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Delivering Choice

A Study of Competition in Canada's
Broadband Industry

Canada

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EXECUTIVE SUMMARY

Purpose of the Study

Broadband internet access is, and will continue to be, the engine of the digital economy. Canadians use broadband services to work and play, to be entertained, and to participate fully in a wide range of economic and social activity. Accordingly, healthy competition in the broadband sector is key to ensuring that all Canadians can benefit from all that the internet brings to our lives.

This report is the result of a year-long market study undertaken by the Competition Bureau (Bureau) to evaluate the state of competition in Canada's broadband industry. In conducting this study, the Bureau has surveyed consumers and industry participants alike, with the goal of better understanding how internet service providers in Canada compete for consumers' business. Through this report, the Bureau communicates the results of what it has learned so that industry participants, regulators, policy-makers, and the general public can benefit from its effort.

The results of this study paint a largely positive picture. Most Canadians are well-served by world class broadband networks, and the Bureau's research shows that Canadians are generally satisfied with their internet service provider. While some consumers may only think about their telephone or cable company when it comes to buying internet services, the Bureau's research has found that more than 1,000,000 Canadian households rely on smaller competitive providers to obtain internet services, and that the competitive impact of this class of providers continues to grow.

These marketplace alternatives exist, at least in part, as a result of industry regulation. The Bureau is hopeful that this study can play a meaningful role in the development of such regulation going forward. Throughout this report, the Bureau articulates key questions, based on its research, that it believes will be important to address in the process of crafting and refining these important regulations. For example:

- Do smaller competitors act as a sufficient alternative to larger competitors for all types of Canadian broadband users?
- Why are smaller competitive providers less successful in parts of the country beyond Southern Ontario and Southern Quebec?

- What effect will 5G wireless technologies have on the broadband internet industry? What evidence of a positive competitive impact should a regulator require to adapt regulatory rules?
- How can a regulator balance the positive aspects of greater competition from smaller competitors with any negative effects that it may have on the incentive for larger players to continue to invest in world-class broadband networks?
- Is there a case for further regulation to address industry issues going forward?

Key Findings of the Study

The vast majority of internet users in Canada access broadband internet services through wired networks deployed by telephone and cable companies. Since it is unlikely that additional wired connections will be made available in the future, Canada's telecommunications regulator imposes a mandatory wholesale access obligation to ensure consumer choice and greater levels of competition. Under this wholesale access regime, independent competitors gain access to parts of existing telephone, cable, and fibre optic networks at regulated wholesale rates, and in turn use these connections to serve consumers in direct competition with network owners.

A key goal of this study is to assess the performance of Canada's wholesale access regime. In this vein, the Bureau's study found four key facts. First, wholesale-based competitors, who use the access regime to serve customers, currently provide services to more than 1,000,000 Canadian households. Second, consumers who are served by wholesale-based competitors report higher satisfaction with their provider than those who use traditional providers. Third, wholesale-based competitors act as a competitive alternative for countless other households, who use their presence to negotiate lower prices and other inducements from other competitors. And finally, several facilities-based competitors, who provide services using their own underlying physical networks, have recently launched flanker brands, at least in part as a competitive response to wholesale-based competitors. In these respects, the wholesale access regime appears to be fulfilling its promise to bring about greater consumer choice and increased levels of competition for Canadian consumers.

However, the market performance of wholesale-based competitors takes nothing away from the important marketplace role played by their facilities-based counterparts. These providers, which are typically telephone and cable companies, serve the significant majority of Canadians, while at the same time making the substantial investments necessary to deploy, maintain, and upgrade the physical networks that connect Canadian homes to the internet. These competitors engage in an important form of dynamic competition, working to outdo each other in order to offer the

highest speeds and most reliable networks. Of importance, the Bureau notes the potential negative effects that a wholesale access regime can have on the incentive for facilities-based competitors to make the necessary investments to ensure that Canadians are served by world class networks. In this regard, the Bureau underscores the importance of setting wholesale access rates at the correct level to ensure that investment incentives are maintained, while at the same time ensuring sufficient scope for wholesale-based competitors to continue to offer competitive discipline in the marketplace.

In this study, the Bureau relied on public opinion research to better understand consumer perspectives in the industry. This research had three overarching findings. First, Canadian consumers are generally happy with both the performance of their existing internet service provider, and their choice among providers where they live. A significant exception exists for consumers in remote and rural areas of Canada, who typically have fewer, and less modern, options for internet services. Second, more than two-thirds of the consumers who participated in the Bureau's public opinion research purchase internet services alongside other telecommunications or broadcasting services in a bundle. And finally, there does not appear to be one single type of broadband consumer in Canada; rather, significant groups of consumers tend to be motivated by a diversity of factors. For example, some seek the fastest connections with the largest download caps, while others may care more about ensuring that they get the best bargain possible. These factors can have significant implications for understanding the competitive reality of the broadband sector.

Finally, a noteworthy part of this study involves a survey of alternative methods of internet access, such as wireless and satellite technologies. Presently, almost nine in ten Canadian households access the internet over wired connections, and it appears that this will continue, at least for the immediate future. Fifth generation wireless networks may bring the technological capability to deliver internet services to Canadian homes at speeds equal to or better than existing connections, but it remains to be seen exactly how these services will be deployed in Canada, and what effect they will have on competition for broadband services.

With the knowledge gained through this study, the Bureau will continue to act as a voice for competition. In particular, the Bureau intends this report to be a helpful input to both future regulatory reviews and future matters under the *Competition Act*.

1. INTRODUCTION

Key Messages

- This Study is the result of a year-long effort by the Bureau to better understand competition in respect of residential broadband internet services.
- As a result of this Study, the Bureau is better prepared for future developments and events in the Canadian broadband industry, including the CRTC's upcoming hearing on wireline wholesale regulation.
- The analysis in this Study is based on information obtained from public and industry sources, as well as original public opinion research designed to illuminate important consumer perspectives on the industry.

Context of this Study

From May 2018 to June 2019, the Bureau undertook a market study of competition in respect of residential broadband internet services. Broadband internet services are the type of high-speed connections that most Canadians use to access the internet at home. This study has examined competition in respect of the broadband internet services that play a vital role in our modern economy, and has allowed the Bureau to remain current on industry developments.

The Bureau is an independent law enforcement agency that ensures Canadian businesses and consumers prosper in a competitive and innovative marketplace. The Bureau promotes competition by, among other things, advocating for greater reliance on competitive market forces. More competition generally leads to lower prices for consumers, as well as increased choice and greater innovation.

One way the Bureau promotes competition is through market studies like this one. Market studies allow the Bureau to view an industry through a general competition lens. In conducting market studies, the Bureau may identify relevant laws, policies, regulations or other factors that may impede competition. This is different than the Bureau's law enforcement activities, which aim to investigate whether the law has been contravened, and bring enforcement action where appropriate.¹

¹ For more information on Market Studies, see the Bureau's Market Studies Information Bulletin, available online at: <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04390.html>.

Scope of Study

This study focuses on residential broadband internet services. It does not evaluate or elaborate on other aspects of the Canadian telecommunications or broadcasting industries, except insofar as they are relevant to consumer choices in respect of broadband internet services.

This study is not a full-scale competition analysis of the industry. In the context of market studies, the Bureau does not have formal investigative powers to compel information from those who have, or are likely to have, relevant information. Therefore, in conducting market studies, the Bureau must rely on voluntary cooperation of stakeholders to access the information needed to perform the study. This limitation means that, in some areas, the Bureau may not be able to draw firm conclusions about the competitive realities of an industry.²

Why Study Broadband?

Broadband internet is the engine of the digital economy. A wide range of activities, both social and economic, are fueled and catalyzed by the internet. Accordingly, a major reason for undertaking this study is to ensure that the Bureau remains up to date with the current structure, competitive reality, and relevant regulations that govern the industry.

Additionally, the Canadian Radio-television and Telecommunications Commission (CRTC), which regulates aspects of the Canadian broadband marketplace, will be reviewing its broadband industry regulation in the near future.³ The Bureau has a mandate to assist regulators in matters respecting competition.⁴ Accordingly, this study is an opportunity for the Bureau to gain advanced knowledge of the industry before the commencement of this important review.

Methodology

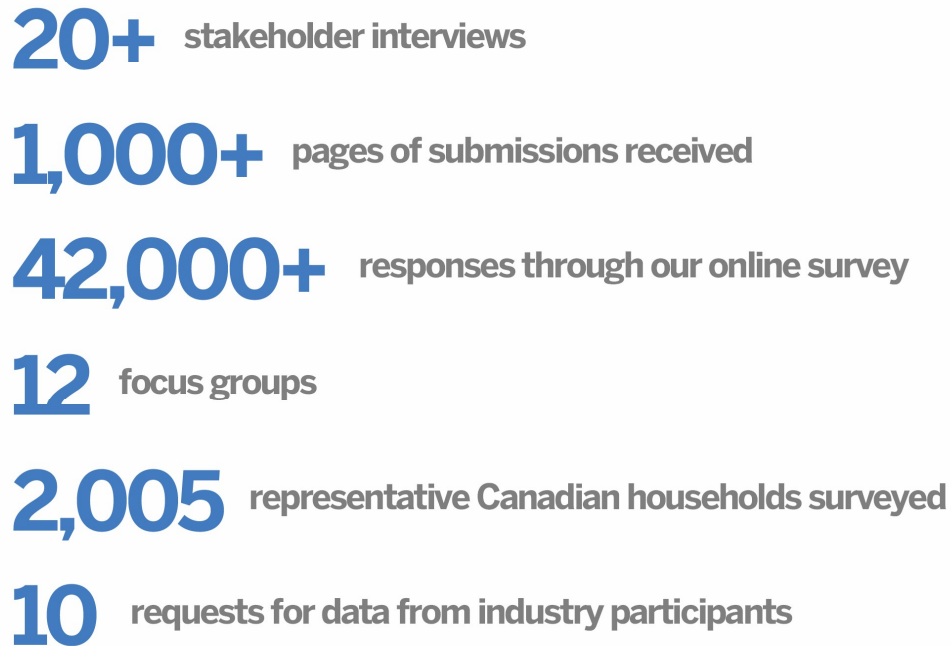
The Bureau uses a multitude of approaches to assessing competition-related topics in this study. A complete description of the methodologies used by the Bureau in undertaking this study is set out in Appendix B. Figure 1 presents a brief overview of some of the key methodological tools used in this study.

² This Study will not pre-determine the Commissioner of Competition's position in any current or future investigation or competition advocacy project.

³ CRTC. (2018) "CRTC Forecast 2019-2020". Available online at: <https://crtc.gc.ca/eng/backgrnd/vis.htm>.

⁴ See, for example, sections 125 and 126 of the *Competition Act*.

Figure 1: Key Methodologies Used in this Study



Use of Follow-On Questions Rather than Recommendations

Consistent with the Bureau's role as Canada's competition expert, some Bureau market study reports make formal recommendations to regulators and policy-makers. However, this report takes a different approach. Instead, in parts of this report, the Bureau articulates a series of follow-on questions that arise from the discussions and analyses set out therein. These questions may serve as key motivators for future work in this industry and, in the Bureau's opinion, are important questions necessary to conceptualize and define competition analysis in future fora.

Use of Consumer Quotes in this Report

In conducting this study, the Bureau solicited the views of Canadians through an online survey hosted on the Bureau's website. Through this survey, a wide range of consumers submitted their views. Quotes from these submissions are included in parts of this report to underscore the real world considerations that have driven this study.

2. INDUSTRY OVERVIEW

Key Messages

- Most Canadian households access the internet through wired networks operated by their telephone or cable company.
- In areas of the country that are already served by modern telephone and cable networks, it is unlikely that additional wired networks will be deployed in the future, given how costly and difficult it is to connect a substantial number of Canadian homes.
- Accordingly, to ensure consumer choice and increase competition, the CRTC mandates that independent competitors be allowed to use the networks of telephone and cable companies to provide internet services to Canadian households.
- In more densely populated areas of Canada, virtually all households have access to both telephone and cable networks; in rural areas, coverage is less extensive.

Broadband Internet Options in Canada

Consumers purchase broadband internet services from Internet Service Providers (ISPs). While there are a variety of technologies through which these services can be delivered,⁵ about 87% of Canadians who purchase broadband internet services do so through wired networks owned by their telephone or cable company.⁶ These networks provide the type of high speed, high capacity connections necessary for Canadians to take full advantage of the digital economy.

Deploying wired networks is expensive, challenging, and risky. Companies who wish to do so incur significant costs both in terms of actually putting wires into the ground, and in terms of the regulatory approvals necessary to deploy such infrastructure. For example, telephone companies in Canada are currently replacing their existing copper wire networks with modern, fibre optic

⁵ See Part 5 of this report.

⁶ CRTC. (2018) "CRTC Communications Monitoring Report 2018" (CMR) at Figure 5.1. Available online at: <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2018/>.

cables, and the cost of doing so is reportedly in the order of more than one thousand dollars for each home that is connected.⁷

Given the significant costs of deploying wired networks, it is likely not economical for a new enterprise to “overbuild” a new network on top of existing telephone and cable networks.⁸ This is, in part, because simply placing wires does not come with any guarantee that those wires will be used. Once the wires are placed, that new network still must compete with existing networks in order to attract a sufficient number of customers at sufficient levels of revenue to pay off their investments.⁹ At the current cost of deployment, it does not appear economically viable for additional wired networks to provide additional choice for Canadian consumers.

Accordingly, at this basic level, market forces will generally only deliver two wired internet choices into the homes of most Canadians. Along with this limited choice come obvious concerns whether choice between only two providers is enough to deliver competitive outcomes. The CRTC, recognizing these concerns, has historically opted to use regulation to increase competition and consumer choice in respect of broadband internet services. Since the advent of broadband internet in the late 1990s, the CRTC has mandated the largest telephone and cable companies in Canada to provide wholesale access to their networks. Using this wholesale access, independent competitors can then link in and use the network infrastructure of telephone and cable companies to provide broadband internet services to consumers in direct competition with those network owners.¹⁰

⁷ Dobby, C. “Rewired: Why Bell is spending billions to run fibre-optic cable directly to your home”. *The Globe and Mail*. September 22, 2017. Available online at: <https://www.theglobeandmail.com/report-on-business/bce-bell-fibre-telecom/article36366245/>

⁸ See, for example, CRTC 2015-326. Available online at: <https://crtc.gc.ca/eng/archive/2015/2015-326.htm>. There are examples of where this has happened. See, for example, Stratford, Ontario, where a third party company is building a new fibre optic network: Bridge, T. (2018) “Fibre project ahead of schedule”. *The Stratford Beacon Herald*. August 3, 2018. Available online at: <https://www.stratfordbeaconherald.com/news/local-news/fibre-project-ahead-of-schedule>.

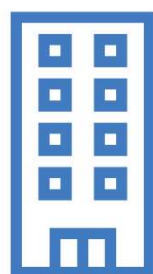
⁹ *Supra* note 7.

¹⁰ See, for example, CRTC 97-8, available online at: <https://crtc.gc.ca/eng/archive/1997/dt97-8.htm>; CRTC 99-11, available online at: <https://crtc.gc.ca/eng/archive/1999/DT99-11.HTM>; CRTC 2018-17, available online at: <https://crtc.gc.ca/eng/archive/2008/dt2008-17.htm>; and CRTC 2015-326, available online at: <https://crtc.gc.ca/eng/archive/2015/2015-326.htm>.

Wholesale-Based Competitors

Using this wholesale access, dozens of third party providers have established themselves as broadband providers, and are actively competing against telephone and cable companies in the provision of internet services to Canadian consumers. These ISPs, referred to in this report as “wholesale-based competitors”, invest in networking equipment and purchase connections into a telephone or cable company’s network, and then buy capacity on those networks at regulated rates. Wholesale-based competitors then market their services in direct competition with telephone and cable companies, which are referred to in this report as “facilities-based competitors”. Figure 2 provides brief definitions to better understand these two classes of competitors.

