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A Home for the Housing Sector

Housing Partnership Canada

The Impact of Community Housing on Productivity

November 27th, 2023

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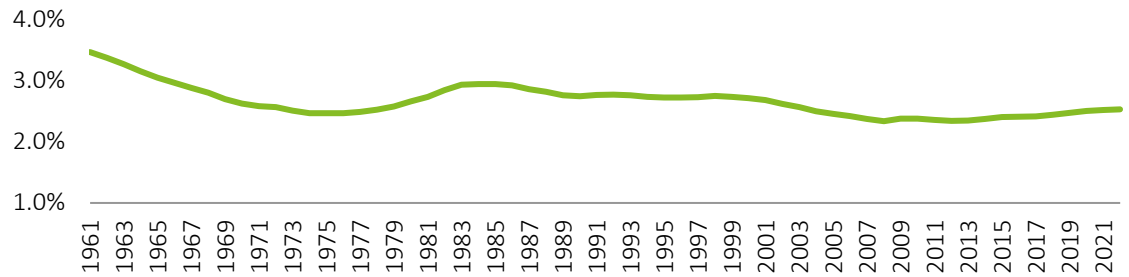
Executive Summary

The Current State

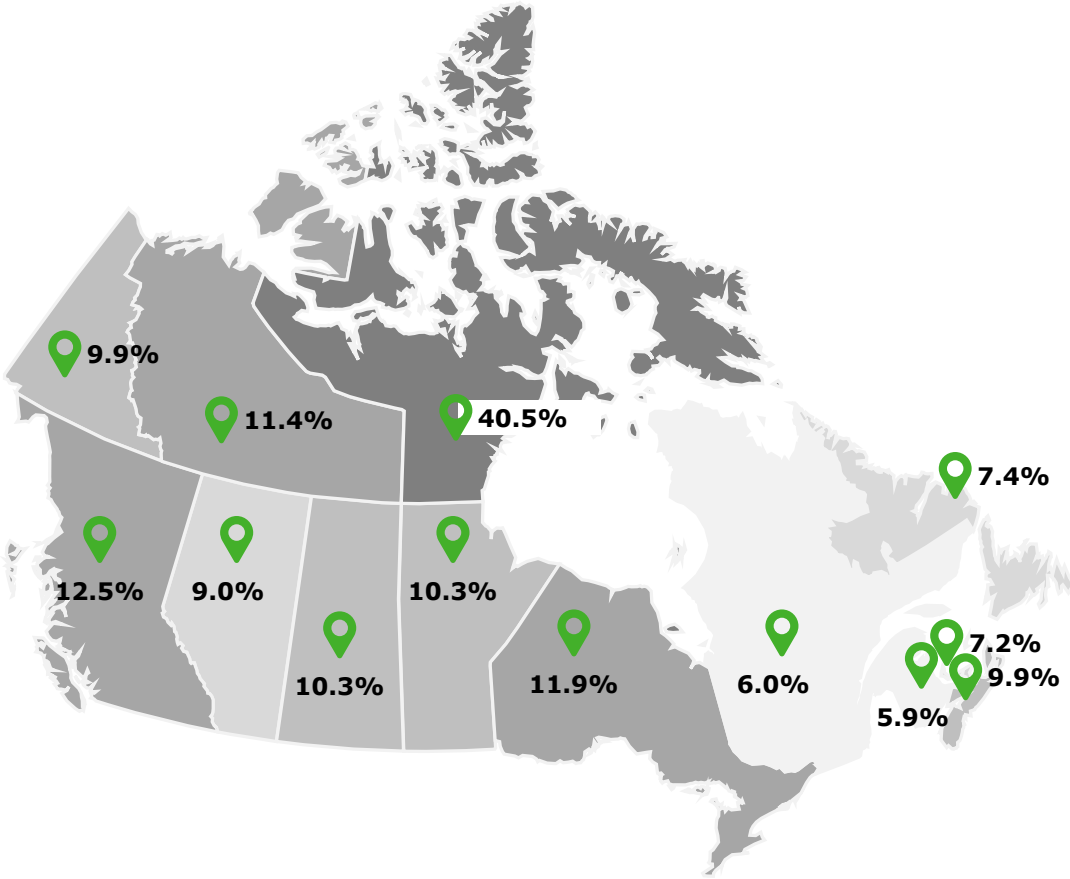
Housing affordability has deteriorated over the past two decades in Canada, with the housing affordability index now at its lowest point since the third quarter of 1990. Approximately 2.6 million Canadians are in core housing need, with experiences varying across provinces and territories. Several factors have contributed to the scale of the current challenge, including a reduction in the share of our housing that is devoted to community housing (as seen in the graph below). Irrespective of the root causes, it has become increasingly evident that something needs to be done to address the housing affordability crisis.

In addition to a housing crisis, Canada's economy also faces a productivity problem. Our labour productivity growth lags our international peers and has continued to decline in the post-pandemic period. To improve economic performance without further igniting inflationary pressures, Canada needs to find ways to boost its potential output. Boosting our economic growth potential depends on boosting the number of people working, increasing investment and/or increasing productivity. Out of the three ways to boost our potential output, productivity gains are the most desirable as increasing productivity is how we improve our standard of living.

Community Housing Net Stock as a Share of Total Housing Stock, Dollar Value , 1961 - 2022



Share of Households in Core Housing Need, %



Source: Statistics Canada, 2022 (provinces); Statistics Canada, 2023 (territories)

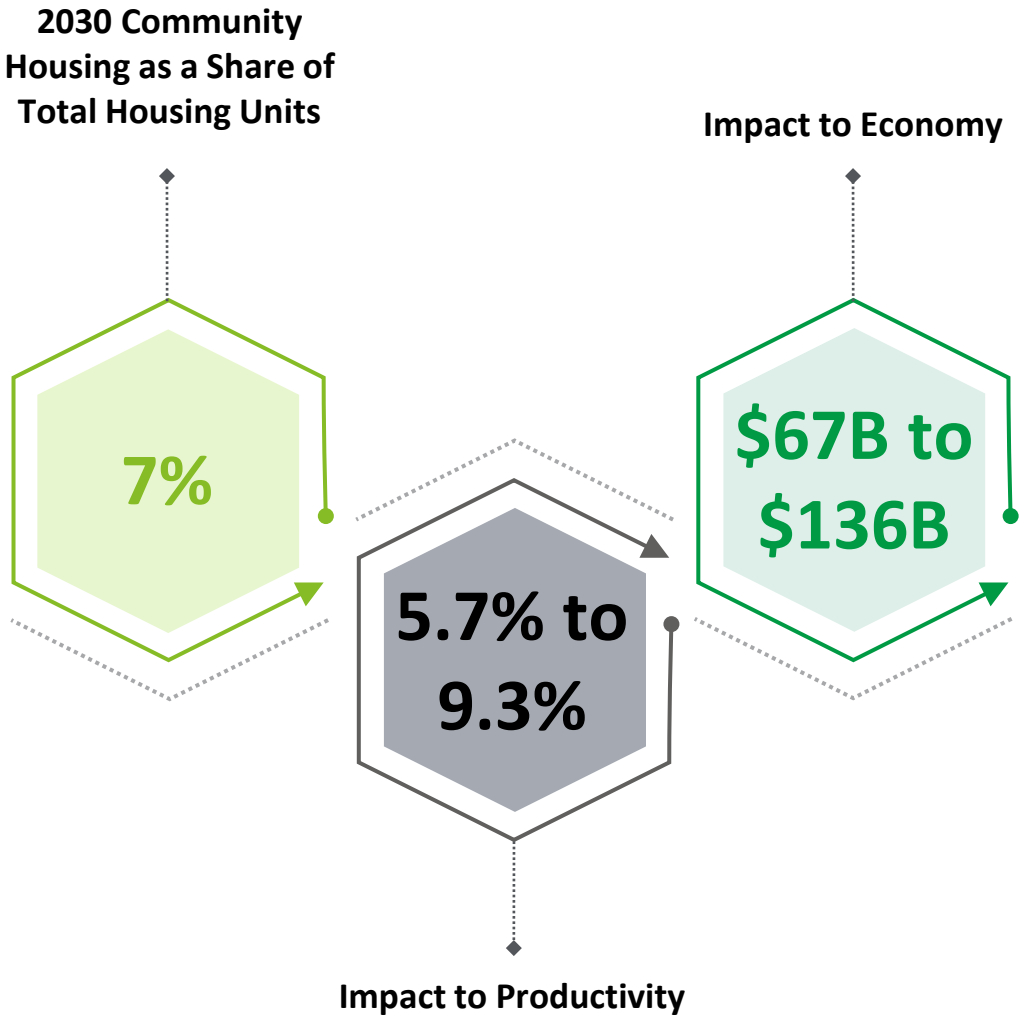
Executive Summary

Community Housing and Productivity

We identified a connection between community housing and productivity by conducting a literature review, using a growth accounting framework, and running a regression analysis. Both the literature review and our growth accounting framework supports a relationship between community housing and productivity. The regression results confirms a causal relationship.

The relationship between productivity and community housing is not only statistically significant, but also substantial in magnitude and robust in multiple approaches and specifications. Our analysis shows that to increase the share of community housing units from its current level to the OECD average of 7% by 2030 will require adding 371,600 community housing units. A larger share of community housing stock will improve our productivity and boost GDP by $110 billion to $179 billion in 2030. Considering the opportunity cost of shifting new housing construction from more expensive private dwelling to community housing units, the additional units of community housing would contribute between $67 to $136 billion to GDP by 2030. If housing construction does not shift to community housing as outlined in this scenario, these gains will not be realized.

In our research, we have established that investments in community housing are important given that they boost our productivity and that in turn, means that these investments boost our economy's potential output growth. The research, therefore, supports a stable increase in community housing investment with dedicated funding for Northern, rural and off-reserve Indigenous communities.



Policy Recommendations

1. **Increase investment in community housing to boost Canada's GDP.** Our research shows that nearly one quarter of all homes built over the next seven years will have to be community housing if we are to hit the OECD average. Increasing the proportion of Canada's community housing stock by 1.5 percentage points would boost GDP by $67 to 136 billion: a significant and tangible impact to the Canadian economy.
2. **Generate a stable pipeline of community housing projects.** Creating housing takes time, making consistent funding, financing, and tax incentives necessary to build a stable pipeline of development projects. Public policy gaps lead to delays in construction that move Canada further away from restoring housing affordability. Generating a stable pipeline of community housing projects requires funding, financing, and tax incentives to build new homes, and equip community housing providers with the resources to renew or acquire existing units.
3. **Provide dedicated funding for off-reserve Indigenous communities.** Canada's Indigenous communities face some of the highest core housing need in the country. The unique challenges identified in this research will require differentiated and culturally appropriate solutions complete with dedicated funding to address the housing crisis in these communities.
4. **Improve collaboration on tackling the housing crisis.** Investments in community housing can address two of the biggest challenges facing Canada right now: affordability and weak productivity. That said, the scale of the challenge urgently requires improved coordination and alignment between different levels of government, industry stakeholders, and advocates. This includes shared targets for builds, labour strategies related to housing, and leveraging underutilized land to build new units.
5. **Promote innovation to tackle supply challenges.** Policy measures should be put in place to support the scale up and market penetration of innovative approaches to building housing more quickly, sustainably, and affordably. By reducing the per-unit cost of building housing, we could go further than our results suggest – which are based on constant real costs per unit – and more quickly tackle the supply gap. These approaches can include novel construction technologies, pre-approved housing designs, and use of underutilized spaces.

Table of Contents

Introduction and Objectives

Housing in Canada has become increasingly unaffordable, especially over the past two decades. Canada's housing affordability index has reached its lowest point since the third quarter of 1990, and approximately 2.6 million people are in core housing need which is a measure of households that fall below one of the housing standards (i.e., unsuitable, inadequate, and unaffordable) and who would need spend pay more than 30% of their before-tax income for acceptable housing.[1,2] Both demand and supply factors have contributed to this challenge, including very slow growth in new community housing units since the mid-1990s.

At the same time, Canada's productivity growth has been nothing short of abysmal. While a direct link between community housing investments and business sector productivity growth may not be the most intuitive relationship, there is a body of research that shows a relationship between affordable housing and economic productivity growth. Affordable housing falls under many parts of the housing continuum, and in this study, we will focus on community housing, one portion of the housing continuum.

The goal of this research is to review the literature on the link between affordable housing and productivity growth and build an econometric model to test if the data in Canada supports a direct causal relationship between the stock of community housing and our productivity performance. Our analysis will examine what additional benefits could flow if there is an increase in investment in community housing. This means that we will not be looking at the standard economic impact associated with constructing and renovating homes, but rather looking at the impact housing can have on our potential growth by boosting our productivity performance.

The overarching objective of this report is to show that community housing plays an essential role in supporting economic development and productivity in a region. Rather than simply providing social services, housing should be viewed as essential economic infrastructure. We aim to demonstrate that the economic impacts of housing are felt not just at the level of an individual, household, or neighborhood scales, but rather throughout the economy. By examining these links, we seek to highlight the significant and tangible contributions that the community housing sector, and by extension affordable housing, makes to Canada's economy.

Report Structure

The remainder of the report is organized as follows:

- **Section 1: Research Background** includes the definition of key housing terms and a discussion of the housing and productivity challenges facing Canada.
- **Section 2: Methodology** defines our research question and approach.
- **Section 3: Historical Results and Potential Future Impacts** presents the results of our analysis and illustrative examples.
- **Section 4: Key Takeaways and Conclusion** concludes the report.
- **Appendix A: Provincial and Territorial Carveouts** provides a high-level overview of provincial housing markets and the potential impacts on productivity.
- **Appendix B: Literature Review** includes a summary of the key research papers consulted.
- **Appendix C: Methodology Deep Dive** provides a detailed discussion of the methodology employed and results.
- **Appendix D: Sources**

1. Real estate market: Definitions, graphs and data. Bank of Canada. https://www.bankofcanada.ca/rates/indicators/capacity-and-inflation-pressures/real-estate-market-definitions/ (Accessed September 7, 2023)
2. Persons in core housing need, by tenure including first-time homebuyer and social and affordable housing status, by province. March 31, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=4610007301 (Accessed September 13, 2023).

Research Background

SECTION 1

Putting Community Housing in Context

Before beginning our analysis, it is important to define what we are studying in this research and why.

Affordable housing can mean different things to different audiences. For context, Canada Mortgage and Housing Corporation (CMHC) defines housing as affordable if it costs less than 30% of a household's before-tax income.[1] Affordable housing is a very broad term that can include housing provided by the private, public and non-profit sectors. **This broad definition of affordable housing is not the focus of this study.**

In this study, **we focus on community housing** which is defined by Statistics Canada as "social housing" a structure where at least some of the **dwellings have rent-setting mechanisms that are not entirely governed by the laws of supply and demand**. Data on community housing includes:[2]

1. **Housing co-operatives**—refers to dwellings where all members jointly own the co-operative and occupy their dwelling units under a lease agreement.
2. **Non-profit housing**—refers to non-market housing provided by non-profit organizations (including when the not-for-profit organization typically receives public funding).
3. **Public housing**—refers to non-market housing administered and typically funded by government (including Federal, Provincial, Territorial and Municipal levels and Indigenous entities).
4. **Other affordable housing**—refers to other social housing containing low-end of market rents or part of mixed-income projects, for which there is an agreement with a government to provide below market rent.

The data also includes housing on Indigenous reserves or settlements.

Why are we not studying the impact of affordable housing?
The housing stock time series data only covers the total social housing stock and does not cover private sector affordable dwellings.

What is the difference between social and community housing?
The data we use from Statistics Canada covers what they call social housing (see definition at left). Stakeholders highlighted that, among groups working in this space, the term "social housing" is most typically used to describe the legacy stock that was largely built by governments before the mid-1990s. Statistics Canada's "social housing," on the other hand, also includes investments that have been made in the past 30 years. Therefore, **we use the term community housing in place of social housing** in this paper to reflect the terminology being used within the sector.

What is the relationship between community housing and affordable housing?
Community housing is a subset of affordable housing. In this study we assume any linkages between community housing and productivity would apply to any type of housing that is affordable given that the literature underpinning the model development focuses on the broader definition of affordable housing. Further, investments in community housing can ease demand pressures which can make private sector housing more affordable.

Community housing is a subset of the range of housing types available in a community:

1. About Affordable Housing in Canada. CMHC. March 31, 2018. https://www.cmhc-schl.gc.ca/professionals/industry-innovation-and-leadership/industry-expertise/affordable-housing/about-affordable-housing/affordable-housing-in-canada (Accessed September 2023)
2. Definition provided by Statistics Canada upon request.

The Housing Crisis in Canada

Availability of adequate and affordable housing is a growing concern for many households across Canada.

Canada is facing a housing crisis due to several factors including current economic trends, changing demographics, legacy policies and programs, and market failure. Indeed, the housing crisis is the top concern for many households across Canada and is acute for those with low or unstable incomes, young individuals, families and seniors.[1]

According to the housing affordability index, which measures housing related costs to average household disposable income, housing affordability has deteriorated over the past two decades in Canada. It is now at its worst point since the third quarter of 1990 (see chart "Housing Affordability Index"), when Canada was in a deep recession and the five-year mortgage rate averaged 13.7%.

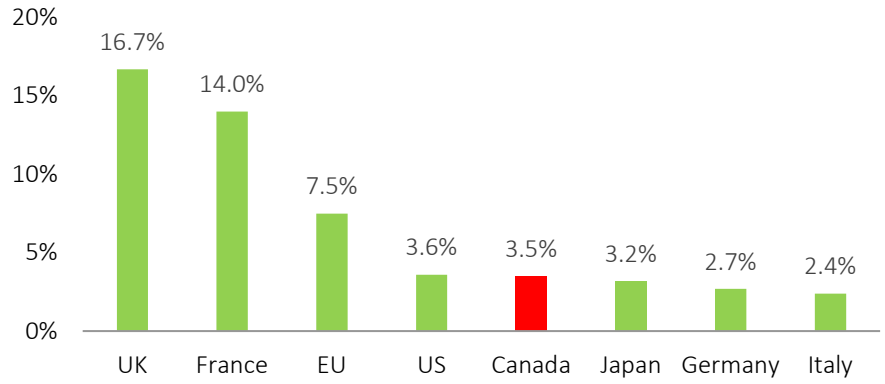
Moreover, according to the 2021 census, approximately 2.6 million people are in 'core housing need' which refers to households that falls below one of the housing standards (i.e., unsuitable, inadequate, and unaffordable) and who would need to spend more than 30% of their before-tax income for acceptable housing.[2]

Canada compares poorly with other G7 countries in providing community housing. As seen on the bottom right, Canada's 2019 community housing rental stock (excluding units managed by the Société d'habitation du Québec (SHQ) for the Province of Quebec) as a share of total dwellings is 3.5%, significantly lower than most of its G7 peers.[3]

Not only does Canada lag in the actual number of community housing units, but Canada's current stock of community housing was mostly built during the 1960s to mid 1980s, when the government made a multi-year funding commitment to build a non-market housing sector. After this period, minimal community housing units were built.[4]

Housing Affordability Index, 1980 Q3 – 2023 Q2[5] (higher value means less affordable)

Community Rental Housing Stock as a Share of Total Dwellings, 2020 or Most Recent Year



Source: Bank of Canada, OECD. Note: The OECD refers to the stock as social housing, which has been renamed here as community housing be consistent with the terminology used throughout.

1. Housing challenges remain for vulnerable populations in 2021. July 21, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/220721/dq220721b-eng.htm. (Accessed September 13, 2023)
2. Persons in core housing need, by tenure including first-time homebuyer and social and affordable housing status, by province. March 31, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=4610007301 (Accessed September 13, 2023).
3. Although Japan, Germany, and Italy have lower social rental housing stock as a share of total dwellings than Canada, the price to income ratio (considered as a measure of affordability by the OECD) in these countries have grown at a slower pace than Canada in the past decade.
4. Sharon Chisholm and David Hulchanski. Shaping Futures: Changing the Housing Story - Canada's Housing Story. SF 21. March 2019. https://cityfutures.ada.unsw.edu.au/documents/527/C4_Canadas_Housing_Story.pdf (Accessed September 8, 2023).
5. The housing affordability index measures the share of disposable income that a representative household would put toward housing-related costs (mortgage payments and utility fees). The higher the ratio, the more difficult it is to afford a home.

The Housing Crisis Across Canada

The housing crisis is felt nationwide in Canada, but experiences vary across provinces and territories.

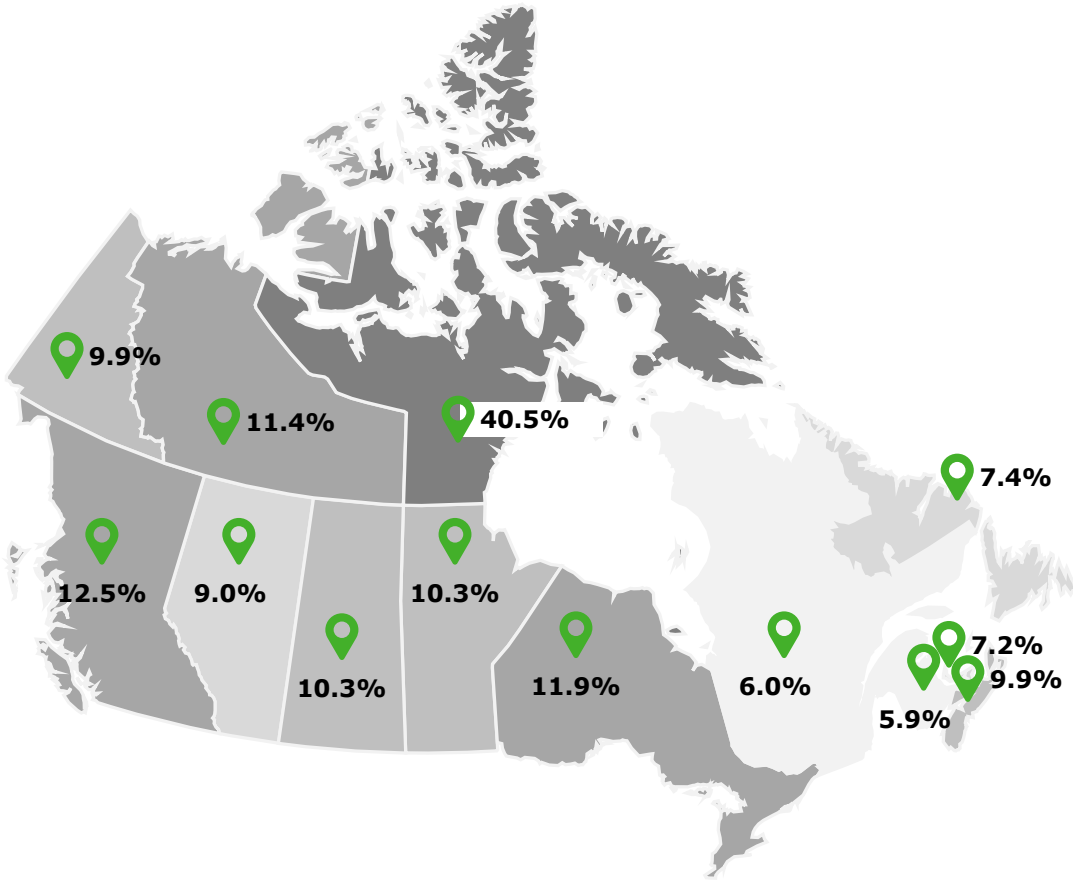
Core housing need illustrates how well housing requirements are met. A household is in core housing need if it meets two criteria:[1]

1. A household does not meet one or more of the standards for housing adequacy, affordability or suitability.
    - **Adequate housing** does not require any major repairs (e.g., defective plumbing, electrical wiring, structural repairs).
    - **Affordable housing** refers to shelter costs equal to or less than 30% of total before-tax household income.
    - **Suitable housing** refers to housing with sufficient bedrooms to accommodate for the size and composition of the residents.
2. The household would need to pay 30% or more of its before-tax income to pay the median rent of alternative housing that meets the standards of all three housing indicators.

In Canada, approximately one in ten households are in core housing need. The graph on the right illustrates the varying degrees of core housing need throughout Canada. Nunavut has the highest rate of core housing need in the country, followed by British Columbia and Ontario. Within provinces and territories, household core housing needs vary across large urban, rural, medium, and small population centers. Furthermore, households that rent their homes have a core housing need rate that is almost four times higher than those who own their homes.

To effectively tackle the housing crisis, it will be key to understand the factors that have led to its occurrence.

Share of Households in Core Housing Need, %



Source: Statistics Canada, 2022 (provinces); Statistics Canada, 2023 (territories)

1. Persons in core housing need, by tenure including first-time homebuyer and social and affordable housing status, by province. March 31, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=4610007301 (Accessed September 13, 2023).

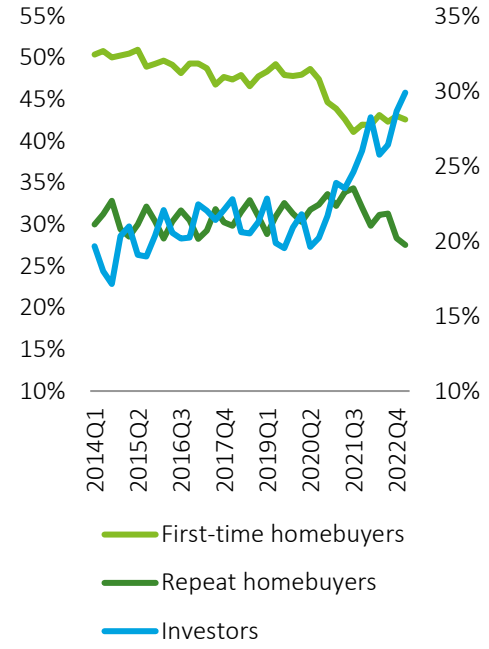
Factors Contributing to the Housing Crisis

The housing continuum is affected by demand and supply factors.

What factors have contributed to the housing crisis?

- **Demand Factors –** Researchers at the Bank of Canada have identified several demand-side factors contributing to the increase in house prices in the 2000s including higher disposable incomes, population growth, low mortgage rates, expectation of rising house prices, and changes in the liquidity of the housing market.[1] Additionally, recent work by BCA Research shows that the Bank of Canada's policy interest rate has been lower than fundamentals would suggest is appropriate for much of the last two decades, fueling housing demand and encouraging the accumulation of mortgage debt.[2] We have also seen a significant shift in who is buying homes. Over the last few years, first-time homebuyers are making up a smaller share of the market, as repeat purchasers and investors captured a larger share of home purchases (see chart "Share of Mortgaged Home Purchases by Type of Homebuyer"). In 2023 Q1 investors captured 30% of the share of mortgaged home purchases, representing a 52% increase from 2014 Q1, where their share stood at 20%. In 2020, in British Columbia, Manitoba, Ontario, New Brunswick and Nova Scotia, just under one in five properties among houses and condominium apartments was used as an investment.[3] The increase in demand by investors has led the housing sector to experiencing what some describe as a market failure, where the traditional principles of supply and demand no longer hold true with some investors speculating on housing as a commodity, skewing the market.[4]
- **Supply Factors –** Increasing the supply of housing is a time-consuming process as it is hindered by long timelines for approvals, construction delays, availability of land, land-use regulations, cost of materials, and a shortage of workers. Additionally, there has been no significant increase in the supply of community housing as a share of the total stock since the mid 1980s. Therefore, in the past few decades, the supply of community housing has not been consistent with increases in demand. CMHC estimates that to restore affordability to levels seen in 2003 and 2004, 3.5 million more housing units are needed by 2030, beyond the estimates projected to be built under CMHC's business as usual scenario.[5] In a high population-growth scenario the gap would increase to 4 million housing units, while in a low-economic growth scenario the gap falls to 3.1 million units.[5] Other institutions, like Scotiabank, have also been calling for an increase in community housing to support affordable housing.[6] However, researchers and advocates have concluded that increasing supply may not be sufficient to restore affordability.[7] To succeed, governments and the sector will need to build a housing supply that accounts for the entire housing continuum, appreciates ownership and rental typologies, fits urban, rural and suburban settings, and are available at a range of socioeconomic status.

Share of Mortgaged Home Purchases (%) by Type of Homebuyer, 2014 Q1 – 2023 Q1



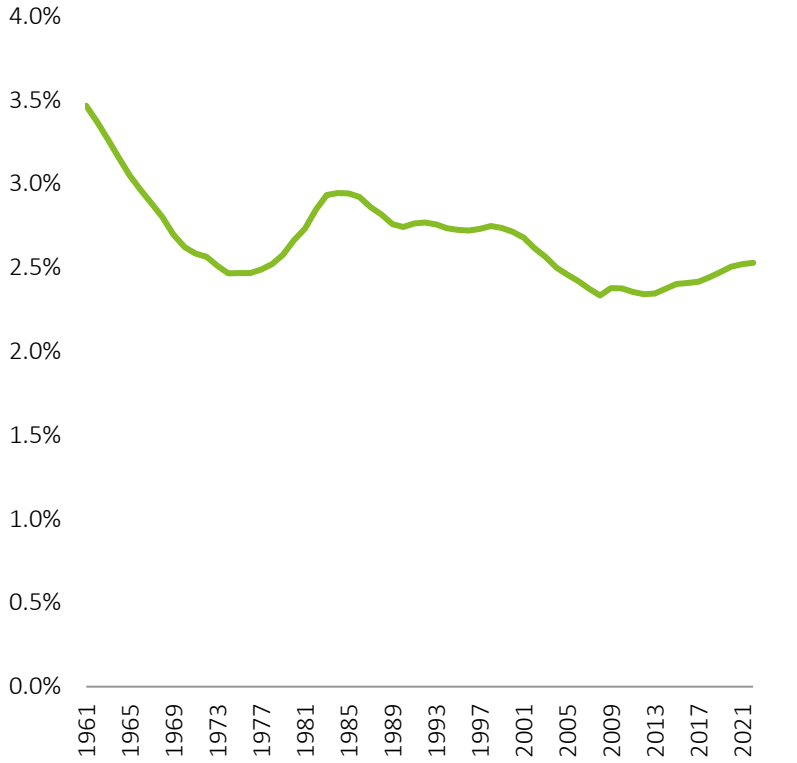
Source: Bank of Canada

1. Brian Peterson, Financial Stability Department, and Yi Zheng. Medium-Term Fluctuations in Canadian House Prices. Bank of Canada. 2011-12. https://www.bankofcanada.ca/wp-content/uploads/2012/02/boc-review-winter11-12-peterson.pdf (Accessed October 24, 2023)
2. Canada: Canary In The Coal Mine? October 2023. BCA Research - The Bank Credit Analyst. https://www.bcaresearch.com/ (Accessed October 11, 2023)
3. Joanie Fontaine and Joshua Gordon. Residential real estate investors and investment properties in 2020. Statistics Canada. February 3, 2023. https://www150.statcan.gc.ca/n1/pub/46-28-0001/2023001/article/00001-eng.htm (Accessed September 12, 2023)
4. Rebecca Zandbergen. The federal government used to build social housing. Then it stopped. How is that going? CBC. August 27, 2023. https://www.cbc.ca/radio/sunday/federal-social-housing-1.6946376 (Accessed September 8, 2023)
5. Housing shortages in Canada Updating how much housing we need by 2030. CMHC. September 13, 2023. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/accelerate-supply/housing-shortages-canada-updating-how-much-we-need-by-2030 (Accessed September 18, 2023)
6. Canada needs ambitious, urgent strategy for social housing. Scotiabank. January 18, 2023. https://www.scotiabank.com/ca/en/about/perspectives.articles.economy.2023-01-social-housing-scotiabank-report.html (Accessed October 24, 2023)
7. Vicki Been, Ingrid Gould Ellen & Katherine O'Regan. Supply Skepticism: Housing Supply and Affordability. December 17, 2018. Supply Skepticism: Housing Supply and Affordability: Housing Policy Debate: Vol 29, No 1 (tandfonline.com) (Accessed September 11, 2023)

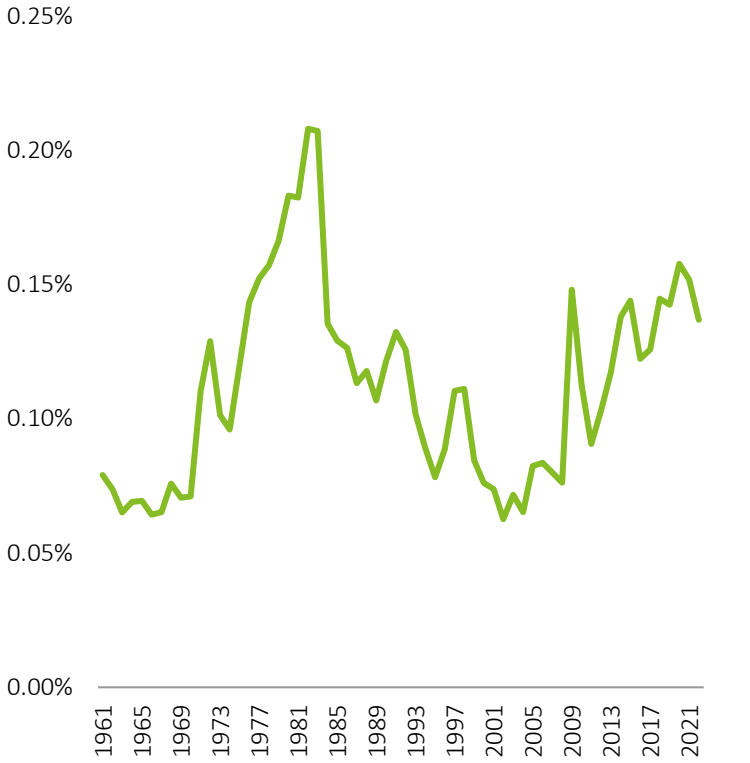
The Impact of Reduced Government Investment in Community Housing

As a share of GDP, community housing investment in new construction peaked in the early 1980s, and only recently began to increase again. However, investments as a share of GDP are still below levels seen in the 1980s and have been insufficient to significantly increase the level of community housing stock as a share of total housing stock.

