



LETTING LOOSE WITHOUT LETTING UP

Global Evidence on Controlling COVID-19

Liming Chen, Rana Hasan, Rouselle Lavado, David Raitzer, and Orlee Velarde

Asian Impact Webinar: Restarting Economies and COVID-19

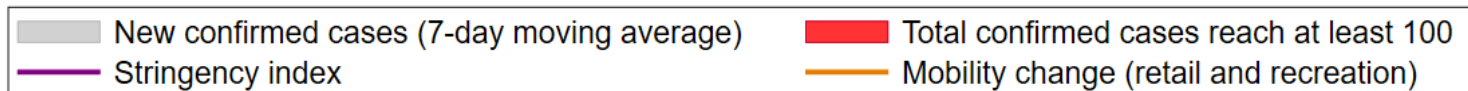
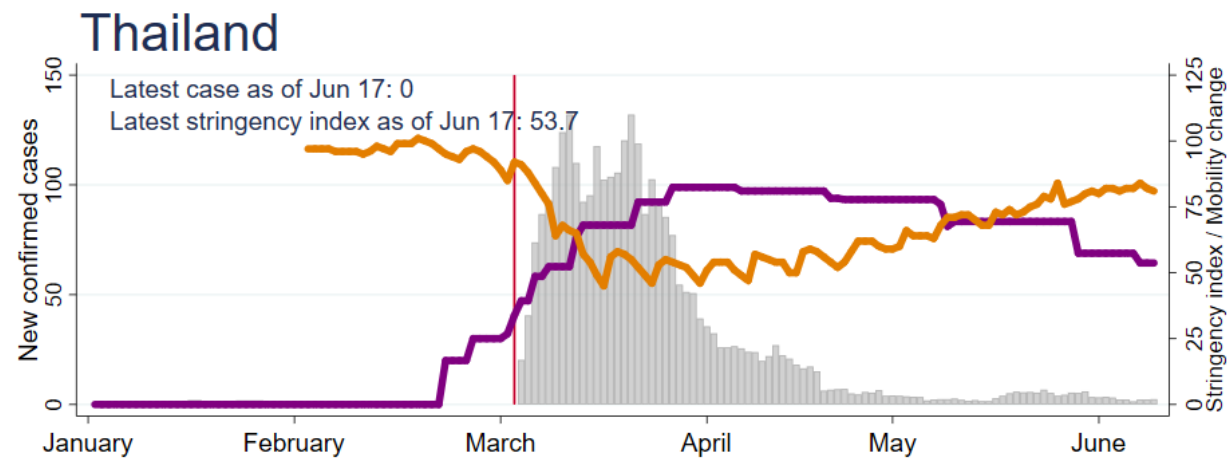
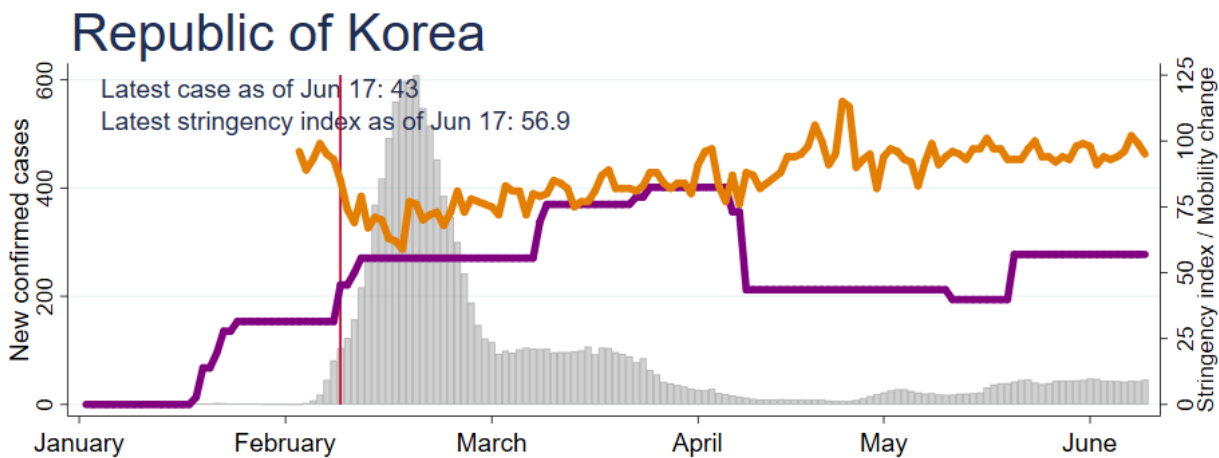
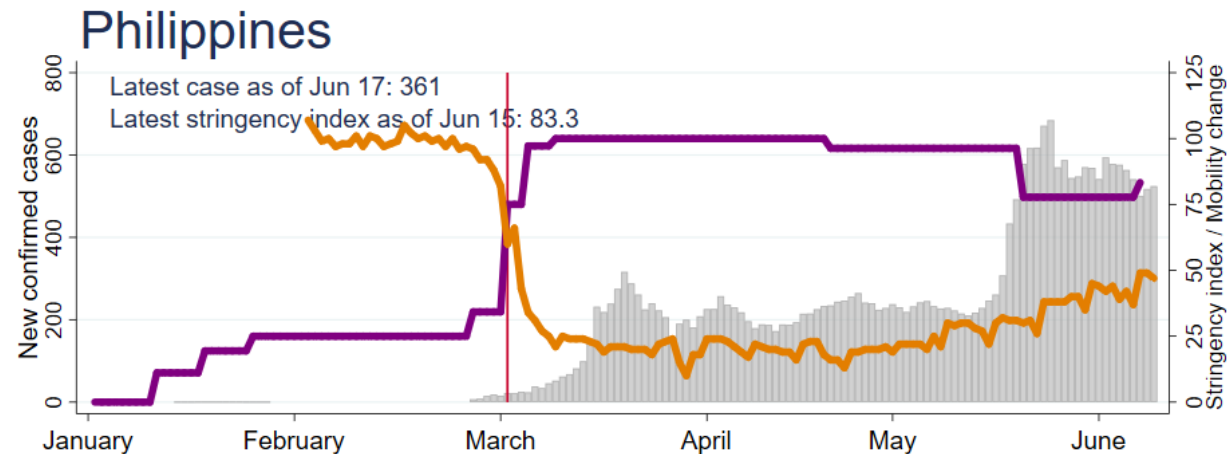
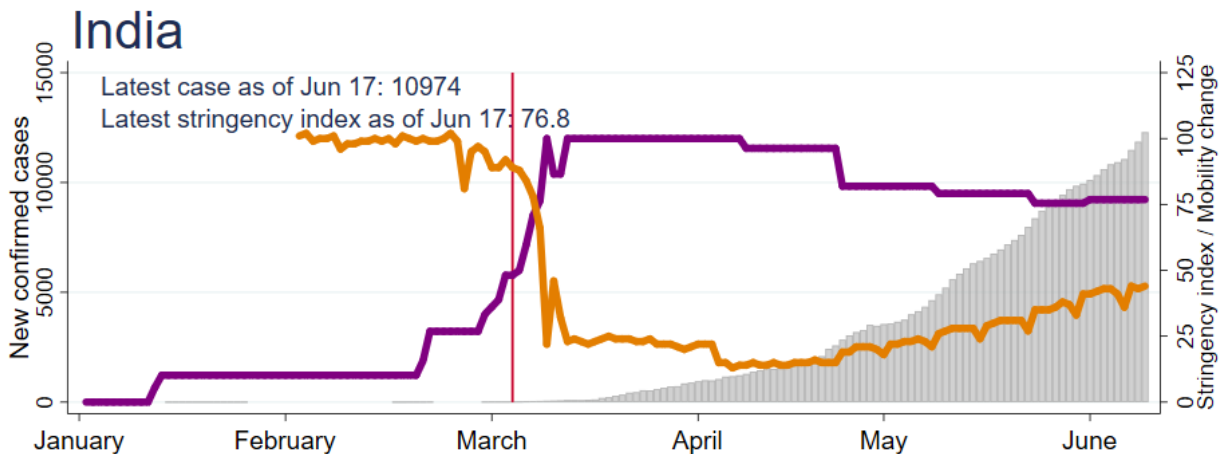
28 July 2020, 2:00 PM Manila time

