

When cell phones don't measure social distancing

Peter F. Orazem

Program for the Study of Midwest Markets and Entrepreneurship

Iowa State University

March 31, 2020

The U.S. is experiencing exponential growth in the number of covid-19 cases. Without a known treatment or immunity, the only way to slow the spread of the disease is to follow enhanced personal hygiene and to practice social distancing. While there are prominent examples of individuals defying voluntary or mandatory prohibitions against large group activities such as spring break celebrations on the beach and churches defying government recommendations to close by continuing services, the government does not have the resources to monitor or enforce compliance.

Into the breach came efforts to use cell phone use to measure travel. Korea used cell phone tracking to retrace contacts for individuals who tested positive for the virus. Several governments use more aggregated data to assess the extent to which individuals are avoiding public places or staying away from work. One firm showed how cell phones that were in Florida over spring break dispersed to all the various parts of the United States. This can be useful.

However, this data can be misused. Recently, Norwegian company, Unacast, developed a *Social Distancing Scoreboard*¹ that rates states and counties by estimated decrease in average distance traveled from before the virus outbreak to the present day. Places with the largest decreases in distance, measured by cell phone location, were given an A for practicing social distance. Places with the smallest decreases were given Ds and Fs. Newspapers published this information without questioning whether the measure had any link with actual compliance with social distancing guidelines.

First came the *Washington Post*, with the headline *Smartphone data reveal which Americans are Social Distancing (and not)*. Among the scores of TV, radio, and print media that followed, the *Chicago Tribune* reported that "Chicago scores an 'A' in social distancing," and the *Cowboy State Daily* lamented that, "Company Gives Wyoming 'F' for Social Distancing." These stories were repeated on social media such as Twitter and Facebook. Rekha Basu quoted the *Washington Post* in her March 26, 2020 opinion piece complaining that Iowa was doing too little to reduce travel. Amazingly, not one newspaper questioned whether the data were valid.

The 5 best states for social distancing on March 27, according to Unacast, were Alaska, the District of Columbia, Nevada, New Jersey, and New York. All received As in social distancing. The 5 worst states were Idaho, Montana, North Dakota, South Dakota, and Wyoming. These states received Ds and Fs. An obvious problem is that none of the states claimed by Unacast as failing at social distancing are experiencing high virus infection rates. On average, they had 10 cases per 100 thousand in the population as of March 27, and their cases were increasing slowly. The states supposedly practicing social distancing the best include 3 states with the highest incidence of the disease. Cases are doubling every 2 days in New York and New Jersey and

¹ <https://www.unacast.com/covid19/social-distancing-scoreboard>

doubling every 3 days in Washington DC. Those ‘best practice’ states averaged 78 cases per 100 thousand in the population.

When you look at the Unacast map of its *Social Distancing Scoreboard*, all the states they rate worst at social distancing are in the Midwest and South. The best are on the coasts. Why? Rural states had lower percentage reduction in cell phone distance for reasons completely unrelated to whether they were diligently hunkered down at home or frolicking with the neighbors.

Rural areas have fewer opportunities to reduce travel than do urban areas. Rural residents do not go to the store often in good times because they must drive to the nearest big box stores. That behavior will not change if they are social distancing with a single essential trip to the store per week. Urban residents can switch from shopping every day to shopping once a week.

The state average commute to work varies from a low of 17 minutes (South Dakota) to a high of 33 minutes (New York). If workers in both South Dakota and New York stop traveling to work because they are both social distancing, the New Yorker has twice the reduction in distance per day.

The worst 5 social distance states according to Unacast had an average population density of 11 per square mile and an 18-minute commute. The 5 best states had an average population density of 2,310 per square mile and an average commute of 28 minutes. On average, every 1 thousand increase in population density meant a 2.3 percentage point reduction in cell phone distance. Every 2-minute increase in average commuting time meant a 2-percentage point reduction in cell phone distance. **What do these reductions in cell phone distance indicate about compliance with social distancing? Absolutely nothing.** They just indicate which states were more- or less-densely populated before the covid-19 outbreak. One could just as easily have graded the states based on their population density.

The most obvious indictment of the Unacast *Social Distancing Scoreboard* is to plot it against the actual rate of the disease in the population. As shown in the graph, the states rated best at social distancing by the Unacast measure have experienced the highest incidence of covid-19 in their populations. The worst behaved states, according to Unacast, have the smallest incidence of the disease. For every 1 percent decrease in distance traveled, we add 1.08 covid-19 cases per 100 thousand in the population.

Thomas Walle, CEO of Unacast, was quoted as saying that, “we are facing very uncertain times and what's important in uncertain times is to have access to some data to make the best decisions possible.” Releasing bad data does not lend itself to good decisions. It just gets the Unacast name in the papers.

Relationship between change in cell phone distance and covid19 incidence, 3/27/2020