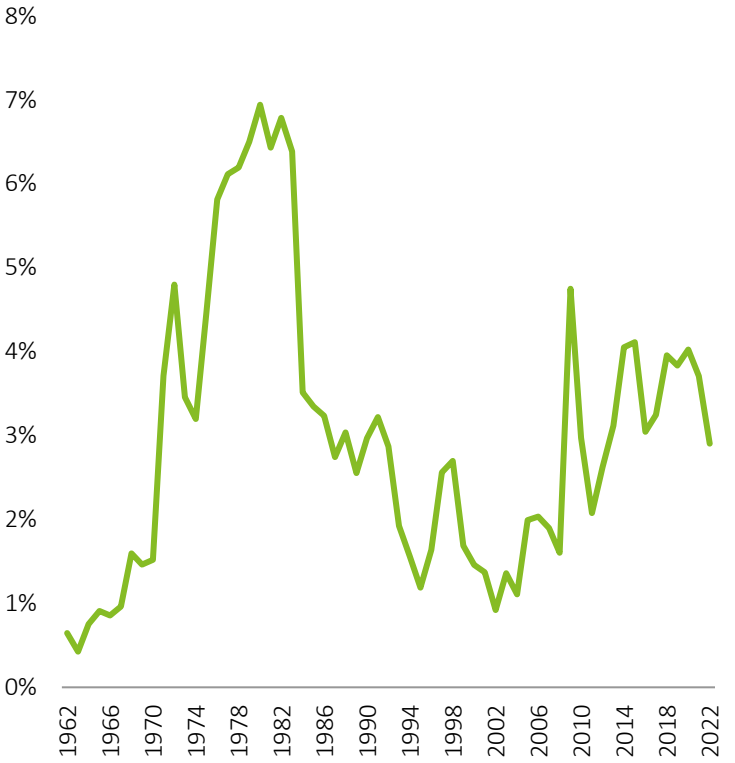
Community Housing Net Stock as a Share of Total Housing Stock Constant Dollar Value, 1961 - 2022



Community Housing Investment in New Construction as a Share of GDP at Market Prices, 1961 - 2022



Community Housing Net Stock Constant Dollars, % Change, 1962 - 2022



Source: Statistics Canada

The Productivity Challenge in Canada

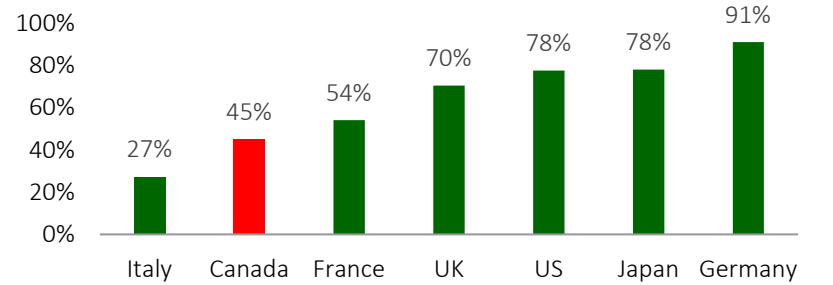
In addition to a housing affordability challenge, Canada's economy also faces a productivity problem. Our labour productivity growth lags our international peers and has continued to decline in the post-pandemic period.

Across advanced economies, Canada has one of the lowest average growth rates in multifactor productivity (MFP)[1] over the past four decades (see chart "Average Multifactor Productivity Growth Rate") and the problem continues to worsen. In 2000, the Canadian workforce was 82% as productive as the US workforce in terms of real output and by 2020 it dropped to 77%.[2] Data from Statistics Canada reveals that Canada's productivity growth has stagnated in the post-pandemic period with labour productivity declining for the fifth consecutive quarter in the second quarter of 2023.[3]

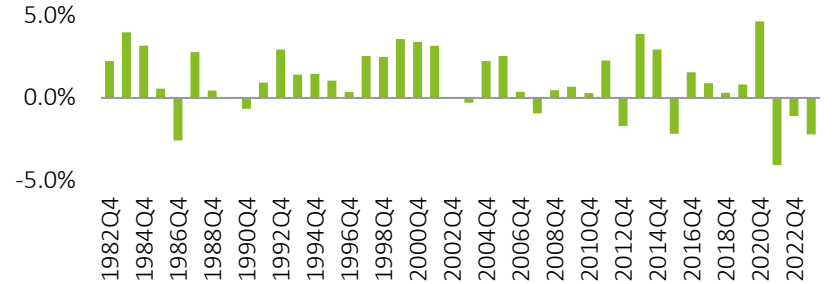
Improving our productivity performance is essential for two main reasons. First, when you look at an economy's ability to grow in the long-term, it essentially boils down to how many people are available and willing to work, how much capital those people have to work with and how productive those workers are. The aging of Canada's baby boom cohort will put downward pressure on labour supply despite high immigration levels and that means we will need to rely more on investment and productivity to grow our economy. Second, the level of productivity is the most important factor determining a country's standard of living with stronger productivity associated with a higher standard of living.[4] Unfortunately, Canada does not seem to be on the right track for improving its productivity. The OECD projects Canada to have the lowest growth in real GDP per capita for advanced economies over 2020-30 and 2030-60 primarily due to low productivity growth.[5]

Canada's productivity challenge is often attributed to Canadian firms' lack of innovation, low investment in machinery and equipment, low research and development intensity, weak foreign direct investment, and a small percentage of Canadians with advanced degrees in science and technology. One less commonly cited factor is the relationship between housing affordability and productivity. However, with evidence suggesting that firms are having trouble finding workers due to housing affordability, there is renewed interest in the linkage.[6] Against this backdrop, this report aims to understand the relationship between community housing and productivity.

Average Multifactor Productivity Growth Rate % (1985 to 2022)



Canada's Labour Productivity Year over Year Growth, 1982 Q4 – 2023 Q2



Source: OECD, Statistics Canada

1. MFP measures the efficiency in which labour and capital are used in the production process. MFP differs from labour productivity, which is defined as the amount of GDP produced by an hour of labour. The connection between both measures of productivity is outlined on page 22.
2. David Williams. Canada's productivity performance over the past 20 years. Business Council of British Columbia. May 24, 2022. https://bcbc.com/insight/canadas-productivity-performance-over-the-past-20-years/ (Accessed September 8, 2023)
3. Labour productivity, hourly compensation and unit labour cost, second quarter 2023. Statistics Canada. September 6, 2023. https://www150.statcan.gc.ca/n1/en/daily-quotidien/230906/dq230906b-eng.pdf?st=9rgVWN8O (Accessed September 8, 2023)
4. The link between productivity growth and living standards. Economic Policy Institute. April 5, 2000. https://www.epi.org/publication/webfeatures_snapshots_archive_03222000/ (Accessed September 16, 2023)
5. David Williams and Jock Finlayson. Canadians face 40 years of stagnant incomes – government's economic strategy is failing. The Globe and Mail. September 12, 2023. https://www.theglobeandmail.com/business/commentary/article-canada-economic-growth-strategy/ (Accessed September 13, 2023)
6. Stacy Lee Kong. What a housing shortage means for the future of work. The Globe and Mail. April 18, 2023. https://www.theglobeandmail.com/business/article-housing-shortage-future-work/ (Accessed September 18, 2023)

Methodology

SECTION 2

Research Questions

To quantify the link between community housing and productivity, this research looks to answer three important questions.

Question 1

What is the relationship between multifactor productivity and community housing?

Question 2

How much labour productivity growth is due to changes in the stock of community housing?

Question 3

What is the causal relationship between productivity and community housing?

The Relationship Between Community Housing and Productivity

Researchers have identified an important relationship between housing and productivity.

The first part of our analysis involves addressing Question 1 by reviewing the literature to highlight the channels through which community housing can affect productivity.

The literature review has observed five connections between affordable housing and productivity:[1]

1. Thickness of the labour market
2. Housing effects
3. Neighborhood effects
4. Price and rent effects
5. Employer housing

Since community housing is a subset of affordable housing, we assume the same connections will apply.

1. Thickness of the Labour Market[1,2]

The location and affordability of housing play an important role in facilitating the matching of individuals to the right jobs (i.e., tackling underemployment). Unaffordable housing can lead to labour mismatches and prevent labour pooling and labour specialization. The potential productivity costs include:

- Skilled labour may be unwilling/unable to relocate for job opportunities due to higher housing costs. A position may go unfilled by the best candidate or any candidate, negatively impacting productivity and leading to staffing shortages.
- If an individual fails to seize the best opportunity for them, it may prevent them from fully utilizing their skills, negatively impacting productivity. It may also lead to a decrease in labour specialization which diminishes learning and innovation among workers, negatively impacting productivity.
- Lost time and reduced disposable income due to long-distance commuting, imposing a travel penalty on workers who live further from central cities.

2. Housing Effects[1,3]

Unaffordable housing, overcrowding, and poor living conditions can impact the wellbeing, self-esteem, and human capital of individuals. For example, poor physical conditions for youth are strongly associated with a decrease and underutilization of lifetime human capital which can diminish employee skill levels.

3. Neighborhood Effects[1]

Supportive and accessible neighborhoods are important for the development of networks, innovation, social interaction, social capital, access to public and private services, and labour market image. Overall, supportive and accessible neighborhoods contribute to a household's opportunities, which impacts their wellbeing and employee skill levels.

4. Price and Rent Effects[1,3]

High household/rental prices impact the consumption, savings and assets decision of a household. It may divert households from spending in efficient sectors or diminish capabilities of enhancing human capital. Both these scenarios would impact the productivity of a region.

5. Employer Housing

In certain parts of the country, especially in more remote areas, the housing crisis is so acute that prospective employees are challenged in finding adequate housing. This means employers must sometimes provide housing to new hires as part of the terms of employment if they hope to hire staff. This restricts the ability of business to grow and can lead to less investment, harming the local economy. It also creates unfortunate dynamics for the people living in these communities. Because individuals' housing is tied to their employment, they may be forced to stay in poor working environments; when they reach the end of their careers, they must often leave the community where they have spent much of their lives, as retirement means losing their homes.

1. Ducan Maclennan et al. Making Better Economic Cases for Housing Policies. City Futures Research Centre UNSW Built Centre. March 2018. https://cityfutures.ada.unsw.edu.au/documents/476/Making_better_economic_cases_for_housing_policies_main_report.pdf (Accessed September 7, 2023)
2. Ryan Van Den Nouwelant et al. Housing affordability, central city economic productivity and the lower income labour market. University of New South Wales. January 1, 2016. https://ro.uow.edu.au/cgi/viewcontent.cgi?article=2133&context=buspapers (Accessed September 7, 2023)
3. Ducan Maclennan et al. Housing and Productivity: All or Nothing at All? UNSW City Futures Research Centre. 2021. https://cityfutures.ada.unsw.edu.au/documents/662/Productivity_Final.pdf (Accessed September 7, 2023)

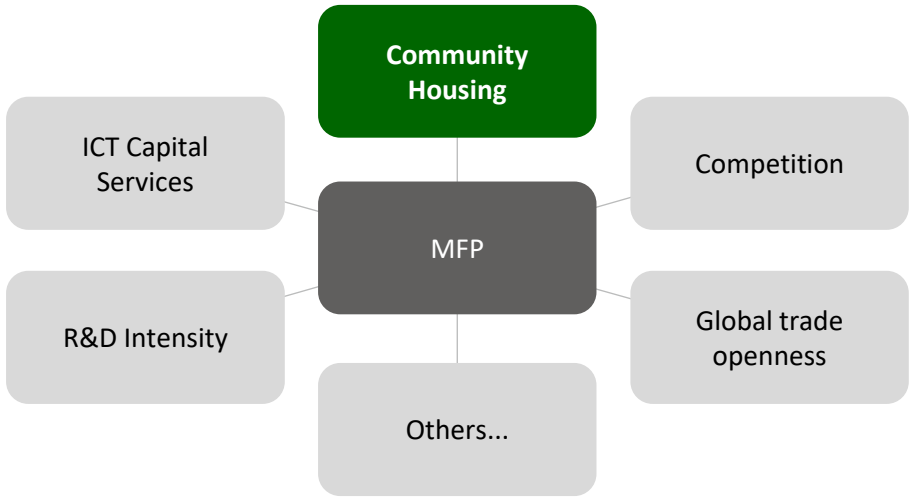
Establishing a Relationship Through a Growth Accounting Framework (1/2)

To answer our second research question (how much labour productivity growth is explained by community housing), we employ a growth accounting framework to decompose MFP.

Multifactor productivity

Productivity in an economy is impacted by many factors such as capital deepening (increasing the amount of capital per worker), labour composition (education and training), and other factors. Multifactor productivity (MFP) reflects changes in gross domestic product (GDP) that cannot be explained by changes in the inputs (labour and capital).

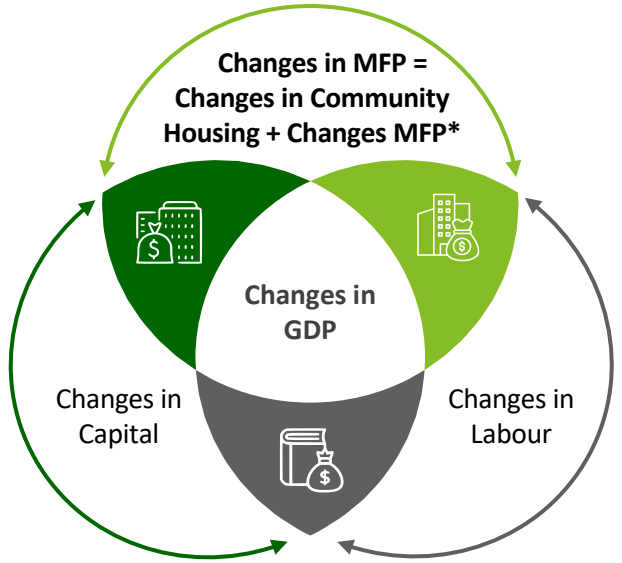
MFP is impacted by many variables such as technology, public infrastructure, and others as seen in the figure below. **First, we aim to analyze whether changes in multifactor productivity can be attributable to changes in community housing.** After this step, we will explore whether there is a causal relationship between productivity and community housing.



Quantifying the Link Between Community Housing and Productivity Growth

The growth accounting framework measures how much of the change in GDP is attributable to changes in capital, labour, and multifactor productivity.[1] It is a widely recognized economic standard used to measure the contribution of different factors to economic growth and has been employed in the Canadian context to measure the impact of public infrastructure investment on MFP.

The growth accounting framework is used to measure the portion of productivity growth coming from community housing. In the analysis, MFP is broken down into contributions from community housing and other factors (referred to in the analysis as MFP*).



1. Please see Appendix C for more information on the methodology, assumptions, data, calculations, limitations of the growth accounting framework, and sensitivity of our results.

The Growth Accounting Framework (2/2)

The analysis identifies what portion of MFP and labour productivity growth can be attributable to community housing by completing the following four steps.

1

The elasticity of business sector output with respect to labour, capital, and community housing is calculated.

The elasticity of labour and capital can be calculated using labour's contribution to GDP. For community housing, it is calculated using the relationship between cost of capital and marginal revenue assuming a rate of return observed in literature.[1]

2

MFP* is estimated, which is MFP excluding the contribution of community's housing growth.

MFP* is calculated using the natural log differences of GDP subtracted by the natural log differences of labour, capital, and community housing (multiplied by their respective elasticities calculated in step 1).

3

The impact of community housing can be calculated as the difference between MFP*, calculated in step 2, and MFP as measured by Statistics Canada.

4

The relationship established within the growth accounting framework is re-written to be expressed as labour productivity (GDP/Hours).

The results calculated in step 2 and 3 can be reported as community's housing impact on labour productivity growth.

Establishing a Causal Relationship

Decomposing labour productivity identifies the sources of changes in productivity over time by quantifying the contributions of different factors. It is a descriptive tool, and as such does not necessarily confirm whether changes in the stock of community housing caused the changes in labour productivity. In other words, this approach establishes correlation between community housing and productivity, but does not allow us to establish a directional causal relationship. Therefore, to establish a causal relationship a regression analysis is required to validate the findings.

1. Full calculations and an explanation of the theory behind them are available in Appendix C.

Establishing a Causal Relationship Through a Regression Analysis

A regression analysis is a second tool which allows us to validate our earlier results – with an appropriate approach – addresses Question 3 and confirms a causal relationship.

Regression Analysis

Regression analysis is a statistical tool used to understand the relationship between two or more variables.

In its simplest form, a regression analysis begins by collecting data on something whose changes we want to explain (the "dependent variable") and other things which we believe are responsible for those changes (the "explanatory variables" or "independent variables"). The analysis then applies statistical techniques to the data to calculate the relationship between these variables.

These statistical techniques are designed to dismiss common correlations and identify causality ***if*** they are estimated correctly and account for other explanatory factors.

Regression analysis almost always includes more than two variables to control for other factors which could influence the dependent variable and which we do not want to accidentally attribute to the explanatory variable. For example, when plotted together, there may appear to be a strong relationship between ice cream sales and crime rates in a country. As ice cream sales go up, so too do crime rates. However, ice cream sales are not causing crime rates; rather it is a third dynamic, the weather, that links the two. On a cold rainy day, few people are buying ice cream or committing crimes. On warm days, there is an uptick in both ice cream sales and crime. In order to discover the true relationship between ice cream sales and crime (if any), we would need to control for temperature.

Since controlling for other potential variables is so important, we consider several other potential explanatory variables in our specification (see diagram "Explanatory variables for Productivity Growth"). These choices are based on the existing literature, and a more fulsome explanation of the choices can be found in Appendix C.

To complete the analysis, we also need to transform the data to account for the fact that there are non-stationary (its statistical properties such as average and variance change over time) and measurement issues, as outlined in Appendix C.

Explanatory Variables for Productivity Growth

Historical Results and Potential Future Impacts

SECTION 3

Growth Accounting Results | Labour Productivity Growth by Source

Community housing contributed more significantly to economic growth between 1962 to 1993.

Key Results

- Community housing's contribution to labour productivity averaged 0.02 percentage points per year from 1962 to 2021. Community housing's contribution to labour productivity varied across the period, with a larger contribution in earlier years of the period (1962 to 1993). During these years, there was a significant investment in community housing as seen on the graph "Community Housing Investment in New Construction as a Share of GDP at Market Prices" on page 13. This aligns with our hypotheses that as the share of community housing in the economy grows, there are productivity gains. Conversely, the impact turns negative in the second half of the sample, a timeframe that corresponds with a decline in the community housing stock as a share of GDP over much of the sample and lower shares of investment in new construction as a share of GDP compared to the earlier period.
- Community housing accounted for on average 4.7% of the conventional MFP between 1962 to 2021, and on average 9% between 1962 and 1993.
- To test our results, we run the model using different rate of returns as outlined in Appendix C. Under different assumptions for the rate of return, the total contribution of community housing to productivity from 1962 to 2021 ranges from 4.7% to 5.3%.

	Relationship	1962 to 2021	1962 to 1993	1994 to 2021
Labour Productivity (A)	A = B + C + D	1.81 %	2.26 %	1.31 %
Capital Contribution (B)		1.01	1.17	0.82
Labour Composition Contribution (C)		0.40	0.48	0.30
MFP (D)		0.41	0.61	0.19
Community Housing Contribution (E)	D = E + F	0.019	0.054	-0.020
MFP* (F)		0.394	0.554	0.211
Community Housing Contribution as a share of MFP (G)	G = E / D	4.70%	8.90%	-10.56%

Regression Results

Below we present the key results and interpretation of our analysis for five regression specifications.[1] The results show that the coefficient estimates do not display much variation, do not change sign and are statistically significant under multiple specifications. In all cases the dependent variable is MFP and the community housing explanatory variable is the share of community housing in the total housing stock.

Coefficient	**0.34**	**0.31**	**0.31**	**0.21**	**0.21**
p-value	0.02	0.04	0.12	0.00	0.00
Dataset	Time series	Time series	Time series	Panel	Panel
Transformation[2]	dlog – dlog	dlog – dlog	dlog – dlog	log – log	log – log
Other Controls	Raw material prices, research and development, outsourcing, competition, information technology	Commodity prices, research and development, outsourcing, competition information technology	Raw material prices, research and development, outsourcing, global trade openness, public infrastructure, competition	Population share, AR(1)	Raw material prices, research and development, outsourcing, public infrastructure, competition, information technology, population share, AR(1)
Sample	1982 – 2019 (National data)	1973 – 2019 (National data)	1997 – 2019 (National data)	1999 – 2021 (x10 provinces)	1998 – 2019 (x10 provinces)

Interpretation of results

- We ran dozens of different specifications with different combinations of controls, datasets, and functional forms. The coefficient estimate on our main variable was remarkably stable through these changes, giving us confidence in our estimates.
- Above we present the results from five different specifications. They are presented, from left to right, from largest to smallest coefficient estimates.
- All specifications above have log differences (dlog) or log applied to the dependent and main explanatory variables and require transformation before they can be interpreted. For the largest coefficient (first column), the interpretation is that for a 1 percentage point increase in the share of community housing stock (in constant dollar terms), we see a 12.8% increase in multifactor productivity. For the smallest coefficient (last column), the interpretation is that for a 1 percentage point increase in the share of community housing, we see a 7.9% increase in productivity. We can interpret these as the high and low ends of a range within which the impact falls.

1. Please see Appendix C for the full table of results.
2. Please see Appendix C for a discussion of dlog and log transformations.

What Does This Mean for the Future of Community Housing?

Forecasting an increase in Canada's community housing as a share of total housing.

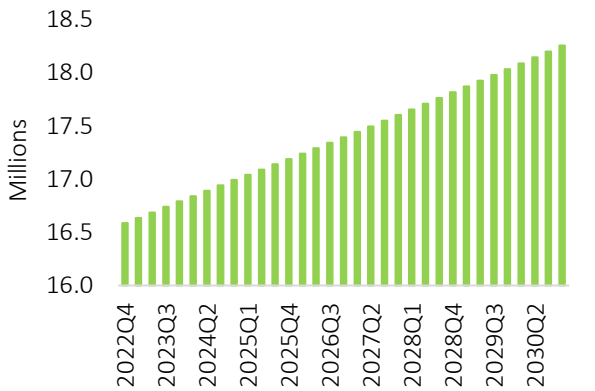
The Future of Community Housing

Canada's productivity growth is expected to continue to lag peer countries over the next decade.[1] Improving this productivity performance is crucial for our economic prosperity. This analysis has shown a positive relationship between community housing and productivity through a literature review, growth accounting framework and regression analysis. Given this positive relationship, in this next part of our study we look to quantify a hypothetical example in which we increase the share of our housing stock that is community housing and assess the economic implications on productivity and residential investment. The scenario we study is: **What is the impact of boosting Canada's community housing as a share of total housing stock to reach the OECD average of 7% in 2030?**

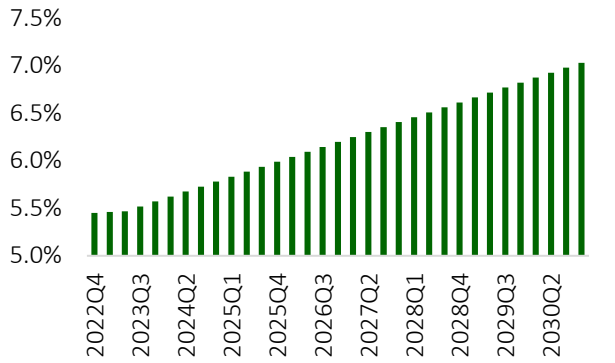
Constructing the Forecast

- To obtain Canada's current community housing as a share of total housing, we start by updating the OECD estimate for Canada. To do so, we use the latest figures for community housing from Statistics Canada. This boosts the OECD estimate as their estimate excluded Quebec and was based on older data. This updated data shows that Canada's community housing makes up 5.5% of all housing units in Canada.
- We model Canada's total housing stock through to 2030 using our forecast of housing completions and housing depreciation (demolition as a share of net stock). Our forecast predicts that Canada will add 1.57 million housing units between 2023Q2 and 2030Q4 (see chart "Forecast of Total Housing Stock").
- We then run a hypothetical scenario where Canada's community housing as a share of total housing stock measured in units reaches 7% by 2030 through a linear increase in the share (see chart "Forecast of Community Housing as a Share of Total Housing Stock"). This is equal to adding approximately 371,600 units of community housing over the time frame. This is a big lift – the current stock of community housing is approximately 912,000 units. That means getting to the OECD target would require increasing the stock of community housing by 41%. It also requires that nearly a quarter of completed houses between now and 2030 would need to be community housing.
- The final step to apply our results is convert the unit estimates into dollar values.[2] To do this, we estimate the implicit constant dollar value of a housing unit for private and community housing from the Statistics Canada data and then hold it constant over our forecast. In 2030, the share of community housing in the total stock in constant dollars is 3.3%. The reason for the lower share in constant dollars is attributed to the lower dollar value of community housing in comparison to private housing. This can be attributed to several factors such as a higher proportion of multiple dwelling units and an older housing stock that has undergone greater depreciation.

Forecast of Total Housing Stock (in units), 2022 Q4 – 2030 Q4



Forecast of Community Housing as a Share of Total Housing Stock (in units), 2022 Q4 – 2030 Q4



1. David Williams. OECD predicts Canada will be the worst performing advanced economy over the next decade…and the three decades after that. December 14, 2021. Business Council of British Columbia. https://bcbc.com/insight/oecd-predicts-canada-will-be-the-worst-performing-advanced-economy-over-the-next-decade-and-the-three-decades-after-that/ (Accessed September 27, 2023)
2. The regression analysis is based on the dollar value of the stock as data is available back to 1961 instead of only to 2016.

Results | What Does This Mean for the Future of Community Housing?

What would happen to productivity and economic growth if Canada built enough community housing to get to the OECD average of 7% of total housing stock?

We apply our regression results to the calculations on the previous slide to calculate the impact on productivity and, through it, the economy recalling that productivity gains feed directly into GDP.

Raising the share of community housing units from its current level to the OECD average results in a **5.7% to 9.3% increase in productivity** by 2030.

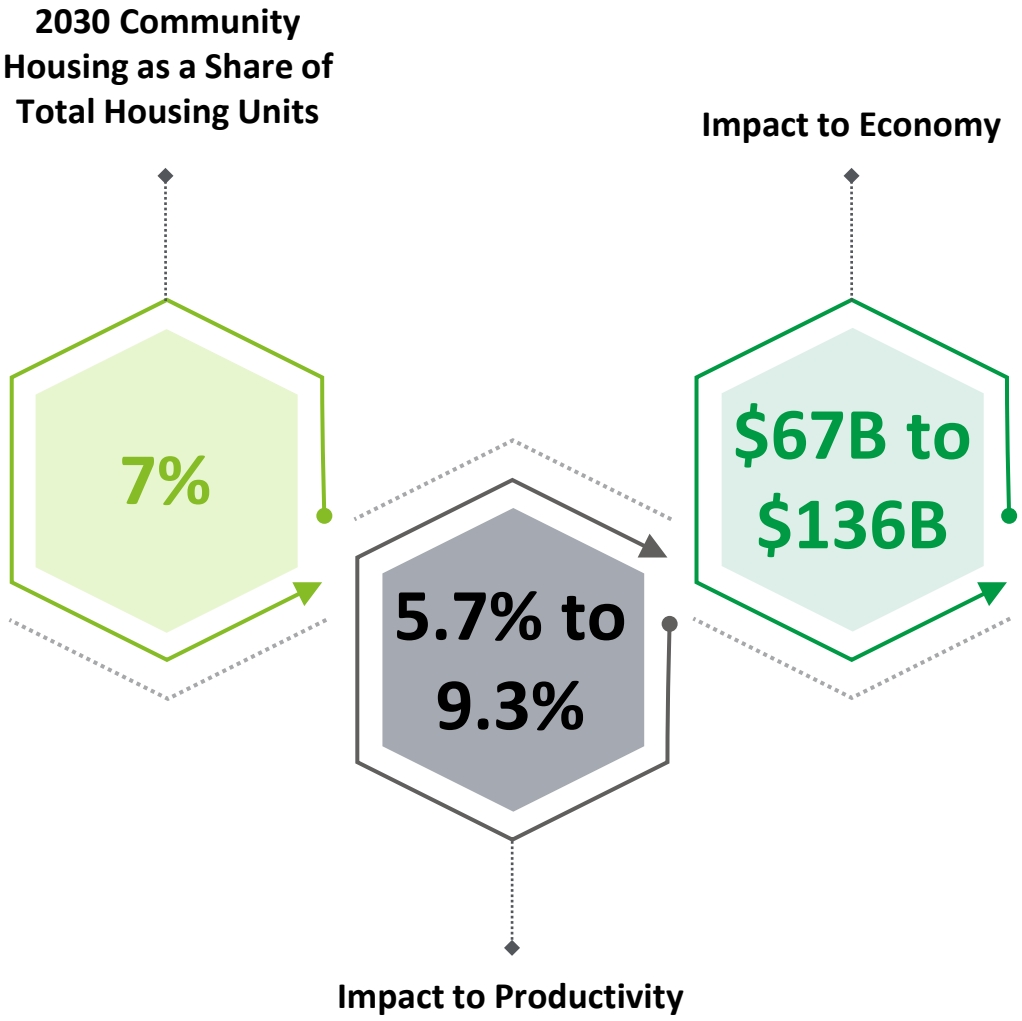
This productivity improvement is equivalent to a $110 billion to $179 billion boost to GDP by 2030.

However, there is likely also an opportunity cost to this. To hit our targets for community housing, we will need to see more than 371,600 new community housing units built between today and 2030. Our current projections indicate that Canada will add about 1.5 million housing units over that same time frame net of depreciation. In other words, **nearly one quarter of all homes built over the next seven years will have to be community housing** if we are to hit the OECD average.

That pace of community housing construction is assumed to result in crowding out of other types of housing construction. Based on current shares, our analysis shows that about 85,900 community housing units will be built between now and 2030. The remaining 285,700 community housing units in our scenario are assumed to replace private construction that would otherwise have occurred.

Private homes are generally larger and more expensive than community housing units. According to the data from Statistics Canada, on a unit-by-unit basis, each private home is worth about 2.2 times as much in constant dollar terms as each community housing unit. Moving housing construction away from more valuable units to more affordable units therefore results in a reduction in economic growth as real residential investment would be lower. Accounting for this effect subtracts $43 billion from GDP by 2030.

After measuring the impact to productivity and factoring in the opportunity cost of moving housing construction from private homes to community housing, the net impact on GDP of **the additional units of community housing would be between $67 billion and $136 billion by 2030**.



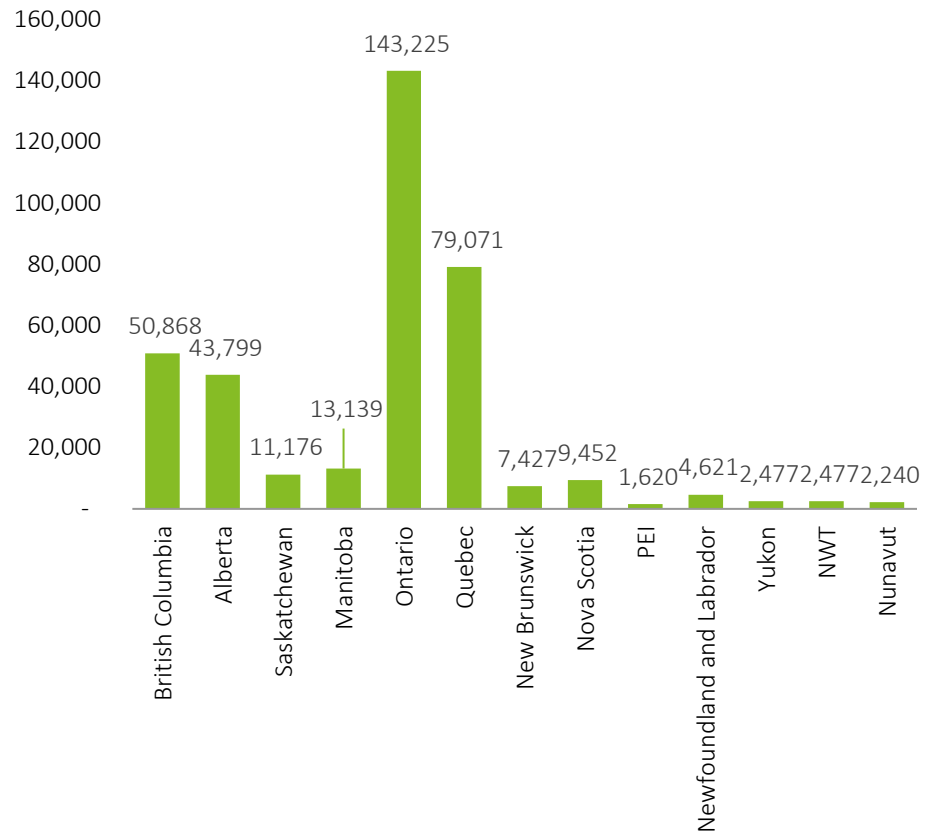
What Does This Mean at a Provincial and Territorial Level?

If Canada built enough community housing to get to the OECD average of 7% of total housing stock, what would that mean for each province?

Estimating the Provincial and Territorial Impacts

- To obtain a forecast at a provincial and territorial level we assume that the change in units of community housing stock identified at the national level is distributed across the provinces and territories based on their forecasted population shares.[1] We do not attempt to distribute units across Canada based on current needs as measured by waitlist for non-market rental housing or shares of community housing as a total of total housing stock given that some territories and provinces are already above the OECD average.
- Like the Canadian forecast, the next step to apply our results is to convert the unit estimates into dollar values. This is necessary as the regression analysis used the constant dollar value of the stock as a time series given that units are unavailable before 2016.
- We estimate the constant dollar value of a housing unit for private and community housing per province/territory and then hold it constant over our forecast.[2] These values vary across Canada. For example, the territories have a higher constant dollar value of a housing unit compared to the rest of Canada.
- The productivity impacts can differ across provinces for two reasons:
    - Populations are forecast to grow at different paces across provinces and ones with slower growing populations are forecast to receive a relatively lower share of community housing units over time, and
    - The starting point for the share of community housing in the total stock differs across the provinces, as provinces have different shares of community housing as of 2023 Q2.
- We apply the change in the share for each province to the elasticity estimates from our regression analysis to determine the range of probable impacts on productivity, and therefore, the economy.
- The opportunity cost is also calculated based on the province specific costs of non-community housing.
- Results are displayed in Appendix A: Provincial and Territorial Carveouts and in Appendix C: Methodology Deep Dive.

Additional Community Units Needed by 2030 to Reach 7% Target



1. In the absence of a population forecast for the territories, we derive their housing forecast by taking the difference between the sum of the provincial forecasts and the national forecast and distributing it among the three territories based on their current population ratios.
2. The aggregate constant dollar net stock cannot be directly compared to the Canadian constant dollar net stock, as housing unit costs vary across the country. To address this, we adjust the aggregate figure by calculating the difference between it and the Canadian constant dollar net stock and distribute this difference among provinces and territories based on their respective population ratios.

Key Takeaways and Conclusion

SECTION 4

Key Takeaways

The Housing Crisis in Canada

Housing affordability has deteriorated over the past two decades in Canada, and experiences differ across provinces and territories. In addition to a housing crisis, Canada's economy also faces a productivity problem. Our labour productivity growth lags our international peers and has continued to decline in the post-pandemic period. This report highlights the connection between both challenges and identifies how addressing our housing crisis by investing in additional affordable housing can contribute to improving our productivity.