Asian Development Bank

Objective

- Two central questions:
 - How effective are the different measures proving to be in controlling the spread of COVID-19?
 - Which measures are associated with larger/smaller economic downturns?
- We examine these questions by analyzing data from 75 economies on control measures, behavioral shifts, and COVID-19 spread.

International Diversity in Experiences: Cases, Control, and Mobility

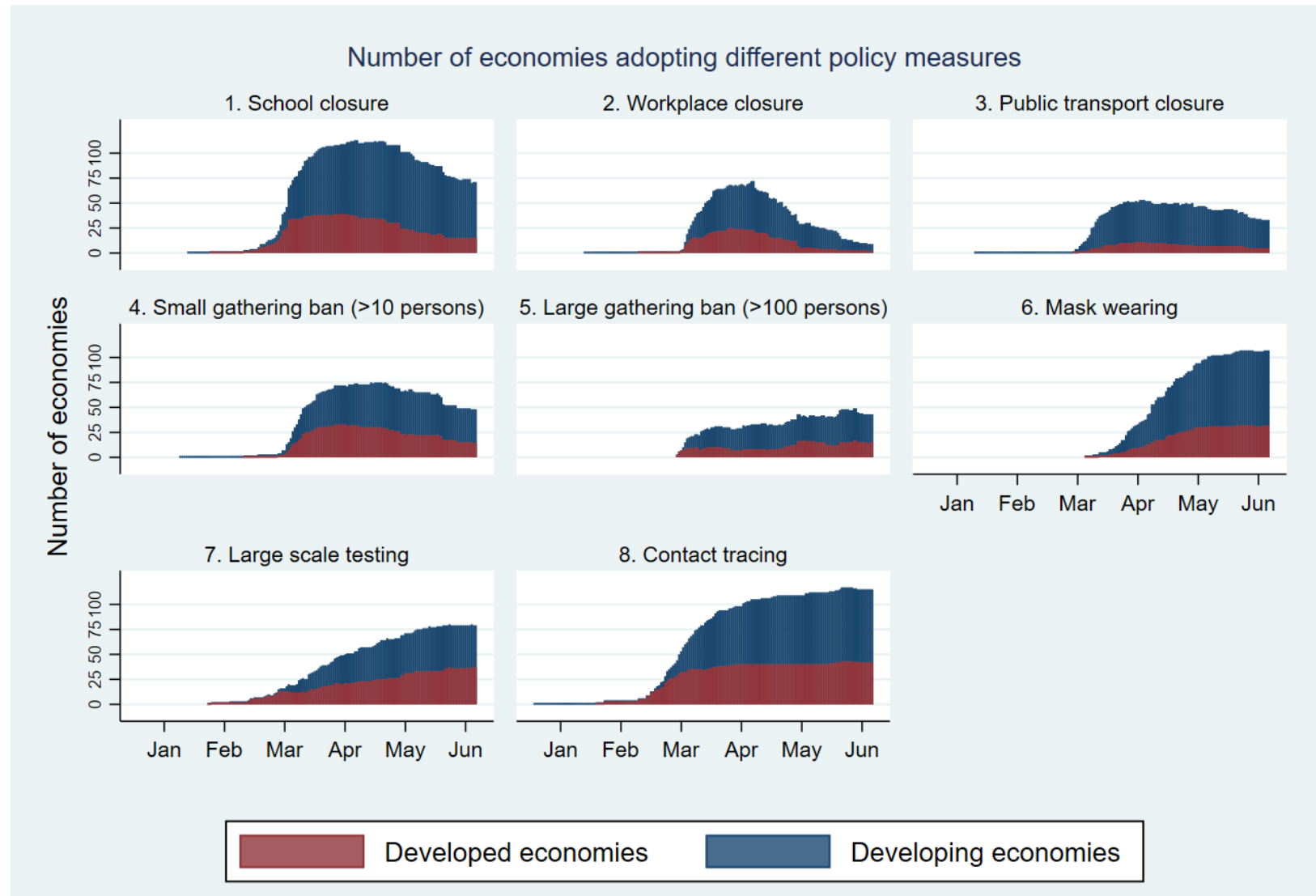


Note: Confirmed cases on the LHS axis; stringency and mobility indexes on the RHS axis.

Sources: COVID data: Our World In Data; Mobility data: Google COVID-19 Community Mobility Reports; Stringency index data: Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira. 2020. Oxford COVID-19 Government Response Tracker. Blavatnik School of Government.

