

Breaking Barriers: Measuring the Price Effects of the Out-of-Territory FTTP Wholesale Access Framework^{1*2†}

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Executive Summary

The Canadian Radio-television and Telecommunications Commission's (CRTC) decision to allow wholesale access to fiber-to-the-premises (FTTP) networks resulted in a **price decline for high-speed internet access in Ontario (8 percent) and Quebec (11 percent)**. These results are based on an econometric evaluation of Statistics Canada's provincial Consumer Price Index (CPI) for internet access services, which is Canada's official measure for tracking prices paid by households for fixed-line high-speed internet and related access services over time.

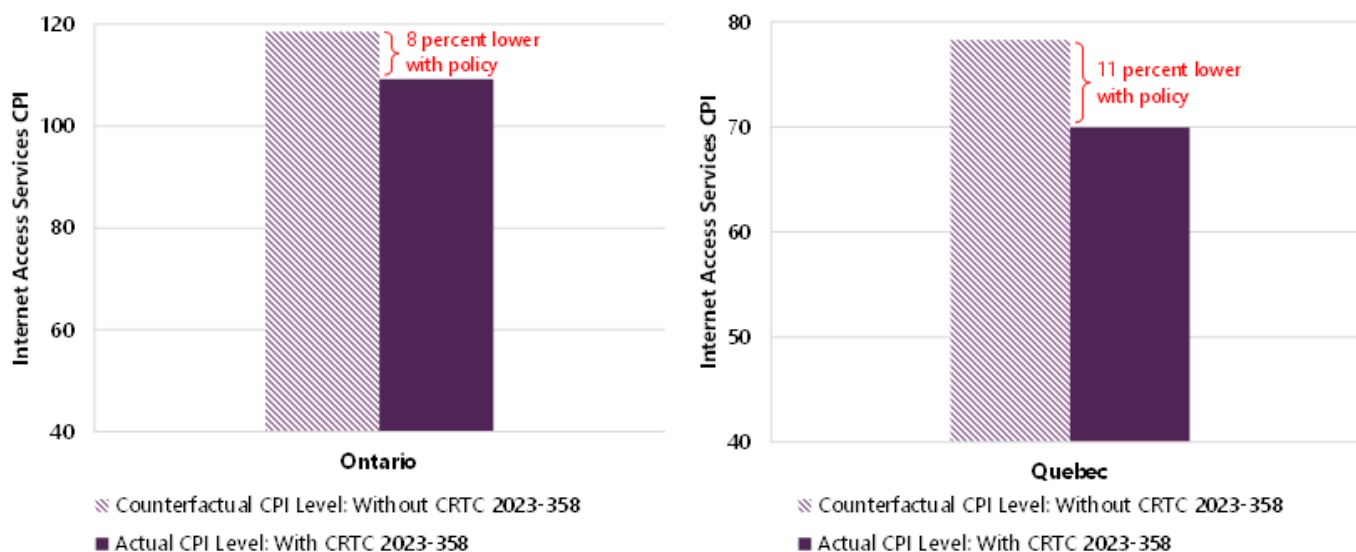
On November 6, 2023, the CRTC issued Telecom Decision CRTC 2023-358, which affected incumbent local exchange carriers (ILECs) in Ontario and Quebec. This decision allowed all service providers to gain wholesale access to Bell Canada's (Bell) FTTP network, and enabled TELUS to offer competitive broadband services where it does not own its own network in the two provinces. On August 13, 2024, the CRTC extended the mandate to all Canadian provinces through Telecom Regulatory Policy CRTC 2024-180, which allowed Bell to access TELUS' FTTP networks in British Columbia and Alberta. ILECs, cable companies, and resellers have pursued numerous regulatory and legal challenges to this expanded policy. However, on August 6, 2025, the Governor in Council upheld the CRTC's framework, citing its mandate of lowering prices for Canadians.

However, the policy debate has not gone away. Various ILECs, cable companies, and resellers insist that a consumer-focused rationale carries negative investment incentives, reduces competition, and offers only modest short-run benefits to Canadian households. With much evidence on investment incentives, market structure, and regional effects already in the record, **this study further examines the effects of the CRTC's policy decision on retail prices.**

The impact of the updated FTTP wholesale access framework cannot be accurately measured through a simple before-and-after comparison. Evaluating the effect of a policy requires comparing actual outcomes with counterfactual scenarios, i.e., hypothetical situations in which the policy was not implemented, holding everything else unchanged. Accordingly, the study estimates the price levels that would have been realized in a scenario without the CRTC's wholesale access policy. To model the counterfactual scenario and assess any price effects caused by the decision, the study uses a causal inference technique known as the difference-in-differences (DiD) approach. This method compares actual price levels in Ontario and Quebec with the price levels that would occur in a counterfactual scenario where there is no wholesale access, holding all other factors constant.

The results of the DiD analysis are clear, robust, and economically meaningful. Absent Telecom Decision CRTC 2023-358, consumers in Ontario and Quebec would have paid more for their internet service from November 2023 to August 2024. On average, from November 2023 to August 2024, the decision caused wireline access service price levels in Ontario to be approximately **8 percent lower** than they would have been absent the decision, whereas in Quebec the average causal reduction of the decision is approximately **11 percent**. This means that **households are paying less for their internet service, compared to what they would have paid but for the policy.**

Impact of CRTC 2023-358 on Internet Access Services CPI (Nov. 2023 – Aug. 2024)



The DiD analysis aligns each affected (treated) province (Quebec and Ontario) to unaffected provinces (a control group) that closely follow its pre-policy trajectory. The strong pre-policy alignment between treated and control groups allows isolating the true effect of the policy after implementation. Moreover, these estimates remain robust to alternative specifications, including adjustments for provincial characteristics such as population and GDP from service-producing industries, as well as variations in the length of the time period of the study. Tests in unaffected provinces do not produce similar effects, thereby confirming the validity of the causal interpretation.

The timing and persistence of the estimated declines in consumer price levels attributable to the policy, along with market evidence such as plan price cuts and improved service quality, are consistent with increased competitive pressure following the introduction of wholesale FTTP access in Ontario and Quebec. These findings align with the anticipated effects that the CRTC had predicted when developing the policy framework.

The policy implications of these results are direct and significant. Opening FTTP networks to wholesale access **lowered internet price levels** for consumers in the initial provinces covered by the policy. This evidence supports the CRTC's rationale for nationwide extension under Telecom Regulatory Policy CRTC 2024-180, and it is consistent with the Governor in Council's August 2025 decision to retain it. Thus, consumers in other provinces may experience comparable price benefits as a result of this decision.

