



## COVID-19: Exploring the exit strategy

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Over the past couple of weeks, we've examined our economic forecasts. These forecasts rely on a number of inputs, with one of the key variables being how long quarantining will last. Given its importance in our economic analysis, today we are going to examine potential exit strategies for how to get the economy and life back to normal. We see three different options: herd immunity, a vaccine or advanced technical measures.

#### **Herd immunity**

There's an initial allure in getting to a point where the virus can no longer spread freely because a sufficient number of people have already been infected. It doesn't require any heroic discoveries or special technologies, and it would allow the economy to fully return to normal once achieved. However, it requires a significant fraction of the world's population to be infected, and many to die as a result of this.

In fact, because the transmission rate is quite high, you would need something like 70% of the world's population to contract the disease. For context, the Spanish Flu achieved herd immunity at around 30% of the world's population. Assuming a 0.75% fatality rate, 1.8 million Americans and 200,000 Canadians would die. Not an attractive thought.

Furthermore, for herd immunity to work, one also needs to assume that lasting immunity can be obtained. This is not an unreasonable assumption, but it is far from certain. As a result, while herd immunity could well prove the solution to COVID-19 if all else fails, it certainly won't be the first choice.

#### **Vaccine/therapeutics**

A far more attractive proposition is the development of a vaccine or powerful therapeutic that would stop COVID-19 in its tracks and allow an immediate return to normal life without widespread suffering.

However, there is a timing problem. There is one group of Oxford researchers who propose a novel solution by the fall - and who are not given much of a chance of succeeding by the experts. Apart from this group, a 12 to 18-month horizon is commonly cited for the development of an effective vaccine. It will also take a significant amount of time to produce billions of copies of any vaccine for the world.

Many therapeutics are also under development. These are other drugs that might help limit the symptoms of COVID-19 or make it harder to transmit. These can be developed more quickly, in theory, with many promising candidates already identified. But some of the most talked about early candidates have been hyped to an extent that may prove difficult to justify. Again, more testing is needed.

But the main message is that a silver bullet – a vaccine that instantly eradicates COVID-19 – is unlikely for 2020. Thus, other options need to be pursued in the meantime.

#### **Advanced technical measures**

A key idea while waiting for a vaccine is to use advanced technical measures to prevent the spread of COVID-19 while allowing the economy to nearly fully or fully re-open. This would require some combination of widespread testing for the disease, extensive tracing of infections, antibody tests to determine immunity, possibly immunity passports, universal mask-wearing in public, and so on.

This may prove possible, but there are several technical issues:

- Testing would ideally be significantly more extensive than current volumes. By some measures testing needs to ramp up by another 10 to 100 times to become sufficiently comprehensive to permit a return to normal life.
- Tracing has worked in places like China (with enormous human resources) and South Korea (with a limited outbreak), but would be logistically very difficult in countries such as the U.S. with over a million cases.
- Having the disease is no guarantee of immunity since a subset of those who recover don't appear to possess any antibodies.

A mix of technical solutions are nevertheless probably the best option for fully restarting the economy if 2020 is the goal. Significantly better testing and tracing are required, at a minimum.

**Gradual restart instead**

Instead, what is most probable as we wait on the three aforementioned actions – herd immunity, a vaccine or advanced technical measures – is that the economic restart can be only partial.

These are some of the key criteria needed for initiating the exit strategy:

- a reduction in new virus count
- spare medical capacity
- enhanced testing & tracing
- enhanced protective measures (masks, altered workspaces, transit, store procedures)

When these criteria are met the approximate sequence for reviving economic output is as follows:

- young, healthy and immune workers can restart before old and sick
- jobs with low interpersonal contact
- sectors that are essential to allowing a broader restart of the economy
- sectors with a high economic importance
- schools/daycares to let parents work outside the home
- social activities come later (restaurants, theatre, recreational sports)

In our view, it is unlikely that mass gatherings and other more advanced steps for reopening will be possible until one of the three aforementioned breakthroughs is achieved. Furthermore, some social distancing will continue to be required, including:

- potentially reducing the density of offices
- reducing physical meetings
- staggering breaks and start/finish times
- limiting the use of mass transit, and so on.

Meanwhile, one issue with a partial restart is that policymakers may be underestimating the complexity of the economy. What constitutes an essential industry is highly unclear. Additionally, sectors are highly integrated with one another, with many relying on other sectors for inputs or other resources to function.

To use a simple example, everyone agrees that hospitals are essential. By extension, doesn't that mean that everything hospitals use is essential? That would include not just medicine and medical equipment, but paper, pens, computers, furnishings, the legal, accounting and financial support provides to the health care sector, and so on. And to produce those items, yet more sectors are needed.

Many countries or regions are now beginning to restart their economies, including parts of Europe. Italy will begin easing its measures on May 4. In Canada, three provinces – Saskatchewan, New Brunswick and Prince Edward Island – are similarly inching forward. Quebec, the most adversely affected of Canada's provinces, now plans to restart its schools on May 11.

These steps will be useful as they will provide us with real-time data and will help public officials understand the best ways to re-open economies.

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