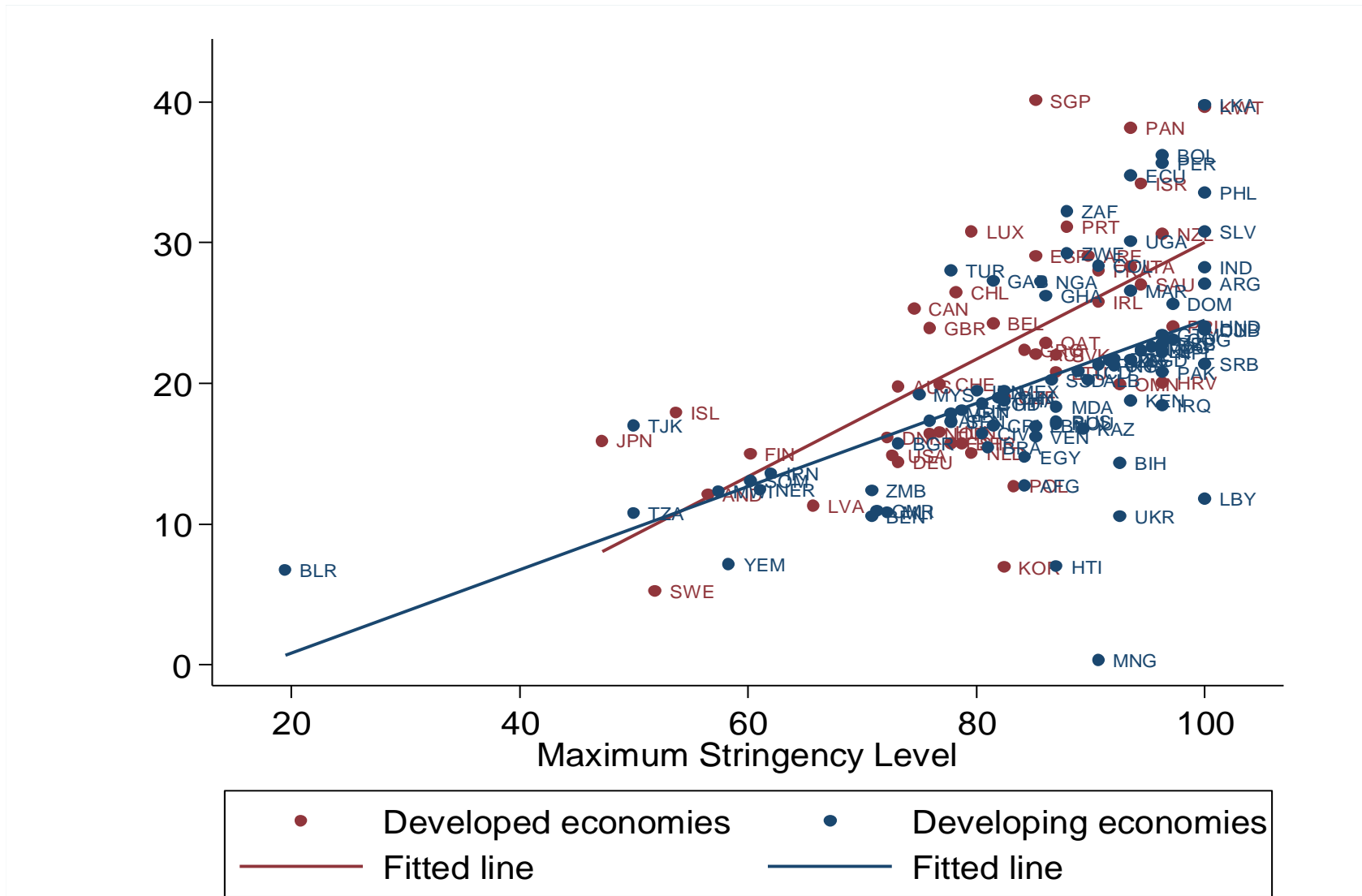
Evolution of Control Measures

- Non-pharmaceutical interventions (lockdowns) were widely implemented around early-March and have been gradually relaxed.
 - Workplace closure
 - Public transport closure
 - School closure
 - Gathering ban
- Pharmaceutical measures have been adopted in more economies over time.
 - Mask use policy
 - Mass testing
 - Contact tracing



Source: Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira. 2020. Oxford COVID-19 Government Response Tracker. Blavatnik School of Government.

Are People Less Able to Stay at Home in Developing Economies?



Note: Economies are represented based on three-letter codes defined in ISO 3166-1 (ISO Alpha-3).

Sources: Mobility data: Google COVID-19 Community Mobility Reports; Stringency index data: Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira. 2020. Oxford COVID-19 Government Response Tracker. Blavatnik School of Government.

How Effective are Different Measures?

- Evidence from 75 economies (34 developed and 41 developing)
- January 1, 2020 to June 17, 2020

Explanatory variables

Measures to suppress COVID-19: Lockdowns, contact tracing, mass testing, paid sick leave mandate, mask mandate or social norm

Behavioral response: Google Mobility

Outcome variables

COVID-19 effective reproductive rate $R(t)$

- Average number of individuals infected by one patient (Abbott et al, 2020).
- Advantages of $R(t)$: comparable across economies; accounts for population size and reporting delays.

