

The economic costs of a late-year lockdown: The importance of following through on COVID-19 vaccinations and testing

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Abstract:

Epidemiologists and public health officials have emphasized the importance of achieving high rates of vaccination and increasing testing of travelers to minimize the likelihood that Canada will see a resurgence of the COVID-19 virus that requires additional lockdown measures. In this brief, we apply the methodology developed in Cotton et al (2021) to estimate the economic costs from a late-year lockdown for Ontario. We provide conservative estimates of the costs associated with vaccine escape, where vaccination or testing failures lead to an outbreak that require additional lockdown measures.

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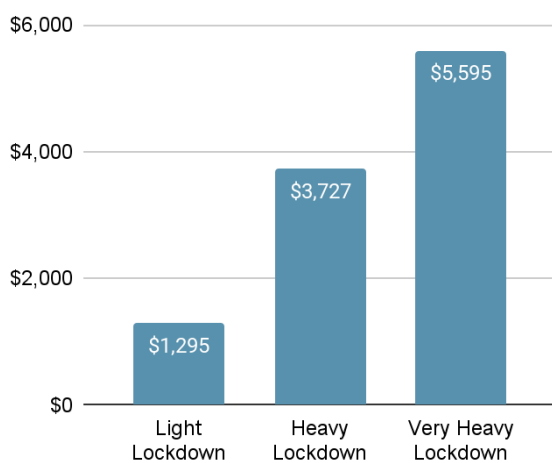
Project Background and Funding: Limestone Analytics provided financial support for this modeling exercise and the development of the STUDIO economic model on which it builds. The methodology is presented in Cotton et al. (2021). The epidemiological and public policy scenarios considered in this brief were provided to the research team by Global Canada’s COVID Strategic Choices Group.



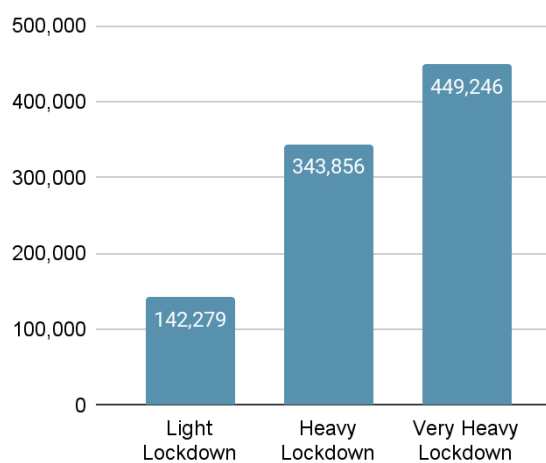
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Q4 GDP Loss, Ontario (\$ Millions)



Q4 Employment Deficit, Ontario



Epidemiologists and public health officials have emphasized the importance of achieving high rates of vaccination and increasing testing of travelers to minimize the likelihood that Canada will see a resurgence of the COVID-19 virus that requires additional lockdown measures. In a recent article, *The Globe and Mail* asked the question, “How many COVID-19 vaccine doses could make the difference between a fourth wave in Canada and no wave at all?”¹ presenting epidemiological evidence that increasing the vaccination rate target from 75% to 90% and increasing testing at borders could make difference in determining whether Canadian provinces face another wave of COVID-19 related lockdowns later in the year.

In this brief, we apply the methodology developed in Cotton et al (2021) to estimate the economic costs from a late-year lockdown for Ontario. We provide conservative estimates of the costs associated with vaccine escape, where vaccination or testing failures lead to an outbreak that require additional lockdown measures, allowing for insights into the economic costs associated with the epidemiological and public health scenarios explored in *The Globe and Mail* article. The analysis is conducted using Limestone Analytics’ STUDIO Model of the Canadian economy, updated to reflect Statistics Canada’s release of its June Labour Force Survey (LFS) update, which includes data up to and including May 2021.

¹<https://www.theglobeandmail.com/canada/article-how-many-doses-will-make-the-difference-between-a-c-anadian-fourth-wave/> The article is based largely on the epidemiological research of Caroline Colijn and colleagues, a modeling team that also provided epidemiological scenarios for several of our past policy briefs and for the policy proposals by the COVID Strategic Choices Group, <https://covidstrategicchoices.ca/>.

This month we compare the economic costs for Ontario of three alternative end-of-year lockdown scenarios. The costs of the lockdowns are calculated relative to a counterfactual case where we immediately relax restrictions and start the recovery process without having another wave of lockdowns later in the year due to 'vaccine escape' or variant spread.

The three alternative lockdown scenarios involve the economy reopening up until November, at which point the economy again faces a two-month lockdown, which differ in the intensity of the restrictions depending on the scenario:

Light Lockdown Scenario: The fourth wave lockdown in Nov & Dec corresponds in intensity to the lockdown restrictions during wave 3 stage 0 (the restrictions in place during early June 2021).