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1 INTRODUCTION

On August 6, 2025, the Governor in Council (GIC) dismissed a petition brought by Bragg Communications Inc. doing business as Eastlink (Eastlink), Cogeco Communications Inc. (Cogeco), the Competitive Network Operators of Canada (CNOC), and Saskatchewan Telecommunications Holding Corporation (SaskTel) to overturn the CRTC's wholesale internet framework.³ The GIC's decision meant that alternative high-speed internet service providers could continue to access wholesale FTTP outside their incumbent serving areas.

The CRTC finalized the FTTP policy framework in Telecom Regulatory Policy CRTC 2024-180 (Final Decision).⁴ This policy extended the earlier framework established in Telecom Decision CRTC 2023-358 (Interim Decision) and allows wholesale competitors to access wholesale High-Speed Access (HSA) services based on fiber-to-the-premises (FTTP) networks of the major incumbent providers outside their traditional serving territories.⁵ This means that TELUS, Bell, and SaskTel need to offer wholesale access to their FTTP networks, enabling other internet service providers to serve customers over the same infrastructure at regulated rates. The CRTC anticipated that expanding wholesale access to include FTTP would increase competition, provide consumers with "additional choice in service plans and providers," and "lower prices for their Internet services."⁶ In declining to alter the wholesale framework, the GIC supported this reasoning, stating that it "will contribute toward our broader mandate to bring down costs across the board."⁷

Despite the GIC's decision to uphold the Final Decision, the wholesale access policy continues to face opposition. The Canadian Telecommunications Association, an industry group, stated that the decision "discourages investment, weakens competition, and ultimately harms Canadian consumers."⁸ Rogers also stated, "The government immediately needs to reconsider this deeply flawed decision," claiming that it will reduce investment, cut jobs, and stifle competition.⁹ On September 2, 2025, Cogeco and Eastlink sought judicial review of the GIC's decision not to intervene in the Final Decision at the Federal Court.¹⁰ To help clarify the ongoing debate, this study provides economic evidence on whether the wholesale internet framework benefits Canadian households by analyzing changes to the provincial Consumer Price Index (CPI) for internet access services between November 6, 2023, when the CRTC implemented wholesale FTTP access in Ontario and Quebec, and August 13, 2024, when the CRTC extended the framework to all

³ See Innovation, Science and Economic Development Canada, "Statement from Minister Joly on the government's decision to uphold the Canadian Radio-television and Telecommunications Commission's mandatory wholesale access framework, bringing down costs for Canadians," August 6, 2025, <https://www.canada.ca/en/innovation-science-economic-development/news/2025/08/statement-from-minister-joly-on-the-governments-decision-to-uphold-the-canadian-radio-television-and-telecommunications-commissions-mandatory-whole.html> (hereinafter GIC Decision of August 6, 2025).

⁴ Canadian Radio-television and Telecommunications Commission, "Competition in Canada's Internet service markets," *Telecom Regulatory Policy CRTC 2024-180*, August 13, 2023, PR 1011-NOC2023-0056 (hereinafter Telecom Regulatory Policy CRTC 2024-180).

⁵ Canadian Radio-television and Telecommunications Commission, "Review of the wholesale high-speed access service framework – Temporary access to fibre-to-the-premises facilities over aggregated wholesale high-speed access services," *Telecom Decision CRTC 2023-358*, November 6, 2023, PR 1011-NOC 2023-0056 (hereinafter Telecom Decision CRTC 2023-358).

⁶ *Telecom Regulatory Policy CRTC 2024-180*, 5.

⁷ GIC Decision of August 6, 2025.

⁸ "Rogers Comments on Federal Government's Wholesale Internet Access Decision," Rogers, August 6, 2025, <https://about.rogers.com/news-ideas/rogers-comments-on-federal-governments-wholesale-internet-access-decision/>.

⁹ "Statement by the Canadian Telecommunications Association on the Government's Decision Regarding the CRTC's Wholesale Internet Access Framework," Canadian Telecommunications Association, August 7, 2025, <https://canadatelecoms.ca/news/statement-by-the-canadian-telecommunications-association-on-the-governments-decision-regarding-the-crtcs-wholesale-internet-access-framework/>.

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provinces. Consistent with Statistics Canada's definition of the internet access services CPI, the metric serves as a proxy for retail prices in the present study.

This paper is organized as follows. Section 2 summarizes the GIC's rationale to retain the CRTC's wholesale internet access framework, the legal and regulatory challenges that culminated in the GIC's decision to maintain it, and the continued objections of the opposing parties. Section 3 introduces a causal inference model suitable to examine the changes in the provincial internet CPIs and presents its results. Section 4 concludes. Appendix A provides the technical details of the model along with additional results and robustness testing.

2 POLICY DISAGREEMENTS CENTER ON THE PRESENCE OF CONSUMER BENEFITS

A key challenge to the CRTC's wholesale internet framework is whether it indeed carries consumer benefits through increased competitive pressure on retail prices for broadband services. The GIC's August 2025 decision to retain the wholesale high-speed broadband access framework has further intensified this scrutiny.

This section provides the necessary background to understand the empirical question that this study attempts to resolve. As such, it summarizes the CRTC's wholesale internet access framework and the challenges raised by parties opposing it. The discussion makes it clear that economic evidence is required to understand whether the framework meets its objectives.

2.1 The CRTC's Framework Intends to Increase Competition and Lower Prices

The goal of the CRTC's wholesale internet framework is straightforward. Mandating incumbent fixed-line providers to offer wholesale HSA to "any company to use in providing retail Internet services to Canadians" should provide Canadian households with more choice when selecting a broadband provider and allow them to pay less for internet service as more providers compete for their business.¹¹

Concerned that its existing wholesale internet framework was not achieving its target of increasing competition, the CRTC sought to develop a new framework for wholesale access to FTTN facilities.¹² On November 6, 2023, the Commission issued its Interim Decision.¹³ This decision directed TELUS and Bell to provide wholesale access to their FTTN networks in Ontario and Quebec within six months (i.e., May 7, 2024).¹⁴ The Commission described this as a "temporary and expedited solution," targeting areas where "the competitive presence of wholesale-based competitors has declined most significantly."¹⁵

The Commission subsequently continued its broader review of the broadband access market, seeking comments from various parties and holding a public hearing with incumbents and other stakeholders in February 2024.¹⁶ Based on this review, the Commission issued its Final Decision on August 13, 2024.¹⁷ This policy extended the framework in the Interim Decision to the other provinces and directed TELUS, Bell, and SaskTel to offer "aggregated FTTN services in their incumbent serving territories (where aggregated FTTN services are not currently available on a

¹¹ See Canadian Radio-television and Telecommunications Commission, "Consolidated applications to review and vary Telecom Regulatory Policy 2024-180," *Telecom Decision CRTC 2025-154*, June 20, 2025, PR 8662-C6-202405753 (hereinafter *Telecom Decision CRTC 2025-154*).