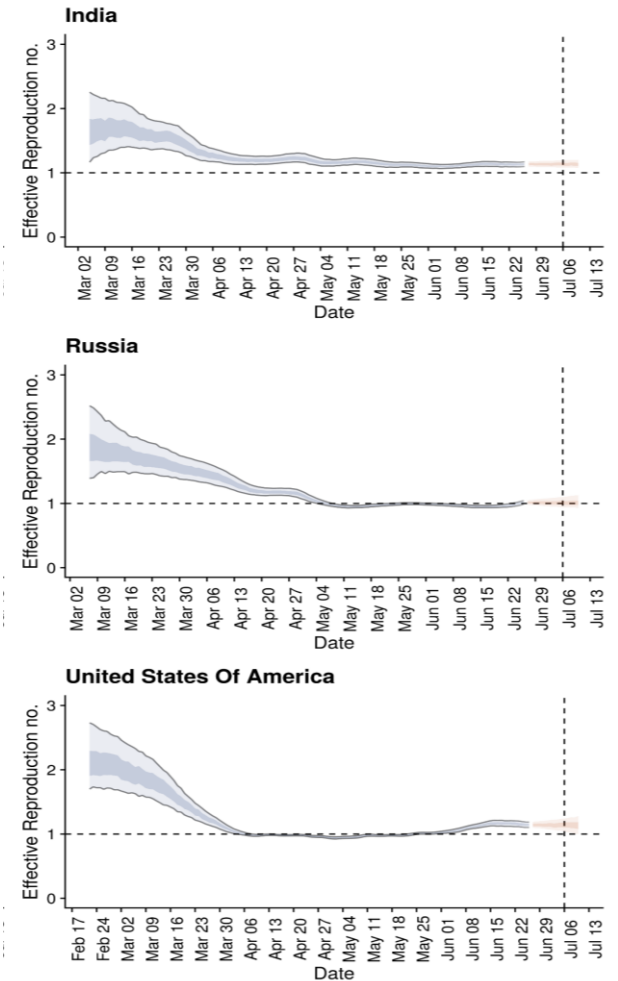
Quarter 1 GDP growth

Model: Panel regression with time trend and country fixed effect

$$R_{ct} = \beta_M M_{c,t-1}^{ma(3)} + \beta_{MH} M_{c,t-1}^{ma(3)} \times HH_c + \beta_P P_{c,t-1}^{ma(3)} + \beta_{temp} Temp_{c,t-1}^{ma(3)} + \beta_t T + \beta_{wk} WK_t + \alpha_c + \epsilon_{ct}$$

Note: Lockdowns, contact tracing, and mass testing are constructed from Oxford COVID-19 Government Response Tracker. Mask use data is mainly from #Masks4All team with additional information collected through news articles.

