Overview

• Data on Lost GDP and Covid Deaths
  ◦ No simple tradeoff
  ◦ Complicated interaction: policy, history, luck, and timing

• Outline
  ◦ Simple framework
  ◦ Cumulative losses across countries, cities, and states
  ◦ Dynamics

Key Lesson: A heterogeneous set of places — Seoul, Tokyo, Germany, Norway — have good performance on both dimensions. We should study them!
Covid Deaths per Million People, September

<table>
<thead>
<tr>
<th>Location</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seoul</td>
<td>5</td>
</tr>
<tr>
<td>Tokyo</td>
<td>25</td>
</tr>
<tr>
<td>Norway</td>
<td>50</td>
</tr>
<tr>
<td>Germany</td>
<td>100</td>
</tr>
<tr>
<td>San Francisco</td>
<td>200</td>
</tr>
<tr>
<td>NY excluding NYC</td>
<td>400</td>
</tr>
<tr>
<td>Florida, Italy, U.S., U.K., Brazil, Spain, London</td>
<td>600</td>
</tr>
<tr>
<td>Paris, Mississippi, Washington DC</td>
<td>800</td>
</tr>
<tr>
<td>Louisiana, Miami, Chicago, Philadelphia</td>
<td>1000</td>
</tr>
<tr>
<td>Madrid, Boston, Stockholm</td>
<td>1400</td>
</tr>
<tr>
<td>Lombardy, New Jersey</td>
<td>1700</td>
</tr>
<tr>
<td>New York City</td>
<td>2800</td>
</tr>
</tbody>
</table>
Short-Term Trade Off

GDP LOSS (PERCENT)

Shut down economy

Keep economy open

COVID DEATHS PER MILLION PEOPLE
Dynamics, Policy, and Luck Can Shift the Tradeoff

Good policy or good luck

Bad policy or bad luck
Putting together…

COVID DEATHS PER MILLION PEOPLE

GDP LOSS (PERCENT)

Shut down economy

Bad policy or bad luck

Good policy or good luck

Keep economy open
International Covid Deaths and Lost GDP, 2020

The graph illustrates the relationship between COVID deaths per million people and GDP loss (in percent years) for various countries. The x-axis represents COVID deaths per million people, while the y-axis shows GDP loss (percent years). Each country is represented by a dot, with its location on the graph indicating its levels of deaths and economic impact during 2020.
U.S. States: Covid Deaths and Cumulative Excess Unemployment

CUMULATIVE EXCESS UNEMPLOYMENT (PERCENT YEARS)

COVID DEATHS PER MILLION PEOPLE

CUMULATIVE EXCESS UNEMPLOYMENT (PERCENT YEARS)

COVID DEATHS PER MILLION PEOPLE
Google Mobility Reports Data

- Available daily, very disaggregated geographically, up to date
  - In contrast to GDP and unemployment
- Use the retail and restaurants component
- Good correlation with other measures
  - Correlation with GDP loss = 0.68
  - Correlation with state excess unemployment = 0.69
Google Activity Data for U.S. States

-80  -60  -40  -20  0  20
Percent change relative to baseline

Feb Mar Apr May Jun Jul Aug Sep Oct
2020

New York
California
Texas
Arizona
Florida
D.C.
Global Cities: Covid Deaths and Cumulative Google Activity

CUMULATIVE REDUCED ACTIVITY (PERCENT YEARS)

COVID DEATHS PER MILLION PEOPLE

- SF Bay Area
- Paris
- London
- Madrid, Spain
- Boston
- Lombardy, Italy
- Los Angeles
- Miami
- Chicago
- Houston
- Tokyo, Japan
- Seoul, Korea
- New York City
- Stockholm

CUMULATIVE REDUCED ACTIVITY (PERCENT YEARS)

COVID DEATHS PER MILLION PEOPLE
Dynamics: Outcomes over Time
Countries: Monthly Evolution from March to September

REDUCED ACTIVITY (PERCENT)

COVID DEATHS PER MILLION PEOPLE

- United States
- Italy
- Germany
- United Kingdom
- Sweden
- Norway

COVID DEATHS PER MILLION PEOPLE

- United Kingdom
- United States
- Norway
- Germany
- Italy
- Sweden
Countries: Monthly Evolution from March to September

![Graph showing reduced activity (percent) vs. COVID deaths per million people for various countries from March to September.](image)
U.S. States: Monthly Evolution from March to September

REDUCED ACTIVITY (PERCENT)

COVID DEATHS PER MILLION PEOPLE

15 20 25 30 35 40 45 50 55 60 65

NY DC CA PA MA NJ WA MI

COVID DEATHS PER MILLION PEOPLE

1 2 4 8 16 32 64 128 256 512 1024 2048

NY DC CA PA MA NJ WA MI
U.S. States: Monthly Evolution from March to September

REDUCED ACTIVITY (PERCENT)

COVID DEATHS PER MILLION PEOPLE

FL  TX  AZ  GA  MT  AL  SD
Concluding Remarks
Summary

COVID DEATHS

GDP LOSS

California
[lucky? too tight?]

New York City
Lombardy
United Kingdom
Madrid
[unlucky? bad policy?]

Germany, Norway
Japan, S. Korea
China, Taiwan
Kentucky, Montana
[lucky? good policy?]

Sweden
[unlucky? too loose?]