Figure 2: Facilities-Based and Wholesale-Based Competitors



Facilities-based competitors

They own the broadband networks and use them to provide services



Wholesale-based competitors

They use the networks of facilities-based competitors to provide services

There is some misunderstanding about exactly how wholesale-based competitors deliver services to the marketplace. Wholesale-based competitors are not simply “resellers”, who sell existing internet plans on behalf of a telephone or cable company. Instead, wholesale-based competitors, through their investments, control a significant range of service variables, including the capacity limits and prices of their internet plans.¹¹ Although wholesale-based competitors are often

¹¹ See, for example, the Written Submissions of BCE Inc. at Part 3.3, available online at: <https://www.competitionbureau.gc.ca/eic/site/cb->

referred to in the industry as resellers, this is an inaccurate term that can have negative connotations in the eyes of consumers.¹²

Dozens of wholesale-based competitors operate in Canada today.¹³ Of these companies, there are a small number of more successful companies who provide services to a larger number of customers, and a larger number of companies who tend to serve smaller subscriber bases. Wholesale-based competitors can, and do, connect into the networks of multiple facilities-based competitors. For example, a wholesale-based competitor in Southern Ontario may make connections to the wired networks of Rogers, Bell, and Cogeco in order to make their services broadly available to all homes in an area.¹⁴

Broadband Internet in Rural and Remote Areas of Canada

There is a significant difference between broadband internet options available to consumers in the more densely populated areas of Canada and those in more rural and remote settings. In Canada, like many other countries, broadband internet network deployment is a result of market forces. This market-based approach ensures that networks are deployed in those areas where demand is the greatest, such as the downtown areas of major cities. But, in the more sparsely populated parts of the country, where companies are less likely to earn a comparable level of revenues to repay their investments, it is difficult for a company to justify making the very large investments necessary to provide modern networks.¹⁵

The real world effect of this is that networks in rural and remote areas are generally slower, and served by fewer companies, than those in more urban areas.¹⁶ For example, while approximately 99% of Canadian homes in large population centres have access to the 50 Mbps and higher speed

[bc.nsf/vwapi/BCE Inc Comments on Market Study Notice on Broadband Services.pdf/\\$file/BCE Inc Comments on Market Study Notice on Broadband Services.pdf](http://bc.nsf/vwapi/BCE%20Inc_Comments%20on%20Market%20Study%20Notice%20on%20Broadband%20Services.pdf/$file/BCE%20Inc_Co%20mments%20on%20Market%20Study%20Notice%20on%20Broadband%20Services.pdf).

¹² See Part 4 of this report.

¹³ The Canadian Network Operators Consortium, an industry association that represents wholesale-based competitors, lists more than 35 members on its website, and there are other wholesale-based competitors who do not participate in this association. See <https://www.cnoc.ca/cnoc-members/>.

¹⁴ For example, a wholesale-based competitor who connects to each of Bell, Rogers, and Cogeco's networks in Southern Ontario can sell services to practically any home in the densely populated areas of Ontario, whereas, on the other hand, a facilities-based competitor may only sell services in certain parts of this area.

¹⁵ Other factors, such as the terrain of an area, may also affect the economics of network deployments.

¹⁶ See, for example, CMR, *supra* note 6, at Figure 5.18.

services associated with modern cable or fibre optic networks, only 37% of rural and remote homes have access to these connections.¹⁷

“The services provided to northern communities disconnect us from essential services like mental health support, education, and other opportunities. It results in feelings of isolation and as though we aren’t a part of Canada.” – Rural Internet User in Northern Canada¹⁸

However, recent announcements pledge progress on this front. The 2019 Budget includes significant, long-term funding to support internet deployment in rural and remote regions of Canada.¹⁹ And the CRTC’s Broadband Fund initiative, which recently began implementation, similarly commits funds to this end.²⁰

Conclusion on Industry Overview

Most Canadian households are served by two wired networks – one owned by a telephone company, and one owned by a cable company – and a significant majority of Canadians use these wired networks to access the internet. However, deploying additional wired networks is costly, difficult, and unlikely to occur; accordingly, to ensure consumer choice and greater competition, Canadian regulators have put in place a wholesale access regime, whereby independent companies can use parts of these existing telephone and cable networks to provide broadband internet services to Canadian households. This has resulted in the establishment of a class of competitors known as wholesale-based competitors.

The Bureau recognizes that internet access and internet options are not the same across all of Canada. Consumers in rural and remote parts of the country often have fewer choices and less access to the fast and reliable wired networks that consumers in more densely populated parts of Canada enjoy. The Government of Canada and the CRTC both have programs in place with the goal of addressing this imbalance.

¹⁷ See CMR, *supra* note 6, at Tables 5.18 and 5.19.

¹⁸ Comments supplied via the Bureau’s informal survey. See Appendix B for more details.

¹⁹ Government of Canada. (2019) “Part 3: Connecting Canadians”. *Budget 2019*. Available online at: <https://www.budget.gc.ca/2019/docs/plan/chap-02-en.html#Part-3-Connecting-Canadians>.

²⁰ CRTC. (2019) “Closing the Broadband Gap”. Available online at: <https://crtc.gc.ca/eng/internet/internet.htm>.

3. MARKETPLACE RESULTS OF THE WHOLESALE ACCESS REGIME

Key Messages

- Existing statistics are not a perfect indicator of the marketplace performance of wholesale-based competitors.
- The market share of wholesale-based competitors has been growing over the past ten years. In the areas of Canada where wholesale-based competitors have focused their marketing efforts, they possess a market share in the range of 15-20%.
- What is important, from a competition perspective, is not just the market share that any particular competitor has, but whether or not they act as a viable alternative for consumers.

Has the Wholesale Access Regime Resulted in Increased Competition?

Canada's wholesale access regime is designed to increase competition and consumer choice by lowering barriers to entry for wholesale-based competitors to provide internet services in competition with facilities-based competitors. The key question is – how is the regime working? Have wholesale-based competitors been able to bring about meaningful options for consumers?

How Wholesale-Based Competitors Market Themselves

Wholesale-based competitors typically price cheaper than facilities-based competitors. According to CRTC statistics, facilities-based competitors receive, on average, revenues of \$58.32 per subscriber per month, whereas wholesale-based competitors offer services at approximately a 15% discount to this figure.²¹ Other studies indicate even greater discounts by wholesale-based competitors, ranging up to 35% for certain types of plans.²²

²¹ See CMR, *supra* note 6, at Infographic 5.5.

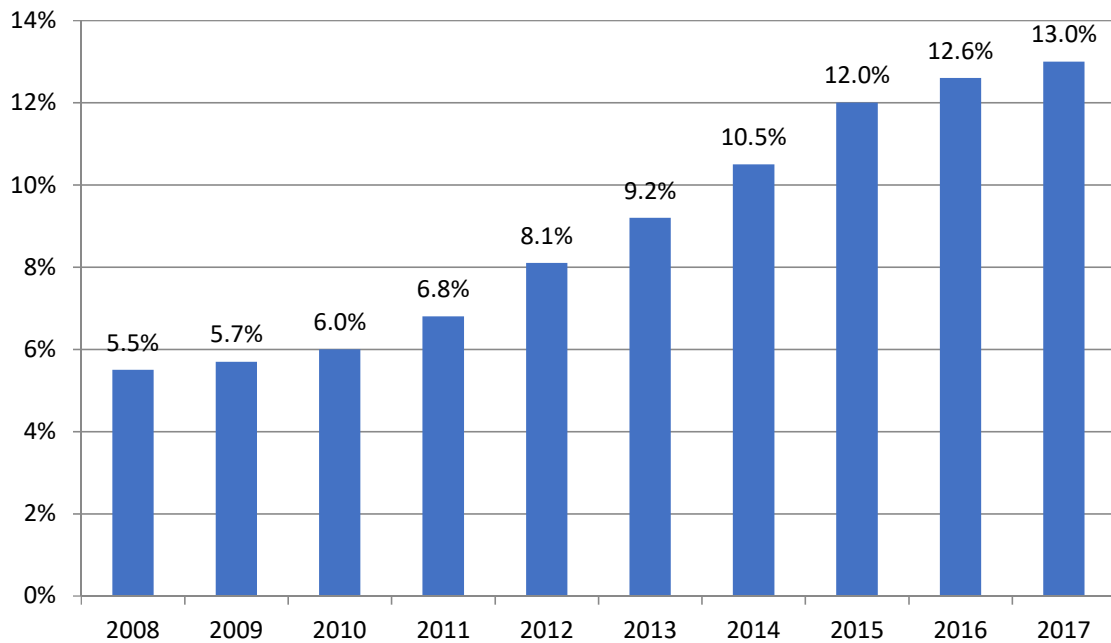
²² Wall Communications Inc. (2018) "5.2 Canadian Broadband Service Prices". *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions - 2018 Edition*. Available online at: <https://www.ic.gc.ca/eic/site/693.nsf/eng/00169.html#5.2>.

Many wholesale-based competitors have historically focused on marketing internet-only services, without significant bundling offers beyond home phone services. More recently, a number of larger wholesale-based competitors have introduced television services and, with that, the ability to offer a bundle of internet, television, and home phone services, much like facilities-based competitors.²³

Market Share Analysis

To understand whether wholesale-based competitors act as an effective alternative to facilities-based competitors, a good place to start is with the CRTC's *Communications Monitoring Report*. This report, published on an annual basis, measures market shares for large facilities-based competitors, and compares them to the market share of all other providers, including wholesale-based competitors.

Figure 3: Share of Canadian internet subscribers served by ISPs other than large telephone and cable companies



²³ See Part 7 of this report.

Figure 3 reports the market share of ISPs other than Canada's large telephone and cable companies.²⁴ This class of ISPs has experienced an upward swing in market share over the past 10 years, growing from 5.5% in 2008 to 13% in 2017.

However, these market share figures may not represent the actual competitive reality in Canada for two reasons. First, these figures include subscribers of some smaller facilities-based competitors, including a nation-wide ISP that offers satellite and fixed wireless services, and not just those of wholesale-based competitors. Second, performing a market share analysis at a national level will not always represent the actual competitive reality for Canadian consumers in more local areas. For example, since wholesale-based competitors have tended to focus their marketing efforts on highly populated areas in Southern Ontario and Southern Quebec, any nation-wide market share estimate will tend to understate the effect that wholesale-based competitors have in these areas, and overstate the effect of these providers in the other areas of the country.

To address these deficiencies, the Bureau worked with industry stakeholders to estimate market shares for wholesale-based competitors in major centres across Canada as at December 31, 2018. Based on confidential information, the Bureau is able to construct approximate market shares for the Greater Toronto and Hamilton Area; the Montreal, Quebec Area; the National Capital Region; and the Southern Ontario Region.²⁵

Figure 4 reports market shares for the four regions where sufficient information was made available to the Bureau.²⁶ These market shares indicate that, in the regions studied, approximately one out of every six households was served by a wholesale-based competitor at the end of 2018.

In other areas of the country, the Bureau was not able to estimate market shares owing to either a lack of necessary data, or difficulty in comparing data sets between different providers. However, through conversations with industry participants, the Bureau believes that market shares for wholesale-based competitors are in the order of 5% for the cities of Calgary,

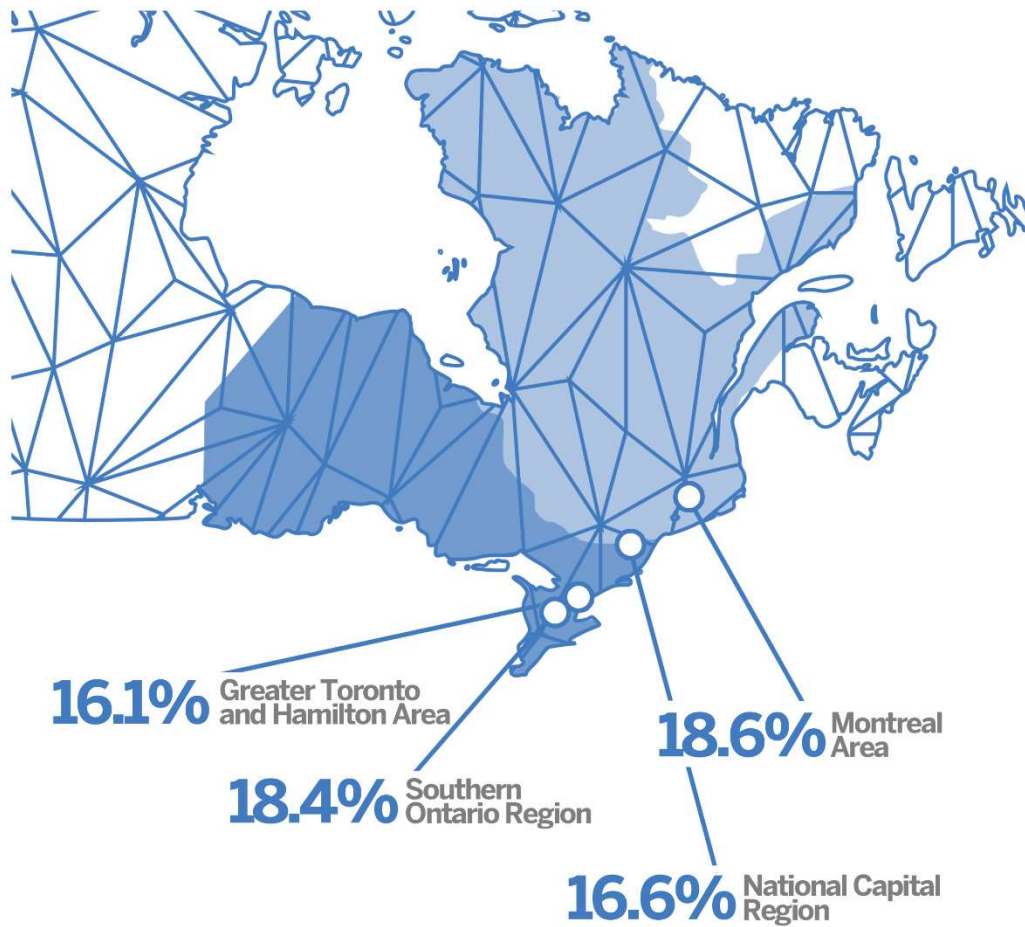
²⁴ Data compiled from past CRTC Communications Monitoring Reports. Available online at: <https://crtc.gc.ca/eng/publications1.htm>.

²⁵ The Southern Ontario Region includes the cities of Kitchener, Waterloo, Guelph, Cambridge, and London, Ontario. For more information on the methodology used in this analysis, see Appendix B.

²⁶ These market shares are estimates, as telephone and cable networks cover different geographic regions that do not precisely conform to city boundaries. Care has been taken, in constructing these market shares, to align the geographic regions of the relevant provider, however this is not a precise exercise, and there is some judgement associated with choosing the boundaries of a region.

Edmonton, and Vancouver. In total, the Bureau was able to confirm that wholesale-based competitors serve more than 1,000,000 Canadian households.

Figure 4: Approximate Market Shares for Wholesale-Based Competitors, 2018



Some market participants claim that wholesale-based competitors tend to focus their efforts on specific types of consumers.²⁷ If that is true, then the market share figures presented above are

²⁷ See, for example, the Written Submissions of Rogers Communications Canada Inc. at paragraph 17, available online at: [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Rogers_Submission_to_Competition_Bureau_Market_Study-Broadband_Services-31Aug2018.pdf/\\$file/Rogers_Submission_to_Competition_Bureau_Market_Study-Broadband_Services-31Aug2018.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Rogers_Submission_to_Competition_Bureau_Market_Study-Broadband_Services-31Aug2018.pdf/$file/Rogers_Submission_to_Competition_Bureau_Market_Study-Broadband_Services-31Aug2018.pdf), and BCE Inc. at paragraph 37, *supra* note 11.

conservative, and wholesale-based competitors may in fact have higher market shares in those consumer segments on which they focus. The Bureau attempted to measure these market shares directly, but was unable to obtain sufficient data from market participants to further segment market shares on other characteristics (such as speed and capacity levels of different internet packages, and whether or not the household is internet-only, or whether it bundles internet services with other services, such as television or home phone).²⁸

Contestability is Key

Through this analysis, the Bureau has learned that wholesale-based competitors have been able to obtain market shares in the order of 15-20% across the areas where they focus their marketing efforts. And the Bureau is aware that countless other households use the presence of wholesale-based competitors to negotiate better rates with other competitors in the marketplace.

But ultimately, what is important for a competition analysis is not just the market share of various providers. Rather, in a competitive marketplace, consumers must be willing and able to switch among providers.²⁹ This is an offshoot of an economic theory called contestability theory – which holds that even competitors with a high market share must respond to the threat of entry or expansion when other competitors are seen by consumers as an effective alternative in the marketplace.³⁰ This very issue is at the heart of the analysis in this study, and informs the rest of this report.

