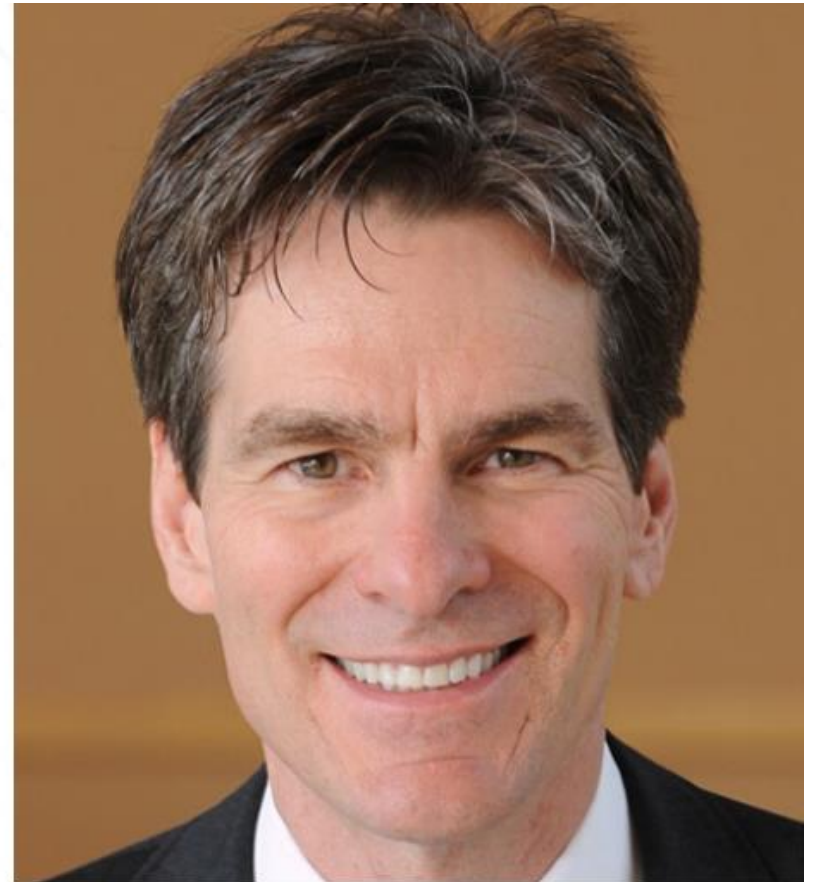


**Webinar: COVID-19 and
re-opening the economy**

Jointly Organized with the Society for Financial Studies

WITH JOHN COCHRANE
STANFORD UNIVERSITY

Monday, May 18, 12:30 PM ET
Pre-Registration Required



Intro: MARKUS BRUNNERMEIER

Twitter: @MarkusEconomist

Markus' Zoominar intro

■ Previous/future webinars

- Paul Krugman
- Larry Summers
- Next Monday is memorial day

Externally vs. internally recession

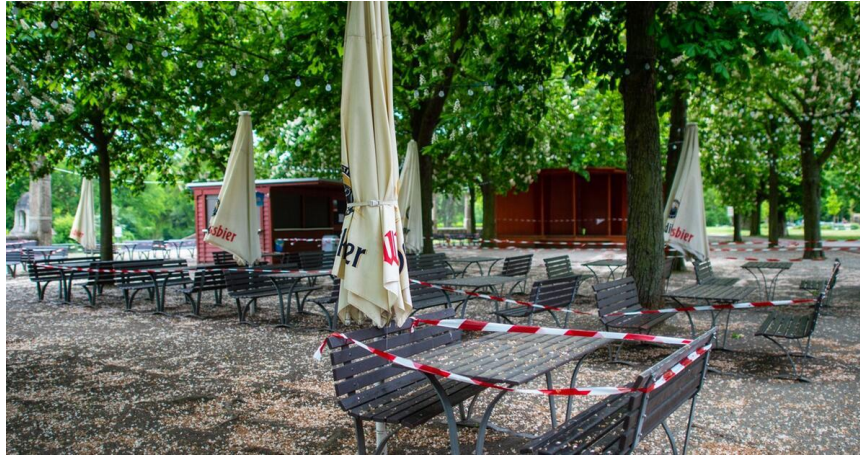
Q&A: COVID & Global Economy

■ Speakers



Beergarden opening today in Bavaria

- High-tech service only
 - app ordering, app reservations, distancing, ...