Heavy Lockdown Scenario: The fourth wave lockdown in Nov & Dec corresponds in intensity to the lockdown restrictions in January 2021

Very Heavy Lockdown Scenario: The fourth wave lockdown in Nov & Dec corresponds in intensity to the strictest lockdown restrictions we have seen during the pandemic (comparable to, but not quite as restrictive as those in place during April 2020)

We suspect that the very heavy lockdown scenario is unrealistic in part because such restrictive lockdown measures are unlikely to be necessary to control the spread of the virus when a significant share of the population is vaccinated. We include this case, however, to provide perspective and to serve as a worse case scenario in the analysis.

The following numbers are for Ontario. We can provide them for any province in Canada, and can also break them out by local community and industry sector.

The Figures at the beginning of the document illustrate the losses to GDP and jobs due to additional lockdown measures being implemented in November and December 2021. These estimates should be interpreted as conservative estimates of the total economic costs of such lockdowns, and the estimates only include costs during the quarter in which the lockdown measures are in place and do not include costs during the recovery period that would stretch several months into 2022.²

Our estimates do not account for the probability of the future lockdowns occurring under different vaccination and testing scenarios. Rather, we estimate the costs of a lockdown conditional on one of such magnitude occurring. If we achieve 90% vaccination rates vs. 75% vaccination rates, two things happen: (1) the odds of vaccine escape triggering the need for additional lockdowns is lower, and (2) the expected severity of any lockdown will be lower. Policy decisions should account for this.

Based on our preliminary understanding of the new epidemiological modeling, we can say the following:

- Failure to mitigate the threat of vaccine escape will be very costly for the economy. Even if it results in light restrictions later in the year, interruption and moving backwards in the economic recovery process leading into the end of the year will cost Ontario at least \$1.29

² We are in the process of extending the STUDIO model to provide estimates into 2022 and the next policy brief will include projections into next year.

billion in lost GDP and a decline in working hours equivalent to 142 thousand jobs during Q4 of 2021.

- It is likely that the necessary lockdown restrictions, if they are needed, will be more severe than this. We estimate that heavy lockdown restrictions would cost Ontario up to \$3.7 billion in lost GDP and a decline in working hours equivalent to 344 thousand jobs during Q4 of 2021.
- If the economy faces very heavy lockdown restrictions, then Ontario would expect \$5.6 billion in lost GDP and a loss of 450 thousand jobs during Q4 of 2021.
- A higher vaccination rate will reduce the probability of having an additional wave of lockdowns in Q4. It will also reduce the severity of any lockdown that does occur. If, for example, a 75% vaccination rate means a heavy wave 4 lockdown, while a 90% vaccination rate means a light wave 4 lockdown, then achieving the higher vaccination rate will have saved the Q4 economy \$2.4 billion in GDP and more than 200,000 jobs in Q4.
- Again, these estimates do not account for the differences in probability of lockdown, which will be substantially higher under the 75% vaccination scenario than the 90% vaccination scenario. If achieving a 90% vaccination allows Ontario to avoid a lockdown that would have occurred under a 75% vaccination scenario, then the benefits of this are given by the first three bullet points above.
- These estimates only represent the costs of vaccine escape in Q4 2021. The costs of any Q4 lockdown will carry over into 2022 as the economy recovers, even if there are no more restrictions in place by January 2022. This means that the estimates here are significantly underestimating the overall costs of any Q4 lockdown associated with vaccine escape.

The analysis summarized here highlights the costs of future lockdown waves later in the 2021, which could be triggered by vaccine escape or new, more-easily transmittable variants of the disease. This suggests that there are potentially significant economic benefits to achieving higher vaccination rates and building testing capacity and procedures for travelers in order to minimize the probability that new lockdown measures will be needed going forward.

For additional information

This policy brief is based on output from the Limestone Analytics STUDIO Model of the Canadian Economy. The report was prepared by Christopher Cotton, Brett Crowley, and Huw Lloyd-Ellis.³ Previous policy briefs can be found at <https://limestone-analytics.com/publications/>.

³ Crowley is a project coordinator at Limestone Analytics; Cotton is Director of Research at Limestone Analytics and Jarislowsky-Deutsch Chair of Economic and Financial Policy at Queen's University; Lloyd-Ellis is Professor at Queen's University and Academic Research Advisor at Limestone Analytics. For details regarding the methodology, see the academic research paper in which it is presented:

Christopher Cotton, Brett Crowley, Bahman Kashi, Huw Lloyd-Ellis, and Frederic Tremblay, "Quantifying the Economic Impacts of COVID-19 Policy Responses on Canada's Provinces In (Almost) Real Time," Queen's Economics Department Working Paper 1441.

The bibliography includes sources directly referred to in the analysis and related policy briefs that informed the research team's analysis, including reference to updated, publicly available versions of the health projections that were shared with the research team.

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