Rationing Social Contact During the COVID-19 Pandemic: Transmission Risk and Social Benefits of US Locations


Authors
Seth Benzell, MIT Initiative on the Digital Economy, sbenzell@mit.edu
Avinash Collis, MIT Sloan School of Management, avinashg@mit.edu
Christos Nicolaides, University of Cyprus & MIT Sloan School of Management, nicolaides.christos@ucy.ac.cy

Abstract
To prevent the spread of COVID-19, some types of stores and gathering places have been shut down while others remain open. The decision to shut down one type of location and leave another open constitutes a judgement about the relative danger and benefits of those locations. Using location data from a large sample of smartphones, nationally representative consumer preference surveys, and government statistics, we measure the relative transmission risk benefit and social cost of closing 30 different location categories in the US. Our categories include types of shops, schools, entertainments, and public spaces. We rank categories by those which should face stricter regulation via dominance across eight dimensions of risk and importance and through composite indexes. We find that from February to March, there were larger declines in visits to locations that our measures imply should be closed first. We hope this analysis will help policymakers decide how to reopen their economies.

Data description
1. Smartphone location data from SafeGraph
2. Nationally representative survey of US residents
3. Economic statistics from US Census

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