Establishing a Relationship

Literature Review

Researchers have identified five key connections between affordable housing and productivity.

Validifying the Relationship

Growth Accounting Framework

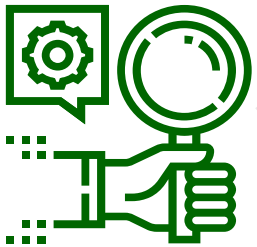
Using a growth accounting framework, our results show that community housing has been a contributor to productivity growth in Canada.

Establishing a Causal Relationship

Regression Analysis

The relationship between MFP and community housing is not only statistically significant, but also substantial in magnitude and robust across multiple approaches and specifications.

Community Housing and Productivity



Researchers have identified an important relationship between housing and productivity. In our literature review we have observed five connections between affordable housing and productivity:

- Thickness of the labour market
- Housing effects
- Neighborhood effects
- Price and rent effects
- Employer housing

Furthermore, the growth accounting framework found that community housing accounts for on average **4.7% of the conventional MFP growth** between 1962 to 2021, and on **average, 9%** between 1962 and 1993.

Both the literature and our growth accounting framework supports a relationship between community housing and productivity. The regression results validates our earlier results and confirm a causal relationship.

Key Takeaways

As shown throughout this research, the share of community housing in the total housing stock has fallen over the past few decades. Through our regression work we have established a causal relationship that allows us to quantify the impact on productivity if we were to increase the share of community housing stock in Canada. Our results show that with a one percentage point increase in the share of community housing stock (in constant dollar terms), we see a 7.9% to 12.8% increase in productivity.

What would happen to productivity and economic growth if Canada built enough community housing to get to the OECD average of 7% of total housing stock?

Housing Completions	Our projections indicate that Canada will add **1.57 million** housing units by 2030.
Share of Community Housing	To reach a 7% community housing share of housing stock by 2030, we will need to add **371,600 community housing units**, representing approximately 24% of all homes constructed over the forecast.
Productivity Impact	This results in a 5.7% to 9.3% increase in productivity, equivalent to a **$110 billion to $179 billion boost to GDP** in 2030.
Opportunity Cost	We assume all new community housing units would be built. Moving construction from private to community housing units leads to a **$43 billion opportunity cost**. However, we note that expanding community housing stock is not limited to construction of new units. The stock can increase through the acquisition of new community housing units and retrofitting of existing buildings.
Net Impact	Considering the impact on productivity and opportunity cost, the additional units of community housing contribute **$67 to $136 billion to GDP in 2030**. That means, if we do not shift home construction towards community housing as outlined in this scenario, the economy will not realize these economic gains.

In this research, we move the community housing share to the OECD average. This is conservative as the OECD average is only 1.5 percentage points above where we are now. Additionally, the size of the need is clearly demonstrated in this work and recent work from CMHC.[1] This increase is unlikely to solve the affordability crisis we are currently facing. Canada will need to take a concerted effort across the private, public, and non-profit sectors to build a housing supply that accounts for the entire housing continuum, appreciates ownership and rental typologies, fits urban, rural and suburban settings, and are available to households at a range of different socioeconomic status.

1. Housing shortages in Canada Updating how much housing we need by 2030. CMHC. September 13, 2023. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/accelerate-supply/housing-shortages-canada-updating-how-much-we-need-by-2030 (Accessed September 18, 2023)

Conclusion – Key Policy Takeaways

Canada is currently facing the challenge of tackling inflation, while simultaneously trying to improve living standards. To improve economic performance without adding to inflationary pressures, Canada needs to find ways to boost its potential output – the fastest pace of growth an economy can achieve without igniting inflation. Boosting our economic growth potential depends on boosting the number of people working, increasing investment and/or increasing productivity.

Through this research, we have established that investments in community housing boosts our productivity and that means that these investments boost our economy's potential output growth. Given that boost to our productive potential, these investments can be made without worrying about adding to inflationary pressures. Further, out of the three ways to boost our potential output, productivity gains are the most desirable as increasing productivity is how we improve our standard of living.

Key Policy Takeaways

1. **Increase investment in community housing to boost Canada's GDP.** Our research shows that nearly one quarter of all homes built over the next seven years will have to be community housing if we are to hit the OECD average. Increasing the proportion of Canada's community housing stock by 1.5 percentage points would boost GDP by $67 to 136 billion: a significant and tangible impact to the Canadian economy.
2. **Generate a stable pipeline of community housing projects.** Creating housing takes time, making consistent funding, financing, and tax incentives necessary to build a stable pipeline of development projects. Public policy gaps lead to delays in construction that move Canada further away from restoring housing affordability. Generating a stable pipeline of community housing projects requires funding, financing, and tax incentives to build new homes, and equip community housing providers with the resources to renew or acquire existing units.
3. **Provide dedicated funding for off-reserve Indigenous communities.** Canada's Indigenous communities face some of the highest core housing need in the country. The unique challenges identified in this research will require differentiated and culturally appropriate solutions complete with dedicated funding to address the housing crisis in these communities.
4. **Improve collaboration on tackling the housing crisis.** Investments in community housing can address two of the biggest challenges facing Canada right now: affordability and weak productivity. That said, the scale of the challenge urgently requires improved coordination and alignment between different levels of government, industry stakeholders, and advocates. This includes shared targets for builds, labour strategies related to housing, and leveraging underutilized land to build new units.
5. **Promote innovation to tackle supply challenges.** Policy measures should be put in place to support the scale up and market penetration of innovative approaches to building housing more quickly, sustainably, and affordably. By reducing the per-unit cost of building housing, we could go further than our results suggest – which are based on constant real costs per unit – and more quickly tackle the supply gap. These approaches can include novel construction technologies, pre-approved housing designs, and use of underutilized spaces.

Conclusion – Areas for Future Research

Areas for Future Research

- ✓ Future analysis can explore the approximate cost required to add 371,600 community housing units in Canada.
- ✓ The analysis in this report takes a conservative approach. For instance, we assumed that there exists an opportunity cost in building community versus private housing. However, there may not be a one to one crowding out effect in Canada. To gain a better understanding of the true crowding out effect, further research can be conducted to assess the feasibility of instead building these community housing units in addition to the expected private sector build. Additionally, community housing providers may not have the capacity to increase construction. Further research should analyze capacity constraints that could impact our ability to increase the supply of community housing.
- ✓ As addressed in the key policy takeaways, promoting innovation to tackle supply challenges will be key to address the housing crisis. Future research can explore innovative approaches in building houses that are less expensive and take less time to build. This can include a jurisdictional best practices scan.
- ✓ Recent research by CMHC indicates solving the affordability crisis is at least a $1 trillion problem.[1] For context, Canada's current economy is valued at $2.8 trillion in nominal terms. Given the scale of the challenge, this is not a problem that will be tackled by a single stakeholder group, it will take a concerted effort across the private, public and non-profit sectors and future research should focus on how best to bring these groups together and what funding is required from each group. Therefore, future research should explore effective partnerships to bring together stakeholders across the economy.
- ✓ Future analysis can explore the labour requirements needed to increase housing starts above their current average trend. Gaps in labour supply will need to be identified as well as solutions to address a labour shortfall.
- ✓ The analysis in this report forecasts future levels of community housing using a conservative goal of reaching the OECD average. However, advocates have been pushing for a greater proportion of community housing to be made available. Future research can look at the impact of moving Canada's community housing net stock as a share of total stock higher than the OECD average. The analysis could also be expanded to include private sector dwellings under the affordable housing spectrum by aligning on a definition of affordable housing and using a time series on housing prices and mortgage costs to quantify the impact of affordable dwellings in the private sector.
- ✓ Past research has suggested that governments control significant amounts of unused or underused land in urban areas.[2] Because land is one of the costliest inputs to the production of housing, governments have a great potential tool in their control that does not involve new spending. Outright transfers of this land have proven slow, but more work should be done to explore creative solutions to getting this land into the hands of community housing developers, such as 99-year leases.
- ✓ One of the challenges we encountered when completing this research was the lack of comparable data for the territories. This is the part of Canada with the most severe housing crisis, but paradoxically, it is the part of the country where we are least able to explore the issue with data. More comprehensive data for the territories could allow for an extension of the current analysis. Therefore, we recommend collecting and creating more housing data within the territories.

1. Denise Paglinawan. At least $1 trillion needed to achieve housing affordability, CMHC says. Financial Post. October 3, 2023. https://financialpost.com/real-estate/1-trillion-needed-housing-affordability-canada-cmhc?utm_source=ground.news&utm_medium=referral (Accessed October 6, 2023)
2. Governments in Ontario Making Headway in Using Surplus Lands for Housing. Centre for Urban Research and Land Development. April 26, 2019. https://www.ohba.ca/wp-content/uploads/2019/04/cur_report_surplus_lands_april2019.pdf. (Accessed October 6, 2023.)

Appendix A

Provincial and Territorial Carveouts

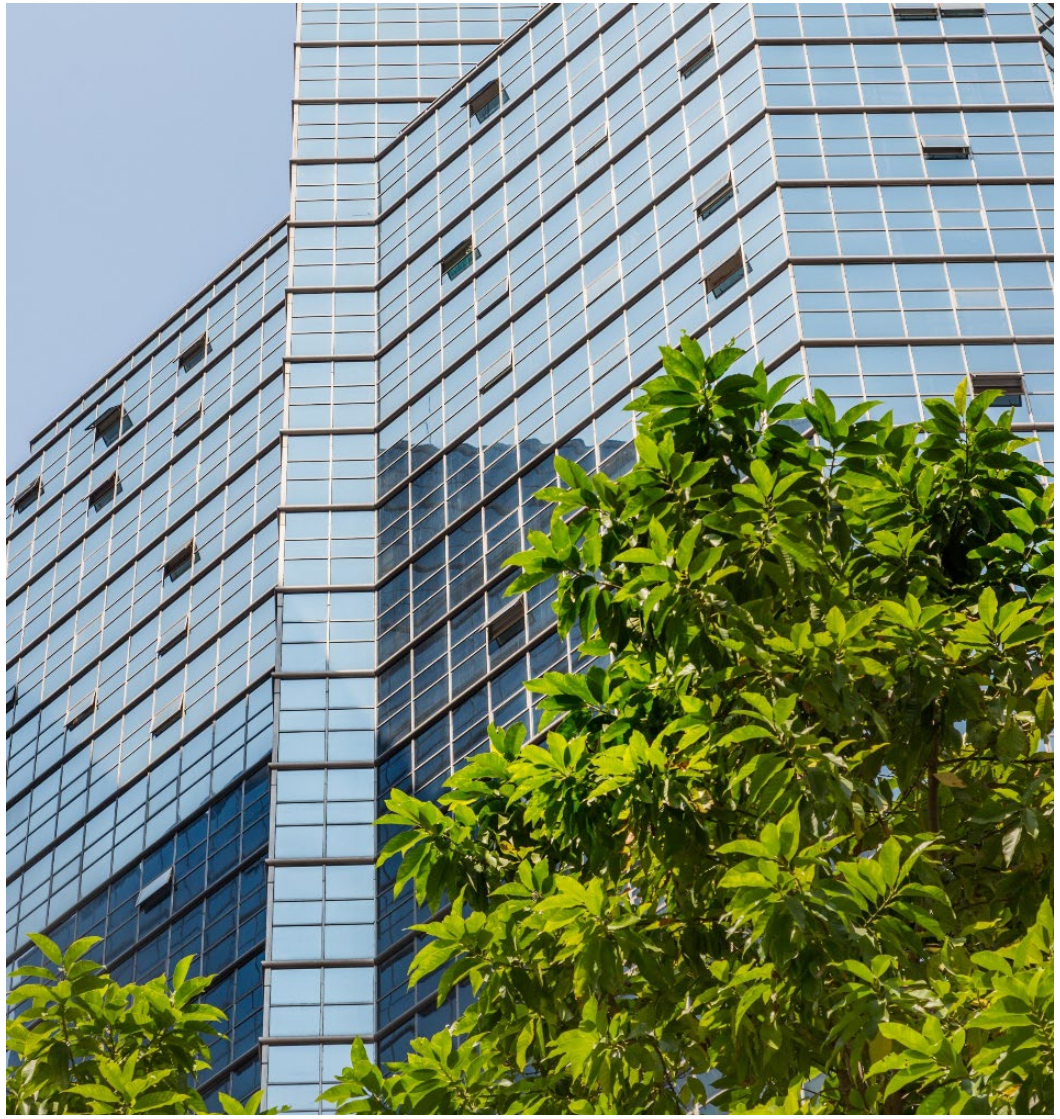
Provincial and Territorial Analysis

While housing affordability is a national issue, experiences differ across provinces and territories. Nunavut faces the highest core housing need in Canada, where 40.5% of households in the territory were in core housing need in 2021 compared to 7.7% of households across Canada. British Columbia has the highest average housing prices in Canada, and after years of declining affordability it ranks second behind Nunavut in terms of core housing need. Even provinces like Quebec where housing has traditionally been more affordable have experienced greater challenges in recent years.

For this analysis, it is important to understand the current state of community housing in each province and territory, the specific factors that impact housing affordability and the province's productivity performance. To meet this need, this section presents a three-page summary analysis for each province/territory that provides:

- A current snapshot of housing affordability dynamics and the net stock of community housing in the province/territory.
- An overview of the factors impacting supply and demand in the province/territory.
- An overview of productivity performance and the potential impacts of community housing. For the provinces we start with our scenario in which Canada builds enough community housing to get to the OECD average of total housing stock. To obtain a forecast for the productivity impacts at a provincial level, we assume that the change in units of community housing stock identified at the national level is distributed based on the forecasted population shares. We then take the Canadian results from the regression analysis and apply those responses to the provincial percentage increase in the dollar community housing share of total housing stock to determine the impact on GDP from the productivity boost. We then calculate the provincial specific opportunity costs to derive the net GDP increase.

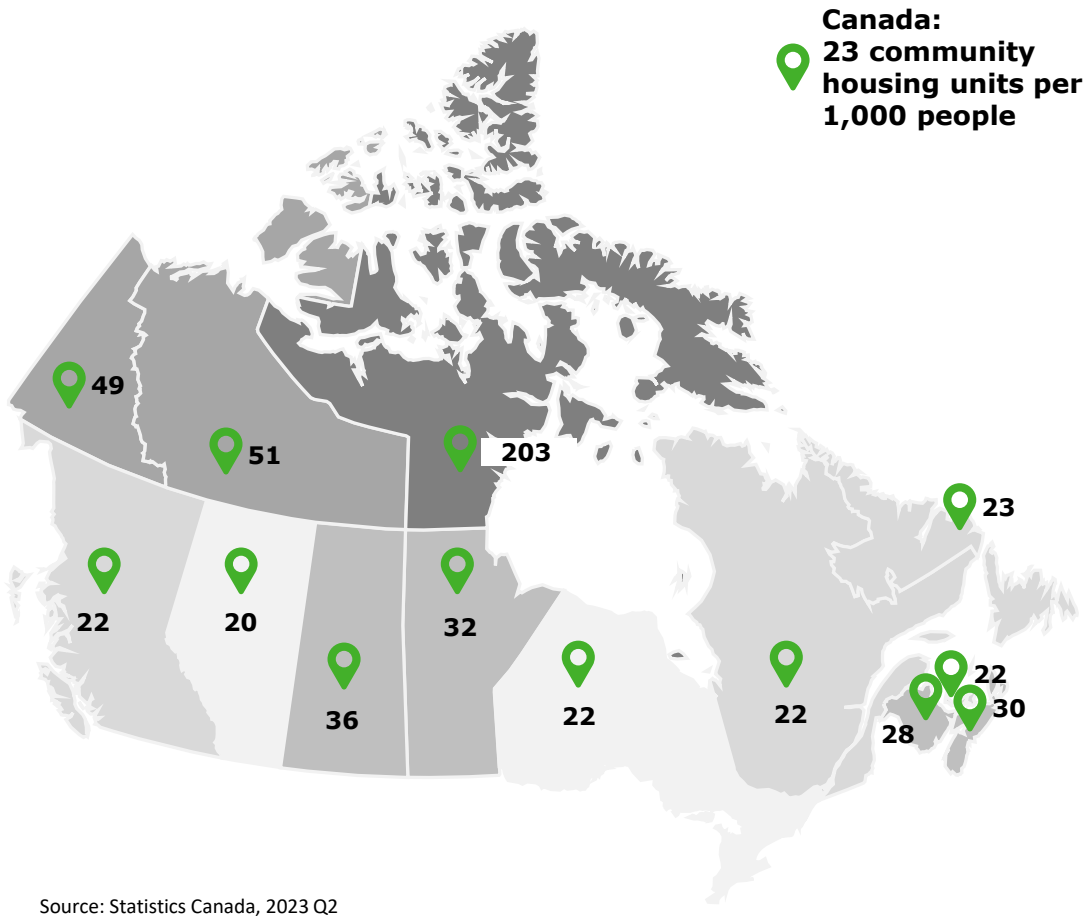
The aim of the section is to provide an analysis that considers the unique dynamics affecting housing markets in each province/territory and the role that community housing can play in improving productivity performance.



Provincial and Territorial Analysis

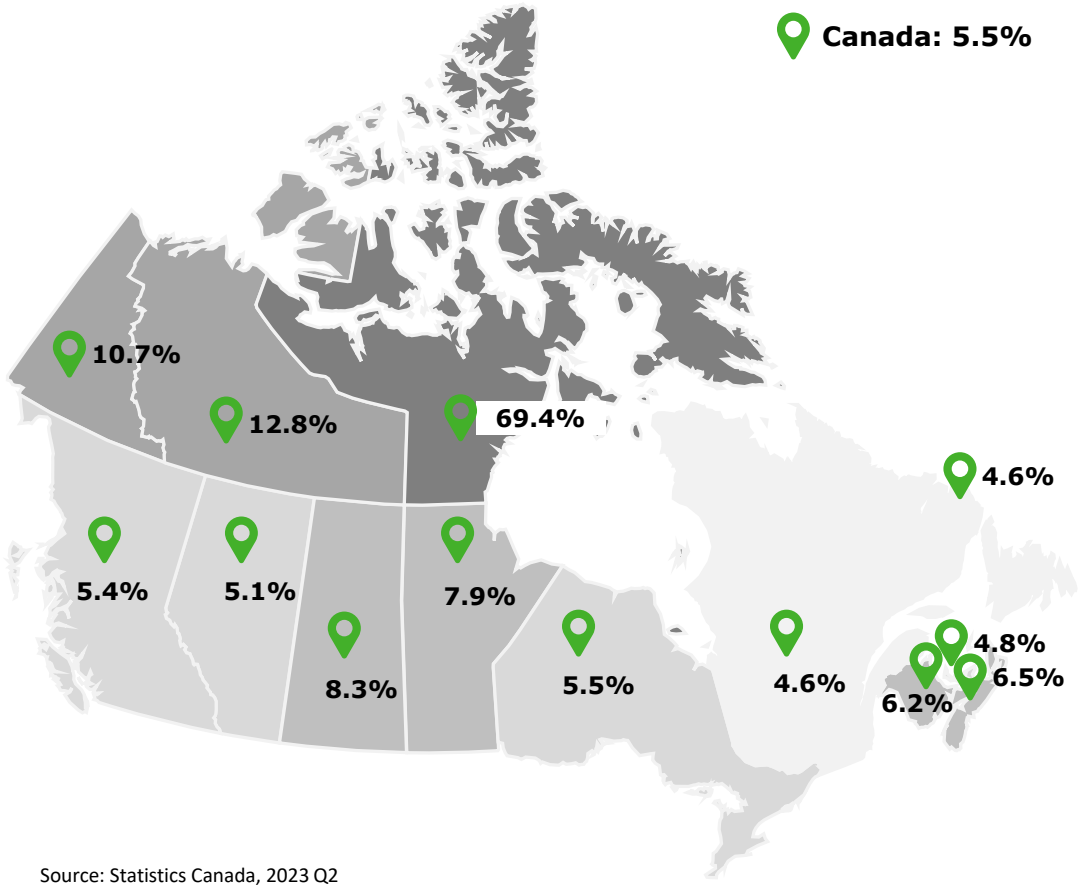
The per capita numbers and the proportion of housing stock devoted to community housing varies across Canada. Nunavut has the highest shares of community housing stock while Alberta, Ontario, and PEI have the lowest numbers on a per capita basis. Community housing as a share of the total stock is above the OECD average in all three territories and Saskatchewan and Manitoba.

Community Housing Units per 1,000 people



Source: Statistics Canada, 2023 Q2

Community Housing Units as a Share of Total Housing Units, %



Source: Statistics Canada, 2023 Q2

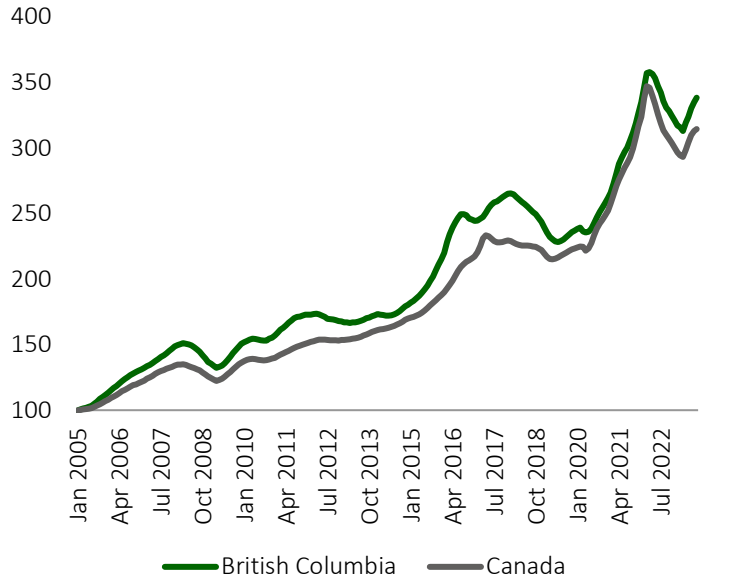
British Columbia

Provincial Carveout

British Columbia (1/3)

In the past decades, the lack of housing affordability has been a challenge faced by British Columbia.

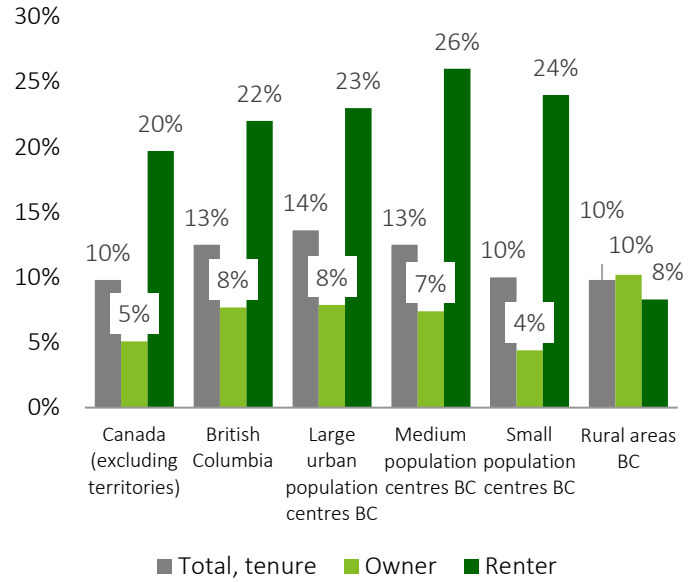
Composite Home Prices Index, Seasonally Adjusted, Index = 2005, January 2005 – August 2023



Source: Canadian Real Estate Association

- The growth in home prices in British Columbia has consistently outpaced the average growth in Canada.
- On average, British Columbia has the highest home prices in Canada. In August 2023, the average price of a single-family home in British Columbia was $1.35 million compared to the Canadian average of $836,000.

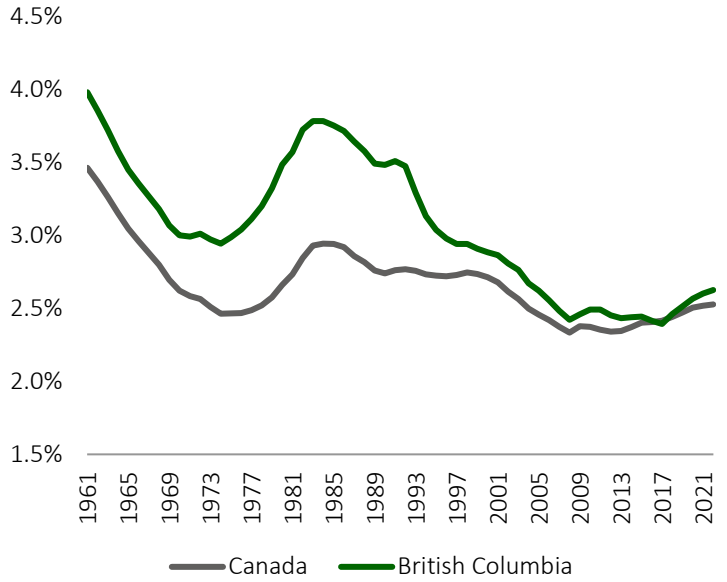
Percentage of BC Households in Core Housing Need, 2021



Source: Statistics Canada

- Households in British Columbia experience higher core housing need than the Canadian average (excluding territories). Renters in medium population centres and owners in rural areas experience the highest core housing need in the province.
- Renters in all regions except rural areas experience a higher core housing need than owners.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- In the 1960s, the dollar value of community housing stock as a share of total housing stock decreased. In the mid 1970s, the share began to increase.
- In 1993 the share began to decrease more rapidly and only recently began inching higher. As of 2022, the share is much lower than the peak in the 1960s.

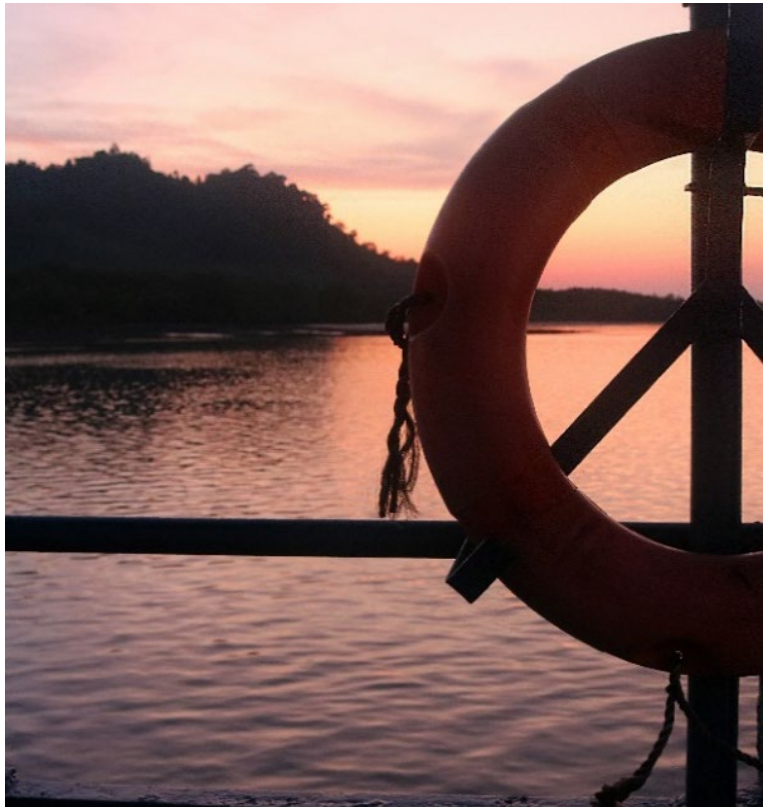
British Columbia (2/3)

Demand Challenges

- Population and incomes have generally risen in British Columbia over the last two decades. Population growth has been particularly strong in the province, gaining 5.6% between 2011 and 2016 (compared to a 5% growth in Canada) and 7.6% population growth rate between 2016 and 2021 (compared to a 5.2% growth in Canada).[1,2] CMHC identified that higher disposable incomes, positive population growth, and low mortgage rates have increased the demand for homeownership and played a significant part in long-term house price growth across Canada's major markets between 2010 and 2016. In Vancouver, CMHC estimates that these conventional demand-side factors explained approximately 75% of the increase in prices between the period.[3]
- Houses in British Columbia have increasingly become an attractive investment. In 2020, investors owned 23.3% of residential properties in British Columbia, with 36.2% of condominium apartments being used as investments.[4]

Supply Challenges

- The slow and unpredictable pace that new housing receives regulatory approval, the challenges community housing providers face in securing funding, and the framework of land-use planning contributes to an unresponsive housing supply.[1]
- There exists limited available vacant development land in the Lower Mainland, Capital Region, and Okanagan. Therefore, new supply in these regions will have to arise from redevelopment of existing stock and repurposing land that was developed for other uses or is currently underutilized.[1]
- Most of British Columbia's community housing was built in the mid-1970s and early 1990s. During this period, the federal government supported the development of between 1,000 to 1,500 new units each year. In contrast, between 2005 and 2010 there was an overall net increase of only 280 community housing units.[5]

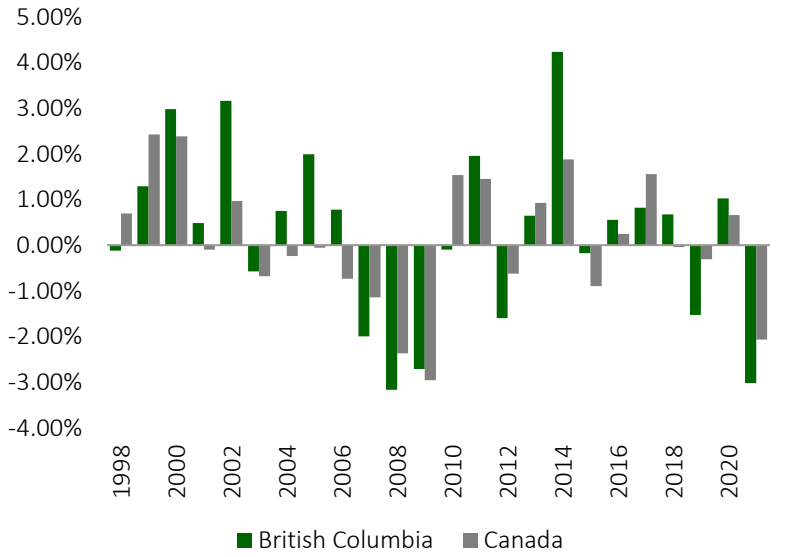


Community housing supply has not kept up with demand in the province. In 2021, approximately 26,800 households in British Columbia (1.3% of households) were in the waitlist for non-market rental housing. Over half of these households were in the waitlist for over two years or longer.[6]

1. Joy MacPhail et. Al. Opening doors: unlocking housing supply for affordability. Government of British Columbia. June 17, 2021. https://engage.gov.bc.ca/app/uploads/sites/121/2021/06/Opening-Doors_BC-Expert-Panel_Final-Report_Jun16.pdf (Accessed September 13, 2023)
2. Canada tops G7 growth despite COVID. Statistics Canada. February 9, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/220209/dq220209a-eng.htm (Accessed September 13, 2023)
3. Examining Escalating House Prices in Large Canadian Metropolitan Centres. CMHC. May 24, 2018. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/housing-finance/examining-escalating-house-prices-in-large-canadian-metropolitan-centres (Accessed September 13, 2023)
4. Joanie Fontaine and Joshua Gordon. Residential real estate investors and investment properties in 2020. Statistics Canada. February 3, 2023. https://www150.statcan.gc.ca/n1/pub/46-28-0001/2023001/article/00001-eng.htm (Accessed September 12, 2023)
5. Seth Klein and Lorraine Copas. Unpacking the Housing Numbers. CCPA. September 2010. https://www.sparc.bc.ca/wp-content/uploads/2020/11/unpackingthehousingnumbers.pdf (Accessed September 13, 2023)
6. Waitlist status including length of time, by tenure including social and affordable housing. Statistics Canada. August 21, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=4610005801 (Accessed September 12, 2023)

British Columbia (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in British Columbia was 0.27%. This was above the average annual growth rate of MFP for Canada as a whole.
- Despite that, **British Columbia's average annual MFP growth rate ranked 7th across provinces** growing faster than only New Brunswick, Alberta, and Saskatchewan.

Community Housing and Productivity[1]

British Columbia's positive productivity growth over the period was largely driven by the manufacturing, wholesale trade, retail trade, and construction sectors. The manufacturing, wholesale and retail trade sectors experienced the sharpest productivity growth, partly benefiting from the adoption of new technologies. The construction sector also saw an increase in productivity growth with the sharpest increase occurring in 2020, driven by gains in residential construction.

Community housing can play a role in increasing British Columbia's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, British Columbia's community housing stock would receive 50,870 additional units by 2030. This is a 42% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 5.7% to 9.3% increase in productivity by 2030. This productivity improvement is equivalent to $15.4 to $25.0 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $9.0 to $18.7 billion to British Columbia's GDP by 2030.

↑ **50,870** additional units built by 2030

↑ **5.7% to 9.3%** increase in productivity

↑ **$9.0 to $18.7 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

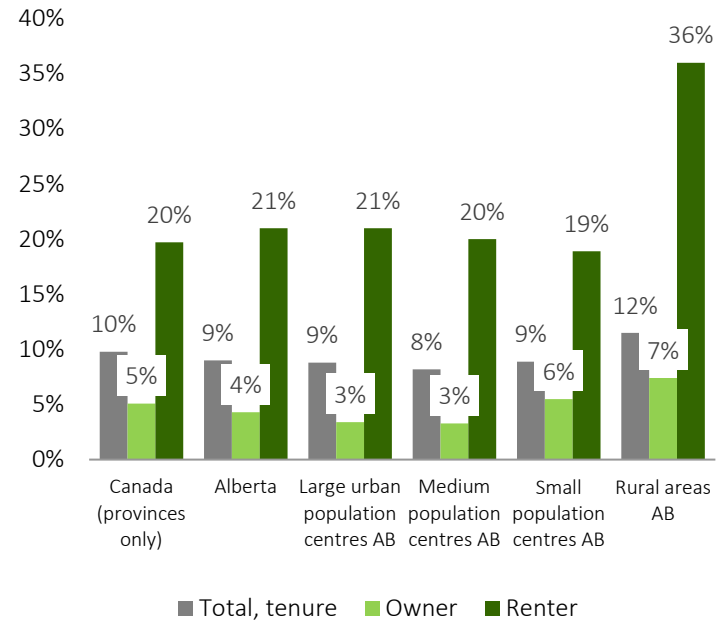
Alberta

Provincial Carveout

Alberta (1/3)

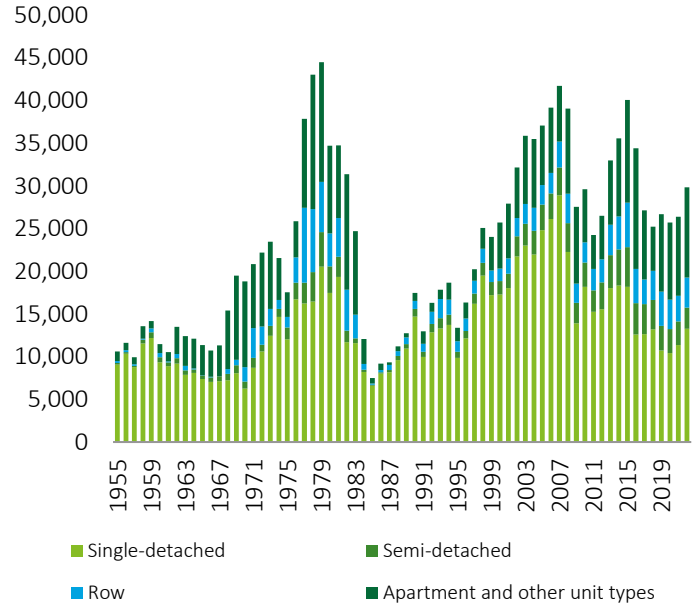
Alberta's recent increase in demand has not been matched by an increase in housing completion or community housing.