Conclusion on Marketplace Results of the Wholesale Access Regime

Existing statistics aimed at quantifying the outcomes of the wholesale access regime may not adequately represent the competitive reality of the Canadian broadband industry. To address this, the Bureau obtained marketplace information from a variety of stakeholders. This information shows that dozens of wholesale-based competitors have been established across Canada, and that, in the areas of the country where wholesale-based competitors have focused their marketing efforts, they served approximately one in every six households at the end of 2018. This translates into more than 1,000,000 Canadian households that are served by a wholesale-based competitor.

²⁸ Additional information in this respect is available in Part 4 of this report.

²⁹ See, for example, paragraphs 5.10 to 5.12 in the Bureau's *Merger Enforcement Guidelines* (MEGs). Available online at: <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03420.html>.

³⁰ Baumol, W.J., Panzar, J.C., and Willig, R.D. (1982) *Contestable Markets and the Theory of Industrial Structure*. Harcourt Brace Jovanovich: New York, N.Y.

However, despite these numbers, what is ultimately important from the perspective of a competition analysis is whether Canadians view wholesale-based competitors to be a real competitive alternative in the marketplace. This factor is assessed further throughout this report.

Questions Arising from Review of Marketplace Results of the Wholesale Access Regime

- Can statistics be collected and made available by regulators to better capture the market share of wholesale-based competitors in both local areas and for different types of consumers?
- How do wholesale-based competitors market their services? If these providers only target certain customer groups, what implications does this have for competition in other customer groups, and the success of the wholesale access regime in general?
- To what proportion of the marketplace do wholesale-based competitors act as a compelling competitive alternative?
- Why are wholesale-based competitors less successful in parts of the country beyond Southern Ontario and Southern Quebec? Is this a result of structural or strategic factors that make consumers in these areas less likely to choose a wholesale-based competitor?

4. CONSUMER ANALYSIS

Key Messages

- Consumers, except those in rural and remote regions of Canada, are generally satisfied with both their current ISP and their choice among ISPs.
- Price is a significant factor in a consumer's choice of ISP and internet package, but other factors are actually more important in aggregate, including upload and download speeds, monthly download limits, and whether the ISP is wholesale- or facilities-based.
- Marketplace offers where internet services are bundled with other services can have a significant impact on ISP choice among certain, but not all, population groups.
- A significant proportion of consumers are not aware of wholesale-based competitors, and feel that they need more information to properly assess their offerings.
- Consumers who have switched ISPs in the last two years tend to consider that switching is easier than those who have not.
- There is no typical broadband consumer in Canada; consumer preferences vary significantly based on several factors.

The Importance of Consumer Research

Understanding consumer behaviour is important to any competition analysis. To better comprehend this important facet of competition, the Bureau commissioned public opinion research³¹ to clarify Canadian consumers' perceptions of the broadband industry, as well as their habits in purchasing broadband internet services.

This public opinion research consisted of two phases. First, the Bureau's public opinion research experts conducted a series of focus groups with Canadians to better understand the range of consumer preferences and attitudes regarding broadband internet services in Canada.³² Using

³¹ Government of Canada. (2018) "Public Opinion Research in the Government of Canada". Available online at: <https://www.tpsgc-pwgsc.gc.ca/rop-por/index-eng.html>.

³² For more information on these focus group sessions, see Appendix B.

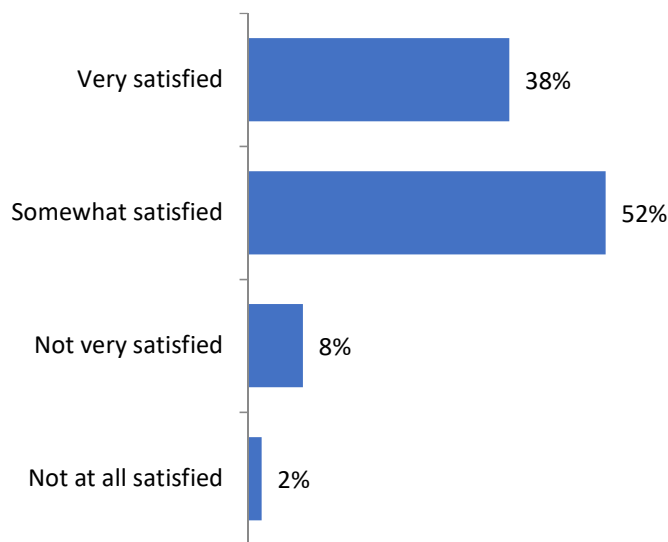
the knowledge gained from these focus groups, as well as the results of an online survey on the Bureau’s website,³³ the Bureau’s public opinion research experts then directed an online survey of 2,005 Canadians to quantitatively measure, where possible, consumer sentiments in the marketplace.³⁴

Given the complexity of consumer decision making, the Bureau also retained a behavioural economist to assist with both the design of its public opinion research, and to conduct a behavioural experiment, which is further elaborated below.

Consumer Satisfaction

Consumers expressed satisfaction with both their current internet provider and their options in choosing an ISP. Figure 5 shows that 90% of those surveyed agreed that they were either “very satisfied” or “somewhat satisfied” with their current internet provider. Figure 6 further shows that 78% of respondents indicated that they were either “very satisfied” or “somewhat satisfied” with the choice of ISPs in the area where they live.

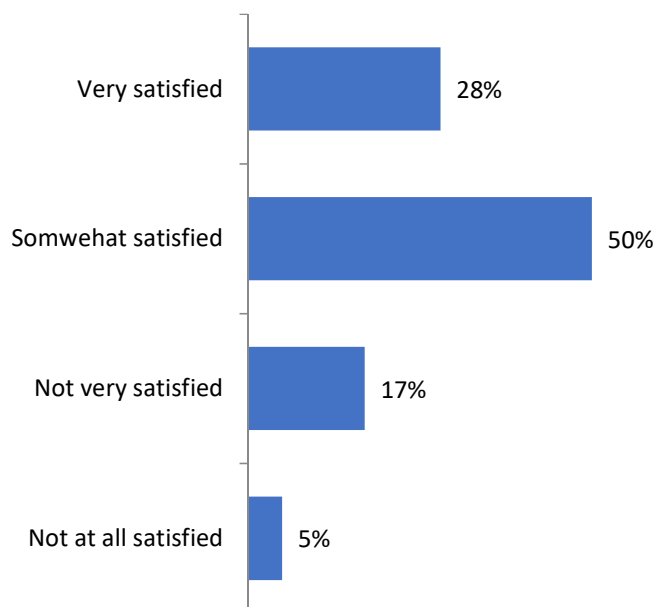
Figure 5: Consumer satisfaction with existing internet service provider



³³ For more information on this informal survey, see Appendix B.

³⁴ For more information on this online survey, see Appendix B.

Figure 6: Consumer satisfaction with choice of internet service providers



Of interest, current customers of wholesale-based competitors were materially more likely to respond that they are “very satisfied” with both their current ISP and their choice of ISPs than those who purchase services from facilities-based competitors.

Consumers in rural Canada expressed less overall satisfaction. Rural consumers who participated in the Bureau’s focus groups demonstrated significant dissatisfaction with both the quality of their current services and their choice of ISPs.³⁵ Many participants in these groups noted concerns about a general lack of options between ISPs and the reliability of services available, including whether promised speeds are actually delivered by providers.

“Our internet connection isn't very reliable. Price is high compared to other companies in more urban/suburban areas.” – Rural Internet User

Those who responded that they were not “very satisfied” with their ISP were given the opportunity to elaborate on their response. Of those consumers, 77% indicated dissatisfaction with the cost of their internet service, while 40% indicated concerns about the quality of service that they receive.³⁶

³⁵ The Bureau also received many similar comments from the informal survey described in greater detail in Appendix B. Of note is that, in the online survey conducted by the Bureau’s public opinion research experts, these feelings did not result in substantially lower levels of overall satisfaction.

³⁶ Survey respondents were able to select more than one reason why they were not “very satisfied”. This explains why these two factors total greater than 100%.

Aspects of Internet Services That Matter Most to Consumers

To better understand the factors that contribute the most in deciding on an internet package, the Bureau's public opinion research experts conducted a conjoint analysis. In this analysis, consumers were asked to choose between a number of internet packages that featured a variety of different attributes, such as differing prices, upload and download limits, download speeds, type of provider, and aspects of service, including the average time spent waiting for customer service calls and the percentage of time that services are unavailable due to outages. By repeating this exercise multiple times and observing the choices made by consumers, those aspects that are of highest importance to consumer choice become more apparent.

Perhaps not surprisingly, the single largest factor driving consumer choice is price. 36.6% of consumer decisions were driven by prices. But, interestingly, this means that other factors actually have a greater combined effect on consumer choices than just price itself.

The second, third, and fourth most important factors all weigh relatively equal in consumer decision-making. Monthly upload and download limits (21.0%), download speeds (18.2%) and type of provider (14.7%) are important factors in internet choice, while average wait time for customer service (6.8%) and reliability of service (2.7%) are meaningfully less important to consumers.

"I stick with [my provider] since they don't charge for overages on your data ... We need a high cap since we don't want cable and would rather use Netflix and our family plays a lot of online games." – Urban Internet User in Western Canada

There is some variation in the relative weighting of each attribute. For example, price is more important to residents of British Columbia and Ontario than it is to those who live in Quebec. Price is also more important for: (1) consumers in urban areas; (2) those who purchase services from wholesale-based competitors, and (3) those in the lowest income group.³⁷ Younger consumers, aged 18-34, place more importance on download speeds, and customers of wholesale-based competitors place greater importance on monthly download limits. Existing customers of facilities-based competitors, and those aged 65 and older, tend to factor the type of provider more significantly into their decision making.

³⁷ This group includes all households whose annual income is less than \$40,000.

The Role of Bundling in Consumer Choice

ISP choice is not always a matter of simply finding the right combination of price and performance for internet services. Nearly two thirds of those who participated in the Bureau’s public opinion research online survey bundle at least one other service along with their internet services, and four in ten bundle three or more services together.³⁸ This means, for example, that when a consumer chooses their ISP, they may not be focused solely on internet performance, but also may factor in relevant attributes of other services, such as television or home phone.

Bundling can make sense from a consumer’s perspective. Certain providers offer a financial incentive to do so, by offering discounts when two or more products are purchased together. And, even when there is no monetary saving from a bundle, consumers can perceive a benefit from receiving only one monthly bill and only having to deal with one company for a number of different services.

There are some groups of consumers that are more likely to purchase internet services as part of a bundle. First, customers of facilities-based competitors are substantially more likely to purchase a bundle of services than customers of wholesale-based competitors.³⁹ Additionally, older consumers tend to bundle more frequently than younger consumers, and residents of Quebec tend to bundle more often than those in other regions.

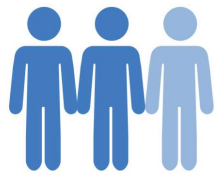
For those surveyed who purchase bundles, internet service is bundled with television service and/or home phone service most of the time. Wireless phone services, however, are less frequently bundled with internet service – nearly four out of five consumers who have a bundle reported that their wireless phone is not part of it. Some relevant statistics concerning bundling are set out in Figure 7 below.

“I have been with [my provider] for many years now and I like that I can bundle all my services together.” – Suburban Internet User in Ontario

³⁸ In this study, the Bureau considers two or more services to be “bundled” if they are obtained from the same provider, regardless of whether the consumer receives a discount from their provider from doing so.

³⁹ This may be related to the fact that several large wholesale-based competitors have not historically offered television products that compare to those of large providers; however, several such providers have recently launched television services. See Part 7 of this report for further information. This is also consistent with claims made by certain industry participants that wholesale-based competitors have historically targeted their offers at certain consumer groups, including those who do not wish to purchase bundles.

Figure 7: Bundling Statistics from Public Opinion Research Survey



Two thirds of respondents have their internet services bundled with another service



Television service is the most likely to be bundled with internet

2 in 5

respondents have three or more services bundled together

But the key question still remains – to what extent does bundling drive consumer decision making in respect of internet services? To better understand the effect of bundling, the Bureau’s behavioural economist designed an experiment that was conducted by the Bureau’s public opinion research experts as part of their consumer survey.

This experiment was a randomized control trial, which shows how the perceived cost savings and convenience created by a bundle may influence consumer choice. This experiment presented a control group of internet consumers with a choice between two packages – one where services are bundled, and another where services are obtained from separate providers – and then offered the same choices to different treatment groups with the addition of specific messages designed to highlight the potential benefits of a bundle (*e.g.*, the convenience or cost savings associated with purchasing multiple products together).

The results of this analysis show that consumers are not solely motivated by rational cost-benefit analyses or objective product information. Specifically, simply highlighting the potential to save money without providing information about actual dollar savings increased the percentage of participants choosing the bundle by 22 percentage points, compared to a generic bundle that did

not explicitly highlight any of the ostensible benefit. Similarly, highlighting the convenience of the bundle increased preference for the bundle by 15 percentage points.⁴⁰

These results imply that consumers find messaging about cost savings and convenience to be persuasive in decision making. This suggests that cognitive and psychological factors are important in determining consumer bundling preference, and that consumers are not solely driven, in this area, by rational cost-benefit analyses or objective product information. A 2016 study corroborates this observation, showing that subscribers to bundles in Korea were 25.2% less likely to switch ISPs than those who did not subscribe to bundled services.⁴¹

Consumer Sentiment toward Types of Internet Providers

Perceptions can play an integral role in consumer choice. It is logical that consumers may be hesitant to purchase a service when they have lingering questions about its quality, and even more so when it comes to a product as vital as internet services. Accordingly, the Bureau's public opinion research experts posed a series of questions to consumers to gauge their existing perceptions regarding both facilities-based and wholesale-based competitors.

Likely the most striking result of this analysis is the fact that approximately one third of consumers are simply not sure what a wholesale-based competitor is, and find it difficult to judge their service offerings without additional information.⁴² This is consistent with the messages conveyed by focus group participants that there remains a lack of knowledge and awareness when it comes to wholesale-based competitors.

For those who felt that they had enough information to respond to the survey, there are small but significant differences in consumer perceptions in some key areas. For example, these respondents felt that facilities-based competitors are somewhat better in providing reliable service and making repairs when problems arise. Additionally, a significant number of these respondents feel that wholesale-based competitors price significantly lower than facilities-based competitors.

⁴⁰ Perceived monetary savings and convenience not only increased preference for bundled home internet service but also caused participants to have a more favourable attitude towards the bundle and a greater interest in receiving more information about it.

⁴¹ Lee, S. (2017). "Does bundling decrease the probability of switching telecommunications service providers?" *Review of Industrial Organization*, 50(3), 303-322.

⁴² Not surprisingly, knowledge of wholesale-based competitors is higher in those parts of Canada where wholesale-based competitors have a greater market share, such as Ontario.

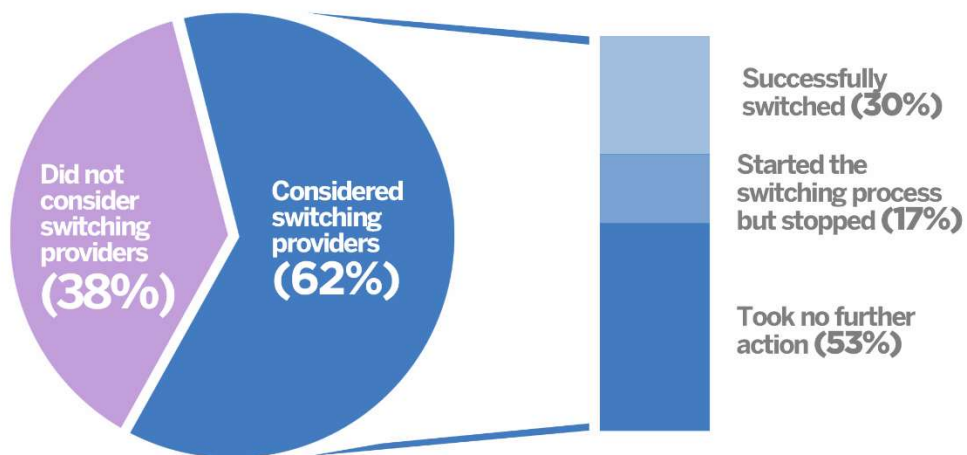
Consumer Switching Behaviour

A hallmark of consumer choice is the ability to easily switch between providers. Without this fundamental feature of the marketplace, consumers become captive to a supplier, and have limited or no opportunity to try alternatives.