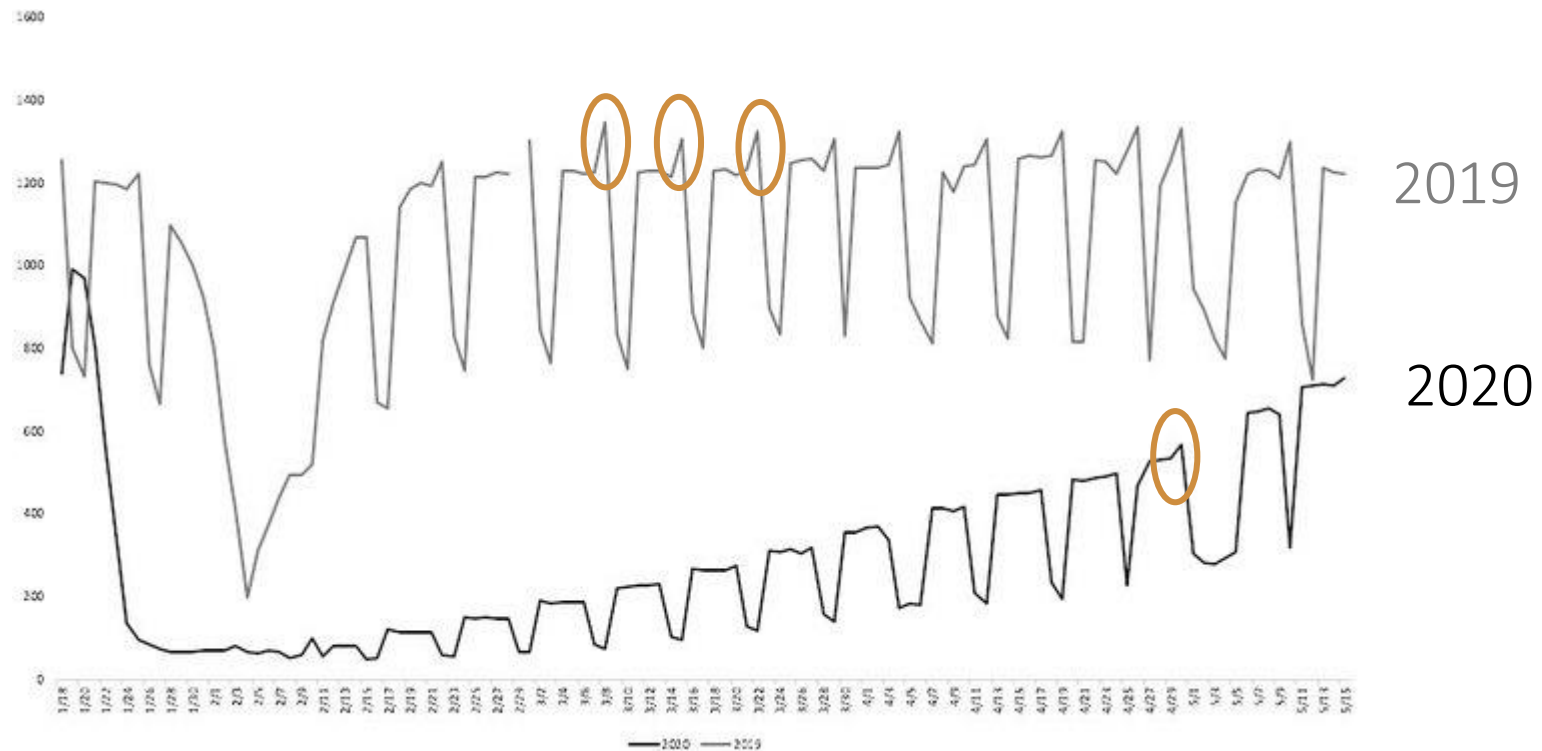


- Question: Will customers come back?
 - **Supply** restriction due to regulation
 - **Demand** collapse due to fear

lockdown
shutdown?

Re-opening: Lessons from China

- subway ridership in 30 major Chinese cities
 - 2020 vs. 2019
 - Missing “Friday spike”
- ... most recovery only work-related





Flattening or Crushing the Curve

■ Flattening the curve

- Bring it below ICU coverage
- ... but SIR models ultimately go for herd immunity
 - Not sensible if
 - immunity does not last or
 - long-lasting health damage

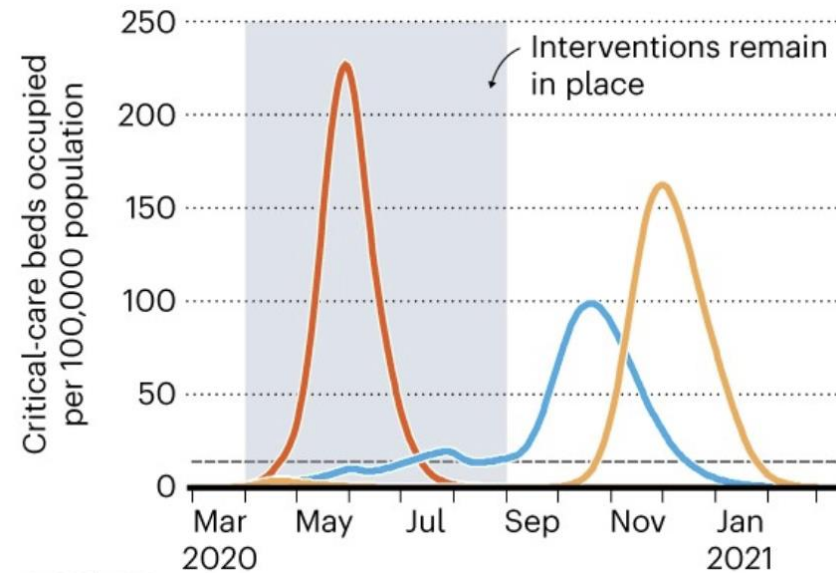
■ Crushing the curve

- Return to tracing of individual cases
- ... not herd immunity

- Does re-opening imply a choice btw both?