Percentage of Households in Core Housing Need, 2021



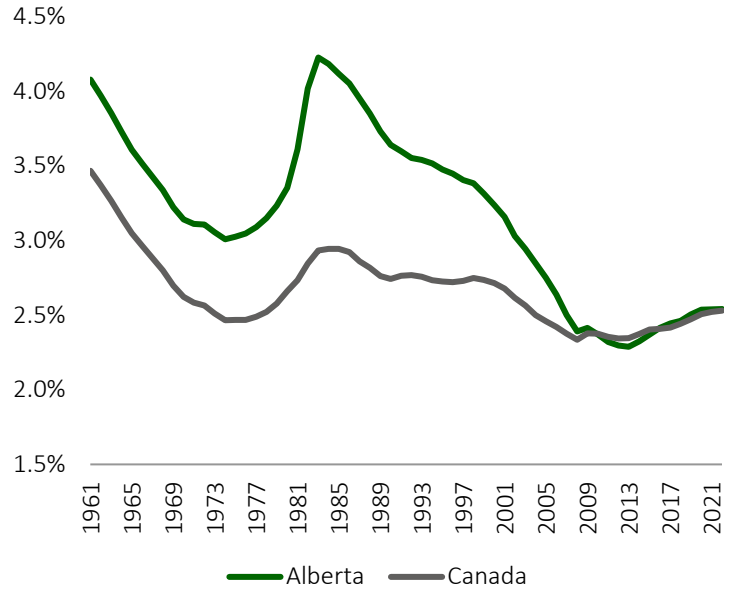
Source: Statistics Canada

Housing Completions in All Areas, 1955 - 2022



Source: Statistics Canada

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- In 2021, renters in Alberta, except for those in small population centers, experienced a higher core housing need than the Canadian average (excluding territories).
- Overall, in 2021 households in rural areas face a higher core housing need than other regions in the province.

- Housing completions have been lower in recent years compared to levels in 2015 as completions fell in most years between 2016 and 2020.
- Meanwhile, the population in the province has been steadily increasing, especially in recent quarters due to strong international and interprovincial migration.

- In the 1960s, the dollar value of community housing stock as a share of total housing stock decreased. In the mid 1970s, the share began to increase and reached its highest level in the mid 1980s.
- From the mid 1980s onwards, the share decreased and only recently began inching higher but remains well below its peak.

Alberta (2/3)

Demand Challenges

- Alberta had one of the highest year over year provincial population growth rates in 2023 (as measured on July 1, 2023) driven by a high rate of international and interprovincial net migration. In the first quarter of 2023, Alberta attracted the most net interprovincial migrants across the country.[1] The increase in population will lead to an increase in demand for housing.
- Demographic changes and the COVID-19 pandemic have impacted the demand for affordable housing in the province. In 2020, there were 19,000 households on the waitlist for subsidized housing, with approximately one-third of those being seniors.[2]

Supply Challenges

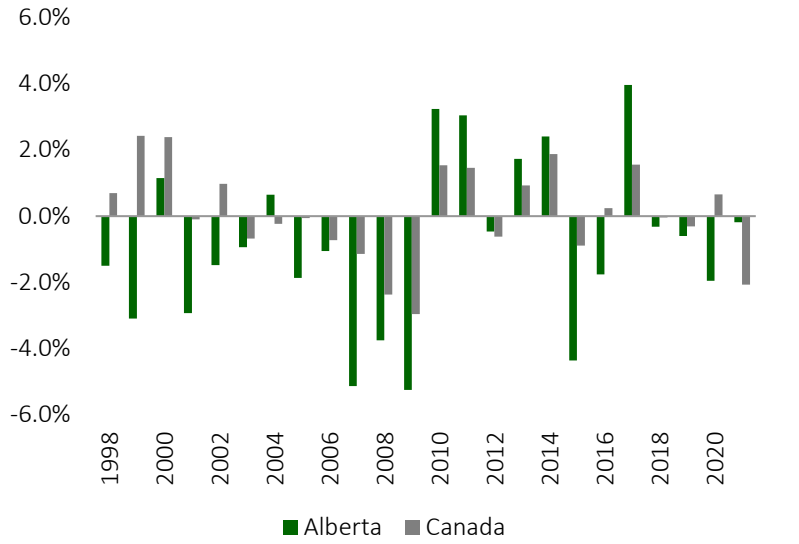
- In recent years, the number of residential building permits have not risen to historical highs seen in 2013 and 2014. Zoning and land-use regulations, fees, building codes, and wait codes limits the speed in which housing supply can grow.[3] Additionally, in 2015, Alberta's economy entered a recession due to a major decline in oil prices. The province had not yet fully recovered to 2014 levels when it was hit again in 2020 by the COVID-19 pandemic and a sharp collapse in oil prices and demand.[4] These tough economic conditions have added to the supply challenges faced by Alberta.
- Rural communities in Alberta face significant housing challenges due to a limited housing stock and high construction costs, which hinder the development of new homes.[5]
- Alberta's community housing stock is on average 35 years old which leads to a need for ongoing maintenance. Currently, inefficiencies and delays in planning and completing maintenance work leads to fiscal pressures and inadequate housing units.[2]

The increase in population is not being matched by an increase in housing completions. An analysis by the Business Council of Alberta reveals that demand outpaces supply by at least 2 to 1. For every two new households moving into the province, only one new home is being built.[3]

1. Population Statistics. Government of Alberta. June 28, 2023. https://www.alberta.ca/population-statistics#:~:text=Alberta%27s%20average%20annual%20population%20growth,April%202022%20to%20April%202023. (Accessed September 15, 2023)
2. Final Report of Alberta Affordable Housing Review Panel. SHS Consulting. October 5, 2020. https://open.alberta.ca/dataset/26b06d34-4b03-488d-bed8-da5316b8b95c/resource/0fd7ae4e-568b-43d5-8480-c8d765b1e514/download/sh-final-report-of-alberta-affordable-housing-review-panel-2020-10-05.pdf (Accessed September 15, 2023).
3. Alicia Planincic. We know what we need to do for housing affordability – we just need to do it. Business Council of Alberta. August 16, 2023. https://businesscouncilab.com/insights-category/analysis/we-know-what-we-need-to-do-for-housing-affordability-we-just-need-to-do-it/ (Accessed September 15, 2023)
4. Relaunch, recovery and beyond: A prosperity framework for Alberta. Business Council of Alberta. June 19, 2020. https://businesscouncilab.com/reports-category/a-prosperity-framework-for-alberta/ (Accessed October 4, 2023)
5. Affordability, accessibility, and housing stock also an issue in rural Alberta. Yahoo! August 4, 2023. https://ca.style.yahoo.com/affordability-accessibility-housing-stock-issue-192848910.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAFE81t3dF0HGzAuRj4ZTQPeNcFNDQeYwSWxMm_exEVxaIcGb9cWbcHp_RO_6KhLFkQlZYoCkRRwaA7iqgWrpKgGyKrOUJCbcVDdGUxolhuOMMPq8-qG4zzbxP3hfVG-z50H2NNRG0W_WdDpVK1H2Uj0kS5IU0FSeySZRggDr3su4 (Accessed September 15, 2023)

Alberta (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Alberta was -0.85%. During the same period, the average annual growth rate of MFP in Canada was higher than in Alberta.
- **Alberta's average annual MFP growth rate ranked 9th across provinces,** ahead only of Saskatchewan.

Community Housing and Productivity[1]

Alberta's MFP growth was negative over the 1998 to 2021 timeframe. A large part of this performance is due to significant investments in energy infrastructure over this timeframe which will lead to productivity gains in future years. As shown on the MFP Growth chart, recent productivity performance has improved as energy assets moved from the construction to production phase.

Community housing can play a role in increasing Alberta's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, Alberta's community housing stock would need 43,800 additional units by 2030. This is a 47% increase in stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 6.4% to 10.5% increase in productivity by 2030. This productivity improvement is equivalent to $22.1 to $36.1 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $16.5 to $30.5 billion to Alberta's GDP by 2030.

↑ **43,800** additional units built by 2030

↑ **6.4% to 10.5%** increase in productivity

↑ **$16.5 to $30.5 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

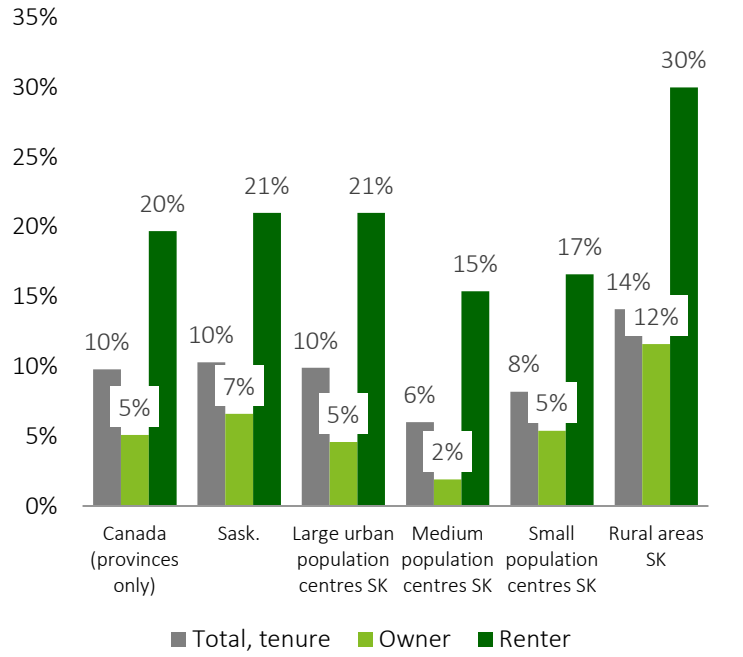
Saskatchewan

Provincial Carveout

Saskatchewan (1/3)

Over the past three census, households in Saskatchewan experienced a higher core housing need compared to the Canadian average (excluding territories).

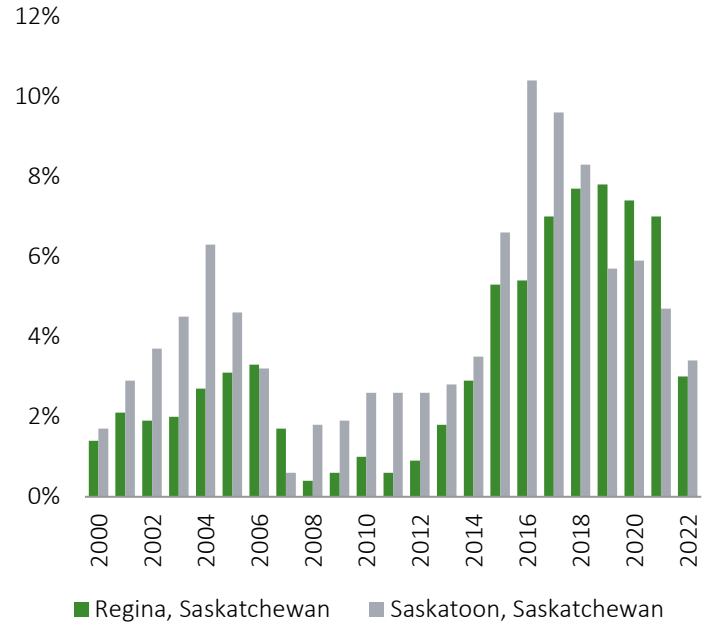
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- In 2021, households in Saskatchewan experienced higher core housing need than the Canadian average (excluding territories).
- The rates were higher for rural areas, where 30% of renters are in core housing need compared to the Canadian average of 20% (excluding territories).

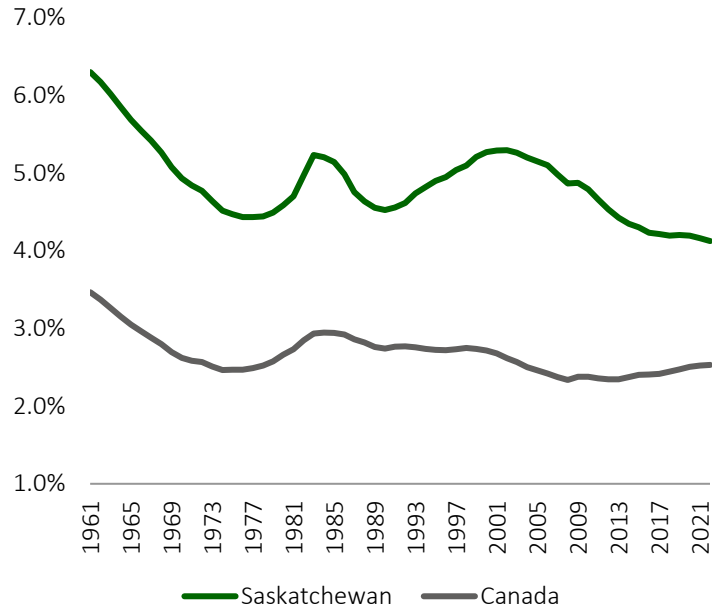
Vacancy Rates, Apartment Structures of Six Units and Over, 2000 - 2022



Source: Canadian Mortgage Housing Corporation

- In recent years, apartment vacancy rates in Regina and Saskatoon have fallen.
- Regina experienced a sharper decline between 2019 and 2022 compared to Saskatoon.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- The dollar value of community housing stock as a share of total housing stock in Saskatchewan has fluctuated over the past six decades.
- In the last decade, the share has fallen and is lower than the share in the early 1960s but remains well above the Canadian average.

Saskatchewan (2/3)

Demand Challenges

- Saskatchewan's population growth rate slowed from 6.3% between 2011 and 2016 (compared to 5% in Canada) to 3.1% between 2016 and 2021 (compared to 5.2% growth in Canada).[1] As of Q2 2023, there are 1.23 million people living in Saskatchewan.[2] The provincial government plans to have 1.4 million people living in Saskatchewan by 2030, which will lead to an increase in the demand for housing.[3]
- During the pandemic, there was a shift in preferences in the real estate market and households saw a boost to their savings thanks to Federal government benefit payments and a strong job market. The province saw an increase in number of interested buyers, most looking to buy single-family dwellings.[3]
- Immigrants are the main source of population growth in the province. The rental market is typically the starting point for immigrants before they transition to homeownership.[3] Therefore, a continuous increase in immigrants will also lead to an increase in demand for housing in the rental market.

Supply Challenges

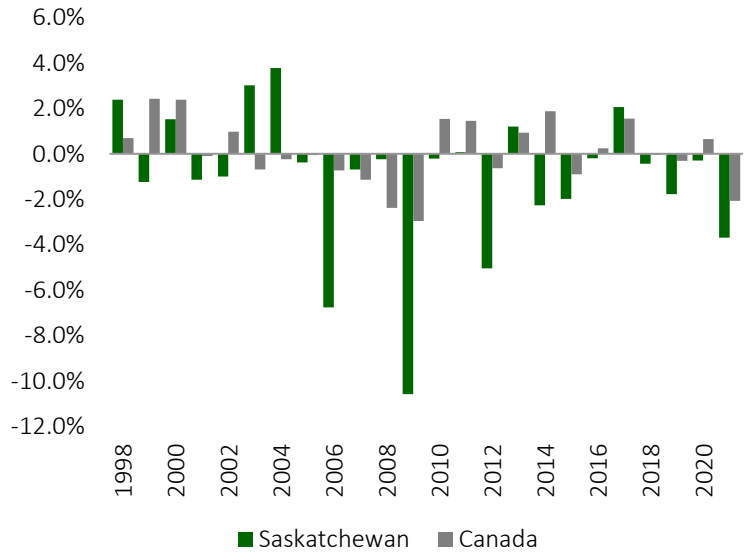
- The current projects under construction in the province will not be sufficient to accommodate for the expected increase in demand.[3]
- Northern areas of Saskatchewan also face housing shortages, with weak or no private rental markets and few market properties available which limits homeownership opportunities. Supply shortages have led to long waitlists for housing in Northern areas.[4]
- Saskatchewan also faces challenges in the community housing space. In the next ten years, Saskatchewan is expected to face an increasing number of expiring community housing operating agreements, along with an aging community housing stock.[4]

In 2021, housing supply was near record lows due to strong demand and fewer new listings. Consequently, Saskatchewan experienced a year-over-year increase of 5% to 11% in home prices in 2021.[3]

1. Canada tops G7 growth despite COVID. Statistics Canada. February 9, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/220209/dq220209a-eng.htm (Accessed September 13, 2023)
2. Population estimates, quarterly. Statistics Canada. June 28, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901 (Accessed September 25, 2023)
3. Saskatchewan's Current Housing Continuum. 2022. https://saskatchewanrealtorsassociation.ca/wp-content/uploads/2022/05/SASKATCHEWANS-CURRENT-HOUSING-CONTINUUM-FINAL_05112022.pdf (Accessed September 15, 2023)
4. The Saskatchewan Housing Action Plan 2019-2022. CMHC-Saskatchewan Housing Corporation. https://pubsaskdev.blob.core.windows.net/pubsask-prod/115886/SHC-Action-Plan-2019-2022.pdf (Accessed September 14, 2023)

Saskatchewan (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Saskatchewan was -0.99%. During the same period, the average annual growth rate of MFP in Canada was higher than in Saskatchewan.
- **Saskatchewan had the lowest average annual growth rate of MFP across the provinces between 1998 and 2021.**

Community Housing and Productivity[1]

In Saskatchewan, negative MFP growth reflects the sizeable mining industry in the province which has experienced reductions in productivity in recent decades as high global commodity prices incentivized the production of lower yield resource deposits. While this production has helped its economy grow, the lower margins mean it has been a drag on productivity.

Community housing can play a role in increasing Saskatchewan's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing stock. If each province receives the equivalent share based on their forecasted population growth, Saskatchewan's community housing stock would need 11,180 additional units by 2030. This is a 26% increase in housing stock in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 3.2% to 5.2% increase in productivity by 2030. This productivity improvement is equivalent to $2.6 to $4.2 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $1.5 to $3.1 billion to Saskatchewan's GDP by 2030.

↑ **11,180** additional units built by 2030

↑ **3.2% to 5.2%** increase in productivity

↑ **$1.5 to $3.1 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

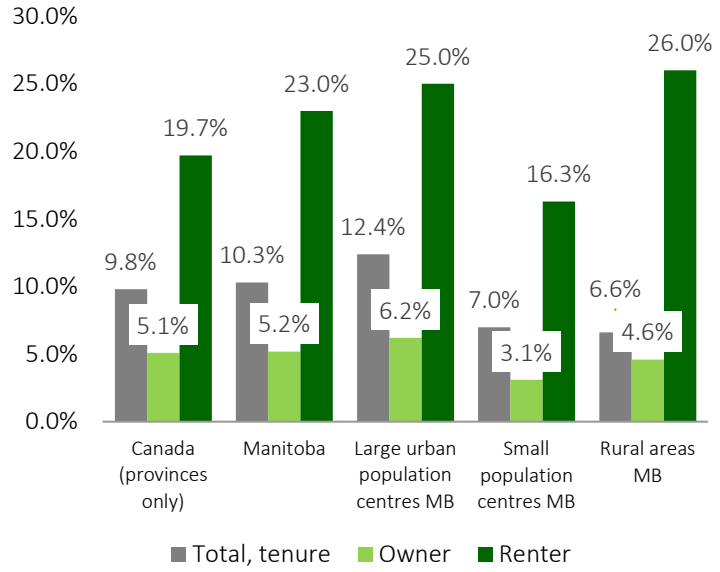
Manitoba

Provincial Carveout

Manitoba (1/3)

In 2021, a higher percentage of households were in core housing need in Manitoba compared to the Canadian average (excluding territories).

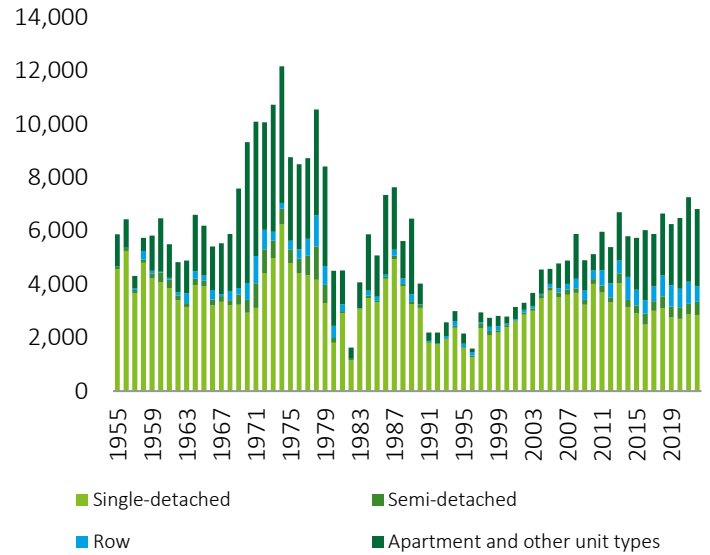
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- In 2021, a higher percentage of renters in rural and large urban population centres were in core housing need compared to other regions and the Canadian average (excluding territories).
- In 2021, owners in large urban population centres experienced a higher core housing need compared to other regions and the Canadian average (excluding territories).

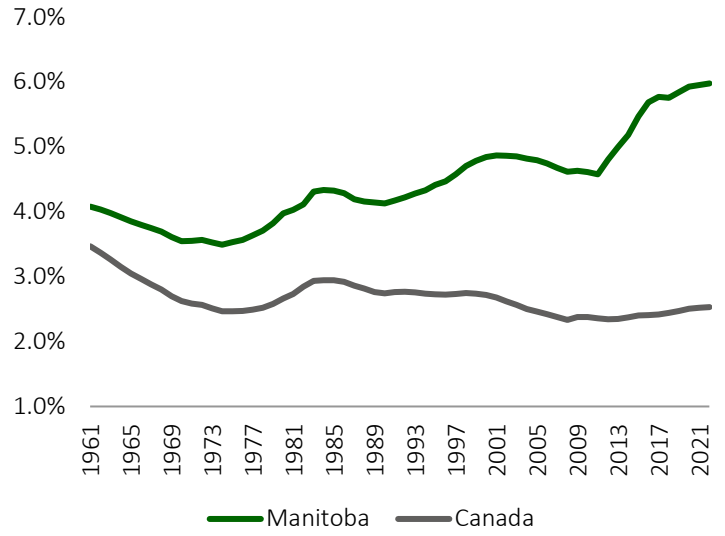
Housing Completion in All Areas, 1955 - 2022



Source: Canadian Mortgage Housing Corporation

- There has been a notable lack of growth in housing completions over the past few years. Specifically, between 2012 and 2023, the average annual increase in housing completion was only 3%, which is significantly lower than the 13% increase observed two decades earlier between 1983 and 1992.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Over the studied timeframe, Manitoba's dollar value of community housing stock as a share of total housing stock increased approximately two percentage points.
- In 2010 the provincial government committed to building 1,500 new community housing units over five years, which contributed to the increase in the dollar value of community housing stock as a share of total housing stock observed in the early 2010s.[1]

1. National Housing Day: Still waiting for a plan. Canadian Centre for Policy Alternatives – Manitoba. November 21, 2012. https://winnspace.uwinnipeg.ca/bitstream/handle/10680/1537/National%20housing%20day%20--%20Still%20waiting%20for%20a%20plan.pdf?sequence=1&isAllowed=y (Accessed October 4, 2023)

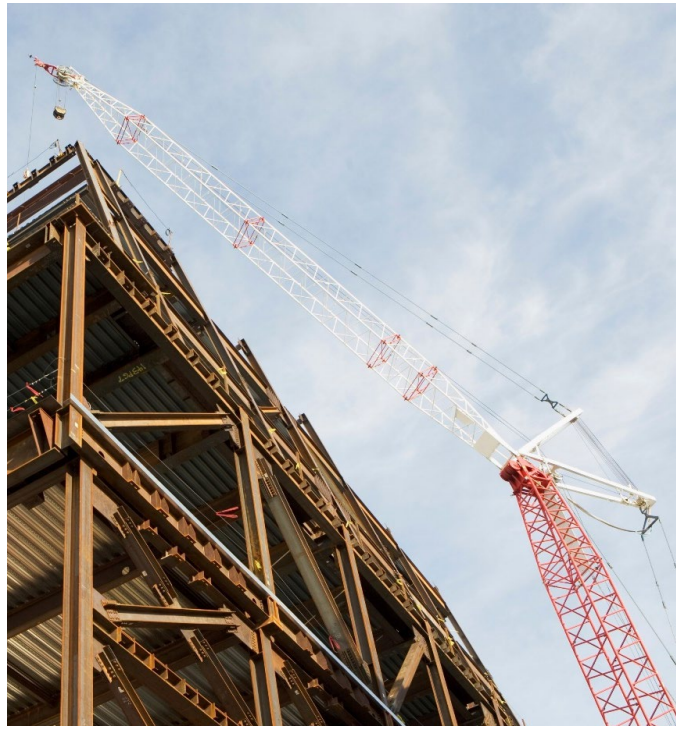
Manitoba (2/3)

Demand Challenges

- As observed by Manitoba's high core housing needs, there is a great demand for affordable and adequate housing in the province.[1]
- Houses in Manitoba have increasingly become an attractive investment. In 2020, investors owned 20.4% of residential properties in Manitoba. Of these properties, 72% of the properties with multiple dwellings were investment properties.[2]

Supply Challenges

- In recent years, there has been little to no growth in the number of community housing units in Manitoba. Although the dollar value of community housing stock as a share of total housing stock has increased (as seen in the previous page), the number of community housing units as a share of total housing units has slightly declined and remained relatively stagnant since 2016.[3]
- Moreover, some initiatives by the province have reduce the inventory of community housing by selling units to the private sector.[4] Between 2019 and 2021, Winnipeg experienced a net loss of 881 community housing units.[5]
- In recent years, most operating agreements between governments and non-profits have expired. If no new operating agreements are developed each individual housing operator are free to decide whether and how they will continue to offer community housing.[1] Therefore, there is the possibility that more units could be lost once these operating agreements have expired.
- Due to the cancellation of some home repair and modernization programs there have been fewer opportunities to improve older community housing stock, resulting in a decline in the overall quality of community housing.[4] Overall, Manitoba's community housing stock is older and in poorer condition than the national average.[1] As of March 2022, over 1,000 community housing units owned by Manitoba Housing were vacant because they required repairs.[1]

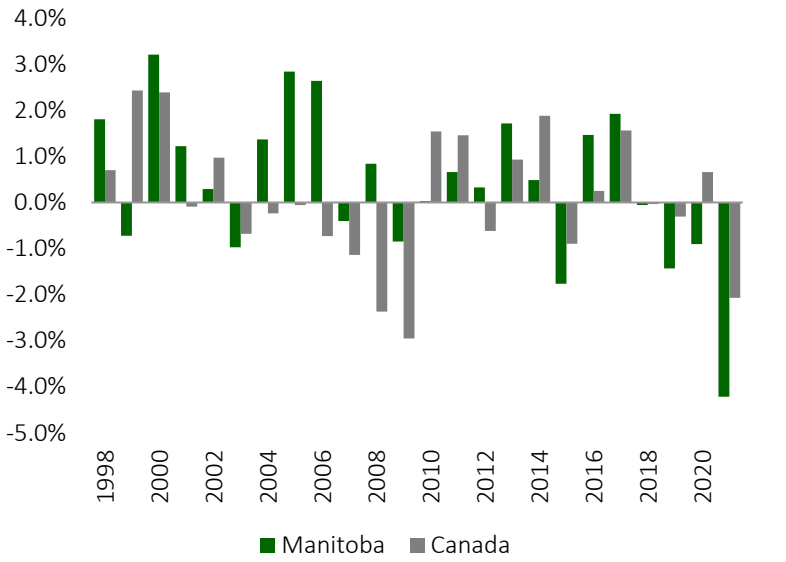


According to CMHC, to meet the anticipated future demand for housing, Manitoba will need to build 260,000 additional units over and above the expected build by 2030 to bridge the supply gap.[6]

1. Kirsten Bernas et al. A Social Housing Action Plan for Manitoba. CCPA. September 2023. https://policyalternatives.ca/sites/default/files/uploads/publications/Manitoba%20Office/2023/09/A%20Social%20Housing%20Plan%20for%20Manitoba.pdf (Accessed September 14, 2023)
2. Joanie Fontaine and Joshua Gordon. Residential real estate investors and investment properties in 2020. Statistics Canada. February 3, 2023. https://www150.statcan.gc.ca/n1/pub/46-28-0001/2023001/article/00001-eng.htm (Accessed September 12, 2023)
3. Housing stock in unit by institutional sector, housing type, dwelling occupation, dwelling type, and tenure type. Statistics Canada. September 1, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610068801 (Accessed September 25, 2023)
4. Tom Carter et al. City of Winnipeg Comprehensive Housing Needs Assessment. The University of Winnipeg. January 2020. https://legacy.winnipeg.ca/ppd/Documents/CityPlanning/Housing/ComprehensiveHousingNeedsAssessmentReport/Comprehensive-Housing-Needs-Assessment.pdf (Accessed September 14, 2023)
5. Shauna MacKinnon and Kirsten Bernas. Manitoba releases a long-awaited homelessness strategy: It must be election time. CCPA. March 16, 2023. https://policyalternatives.ca/publications/commentary/manitoba-releases-long-awaited-homelessness-strategy-it-must-be-election#:~:text=The%20waitlist%20for%20Manitoba%20Housing,just%20between%202019%20and%202021. (Accessed September 14, 2023)
6. Housing shortages in Canada Updating how much housing we need by 2030. CMHC. September 13, 2023. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/accelerate-supply/housing-shortages-canada-updating-how-much-we-need-by-2030 (Accessed September 18, 2023)

Manitoba (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Manitoba was 0.39%. During the same period, the average annual growth rate in MFP was higher than the Canadian average.
- **Manitoba's average annual MFP growth rate ranked 6th across provinces and was the strongest in Western Canada** ahead of Saskatchewan, Alberta, New Brunswick, and British Columbia.

Community Housing and Productivity[1]

Manitoba's productivity performance is attributable to gains in its service sector. The wholesale and retail trade sectors have sharply improved their productivity thanks in part to automation. The information and cultural industries has also been a source of gains with solid productivity growth. The agriculture, forestry, fishing and hunting sector and the business services sectors also experienced significant increases in productivity during the period, but these sectors contribute less to Manitoba's GDP.

Community housing can play a role in increasing Manitoba's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing stock. If each province receives the equivalent share based on their forecasted population growth, Manitoba's community housing stock would grow by 13,140 additional units by 2030. This is a 28% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 3.5% to 5.8% increase in productivity by 2030. This productivity improvement is equivalent to $2.1 to $3.4 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $0.9 to $2.2 billion to Manitoba's GDP by 2030.

↑ **13,140** additional units built by 2030

↑ **3.5% to 5.8%** increase in productivity

↑ **$0.9 to $2.2 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

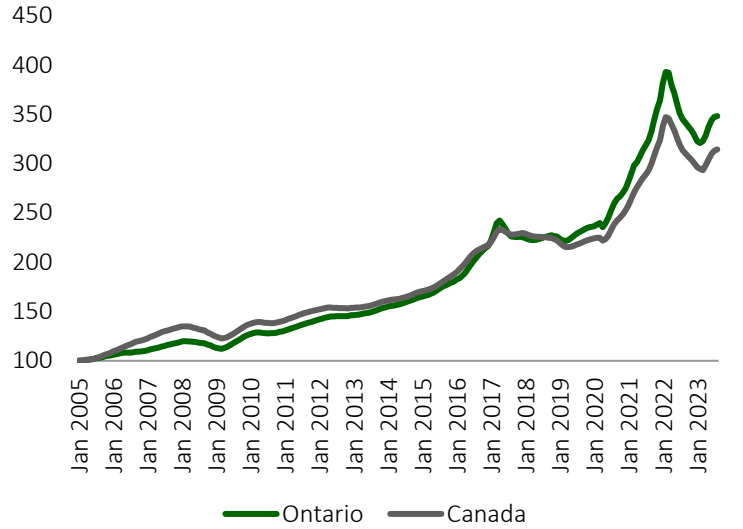
Ontario

Provincial Carveout

Ontario (1/3)

Ontario home prices are the second highest among provinces, only behind British Columbia, and have grown significantly in recent years.