¹² See *Telecom Notice of Consultation CRTC 2023-56*.

¹³ See *Telecom Decision CRTC 2023-358*.

¹⁴ *Ibid.*, p. 2, 128.

¹⁵ *Ibid.*, p. 2.

¹⁶ *Telecom Regulatory Policy CRTC 2024-180*, 12.

¹⁷ *Ibid.*, p. 1.

temporary basis) no later than 13 February 2025.”¹⁸ Additionally, the CRTC ordered that incumbents will “be eligible to use mandated aggregated HSA out-of-territory.”¹⁹

TELUS reacted to the CRTC’s new policy by launching TELUS-branded broadband services in Ontario and Quebec on November 12, 2024.²⁰ TELUS also announced that it would transition to a partial facilities-based provider by investing in fiber infrastructure in the two provinces through a “\$2-billion investment to deliver our global-leading broadband services across Ontario and Quebec over the next five years.”²¹ As TELUS explains, “This investment comes as a result of the CRTC confirmation of the wholesale fibre-to-the-premise (FTTP) framework and serves as a complement to [its] wholesale fibre access agreements.”²²

2.2 Incumbents and Resellers Challenge the CRTC’s Wholesale Internet Framework

Incumbents and resellers have repeatedly challenged the CRTC’s two telecom decisions. Incumbent local exchange carriers (ILECs), cable companies, and wholesale resellers, who under the original wholesale internet framework did not face competition from larger telecommunications providers, brought regulatory appeals and court challenges.

2.2.1 ILEC challenges

On November 16, 2023, Bell Canada initiated an appeal of the Interim Decision at the Federal Court of Appeal and sought a stay of the decision pending the outcome.²³ Bell argued that the decision would “undermine Bell’s competitiveness and its multibillion-dollar investment in network infrastructure” and that “the regional focus disproportionately targets areas where only Bell has built its fibre network.”²⁴

Additionally, on February 2, 2024, Bell petitioned the GIC to either rescind the Interim Decision or refer it back to the Commission.²⁵ Bell opposed the Interim Decision, claiming that the directive was unnecessary as retail prices were already falling and that it would discourage investment.²⁶

On November 5, 2024, in response to Bell’s petition, the GIC referred the Interim Decision back to the Commission.²⁷ Although the GIC welcomed “the CRTC’s significant decision to open up wholesale access to high-speed fibre networks,” it was concerned about the viability of small and regional internet service providers and maintaining investments in internet infrastructure in

¹⁸ Ibid., 62 (emphasis removed).

¹⁹ Ibid., 43.

²⁰ “TELUS PureFibre Internet arrives in Ontario and Quebec with blazing fast 1.5 Gbps speeds,” TELUS, November 12, 2024, <https://www.telus.com/en/about/news-and-events/media-releases/telus-purefibre-internet-arrives-in-ontario-and-quebec-with-blazing-fast-1-5-gbps-speeds>.

²¹ “TELUS expands broadband services in Ontario and Quebec with \$2-billion investment,” TELUS, July 21, 2025, <https://www.telus.com/en/about/news-and-events/media-releases/telus-expands-broadband-services-in-ontario-and-quebec-with-two-billion-investment>.

²² Ibid.

²³ Sammy Hudes, “Bell seeks to appeal CRTC decision allowing carriers’ access to its fibre network,” *The Canadian Press*, November 17, 2023, <https://ottawa.citynews.ca/2023/11/17/bell-seeks-to-appeal-crtc-decision-allowing-carriers-access-to-its-fibre-network/>.

²⁴ Ibid.

²⁵ Bell Canada, “Petition to the Governor in Council to Rescind or Vary, ‘Review of the wholesale high-speed access service framework – Temporary access to fibre-to-the-premises facilities over aggregated wholesale high-speed access services,’” *Telecom Decision CRTC 2023-358*, February 2, 2024.

²⁶ Ibid., ¶¶ 2, 61.

²⁷ “Order Referring Telecom Decision CRTC 2023-358 Back to the CRTC,” *Canada Gazette*, November 5, 2024, <https://gazette.gc.ca/rp-pr/p2/2024/2024-11-20/html/si-tr55-eng.html>.

underserved areas.²⁸ The CRTC ultimately stood by the Interim Decision and on February 3, 2025, issued Telecom Decision CRTC 2025-39, concluding that the consumer benefits from the Interim Decision “outweighed any impact that access had on investment during the short time the Temporary Service was in effect.”²⁹

Separately, on September 12, 2024, SaskTel submitted an appeal to the Federal Court of Appeal, seeking a judicial review of the Final Decision.³⁰ According to SaskTel, its status as a crown corporation servicing only Saskatchewan made it different than other ILECs.³¹ As such, SaskTel asked that the court “cancel the decision and return it to the CRTC to be reconsidered with additional directives from the court.”³²

2.2.2 Cable providers’ requests to review and vary

On November 7, 2024, Cogeco, Eastlink, and CNOC filed an application requesting that the Commission review and vary its Final Decision.³³ On November 12, 2024, Rogers and TekSavvy filed similar applications.³⁴ The CRTC consolidated the applications into one proceeding “[i]n the interests of efficiency and timeliness.”³⁵ Central to the applicants’ request was the impact that access to out-of-territory wholesale HSA services by TELUS, Bell, and Rogers would have on competition. The applicants argued that such access would harm consumers because it would reduce competition in the long run, and they asked the CRTC to reverse its policy.

On June 20, 2025, the CRTC issued Telecom Decision 2025-154 (Review and Vary Decision), rejecting the applications.³⁶ It found that the applicants failed to establish doubt as to the correctness of the Final Decision.³⁷ Further, it held that the Final Decision was achieving its stated objective:

The Final Decision is already increasing Internet service competition. More than a dozen providers are using access to fibre networks at cost-based interim rates to bring competing Internet plans to market across Canada. Thousands of households now subscribe to Internet service provided using the access provided under the Final Decision.³⁸

On July 18, 2025, Cogeco and Eastlink pursued leave to appeal the Review and Vary Decision with the Federal Court of Appeal, arguing that the CRTC “acted arbitrarily and contrary to its legal mandate” and presenting arguments similar to those made in their previous filings to the

²⁸ “Statement from Minister Champagne responding to Bell’s petition to rescind the Canadian Radio-television and Telecommunications Commission’s decision on wholesale access to fibre,” *PR Newswire*, November 6, 2024, <https://www.theglobeandmail.com/investing/markets/markets-news/PR%20Newswire/29436271/statement-from-minister-champagne-responding-to-bells-petition-to-rescind-the-canadian-radio-television-and-telecommunications-commissions-decision-on-wholesale-access-to-fibre/>.