Accordingly, the Bureau's public opinion research experts surveyed consumers about their experiences in switching ISPs during the past two years. The results of this analysis are presented in Figure 8.

More than half of the consumers surveyed considered switching from their current ISP to another during the past two years. Of those who considered switching, approximately 30% actually made the switch; 17% started the process of switching but ultimately decided to stay with their current provider; and the remaining 53% took no further action beyond simply considering a switch.

Figure 8: Consumer switching statistics



There are some demographic similarities in respect of switching behaviour. Younger subscribers, aged 18-34, were almost three times more likely to switch providers in the past two years than those aged 65 or older. Residents of Manitoba and Saskatchewan were less likely to have considered switching, whereas those in Ontario and the Atlantic provinces thought about switching more frequently.

Not surprisingly, there is a strong relationship between the extent to which a consumer is satisfied with their current ISP and their desire to switch. Of those who responded that they were

“very satisfied” with their current ISP, only four in ten even considered switching, and only two in ten actually made a switch.

Another interesting way to view this data is to examine which type of competitor is receiving a high proportion of switchers as compared to their existing market shares. Doing so provides a picture of what future market shares could look like. The survey results indicate that wholesale-based competitors gain subscribers in greater proportion to their existing market shares, consistent with the CRTC data presented in Part 3 of this report.

“I am happy with my recent switch to [a wholesale-based competitor]. I only wish there were more companies like them, willing to provide high quality services at lower prices.”

– Rural Internet User in Western Canada

Of course, a key element in understanding switching behaviour is comprehending the reasons that motivate consumers to switch. Two thirds of those who switched ISPs in the past two years were motivated to do so by cost, whereas four in ten, either in addition to or instead of concerns about cost, cited issues with their service, such as reliability, speed of services, or customer service issues with their old provider. Approximately one quarter of switchers did so because they moved from one location to another, and either were required to choose a new provider, or used that opportunity to switch. Those who switched from a facilities-based competitor to a wholesale-based competitor were more likely to cite cost as a significant driver of their decision, whereas those who switched from one facilities-based competitor to another were more likely to cite service issues as a cause.

Challenges to Switching ISPs

The Bureau’s research shows that changing ISPs can be an intimidating idea for at least some consumers. If a consumer is forced to go without internet services between the time of disconnection from their old ISP to the time of connection with their new one, they risk being cut off from an ever-connected world. Also, it is difficult to assess the reliability of a new ISP before signing up and experiencing it firsthand. Economists refer to these inconveniences as “switching costs”, and give them significant importance in competition assessment.⁴³

⁴³ See, for example, paragraph 4.14 of the MEGs, *supra* note 29.

Accordingly, the Bureau's public opinion research experts asked consumers who have switched in the past two years to describe any issues or challenges that they faced in making the switch. The largest group of these respondents reported no significant issue with their transition. The next two most frequent responses were: (1) the effort associated with returning equipment, such as modems, to their former provider, and (2) the downtime between disconnection and re-connection causing the consumer to go without internet services at home. Each of these factors were reported by about one in four respondents. Significantly, contractual provisions were only mentioned as an issue by fewer than one in ten respondents; it is significant to note that ISPs do not generally appear to be using restrictive contracts to ensure that consumers stay loyal.⁴⁴

"I have considered switching internet many times but am not sure of all the factors that would apply. For example, I am unsure if there would be service disruption to our internet. I also am uncertain of the quality and consistency I would get if I switched to another company. These are especially important factors since I am in the process of starting an online business." – Urban Internet User in Ontario

Two other groups were also asked about the perceived difficulties of switching ISPs. For both those respondents who started the switching process but did not follow through with it, and for those who thought about switching but did not take steps to do so, the main negative perceptions included the effort involved to return equipment, financial costs associated with switching, and the likelihood that their current provider would match or give them a better price if they threatened to switch.

Interestingly, those who have switched in the past two years were less likely to believe that frictions associated with switching were significant. For example, the hassle of returning equipment was mentioned as a negative factor by only 24% of those who had switched, but was brought up by 34% of those who started the switching process, and nearly 50% of those who thought about switching but did not take any steps toward doing so.

⁴⁴ For further information on why restrictive contracts are incorporated into competition analysis see, for example, the MEGs, *supra* note 29, at paragraph 7.14.

Types of Broadband Consumers in Canada

The responses provided in the Bureau's public opinion research survey show a diversity of opinions among broadband consumers in Canada. For example, through the survey, some consumers indicated a strong desire to purchase a bundle of services from the same provider, whereas others prefer to purchase a mix of services from one or more providers. Similarly, some consumers reported that the process of switching ISPs was easy, whereas others thought that switching could be difficult.

Given these varying perspectives, the Bureau wanted to get a sense of what the typical types of Canadian broadband consumers are, and better understand how preferences vary between consumer groups. To better classify different types of consumers, the Bureau's behavioural economics expert performed a cluster analysis, which quantitatively identifies survey respondents who had similar responses, in order to identify the various types of consumers in terms of characteristics that can be easily comprehended.

This analysis identified four main types of internet customers in Canada. Each is discussed further:



Loyal

Loyal Customers: Loyals stick with the brand they trust. They value customer service and network reliability and tend to purchase their internet from facilities-based competitors. Loyals are the least likely to consider switching their internet services. They are also most likely to bundle their internet with other services, and tend to live outside of large urban centers.



Speed-seeker

Speed-Seekers: Speed-seekers have a need for speed. They're less concerned about brand and customer service, and more concerned with having a download speed and usage limits that support their data needs. Speed-seekers tend to be younger and are most likely to have switched their internet provider in the past two years.



Deal-seeker

Deal-Seekers: When it comes to their internet service, for deal-seekers, price is king. Deal-seekers care much more about price than other qualities like brand and customer service. Deal-seekers tend to live in large urban centers and are more likely to subscribe to their internet services through a wholesale-based competitors than are Loyal Customers and Speed-Seekers.



Balanced

Balanced Consumers: This group of consumers generally takes a balanced approach to choosing their internet service. They consider download speed and price as well as brand, reliability and customer service. Balanced consumers are most likely to be female and are most likely to purchase their internet service from a wholesale-based competitor.

How Consumer Preferences Influence Competition Analyses

The goal of competition analysis is to determine whether consumers are well-served by a vibrant selection of providers. Such analysis can be straightforward when consumers share similar preferences, because then the task often becomes a question of which providers exist that could serve those consumers' demands.

However, competition analysis can get significantly more complicated when groups of consumers exhibit different underlying factors that drive their choice of supplier. In such a circumstance, not all providers may offer the services and pricing options that respond best to each consumer group. For example, if there is a group of consumers that cares most about ensuring that they have the speediest and most reliable internet connection, and are not particularly price sensitive, then an analysis that focuses solely on pricing differentials between ISPs can be misleading in understanding the options available to that group of consumers. Similarly, if there is a group of consumers who are highly loyal to a set of providers, then it can be equally wrong to assume that those consumers will choose a lower priced option simply because it exists.

Given the diversity of consumer preferences in this industry, competition analysis should consider how the marketplace serves each of the groups identified in the Bureau's research. By understanding the factors that each consumer group values the most, competition analysis can

rightly focus in on the group of ISPs that are likely to contain the best choices for each group.⁴⁵ Otherwise, such analysis runs the risk of finding that there is a wealth of competition when, in fact, this is not consistent with how actual consumers view their choices.

Conclusion on Consumer Analysis

The Bureau's consumer analysis revealed a wealth of findings about consumer behaviour in respect of broadband services. First, Canadians are generally satisfied with both their current ISP and their choice among ISPs. Second, Canadians indicated a strong preference toward purchasing telecommunications and broadcasting services in a bundle, and noted that a variety of factors in addition to price are important to their choice of ISP. And, of significant importance, there does not appear to be one single type of broadband consumer in Canada; rather different groups have different factors that they respond most significantly to when choosing a broadband supplier. Ultimately, these findings raise significant questions that are important to any competition analysis in the Canadian broadband industry.

Questions Arising from Consumer Analysis

- How do existing ISPs serve each of the different consumer groups identified in the Bureau's analysis? What are the implications for competition in each group?
- Do wholesale-based competitors act as a sufficient alternative to facilities-based competitors for all consumer types?
- Is there a case for regulation to address consumer switching difficulties or otherwise make consumers more aware of their options for internet services?
- Will there be changes in the future that affect consumer perceptions of either facilities-based or wholesale-based competitors?

⁴⁵ In a more technical sense, the question is whether different types of providers, or even different packages offered by providers, should be considered as separate relevant product markets for the purpose of competition analysis. The survey methods used in this study are generally not sufficient, on their own, to make this conclusion, but the fact that they indicate that there are multiple consumer groups with different underlying demands suggests that this is a question worth studying. For more information, see Part 4 of the MEGs, *supra* note 29.

5. ALTERNATIVE BROADBAND PROVIDERS

Key Messages

- In addition to the wired networks operated by telephone or cable companies, Canadians can access broadband internet services through alternative technologies, including third party fibre optics, mobile wireless, fixed wireless, and satellite.
- Given current pricing levels and certain technological limitations, it is not likely that consumers who have wired connections are likely to switch to fixed wireless, mobile wireless, or satellite technologies.
- Fifth generation wireless services may offer a new inroad into households at speeds and pricing comparable to wired connections. However, at this point, it remains to be seen how this technology will be deployed in Canada.

Context for Discussion of Alternative Broadband Providers

Although a significant majority of Canadians obtain internet services through traditional telephone and cable networks, a smaller number use alternative broadband providers. Particularly in the less densely populated areas of the country, where deployment of wired infrastructure has more challenging economics, these alternative technologies are relied on to a greater extent.⁴⁶

During this study, several facilities-based competitors noted that these alternative access technologies exist in the marketplace, and made varying claims about their role in serving Canadian consumers.⁴⁷ But to what extent do these alternative technologies act as effective alternatives for consumers, and how do they bring competitive discipline to the marketplace?

⁴⁶ In the survey conducted by the Bureau's public opinion research experts, approximately 16% of households in rural and remote communities use these alternative methods for internet access, compared to only 4% of households in more densely populated areas.

⁴⁷ See, for example, Part 2.0 of TELUS's Written Submissions, available online at: [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Submissions to Competition Bureau Abridged.pdf/\\$file/Submissions to Competition Bureau Abridged.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Submissions%20to%20Competition%20Bureau%20Abridged.pdf/$file/Submissions%20to%20Competition%20Bureau%20Abridged.pdf).

Types of Alternative Broadband Providers

There are four types of alternative internet technologies that the Bureau has reviewed: third party fibre optic networks, mobile wireless, fixed wireless, and satellite. Each is discussed in greater detail, and Figure 9 provides an image-based overview for three of these technologies.

The first is third party fibre optic providers. These providers, such as Beanfield Metroconnect in Toronto, Ontario and Novus Communications in Vancouver, British Columbia, deploy fibre optic networks and offer broadband internet services as a facilities-based competitor to telephone and cable companies. Additionally, and although it is more common to see this phenomenon in the United States, some municipal governments, such as the government of Olds, Alberta, have deployed publicly-owned fibre optic networks, which are referred to in the industry as “Municipal Fibre”.⁴⁸

The second alternative technology is one that most Canadians are familiar with: the mobile wireless networks that are used for cell phones. A number of providers across Canada offer data services using mobile wireless networks at speeds that meet or exceed home internet packages.⁴⁹

The third alternative access technology surveyed by the Bureau is fixed wireless. These networks use towers and radio equipment, much like mobile networks, but instead provide wireless connections to a fixed antenna at a customer’s premise. Fixed wireless is a more popular network type in rural areas, where deploying wired infrastructure can be difficult and costly.

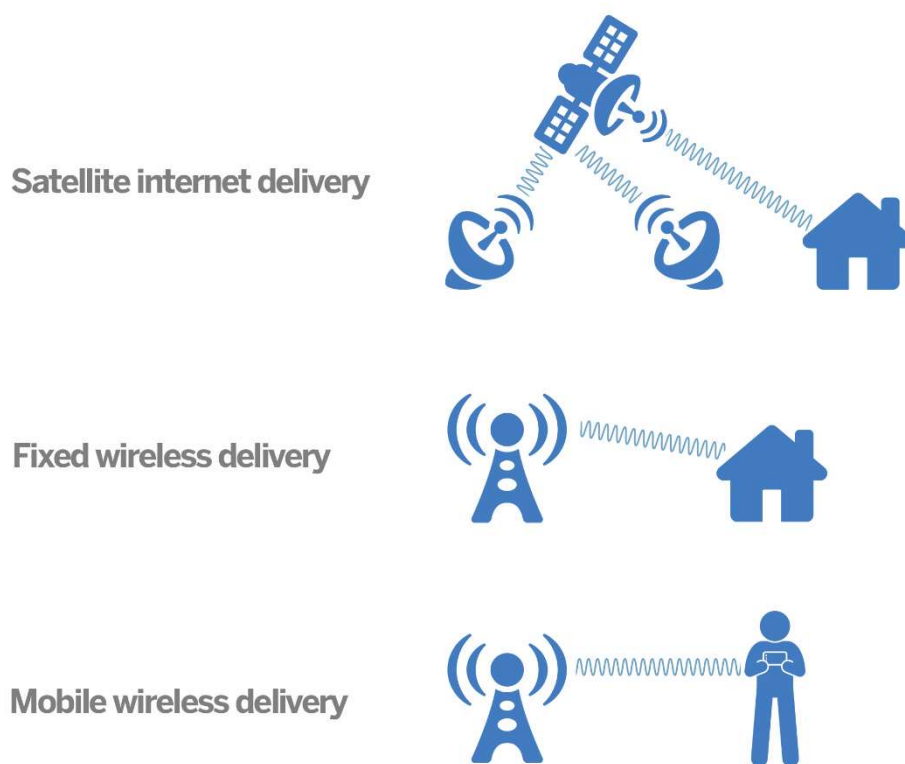
The fourth alternative technology is satellite internet. This technology is similar to fixed wireless, insofar as it involves a wireless connection to an antenna at a customer’s premise, but satellite internet relies on communications satellites, rather than terrestrial towers, to transmit data. The major advantage of satellite access is its ubiquity. A significant majority of Canada’s territory is covered by satellite, including some extremely remote areas. Significant improvements continue to be made in satellite internet technology, including the planned deployment of new, low-Earth-orbit satellite constellations that promise higher speeds and greater throughput than existing technologies.⁵⁰

⁴⁸ Olds, Alberta. (2019) “O-Net”. Available online at: <http://www.o-net.ca/>.

⁴⁹ PC Mag. (2018) “Fastest Mobile Networks Canada 2018”. Available online at: <https://www.pcmag.com/article/363549/fastest-mobile-networks-canada-2018>.

⁵⁰ See, for example, Telesat. (2019) “Telesat LEO – Why LEO?”. Available online at: <https://www.telesat.com/services/leo/why-leo>. See also the Written Submissions of Hughes Network Systems Canada ULC, available online at: [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Hughes_Canada_Competition_Bureau_Notice_of_Market_Study_08312018_Final.pdf/\\$file/Hughes_Canada_Competition_Bureau_Notice_of_Market_Study_08312018_Final.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Hughes_Canada_Competition_Bureau_Notice_of_Market_Study_08312018_Final.pdf/$file/Hughes_Canada_Competition_Bureau_Notice_of_Market_Study_08312018_Final.pdf).

Figure 9: Some Alternative Broadband Access Technologies



Pricing and Competitive Impact Analysis

As these alternative methods exist to provide internet services in Canada, the relevant question for a competition analysis is the extent to which they act as a viable alternative to consumers. What is important, in a competition analysis, is not just whether one product has the same end use as another but, rather, whether consumers see different products as being sufficiently good alternatives.⁵¹

⁵¹ See Part 4 of the MEGs, *supra* note 29.

To understand these types of consumer judgements, competition authorities around the world typically rely on the hypothetical monopolist test.⁵² This test asks the question of how consumers would respond if the price of their current internet subscription increased by a small amount – for example, would they continue to purchase from their existing provider, or would they change their internet subscription to an alternative? In some cases, the Bureau relies on statistical information about consumer purchases to make such determinations. However, in this case, such information is not readily available.