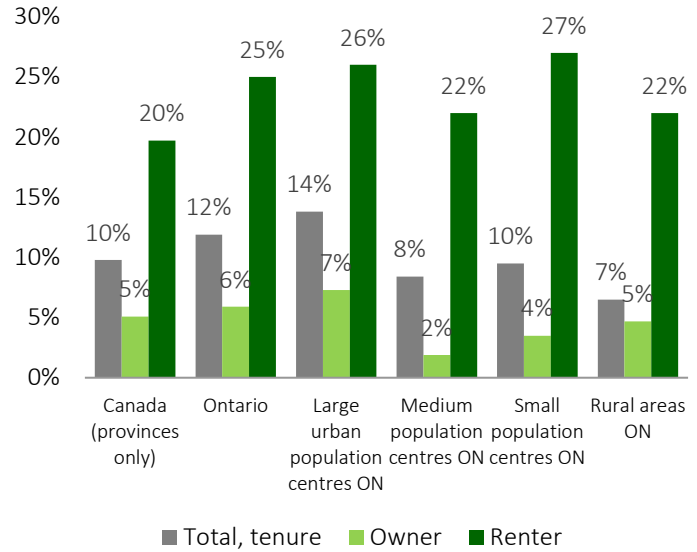
Composite Home Prices Index, Seasonally Adjusted, Index = 2005, January 2005 – August 2023



Source: Canadian Real Estate Association

- In August 2023, the average price of a single-family home in Ontario was $1.0 million compared to the Canadian average of $836,000. Meanwhile, in August 2005 the average price of a single-family home in Ontario was $297,000 compared to the Canadian average of $271,000.
- Rent prices have also significantly increased. In metropolitan areas in Ontario, between 2005 and 2022, the average rent for an apartment increased 72%.[1]

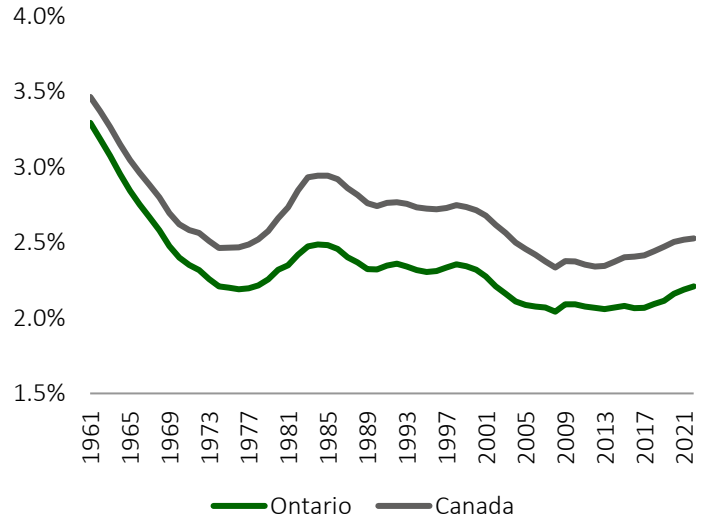
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- In 2021, Ontario households experienced one of the highest rates of core housing need among the provinces. Renters in all regions in Ontario experienced a higher rate of core housing need compared to the Canadian average (excluding territories).
- Owners in large urban population centres have a higher rate of core housing need compared to the Canadian average (excluding territories).

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- In the last two decades, the dollar value of community housing stock as a share of total housing stock has remained almost stagnant in Ontario.
- In 2022, the share remains lower than the Canadian share (2.5%) and the peak observed in 1961.

1. Ontario – Historical Average Rent by Year of Construction. CMHC. https://www03.cmhc-schl.gc.ca/hmip-pimh/en/TableMapChart/Table?TableId=2.1.31.2&GeographyId=35&GeographyTypeId=2&DisplayAs=Table&GeograghyName=Ontario#Total (Accessed October 24, 2023)

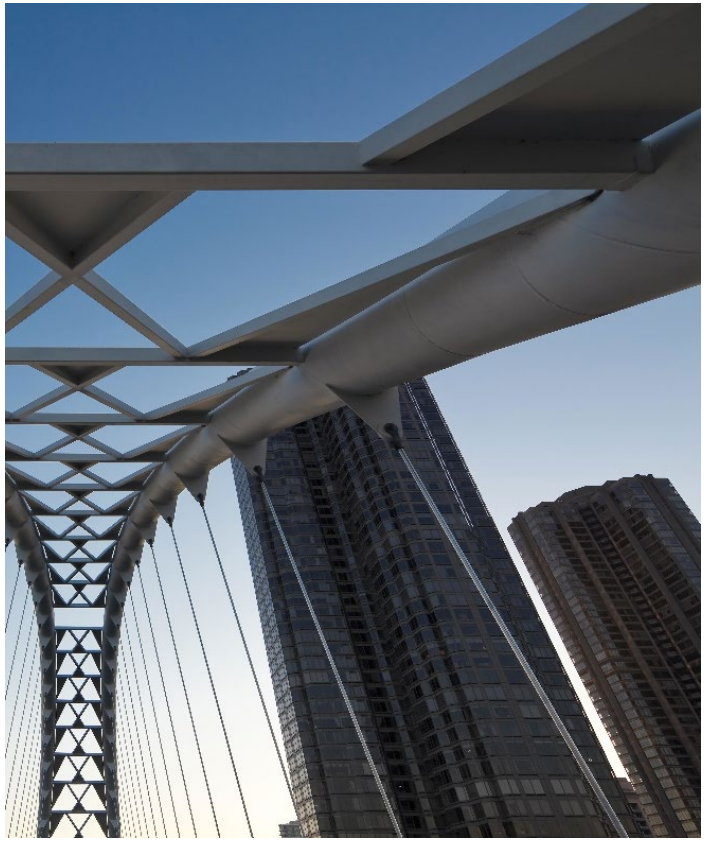
Ontario (2/3)

Demand Challenges

- CMHC identified that higher disposable incomes, positive population growth, and low mortgage rates have increased the demand for homeownership and played a significant part in the long-term house price growth across Canada's major markets between 2010 and 2016. In Toronto, according to CMHC estimates, these conventional demand-side factors explained approximately 40% of the increase in prices between the period.[1]
- Between 2018 and 2019, Ontario's population increased 1.7%, compared to the average annual growth of 0.9% during 2006 to 2016. Ontario's population grew faster due to increased international and interprovincial migration.[2] An increase in population leads to an increase in demand for housing.
- Houses in Ontario are perceived as an attractive investment. In 2020, investors owned 20.2% of residential properties in Ontario, with 41.9% of condominium apartments being used as investments.[3]

Supply Challenges

- Overall, time-consuming approvals and high costs have contributed to a slow development of new housing and rentals.
- Ontario is the only province where community housing is a municipal responsibility. Housing programs are fully funded and delivered by the provincial or territorial government with federal funding contributions in other provinces.[4]
- Since 1995, there has been no significant increase in community housing. Some community housing providers have built under affordable housing programs, but no new housing was built through community housing programs.[5] Additionally, the aging community housing stock leads to a risk of loss due to poor condition. Renter households in subsidized housing report higher rates of dwellings requiring major repairs, indicating a need for increased investment in affordable housing infrastructure.[5]
- Additionally, about one third of Ontario's community housing stock is at risk of converting to market-rate rentals after provider operating agreements expire. Approximately half of these expired in 2020 and the remainder are due to expire in 2033.[5]

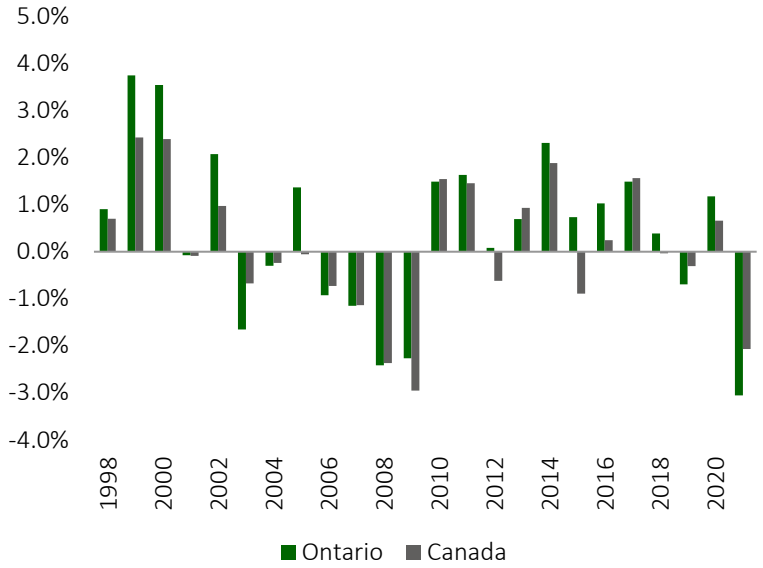


In 2021, approximately 123,800 households in Ontario (equivalent to 2.2% of households) were on the waitlist for non-market rental housing, which is higher than the Canadian average (excluding territories) share on such waitlists.[6]

1. Examining Escalating House Prices in Large Canadian Metropolitan Centres. CMHC. May 24, 2018. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/housing-finance/examining-escalating-house-prices-in-large-canadian-metropolitan-centres (Accessed September 12, 2023)
2. Chapter 1: Demographic Trends and Projections. Government of Ontario. https://www.ontario.ca/document/ontarios-long-term-report-economy/chapter-1-demographic-trends-and-projections (Accessed September 12, 2023)
3. Joanie Fontaine and Joshua Gordon. Residential real estate investors and investment properties in 2020. Statistics Canada. February 3, 2023. https://www150.statcan.gc.ca/n1/pub/46-28-0001/2023001/article/00001-eng.htm (Accessed September 12, 2023)
4. Housing in Ontario: A Primer for AMO Members. AMO. January 2017. https://www.amo.on.ca/sites/default/files/assets/DOCUMENTS/Reports/2017/OverviewofHousinginOntario20170127.pdf (Accessed October 24, 2023)
5. Housing needs in Ontario. Government of Ontario. https://www.ontario.ca/document/community-housing-renewal-ontarios-action-plan-under-national-housing-strategy/housing-needs-ontario (Accessed September 12, 2023)
6. Waitlist status including length of time, by tenure including social and affordable housing. Statistics Canada. August 21, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=4610005801 (Accessed September 12, 2023)

Ontario (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Ontario was 0.42%. During the same period, the average annual growth rate of MFP was higher in Ontario than it was in Canada.
- **Ontario's average annual MFP growth rate ranked 4th across provinces** behind Newfoundland and Labrador, Prince Edward Island, and Nova Scotia.

1. Please see Appendix C for the methodology and assumption.

Community Housing and Productivity[1]

Ontario's strong productivity performance is attributable to gains in its service and manufacturing sectors. The wholesale, retail trade, and manufacturing sectors have sharply improved their productivity thanks in part to automation and new technologies. The finance, insurance, real estate and rental and leasing management of companies and enterprises sector has also been a source of gain as the implementation of new technologies have led to the creation of new roles and boosted the productivity of existing roles.

Community housing can play a role in increasing Ontario's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, Ontario's community housing stock would need 143,230 additional units by 2030. This is a 43% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 5.8% to 9.5% increase in productivity by 2030. This productivity improvement is equivalent to $42.7 to $69.7 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $23.3 to $50.3 billion to Ontario's GDP by 2030.

↑ **143,230** additional units built by 2030

↑ **5.8% to 9.5%** increase in productivity

↑ **$23.3 to $50.3 billion** increase in GDP, considering opportunity cost

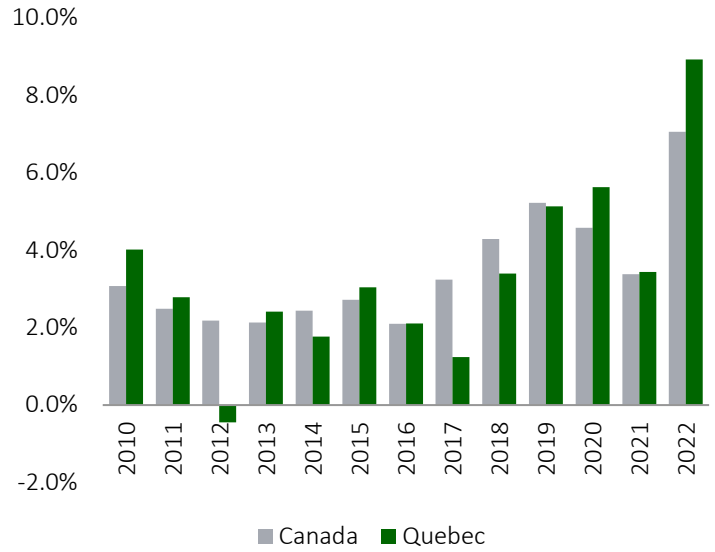
Quebec

Provincial Carveout

Quebec (1/3)

Quebec has long been recognized for its affordable housing. However, recent data indicates that prices have risen rapidly in the province.

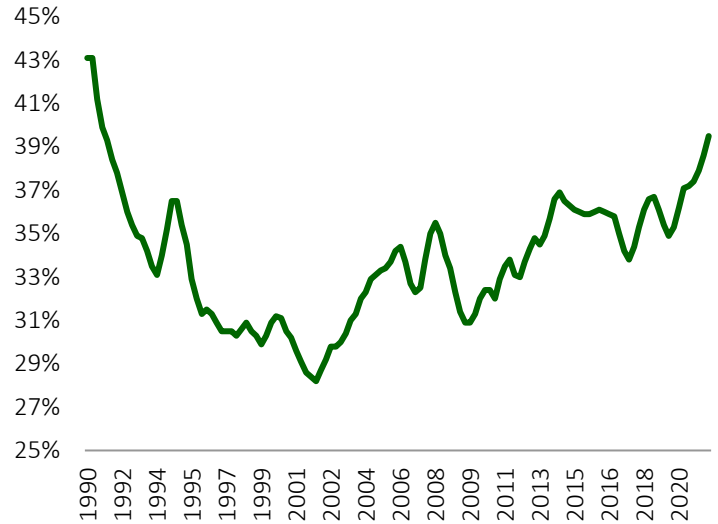
Percentage Change in Average Rental Price of Apartments, October 2010 - 2022



Source: Canada Mortgage Housing Corporation

- Quebec has traditionally been known for its affordable housing, but the province has been experiencing challenges with affordability since the start of the pandemic.
- After the COVID-19 pandemic, the average price increase of rental apartments in Quebec has grown faster than in the rest of Canada.

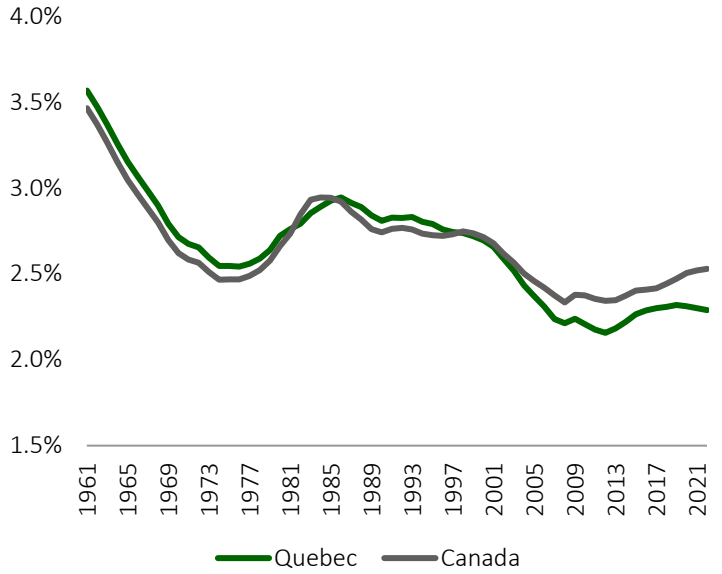
Quebec Shelter Cost as a Share of Disposable Income, When the Average Household Buy the Average House (based on MLS prices), 1990 - 2021



Source: Canada Mortgage Housing Corporation

- In recent years, housing affordability (measured by CMHC as shelter cost as a share of disposable income) has deteriorated in Quebec.
- In 2021, shelter cost as a share of disposable income reached a high of 39.5%, levels not seen since 1991.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Between 1961 and 2022, the dollar value of community housing stock as a share of total housing stock has decreased in Quebec and since 1998, has been below the Canadian average.
- In 2022, the dollar value of community housing stock as a share of total housing stock was 2.3% in Quebec, significantly below the 3.6% share in 1961.

Quebec (2/3)

Demand Challenges

- A study conducted by CMHC revealed that from 2015 to 2020, the growth in demand in Quebec's three largest census metropolitan areas (CMAs) was five to thirteen times faster than the number of units in the housing stock. The gap between supply and demand relative to the size of the housing stock has led to increased pressure on prices.[1]

Supply Challenges

- In 2020, supply reached a 14-year low, where only 6 to 8% of housing stock was available for sale in Quebec's three largest CMAs.[1]
- Construction levels have not kept up with the pace of increasing demand. The Association des professionals de la construction et d'habitation du Québec (APCHQ) forecasts a 32% decrease in the number of rental housing starts in 2023 year over year. In 2022, there was a 14% decrease from previous year.[2]
- Community housing development is facing several challenges as well. According to the Société d'Habitation du Québec's website, there are currently no new low-rental housing projects being built.[3] Additionally, programs designed to encourage the private sector to build affordable housing have not been successful. All developers impacted by the 2021 Montreal bylaw that requires developers to include social and family housing for new developments or pay a fine, have chosen to pay the fine.[4]

According to the CMHC, Quebec is responsible for almost one-fifth of the identified 3.5 million housing unit supply gap in Canada by 2030.[5]

1. Housing supply and demand in Quebec relative to the size of the housing stock. CMHC. January 11, 2022. https://www.cmhc-schl.gc.ca/blog/2022/housing-supply-demand-qc-relative-size-housing-stock. (Accessed September 15, 2023)
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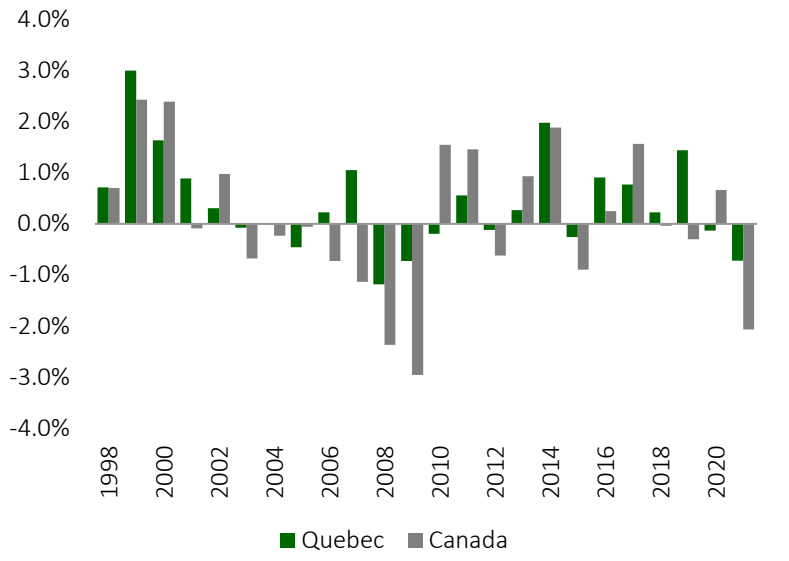
Quebec (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Quebec was 0.42%. During the same period, the average annual growth rate of MFP in Canada was lower than in Quebec.
- **Quebec's average annual MFP growth rate ranked 5th across provinces** behind Newfoundland and Labrador, Prince Edward Island, Nova Scotia, and Ontario.

Community Housing and Productivity[1]

Quebec's productivity increase over the observed period is largely attributable to gains in its service sector. The wholesale and retail trade sectors have improved their productivity largely due to automation. The finance, insurance, real estate, rental and leasing and management of companies and enterprises sector also contributed to productivity growth. While the construction and manufacturing sector have also experienced positive productivity growth, it has been smaller compared to the service sectors.

Community housing can play a role in increasing Quebec's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, Quebec's community housing stock would need 79,070 additional units by 2030. This is a 41% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 5.9% to 9.7% increase in productivity by 2030. This productivity improvement is equivalent to a $20.6 to $33.5 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $13.1 to $26.1 billion to Quebec's GDP by 2030.

↑ **79,070** additional units built by 2030

↑ **5.9% to 9.7%** increase in productivity

↑ **$13.1 to $26.1 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

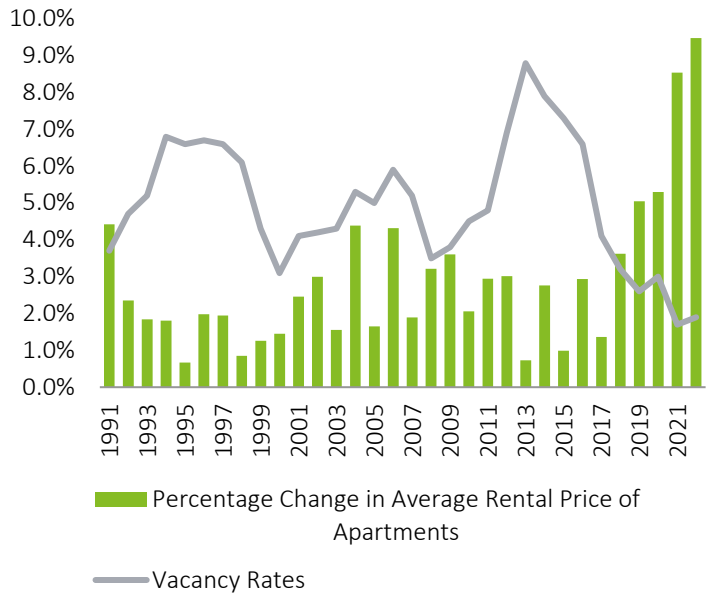
New Brunswick

Provincial Carveout

New Brunswick (1/3)

New Brunswick's primary rental market has experienced an increase in price and decrease in vacancy rates in recent years.

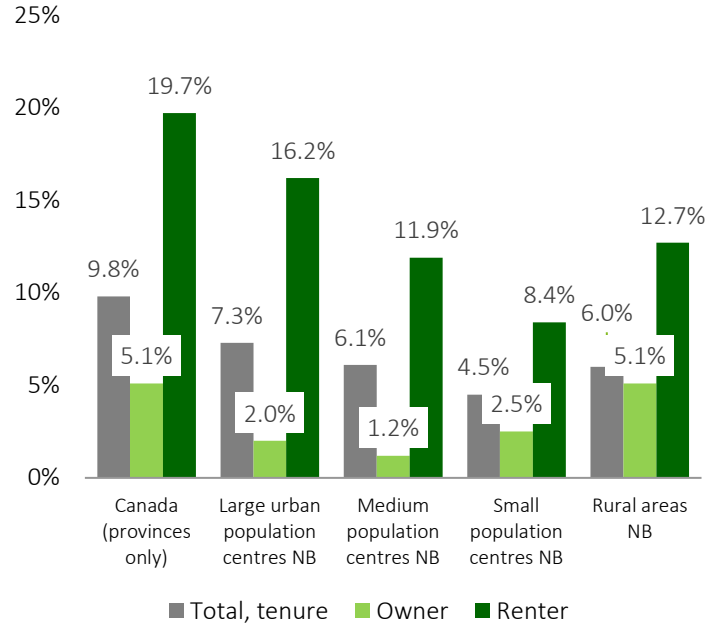
Percentage Change in Average Rental Price and Vacancy Rates of Apartments, October 1991 - 2022



Source: Canada Mortgage Housing Corporation

- In recent years, average rental price of apartments in New Brunswick have experienced stronger growth than in any other province. In 2022, the average rental price of apartments increased 9.5% compared to a Canadian average of 7.1%.
- Meanwhile, vacancy rates in New Brunswick have been falling in recent years.

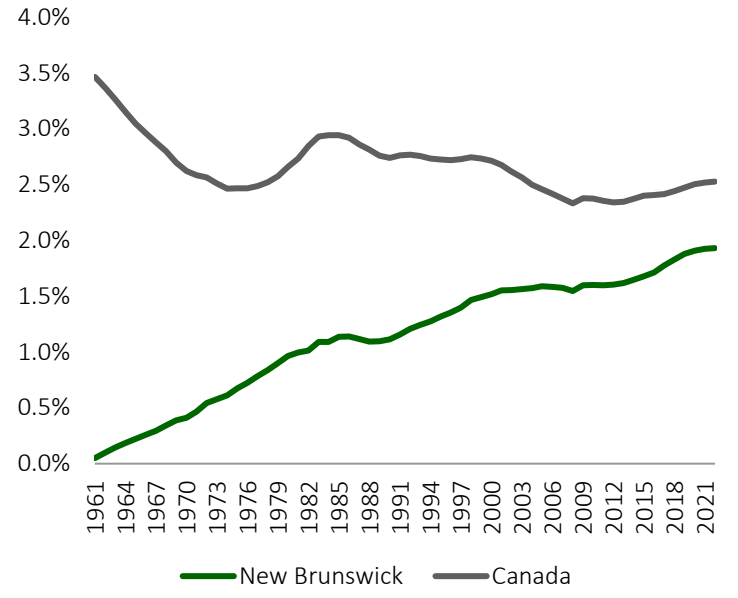
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- The percentage of households in core housing need varies across regions in New Brunswick. Owner households in rural areas experience the highest core housing need in the province. Meanwhile, renter households in large urban population centers experience the highest core housing need in the province.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Between 1961 and 2022 the dollar value of community housing stock as a share of total housing stock increased in New Brunswick.
- In 2022 the dollar value of community housing stock as a share of total housing stock is 1.9%, which is still below the 2022 Canadian share of 2.5%.

New Brunswick (2/3)

Demand Challenges

- After a period of declining or stagnating population growth between 2011 and 2016 (-0.5%), New Brunswick's population grew at its fastest pace since the early 1970s between 2016 and 2021 (3.8% population growth rate) largely due to an increase in international and interprovincial migration.[1,2] Since the last census, population growth continues to exceed expectations. Between July 2022 and 2023, New Brunswick experienced a growth rate of 3.1%, which is the highest rate of growth in data going back to 1921.[3] Both an increase in population, and demographics changes will impact demand across the housing spectrum. For example, an increase in the proportion of seniors in the population will impact the need for alternative housing models.[1]
- Houses in New Brunswick are an attractive investment. In 2020, investors owned 29.0% of residential properties in New Brunswick. Many investors own vacant land that could be developed. By removing this type of investors, the percentage of residential properties owned by investors falls to 21.3%.[4]

Supply Challenges

- Labour shortages and cost pressures have limited the ability to increase supply. For example, between 2011 and 2021, employment in the construction sector fell by 9,700 workers. Additionally, one in four construction workers are expected to retire in the next decade.[1] A constrained labour force limits the speed in which housing can be built in the province.
- Housing supply in rural and small towns is not responding to an increase in demand, as researchers suggest that developers are prioritizing census metropolitan areas (CMAs) with a higher return.[5] This is a significant challenge, as about 37% of the New Brunswick population lives outside CMAs.[6]
- Despite a modest 0.5 percentage point increase in community housing units in the province from the second quarter of 2016 to 2023, activists have brought attention to the fact that the majority of New Brunswick's community housing stock was constructed in the 1970s, with an average age of 52 years.[7,8] The community housing stock is old and in poor condition requiring renovations. Tenants' rights advocates say housing conditions in community housing in the province are difficult to tolerate.[8]

Population growth has resulted in demand pressures for rental and ownership housing. The province has a low inventory of housing across the housing spectrum.[1] As prices continue to rise, homebuyers are increasingly turning to smaller homes or rentals, putting greater strain on the rental market. Higher rental prices are leading some individuals to be inadequately housed or not housed at all.[5]

1. NB Housing Strategy: Housing for all. New Brunswick Government. June 2023. https://www2.gnb.ca/content/dam/gnb/Corporate/Promo/housing-habitation/housing-for-all.pdf (Accessed September 12, 2023)
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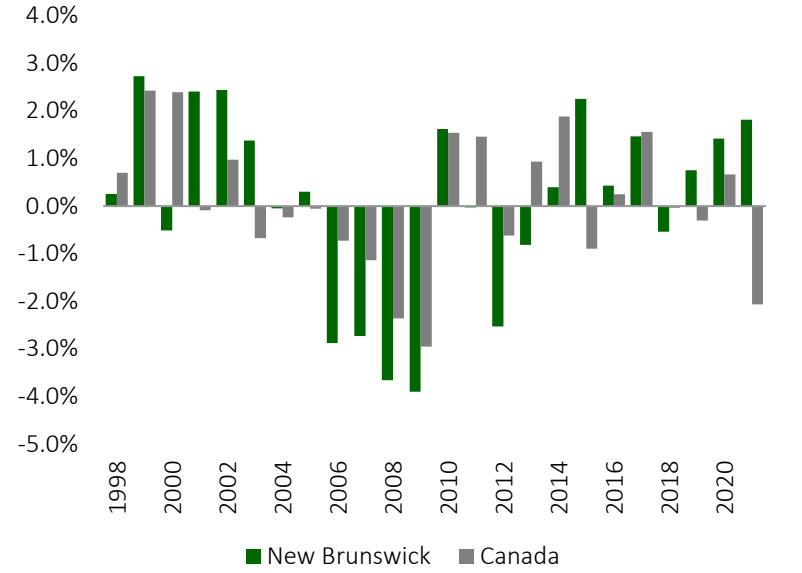
New Brunswick (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in New Brunswick was 0.08%. During the same period, the average annual growth rate of MFP in Canada was higher than in New Brunswick.
- **New Brunswick's average annual MFP growth rate ranked 8th across provinces** ahead of only Alberta and Saskatchewan.

Community Housing and Productivity[1]

Low MFP growth in New Brunswick can be attributed to several industries. Between 1997 and 2021, the manufacturing industry has experienced negative productivity growth, partly due to structural challenges. The business services, transportation and warehouse industry have also struggled to improve productivity, contributing to the challenge.

Community housing can play a role in increasing New Brunswick's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, New Brunswick's community housing stock would need 7,430 additional units by 2030. This is a 32% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 4.2% to 6.9% increase in productivity by 2030. This productivity improvement is equivalent to $1.1 to $1.8 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $0.6 to $1.3 billion to New Brunswick's GDP by 2030.

↑ **7,430** additional units built by 2030

↑ **4.2% to 6.9%** increase in productivity

↑ **$0.6 to $1.3 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

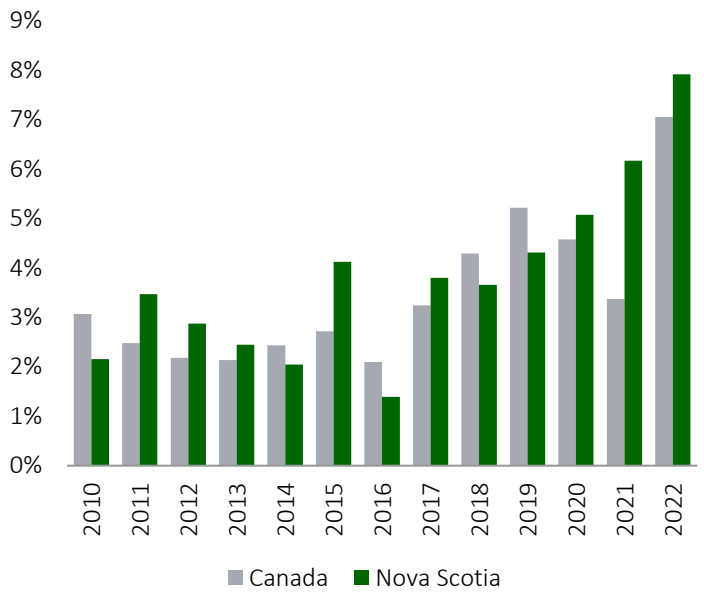
Nova Scotia

Provincial Carveout

Nova Scotia (1/3)

The dollar value of community housing stock as a share of total housing stock decreased since the 1980s and remains below the Canadian share.

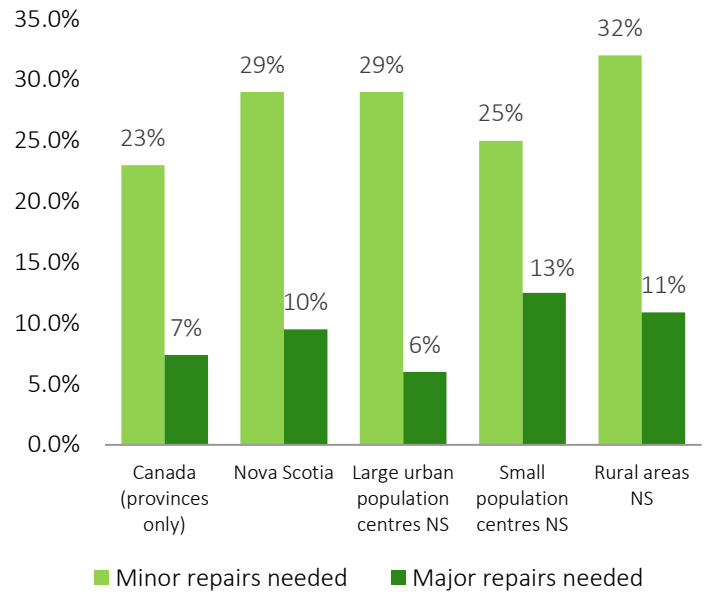
Percentage Change in Average Rental Price of Apartments, October 2010 - 2022



Source: Canada Mortgage Housing Corporation

- Nova Scotia's average apartment rents increased significantly in recent years, with an average annual growth of 5.4% between 2018 and 2022, compared to just 1.7% between 1991 and 1995.
- Between 2020 and 2022, Nova Scotia experienced a higher annual percentage growth in average rent compared to the national average in Canada.

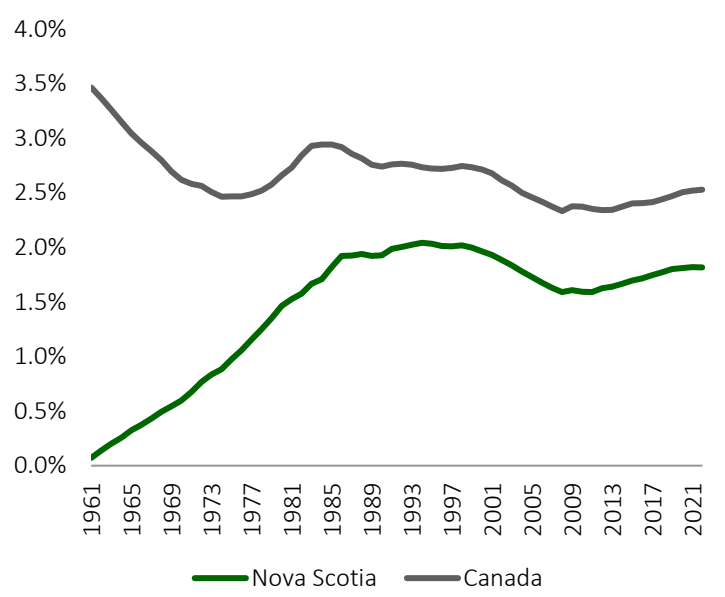
Housing Suitability, 2021



Source: Statistics Canada

- In 2021, Nova Scotia had a higher proportion of housing needing major and minor repairs compared to the Canadian average (excluding territories).
- Rural areas face the highest rate of minor repairs needed, while small population centers face the highest rate of major repairs needed.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Between 1961 and 1991, the dollar value of community housing stock as a share of total housing stock increased before levelling off in the 1990s.
- In the 2000s, the share decreased and only began to increase again in the early 2010s. However, the share in 2022 remains below its 1990s peak and the Canadian average.

