying into and out of a region or country
- Outcome Variables - What is being measured against the rate of “density”
 - COVID-19 confirmed cases (infection rate)
 - Deaths per 10,000 people (death rate)

EXPLANATORY VARIABLES

- ACS estimates used to create county compactness measure.
 - Population (ACS) and employment (LEHD) divided by land area.
 - Socioeconomic characteristics, health care facilities, county density, and metropolitan population size
- Population, sex, age, and race/ethnicity from the American Community Survey (ACS) 2017 (5-year estimates) and computed percentage of the population that is Black, percentage of adults with some education beyond high school, and the natural log of metropolitan population.
- Tested the number of days since the first positive test was confirmed in each county. The data again come from the Novel Coronavirus Visual Dashboard developed by Johns Hopkins University.

FLOW CHART OF VARIABLES AND RELATIONSHIPS



QUESTIONS AND COMMENTS?

- Link to original study publication
 - <https://www.tandfonline.com/doi/full/10.1080/01944363.2020.1777891>
- Copious technical documentation and appendices.
- Contact - William Kiskowski email: William.Kiskowski@maryland.gov