When the hypothetical monopolist test is difficult or impractical to apply, there are other ways to think about consumer responses. In particular, the Bureau’s guidance directs the analyst to think about three factors: end use, technical characteristics, and relative price levels.⁵³

As a primary matter, the Bureau notes the similarity between traditional telephone- and cable-based internet access, and that provided by third party fibre optic networks. Based on the information available in this study, it seems likely that internet services provided over third party fibre optic networks could be considered as a close alternative to services provided over telephone- and cable-based networks.⁵⁴

Similarly, it is fairly clear that mobile wireless internet access can be considered a substitute for only a small number of extremely light internet users. Even some of the more generous mobile wireless plans available in Canada today top out in the order of 10-20 gigabytes of download capacity per month. Given the ubiquity of home streaming,⁵⁵ and the fact that streaming video on Netflix or YouTube uses 2.5-3.0 gigabytes per hour,⁵⁶ mobile wireless subscriptions offer relatively low capacity services, compared to usage limits in the hundreds of gigabytes per month, if usage is even limited, in traditional wired broadband plans. This significant limitation makes mobile wireless likely to be an insufficient alternative for all but extremely light internet users.

⁵² *Ibid.*

⁵³ See paragraph 4.14 of the MEGs, *supra* note 29. The analyst is also directed to examine any costs associated with switching from one access method to another. However, in this instance, given the significant differences in both technical characteristics and relative price levels, the analysis does not need to proceed to switching costs. For more information on perceived switching costs between various internet providers, see Part 4 of this Report.

⁵⁴ Any such analysis would necessarily be informed by pricing comparisons; however, such analysis is not undertaken in this study.

⁵⁵ See, for example, CRTC. (2018) “Online Video”. *Harnessing Change*. Available online at: <https://crtc.gc.ca/eng/publications/s15/v1.htm>.

⁵⁶ See CMR Infographic 5.8, *supra* note 6.

In respect of fixed wireless and satellite internet access, a more thorough review of end use, technical characteristics, and relative price levels illustrates their relation to wired internet connections.

In terms of end use, there is significant similarity between traditional wired internet connections and their fixed wireless and satellite counterparts. Each is used to access the internet, and each is theoretically capable of delivering a consumer to a range of internet-based activities.

However, in terms of technical characteristics, it is less clear that fixed wireless- and satellite-based services should be considered as close substitutes for wired services for three reasons. First, there are questions about the quality of fixed wireless and satellite technologies that could render them as insufficiently valuable for some applications, such as streaming and online gaming.⁵⁷ Second, the Bureau is aware of some consumer complaints that actual delivered speeds using fixed wireless and satellite connections may be relatively slow compared to wired networks that promise the same speeds. Third, in respect of satellite connections specifically, real capacity concerns exist; according to the CRTC, current satellite networks could only serve approximately 2% of Canadian households.⁵⁸ In total, the evidence is mixed on whether fixed wireless and satellite internet sources could be considered a sufficiently close substitute to wired services for a large number of consumers in respect of technical characteristics. Further analysis would be required to be conclusive in this respect.

“I give [my local fixed wireless company] credit for providing internet service where other companies don't. Unfortunately it's not terribly reliable, and you sure wouldn't want to try to use it for something like Netflix, because as soon as you try to stream even a small one or two minute video, it slows to a crawl”. – Fixed Wireless user in Rural Ontario

⁵⁷ In respect of fixed wireless see, for example, CRTC 2019-42, in which two fixed wireless providers noted a significant difference between the technical capabilities of wired and fixed wireless networks. <https://crtc.gc.ca/eng/archive/2019/2019-42.htm> In respect of satellite, one of Canada's largest satellite internet providers notes that satellite may not be suitable for certain applications like online gaming, VPN services, and real-time stock trading: <https://www.xplornet.com/support/troubleshooting/about-satellite-latency/>

⁵⁸ See CMR Infographic 5.7, *supra* note 6.

In respect of relative price levels, Table 1 presents prices for internet packages between four telephone, cable, fixed wireless, and satellite internet options for households in Ottawa, Ontario.⁵⁹ This table shows that prices for wireless technologies can be significantly higher than their wired counterparts. In particular, a fixed wireless package with the same characteristics costs approximately 30% more than a package delivered over the telephone or cable networks.⁶⁰ With this in mind, it seems unlikely that a small increase in the price of internet services over wired network would cause a large number of consumers to switch their internet to a fixed wireless or satellite alternative.

Table 1: Prices of Certain Internet Plans⁶¹

Provider	Attributes	Price
Bell	50Mbps/10Mbps; Unlimited Monthly Downloads	\$67.95
Rogers	75Mbps/10Mbps; Unlimited Monthly Downloads ⁶²	\$69.99
Xplornet Fixed Wireless	25Mbps/1Mbps; Unlimited Monthly Downloads	\$89.99 ⁶³
Xplornet Satellite	10Mbps/1Mbps; 100 GB Monthly Download	\$89.99 ⁶⁴

Finally, the CRTC reports that just 5% of Canadian households use fixed wireless or satellite to access the internet in 2017.⁶⁵ While this statistic is not determinative in and of itself, it does indicate that fixed wireless and satellite internet services are not presently the best choice for the vast majority of Canadian households. Rather, the Bureau interprets this figure – along with a similar figure showing that 26% of rural households use fixed wireless or satellite⁶⁶ – as evidence that fixed wireless and satellite are only particularly good options in those regions of Canada where modern wired connections are not available.

⁵⁹ Prices vary based on the particular region that a consumer is located; however, the Bureau’s analysis shows a similar trend of price differentials across most provinces in Canada.

⁶⁰ CRTC statistics show similar pricing differentials; see CMR Infographic 5.5, *supra* note 6.

⁶¹ All prices as presented on company websites as of June 6, 2019.

⁶² Rogers also offers a 10Mbps/1Mbps package with 100 GB of monthly downloads for \$49.99 per month.

⁶³ Xplornet offers a price of \$59.99 per month for the first three months, and \$99.99 per month thereafter, with a 1 year commitment. The average price per month in this first year, therefore, is \$89.99, and then \$99.99 for each year thereafter.

⁶⁴ Xplornet offers a price of \$59.99 per month for the first three months, and \$99.99 per month thereafter, with a 1 year commitment. The average price per month in this first year, therefore, is \$89.99, and then \$99.99 for each year thereafter.

⁶⁵ See CMR Figure 5.11, *supra* note 6.

⁶⁶ See CMR Infographic 5.7, *supra* note 6.

In total, the Bureau is skeptical that fixed wireless and satellite services could reasonably be considered as close substitutes for wired services today. It is not clear why a consumer who has the option to buy wired services would pay more money to access a service that may have relatively weaker technical capabilities.⁶⁷ Accordingly, little weight should be given to claims that traditional wired internet providers are subject to substantial competitive discipline from these alternative technologies.

Potential for 5G Wireless Technologies

However, this conclusion could change in the future. New, fifth generation (5G) wireless services are currently being deployed around the world, and may ultimately deliver high speed, high capacity fixed wireless connections that are similar to those currently available through wired networks.⁶⁸

What is unclear at this early stage of 5G deployment is how and whether this will translate into new competitive options for Canadians. If 5G enables new providers to compete for a significant number of Canadian households, this additional choice could result in the lower prices and increased levels of innovation that are characteristic of greater competition. At this point, so early in the deployment of 5G in Canada, it is difficult to predict exactly what the future holds.

Conclusion on Alternative Broadband Providers

In addition to traditional telephone and cable networks, Canadians can and do access the internet through a range of alternative technologies. However, a review of the marketplace role for these technologies leaves questions about the extent to which they act as significant competitive alternatives to existing wired connections. It will be important, as 5G wireless technologies mature and become available to consumers, to re-assess the extent to which these services will bring additional competitive discipline to the marketplace.

⁶⁷ This conclusion is consistent with past CRTC findings. See, for example, paragraph 126 of CRTC 2015-326, available online at: <https://crtc.gc.ca/eng/archive/2015/2015-326.htm>.

⁶⁸ 5GCC. (2019) "5G Primer". Available online at: <https://www.5gcc.ca/5g-primer/>.

Questions Arising from Analysis of Alternative Providers

- In what circumstances, or for which groups of consumers, should one or more of fixed wireless, mobile wireless, and satellite internet be considered part of the same relevant market as wired broadband internet connections?
- How could the competitive reality in Canada's broadband industry change following the introduction of 5G wireless services?
- If 5G could bring about significant new competitive discipline, what effect should this have on the wholesale access regime? What evidence of a positive competitive impact should a regulator require to adapt regulatory rules?

6. FACILITIES-BASED COMPETITORS

Key Messages

- In order to keep up with ever-increasing demands for bandwidth and capacity, facilities-based competitors must invest significant amounts of money to grow the speed and capability of their networks.
- Rivalry between facilities-based competitors is an important source of dynamic competition that leads to higher speeds and more capable networks.
- Wholesale access regulation can have a negative effect on the willingness of facilities-based competitors to make the necessary investments to maintain and evolve their networks.

The Role of Facilities-Based Competitors

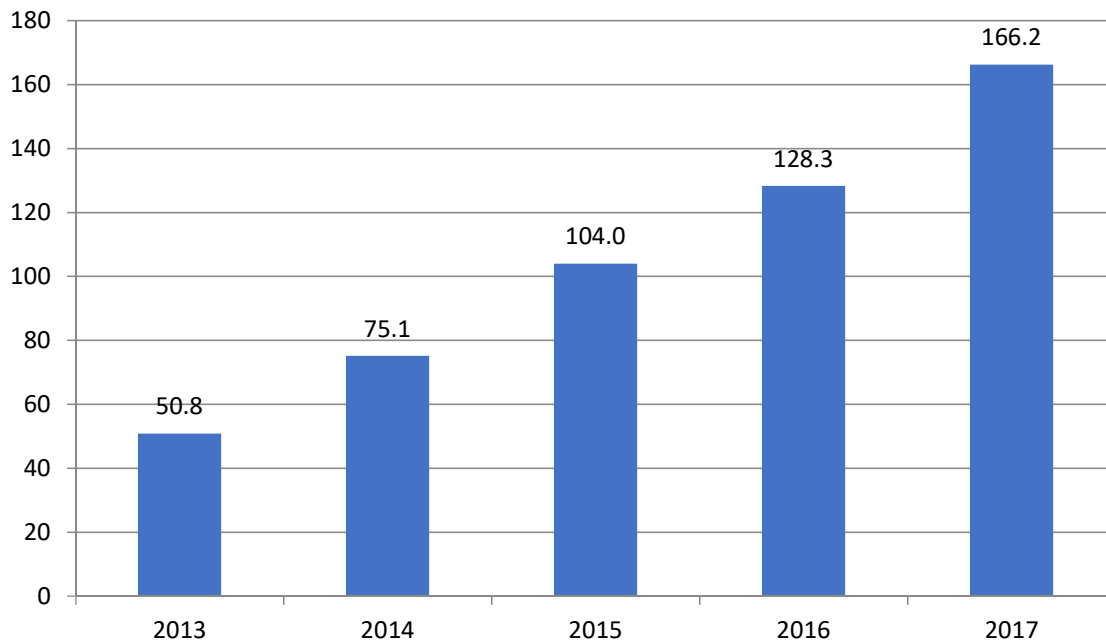
Facilities-based competitors, which are typically telephone or cable companies, deploy, maintain, and upgrade the physical networks that connect Canadian homes to the internet. While the wholesale access regime implemented by the CRTC is important in increasing competition in the marketplace, facilities-based competitors, in large part, determine the robustness, speed, and reliability of Canada's networks.⁶⁹

Maintaining and ensuring quality services for Canadians is not something that should be taken lightly. Even once a network is established, there is an ongoing need for investment by network owners to ensure that the network grows and changes in response to changing consumer demands. Figure 10 presents statistics, collected by the CRTC, showing the monthly internet usage of users served by large facilities-based competitors in Canada. These statistics show that internet traffic on these providers, over the period of 2013-2017, has grown at a compounded annual growth rate of approximately 35%; in other words, the average consumer's internet usage doubles a bit more often than every three years. Meeting this significant increase in demand requires sizeable investments by facilities-based competitors; in 2017 alone, these competitors

⁶⁹ Some aspects of the robustness, speed, and reliability of services provided by wholesale-based competitors is determined by how a wholesale-based competitor manages its network. See, for example, Part 3.3 of the Written Submissions of BCE Inc., *supra* note 11.

invested almost \$10 billion in their networks, which equates to approximately 45% of the total revenues that they earned in this period.⁷⁰

Figure 10: Monthly Internet Usage per Subscriber on Large Facilities-Based Networks, 2013-2017 (GB)⁷¹



Dynamic Competition

Both facilities-based and wholesale-based competitors work every day to attract customers to their services. But, on a different level, facilities-based competitors engage in a dynamic form of competition to successively introduce better networks over time through investments in new technologies.

Since the advent of the internet, facilities-based competitors have engaged in this dynamic competition to provide the best networks with the greatest speeds and most impressive capabilities. For example, following the popularization of dial-up internet in the 1990s, cable and telephone companies made the investments necessary to provide always on, higher speed broadband networks. This race to provide better connections continues to this day.

⁷⁰ See CMR Infographic 4.5, *supra* note 6.

⁷¹ See CMR Table 5.9, *supra* note 6.

Right now, the industry is at an important point, as traditional telephone networks reach the end of their useful life. Telephone networks were initially deployed in the late 1800s, using copper lines to transmit voice signals. In significant parts of Canada, that same technology is still used today in the “last mile” connection from a telephone company’s local distribution point and an end user’s dwelling. Not surprisingly, these wires are significantly limited in that they can only provide internet connections up to a maximum of 50 Mbps.⁷²

Cable networks, on the other hand, were deployed much more recently (typically in the 1960s and 1970s), using a different type of wire that is capable of delivering significantly higher speeds. With the systems in place today, cable providers offer speeds up to 1 Gbps, and even these speeds are not the limit of what the technology can deliver.⁷³

Accordingly, telephone companies today are faced with an existential challenge in respect of their ability to provide competitive internet services. They cannot squeeze meaningfully faster speeds out of their aging infrastructure, and must either make very large investments, or face competitive extinction. Without the billions of dollars of investments required to run fibre optic cables from local distribution points to every household in Canada, telephone companies will be forever stuck at being able to offer 50 Mbps service in a world where their competitors can offer speeds that are an order of magnitude faster and beyond.⁷⁴ To meet this challenge, telephone companies have started to deploy fibre optic cables to households (a topology referred to as “fibre to the home” or FTTH⁷⁵).


This is just the most current example of leap frogging. Approximately 10 years ago, telephone companies were forced with a similar investment decision to replace copper cables higher up in their network. This deployment, referred to as “fibre to the node” or FTTN, was equally necessary at that time in order to keep pace with speed improvements offered by cable companies.

⁷² Technically, these networks can deliver faster services by combining, or “bonding”, several telephone lines together. But, even doing this does not, in a practical way, boost speeds to the types that cable and fibre optic networks can achieve.

⁷³ Even cable networks need to replace parts of their existing networks with fibre optic cables to achieve these speeds. See, for example, Cogeco. (2019). “Cogeco Communications Announces Plans to Invest More Than \$1 Billion in the Operation and Expansion of Its Broadband Network in Ontario and Québec”. June 5, 2019. Available online at: <https://www.globenewswire.com/news-release/2019/06/05/1864767/0/en/Cogeco-Communications-Announces-Plans-to-Invest-More-Than-1-Billion-in-the-Operation-and-Expansion-of-Its-Broadband-Network-in-Ontario-and-Qu%C3%A9bec.html>.

⁷⁴ *Supra* note 72.

⁷⁵ This topology is also referred to as “fibre to the premise” or FTTP.



This type of dynamic competition benefits consumers in at least two ways. First, it is logical that better networks provide better results for consumers: faster, less congested connections that grow and change more or less in tune with consumer demand. Second, once the investment in new networking equipment and physical lines has been made, companies have a strong incentive to compete hard and win customers in order to generate revenues sufficient to recoup those investments.

This race to provide the most robust networks is an important source of dynamic competition. It results in consumers having access to the fastest speeds and best connections while, at the same time, driving substantial investment in the Canadian economy. And, at least over the past 20 years, it has been a self-sustaining form of competition, as both telephone and cable companies jockey to establish themselves as market leaders.

