Fiscal, monetary, and health policy responses and implications for the economic outlook

Part 2 of a COVID-19 webinar series

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June 9, 1:00 p.m. ET
Pre-registration required
SARS-CoV-2: state of the pandemic
Early growth

Two key quantities:
$R_0$, here = 2
Serial interval:  

https://coronavirus.jhu.edu/map.html
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- $R_0$, here = 2
- Serial interval:

With a serial interval of ~ 1 week and an $R_0$ of 2, cases double approximately every week ($R_0$ estimate: ~ 2 - 3)

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Early growth

Two key quantities:
$R_0$, here = 2
Serial interval:

Intervention impacts appear 2-3 weeks in the future.
April-June

Cumulative cases saturating

Intervention impacts appear 2-3 weeks in the future.
Where are we now?

Daily cases: falling or flat
This is the beginning

Estimates of the **proportion susceptible** range around \( \sim 2\% \), with only larger urban settings as high as \( \sim 20\% \).
Coronaviruses are ‘winter’ pathogens: reduced humidity / lower temperatures may increase transmission

Will climate reduce transmission?

https://science.sciencemag.org/content/early/2020/05/15/science.abc2535
Coronaviruses are ‘winter’ pathogens: reduced humidity / lower temperatures may increase transmission

But magnitudes unlikely to overwhelm the effects of the large pool of susceptible individuals.
Will climate reduce transmission?
What about other winter viruses?

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This could mean larger future outbreaks as susceptible build up.
Which interventions work best in a pandemic?

Interventions have flattened the curve.

Bought time to build knowledge:
- role of pre-symptomatic transmission
- role of super-spread events
- ventilation & transmission
- ...
- therapeutics & vaccine development

https://www.nature.com/articles/s41591-020-0869-5
https://hopkinsidd.github.io/nCoV-Sandbox/DispersionExploration.html
Which interventions work best in a pandemic?

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Policies implemented:
• Case based self-isolation mandated
• Social distancing encouraged
• Public events banned
• School closure ordered
• Lockdown ordered

https://science.sciencemag.org/content/early/2020/05/20/science.abb6144
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How do we evaluate these policies?

Pilot loosening one intervention for two weeks in a subset of locations.
Conclusions

This is the beginning: most of the world is **still susceptible to a highly transmissible and lethal pathogen**; yet the state of lockdown in place in many settings is **not sustainable**.
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**International collaboration on drug & vaccine development & deployment is urgent.**
Illustrating model calibration and serology:
https://labmetcalf.shinyapps.io/serol1/

An Immune Observatory to meet a time of pandemics
https://elifesciences.org/articles/58989

Seasonality and SARS-CoV-2
https://science.sciencemag.org/content/early/2020/05/15/science.abc2535

Evaluating interventions:
https://science.sciencemag.org/content/early/2020/05/20/science.abb6144

SARS-CoV-2 in children:
https://cjelandm.github.io/Metcalf-Children-9thJune.pdf

Thank you!

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