²⁹ Canadian Radio-television and Telecommunications Commission, “Reconsideration of Telecom Decision 2023-358,” *Telecom Decision CRTC 2025-39*, February 3, 2025, PR 1011-NOC2024-0292, 27.

³⁰ See Jonathan Lamont, “SaskTel seeks judicial review of CRTC wholesale fibre access decision,” *MobileSyrup*, September 18, 2024, <https://mobilesyrup.com/2024/09/18/sasktel-judicial-review-crtc-wholesale-access-fibre-decision/>.

³¹ *Ibid.*

³² *Ibid.*

³³ See Canadian Radio-television and Telecommunications Commission, Telecom–Secretary General Letter addressed to the Distribution List, November 25, 2024, <https://crtc.gc.ca/eng/archive/2024/lt241125.htm>.

³⁴ *Ibid.*

³⁵ *Ibid.*

³⁶ See Telecom Decision CRTC 2025-154.

³⁷ *Ibid.*, ¶¶ 59, 65.

³⁸ *Ibid.*, p. 1.

Commission and the GIC.³⁹ Specifically, Cogeco and Eastlink claimed that the disputed telecom decision fails “to acknowledge or address the long-term effects of bundling.”⁴⁰

2.2.3 Service providers’ petition to the GIC

On November 8, 2024, Eastlink, Cogeco, CNOC, and SaskTel (the Coalition) filed “a precautionary filing [with the GIC] in the event that the Canadian Radio-television and Telecommunications Commission (the Commission) does not vary the Final Decision.”⁴¹ Similar to their request for the Commission to review and vary the Final Decision, the filing requested “the Governor in Council to vary the CRTC’s August 13, 2024, decision to exclude the largest providers from mandated wholesale access.”⁴² The Coalition’s arguments were almost identical to those expressed by the applications to review and vary.

On August 6, 2025, the GIC rejected the Coalition’s petition and upheld the CRTC’s decision. A key reason for the decision was the policy’s objective to lower broadband retail prices. As Minister Joly explained:

Canadians depend on telecommunications services for every aspect of life. By immediately increasing competition and consumer choice, the CRTC’s decision aims to reduce the cost of high-speed Internet for Canadians and will contribute toward our broader mandate to bring down costs across the board.⁴³

The minister also highlighted that the CRTC’s decision was based on “extensive consultation with experts, the Competition Bureau, and over 300 public submissions.”⁴⁴

On September 2, 2025, Cogeco and Eastlink pursued a legal challenge in the Federal Court of Appeal with respect to the GIC’s decision, “seeking judicial review of cabinet’s decision, urging the court to declare the move unreasonable and force the government to reconsider.”⁴⁵ The two companies argue that “the GIC fundamentally misapprehended the matter.”⁴⁶

3 PROVINCIAL INTERNET CPIs DECLINED BECAUSE OF THE CRTC’S FRAMEWORK

There is empirical evidence that the CRTC’s internet wholesale access framework has benefited Canadian households through lower broadband prices. This section describes the analytical framework that examines whether the disputed policy serves the public interest. First, it describes the use of the internet access CPI as a proxy for the broadband retail price. Second, it discusses the theoretical model used to analyze the data. Third, it presents the results of the analysis, revealing immediate and significant consumer benefits from the CRTC’s revised framework over the study period.

³⁹ Irene Galea, “Cogeco, Eastlink seek appeal of CRTC fibre access ruling,” *The Globe and Mail*, updated July 21, 2025, <https://www.theglobeandmail.com/business/article-cogeco-eastlink-fibre-internet-crtc-appeal/>.

⁴⁰ Hudes, “Cogeco, Eastlink seek to appeal CRTC decision on wholesale rules.”

⁴¹ Coalition, “Petition to the Governor in Council to Vary, ‘Competition in Canada’s Internet service markets,’” *Telecom Regulatory Policy CRTC 2024-180*, November 8, 2024, ES.1.

⁴² GIC Decision of August 6, 2025.

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Phalen Tynes-Macdonald, “Cogeco, Eastlink further their challenge of cabinet refusal to overrule CRTC wholesale decision,” *The Wire Report*, September 3, 2025, <https://www.thewirereport.ca/2025/09/03/cogeco-eastlink-further-challenge-of-cabinet-refusal-to-overrule-crtc-wholesale-decision/>.

⁴⁶ Ibid.

3.1 Statistics Canada's Internet CPI Serves as a Proxy for Broadband Retail Prices

The examination of retail price reductions uses data from Statistics Canada and specifically, the internet CPI. The agency describes CPIs as “changes in prices as experienced by Canadian consumers.”⁴⁷ This study accepts this definition and consequently interprets changes in CPI levels as changes in retail prices.

Statistics Canada publishes several monthly CPI data series. Of interest for the present purpose are the monthly CPI data for internet access services for each Canadian province.⁴⁸ These provincial internet CPIs measure changes in subscription prices for wireline service over time.

To construct its index, Statistics Canada samples plans from fixed-line service providers with at least a 10 percent provincial market share and collectively cover at least 75 percent of each market.⁴⁹ The agency collects service plan data on download speeds and other plan features from service provider websites and normalizes for quality improvements over time.⁵⁰ To track the prices that consumers actually pay for their plans, it accounts for discounts and taxes.⁵¹ It weights the plans by a combination of download speeds and revenue shares to aggregate into a provincial CPI measure.⁵² As a result, the CPI for internet access services captures the price levels paid by consumers for wireline internet access over time, incorporating adjustments for changes in service quality and plan composition. It provides a standardized measure of the cost burden faced by households in each province.

3.2 The Difference-in-Differences Technique Analyzes the Provincial Internet CPIs

A standard causal inference model, the difference-in-differences (DiD) technique, estimates the effect the CRTC's wholesale internet access framework had on retail prices in Ontario and Quebec. Changes in internet CPIs over time do not necessarily provide information on the impact the CRTC wholesale framework had on broadband prices because CPI levels might have changed for reasons unrelated to the new framework. Rather, the examination requires the construction of monthly internet CPIs in a counterfactual scenario where there is no wholesale FTTP access outside the incumbents' serving areas. Comparing these counterfactual CPIs to the actual CPIs then provides a causal link between the wholesale internet framework and retail prices, as proxied by Statistics Canada's provincial internet CPI. The DiD technique not only projects the counterfactual provincial internet access CPIs, but also compares them to the actual internet CPIs, thereby providing a measure of the price effects causal to the CRTC framework.