Wholesale Regulation and Investment Incentives

Ultimately, in order for network investments to happen, a company needs to be sure that it will be able to earn sufficient revenues to pay off the cost that investment. Canada has a general policy of allowing market forces to determine how and where networks are deployed⁷⁶ and, when making network investment decisions, companies are guided by the costs of doing so, on one hand, and the profits that they can expect to earn, on the other. Network investments are substantial, and it can take more than ten years for the companies who make these investments to earn sufficient revenues to recoup.⁷⁷

Wholesale regulation can have a negative effect on these investment decisions. Typically, when a company makes any sort of capital investment, it does so with an understanding that it will obtain the full stream of profits from that investment. However, wholesale access regulation diminishes the expected profits of the investment, as some of the profits flowing from the investment are instead earned by wholesale-based competitors using that network to serve consumers. Without access to the full stream of profits, investment becomes less likely to happen.

⁷⁶ Exceptions to this include subsidies for deployment of networks in the rural and remote areas of the country where market forces are unlikely to deliver modern networks. See Part 2 of this report for more information.

⁷⁷ RBC, for example, estimates payback periods for fibre to the home deployments at 11-18 years. See RBC. (2015) "Fibre-to-the-home: Playing the long game". Available online at: <https://ca.rbcwealthmanagement.com/delegate/services/file/617544/content>.

One way to maintain the investments is for facilities-based competitors to be compensated so that their stream of expected profits is sufficient to ensure that investments continue to happen. The CRTC rightly recognizes the need for such an incentive and, when setting the rates that wholesale-based competitors must pay to facilities-based competitors, includes rate components that are designed to maintain investment incentives.⁷⁸

There is wide debate in the industry regarding whether or not wholesale rates are set at appropriate levels. Facilities-based competitors claim that wholesale-based competitors gain access to networks at rates that are below the actual costs of the facilities-based competitor, which has significant negative effects on investment incentives.⁷⁹ At the same time, some wholesale-based competitors point to examples where a facilities-based competitor has set retail prices at levels that are less than the regulated fees that a wholesale-based competitor would have to pay in order to offer those same services to that customer.⁸⁰ This is a “Goldilocks” problem – set rates too low, and facilities-based competitors are less likely to invest; set rates too high, and wholesale-based competitors are not able to bring pricing discipline to the marketplace.

On balance, with the information and expertise available to the Bureau, it is difficult to assess which side is correct. Regulatory costing is a complicated and time-consuming exercise that requires a wide range of expertise and confidential business information that is not easily accessible to the Bureau in a market study. The Bureau notes that the CRTC has announced that it will hold a hearing in the coming months to review its approach to wholesale rate setting.⁸¹ This will be an appropriate forum to explore these issues and ensure that regulation strikes the correct balance for the future of the industry.

⁷⁸ See CRTC 2016-396 at Footnote 9. Available online at: <https://crtc.gc.ca/eng/archive/2016/2016-396.htm>.

⁷⁹ See, for example, page 10 of the Written Submission of Bragg Communications Inc.. Available online at: [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Eastlink_Submission--Competition_in_Broadband-2018-08-31.pdf/\\$file/Eastlink_Submission--Competition_in_Broadband-2018-08-31.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Eastlink_Submission--Competition_in_Broadband-2018-08-31.pdf/$file/Eastlink_Submission--Competition_in_Broadband-2018-08-31.pdf).

⁸⁰ See, for example, pages 46-47 of the Written Submission of TekSavvy Solutions Inc. Available online at: [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf/\\$file/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf/$file/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf).

⁸¹ See CRTC “Forecast 2019-2020”, supra note 3.

Real World Examples of Investment Incentive Issues

It is important to note that the investment incentives issue is not merely theoretical. In conducting this study, the Bureau requested confidential business records from facilities-based competitors to better understand how wholesale regulation affects real world network investment decisions. Some facilities-based competitors did not supply responsive records, citing the cost and difficulty of producing the necessary information. Others provided real-world examples of how their investment decisions incorporate varying assumptions about regulation, such as varying wholesale rate levels and different market shares earned by wholesale-based competitors.⁸² In these records, the Bureau observed real world examples where profitable investments become unprofitable under differing regulatory treatment.

On both a theoretical level, and based on the business records that the Bureau has reviewed, this negative effect on investment incentives will most likely be felt at the fringes of a network. Some areas may be so densely populated, strategically important, or otherwise relatively cheap to deploy that investment will occur except under the most onerous conditions. That means that the strongest reduction in investment is most likely to be felt in areas where population is relatively sparser. This has significant implications for rural and remote customers, who tend to have fewer and less advanced internet access options in Canada.⁸³

Conclusion on Facilities-Based Competitors

Facilities-based competitors drive the types of dynamic competition that result in better, higher quality networks for Canadians. At the same time, this form of competition requires substantial investments in physical networks, and the willingness of facilities-based competitors to make these investments can be dulled by wholesale access regulation. Ultimately, regulators are faced with the difficult challenge of setting wholesale rates at an appropriate level to preserve investment, on the one hand, while at the same time providing sufficiently low rates to allow wholesale-based competitors to act as a significant competitive force in the marketplace, on the other.

⁸² In this exercise, the Bureau places greater weight on contemporaneous business records than ex post recollections. The Bureau also notes that these records were produced on a voluntary basis and, therefore, the Bureau cannot be sure that contradictory information does not exist within these companies.

⁸³ For more information, see Part 2 of this report.

Questions Arising from Discussion of Facilities-Based Competitors

- How can a wholesale regime balance the positive aspects of greater competition with any negative effects that it may have on investment incentives?
- Is there a simpler or easier-to-implement method of setting wholesale rates? Is there value in exploring ex post assessment of the efficacy of existing rates, and more flexible adjustment of rates over time?
- Once networks are entirely fibre-optic based, what will be the driver of dynamic competition between facilities-based providers?

7. WHOLESALE-BASED COMPETITORS

Key Messages

- Wholesale-based competitors serve more than 1,000,000 Canadian households, and act as an important competitive alternative in countless more.
- Recent competitive responses, such as the introduction of flanker brands by facilities-based competitors, are an indication of the important competitive role that wholesale-based competitors play.
- Wholesale-based competitors may continue to grow in competitive significance now that a larger number of them offer television services and have an increased ability to bundle.
- Wholesale-based competitors must rely on facilities-based competitors for many go-to-market services, such as customer installs. It remains important to minimize the extent to which one type of competitor must depend on the other going forward.

The Role of Wholesale-Based Competitors

Dozens of wholesale-based competitors currently provide services to more than 1,000,000 Canadian households.⁸⁴ Moreover, those households that subscribe to wholesale-based competitors tend to be more highly satisfied with their internet provider.⁸⁵ But, in assessing competition, the mere presence of a competitor in the marketplace is not always determinative.⁸⁶ Instead, what is often more important is that a competitor has an effect on the prices and terms charged across the marketplace. This is the focus of this section of the report: how do wholesale-based competitors move the marketplace and improve outcomes for consumers and the economy in general?

⁸⁴ See Part 3 of this report.

⁸⁵ See Part 4 of this report.

⁸⁶ See Part 7 of the MEGs, *supra* note 29.

Competitive Effect of Wholesale-Based Competitors

As a first step, it is worth digging deeper to understand the range of wholesale-based competitors that currently serve the marketplace. Of the dozens of these competitors that have established themselves to date, the majority remain somewhat small and atomistic. The remaining few, however, have larger numbers of subscribers, ranging into the order of hundreds of thousands of Canadian households.

It is difficult to expect very small wholesale-based competitors to carry sufficient weight in the marketplace to elicit a strong competitive reaction from large facilities-based competitors. Facilities-based competitors (and, indeed, larger wholesale-based competitors) serve such a large number of households that losing a small number of customers to a competitor may not be sufficient to evoke a strong competitive response.⁸⁷

Ultimately, what is important is that consumers view wholesale-based competitors as an effective option for internet services. As long as it is sufficiently easy for competitors to establish themselves as an alternative in the eyes of consumers, then larger competitors will have to take their presence into account when making decisions on how to bring their products to market.⁸⁸ For example, larger competitors will often match other marketplace offers, or provide some other inducement, when one of their customers threatens to switch to a rival. At this micro level, the presence of smaller competitors results in a real competitive effect to the benefit of consumers in the form of lower prices or other inducements.

On a broader level, however, it is worth thinking about proactive, rather than just reactive, responses from larger competitors. In this context, a proactive response is a positive action by a competitor that is designed to react to the marketplace actions of another competitor. Presently, this can be seen by the launch of “flanker brands” offering broadband internet services, such as Fido Home Internet,⁸⁹ Virgin Mobile Home Internet,⁹⁰ and Fizz Internet,⁹¹ by some of Canada’s largest facilities-based competitors (Rogers, Bell, and Vidéotron, respectively). These flanker brands offer plans that are similar to those of wholesale-based competitors in terms of lower prices and other consumer benefits. The Bureau generally sees this type of activity as being positive for competition, as it places pressure on all market participants to lower prices, minimize

⁸⁷ *Ibid.*

⁸⁸ *Supra* note 30.

⁸⁹ See Fido Home Internet, operated by Rogers at: <https://www.fido.ca/pages/#/internet>.

⁹⁰ See Virgin Mobile Home Internet, operated by Bell at: <https://www.virginmobile.ca/en/internet/index.html>.

⁹¹ See Fizz Internet, operated by Vidéotron at: <https://fizz.ca/en/internet>.

costs, and compete their hardest in order to win customers. However, the *Competition Act* also explicitly contemplates that the use of “fighter brands” can have negative effects on competition and economic welfare if they are used selectively in order to push rivals out of the marketplace, or otherwise harm competitive outcomes.⁹²

Despite this positive evidence about the beneficial effects of wholesale-based competitors, there are also concerns about the efficacy of wholesale-based competitors in a more broad sense. For example, several facilities-based competitors, in the context of this study, reported that they do not consider wholesale-based competitors to be a significant competitive threat to their business.⁹³ And, the Bureau’s consumer research underlines the hesitation and uncertainty in the minds of some consumers as to whether wholesale-based competitors can deliver services on par with their facilities-based counterparts. While there is reason to be impressed by the competitive presence of wholesale-based competitors, there is also reason to hesitate when considering how far this competitive effect will manifest into the future.

Locality of Wholesale-Based Competitors

The Bureau notes that some wholesale-based competitors tend to be more effective in and around the cities in which they are based. For example, the Bureau’s internal analysis has found that wholesale-based competitors presently have a market share in excess of 20% within the home city of a certain wholesale-based competitor. This is perhaps not surprising, given the local market knowledge and degree of local involvement that some wholesale-based competitors exhibit.⁹⁴

Additionally, some wholesale-based competitors have taken significant steps to become facilities-based competitors in local areas. Two examples of this are TekSavvy in Chatham, Ontario and Start.ca in London, Ontario, both of which have commenced projects to deploy fibre optic networks in their home cities. With these networks in place, these companies, who started

⁹² *Competition Act* paragraph 78(1)(d). Available online at: <https://laws-lois.justice.gc.ca/eng/acts/c-34/index.html>.

⁹³ Source: confidential interviews with certain market participants.

⁹⁴ For example, Start.ca, a wholesale-based competitor based in London, Ontario, sponsors both a summer concert event in the city (<https://rockthepark.ca/site/>) and the city’s Junior hockey team (<http://londonknights.com/sponsors>), among other such activities.

out as wholesale-based competitors, are establishing facilities-based services in competition with telephone and cable companies, as well as other facilities-based competitors.^{95,96}

But What about Bundles?

Of those households surveyed in the Bureau's public opinion research, nearly two-thirds bundle internet services with other telecommunications or broadcasting services, such as home phone or television.⁹⁷ Based on this statistic, it seems reasonable that, for a large segment of consumers, an internet provider may only be a practical alternative if they can offer a full range of such services.

Historically, few wholesale-based competitors have offered television services.⁹⁸ Despite the "cord cutting" narrative, three-quarters of Canadian homes continued to purchase traditional television services in 2017.⁹⁹ Because of these facts, at the commencement of this study, the Bureau raised the question of whether the wholesale access regime is sufficient to ensure choice for all consumers, rather than just those consumers who are willing to purchase "stand alone" internet services.¹⁰⁰

However, since that time, several major wholesale-based competitors, including Distributel,¹⁰¹ Start.ca,¹⁰² and TekSavvy¹⁰³, have launched or expanded their television services in significant geographic areas. The addition of television services to the suite of services that these wholesale-based competitors can provide is likely to make these providers a more attractive alternative to consumers who wish to purchase a full range of services from a single provider. It remains to be

⁹⁵ Jackson, E. (2018) "Why indie internet provider TekSavvy is building its own fibre network for the first time". *The National Post*. July 26, 2018. Available online at: <https://business.financialpost.com/telecom/why-indie-internet-provider-teksavvy-is-building-its-own-fibre-network-for-the-first-time>.

⁹⁶ Start.ca. (2019). "Say hello to lightning-fast fibre internet". Available online at: <https://www.start.ca/get-fibre>.

⁹⁷ For more information, see Part 4 of this report.

⁹⁸ Notable exceptions are vMedia and Cik Telecom, among others.

⁹⁹ See CMR Infographic 1.1, *supra* note 6.

¹⁰⁰ Competition Bureau. (2018). "Market Study Notice: Competition in Broadband Services". Available online at: <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04360.html>.

¹⁰¹ Distributel Communications Limited. (2017) "Distributel Purchases Strategic IPTV Service Provider". November 2, 2017. Available online at: <https://www.newswire.ca/news-releases/distributel-purchases-strategic-iptv-service-provider-654686543.html>.

¹⁰² De Bono, N. (2018) "London-based Start.ca takes on Bell, Rogers by offering TV service". *London Free Press*, November 30, 2018. Available online at: <https://lfpres.com/business/local-business/start-ca-takes-on-bell-rogers-offering-tv-service>.

¹⁰³ See, for example, TekSavvy Solutions Inc. (2019) "TekSavvy TV Launching in Chatham, Ontario". February 1, 2019. Available online at: <https://www.newswire.ca/news-releases/teksavvy-tv-launching-in-chatham-ontario-870925085.html>.

seen whether these new services are sufficiently attractive to consumers to elicit a significant competitive response from traditional, facilities-based competitors.

Key Issues in the Regulatory Landscape

Wholesale-based competitors do not own the entire underlying network infrastructure that they use to provide services. However, access to this infrastructure is often necessary during the installation of service in a customer's house, or when repairs are needed to damaged wires. In these circumstances, under the wholesale access regime, wholesale-based competitors must rely on facilities-based competitors for these services.

For example, when a wholesale-based competitor wants to hook up a new customer, it must contact the owner of the underlying network, and confirm that the service will be activated on a certain date. These arrangements regularly require that one of the network owner's technicians attend the customer's premise to ensure that the line is active, connect a modem, and verify that the service is working.

This reliance on a competitor is a source of conflict in the industry. Wholesale-based competitors, during this install process, lose touch with their customers and, when customers have an issue, resolving the issue can require a significant coordination effort between the wholesale-based competitor and the underlying network owner – coordination that can be opaque, confusing, and annoying for the consumer. There are also more serious allegations that install technicians, during the installation appointment, may disparage a wholesale-based competitor, or otherwise try to “win” a customer back to the network owner.¹⁰⁴

Ultimately, what is important for competition is that the independence of both facilities-based and wholesale-based competitors is maximized. Facilities-based competitors have a right to manage and control their own assets, and are required to participate in the wholesale access

¹⁰⁴ See paragraph 125 of the Written Submissions of TekSavvy Solutions Inc. Available online at: [https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapi/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf/\\$file/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf](https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapi/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf/$file/TekSavvy-Submission-CompetitionBureau-ABRIDGED.pdf).

regime only by way of regulation.¹⁰⁵ Accordingly, to ensure the best competitive outcomes, reliance of one competitor on another should be minimized wherever possible.¹⁰⁶

The CRTC is aware of these reliance issues, and is currently in the process of updating its regulatory supervision of interactions between wholesale-based and facilities-based competitors.¹⁰⁷ In this regard, the CRTC administers a “Competitor Quality of Service” regime, whereby facilities-based competitors are required to report to the CRTC certain performance-based metrics describing their relationships with wholesale-based competitors. For example, facilities-based competitors must report the average amount of time it takes for them to hook up a customer of a wholesale-based competitor, as well as a similar metric for repair services. The CRTC indicates the seriousness with which it takes these requirements by noting its ability to impose administrative monetary penalties for non-compliance.¹⁰⁸

There are also complaints in the industry about the pace at which regulatory decisions are made. While recognizing that evidence-based regulatory decision making in this industry is complex and requires significant effort and thought, the speed of this decision-making can have real effects on the marketplace. For example, in the interest of moving quickly, the CRTC often sets wholesale access rates on an interim basis, with final determinations to be made at a future date. Presently, some market participants claim that existing rates have been in an interim state for more than five years.¹⁰⁹ Furthermore, when rates are updated, there is a real potential that they can change dramatically – and even by an order of magnitude.¹¹⁰ The uncertainty associated with longer regulatory reviews can have significant negative effects on the marketplace, whereby both wholesale-based and facilities-based competitors are equally unsure of how regulatory rules will be established, and what impacts these rules may have on their businesses.¹¹¹

¹⁰⁵ See, for example, the comments of the CEO of BCE Inc. during its Q1 2019 Earnings Call. “BCE Inc. (BCE) CEO George Cope on Q1 2019 Results - Earnings Call Transcript”. Available online at: <https://seekingalpha.com/article/4259096-bce-inc-bce-ceo-george-cope-q1-2019-results-earnings-call-transcript?part=single>.