Second wave/fixed cost challenge

- **Re-opening** imposes large **fixed costs** to firms
 - Significant investment for SMEs
 - beergarden app for ordering, ...



- If flare-up leads to second wave and **second shut-down**
 - Firms are more likely to go bankrupt (after investments)
 - Firms are very reluctant to re-open after second shut-down

Synchronized opening?

- Synchronized
 - Supply chain/value chains
 - Global demand dependent
- Differentiation
 - More focused
 - Regional experimentation



How much centralized planning?

- Input-output table analysis to design opening
 - Essentiality
 - Health risk
- **Public/centralized:**
 - Since private actors will not internalize externalities fully
- **Private:**
 - Since private actors are more creative to find best practice to open up
- Competition for **best business practice** to open up (within industry).
 - Firm with “best plan” is allowed to open first
 - Like a patent (temporary monopoly power)

Rise in uncertainty

- Employers suffers outbreak, unemployment
- Communication can amplify uncertainty
 - Add endogenous risk to exogenous risk

Economic consequences:

- | | | | | | |
|--------------------------------|---|--------------|---|--------------|-----------------|
| ■ Lower investment | ➔ | lower growth | ➔ | inflationary | |
| ■ Higher savings in safe asset | ➔ | r^f | ↓ | ➔ | disinflationary |
| ■ Gov. budget deficit | | | ↓ | | |
| ■ Inequality | | | ↗ | ➔ | disinflationary |

inflation pressures



Poll 01:

1. Economies should open up
 - a. Rather soon
 - b. Wait, since it is too risky
2. Opening should be governed by
 - a. Free decision/flexibility by government
 - b. Clear ex-ante rules
3. Selectively opening is based on
 - a. Health risk
 - b. Essentiality
 - c. Other criteria (developed by the government)
4. Opening procedure should be planned centrally
 - a. Yes, since private firms don't internalize externalities
 - b. No, since central planning stifles innovation how to creatively manage new COVID economy

End of MARKUS' INTRODUCTORY REMARKS

Now

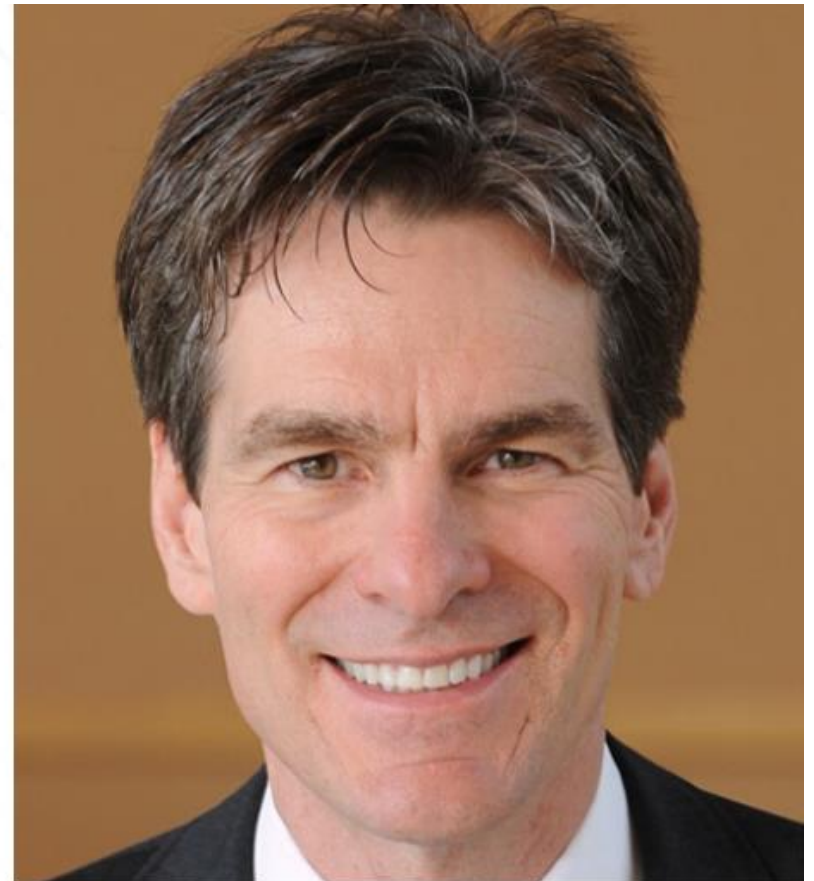
Please ask questions in Q&A box

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FINANCE 



COVID-19 and re-opening the economy

John H. Cochrane May 17 2020
Senior Fellow, Hoover Institution, Stanford University
“The grumpy economist”



