Is a second lockdown inevitable?

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June 29, 2020
Summary:

- This Special Report communicates our econometric findings concerning the first wave of the pandemic and draws lessons for a second wave.

- We developed a model to explore factors in the death rate during the first wave. It confirms that government actions to reduce mobility early in the epidemic helped limit mortality. However, that variable explains less than one-third of the variations in death rate among OECD countries. Thus a prompt lockdown played a significant role in limiting spread of the virus, but considering the substantial economic cost of such action and the information currently available, it could be more focused in the event of a second wave.

- Looking at projections of the Congressional Budget Office (CBO) for the U.S., we calculate that its Covid-induced downward revision of U.S. GDP in the coming years amounts to no less than 37% of 2019 GDP. When the CBO’s projection of the increase in the federal debt-to-GDP ratio at the end of 2021 is added in, the cost of the Covid-induced recession amounts to more than 60% of annual GDP.

- The age distribution of the people most likely to die of Covid-19 is one of the most basic arguments against a severe lockdown of the economy. The death rate is highest among those 65 or older, most of whom are no longer in the labour force. Absent a mutation of the virus, governments will be justified in keeping major segments of the economy open while channelling more resources to protection of older people, especially those in seniors residences and nursing homes.

- That, combined with more-aggressive testing, use of contact-tracing applications, compliance with physical distancing measures and, possibly, obligatory wearing of masks, could fight the epidemic without excessive damage to the economy and labour market.
Is a second lockdown inevitable?

From the beginning of this pandemic we have been following it attentively and sharing with our clients the findings that shed light on what is in store for the economy and financial markets. Our COVID-19 Daily Monitor has evolved greatly as we have learned more about this pandemic. This Special Report aims to share our findings about the first wave of Covid-19. Our objective is not to question the political decisions taken – we are well aware that those who took them did not have all the information now available. But now that the first wave of infections is subsiding in some countries, including Canada, and a second wave seems to be forming in others, are there lessons to be learned from the events of recent months? If there is a second wave, is a second lockdown inevitable?

The first wave

Response to the pandemic has varied greatly among countries. Some, like Sweden, have been criticized for slackness in their lockdown measures. The U.K. has been blamed for waiting too long to lock down. Other countries, like France, took drastic and prolonged measures that could turn out to have been more damaging to the economy. Some observers have looked only at the number of deaths in rating the quality of a country’s crisis management.

In our view, it is still too soon to judge as conditions remain too uncertain. First, we think we need to wait a while before deciding which moves were the right ones. This will depend on factors including whether herd immunity is possible and whether a vaccine or effective treatment is discovered. Moreover, it turns out that the evolution of Covid mortality is not solely a matter of government lockdown response. To explore this question, we have done statistical analyses to identify the determinants of the mortality rates of the OECD countries (chart).

We began by identifying about 30 variables that could explain differences in mortality rate among OECD countries. Our statistical analyses soon showed that the variable with the most explanatory power was population mobility during the week before the death toll reached one per 1,000,000 as measured by Google data, this mobility being a proxy for the degree of lockdown and compliance with it. Other variables also proved significant in the number of deaths (table). Since we know that seniors residences were a major locus of outbreaks around the world, it is not surprising to find that the number of long-term care beds relative to population aged 65 and over is also a significant explanatory variable. Also, countries attracting more tourists, as measured by annual international arrivals, seem to have been more affected. Finally, richer countries and those with more developed health care systems had better chances of avoiding death, as attested by the significance of the number of hospital beds per 1,000 population and of GDP per capita. For all variables of the model, the coefficients were significative more than 99 times out of 100. Surprisingly, some potential risk factors at the population level, such as diabetes and obesity, were not identified as variables contributing to explain the variations between countries.

1 To make the data comparable, we controlled for the different times at which the epidemic spread to different countries. Our variable was accordingly “Number of deaths per 1,000,000 population 50 days after the first day of 1 death per 1,000,000 population.”