Nova Scotia (2/3)

Demand Challenges

- After a period of stagnation between 2011 and 2016 (0.2% population growth rate), Nova Scotia grew at its fastest pace since the early 1970s between 2016 and 2021 (5.0% population growth rate) largely due to an increase in immigration and interprovincial migration.[1] Since the last census, population growth continues to exceed expectations. Between July 2022 and 2023, Nova Scotia experienced a growth rate of 3.2%, which is slightly higher than the national rate of 2.9%.[2] The increase in population leads to an increase in demand for housing and rental units.
- Houses in Nova Scotia have increasingly become an attractive investment. In 2020, investors owned 31.5% of residential properties in Nova Scotia (the highest among provinces analyzed). Many investors own vacant land. By removing this type of investors, the percentage of residential properties owned by investors falls to 24.8%.[3]

Supply Challenges

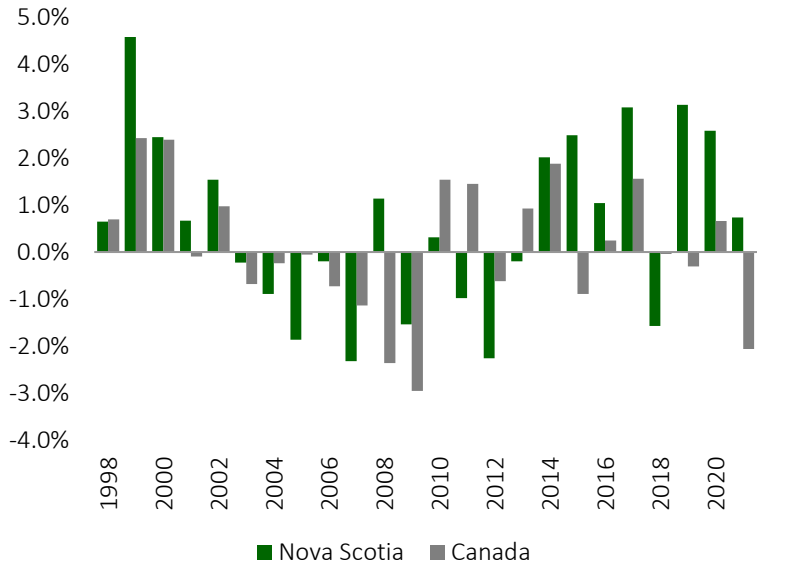
- Nova Scotia has an old housing stock. As of 2016, a high proportion of the population lives in homes-built prior to 1960, and Nova Scotia has the smallest proportion (10.9%) of the population living in housing built since 2006.[4]
- The average age of Nova Scotia's public housing units (a sub-component of community housing, as seen on page 9) is 42 years. In recent years, there has been small contributions to the community housing stock. The last significant public housing project was in 1995.[5]
- In recent years, housing supply in Nova Scotia has not been able to match the increase in demand. Several challenges exist that limit the ability to build additional supply in the province. Developers are challenged in finding enough skilled tradespeople, and municipalities are constrained by regulations and red tape.[6]
- The province has significant underutilized land that could be repurposed to build additional community housing.[6]

As of January 2023, there was 4,790 applicants in the waitlist for community housing, which represents 40% of total community housing in the province.[5]

1. Canada tops G7 growth despite COVID. Statistics Canada. February 9, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/220209/dq220209a-eng.htm (Accessed September 13, 2023)
2. Canada's demographic estimates for July 1, 2023: record-high population growth since 1957. Statistics Canada. September 27, 2023. https://www150.statcan.gc.ca/n1/daily-quotidien/230927/dq230927a-eng.htm (Accessed October 26, 2023)
3. Joanie Fontaine and Joshua Gordon. Residential real estate investors and investment properties in 2020. Statistics Canada. February 3, 2023. https://www150.statcan.gc.ca/n1/pub/46-28-0001/2023001/article/00001-eng.htm (Accessed September 12, 2023)
4. Thomas Torring. 2016: CENSUS: HOUSING. Government of Nova Scotia. October 25, 2017. https://www.novascotia.ca/finance/statistics/news.asp?id=13269#:~:text=The%20age%20of%20the%20housing,2006%20at%2010.9%20per%20cent. (Accessed September 13, 2023)
5. Alex Cooke. Nova Scotia hasn't built public housing in 30 years. Why that was a 'huge mistake'. CBC News. June 26, 2023. https://globalnews.ca/news/9784037/ns-public-housing-stagnant-supply/ (Accessed September 13, 2023)
6. A Healthy Nova Scotia: Solutions for Housing and Homelessness. Government of Nova Scotia. October 2021. https://beta.novascotia.ca/sites/default/files/documents/1-2738/healthy-nova-scotia-solutions-housing-and-homelessness-en.pdf (Accessed September 13, 2023)

Nova Scotia (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Nova Scotia was 0.6%. During the same period, the average annual growth rate of MFP in Canada was lower than in Nova Scotia.
- **Nova Scotia's average annual MFP growth rate ranked 2nd across provinces** behind only Newfoundland and Labrador.

Community Housing and Productivity[1]

Nova Scotia has experienced some of the strongest average productivity growth in the country over the past 25 years. Productivity gains have been driven by the manufacturing and retail trade sectors which have sharply improved their productivity partially due to automation. The wholesale trade and information and cultural industries has also been a source of gains.

Community housing can play a role in increasing Nova Scotia's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, Nova Scotia's community housing stock would need 9,450 additional units by 2030. This is a 30% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 3.9% to 6.4% increase in productivity by 2030. This productivity improvement is equivalent to $1.3 to $2.1 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $0.5 to $1.3 billion to Nova Scotia's GDP by 2030.

↑ **9,450** additional units built by 2030

↑ **3.9% to 6.4%** increase in productivity

↑ **$0.5 to $1.3 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

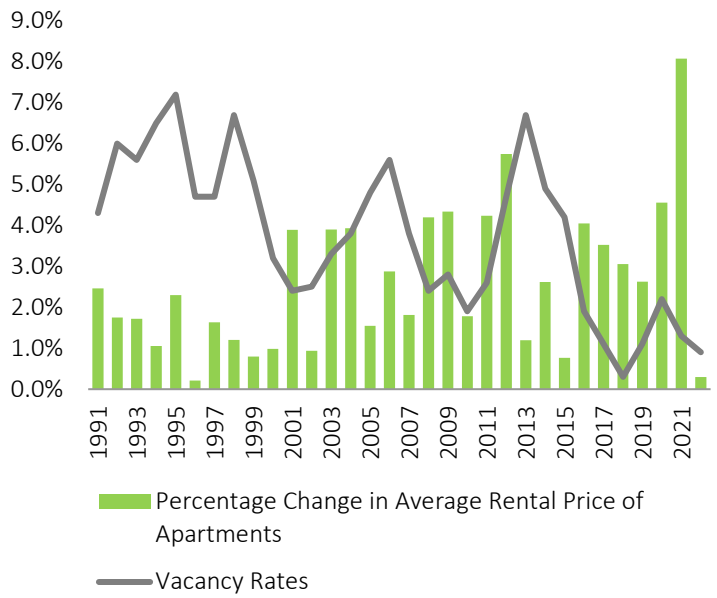
Prince Edward Island

Provincial Carveout

Prince Edward Island (1/3)

Prince Edward Island's primary rental market has experienced an increase in price and decrease in vacancy rates in recent years.

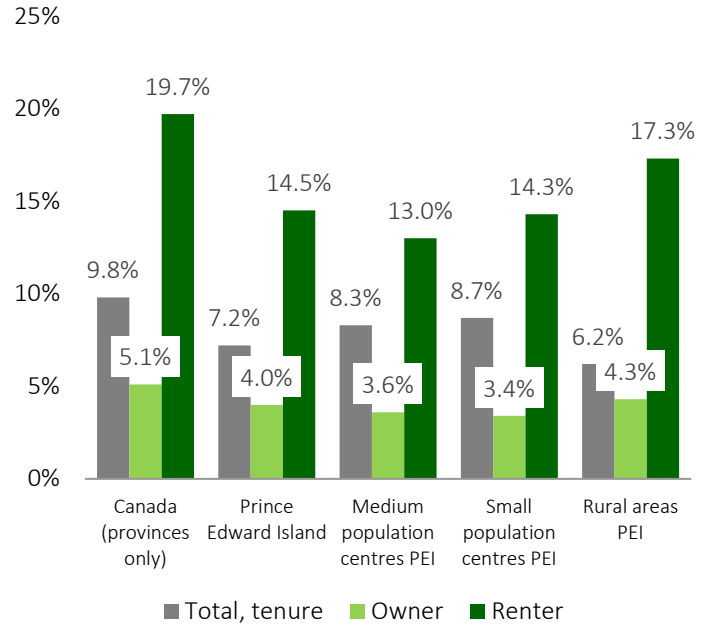
Percentage Change in Average Rental Price and Vacancy Rates of Apartments, October 1991 - 2022



Source: Canada Mortgage Housing Corporation

- The average rental price increased in recent years, with an average annual growth of 3.7% between 2018 and 2022, compared to 1.9% between 1991 and 1995.
- The province also experienced a decline in vacancy rates between 2013 and 2018. Reaching a low of 0.3% in 2018. In 2022, vacancy rates remained low at an average of 0.9% for rental apartments.

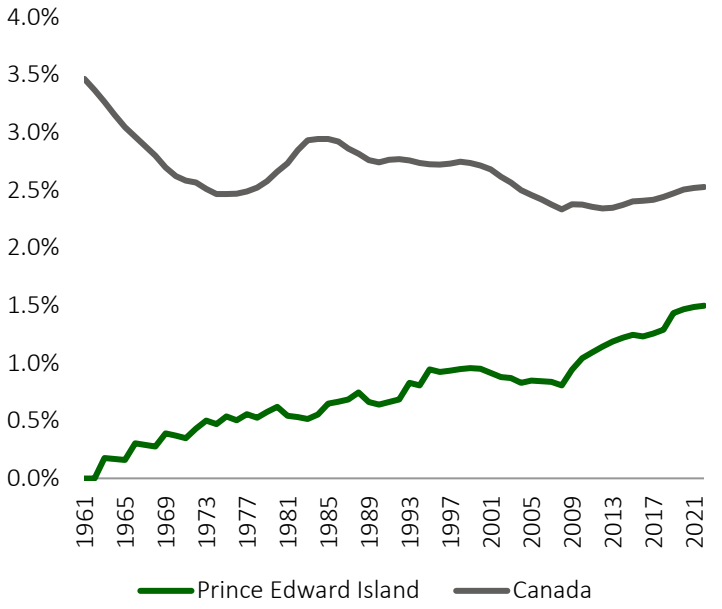
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- The percentage of households in core housing need varies across regions in Prince Edward Island. Both owner and renter households in rural areas experience the highest core housing need in the province.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Between 1961 and 2022 the dollar value of community housing stock as a share of total housing stock increased in Prince Edward Island.
- However, in 2022 the dollar value of community housing stock as a share of total housing stock was 1.5%, below the Canadian average of 2.5%.

Prince Edward Island (2/3)

Demand Challenges

- In recent years population has grown rapidly in Prince Edward Island, mostly due to immigration and interprovincial migration. Prince Edward Island experienced a population growth rate of 8.0% between 2016 and 2021, the highest among all provinces. This represents a significant increase from the 1.9% growth rate observed between 2011 and 2016.[1] Since the last census, population growth continues to exceed expectations. Between July 2022 and 2023, Prince Edward Island experienced a growth rate of 3.9%, far higher than the national rate of 2.9%.[2]

Supply Challenges

- In 2023, the number of housing permits issued between January to July has been the lowest since 2018.[3]
- Professionals highlight that Prince Edward Island does not have the labour force needed to build sufficient housing to keep up with the most recent increase in population.[3] Prince Edward Island saw a 25% increase in cost of construction of residential buildings between 2019 and 2022. The increase in the cost of construction can be attributable to rising costs of fuels, construction material shortages, and rising demand.[4] The shortage of workers and high construction costs have made it difficult for the market to meet the increase in demand.
- In recent years, new housing starts in the rental market have been largely targeted towards high-end units. Additionally, gentrification through renovations is also occurring. These trends negatively impact the supply of affordable housing.[4]

The rise in mortgage rates, interest rates, and inflation is challenging households to purchase homes, thereby increasing the demand for rental properties. The increase in demand causes a decrease in vacancy rates and increase in rental rates.[5]

1. Canada tops G7 growth despite COVID. Statistics Canada. February 9, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/220209/dq220209a-eng.htm (Accessed September 13, 2023)
2. Canada's demographic estimates for July 1, 2023: record-high population growth since 1957. Statistics Canada. September 27, 2023. https://www150.statcan.gc.ca/n1/daily-quotidien/230927/dq230927a-eng.htm (Accessed October 26, 2023)
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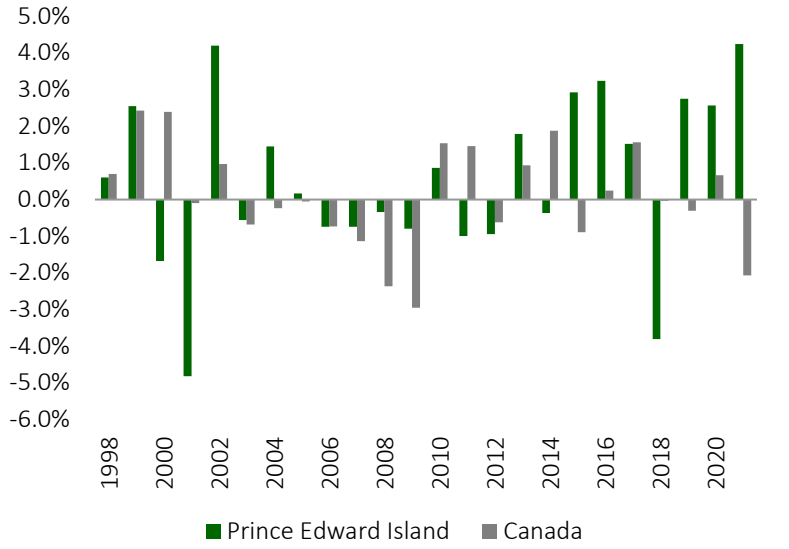
4. Prince Edward Island Housing Corporation 2023-2025 Action Plan. The CMHC – Prince Edward Island Bi-lateral Agreement under the 2017 National Housing Strategy. https://www.princeedwardisland.ca/sites/default/files/publications/dpcec-3827_cmhc-pei_national_housing_strategy_action_plan_-_web.pdf (Accessed September 13, 2023)
5. Kevin Yarr. Already-low P.E.I. vacancy rate slashed in half in just 1 year. CBC News. January 26, 2023. https://www.cbc.ca/news/canada/prince-edward-island/pei-vacancy-rate-2022-1.6727093 (Accessed September 13, 2023)

Prince Edward Island (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Prince Edward Island was 0.54%. During the same period, the average annual growth rate of MFP in Canada was lower than in Prince Edward Island.
- **Prince Edward Island's average annual MFP growth rate ranked 3rd across provinces** behind only Newfoundland and Labrador and Nova Scotia.

Community Housing and Productivity[1]

Prince Edward Island's strong productivity performance is attributable to gains in its service sector. The wholesale and retail trade sectors have sharply improved their productivity thanks in part to automation. The tourism sector has also been a source of gains with solid productivity growth in accommodation and food services, transportation and warehousing and information and cultural industries.

Community housing can play a role in increasing Prince Edward Island's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, Prince Edward Island's community housing stock would need 1,620 additional units by 2030. This is a 44% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 6.0% to 9.7% increase in productivity by 2030. This productivity improvement is equivalent to $0.3 to $0.5 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $0.2 to $0.4 billion to Prince Edward Island's GDP by 2030.

↑ **1,620** additional units built by 2030

↑ **6.0% to 9.7%** increase in productivity

↑ **$0.2 to $0.4 billion** increase in GDP, considering opportunity cost

1. Please see Appendix C for the methodology and assumption.

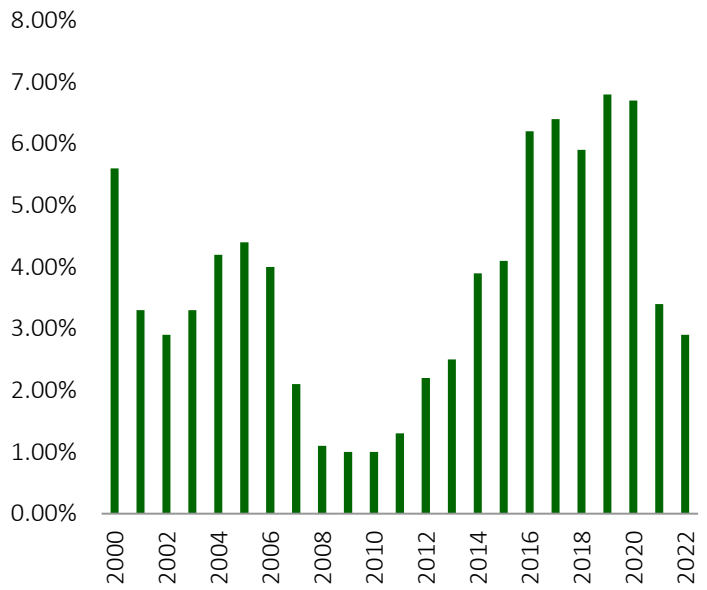
Newfoundland and Labrador

Provincial Carveout

Newfoundland and Labrador (1/3)

Housing completions in Newfoundland and Labrador have trended downwards since 2013.

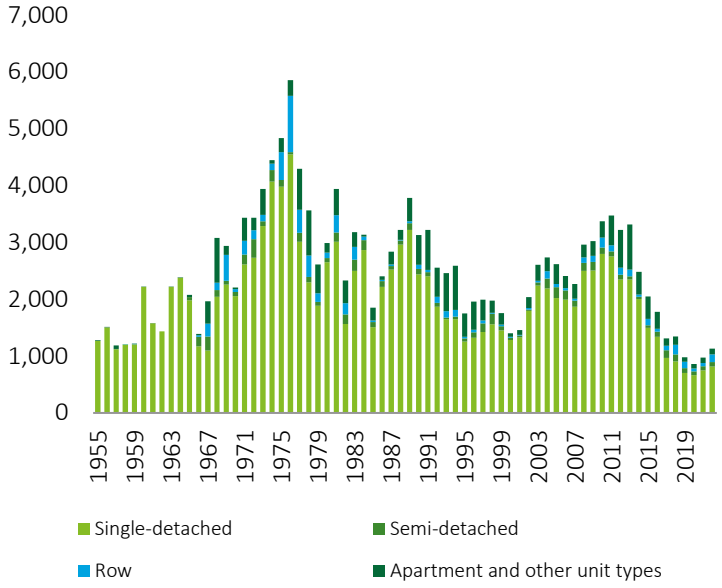
Vacancy Rates in Rental Market Apartments in CMAs and cities, October 2000 - 2022



Source: Canada Mortgage Housing Corporation

- Vacancy rates in rental market apartments trended downwards until 2009/2010 when it reached a low of 1%.
- Vacancy rates then rose until 2019, reaching a high of 6.8%, but since then have trended downwards.

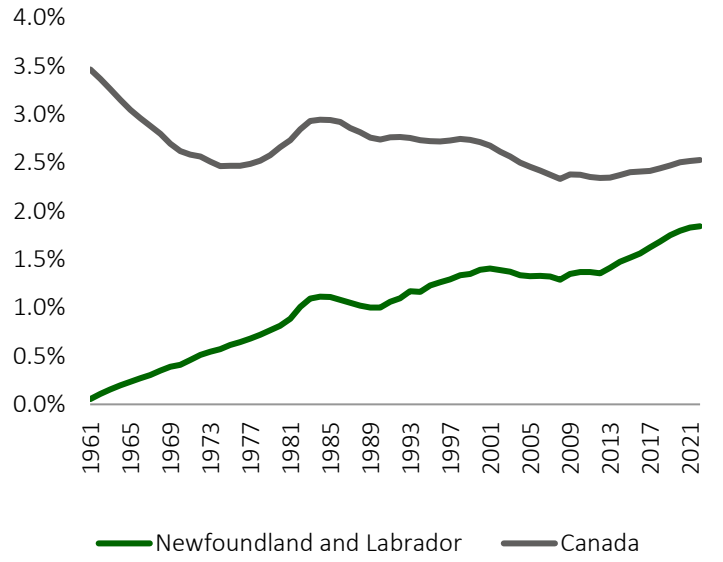
Housing Completion in All Areas, 1955 - 2022



Source: Statistics Canada

- Housing completions have trended downwards since 2013. Between 2013 and 2022, housing completions experienced an average annual decline of 9%. Single-detached homes, apartments and other unit types experienced an average annual decline while semi-detached and row homes increased.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Between 1961 and 2022 the dollar value of community housing stock as a share of total housing stock increased in Newfoundland and Labrador.
- Despite the steady increase, the share of community housing in the total housing stock was only 1.8% in 2022, well below the 2022 Canadian share of 2.5%.

Newfoundland and Labrador (2/3)

Demand Challenges

- St. John's experienced a drop in the rental market vacancy rate in 2021, largely driven by a return of in-person classes in Memorial University and greater workforce mobility. [1] The decrease in vacancy rate adds additional pressure to St. John's mismatch between the demand and supply for specific housing types. There exists a greater demand for smaller units, as the average renter household is one to two people while over half of the supply is mainly concentrated in two-to-three-bedroom units.[1]
- Realtors reveal that housing prices in the province are directly affected by community activity, and the province has seen some of the strongest growth in price in recent years in non-urban parts.[2]

Supply Challenges

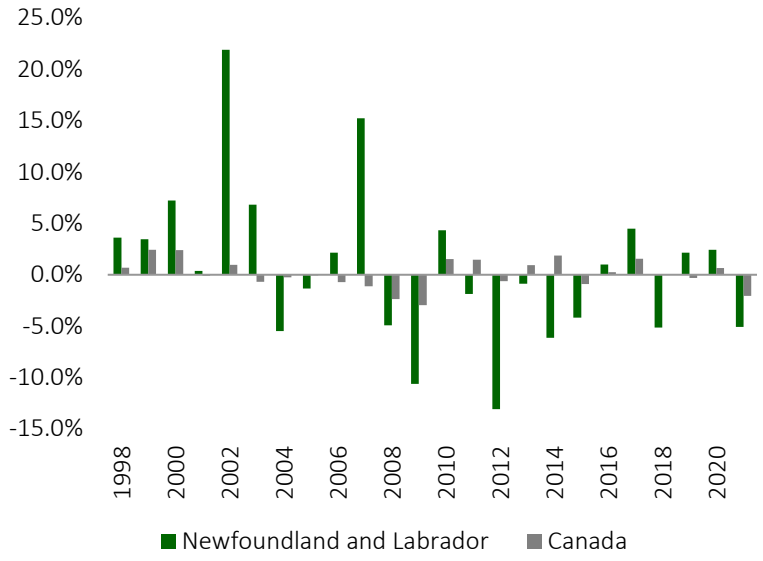
- In the province, 52% of rental units are owned by real estate investment trusts (REITs). The financialization of housing and the rental stock being held by a handful of landowners leads to higher power over rental conditions to these parties. Additionally, out-of-province individuals have acquired more properties in recent years leading to a disconnect between local incomes and owner-occupied and rental households.[1]
- As observed on the previous page, housing completions have trended downwards since 2013 in the province.
- Due to lack of funds from the province, there has been little investment in new community housing units and maintenance since the early 1990s.[1] Although the dollar value of community housing stock as a share of total housing stock has increased (as seen on the previous page), the number of community housing units as a share of total housing units has remained relatively stagnant since 2016.[3]

According to CMHC, to meet the anticipated future demand for housing, Newfoundland and Labrador will need to build 60,000 additional units over and above the expected build by 2030 to bridge the supply gap.[4]

1. Hope Jamieson. Unpacking the Housing Crisis in St. John's. The Independent. June 13, 2022. https://theindependent.ca/commentary/analysis/unpacking-the-housing-crisis-in-st-johns/ (Accessed September 15, 2023).
2. Housing sales are down in N.L., but Realtor association CEO says prices aren't likely to follow. CBC News. August 19, 2023. https://www.cbc.ca/news/canada/newfoundland-labrador/nl-housing-sales-down-1.6940284 (Accessed September 15, 2023)
3. Housing stock in unit by institutional sector, housing type, dwelling occupation, dwelling type, and tenure type. Statistics Canada. September 1, 2023. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610068801 (Accessed September 25, 2023)
4. Housing shortages in Canada Updating how much housing we need by 2030. CMHC. September 13, 2023. https://www.cmhc-schl.gc.ca/professionals/housing-markets-data-and-research/housing-research/research-reports/accelerate-supply/housing-shortages-canada-updating-how-much-we-need-by-2030 (Accessed September 18, 2023)

Newfoundland and Labrador (3/3)

MFP Growth, 1997 - 2021



Source: Statistics Canada

- From 1997 to 2021, the average annual growth rate of MFP in Newfoundland and Labrador was 0.68%. During the same period, the average annual growth rate of MFP in Canada was lower than in Newfoundland and Labrador.
- **Newfoundland and Labrador's average annual MFP growth rate is the highest across the provinces.**

Community Housing and Productivity[1]

Between 1997 and 2021, Newfoundland and Labrador's economy shifted towards a resource-based structure. Mining, oil, and gas extraction industries experienced significant productivity growth in the late 1990s and early 2000s as the province began producing oil from offshore fields. However, as production shifted to deposits that were more challenging to extract, productivity growth has weakened in recent years.

Community housing can play a role in increasing Newfoundland and Labrador's productivity. If Canada's community housing units as a share of total housing units were to increase from 2023 Q2's level of 5.5% to 7% by 2030 this would require an increase of 371,600 units in Canada's total community housing net stock. If each province receives the equivalent share based on their forecasted population growth, Newfoundland and Labrador's community housing stock would need 4,620 additional units by 2030. This is a 37% increase in the stock from 2023 Q2 levels.

Raising the share of community housing units from its current levels to the levels forecasted in 2030 results in a 5.3% to 8.7% increase in productivity by 2030. This productivity improvement is equivalent to $1.4 to $2.2 billion boost to GDP by 2030. Considering the opportunity cost of building community housing units instead of private homes, the additional units of community housing would contribute between $1.0 to $1.9 billion to Newfoundland and Labrador's GDP by 2030.

↑ **4,620** additional units built by 2030

↑ **5.3% to 8.7%** increase in productivity

↑ **$1.0 to $1.9 billion** increase in GDP, considering opportunity cost

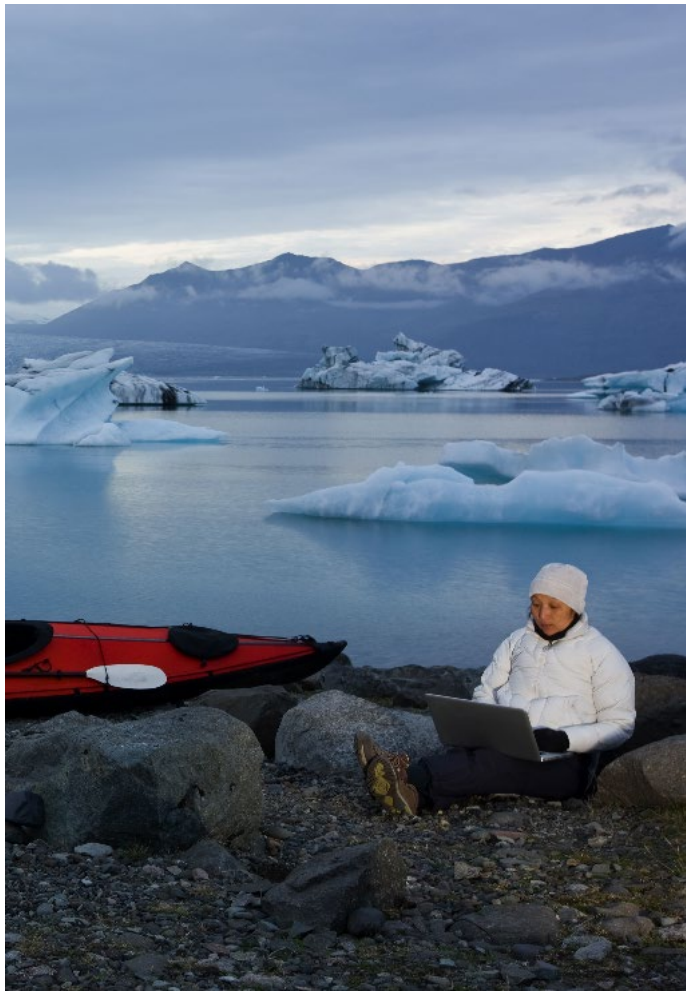
1. Please see Appendix C for the methodology and assumption.

Territories

The Territories

Canada's territories are very different from the southern provinces, with unique housing challenges.

- The territories suffer from the highest levels of housing need in Canada. They face unique challenges that make them difficult to compare directly with the provinces.
- The data shows that the territories have the highest shares of community housing in the country. However, this is a reflection of their different economic realities and levels of development rather than a predictor of high productivity. In many ways, the territories are like a different country within Canada, and care should be taken when comparing them to the provinces.
- Unlike in the provinces, Statistics Canada does not publish data on multifactor productivity in the territories. MFP does not have economic meaning in the public sector, so it is calculated based on data for the private sector. But the territories have very small business sectors. Across all provinces, the public sector makes up an average of 19% of GDP; in the territories, it is 31%.
- Labour productivity measures are available for the territories. However, comparing these results to Southern Canada can be misleading. The territories appear to have much higher labour productivity than the rest of Canada. But this is a side effect of elevated salaries and benefits in the formal labour market required due to the higher cost of living.
- The lack of comparable productivity data makes it impossible to produce numerical estimates of the impact of community housing on productivity as we have done in the provinces. However, we can still make a variety of observations about housing and productivity in each territory, which we do in the pages that follow.
- The degree of housing shortage experienced by the territories means the traditional housing continuum often does not exist, and households may experience great difficulty moving from community housing or staff housing into market housing. Many households cannot find any adequate housing at all and are forced to cohabitate in overcrowded housing with other family, relatives, or friends.
- These inadequate housing situations have a variety of negative impacts on the wellbeing of individuals. Among these negative effects, an individual in such extremely inadequate housing may find it difficult to participate in the labour market or be productive.
- In many communities in the territories, there is so little available market housing that employers must offer staff housing if they hope to attract employees. As discussed on page 17, staff housing can negatively impact productivity by inhibiting labour mobility, both into the region and between jobs.
- In all three territories, the cost of building a unit of housing can be several times the level in the South. Out of 75 total communities across the three territories, 37 communities are fly-in only, with no road connection with the rest of Canada. Transporting building supplies to these communities is challenging, and often has to be timed with the annual sealift during the brief period of the year when the Arctic Ocean is free of sea ice.
- The largest employer in the territories is the territorial government, and many government employees are in government-owned staff housing. Statistics Canada categorizes these government staff housing units as community housing, further complicating comparisons with southern community housing.



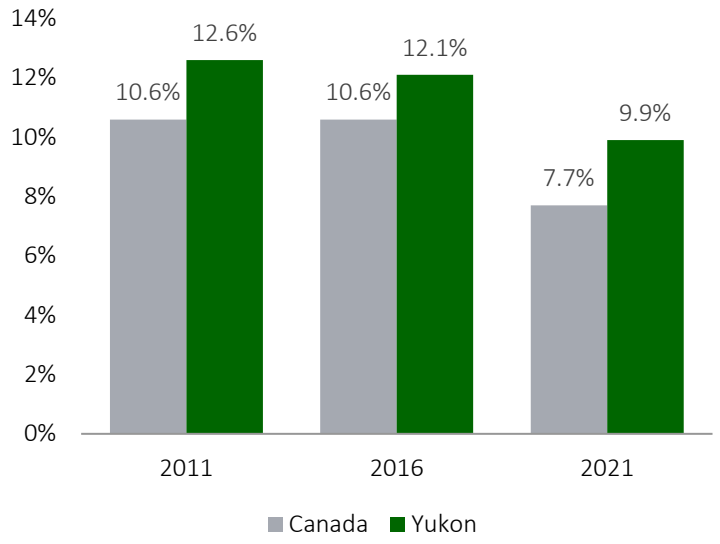
Yukon

Territory Carveout

Yukon (1/3)

Over the past three census, households in the Yukon experienced a higher core housing need compared to the average in Canada.

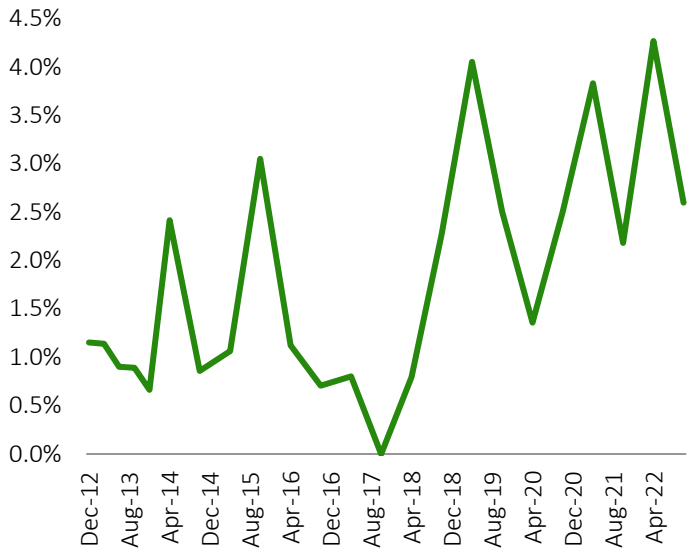
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- Over the past three census, households in the Yukon experienced a higher core housing need compared to the average in Canada.
- However, the Yukon has lower core housing need than the other territories.
- In 2021, the core housing need rates were higher for renters (19.8%) compared to owners (5.8%).

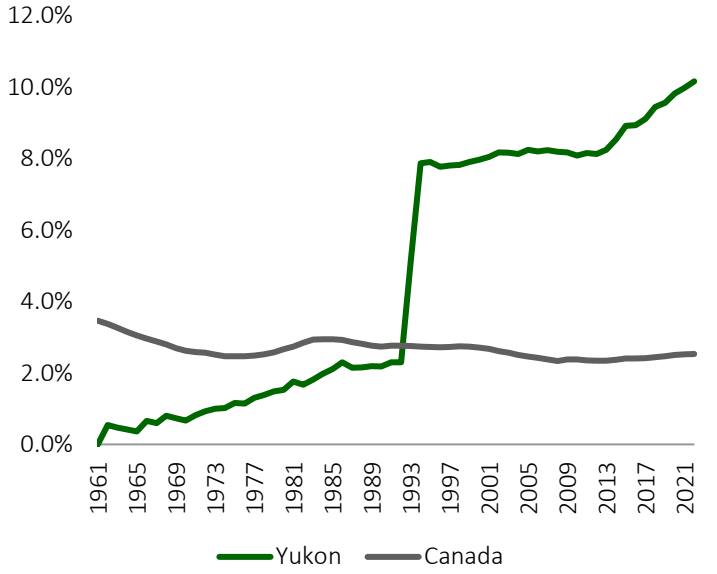
Percentage Change in Average Rent Prices, Apartments, Whitehorse, December 2012 – October 2022



Source: Yukon Bureau of Statistics

- Over the past few years, there has been an upward trend in the average rent prices in Whitehorse.
- In October 2022, the average rent was $1,303 a 7% year over year increase and 50% increase compared to 2012 levels.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1961 - 2022



Source: Statistics Canada

- Due to a large jump in investment in new construction in the early 1990s, the Yukon experienced a sharp increase in the dollar value of community housing stock as a share of total housing stock.
- Since then, the share has remained relatively stable only increasing slightly in recent years.