$R(t)$ in selected economies



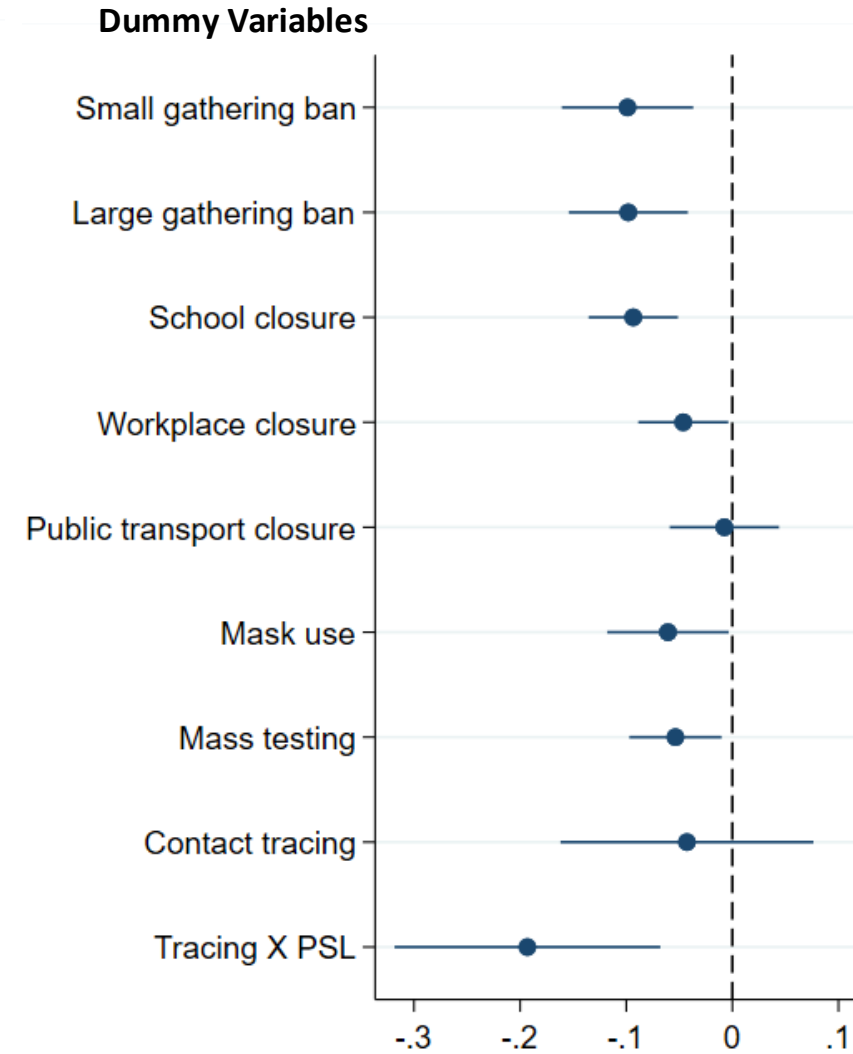
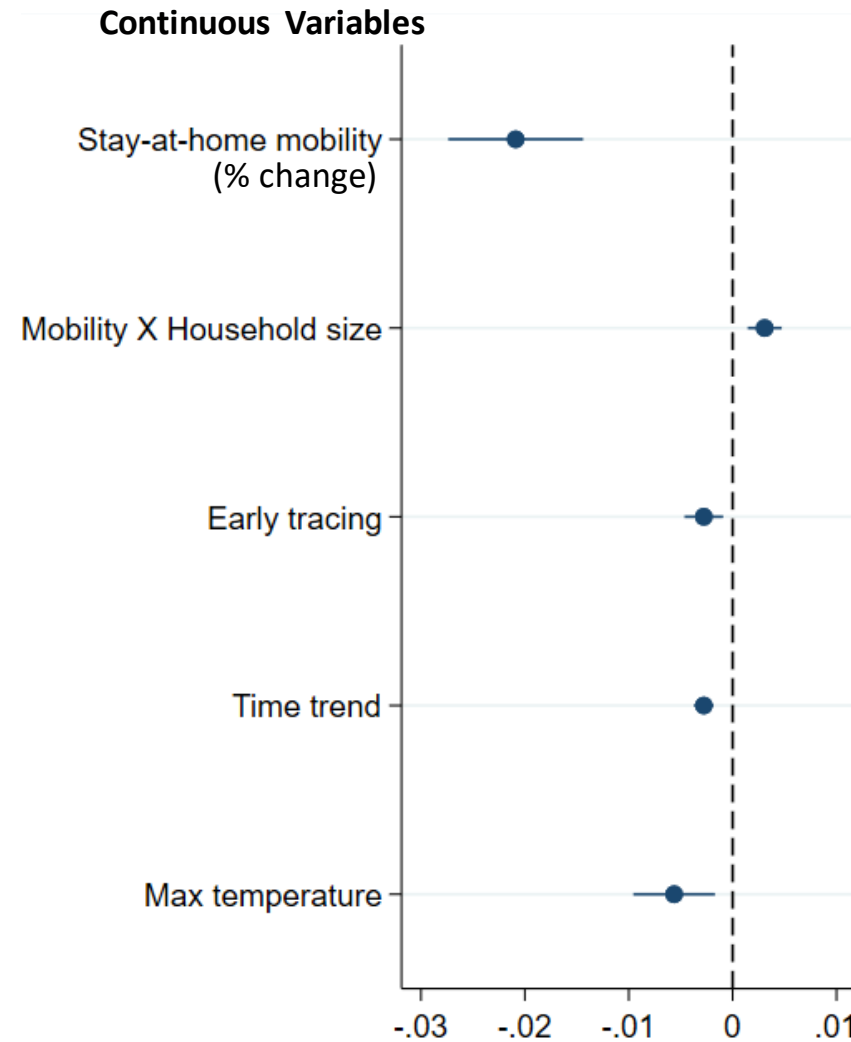
Source: Abbott et al. 2020. Global Summary. EpiForecasts and the CMMID Covid working group. <https://epiforecasts.io>

COVID-19 Control and R(t)

Evidence from 75 economies

Reductions in R(t) are associated with:

- Greater duration of stay at home, but relationship weakens as household sizes increase.
- Gathering bans and school and workplace closures.
- Contact tracing, when implemented in countries with paid sick leave (PSL) policies
- Mass testing and use of masks.