2 We took the average of the mobility data for shops, grocery stores and drugstores, workplaces and public transit.
Forecast model for mortality related to Covid-19

Dependent Variable: Deaths per 1,000,000 population 50 days after first day of 1 death per 1,000,000
Number of observations: 30

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>332.9</td>
</tr>
<tr>
<td>Mobility in the week preceding threshold of 1 death per 1,000,000</td>
<td>4.4</td>
</tr>
<tr>
<td>Number of long-term-care beds per 1,000 population aged 65 and over</td>
<td>2.5</td>
</tr>
<tr>
<td>Annual international arrivals</td>
<td>2.3</td>
</tr>
<tr>
<td>Number of hospital beds per 1,000 population</td>
<td>-18.4</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.003</td>
</tr>
<tr>
<td>Binary variable (Belgium)</td>
<td>548.2</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Our economic analyses (see appendix for complete results) brought a number of findings. Governments played a key role in reducing the number of Covid deaths by imposing lockdown measures including shutdown of parts of the economy, which limited people’s mobility and allowed physical distancing. To limit spread, however, such action had to be prompt and aggressive, as attested by the finding that it was mobility at the start of the epidemic and not average mobility over the 50 days that proved significant. Our model supports an estimate that, other factors equal, if Canada had waited as long as Spain to lock down, 7,500 additional deaths might have occurred. If Canada had moved as quickly as New Zealand, 5,000 lives might have been spared (chart).

However, the scope of lockdowns and compliance with them, as proxied by mobility, explain less than one-third (31.2%) of differences in death rate from country to country. No less than 68.8% of the variation is explained by other variables of the model (chart). In other words, rapid lockdown was key to limiting spread of the virus, but considering its substantial cost and the information now available, it could be more focused in response to a second wave.

The cost so far?

Swift lockdown, reflected in a substantial reduction of mobility, has helped reduce Covid mortality, but also entailed an unprecedented recession. The OECD’s June outlook for 2020 GDP revised down its forecast of last December by an average 9.4 percentage points for countries retained in our analysis. It turns out that the OECD’s revisions for those countries correlate closely with the observed reductions of mobility (chart).

Contributions of model variables*

<table>
<thead>
<tr>
<th>GDP per capita</th>
<th>Mobility in the week preceding threshold of 1 death per 1,000,000</th>
<th>Number of hospital beds per 1,000 population</th>
<th>Annual international arrivals</th>
<th>Number of long-term-care beds as a % of population aged 65 and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.3</td>
<td>31.2</td>
<td>16.5</td>
<td>16.5</td>
<td>18.5</td>
</tr>
</tbody>
</table>

*To measure the contribution of each variable, we multiplied the coefficient of each by their standard deviation. We then expressed each of these values as a percentage of the total.

NBF Economics and Strategy (data from Johns Hopkins CSSE, World Bank, Google)

The economic effect of shutting down parts of the economy is not limited to a single year. There will inevitably be longer-term damage due to destruction of capacity. The U.S. Congressional Budget Office (CBO) produces 10-year projections that can enlighten us in this regard. On the basis of its projections we put the CBO’s pandemic-induced downward...
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revision of cumulative real U.S. GDP from 2020 to 2030 at no less than 37% of 2019 GDP (chart).3

U.S.: Economic impact will be felt for several years
Real gross domestic product – Congressional Budget Office projections

However, the total bill for this recession resulting from intentional shutdown of the economy is not limited to that, since the U.S. government is limiting the damage by running huge deficits. The April projection of the CBO for the U.S. federal debt-to-GDP ratio at the end of 2021 is 62 percentage points higher than its March baseline projection (chart).4 In other words, not counting deficits lasting beyond 2021 and the deficits of other levels of government, the cost of the Covid-induced recession would exceed 60% of U.S. GDP.