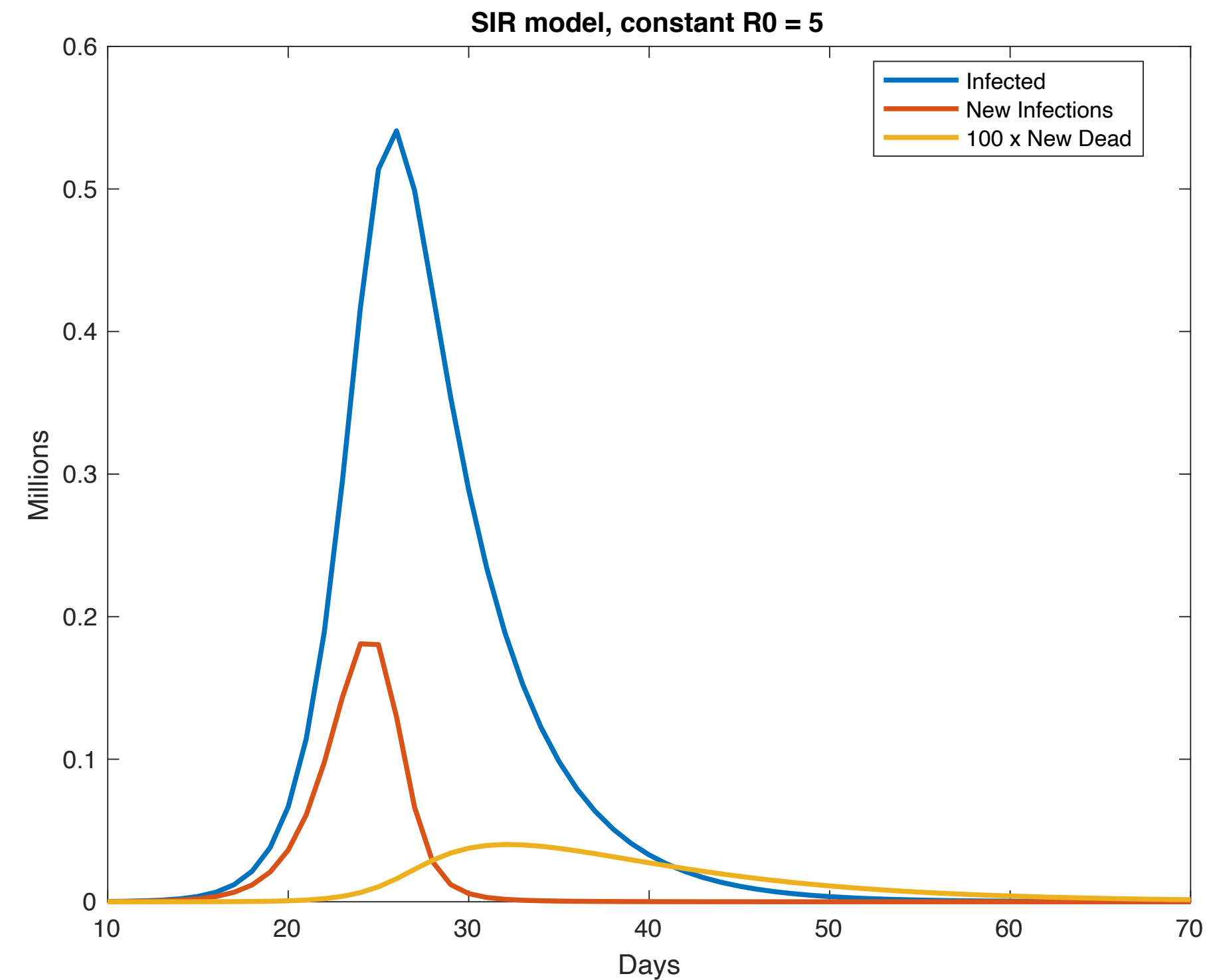
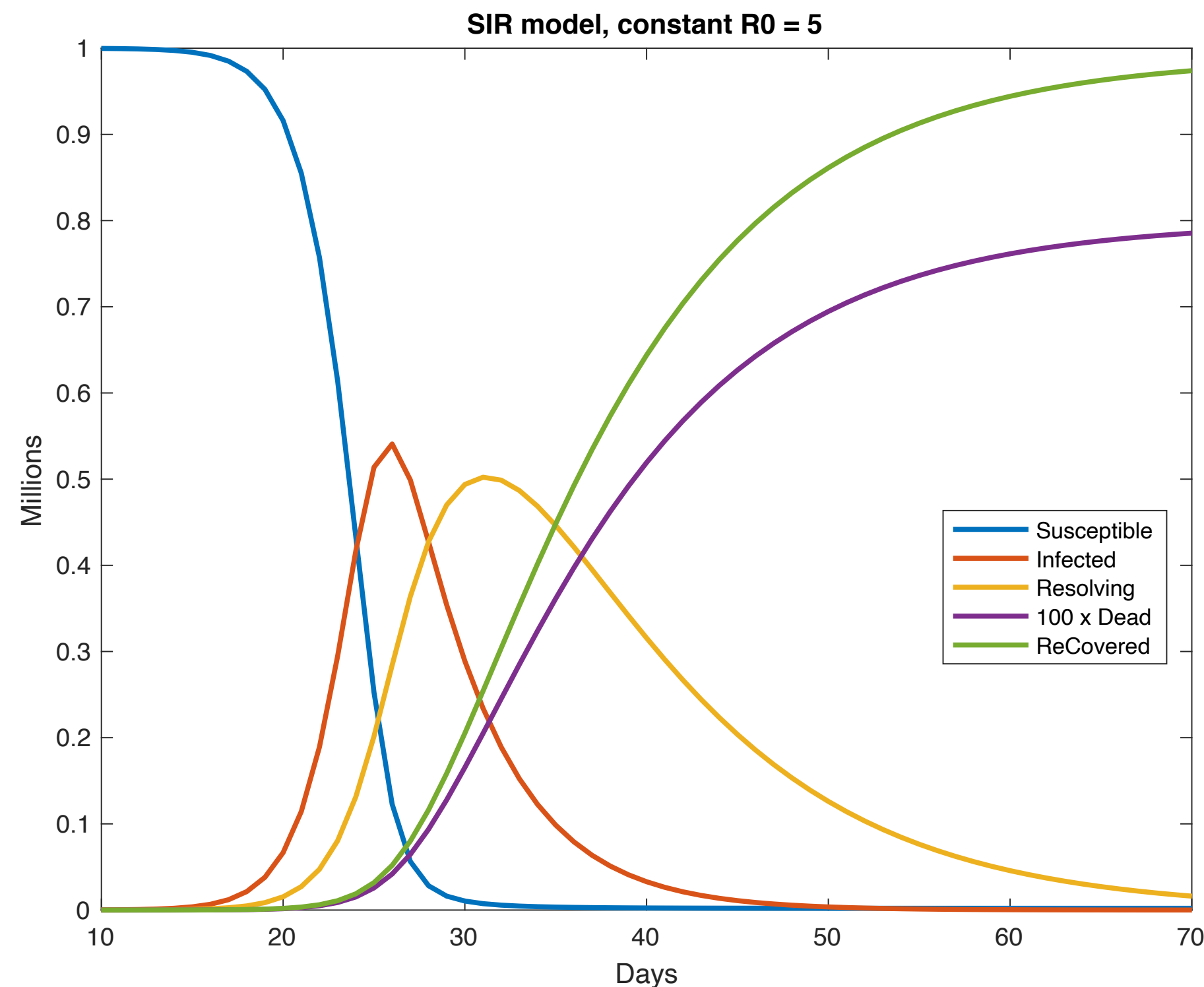
The dumb reopening