3.2.1 Overview of DiD analysis

DiD analysis is a statistical technique specifically developed for the purpose of isolating the effects causal to an event, such as a new regulatory policy. The DiD technique “originated in the field of

⁴⁷ “Consumer Price Index Portal,” Statistics Canada, accessed September 11, 2025, https://www.statcan.gc.ca/en/subjects-start/prices_and_price_indexes/consumer_price_indexes.

⁴⁸ See “Internet Access Services Index Methodology in the Consumer Price Index,” Statistics Canada, release date August 7, 2018, <https://www150.statcan.gc.ca/n1/pub/62f0014m/62f0014m2018003-eng.htm>; see also Statistics Canada, “Changes to the Internet Access Services Index of the Consumer Price Index (CPI),” date modified October 31, 2022, https://www.statcan.gc.ca/en/statistical-programs/document/2301_D60_T9_V1.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ See “The Canadian Consumer Price Index Reference Paper,” Statistics Canada, date modified February 20, 2023, 1.11, <https://www150.statcan.gc.ca/n1/en/pub/62-553-x/62-553-x2023001-eng.pdf?st=LU6okY5K>.

⁵² See “Internet Access Services Index Methodology in the Consumer Price Index,” Statistics Canada, release date August 7, 2018, <https://www150.statcan.gc.ca/n1/pub/62f0014m/62f0014m2018003-eng.htm>; see also “Changes to the Internet Access Services Index of the Consumer Price Index (CPI),” Statistics Canada, date modified October 31, 2022, https://www.statcan.gc.ca/en/statistical-programs/document/2301_D60_T9_V1. Ibid.

econometrics, but the logic underlying the technique has been used as early as the 1850's by John Snow and is called the 'controlled before-and-after study' in some social sciences."⁵³

Used in many different situations and fields, the DiD analysis "is typically used to estimate the effect of a specific intervention or treatment (such as a passage of law, enactment of policy, or large-scale program implementation) by comparing the changes in outcomes over time between a population that is enrolled in a program (the intervention group) and a population that is not (the control group)."⁵⁴

The general concept of DiD analysis is intuitive. As Figure 1 illustrates in a simplified example, a DiD analysis tracks two groups over time. The groups are parallel in terms of an outcome (e.g., price) before a treatment that applies to the treated group but not to the control group. To ensure the validity of DiD, the control group must pass two tests: the parallel trend test and the Granger causality test. The first test examines whether the difference between the treatment and control group is constant in terms of the outcome (e.g., price) before the treatment.⁵⁵ The second test examines whether the change in the outcome (e.g., price) was caused by the treatment, or if these effects are observed before the treatment.⁵⁶ Once the two tests are passed, the effect of the treatment is simply the difference between the post-intervention difference and the pre-intervention difference.

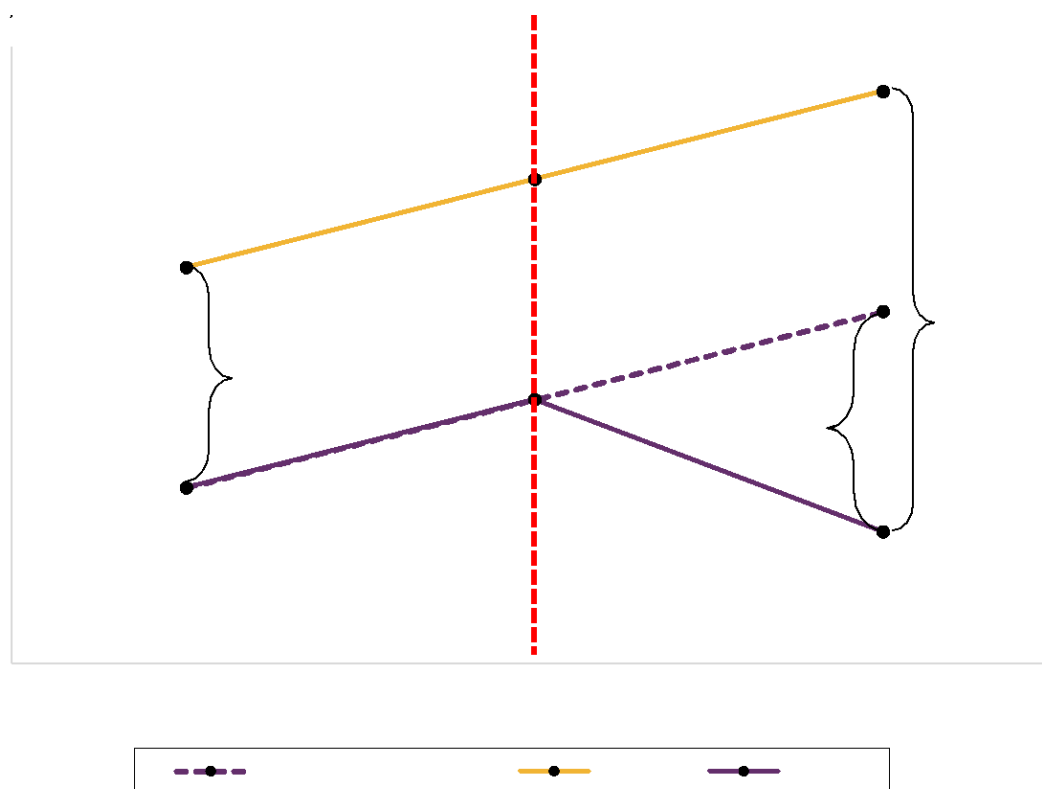
⁵³ "Difference-in-Difference Estimation," *Mailman School of Public Health, Columbia University*, accessed September 15, 2025, <https://www.publichealth.columbia.edu/research/population-health-methods/difference-difference-estimation>.

⁵⁴ Ibid.

⁵⁵ See, e.g., Angrist, Joshua and Jörn-Steffen Pischke, "Mostly Harmless Econometrics: An Empiricist's Companion," *Princeton University Press*, NJ, 2008, Chapter 5, p. 230.

⁵⁶ See, e.g., Marcus, Michelle, and Pedro HC Sant'Anna. "The role of parallel trends in event study settings: An application to environmental economics." *Journal of the Association of Environmental and Resource Economists* 8, no. 2 (2021), p. 240. See also "didregress postestimation-Postestimation tools for didiregress and xtdidregress," Stata, accessed September 12, 2024, p. 3, <https://www.stata.com/manuals/causalddidregresspostestimation.pdf>.

