

Smart Containment with Active Learning: A Graded & Data-Responsive Approach to COVID-19*

The COVID-19 Problem

In response to the COVID-19 pandemic, governments face a difficult tradeoff, particularly in developing countries. Government officials must decide either to keep their economies open and risk thousands of lives or implement a lockdown and risk economic collapse, which may also result in many non-COVID related deaths. Even worse—they must make these decisions without knowing what the real tradeoff between them is.

Lockdowns hit low-income countries especially hard. Larger informal workforces mean newly vulnerable populations are harder to target for support. Chains of food production and distribution are more fragile. With many people living on the margins of starvation, higher prevalence of disease, and poor healthcare, non-COVID related morbidity risks are high. The government also has limited money and public capacity to rely upon. Therefore, the lockdown-reopen tradeoff may not just be lives versus livelihoods but lives versus lives. While many countries have locked down, the pressure to reopen is immense and increasing.

How can governments face COVID-19 faster & better?

Using the Smart Containment with Active Learning (**SCALE**) strategy:

Act Now on the things that are beneficial no matter what, like testing, personal protective equipment, and clear and careful communication.

Use Available Information to segment communities by their level of risk and projected disease spread, so lockdown policies can be tailored accordingly.

Collect New Data using quick, spatially representative surveys to understand community needs, identify COVID-19 morbidity, and measure the non-COVID health and economic impacts of lockdown policies.

Learn & Adapt by taking an active learning and experimental approach to measure the benefits and costs of previous policies and improve subsequent ones.



SCALE is an active learning strategy that tests and refines policy in real time through a context-specific approach, according to the local prevalence of COVID-19.

* This document is based on the [SCALE Policy Proposal](#) and [COVID-19 Response Operational Plan](#), living documents that will be updated as more information becomes available. Contributing authors to the full proposal: Tahir Andrabi (LUMS/Pomona), Matt Andrews (Harvard), Ali Cheema (LUMS), Jishnu Das (Georgetown/Center for Policy Research), Adnan Q. Khan (LSE), Asim I. Khwaja (Harvard), Farhan Majid (University of Georgia), Aryn A. Malik (Yale), Anum Malkani (CERP), Tyler McCormick (University of Washington), Saad B. Omer (Yale), and Maroof A. Syed (CERP).

Lockdown vs. Reopen: Moving Away from the Binary Choice

The key is to recognize that in both urban and rural settings, COVID-19's prevalence and socio-economic impact vary among communities. Policy should differ accordingly. Varying the degree of lockdown and reopening not only produces a better, context-specific response but also allows officials to learn by comparing the relative costs and benefits of each specific policy.

Follow these three steps to develop a Graded & Data-Responsive Smart Containment Policy to guide the decisions of when, where, and the degree to which to lockdown or reopen:

1. **Grade** each community according to one of the four stages of the COVID-19 infection.



2. **Implement policy** according to each community's grade. Each grade provides specific guidelines for four key areas of response:

- Smart Testing & Data: What kind of testing should be done? What kind of data should be collected?
- Physical Distancing: How severe should physical distancing measures be? What is the nature and extent of the lockdown and reopening?
- Community Messaging: What should government communication consist of? How can officials ensure active community support through compassionate messaging and enforcement?
- Actionable Decisions: What is working and what isn't? What resources are needed? What are the next steps? How should officials prepare for the future?

3. **Reevaluate** the effectiveness of the policies and adjust. Track COVID-19 prevalence and health and socio-economic outcomes in each community every 2-3 weeks. Based on the measured impacts, decide to continue, strengthen, or lessen the future response.

Why use the SCALE approach?

- **Minimize economic costs** by keeping economic engines running in less affected and less risky communities and by reopening as feasible according to each reassessment.
- Inform the **best path forward** by testing the effectiveness of various lockdown measures.
- Support **rapid** and **real-time** responses to an evolving situation by actively learning from previous policies and new information.

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