¹⁰⁶ The Bureau recognizes that, in achieving this goal of independence, regulators should consider the likely costs of changes alongside their likely benefits.

¹⁰⁷ See CRTC 2018-123, available online at: <https://crtc.gc.ca/eng/archive/2018/2018-123.htm>.

¹⁰⁸ *Ibid.* at paragraphs 120-121.

¹⁰⁹ See Page 12 of the Written Submissions of TekSavvy Solutions Inc. *Supra* note 104.

¹¹⁰ See CRTC 2016-396, available online at: <https://crtc.gc.ca/eng/archive/2016/2016-396.htm>.

¹¹¹ The Bureau recognizes that regulatory decision-making timelines can be exacerbated by parties’ actions that result in delays.

Conclusion on Wholesale-Based Competitors

Wholesale-based competitors fulfill a meaningful competitive presence in the marketplace. They currently serve more than 1,000,000 Canadian households, and act as an alternative for countless others, who use the presence of wholesale-based competitors to negotiate lower prices and better terms from other competitors in the marketplace. Facilities-based competitors are taking strategic actions to respond to the competitive threat posed by wholesale-based competitors, and the recent introduction of television services by several large wholesale-based competitors could elicit additional responses in the future.

Ultimately, it remains important that regulators continue to monitor the marketplace effects of wholesale-based competitors as a way of judging the success of the underlying wholesale access regime. At a high level, one of the best ways to ensure vigorous competition in broadband services is to maximize the independence of wholesale-based and facilities-based competitors, as well as working to minimize regulatory uncertainty. Competition brought about by the wholesale access regime delivers choice and lower prices to consumers; it remains important that this competition be preserved and capitalized on going forward.

Questions Arising from Discussion of Wholesale-Based Competitors

- Will recent integration by wholesale-based competitors into delivery of television services make them a more effective option for a wider base of consumers?
- Are there practical ways to further reduce the dependence of wholesale-based competitors on facilities-based competitors in the future?
- Is there a case for further regulation to address industry issues with the wholesale access regime?
- Is there a way to accelerate regulatory decision making and implementation in respect of the wholesale access regime, while at the same time respecting and preserving the evidence-based nature of these proceedings?

CONCLUSION

Given broadband's role as a key input into the Canadian economy, it is important to promote and protect competition in this industry. Doing so avoids negative spill-over effects into a broad range of economic activity that could result from less-than-competitive marketplace outcomes.

The Canadian broadband industry is unique in respect of its wholesale access regime. The Bureau's research tends to indicate that this regime is working to deliver increased choice and competition to consumers. A diversity of competitors, both wholesale- and facilities-based, compete daily to win customers and provide Canadians with access to world-class broadband networks. Balancing today's marketplace results with the longer-term need to maintain the incentive for continued investment in Canada's communications networks is a delicate matter, and will remain a challenge into the future.

The Bureau hopes that this study will spark further conversation about broadband regulation and competition going forward. Some of the issues discussed in this report are not novel and have, in fact, been unresolved for some time. Other parts of this report, such as the Bureau's consumer analysis, take a more novel approach relying on public opinion research. It is hoped that this report will feed into future industry thinking and regulatory decision-making.

Ultimately, the Bureau's perspective is that, as we proceed through tomorrow's challenges, competitive forces should remain at the centre of regulatory policy. Competition is the key organizing principle of Canada's economy, and it is the best way to ensure that consumers and businesses are well served by low prices, greater consumer choice, and increased levels of innovation. Through this study and its future efforts, the Bureau will continue to advocate for the benefits of competition in this important industry.



APPENDIX A SUMMARY OF QUESTIONS RAISED BY THIS STUDY

Questions Arising from Review of Marketplace Results of the Wholesale Access Regime

- Can statistics be collected and made available by regulators to better capture the market share of wholesale-based competitors in both local areas and for different types of consumers?
- How do wholesale-based competitors market their services? If these providers only target certain customer groups, what implications does this have for competition in other customer groups, and the success of the wholesale access regime in general?
- To what proportion of the marketplace do wholesale-based competitors act as a compelling competitive alternative?
- Why are wholesale-based competitors less successful in parts of the country beyond Southern Ontario and Southern Quebec? Is this a result of structural or strategic factors that make consumers in these areas less likely to choose a wholesale-based competitor?

Questions Arising from Consumer Analysis

- How do existing ISPs serve each of the different consumer groups identified in the Bureau's analysis? What are the implications for competition in each group?
- Do wholesale-based competitors act as a sufficient alternative to facilities-based competitors for all consumer types?
- Is there a case for regulation to address consumer switching difficulties or otherwise make consumers more aware of their options for internet services?
- Will there be changes in the future that affect consumer perceptions of either facilities-based or wholesale-based competitors?

Questions Arising from Analysis of Alternative Providers

- In what circumstances, or for which groups of consumers, should one or more of fixed wireless, mobile wireless, and satellite internet be considered part of the same relevant market as wired broadband internet connections?
- How could the competitive reality in Canada's broadband industry change following the introduction of 5G wireless services?
- If 5G could bring about significant new competitive discipline, what effect should this have on the wholesale access regime? What evidence of a positive competitive impact should a regulator require to adapt regulatory rules?

Questions Arising from Discussion of Facilities-Based Competitors

- How can a wholesale regime balance the positive aspects of greater competition with any negative effects that it may have on investment incentives?
- Is there a simpler or easier-to-implement method of setting wholesale rates? Is there value in exploring ex post assessment of the efficacy of existing rates, and more flexible adjustment of rates over time?
- Once networks are entirely fibre-optic based, what will be the driver of dynamic competition between facilities-based providers?

Questions Arising from Discussion of Wholesale-Based Competitors

- Will recent integration by wholesale-based competitors into delivery of television services make them a more effective option for a wider base of consumers?
- Are there practical ways to further reduce the dependence of wholesale-based competitors on facilities-based competitors in the future?
- Is there a case for further regulation to address industry issues with the wholesale access regime?

- Is there a way to accelerate regulatory decision making and implementation in respect of the wholesale access regime, while at the same time respecting and preserving the evidence-based nature of these proceedings?



APPENDIX B METHODOLOGY

This Appendix provides additional detail on the methodologies used by the Bureau in conducting this study.

Market Study Notice

Generally speaking, the first phase of a market study involves the publication of a Market Study Notice on the Bureau's website. This Notice defines the preliminary scope for a market study, and provides interested parties with information on how to participate in the study. A Market Study Notice was published for this study on May 10, 2018.¹¹²

Stakeholder Interviews

In this Study, the Bureau conducted more than 20 oral interviews with industry stakeholders, including a large number of face-to-face interviews at locations across Ontario and Quebec.¹¹³ These interviews took place during Summer and Fall 2018, with follow-up conversations as necessary during Winter and Spring 2019.

The Bureau used these interviews to:

1. Establish relationships with industry stakeholders;
2. Better explain and contextualize the study; and
3. Encourage future co-operation with the study, including in respect of written submissions and request for information responses, as discussed below.

Written Submissions

As a key part of the study, the Bureau requested that interested parties provide written submissions explaining their positions on the matters being examined. In total, the Bureau received 20 written submissions totaling more than 1,000 pages of information. Where the Bureau received permission to do so, these submissions (or public versions thereof that redact commercially sensitive information) were published on the Bureau's website.¹¹⁴

¹¹² Competition Bureau. (2018) "Market Study Notice: Competition in Broadband Services". Available online at: <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04360.html>.

¹¹³ Owing to the confidentiality provisions of the *Competition Act*, the Bureau cannot specify the identities of those who provided information to the Bureau in connection with this study.

¹¹⁴ Competition Bureau. (2018) "Submissions – Market Study: Competition in Broadband Services". Available online at: <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04387.html>.

These written submissions, in addition to notes taken during stakeholder interviews, allowed the Bureau to better comprehend both the ongoing issues in the industry and the historical context that has shaped the industry's development.

Market Study Update

In October 2018, after reviewing information gathered through oral interviews and written submissions, the Bureau released a Market Study Update document which refined the scope of the study, and articulated specific research questions to guide the analyses that were planned to be undertaken.¹¹⁵ By publicizing this document, the Bureau was able to communicate these updates to stakeholders, which spurred further conversations and set a context for the requests for information discussed below.

Informal Survey

As an initial step in the process of understanding consumer perspectives, the Bureau published an online survey on its website that was available from October 2018 to January 2019.¹¹⁶ In total, the Bureau received more than 42,000 survey responses, which were used as an input into the design of the public opinion research discussed below. The quotes cited in this report come from responses to this informal survey.

Public Opinion Research – Focus Groups

To initially understand the range of consumer opinions regarding broadband internet services in Canada, the Bureau's public opinion research experts held a series of 12 focus groups across Canada. Between December 12, 2018 and January 24, 2019, two sessions were held in each of Toronto, Ontario; Halifax, Nova Scotia; Montreal, Quebec; Edmonton, Alberta; and Vancouver, British Columbia. Two additional sessions were held via teleconference with rural households in Alberta, British Columbia, and Ontario. In each area, including the session with households in rural Ontario, one session was conducted with younger individuals (18 to 39 years) while the second session, including the session with households in rural Alberta and British Columbia, was conducted with older individuals (40 and up). Ten sessions were conducted in English and two sessions were conducted in French.

¹¹⁵ Competition Bureau. (2018) "Competition Bureau Broadband Market Study Update". Available online at: <https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04399.html>.

¹¹⁶ Competition Bureau. (2018) "Competition Bureau seeking input from consumers to help guide its Broadband Market Study". Available online at: <https://www.canada.ca/en/competition-bureau/news/2018/10/share-your-views-on-high-speed-internet-services.html>.

Qualitative research provides insight into the range of opinions held within a population, rather than the weights of the opinions held, as would be measured in a quantitative study. The results of this type of research should be viewed as indicative rather than projectable to the population.

The results of these focus groups were used: (1) to increase the Bureau's general familiarization with the range of opinions held by Canadian consumers; and (2) to assist the Bureau's public opinion research experts and behavioural economics expert in designing quantitative research.

Additional details about these focus groups can be found in a report entitled "[Competition Bureau Market Study: Consumer Switching in Broadband Providers](#)" delivered by Environics Research Group to Innovation, Science, and Economic Development Canada on **August 7, 2019**.

Public Opinion Research – Survey

The Bureau's public opinion research experts conducted an online survey with 2,005 Canadian households who have a home internet subscription from March 6 to 14, 2019. The sampling method for this survey was designed to complete interviews with at least 2,000 Canadians aged 18 and over who have home internet subscriptions. Quotas were set by age, gender, and region.

The quantitative research was conducted with respondents from an online panel. Since the samples used in online panel surveys are based on self-selection and are not a random probability sample, no formal estimates of sampling error can be calculated. Although opt-in panels are not random probability samples, online surveys with the general population resemble a random sample closely if they are well designed and employ a large, well-maintained panel.

The results of this survey were used by the Bureau in the discussion found in Part 4 of this report. Additional details about the survey can be found in a report entitled "Competition Bureau Market Study: Consumer Switching in Broadband Providers" delivered by Environics Research Group to Innovation, Science, and Economic Development Canada on **August 7, 2019**.

As part of the Bureau's analysis of survey results, and in support of an OECD initiative regarding Gender and Competition,¹¹⁷ the Bureau employed a gender lens to better understand how research results vary among genders. Ultimately, two significant differences were found between the genders studied in this survey:

- 1) Women respondents were more likely to report that they share decision-making responsibility with another member of their household in respect to broadband services,

¹¹⁷ OECD. "Gender and Competition". Available online at: <http://www.oecd.org/daf/competition/gender-and-competition.htm>.

whereas men were more likely to respond that they are the sole decision maker in the household; and

- 2) Women respondents were more likely to be “Balanced Consumers” in the Bureau’s typology of Canadian broadband consumers.

Requests for Information

In the context of market studies, the Bureau does not have formal investigative powers to compel information from those who have, or are likely to have, relevant information. Therefore, in conducting market studies, the Bureau must rely on voluntary cooperation of stakeholders to access the information needed to perform the study.

To better understand and verify the claims expressed by industry stakeholders in oral interviews and written submissions, the Bureau requested certain follow-on information from ten market participants. These requests asked for a variety of business records, confidential filings from past CRTC proceedings, narrative responses, and data describing business operations. Market participants were asked to respond to these requests within approximately five weeks, although many responses were received beyond this time period.

Ultimately, compliance with the requests was mixed. While all industry participants responded to the requests for information, some did not provide all of the information requested, claiming that they could not compile the necessary information on the timelines that the Bureau requested, and that certain information could not be produced owing to contractual confidentiality obligations.

Data Analysis

The Bureau requested and received certain data describing industry participants’ subscriber numbers and revenue information. With these data, the Bureau wished to do two types of analyses: (1) market share calculations; and (2) a form of econometric events study or cross-sectional analysis designed to better understand the impact that wholesale-based competitors have on competition.

Not one industry participant fully complied with the Bureau’s requests for data, however many participants did supply some form of responsive information. With this information, the Bureau was able to complete the market share analysis presented in Part 3 of this Report. Access to richer information would have allowed the Bureau to calculate market shares on the basis of

revenues and other plan characteristics (e.g., speeds, download caps, number of products in a bundle), rather than only on the basis of total subscribers in a geographic area.

With the data received, the Bureau was not in a position to perform any advanced econometric analyses. Either the data received was provided at too high of a geographic level (e.g., at the provincial or national level, rather than the local level), or was not provided with the correct periodicity (e.g., annually rather than monthly) to provide reliable results. Accordingly, the Bureau was not able to make any quantitative estimate of how wholesale-based competitors influence marketplace outcomes. It does bear noting that, even with all of the data that the Bureau requested, it still may have been difficult or impossible to arrive at statistically significant results from these types of analyses due to a variety of factors.

APPENDIX C SUMMARY OF RANDOMIZED CONTROL TRIAL EXPERIMENT

Rationale for Randomized Control Trial

Consumers use heuristics (or ‘rules of thumb’) when making purchase decisions. With this insight about consumers’ heuristic processing, marketers can steer decisions toward a particular product or service. One such marketing tactic is the ‘bundling’ of products and/or services – that is, the practice of combining multiple goods and services into a single package. Bundling has been shown to garner a strategic advantage for marketers by (1) increasing consumers’ perceived value¹¹⁸ of the products and (2) reducing perceived friction costs (i.e., providing convenience to consumers).¹¹⁹

Bundling is common in the telecommunications industry. In advertisements, firms often highlight the increased savings and/or convenience of combining the purchase of broadband internet, cellular phone plans, landline services, and television packages or any mix of two or more of these services from a single company with a single invoice for all services. Consumers respond to these bundled services positively. In fact, bundling has been shown to reduce consumers’ tendency to switch from their current product to a new product. However, the benefits of bundling does not necessarily outweigh future costs (e.g., the cost of cancelling bundled services later) and might prevent consumers from exploring more options in the marketplace to find a home internet service that best suits their needs.