Figure 1: Conceptual Overview of the DiD Technique



Source: NERA.

3.2.2 Applying DiD analysis to the new CRTC framework

The DiD technique serves as an ideal tool to evaluate the provincial price effects causal to the CRTC's new wholesale internet framework. On November 6, 2023, the Interim Decision implemented wholesale FTTP access in Ontario and Quebec. It was not until August 13, 2024, that the Final Decision extended the new framework to all provinces. Hence, during the nine months between the two decisions, Ontario and Quebec received the treatment, but the other provinces did not; therefore, they serve as the basis for the control group.

The DiD analysis quantifies the price effects causal to the CRTC's new framework separately for Ontario and Quebec. Instead of the standard DiD analysis described in Section 3.2.1, it uses the synthetic DiD technique. This more advanced variant of the DiD technique differs only in the construction of the control group. Instead of repeatedly testing and giving equal considerations to potential candidates of a control group, the synthetic DiD technique constructs an effective data-driven control group. This process maximizes the similarities between the treatment group and the control group in the pre-intervention period by weighting the monthly provincial internet CPI along two dimensions. In the first dimension, it assigns more weight to provinces with internet CPI trajectories more similar to that of the treatment group (pre-intervention) and less weight to those with different CPI trajectories. In the second dimension, more weight is assigned to the pre-treatment time periods in the control group provinces that do not have confounding factors affecting their CPI trajectories. Compared to the standard DiD approach, the control group constructed by the synthetic DiD approach better aligns with the requirements of the parallel trends test and the Granger causality test. The economic literature has found the synthetic DiD

approach to outperform or match traditional DiD, being described as “competitive with (or dominates) DiD in applications where DiD methods have been used in the past.”⁵⁷

To implement the synthetic DiD for Ontario and Quebec, the study uses pre-intervention monthly provincial CPI data from November 2018 to October 2023 and post-intervention monthly provincial CPI data from November 2023 to August 2024. Adding provincial statistics (e.g., population and GDP from services as a percent of total GDP) from Statistics Canada allows for robustness testing, which is subject to the discussion in Appendix A.⁵⁸

3.3 Estimation Results

Analyzing Statistics Canada’s monthly provincial internet CPI data through synthetic DiD reveals significant and robust price decline causal to the CRTC’s new wholesale internet framework. It demonstrates that opening FTTN networks to wholesale access lowered internet price levels for consumers in the initial provinces covered by the policy. In Ontario, from November 2023 to August 2024, the new wholesale internet framework reduced the province’s internet CPI by 8 percent relative to what CPI levels would have been but for the Interim Decision. Similarly, in Quebec, the Interim Decision caused 11 percent decrease in the provincial internet CPI for the same period relative to what price levels would have been but for the decision. Put differently, from November 2023 to August 2024, the CPI for internet access services in Ontario would have been 118.60 on average without the Interim Decision instead of the observed average of 109.27.⁵⁹ This means consumers in Ontario paid significantly less than they otherwise would have. Similarly, without the decision, the CPI in Quebec would have averaged 78.27 compared to the observed average of 69.96, implying that consumers in Quebec also benefited from lower prices.⁶⁰ Thus, there is clear evidence that the Interim Decision did have a positive impact on the price levels Canadian consumers pay for high-speed internet access.

Figure 2 and Figure 3 illustrate the price decline caused by the Interim Decision. These figures show parallel trends between the treated provinces (Ontario in Figure 2 and Quebec in Figure 3) and their respective control groups before the policy, followed by a clear divergence after the policy was introduced. In the absence of the policy framework, Ontario and Quebec would have followed a similar trend as their respective control groups. The Interim Decision caused Ontario’s CPI to drop lower than it would have in the absence of the policy framework. Additionally, the Interim Decision reduced the rate at which Quebec’s CPI would have increased without the policy framework.

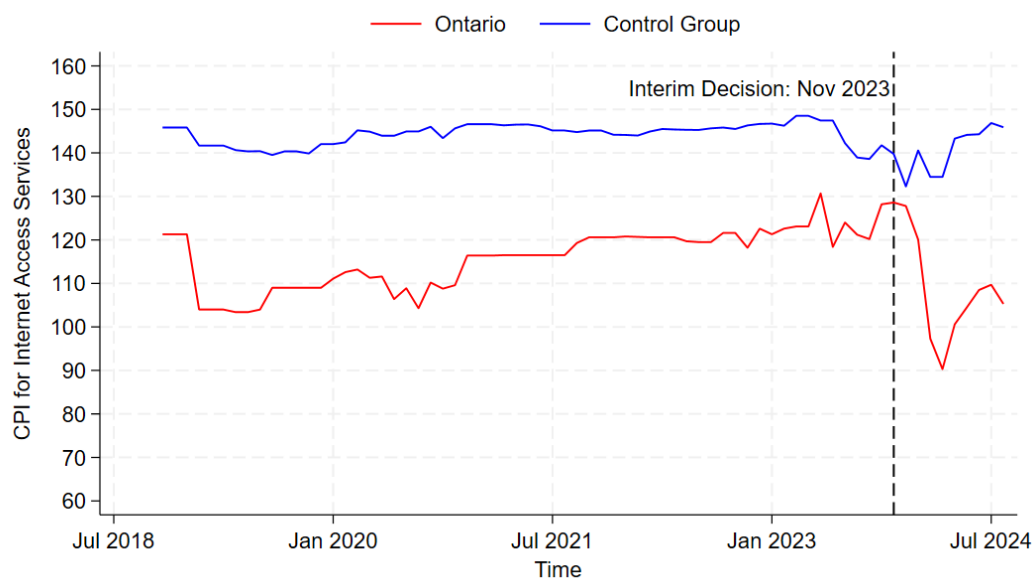
⁵⁷ Dmitry Arkhangelsky, Susan Athey, David A. Hirshberg, Guido W. Imbens, and Stefan Wager. “Synthetic difference-in-differences.” *American Economic Review* 111, no. 12 (2021): 4088–4118.

⁵⁸ Statistics Canada measures the population data quarterly and the income per capita annually.