Ready or not, a dumb reopening. No widespread test, trace, isolate; public health.
Fizzle out vs. second wave? Models were completely wrong last time

SIR model (February)

$\Delta S_{t+1} = -\beta S_t I_t / N$	Susceptible
$\Delta I_{t+1} = \beta S_t I_t / N - \gamma I_t$	Infected
$\Delta R_{t+1} = \gamma I_t - \theta R_t$	Resolving (sick)
$\Delta D_{t+1} = \delta \theta R_t$	Dead
$\Delta C_{t+1} = (1 - \delta) \theta R_t$	ReCovered

- Exponential growth, until herd immunity
- R brought down by contact with immune.
- Sweeps through in months. 60-80% get it. 2% = 5 million die. Ends swiftly.
- Utterly wrong. Why? *Behavior and Heterogeneity*.



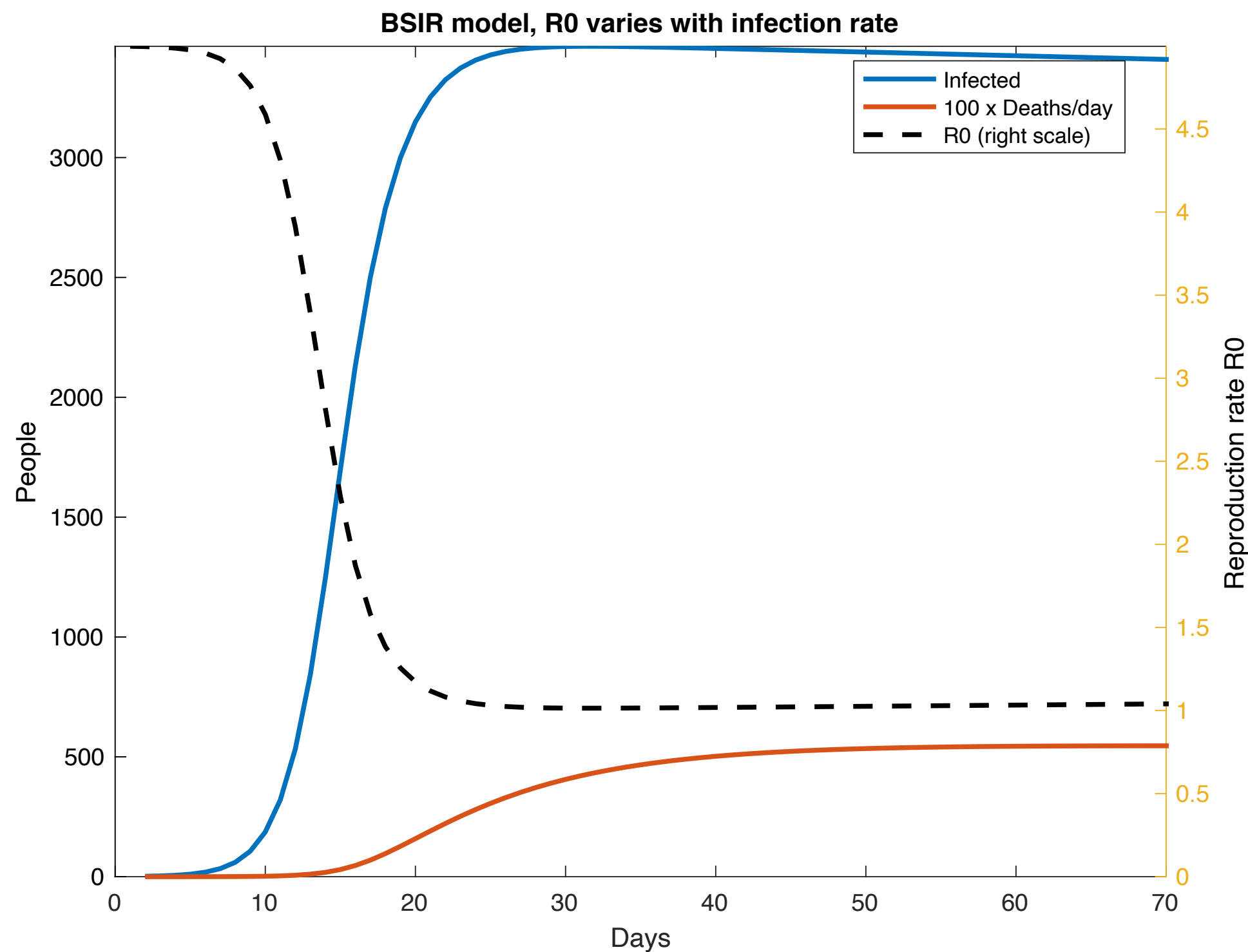
Behavioral SIR models

$\Delta S_{t+1} = -\beta S_t I_t / N$	Susceptible
$\Delta I_{t+1} = \beta S_t I_t / N - \gamma I_t$	Infected
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- Behavior: People and governments change behavior.
- More infected people around: Work harder to avoid contact.
- Private behavior vs. business shutdown sledgehammer.
- Fundamentally different mechanism for limiting R.
- Converges to R=1. Getting better at it = slow recovery.
- Bad news: with us a long time absent magic bullet.
- It's all about R<1, cost of lower R.

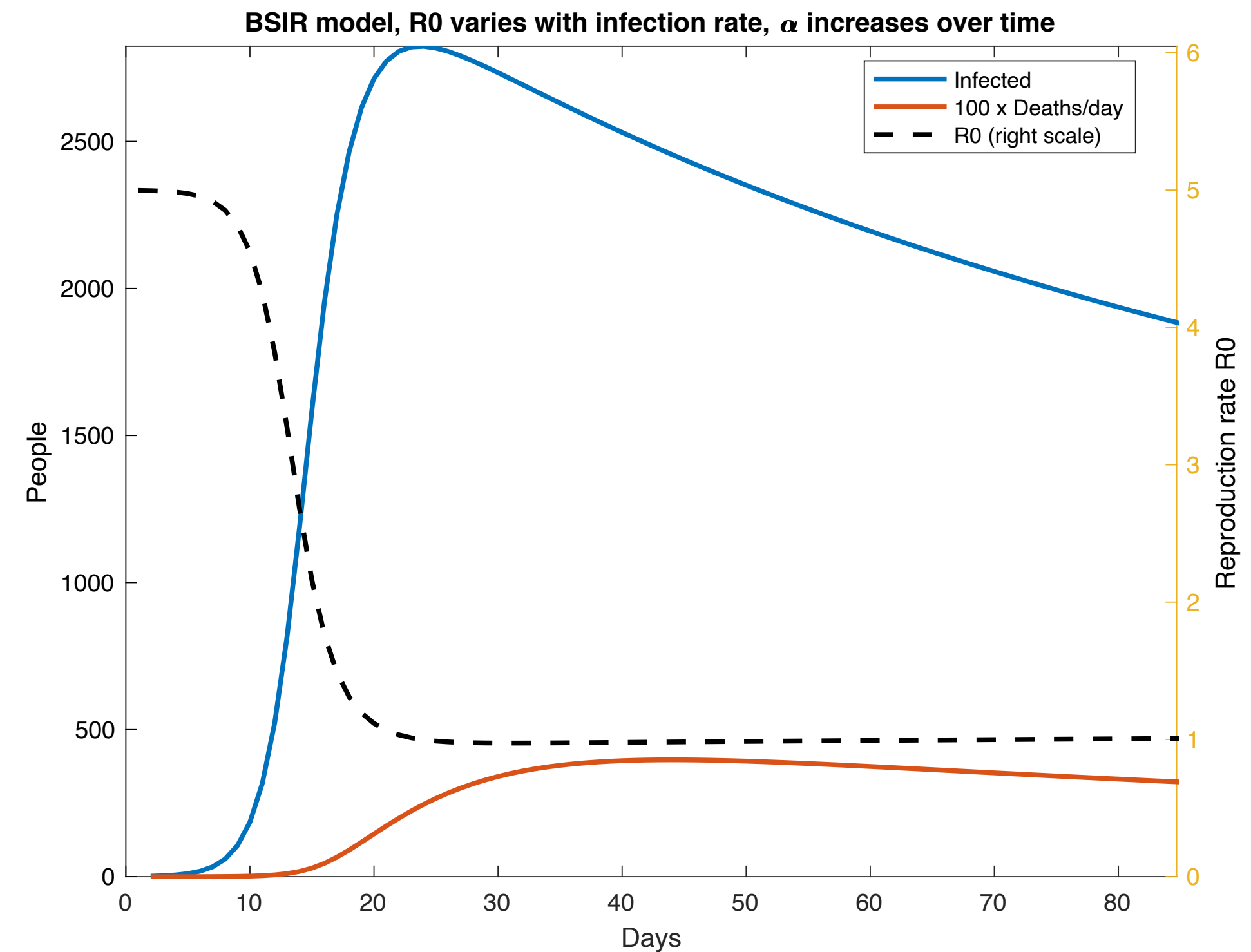
People respond to current infection rate