Yukon (2/3)

Demand Challenges

- Between 2016 and 2021, the Yukon led the country in population growth with a 12.1% rate.[1] Between 2011 and 2016 the Yukon also experience significant population growth of 5.8%.[1] The increase in population creates additional demand for housing, specially for areas such as Whitehorse where historically the population growth outpaces the rest of region as migrants typically choose to settle in the city.
- In Whitehorse, the increase in population, on-going recovery from the pandemic, record high prices in the region's resale market, and rising borrowing costs have increased the demand for rental units.[2]
- The Yukon Housing Corporation identified a mismatch between population demographics and available housing stock. There was an increase in demand for single and two-person households, but most of the available housing stock was single-family dwellings.[3]

Supply Challenges

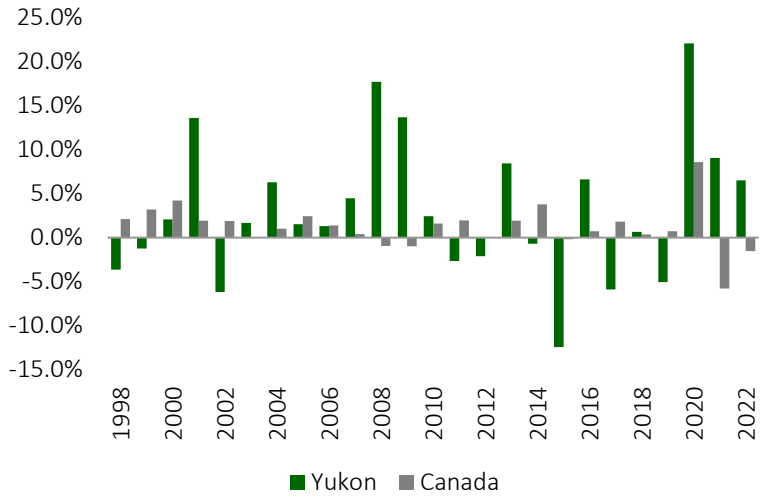
- In Whitehorse, the supply of rental units remained relatively static between October 2021 and 2022, leading to a decrease in vacancy rates. [2] Meanwhile, housing starts remain elevated in 2021 but considering the demand in the region, there is an implied continued tightness in the segment.[2]
- The Office of the Auditor General of Canada identified that Yukon Housing Corporation has inadequate systems and practices for identifying and monitoring major repairs.[4] Therefore, the Yukon Housing Corporation faces significant challenges in maintaining an adequate community housing stock due to a combination of inadequate systems and an aging housing inventory.
- Shortage of building contractors and skilled trades, higher building costs, lower land values, and the inability for Yukon First Nations to register title on settlement lands limits the construction and issuance of leases and other tenures.[3]

The demand for community housing is greater than the available units. Between 2015 and 2021, the number of applicants on the waitlist increased by 320%, much more rapidly than population did. As of October 2021, the overall average time on the waiting list was 1.4 years, higher than in 2014 (1.1 years).[4]

1. Canada tops G7 growth despite COVID. Statistics Canada. February 9, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/220209/dq220209a-eng.htm (Accessed September 13, 2023)
2. Northern Housing Report. CMHC. 2022. https://assets.cmhc-schl.gc.ca/sites/cmhc/professional/housing-markets-data-and-research/market-reports/northern-housing-report/northern-housing-report-2022-en.pdf?rev=48c601e2-31ad-4428-b4f4-0b90a26919e0&_gl=1*9f18i*_ga*MjgzNjg4NzU3LjE2NzMzNTk5ODE.*_ga_7RT5YEECKK*MTY5NDgwNTg4NS40LjAuMTY5NDgwNTg4NS42MC4wLjA.*_ga_7RE5GWNFTZ*MTY5NDgwNTg4NS43Ny4wLjE2OTQ4MDU4ODUuNjAuMC4w*_gcl_au*NDI5OTkwNjExLjE2OTAzMTA3NDI. (Accessed September 15, 2023)
3. Housing Action Plan for Yukon 2015-2025. Yukon Housing Corporation. 2015. https://yukon.ca/sites/yukon.ca/files/yhc/yhc-housing-action-plan-2015-2025.pdf (Accessed September 15, 2023)
4. Report of the Auditor General of Canada to the Yukon Legislative Assembly Yukon Housing. Office of the Auditor General of Canada. 2022. https://www.oag-bvg.gc.ca/internet/docs/yuk_202205_e.pdf (Accessed September 15, 2023)

Yukon (3/3)

Labour Productivity Growth, Business Sector Industries, 2000 - 2022



Source: Statistics Canada

- From 1998 to 2022, the average annual growth rate of labour productivity in the Yukon was 3.1%. During the same period, the average annual growth rate of labour productivity in Canada was lower than in the Yukon.
- **Yukon's average annual labour productivity growth was the highest among the territories between 2000 and 2022.**

Community Housing and Productivity

Historical Productivity Growth

Labour productivity growth for the business sector industries in the territory fluctuates significantly. In the Yukon, labour productivity growth has been higher in recent years. From 1998 to 2002, labour productivity had an average annual growth rate of 0.9%, which was lower than the average annual growth rate of 6.6% between 2018 and 2022.

Community Housing

Community housing stock as a share of total housing stock in the Yukon is the third highest in Canada, after Nunavut and the Northwest Territories. As outlined on page 34, community housing units make up 10.7% of total housing units, almost double the Canadian share.

Impact on Productivity

As discussed on page 76, we are unable to provide productivity impact results for the territories due to data limitations.

Although the territory has one of the highest percentage of community housing units as a share of total housing units it has one of the highest percentage (9.9%) of households in core housing need in Canada. If households are living in a core housing need their productivity may be negatively impacted through housing, neighborhood, price and rent effects (outlined on page 17).

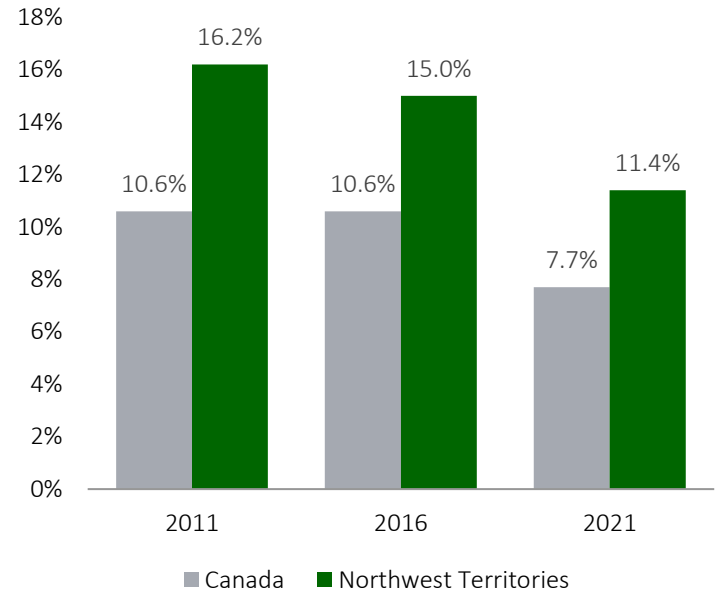
Northwest Territories

Territory Carveout

Northwest Territories (1/3)

The Northwest Territories face the second-greatest reliance on community housing of any Canadian jurisdiction, after Nunavut.

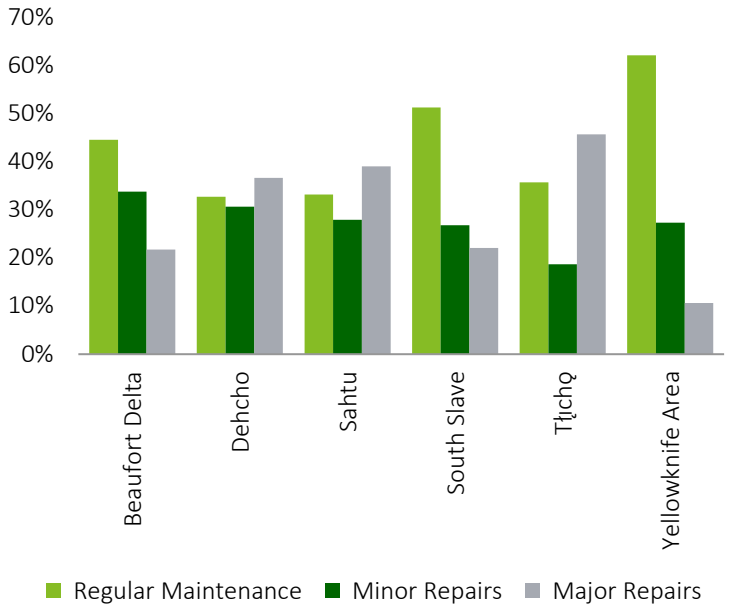
Percentage of Households in Core Housing Need, 2021



Source: Statistics Canada

- Over the past three census, households in the Northwest Territories experienced a higher core housing need compared to the average in Canada.
- Compared to the other territories, the NWT's core housing need falls in between the Yukon and Nunavut.
- In 2021, the core housing need rates were higher for renters (18.4%) compared to owners (6.3%).

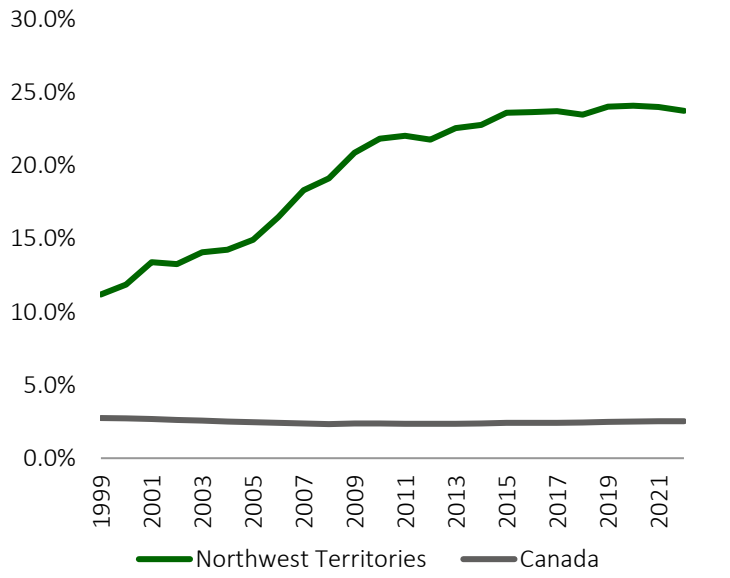
Housing Condition by Community, 2019



Source: Northwest Territories Bureau of Statistics

- The percentage of households needing major and minor repairs vary across the territory. Tłı̨chǫ has the highest rate of dwellings needing major repairs (46%), while Beaufort Delta has the highest rate of dwellings needing minor repairs (34%). This highlights the diverging needs across the territory.

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1999 - 2022



Source: Statistics Canada

- The Northwest Territories took on its current borders in 1999 following its separation from Nunavut. Since then, the dollar value of community housing stock as a share of total housing stock increased.
- However, in recent years the share has remained relatively stagnant.

Northwest Territories (2/3)

Demand Challenges

- Urbanization and an aging population are shaping the demographics of the Northwest Territories. Between 2020 and 2021, while the population of the Northwest Territories fell by 1.7%, the population of Yellowknife grew by 1.5% and now makes up almost one-half of the total population of the territory. Additionally, the senior population has grown steadily over the years. An older population requires a housing stock that can adapt to their needs, and existing housing stock might not be appropriate.[1]

Supply Challenges

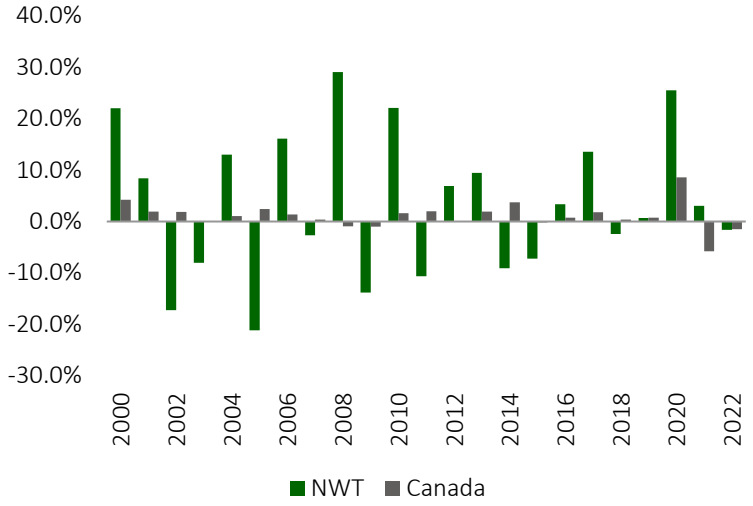
- In the Northwest Territories the public housing supply has not significantly changed in the last 10 years.[2]
- The Northwest Territories faces high construction and maintenance costs, which significantly increased during the COVID-19 pandemic. In 2021, the Northwest Territories Housing Corporation shared that the territory needs $500-600 million to improve the housing conditions of approximately 30,000 households in the territory, almost double the amount needed in 2017.[2] High costs are also driven by a lack of competition between contractors in some communities.[3]
- Additionally, the lack of skilled trades workers, and a tightening labour market impacts the ability to increase supply in the territory.[2,3]
- The funding received from the federal government is tied to population growth. Therefore, since the Northwest Territories is facing slower population growth than other areas such as the Yukon it impacts how much funding they receive to support the housing sector.[3]
- The climate in the North and climate change are also challenges facing new builds and maintenance of existing stock.[3]

As of 2019, 928 people were in the waitlist for public housing in the Northwest Territories.[4]

1. Northern Housing Report. CMHC. 2022. https://assets.cmhc-schl.gc.ca/sites/cmhc/professional/housing-markets-data-and-research/market-reports/northern-housing-report/northern-housing-report-2022-en.pdf?rev=48c601e2-31ad-4428-b4f4-0b90a26919e0&_gl=1*9f18i*_ga*MjgzNjg4NzU3LjE2NzMzNTk5ODE.*_ga_7RT5YEECKK*MTY5NDgwNTg4NS40LjAuMTY5NDgwNTg4NS42MC4wLjA.*_ga_7RE5GWNFTZ*MTY5NDgwNTg4NS43Ny4wLjE2OTQ4MDU4ODUuNjAuMC4w*_gcl_au*NDI5OTkwNjExLjE2OTAzMTA3NDI. (Accessed September 15, 2023)
2. Anna Desmarais. The cost to fix N.W.T.'s housing crisis has just doubled. Experts tell us what should come next. CBC News. April 28, 2021. https://www.cbc.ca/news/canada/north/nwt-housing-deficit-crisis-series-1.6005463#:~:text=The%20amount%20of%20money%20needed%20to%20address%20the,the%20territory%2C%20up%20from%20%24300%20million%20in%202017. (Accessed September 21, 2023)
3. Affordable Housing Challenge & Innovations in the North. The Canadian Housing and Renewal Association. January 2014. https://www.bchousing.org/publications/Affordable-Housing-Challenges-Innovations-North.pdf (Accessed September 21, 2023)
4. Mackenzie Scott. 928 people waiting for public housing in N.W.T. conference hears. CBC News. April 25, 2019. https://www.cbc.ca/news/canada/north/housing-shortage-north-inuvik-1.5110574 (Accessed September 21, 2023)

Northwest Territories (3/3)

Labour Productivity Growth, Business Sector Industries, 2000 - 2022



Source: Statistics Canada

- From 2000 to 2022, the average annual growth rate of labour productivity in the Northwest Territories was 3.4%. During the same period, the average annual growth rate of labour productivity in Canada was lower than in the Northwest Territories.
- **The Northwest Territories' average annual labour productivity growth was lower than the Yukon's but higher than Nunavut's average annual labour productivity growth between 2000 and 2022.**

Community Housing and Productivity

Historical Productivity Growth

Labour productivity growth for business sector industries in the territory fluctuates significantly. The productivity in the territory is sensitive to a few industries such as mining which is a high productivity industry.[1] The Northwest Territories experienced a lower labour productivity average annual growth rate in the early 2000s compared to recent years. The Northwest Territories had an average annual labour productivity growth rate of 5.0% between 2018 and 2022, compared to 3.6% between 2000 and 2003.

Community Housing

Community housing stock as a share of total housing stock in the Northwest Territories is the second highest in Canada, after Nunavut. As outlined on page 34, community housing units make up 12.8% of total housing units, more than double the Canadian share.

Impact on Productivity

As discussed on page 76, we are unable to provide productivity impact results for the territories due to data limitations.

Although the territory has one of the highest percentage of community housing units as a share of total housing units it has one of the highest percentage of households (11.4%) in core housing need in Canada. If households are living in a core housing need their productivity may be impacted through housing, neighborhood, price and rent effects (outlined on page 17).

1. Hours worked and labour productivity in the provinces and territories (preliminary), 2020. Statistics Canada. May 20, 2021. https://www150.statcan.gc.ca/n1/daily-quotidien/210520/dq210520b-eng.htm (Accessed September 25, 2023)

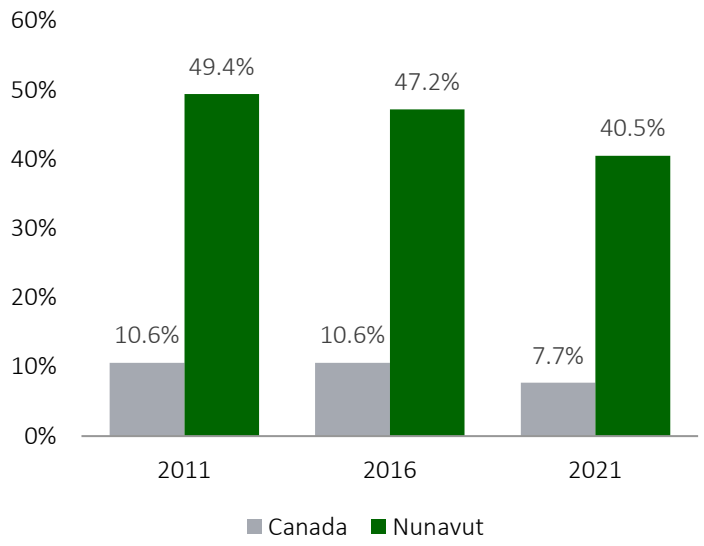
Nunavut

Territory Carveout

Nunavut (1/3)

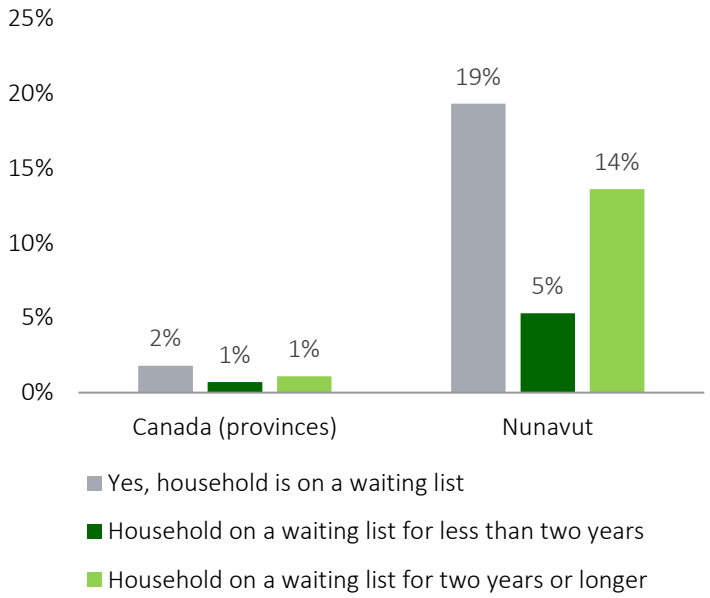
Nunavut has the highest percentage of households in core housing need in 2021 in Canada.

Percentage of Households in Core Housing Need, 2021



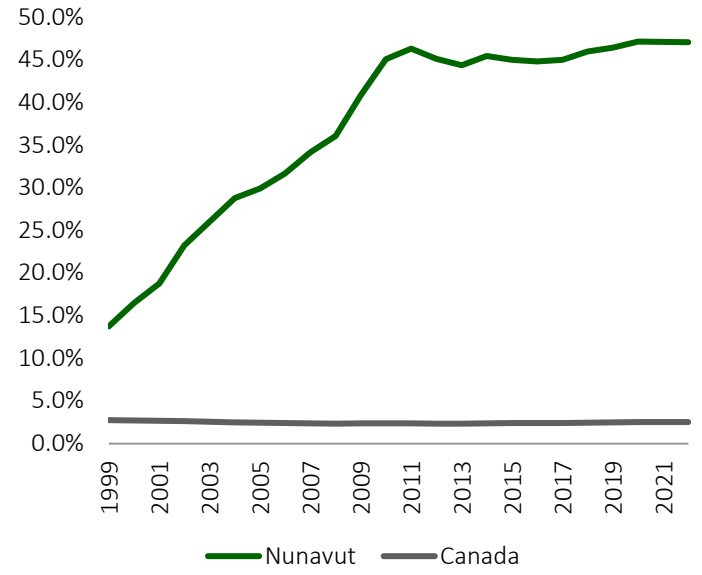
Source: Statistics Canada

Waitlist status, 2018



Source: Statistics Canada

Community Housing Net Stock as a Share of Total Housing Stock Dollar Value, 1999 - 2022



Source: Statistics Canada

- Over the past three census, households in Nunavut experienced a higher core housing need compared to the average in Canada and the highest core housing need rates across the country.
- In 2021, the core housing need rates were higher for renters (45.4%) compared to owners (17.9%).

- The percentage of households on the waitlist for non-market rental housing in Nunavut is significantly higher than the Canadian average (excluding territories).
- A higher percentage of households, 14%, were in the waitlist for two years or longer compared to 5% of households who were in the waitlist for less than two years.

- Nunavut became Canada's third territory in 1999. Between its creation and 2011, the dollar value of community housing stock as a share of total housing stock increased.
- In the last decade, the share has increased slightly but remained relatively stable.

Nunavut (2/3)

Demand Challenges

- Statistics Canada estimates the population of the territory to grow by 25% between 2021 and 2043, the fastest pace of growth in Canada.[1] Nunavut also has the youngest population in Canada, with a median age of 25.6 years. Market affordability is a challenge particularly for the younger population.[2]

Supply Challenges

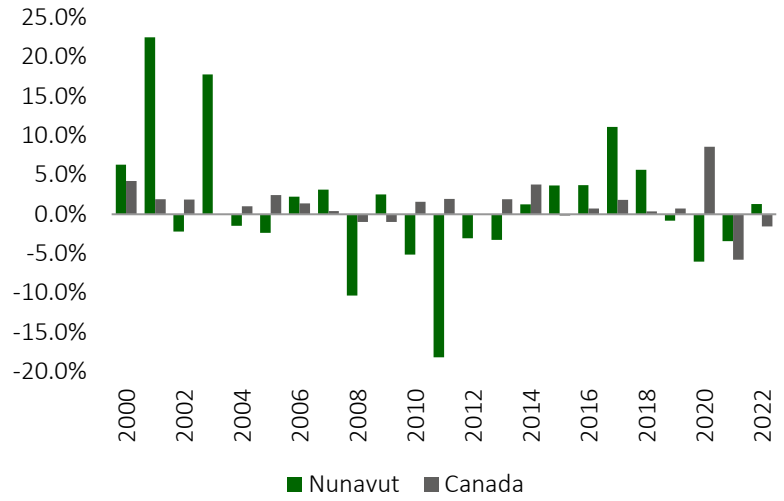
- The region experiences acute housing supply challenges.[3] The territory faces critical gaps in the housing continuum, as there is insufficient diversity in the housing supply which leads to households in public and staff housing with low incomes being unable to shift into the private rental market or ownership.[1]
- The territory is also challenged with overcrowding and aging infrastructure.[1,3] In 2020, an assessment by Nunavut Tunngavik Incorporated revealed that 48% of Nunavut residents lived in housing that is functionally unsuitable, and 35% of households do not have enough bedrooms compared to the national 5% average.[1]
- Nunavut's 25 communities are remote and lack road or rail connections, which means construction materials must be transported on the annual summer sealift or by air,[3] raising costs and increasing timelines for construction and repairs.
- Construction costs in Nunavut are much higher compared to Southern Canada and have risen rapidly.[4] The public procurement for the construction of a five-plex building rose from an average unit price of $379,780 in 2017-18 to $923,447 in 2021-22.[1]
- The cost of operating and upkeeping public housing units is much higher than in Southern Canada. Most of the costs can be attributed to high utility prices with the annual operating cost of one public housing unit approximately $26,000 in 2016.[4]
- Homes must also be built with a minimum standard of materials to ensure that the new units are resilient to the territory's climate and do not depreciate as quickly.[3]

In 2019, approximately 40% of households could not obtain market housing without assistance, and 80% of households 24 years old and younger were unable to affordably secure a market option.[1]

1. IGLULIUQATIGIINGNIQ "Building houses together" NUNAVUT 3000. Nunavut Housing Corporation. https://www.igluliuqatigiingniq.ca/Nunavut3000_PublicPlan_EN_WEB_updated.pdf (Accessed September 21, 2023)
2. Northern Housing Report. CMHC. 2022. https://assets.cmhc-schl.gc.ca/sites/cmhc/professional/housing-markets-data-and-research/market-reports/northern-housing-report/northern-housing-report-2022-en.pdf?rev=48c601e2-31ad-4428-b4f4-0b90a26919e0&_gl=1*9f18i*_ga*MjgzNjg4NzU3LjE2NzMzNTk5ODE.*_ga_7RT5YEECKK*MTY5NDgwNTg4NS40LjAuMTY5NDgwNTg4NS42MC4wLjA.*_ga_7RE5GWNFTZ*MTY5NDgwNTg4NS43Ny4wLjE2OTQ4MDU4ODUuNjAuMC4w*_gcl_au*NDI5OTkwNjExLjE2OTAzMTA3NDI. (Accessed September 15, 2023)
3. Developing community housing Nunavut. CMHC. June 10, 2021. https://www.cmhc-schl.gc.ca/nhs/nhs-project-profiles/2019-nhs-projects/developing-community-housing-nunavut#:~:text=The%20Nunavut%20housing%20crisis%20has,can%20be%20difficult%20to%20acquire. (Accessed September 15, 2023)
4. Nunavut is facing a severe housing crisis. Nunavut Housing Corporation's Appearance before the Standing Senate Committee on Aboriginal Peoples. March 23, 2016. https://assembly.nu.ca/sites/default/files/TD%20158-4(3)%20EN%20Nunavut%20is%20Facing%20a%20Severe%20Housing%20Crisis.pdf (Accessed September 20, 2023)

Nunavut (3/3)

Labour Productivity Growth, Business Sector Industries, 2000 - 2022



Source: Statistics Canada

- From 2000 to 2022, the average annual growth rate of labour productivity in Nunavut was 1.1%. During the same period, the average annual growth rate of labour productivity in Canada was higher than in Nunavut.
- **Nunavut's average annual labour productivity growth was the lowest among the territories between 2000 and 2022.**

Community Housing and Productivity

Historical Productivity Growth

In Nunavut, labour productivity growth was higher in the early 2000s than in recent years. From 2000 to 2004, labour productivity had an average annual growth rate of 8.6%, which was higher than the average annual growth rate of -0.7% between 2018 and 2022.

Community Housing

The housing stock in Nunavut is very different from the rest of Canada. As outlined on page 34, community housing units make up 69.4% of total housing units in Nunavut significantly higher than the rest of Canada and the other territories.

Impact on Productivity

As discussed on page 76, we are unable to provide productivity impact results for the territories due to data limitations.

Additionally, although the territory has a high percentage of community housing units as a share of total housing units it is the territory with the highest percentage of households in core housing need (40.5%). If households are living in a core housing need their productivity may be impacted through housing, neighborhood, price and rent effects (outlined on page 17).

Appendix B

Literature Review

Literature Review |Housing Crisis

Study	Details	Key Takeaways
Housing Shortages in Canada: Solving the Affordability Crisis & Housing Shortages in Canada: Updating how much housing we need by 20230	• The CMHC study calculates the number of housing units that are needed to restore affordability to levels seen in 2003 and 2004. • The study highlights provinces that have the biggest supply gaps. • The study also addresses other risks to housing affordability in the future such as climate change. • The numbers of the June 23, 2022, study were updated on September 13, 2023.	• The study highlights that if Canada maintains current rates of new construction, the housing stock will still be facing a gap to restore affordability to levels seen in 2003 and 2004. • The study outlines that across Canada low-income households are challenged in accessing housing that is affordable.
Canadian Housing Affordability Hurts	• The article compiles key metrics that highlights the housing crisis in Canada. Additionally, it provides additional considerations given current economic conditions. • The article comments on the Government's attempt to alleviate the challenges faced by lower income households, and suggests solutions to alleviate the housing crisis.	• Today's housing numbers (such as core housing need) are likely higher than the numbers illustrated in the 2021 census. The 2021 census was impacted by measures implemented during the COVID-19 pandemic such as pauses in immigration.
Examining Escalating House Prices in Large Canadian Metropolitan Centres	• The study looks at the demand and supply factors that had an impact on home prices in major metropolitan areas since 2010. • Key demand factors outlined include higher disposable income, a growing young-adult population, and mortgage rates. • Key supply factors outlined include a constrained supply of land due to geographical or policy reasons and increase in costs. • The study also outlines global megatrends that impact the housing market including global economic interlinkages, financial flows, technology changes, global environmental challenges, and ageing population.	• The housing crisis is a result of a combination of demand and supply challenges. Each region has their own dynamic and is impacted differently by demand and supply challenges. • Major city centres across Canada saw a rapid increase in home prices between 2010 and 2016.
Discussion Paper: Envisioning a Modernized Social and Affordable Housing Sector in Canada	• The paper outlines the timeline on Canada's community housing sector. It highlights that Canada's social housing sector was created over a period of approximately 50 years, starting in the late 1940s. • The paper highlights that the organizations that own and operate Canada's community housing stock vary from small voluntary boards to sophisticated professional corporations.	• There has been no significant increase in Canada's community housing stock in recent years. Therefore, today's community housing stock is old and insufficient to meet demand of a rising population. • The responsibility for maintenance and day-to-day operation of community housing stock varies across regions and units.

Literature Review |Productivity Challenges

Study	Details	Key Takeaways
Labour Productivity Growth	• The article addresses Canada's labour productivity challenge, and productivity gap between the United States and Canada. • The article lists some potential causes for low productivity such as Canada's culture of business innovation, competitive pressures, level and quality of capital intensity, and policy environment.	• Factors that drive productivity growth can be categorized into firm-specific factors (e.g., human capital and innovation), business and policy environment (e.g., class of worker and size of firm), and global forces (e.g., trade liberalization and world commodity price changes).
It's not about winning but we can't help but notice we're losing (part three): Productivity—why Canada lags behind the US	• The article outlines reasons on why Canada's productivity lags behind the United States. These reasons include that Canadian businesses spend less per worker on capital compared to the United States and Canada has a larger number of small companies.	• Canada's productivity challenges are often attributed to investments in tools and technology, level of skills and education, R&D, and size of companies.
Canada's lagging productivity affects us all – and will take years to remedy	• The article highlights that Canada's GDP per capita ranking has declined over the years, and is expected to further decline. • The article also outlines that Canada is challenged to perform on large-scale infrastructure projects, as Canada's ability to move resources to market costs twice as much as similar projects in Europe.	• Canada's productivity is not expected to improve in the upcoming years. • Canada's infrastructure (i.e., pipelines, transportation, and energy) and health-care system is behind other developed markets and lead to inefficiencies in production.
Canada's productivity performance over the past 20 years	• The article highlights that in 2000 the Canadian workforce was 82% as productive as the US workforce, and by 2020 the percentage dropped to 77%. • Canada's workforce is also less productive than France, Germany, United Kingdom, the European average, and Australia.	• Currently, Canada's productivity is behind other advanced economies. Over the next forty years, the OECD projects that Canada will be the worst performing economy on a per capita basis out of 38 advanced countries, achieving the lowest growth in real GDP per capita.
Interpreting Canada's Productivity Performance in the Past Decade: Lessons from Recent Research	• The research looks at different factors that have impacted productivity performance in the past decade in Canada and the United States. These include: business cycle expansion, labour reallocation and adjustment costs, intensity of R&D relative to GDP, resource prices, and structural aspects of the economy (industry mix, size of local markets, average firm size, quality of public infrastructure).	• There are several factors that impact productivity. Canada lags the United States in many of these factors. However, there are still many hypothesis that need to be explored to understand what factors are impacting Canada's productivity.
What affects MFP in the long run? Evidence from Canadian industries	• The paper studies industry-specific variables as potential long-run determinants of MFP. These include: ICT capital services, R&D intensity, public infrastructure, outsourcing, global trade openness and markup.	• The results of the paper suggest that ICT capital, outsourcing and global trade openness have a statistically significant positive effect on MFP. However, the results are limited to the small sample size in the cross-sectional dimension.

Literature Review |Housing and Productivity (1/2)

Study	Details	Key Takeaways
Economic Impacts and Social Investments in Social Housing	• The study looks at the impact of social housing in reducing crime, risk of food insecurity, prevalence of diabetes and stress, and promotion of overall better health. • Through a Computable General Equilibrium (CGE) model the researchers modeled the impact of investing in social housing in Quebec by examining its effects on GDP. • The study highlights the impact of social housing in reducing poverty with a focus on the senior population of Quebec.	• The study highlights that social housing has a more significant impact economically and socially than cash transfers. • Canadian studies have used social housing to demonstrate the benefits of investing in affordable housing.