⁵⁹ Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, accessed September 12, 2025, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

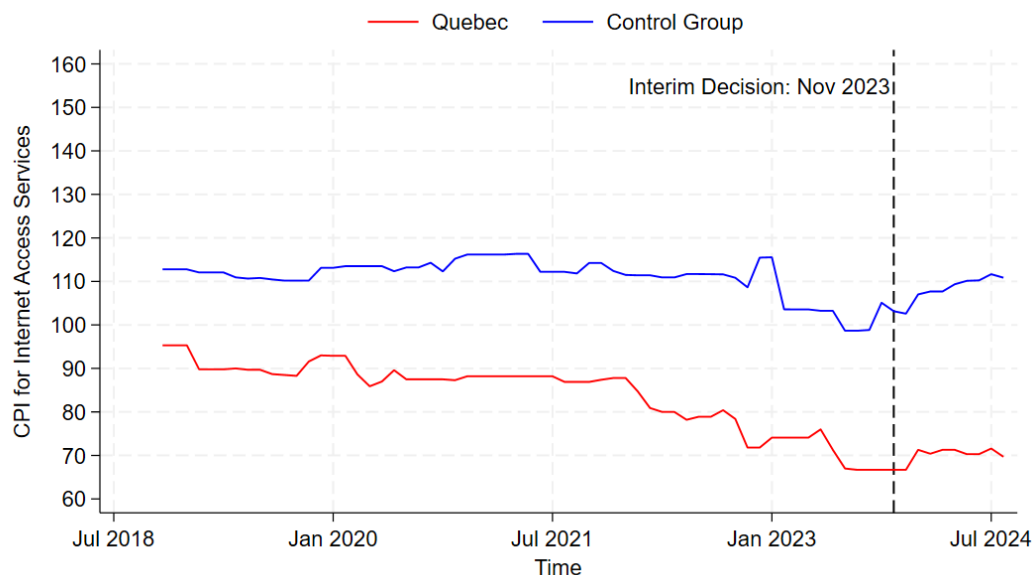
⁶⁰ Ibid.

Figure 2: Synthetic DiD Results—Ontario



Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

Figure 3: Synthetic DiD Results—Quebec



Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

Although the drop in Figure 2 (Ontario) is more dramatic graphically than the drop in Figure 3 (Quebec), the numerical percentage decrease in Quebec's CPI is higher. Mathematically, because Quebec has a lower pretreatment CPI than Ontario, a similar nominal drop in the CPI level would reduce Quebec's internet CPI by a larger percentage.

These findings are robust across a wide range of modeling specifications, including accounting for province and time-specific factors, adding observable provincial characteristics such as population and GDP from service-producing industries, as well as varying the length of the pretreatment period. Moreover, placebo tests further confirm the validity of this study. By simulating the implementation of the policy in provinces where it was not actually applied, and observing no similar effects in these hypothetical cases, the robustness testing confirms that the results are not due to random chance. Appendix A provides further details on the implementation and results from the DiD analysis.

3.4 Competitive Responses Due to Wholesale HSA

Examples of actual competitive responses confirm the findings of the DiD analysis and illustrate how increased competitive forces, causal to the CRTC's new policy, put downward pressure on retail prices and upward pressure on quality. As an example, consider Table 1, which shows the evolution of Bell's Fibe 500 plan in Ontario and Videotron's Internet 400 and 500 plans in Quebec from October 2023 to June 2024.

Table 1: Plan Prices in Ontario and Quebec

Plan	Province	October 2023	March 2024	June 2024
------(CAD)-----				
Bell				
Fibe 500	ON	110.0	95.0	100.0
Videotron				
Internet 400	QC	70.0	65.0	n/a
Internet 500	QC	n/a	n/a	65.0

Note: n/a = plan not available. The table includes discounted prices but does not consider taxes.
Source: See footnotes 5965–62.

Bell lowered the price of its Fibe 500 plan from CAD 110 to CAD 95 per month by March 2024, a reduction of 13.6 percent.⁶¹ Although Bell raised the price to CAD 100 per month by June 2024, the price was still below the price in October 2023.⁶² Videotron lowered the price of its Internet 400 plan from CAD 70 to CAD 65 per month by March 2024, a reduction of 7.1 percent.⁶³ By June 2024, Videotron discontinued this plan and introduced the Internet 500 plan, offering download speeds that were 25 percent higher for the same price.⁶⁴

⁶¹ $(\text{CAD } 95 / \text{CAD } 110) - 1 = -13.6$ percent. ("Packages, 2023-10-30," Bell, accessed via Wayback Machine on September 15, 2025, https://web.archive.org/web/20231030184923/https://www.bell.ca/Bell_Internet/Internet_access. See also "Packages, 2024-3-10," Bell, accessed via Wayback Machine on September 15, 2025, https://web.archive.org/web/20240310171932/https://www.bell.ca/Bell_Internet/Internet_access.)

⁶² "Packages, 2024-6-10," Bell, accessed via Wayback Machine on September 15, 2025, https://web.archive.org/web/20240610143443/https://www.bell.ca/Bell_Internet/Internet_access.

⁶³ $(\text{CAD } 65 / \text{CAD } 70) - 1 = -7.1$ percent. ("Internet Plans, 2023-10-1," Videotron, accessed via Wayback Machine on September 15, 2025, <https://web.archive.org/web/20231001160107/https://videotron.com/en/internet/unlimited-internet-plans>. See also "Internet Plans, 2024-3-2," Videotron, accessed via Wayback Machine on September 15, 2025, <https://web.archive.org/web/20240302061643/https://videotron.com/en/internet/unlimited-internet-plans>.)

⁶⁴ $(500 \text{ Mbps} / 400 \text{ Mbps}) - 1 = 25$ percent. (Ibid. See also "Internet Plans, 2024-6-18," Videotron, accessed via Wayback Machine on September 15, 2025, <https://web.archive.org/web/20240618032257/https://videotron.com/en/internet/unlimited-internet-plans>.)

The competitive responses of lowering prices and improving service quality from Bell and Videotron corroborate the CPI trajectories reported by Statistics Canada during this period. As Section 3.1 explained, Statistics Canada calculates the internet CPI using plan prices and other data from service provider websites. These findings demonstrate that the Interim Decision benefited Canadian consumers.

4 CONCLUSION

This paper empirically evaluates the rationale behind the GIC's FTTN Decision by estimating the impact of wholesale FTTN access in Ontario and Quebec under the Interim Decision. Applying DiD analysis to the provincial CPI for internet access services as a proxy for price levels, the study finds that the policy causes a significant reduction in CPI of around 8 percent in Ontario and 11 percent in Quebec. Hence, had the Interim Decision not been implemented, consumers in those provinces would have paid significantly more for internet service. Market data reflect incumbent providers' price reductions and service improvements, further supporting these findings. The results suggest that expanding wholesale access enhances competition and benefits consumers through lower prices and better services. Overall, the analysis demonstrates that the wholesale access policy achieves its intended goal of making high-speed internet more affordable for Canadians and provides a strong basis for its continuation.