United-States: A record indebtedness expected at the end of 2021
Debt held by the public (% of gross domestic product)

A University of Chicago study concludes that a pandemic with no intervention (such as a lockdown) would cause 3 million U.S. deaths between now and the beginning of October. It estimates that minimal physical distancing measures would spare 1.7 million of those lives. Adjusting for distribution of mortality by age group, the value of the lives saved would amount to 40% of U.S. GDP. The economist François Vaillancourt, meanwhile, in a text published in April, estimated the value of the years of life potentially saved in Canada, corrected for quality of life, at 10% of Canadian GDP. As noted above, the CBO projections show a much larger bill for the United States. In addition to the economic costs, it should be noted that lockdown could have bad effects on other aspects of health, such as substance use (alcohol, drugs), mental health and weight-related problems.

A second lockdown?

Given these economic and health costs, government leaders need to be cautious in their thinking about another major lockdown in the event of a second wave of the pandemic. The age distribution of the people most likely to die of Covid-19 is one of the most basic arguments for keeping the economy open. In the Spanish flu pandemic of 1918, it was young workers and their children who were most at risk of dying. Today the death rate is highest among those 65 or older, most of whom are no longer in the labour force (chart).

U.S.: Spanish flu vs. Covid, distribution of deaths by age group

In Canada this year, 90% of Covid-19 deaths have been of people age 70 and older, a cohort that accounts for only 26% of declared cases (chart). Absent a mutation of the virus, governments will be justified in keeping major segments of the economy open while channelling more resources to the protection of older people, especially those in seniors residences and nursing homes. In this way the vulnerable population can be protected and the perverse effects of lockdown avoided.

3 Projection of May 2020 vs. January 2020
4 CBO note of late April 2020.
Further, a second wave of the pandemic might be more easily mastered, thanks to technologies and measures developed in recent months. If a new locus of outbreak were to appear, those infected could be rapidly identified and isolated by means now under development, such as more-aggressive testing and contact-tracing applications. Outbreaks could be more easily contained by remote working, physical distancing and other health measures, while the economy is essentially kept open. Besides, a Léger poll conducted in early June has reported that 77% of Canadians consider that individuals have a greater responsibility than government (18%) in actions taken to prevent a second wave of the pandemic.

Conclusion

At this writing, an obvious resurgence of Covid-19 in the U.S. is affecting investor confidence. Though a second wave seems inevitable, a lockdown of entire segments of the economy, as in the first half of the year, seems to us less probable. True, our model for explaining the mortality rate indicates that government actions to reduce mobility early in the epidemic helped limit the number of deaths. However, this variable explains less than one-third of the variation among countries. Also, governments now have more information and could emphasize other measures to limit the number of victims without crimping the economy as severely as in the first wave. The death rate is highest among the oldest, who are mostly no longer in the labour force. Absent a mutation of the virus, governments will be right to keep major parts of the economy open while channelling more resources to protection of older people, especially in seniors residences and nursing homes. That, combined with more-aggressive testing, use of contact-tracing applications, compliance with physical distancing measures and, possibly, obligatory wearing of masks, could fight the epidemic without excessive damage to the economy and labour market.
Result of linear regression

Dependent Variable: Deaths in 50 days following 1 death per million pop.
Method: Least Squares
Included observations: 30

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>332.9</td>
<td>86.3</td>
<td>3.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Mobility at 1 death per million pop.</td>
<td>4.4</td>
<td>0.8</td>
<td>5.3</td>
<td>0.0</td>
</tr>
<tr>
<td>65+ in long-term care</td>
<td>2.5</td>
<td>0.8</td>
<td>2.9</td>
<td>0.0</td>
</tr>
<tr>
<td>International travelers</td>
<td>2.3</td>
<td>0.6</td>
<td>3.6</td>
<td>0.0</td>
</tr>
<tr>
<td>Hospital bed</td>
<td>-18.4</td>
<td>4.4</td>
<td>-4.2</td>
<td>0.0</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>0.0</td>
<td>0.0</td>
<td>-2.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Dummy Belgium</td>
<td>548.2</td>
<td>66.9</td>
<td>8.2</td>
<td>0.0</td>
</tr>
</tbody>
</table>

R-squared 0.91
Adjusted R-squared 0.89
S.E. of regression 62.13
Sum squared resid 88787.74
Log likelihood -162.46
F-statistic 38.26
Prob(F-statistic) 0

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