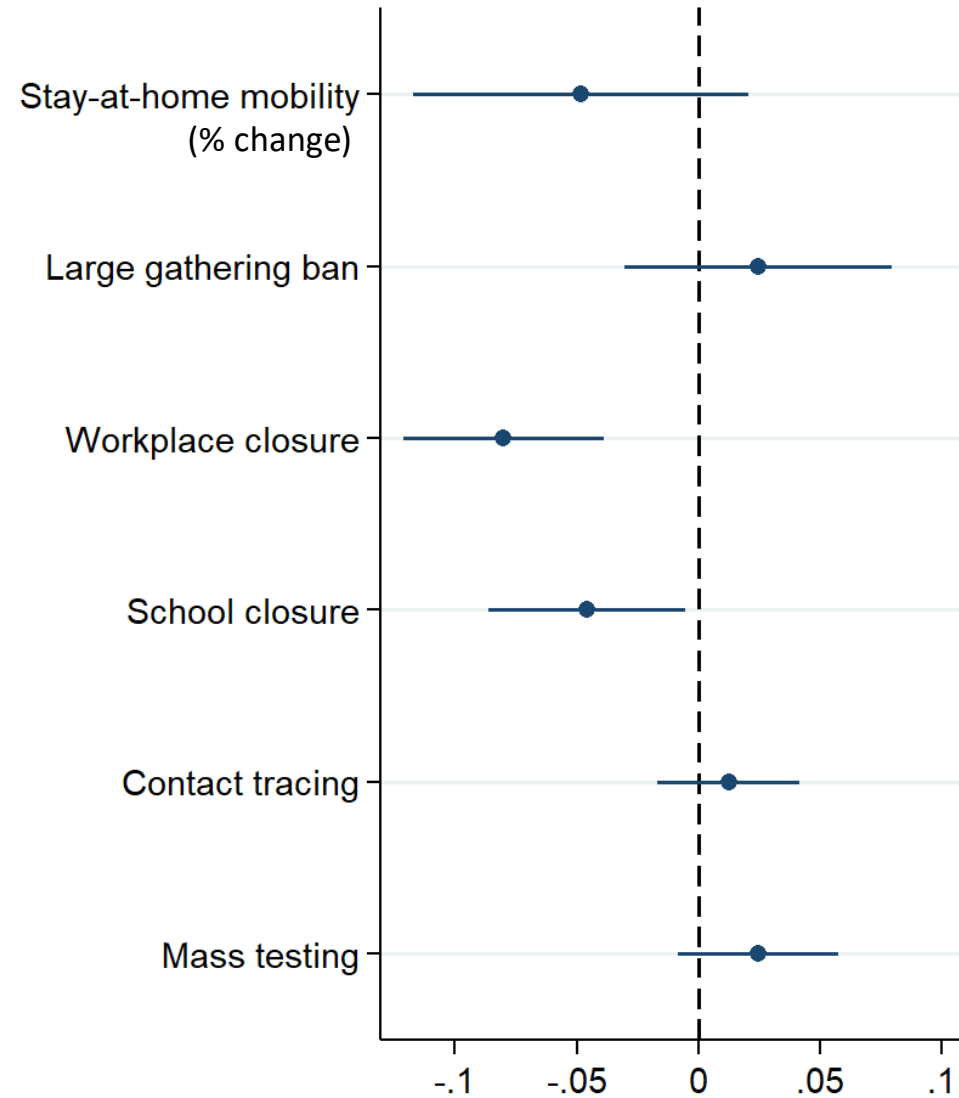


Source: Authors' estimates.

Q1 2020 GDP Growth and Measures

Evidence from 75 economies

- Early adoption of mass testing, contact tracing, and gathering bans is associate with smaller declines in Q1 growth.
- In contrast, early adoption of school and workplace closures show considerably larger declines in Q1 growth.



Source: Authors' estimates.

Takeaways from Observed Patterns

- Contact tracing combined with paid sick leave is highly effective in controlling spread of COVID-19.
- Mass testing, gathering bans, and a mandate on masks are effective in controlling spread and are less costly for the economy.
- When future waves hit, control measures proven to be effective and with lower economic costs should be implemented early and fast.
- Such measures should be central features of the “new normal” until herd immunity is achieved.

Thank you!