In this project, we conducted rigorous testing to verify the impact of bundling on consumers’ preferences for home internet services and corresponding purchase intentions by using a randomized control trial (RCT). RCT is a common research method used in Behavioural Science and Behavioural Economics because it enables researchers to objectively compare what can occur when cognitive or psychological factors are mitigated as opposed to when they are allowed to create biases in consumer decision-making. For this reason, RCT allows for a more comprehensive understanding of how perceived cost savings and convenience created by the industry practices of bundling may influence consumers’ demand for home internet services in

¹¹⁸ Yadav, M. S., & Monroe, K. (1993). How buyers perceive savings in a bundle price: An examination of a bundle's transaction value. *Journal of Marketing Research*, 30, 350-358; Stremersch, S., & Tellis, G. J. (2002). Strategic bundling of products and prices: A new synthesis for marketing. *Journal of Marketing*, 66, 55-72.

¹¹⁹ Lee, S. (2017). Does bundling decrease the probability of switching telecommunications service providers? *Review of Industrial Organization*, 50(3), 303-322.

terms of their preference for, attitude toward, and information search about bundled services versus non-bundled services.

If consumers' preference is solely driven by rational cost-benefit analyses, or objective product information, simply increasing the salience of benefits associated with bundles (e.g., cost savings or convenience) in consumers' minds should not influence their preference and demand for bundled services. However, if consumers' demand is at least partially driven by cognitive and/or psychological factors, then highlighting these benefits in the product offerings will change consumers' preferences. For example, if perceived friction costs of purchasing broadband services are high, then highlighting convenience can increase consumers' preference for bundles. Similarly, highlighting ostensible cost savings associated with bundles versus non-bundles can also increase consumers' preference for bundles. With this in mind, we designed our RCT to test the role of perceived savings and convenience of bundle offers.





Research Method: Design and Participants

This RCT tested several bundling options and measured both ISP-related present judgments and projected future judgments. Each participant was presented with a pair of options – a bundle option and a non-bundle option – and asked to evaluate them. The bundle offer combined home internet, TV, and home phone services. Group 1 highlighted the cost savings, Group 2 highlighted convenience, and Groups 3 and 4 highlighted neither cost savings nor convenience (see the description of RCT groups below). To delineate the effect of perceived cost savings and perceived friction costs, we kept every product attribute identical between the bundle and non-bundle offers in the treatment groups (Groups 1-3), including their total cost of equivalent services, service items in each offer, download speed, download amount, etc. This way, any difference between any two of these RCT groups could only be attributed to the salience of perceived cost savings or convenience (low friction costs) rather than other product attributes. Group 4 was the control group.





Dependent Measures. We included four types of dependent measures in the RCT: (1) preference, (2) attitude, (3) information search intention, and (4) switching intention. Please refer to the actual survey for more detailed information on how these measures were worded.

Design. The four experimental groups of the RCT are as follows:





- *Group 1: Monetary Savings* - Participants were presented with a non-bundle offer and a bundle offer that highlighted the benefit of cost savings for the bundle offer. The amount of savings was not specified. The total cost of purchasing all three services were identical (\$126.50) between the two offers. This subtle design allowed us to test the power of mere potential savings in driving consumers' preference.

Bundle	Non-bundle, with budget information
<p>\$126.50/month</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> 100 + Channels</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p> Unlimited Local Calling</p> </div> <div style="width: 45%; border: 1px solid green; background-color: #d4edda; padding: 5px; text-align: center;"> <p style="color: red; font-weight: bold;">Save money with a bundle!</p> </div> </div>	<p>\$70.50/month</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p>Internet, TV, and home phone services can be purchased from separate vendors for around \$126.50 in total.</p>





- *Group 2: Convenience* - Participants were presented with the same non-bundle offer used in the *Monetary Savings* group and a bundle offer that highlighted the convenience of purchasing the bundle offer.

Bundle	Non-bundle, with budget information
<p>\$126.50/month</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> 100 + Channels</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p> Unlimited Local Calling</p> </div> <div style="width: 45%; border: 1px solid green; background-color: #d4edda; padding: 5px; text-align: center;"> <p style="color: red; font-weight: bold;">Single bill! Hassle free!</p> </div> </div>	<p>\$70.50/month</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p>Internet, TV, and home phone services can be purchased from separate vendors for around \$126.50 in total.</p>

- *Group 3: Generic Bundle* - Participants were presented with the same non-bundle offer used in the *Monetary Savings* group and a generic bundle offer that did not highlight the monetary savings or convenience.

Bundle	Non-bundle offer, with budget information
<p>\$126.50/month</p> <p> 100 + Channels</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p> Unlimited Local Calling</p>	<p>\$70.50/month</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p>Internet, TV, and home phone services can be purchased from separate vendors for around \$126.50 in total.</p>

- *Group 4: Control (without budgetary information)* - Participants were presented with a generic non-bundle offer that did not have the budgetary information and had the cost of purchasing the à-la-carte internet service (\$70.5). The bundle option was the same generic bundle offer from the *Generic Bundle* group.

Bundle	Non-bundle, no budget information
<p>\$126.50/month</p> <p> 100 + Channels</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p> <p> Unlimited Local Calling</p>	<p>\$70.50/month</p> <p> Unlimited Usage Download Speed Up to 100 Mbps Upload Speed Up to 10 Mbps</p>

Comparing across the *Monetary Savings*, *Convenience*, and *Generic Bundle* groups provides us the opportunity to examine how perceptions of monetary savings or convenience in a bundle offer affected consumers' preference for and attitude toward the bundle offer versus non-bundle offer. Comparison of these treatment groups with the *Control* group revealed whether the preference for the bundle offer changed when the total cost is uncertain (it did, see Figure 1).

Participants. A total of 2,005 ISP users (47.7% males, 51.7% females, 0.5% other; mean age = 48.2 years old) participated in this RCT. The size of each RCT group was similar, ranging from 500 to 504 people. There were participants from each province and territory in Canada. Overall, the sample population was representative such that it had a similar distribution of gender and geographical location as the actual distribution in Canada.

Results of Randomized Control Trial

Although the sample of the RCT is reasonably large (2,005 participants) and representative of the Canadian broadband market in various demographics factors, caution should be exercised in the interpretation and application of the RCT findings. The three key findings of this RCT are as follows:

The Role of Cognitive and Psychological Factors. When monetary savings (Group 1) or convenience (Group 2) was highlighted in the product offerings, consumers' preference for and attitude toward the bundle offer increased.¹²⁰

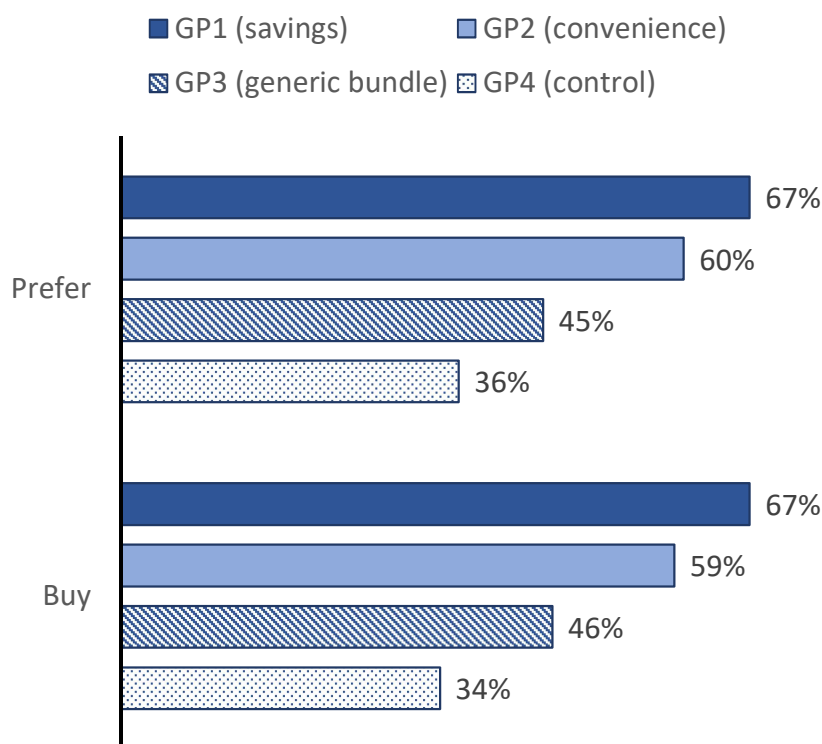
- *Preference.* A greater percentage of participants preferred the bundle offer and indicated that they would purchase it for their home.
- *Attitude.* Participants liked the bundle offer more and considered it more attractive than the non-bundle offer.
- *Information Search Intention.* Participants would like to receive more information about the bundle offer and they were less interested in receiving more information about the non-bundle offer.
- *Switching Intention.* The likelihood of switching to their chosen option did not vary across RCT groups; however, participants' likelihood of switching from their current ISP to the chosen option was higher among those who chose the bundle offer than those who chose the non-bundle offer.¹²¹

¹²⁰ This result was revealed after we controlled for the variance related to participants' age and their sensitivity to the treatment factors – highlighting savings or convenience. See Table 1 for the result without the control for the age-related variance.

¹²¹ Average switching intention: 4.59 for those who preferred the bundle offer and 3.95 for those who preferred the non-bundle offer (7-point scale; 1 = not at all likely, 7 = extremely likely).

The effect of the treatment factors (highlighting savings and convenience) occurred while the product and total cost information was kept constant across the treatment groups. As shown in Figure 1, the range of the shift in market share in the RCT – in terms of the percentage of participants choosing the bundle offer – was 21-31%, depending on the RCT group. This result suggests that consumers’ demand for home internet services is subject to cognitive/psychological factors as opposed to solely driven by rational cost-benefit analyses or objective product information. Given that participants’ attitude toward the bundle and the desire for additional information were consistent with their preference, we focus on participants’ preference and intended purchase choice in the rest of this summary. See Table 1 for summary statistics.

Figure 1. Preference and Purchase Choice for the Bundle Offer¹²²



Inherent Preference for Bundles in Consumer Sub-groups. The following participant subsets had a stronger preference for purchasing the home internet service in a bundle offer:

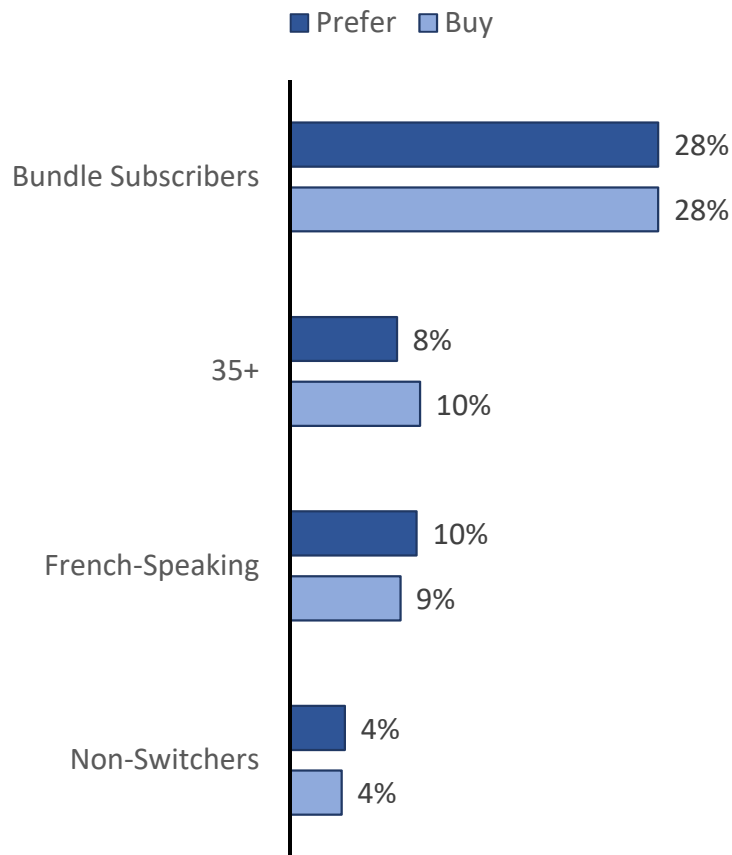
- a. Current bundle subscribers (vs. non-bundle subscribers)
- b. Those 35 years old and above (vs. 34 years old and below)
- c. French-speaking participants (vs. English-speaking participants)

¹²² Estimated marginal means for each RCT group, adjusted for age-related variance in the sample population.

- d. Consumers who have not switched ISPs in the past two years (vs. consumers who have switched)

Among these consumer types, the increase in market share for the bundled home internet service across RCT groups ranged from 4.3% to 28.3% (see Figure 2).

Figure 2. Increase in Market Share for Bundle in the RCT



Highlighting Convenience Increases Bundle Preference. Although participants’ overall preference for the bundle offer was higher in Group 1 than Group 2 by 7%, two consumer subgroups showed the opposite pattern. That is, with everything else being equal in ISP packages, merely highlighting the ‘convenience’ benefit of a bundle offer (Group 2) increased preference for the bundled home internet service even *more* than did highlighting ‘savings’ among consumers with certain ISP-related experiences:

- a. Non-bundle subscribers (vs. current bundle subscribers)
- b. Participants who switched ISPs in the past two years (vs. those who have not switched)

Among these consumer types, their preference for the *Convenience* bundle offer (vs. *Generic Bundle* or *Control* group) increased by 23% to 36% (see Figure 3).

Figure 3. Increase in Market Share for Bundle When ‘Convenience’ was Highlighted

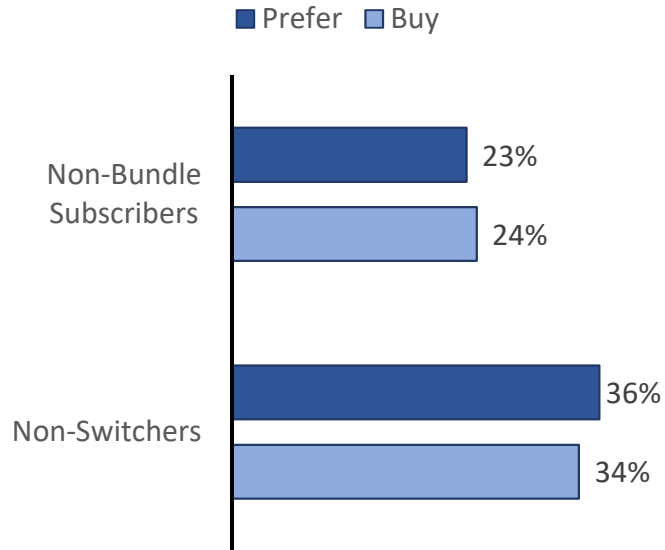


Table 1. Summary Statistics for the Dependent Measures

	Group 1	Group 2	Group 3	Group 4
N	501	500	504	500
Preference-B	67.0%	60.0%	45.0%	36.0%
Purchase Choice-B	67.0%	59.0%	46.0%	34.0%
Attitude-B	4.68 (0.10)	4.53 (0.08)	4.37 (0.08)	4.19 (0.10)
Attitude-NB	3.85 (0.09)	3.97 (0.07)	4.25 (0.07)	4.61 (0.09)
Switching Intention	4.23 (0.11)	4.18 (0.09)	4.34 (0.09)	4.39 (0.11)
Information Search Intention-B	2.20 (0.06)	2.33 (0.05)	2.44 (0.05)	2.53 (0.06)
Information Search Intention-NB	2.72 (0.05)	2.61 (0.04)	2.40 (0.04)	2.30 (0.05)
Raw means ¹²³				
Preference-B	52.7%	55.2%	50.2%	51.0%
Purchase Choice-B	52.5%	54.2%	50.8%	49.4%
Attitude-B	4.49 (1.59)	4.47 (1.70)	4.43 (1.55)	4.39 (1.74)
Attitude-NB	4.24 (1.52)	4.10 (1.61)	4.12 (1.65)	4.23 (1.63)
Switching Intention	4.32 (1.77)	4.21 (1.91)	4.31 (1.88)	4.30 (1.86)
Information Search Intention-B	2.32 (1.00)	2.37 (1.02)	2.40 (1.04)	2.41 (1.04)
Information Search Intention-NB	2.49 (0.90)	2.53 (0.94)	2.48 (0.99)	2.53 (0.94)

Note: Standard deviations are in brackets. *N* denotes total cell size. *B* denotes 'Bundle', *NB* denotes 'Non-bundle'.

¹²³ Results without controlling for age-related variance.