$$\log(\beta_t) = \log \beta_0 - \alpha_I I_t / N_t$$



People get better at cost-effective mitigation

α Doubles over time



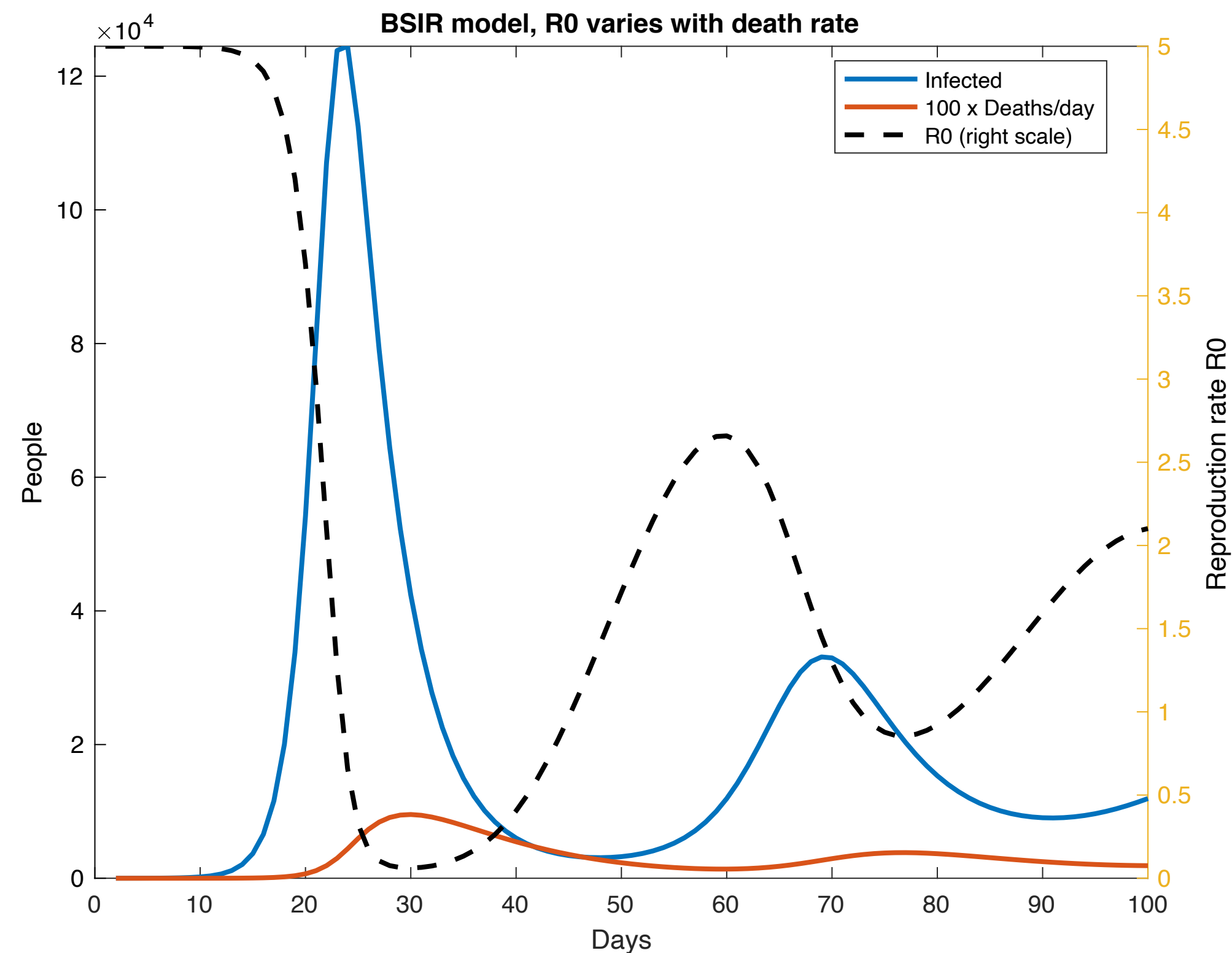
Behavioral SIR models— a warning

$\Delta S_{t+1} = -\beta S_t I_t / N$	Susceptible
$\Delta I_{t+1} = \beta S_t I_t / N - \gamma I_t$	Infected
$\Delta R_{t+1} = \gamma I_t - \theta R_t$	Resolving (sick)
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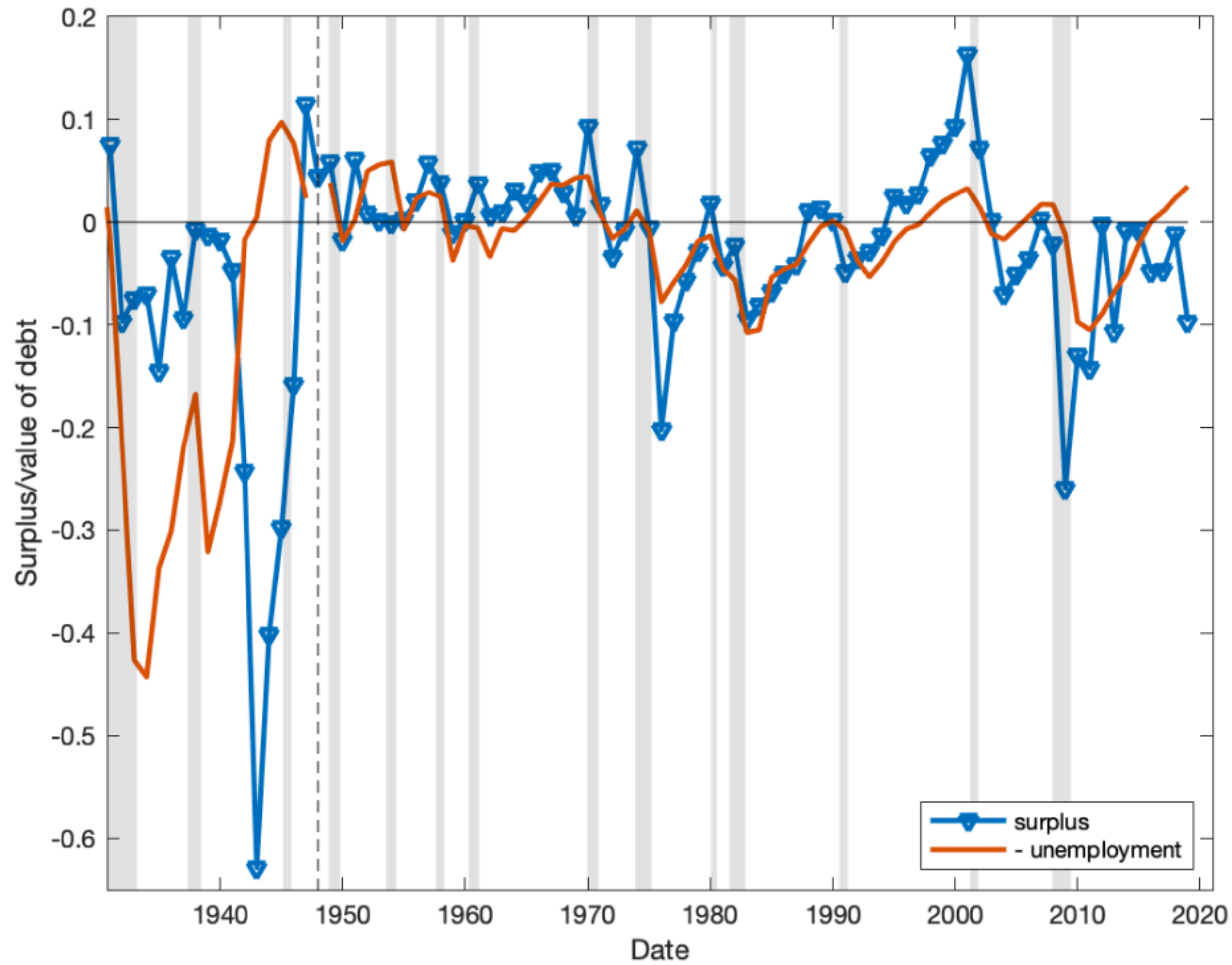
- Current, accurate information on the current local infection rate, location and nature of hotspots is vital.
- Just a little random testing would be really cheap relative to \$5 trillion dollars.
- Don't try to lie.

People respond to current *death* rate

$$\log(\beta_t) = \log \beta_0 - \alpha_D \Delta D_t / N.$$



- Heterogeneity.
 - Superspreading activities and places.
 - Public vs. private health: $R < 1$ is enough.
- Testing. Savior or panacea?
 - Massive failure of / lack of low-level bureaucratic public health capacity.
 - Test, track, trace, coercive isolation? Not in US.
- Summer/fall. Productivity and reallocation shock. (Demand/precautionary saving too)
 - Information: How does (and doesn't) this spread.
- Policy.
 - From insurance to disincentives. Unemployment. Rent. Mortgage payments?
 - Regulation.
- Macro / Finance policy.
 - Why not great vacation? Debt.
 - Fed & cares support, lending predicated on V shaped recession.
 - Fed: no creditor may lose money, no price may fall.
 - Forecast *much* more money financed payout, Fed market support.
- Legacy.
 - Moral hazard. Over and over again is not an expedient, it's a regime.
 - Debt (short term!) and reserves.
 - Does debt not matter? *Wisdom* of spending not amount of spending. Stimulus checks.
 - Just put Summers (secular stagnation) Blanchard ($r > g$, no matter how you expand debt) Kelton (MMT) vs 1000 years of history to test.



- WWII / UK 1800s were paid by steady primary surpluses, strong supply side (productivity) growth in a much less regulated economy.
- Any other success story for 150% D/GDP?