APPENDIX A: DIFFERENCE-IN-DIFFERENCES DETAILS

MAIN FINDINGS

To quantify the causal impact of the Interim Decision on consumer internet access prices in Ontario and Quebec, a synthetic DiD analysis is employed. Table A. 1 reports the synthetic DiD estimation results for each province. The Interim Decision reduced the CPI for internet access services for Canadian consumers in Ontario by approximately 8 percent and in Quebec by approximately 11 percent. These results are statistically significant at the 99 percent confidence level.

Table A. 1: Estimated Impact of Telecom Decision CRTC 2023-358 on Internet Services CPI

	Internet Access Services CPI	
	(1)	(2)
	Ontario	Quebec
Treatment Effect	-0.0787*** (0.0200)	-0.1062*** (0.0200)
Observations	630	630

Standard errors in parentheses

* = $p < 0.10$

** = $p < 0.05$

*** = $p < 0.01$

Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

ROBUSTNESS CHECKS

Three different robustness tests are conducted to confirm whether the results are reliable. First, placebo tests are run to test whether our model estimates a similar impact on untreated provinces. A synthetic DiD is simulated on each of the eight untreated provinces as hypothetically treated. As shown in Table A. 2, no similar effects in these hypothetical cases are found. Therefore, the placebo test confirms that the main results are unlikely to have occurred by random chance.

Table A. 2: Placebo Test Results

"Treated" Province	Internet Access Services CPI	Standard Error
Alberta	-0.0099	(0.029)
British Columbia	-0.0106	(0.029)
Manitoba	-0.0069	(0.021)
New Brunswick	-0.0324	(0.023)
Newfoundland and Labrador	0.0265	(0.040)
Nova Scotia	0.0061	(0.029)
Prince Edward Island	0.0178	(0.028)
Saskatchewan	0.0273	(0.040)

Standard errors in parentheses

* = $p < 0.10$ ** = $p < 0.05$ *** = $p < 0.01$

Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

Second, additional covariates, provincial population and GDP from services-producing industries (represented as a percentage of total GDP), are included to control for other time-variant factors that might influence the CPI for internet access services. Table A. 3 indicates that the estimated impacts on Ontario and Quebec remain similar after accounting for these additional factors.

Table A. 3: Regressions with Additional Covariates

	Internet Access Services CPI					
	Ontario			Quebec		
	(1)	(2)	(3)	(1)	(2)	(3)
Treatment Effect	-0.0787*** (0.0200)	-0.0789*** (0.0188)	-0.0790*** (0.0188)	-0.1056*** (0.0200)	-0.1051*** (0.0185)	-0.1044*** (0.0185)
Controls	Pop. (Log)	Service GDP (%)	All	Pop. (Log)	Service GDP (%)	All
Observations	630	630	630	630	630	630

Standard errors in parentheses

* = $p < 0.10$ ** = $p < 0.05$ *** = $p < 0.01$

Source: See footnote.⁶⁵

Third, the length of the study period is varied to test the sensitivity of the results to the data available. Extending the study period to include 5 years, 10 years, or the entire pretreatment period data available shows that the estimated impact of the Interim Decision is remarkably stable. As

⁶⁵ Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>; see also Statistics Canada. Table 17-10-0009-01 Population estimates, quarterly, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901>; see also Statistics Canada. Table 36-10-0400-01 Gross domestic product (GDP) at basic prices, by industry, provinces and territories, percentage share, <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610040001>.

shown in Table A. 4, across different study lengths, the CPI for internet access services decreased by approximately between 7 to 9 percent in Ontario and by approximately between 11 to 15 percent in Quebec.

Table A. 4: Regressions Using 5-year, 10-year, and Maximum Pretreatment Periods

	Internet Access Services CPI					
	Ontario			Quebec		
	(1)	(2)	(3)	(4)	(5)	(6)
	5 Years	10 Years	Max. Period	5 Years	10 Years	Max. Period
Treatment Effect	-0.0787*** (0.0200)	-0.0890*** (0.0231)	-0.0791*** (0.0221)	-0.1062*** (0.0200)	-0.1116*** (0.0231)	-0.1452*** (0.0221)
Observations	630	1170	2349	630	1170	2349

Standard errors in parentheses

* = $p < 0.10$ ** = $p < 0.05$ *** = $p < 0.01$

Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

SYNTHETIC DiD WEIGHTING PROCEDURE

To construct a control group that matches the pretreatment trend of the treated province, the synthetic DiD method assigns weights to each untreated province. Table A. 5 lists the unit weights assigned to each untreated province used in constructing the control group for Ontario and Quebec, respectively.

Table A. 5: Unit Weights for Each Province in Construction of Control Group

Province	Unit Weights	
	Ontario	Quebec
Alberta	0.25	0.00
British Columbia	0.23	0.00
Manitoba	0.00	0.00
New Brunswick	0.13	0.18
Newfoundland and Labrador	0.07	0.06
Nova Scotia	0.00	0.49
Prince Edward Island	0.00	0.26
Saskatchewan	0.32	0.00

Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

Similarly, time weights are assigned to control pretreatment factors that might affect post-treatment outcomes, which removes bias and improves precision. Table A. 6 lists the pretreatment dates and its corresponding weights used in the construction of the pretreatment comparison group.

Table A. 6: Time Weights in Construction of Pretreatment Period

<u>Pre-Treatment Date</u>	<u>Weight</u>
August 2019	0.51
August 2023	0.11
October 2023	0.38

Source: Statistics Canada. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401>.

ABOUT THE AUTHOR

Dr. Dippon is an economist and Senior Managing Director in NERA's Washington, DC, office. He is a leading authority in complex litigation disputes, competition matters, and regulatory interventions with a particular focus on the telecommunications sector, the broader digital economy, consumer electronics, and the mining sector. Dr. Dippon has over 29 years of experience in quantifying economic harm to private parties and the public interest, assessing competitive conditions in antitrust investigations and regulatory proceedings, and analyzing critical policy questions.

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Dr. Dippon has published books, book chapters in anthologies, and articles on topics about damages in state-investor and commercial arbitrations, econometric techniques to consumer survey data, the definition of economic markets, competitive market assessments, and a wide range of regulatory topics. He also lectures in these areas at industry conferences, continuing education programs for lawyers, and universities. National and international newspapers and magazines, including the *Financial Times*, *Business Week*, *Forbes*, the *Chicago Tribune*, and the *Financial Post*, have cited his work.

Dr. Dippon is a member of NERA's Executive Committee and leads the firm's efforts in telecommunications, media, and technology. He also serves on the editorial board of Elsevier's *Telecommunications Policy* and as treasurer of the International Telecommunications Society. Dr. Dippon is a member of the American Economic Association and the International Bar Association.