The Economic Case for Investing in Social & Affordable Housing	• The study measures the social and affordable housing gap and the investment needed to fill the gap.
	• The study qualitatively lists the economic impacts of an increase in social and affordable housing supply, this includes increase in productivity, avoidable public costs, reduction in homelessness, improvements in mental and physical health.
	• The study looks at ways of funding the housing gap.
		• The study lists links between social and affordable housing and productivity from previous studies. These include:
		  • High entry costs to the property market encourage individuals to live further from centres of employment.
		  • Unaffordable housing impairs labour market opportunities which reduce lifetime incomes and increases commuting cost effects.
		  • Unaffordable housing leads to the underutilisation of human capital, especially at younger years.
		• The study also highlights the opportunity cost from channeling debt-fueled investment via higher rents and mortgage payments into a housing stock (an asset unproductive in terms of employment generation, which can reduce economic growth).

How the 'housing theory of everything' explains Canada's many converging crises	• The article outlines how the Canada and U.S. economic productivity gap is getting wider, and high housing costs play an understated part in this trend. Workers are pushed out of areas where high-wage jobs are concentrated and are limited in their ability to accrue social capital. • Moreover, high housing costs will crowd out non-residential investment. • The article also highlights impacts in wealth inequality and climate change.	• Although the Canadian housing crisis has been heavily covered and analyzed, the impact of housing on other key challenges to Canada such as productivity, climate, and growth is not highlighted. • Researchers and reporters are beginning to explore qualitatively the link between productivity and housing in Canada.
The Housing Theory of Everything	• The housing affordability problem has gotten much worse over the past decades, coinciding with the growth of the intangible economy. • People work in less productive jobs than they could if it was cheaper for them to move to more productive places. Housing affordability also impacts innovation, inequality, regional inequality, family size, health, and climate change.	• A study has looked at the impact of spatial misallocation of workers (due to higher housing costs) through a spatial equilibrium model to measure the impact on growth. In particular, they look at the impact of relaxing land use restriction on the growth rate of aggregate output in the United States.

Literature Review |Housing and Productivity (2/2)

Study	Details	Key Takeaways

Making Better Economic Cases for Housing Policies	• The study lists links between affordable housing and productivity. These include:
	  • Impacts to the thickness of labour market.
	  • Labour mobility and potential exits to the labour market.
	  • Housing as an essential economic infrastructure good.
	  • Housing, neighbourhood, and emergent spatial structural effects. Including potential impacts to health.
	  • Price and rent effects.
	  • Seniors working longer due to high costs of housing.
		• The report presents a new angle for advocates to promote affordable housing. The report is comprehensive and looks at the impact of housing in development, consumption, human capital acquisition, labour markets, and business activity.
		• The study lists qualitative links between affordable housing and productivity.

Making Connections: Housing, Productivity and Economic Development	• The study seeks to identify the key housing issues that affect economic development in a region. • The study outlines how housing can be viewed as economic infrastructure good rather than a social service. • The study looks at the relationship between housing affordability and transportation.	• The study highlights that the housing sector should learn from other sectors when building a case to compete for public funds. • The study looks qualitatively at how housing impacts economic performance, human capital channels, business capital and innovation channels.
Housing affordability, central city economic productivity and the lower income labour market	• The study looks at how housing can impact labour market thickness, labour specialization and shortages. • The research aims to understand how supply of affordable housing for lower income workers near job-rich central cities have an impact on businesses and overall productivity. The research focuses on five of Australia's key metropolitan areas.	• The study provides qualitative evidence for the connection of labour productivity and affordable housing, expanding on the impact to labour market thickness, labour specialization and shortages.
Housing and Productivity: All or Nothing at All?	• The study looks at the relationship between productivity and housing through multiple channels (i.e., house prices impact housing choices and in turn capabilities and productivity). • The study highlights that major metropolitan cities which were thought to benefit from agglomeration economies are now being challenged with an increase in costs. These costs are leading households to relocate away from innovative city centres limiting productivity growth potential.	• The study brings attention to productivity challenges in advanced economies, and leading metropolitan areas. It highlights that housing and productivity are an underappreciated linkage that they qualitatively argue have led to an under-investment in the provision of housing. • The report also highlights several questions that need to be further studied to understand the linkage between productivity and housing.
How does the housing market affect UK productivity?	• The article highlights the impact of housing on skill matching, the formation of human capital, and capital allocation.	• The article compiles many qualitative studies that look at the link between the housing market and productivity under a UK lens. It also highlights how the COVID-19 pandemic impacted worker choices and productivity.

Appendix C

Methodology Deep Dive

Growth Accounting Framework (1/4)

The production function approach to decomposing MFP aims to quantify the link between community housing and productivity growth.

Multifactor productivity (MFP) reflects the overall efficiency that labour and capital inputs are used together in the production process. In other words, it is the growth in gross domestic product (GDP) that cannot be explained by growth in labour or capital**.**

To analyze the impact of community housing on MFP, the method used in this report replicates the methodology that is employed by Gu and Macdonald in the 2009 paper "The Impact of Public Infrastructure on Canadian Multifactor Productivity Estimates".[1]

A growth accounting framework is used to examine the impact of community housing on productivity. The traditional growth accounting framework analyzes changes in GDP by separating them into three parts: those resulting from changes in labour, changes in capital, and the residual known as MFP. To examine the impact of community housing, changes in MFP were broken down into contribution from community housing and from other factors such as technology and public infrastructure. These other contributing factors are defined as MFP* which represents MFP net of the contribution of the community housing stock (as seen in equation 1).

$$\Delta \ln MFP_t^* = \Delta \ln GDP_t - \beta_L \Delta \ln L_t - \beta_K \Delta \ln K_t - \beta_H \Delta \ln H_t \quad (1)$$

Data

- Data for GDP, MFP, labour, capital, and hours worked is available from Statistics Canada table 36-10-0208-01 (Retrieved August 9th, 2023).
- Community housing stock is available from Statistics Canada table 36-10-0677-01 (Retrieved September 19th, 2023).

Assumptions

- The method assumes that the community housing's impact is constant over time (i.e., a fixed rate of return).
- The method implicitly assumes that community housing affects output growth, but not the share of income earned by labour and capital.
- The output elasticities of private capital and labour are generated under the traditional assumptions: markets are competitive, inputs are paid their marginal revenue product, and the business sector production function exhibits constant returns to scale.
- Literature is used to derive the rate of return of community housing. The conservative approach uses the rate of return of social housing in the United Kingdom based on a study done by the Impact Investing Institute.[2]

Estimating Elasticities

Labour and Capital

The elasticity of labour is estimated as labour's contribution to GDP from Statistics Canada's "Productivity Measures and Related Variables". The elasticity of capital is estimated as one minus labour's share.

To calculate MFP* we use an average of elasticity of capital and labour over the time. Please see page 97 for an alternative specification using time-varying betas for the MFP* calculation.

1. Wulong Gu and Ryan MacDonald. The Impact of Public Infrastructure on Canadian Multifactor Productivity Estimates. Statistics Canada. January 2009. https://www150.statcan.gc.ca/n1/pub/15-206-x/15-206-x2008021-eng.pdf (Accessed August 15, 2023)
2. Nick Colley and Jane Fear. Is there an investment case for social and affordable housing in the UK? Impact Investing Institute. October 2021. https://www.impactinvest.org.uk/wp-content/uploads/2023/02/Is-there-an-investment-case-for-social-and-affordable-housing-in-the-UK.pdf?_gl=1*1hwr92x*_up*MQ..*_ga*MTU1MTQ4OTc4Ni4xNjk0NDM2MDkx*_ga_SGZH7ZJGJZ*MTY5NDQzNjA4OC4xLjAuMTY5NDQzNjA4OC4wLjAuMA. (Accessed August 18, 2023)

Growth Accounting Framework (2/4)

To complete the production function approach, we need to estimate the elasticity on community housing.

Estimating Elasticities

Community Housing

Cost functions consider the decision-making processes made when selecting inputs for production. Traditionally, companies minimize costs over private capital and labour, and take other variables as given. Community housing can be viewed as an unpaid factor that is assumed to affect the total cost curve.

The user cost of capital formula is used to calculate the elasticity of community housing. In Macdonald's 2008 paper "An Examination of Public Capital's Role in Production" the user cost of capital formula is the preferred method used to find the rate of return on public capital.[1] Cost functions are viewed by many economics as a better way to estimate the impact of public capital than the production function approach, and so we use the same methodology to estimate the impact of community housing.[1]

To find the elasticity of community housing, the relationship between cost of capital and marginal revenue is used (as described by the user cost of capital formula, as seen in equation 2). The depreciation rate, nominal business sector GDP, nominal value of the stock of community housing is obtained from data. The rate of return of community housing is obtained from literature.

$$\beta_h = (r_h + \delta_h) \,/\, (\frac{P_y Y}{P_h H}) \quad (2)$$

$$where\ \delta_h\ is\ depreciation\ of\ housing\ based\ on\ data$$
$$r_h is\ the\ rate\ of\ return\ of\ community\ housing\ based\ on\ literature$$
$$P_y Y\ is\ nominal\ business\ sector\ GDP\ based\ on\ data$$
$$P_h H\ is\ nominal\ value\ of\ the\ stock\ of\ community\ housing\ based\ on\ data$$

Calculations

1. MFP* is estimated which is MFP net of community's housing contribution to output growth (as seen in equation 1). The relationship between MFP as reported by Statistics Canada and MFP* is then calculated (as seen in equation 3).

$$\Delta \ln MFP_t^* = \Delta \ln GDP_t - \beta_L \Delta \ln L_t - \beta_K \Delta \ln K_t - \beta_H \Delta \ln H_t \quad (1)$$

$$\Delta \ln MFP_t = \Delta \ln MFP_t^* + \beta_H \Delta \ln H_t \quad (3)$$

2. Labour productivity is decomposed to report on community's housing impact on productivity growth (as seen in equation 4). MFP can be further decomposed to demonstrate the impact of community housing on labour productivity by substituting equation 3 into the MFP term in equation 4.

$$\Delta \ln(\frac{GDP_t}{Hours_t}) = \Delta \ln MFP_t + \beta_L \Delta \ln \left(\frac{L_t}{Hours_t}\right) + \beta_k \Delta ln \left(\frac{K_t}{Hours_t}\right) \quad (4)$$

Limitations

- Decomposing labour productivity identifies the sources of changes in productivity over time by quantifying the contributions of different factors. It is a descriptive tool, and as such does not necessarily confirm whether changes in labour productivity was due to changes in the stock of community housing. In other words, this approach establishes correlation between community housing and productivity, but does not allow us to establish a directional causal relationship which requires regression analysis.

1. Ryan MacDonald. An Examination of Public Capital's Role in Production. Statistics Canada. April 2008. https://www150.statcan.gc.ca/n1/en/pub/11f0027m/11f0027m2008050-eng.pdf?st=cXzBFJvG (Accessed August 15, 2023)

Growth Accounting Framework (3/4)

Alternative specifications were considered for the growth accounting framework.

Alternative Specifications

Different Rates of Return

The impact of community housing is derived from the rate of return from literature. The true rate of return likely lies within a range of the estimates derived. To address uncertainty surrounding the true rate of return, a sensitivity analysis is performed to gauge the robustness of the results to alternate estimates of the rate of return. The elasticity of community housing is calculated using the average of Government of Canada 10-year bond rate over the data available for that period, and the mean return on housing in Canada post WWWII. The results are displayed on the next page.

Time-Varying Elasticity of Capital and Labour

In our base results we assumed the elasticity of labour and capital remained constant overtime. We also re-estimated the estimates of MFP* using time-varying elasticity estimates for capital and labour (i.e., labour's contribution to GDP for each respective year). The elasticity of labour declines over time, beginning in a high of 0.62 in 1961 and reaching a low of 0.58 in 2021. On the other hand, the elasticity of capital increases over time, beginning in a low of 0.38 in 1961 and reaching a high of 0.42 in 2021.

With a time-varying elasticity estimate for capital and labour, community housing accounts for approximately 2.4% of the conventional MFP between 1962 and 2021 (about half of our base scenario). The largest difference is found in years between 1962 and 1993.

However, using a time-varying elasticity does not account for the fact that changes in labour composition, capital deepening, and productivity impact GDP over a period. Therefore, a constant elasticity might be more appropriate to describe the relationship. Furthermore, in Wulong and Macdonald's paper constant elasticities are used for the main scenario.[1]

Ownership Transfer Costs

The dataset obtained from Statistics Canada includes investment and depreciation for new construction, renovation, and ownership transfer costs when calculating net stock. Investment in ownership transfer cost is depreciated in one year. Statistics Canada described transfer costs as being made up of four components: real estate commissions, land transfer taxes, survey and inspection fees, and legal fees.

We observed that investment in transfer costs increased overtime. Therefore, to avoid a potential overestimation of community housing net stock, we calculate net stock excluding ownership transfer costs. To do this, we re-calculate depreciation net of depreciation of ownership transfer costs and calculate net stock net of investment in ownership transfer costs.

The difference between the calculated community housing net stock net of ownership transfer costs and the net stock calculated by Statistics Canada is on average -0.1% during the period. The difference is minimal in the first 10 years and increases in more recent years.

Given the small difference between both time series the choice of stock estimates (with or without ownership transfer costs), the specification does not have a notable difference on the results, and we chose to use Statistics Canada's time series for the model as that aligns with the publicly available data series.

1. Wulong Gu and Ryan Macdonald. The Impact of Public Infrastructure on Canadian Multifactor Productivity Estimates. Statistics Canada. January 2009. https://www150.statcan.gc.ca/n1/pub/15-206-x/15-206-x2008021-eng.pdf (Accessed August 15, 2023)

Growth Accounting Framework (4/4)

The results of our analysis remain largely unaffected by the sensitivity test.

To account for the uncertainty in the true rate of return, the sensitivity of the results to different returns on housing is examined. Three different betas are calculated based on various rates of returns from literature analyzed. The high estimate is calculated using the rate of return from the real mean return on housing in Canada post WWWII (1950-2015). The medium estimate is calculated using the Government of Canada 10-year bond rate average for the available period (1982-2021). The low estimate which is used in our main results table is calculated using the rate of return calculated from a UK study on the total return of social/affordable rent. As observed below the results of our analysis remain largely unaffected by the different betas.

		1962 to 2021	1962 to 1993	1994 to 2021
Community Housing Contribution	High Beta = 0.00284	0.022	0.057	-0.019
	Medium Beta = 0.00232	0.020	0.055	-0.020
	Low Beta = 0.00197	**0.019**	**0.054**	**-0.020**
Multifactor Productivity*	High Beta = 0.00284	0.392	0.551	0.209
	Medium Beta = 0.00232	0.393	0.553	0.210
	Low Beta = 0.00197	**0.394**	**0.554**	**0.211**
Community Housing Contribution as a share of MFP	High Beta = 0.00284	5.25%	9.38%	-9.79%
	Medium Beta = 0.00232	4.90%	9.09%	-10.35%
	Low Beta = 0.00197	**4.70%**	**8.90%**	**-10.56%**

Regression Analysis (1/8)

In addition to the growth accounting approach, we use a regression analysis to establish a causal relationship between community housing and productivity. We provide methodological details about the approach in the following slides.

Approach

Regression analysis is a statistical method used to analyze the relationship between two or more variables. The goal is to see if there is a relationship between the variables and to determine the strength and direction of that relationship.

A correctly specified regression model, based on the appropriate theoretical relationship between variables, can prove causality.

Our primary results reported in the paper are based on an ordinary least squares (OLS) regression. The goal of OLS regression is to find the line of best fit that minimizes the sum of the squared differences between the predicted values and the actual values of the dependent variable.

This line of best fit is determined by calculating the slope and intercept of the line that best fits the data. The slope represents the change in the dependent variable for each unit change in the independent variable, while the intercept represents the value of the dependent variable when the independent variable is zero.

OLS regression is commonly used in many fields, including economics, social sciences, and engineering. It is a powerful tool for predicting the value of a dependent variable based on one or more independent variables.

In the process of preparing this research, we tested a variety of alternative approaches. We discuss why we rules out these approaches in the following pages.

Assumptions

In order for OLS to be the best linear unbiased estimator, there are a number of assumptions that must be met:

1. Linearity: The relationship between the dependent variable and the independent variables should be linear.
2. Independence: The observations should be independent of each other. This means that the value of one observation should not be influenced by the value of another observation.
3. Homoscedasticity: The variance of the errors should be constant across all levels of the independent variables. In other words, the spread of the residuals should be the same for all values of the independent variables.
4. Normality: The errors (residuals) should be normally distributed. This means that the distribution of the residuals should be symmetric around zero.
5. No multicollinearity: The independent variables should not be highly correlated with each other. This means that there should not be a linear relationship between any two independent variables.

If these conditions are met, then OLS is the best linear unbiased estimator. However, if these assumptions are violated, then OLS may not be the best estimator and alternative methods may need to be used.

In the following pages we discuss how we ensure these conditions are met.

1. Wulong Gu and Ryan MacDonald. The Impact of Public Infrastructure on Canadian Multifactor Productivity Estimates. Statistics Canada. January 2009. https://www150.statcan.gc.ca/n1/pub/15-206-x/15-206-x2008021-eng.pdf (Accessed August 15, 2023)
2. Nick Colley and Jane Fear. Is there an investment case for social and affordable housing in the UK? Impact Investing Institute. October 2021. https://www.impactinvest.org.uk/wp-content/uploads/2023/02/Is-there-an-investment-case-for-social-and-affordable-housing-in-the-UK.pdf?_gl=1*1hwr92x*_up*MQ..*_ga*MTU1MTQ4OTc4Ni4xNjk0NDM2MDkx*_ga_SGZH7ZJGJZ*MTY5NDQzNjA4OC4xLjAuMTY5NDQzNjA4OC4wLjAuMA. (Accessed August 18, 2023)

Regression Analysis (2/8)

We are interested in modelling the relationship between the stock of community housing and multifactor productivity in Canada. Below we list the variables used.

Dependent variable: Multifactor productivity
Primary explanatory variable: Community housing stock as a share of the total Canadian housing stock

Selection of other independent variables

Our variable selection is based on past literature examining productivity in Canada. In particular, the following three papers provided:

1. Leung and Zheng (2008), *What Affects MFP in the Long Run? Evidence From Canadian Industries*
2. Loertscher and Pujolas (2023), *Canadian Productivity Growth: Stuck in the Oil Sands*
3. Dion (2007), *Interpreting Canada's Productivity Performance in the Past Decade: Lessons from Recent Research*

Data sources

- **Multifactor productivity**: Index. From Statistics Canada tables 36-10-0208-01 (Retrieved August 9th, 2023) and 36-10-0211-01 (Retrieved August 25th, 2023).
- **Community housing**: We use the share of the total housing stock that is community housing (which Statistics Canada calls social housing). Share calculated based on current dollars series from Statistics Canada table 36-10-0677-01 (Retrieved September 19th, 2023).
- **Public infrastructure and certain types of private infrastructure which act as semi-public infrastructure**: In theory, public infrastructure should be a major factor boosting productivity. Defined as total stock of institutional buildings, marine engineering infrastructure, transportation engineering infrastructure, waterworks infrastructure, sewage infrastructure, communication networks, and electric power infrastructure. Calculated from Statistics Canada table 36-10-0608-01 (Retrieved October 10th, 2023).
- **Research and development intensity**: Gross domestic spending on research and development as a share of GDP. Only available at national level. Calculated from Statistics Canada table 27-10-0273-01 and 36-10-0222-01.
- **Raw materials price index**: Only available at national level. From Statistics Canada table 18-10-0268-01 (Retrieved September 22nd, 2023).
- **Markup ratio**: Ratio of gross output to capital and labour cost inputs. Proxy for degree of competition. Only available at the national level. Calculated from Statistics Canada table 36-10-0217-01 (Retrieved September 25th, 2023).
- **Capital input of information and communication technologies**: Only available at national level. From Statistics Canada table 36-10-0208-01 (Retrieved September 25th, 2023).
- **Firm size:** Percentage of all firms in each jurisdiction employing 100 or more employees. Unfortunately, this is likely a poor measure of firm size, and is only available from 2000 onwards, so we omitted it from our main specifications. Calculated from Statistics Canada table 33-10-0088-01 (Retrieved September 25th, 2023).
- **Outsourcing index**: Defined as the ratio of intermediate input costs to nominal gross output. The series for the education industry only begin in 1997 so it is omitted from this calculation. Only available at national level. Calculated from Statistics Canada table 36-10-0217-01 (Retrieved September 22nd, 2023).
- **Global trade openness**: Defined as the sum of nominal world imports plus exports divided by world output. This purely exogenous variable likely captures several facets of globalization such as offshoring and the FDI stock. Only available for advanced economies (hence the suffix _adv). Calculated from IMF data (Retrieved September 22nd, 2023).

Regression Analysis (3/8)

Once we had our data, we had to address a number of econometric issues, which are discussed on this page.

Data Sources (continued):

- **Real GDP**: Index of real GDP in the business sector. From Statistics Canada table 36-10-0211-01 (Retrieved August 9th, 2023).
- **Population share**: Share of Canadian population in each province. Needed for panel estimation or else results will weight all provinces equally. Calculated from Statistics Canada table 17-10-0005-01 (Retrieved September 22nd, 2023).

Non-stationarity

Unit root tests indicate that both our dependent variable (productivity) and our main explanatory variable (community housing stock) are non-stationary. This violates one of the key assumptions required for regression analysis. Typically, correcting non-stationarity would involve taking the difference of our series. Unfortunately, our community housing stock series is also non-stationary in its first difference. Instead of using the dollar value of the community housing stock, we therefore use the share of total housing which is community housing. This measure is much more weakly stationary and is non-stationary in its first difference. An alternative to differencing data while still addressing unit roots in time series data is to include an autoregressive (AR) term which is deployed in several of our tested specifications.

Linearity

We expect that the relationship is likely to be logarithmic, so we use logs to transform both sides of the equation so that we can use OLS. We are therefore assuming that the link between community housing and productivity is one where a percentage change on the explanatory variable produces some other percentage change in the dependent variable.

Timing of measurement

Housing stock variable is measured on December 31 of each year. Because we are interested in causality flowing from community housing to productivity, we therefore can not use same-year measurements for the dependent and explanatory variables, because the explanatory variable is "occurring" after the dependent variable in time. We therefore must use the first lag of the explanatory variable, which represents the stock of community housing available on January 1st of the year in which the dependent variable is measured.

Sample size

Unfortunately, some of the controls above are only available for limited time periods. In particular, global trade openness is only available from 1997 onwards, and firm size is only available from 2000 onwards. We therefore omit these variables from our main results so that we can use as large of a sample as possible.

Provincial results

Although many of our control variables are only available at the national level, our dependent and key explanatory variable are available at the provincial level, and we had initially hoped to be able to report individual results for each province using this data. We did make attempts to produce these individual provincial results using a multiplicative fixed effects model as well as individual regressions for each province. However, the results from these regressions were often statistically insignificant and some of the coefficients had the wrong signs. We are therefore, only able to report a single coefficient representing a Canadian average from our provincial fixed effects panel. The results from our provincial panel data are very similar to our national results despite using two different data sets, lending confidence to the results.

Regression Analysis (4/8)

Before settling on our final approach, we explored a number of alternative approaches which we ruled out.

Vector Autoregression

- Based on past research in this area, we first tried a VAR approach. We tried a few VAR specifications, but we didn't have enough confidence to present the results of this model for a few reasons:
    - Determining a specification was difficult. Not all control variables could be included due to limited number of observations available for estimation. Depending on the variables included, lag order selection criteria recommended lags ranging from 1 to 3 (where only 1 lag is recommended, it suggests VAR is misspecified).
    - VAR output is sensitive to the ordering of the variables. Selection of ordering should be done in descending order of causality, which can be checked with a Granger causality test. However, Granger causality tests resulted in poor causality links between MFP and most of the variables theoretically indicated to influence MFP. As a result, we were not confident in selecting a specification of VAR.
    - VAR results are not as easy to interpret numerically. Since the goal of the regressions is to be able to speak about numerical results, this was problematic.

Multiplicative fixed effects

- Going into the econometrics, we ideally wanted to be able to generate estimates of different slopes for each province so that we could talk about differences in the relationship between social housing and productivity in each province.
- We did try estimating a model with multiplicative fixed effects, which would have allowed us to do this. However, the results were not significant for many provinces, and the coefficients did not make economic sense.

Random effects

- We tried a random effects model in our panel data. However, a Hausman test where the null hypothesis is that the preferred model is random effects resulted in rejection of the null with high probability. This indicated that the correct specification for the data was fixed effects, not random effects.
- We do run a panel model with fixed effects and present it as a check on our main results. However, the panel fixed effect regression returns incorrect signs on the coefficients on some controls, and we were unable to get all signs correct by changing the group of controls. Because of this we were not comfortable presenting it as our main results.

Regression Analysis (5/8)

Finally, there were a number of considerations in finalizing our OLS approach.

- The dependent variable MFP is measured as an index where 2012 = 100 in each area where it is measured. This is not a problem at the national level; however, it restricts the functional forms we can use in panels at the provincial level because the levels are not comparable between provinces. This can be addressed by using logs or dlogs, because the percentage change is still comparable between provinces.
- After a data correction from Statistics Canada, the series for the social housing stock, our explanatory variable of interest, is non-stationary in both levels and in 1st differences. We therefore use shares of social housing stock (as a percentage of total housing stock) because they are much more weakly non-stationary in levels and their 1st difference is stationary.
- The social housing stock series for a given year is measured on December 31 of that year. Because we are interested in a causal relationship of social housing on productivity, we need to do all of our regressions on the first lag of social housing, which corresponds to the social housing stock available at the beginning of the year where we measure the dependent variable.
- We had to be careful in selecting our controls. As mentioned earlier, our controls were largely informed by prior research by the Bank of Canada. We did test specifications including all controls indicated by the literature. However, some of the controls are only available over a limited time period and including them would have restricted our sample significantly. We therefore present different specifications omitting or including these sample-restricted variables. Results are similar across all specifications and samples.
- One of the controls we experimented with is GDP, which is closely related to gross value added, from which our dependent variable is derived. We found the results for our other variables were often much better when GDP was included as a control. However, as multifactor productivity is calculated essentially as a residual of GDP, we did not feel comfortable publishing results with GDP as a control. We tried several proxies for GDP (the unemployment rate; the employment rate; the capacity utilization rate; public sector GDP; and a dummy variable for recessions), but these did not produce better results than omitting GDP entirely. When GDP was included as a control, the coefficient estimates on our main explanatory variable fell slightly, ranging between 0.05 and 0.21. Again, because GDP is used to calculate MFP, we do not believe that the reduced size of the coefficients when including it is a meaningful downside risk to our analysis.

List of specifications presented in report

Regression	1	2	3	4	5
Dataset	Time series	Time series	Time series	Panel	Panel
Other Controls	Raw material prices, research and development, outsourcing, competition, information technology	Commodity prices, research and development, outsourcing, competition information technology	Raw material prices, research and development, outsourcing, global trade openness, public infrastructure, competition	Population share, AR(1)	Raw material prices, research and development, outsourcing, public infrastructure, competition, information technology, population share, AR(1)

Regression Analysis (6/8)

Results from three OLS specifications presented here.

1

Dependent Variable: DLOG(MFP CA)
Method: Least Squares
Date: 10/06/23 Time: 16:35
Sample (adjusted): 1982 2019
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002324	0.003379	0.687744	0.4967
DLOG(HSK SHARE CA(-1))	0.341828	0.138298	2.471666	0.0191
DLOG(RMPI CA)	0.014166	0.023747	0.596543	0.5551
DLOG(RDI CA)	0.032143	0.057246	0.561496	0.5785
DLOG(OS CA)	0.449629	0.267114	1.683285	0.1024
DLOG(MARKUP CA)	0.230906	0.115490	1.999356	0.0544
DLOG(ICT CA)	0.003600	0.033776	0.106573	0.9158

R-squared	0.533858	Mean dependent var	0.001837
Adjusted R-squared	0.443637	S.D. dependent var	0.014932
S.E. of regression	0.011138	Akaike info criterion	-5.992081
Sum squared resid	0.003846	Schwarz criterion	-5.690421
Log likelihood	120.8495	Hannan-Quinn criter.	-5.884753
F-statistic	5.917228	Durbin-Watson stat	1.671866
Prob(F-statistic)	0.000333		

2

Dependent Variable: DLOG(MFP CA)
Method: Least Squares
Date: 09/28/23 Time: 12:55
Sample (adjusted): 1973 2019
Included observations: 47 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004441	0.003759	-1.181439	0.2444
DLOG(HSK SHARE CA(-1))	0.313264	0.147742	2.120349	0.0402
DLOG(BCPI CA)	-0.019879	0.020691	-0.960785	0.3424
DLOG(ICT CA)	0.084767	0.035461	2.390431	0.0216
DLOG(RDI CA NEW)	-0.081288	0.057407	-1.416003	0.1645
DLOG(OS CA)	0.079164	0.271517	0.291563	0.7721
DLOG(MARKUP CA)	0.174997	0.123081	1.421801	0.1628

R-squared	0.276667	Mean dependent var	0.001974
Adjusted R-squared	0.168167	S.D. dependent var	0.015474
S.E. of regression	0.014113	Akaike info criterion	-5.546859
Sum squared resid	0.007967	Schwarz criterion	-5.271305
Log likelihood	137.3512	Hannan-Quinn criter.	-5.443166
F-statistic	2.549925	Durbin-Watson stat	1.301793
Prob(F-statistic)	0.034756		

3

Dependent Variable: DLOG(MFP CA)
Method: Least Squares
Date: 10/06/23 Time: 17:08
Sample (adjusted): 1997 2019
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016341	0.006562	2.490330	0.0250
DLOG(HSK SHARE CA(-1))	0.306657	0.185876	1.649793	0.1198
DLOG(RMPI CA)	0.063552	0.048941	1.298535	0.2137
DLOG(RDI CA)	-0.114761	0.106395	-1.078638	0.2978
DLOG(OS CA)	0.642439	0.367758	1.746907	0.1011
DLOG(GTO ADV)	-0.128430	0.109739	-1.170326	0.2601
DLOG(INFRA CA)	-0.477480	0.211713	-2.255316	0.0395
DLOG(MARKUP CA)	0.188525	0.148077	1.273157	0.2223

R-squared	0.642563	Mean dependent var	0.002243
Adjusted R-squared	0.475759	S.D. dependent var	0.013995
S.E. of regression	0.010133	Akaike info criterion	-6.077810
Sum squared resid	0.001540	Schwarz criterion	-5.682856
Log likelihood	77.89482	Hannan-Quinn criter.	-5.978480
F-statistic	3.852205	Durbin-Watson stat	1.852701
Prob(F-statistic)	0.013522		

Regression Analysis (7/8)

Results from two panel specifications presented here.

4

Dependent Variable: LOG(MFP)
Method: Panel Least Squares
Date: 10/06/23 Time: 16:58
Sample (adjusted): 1999 2021
Periods included: 23
Cross-sections included: 10
Total panel (balanced) observations: 230
Convergence achieved after 8 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.575748	0.439703	10.40645	0.0000
LOG(HSK SHARE (-1))	0.206000	0.060624	3.397993	0.0008
POP SHARE	-1.023503	4.359318	-0.234785	0.8146
AR(1)	0.879862	0.032606	26.98446	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.824662	Mean dependent var	4.641730
Adjusted R-squared	0.814966	S.D. dependent var	0.068618
S.E. of regression	0.029516	Akaike info criterion	-4.152886
Sum squared resid	0.189053	Schwarz criterion	-3.958560
Log likelihood	490.5819	Hannan-Quinn criter.	-4.074499
F-statistic	85.05102	Durbin-Watson stat	1.696676
Prob(F-statistic)	0.000000		

Inverted AR Roots .88

Dependent Variable: LOG(MFP_)
Method: Panel Least Squares
Date: 09/28/23 Time: 16:28
Sample (adjusted): 1999 2019
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 210
Convergence achieved after 11 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.826485	0.654203	10.43481	0.0000
LOG(HSK_SHARE_(-1))	0.215150	0.060500	3.556220	0.0005
LOG(RMPI_CA)	-0.011032	0.029710	-0.371329	0.7108
LOG(RDI_CA)	-0.156451	0.076216	-2.052723	0.0415
LOG(OS_CA)	-0.168535	0.329670	-0.511224	0.6098
LOG(INFRA_)	-0.248895	0.049819	-4.996001	0.0000
LOG(MARKUP_CA)	0.235586	0.138181	1.704911	0.0898
POP_SHARE_	0.638062	3.683168	0.173237	0.8626
AR(1)	0.835682	0.033129	25.22487	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.850178	Mean dependent var	4.642434
Adjusted R-squared	0.836913	S.D. dependent var	0.068431
S.E. of regression	0.027635	Akaike info criterion	-4.257642
Sum squared resid	0.146630	Schwarz criterion	-3.970747
Log likelihood	465.0524	Hannan-Quinn criter.	-4.141661
F-statistic	64.08960	Durbin-Watson stat	1.828983
Prob(F-statistic)	0.000000		

Inverted AR Roots .84

Regression Analysis (8/8)

Below, productivity results are presented by province.

	Additional Number of Community Units Needed by 2030 to Reach 7% Target	Change in Community Housing Share of Total Dollar Value of Housing Stock (Percentage Point)	Increase in Productivity	Total GDP Impact (Increase in productivity less opportunity cost)
Alberta	43,799	0.8 p.p.	6.4% to 10.5%	$16.5B to $30.5B
British Columbia	50,868	0.8 p.p.	5.7% to 9.3%	$9.0 to $18.7
Newfoundland and Labrador	4,621	0.5 p.p.	5.3% to 8.7%	$1.0 to $1.9
Saskatchewan	11,176	0.6 p.p.	3.2% to 5.2%	$1.5 to $3.1
Manitoba	13,139	1.0 p.p.	3.5% to 5.8%	$0.9 to $2.2
New Brunswick	7,427	0.4 p.p.	4.3% to 6.9%	$0.6 to $1.3
Ontario	143,225	0.7 p.p.	5.8% to 9.5%	$23.3 to $50.3
PEI	1,620	0.5 p.p.	6.0% to 9.7%	$0.2 to $0.4
Quebec	79,071	0.7 p.p.	5.9% to 9.7%	$13.1 to $26.1
Nova Scotia	9,452	0.3 p.p.	3.9% to 6.4%	$0.5 to $1.3
Nunavut	2,240	No data available on MFP by territory from Statistics Canada		
Yukon	2,477			
NWT	2,477			

Please see Appendix A: Provincial and Territorial Carveouts for additional information.

Methodological Notes

Data

- All the historical data used in the report is available publicly in Statistics Canada, Bank of Canada, OECD, CMHC, CREA, International Monetary Fund, Yukon Bureau of Statistics and NWT Bureau of Statistics.
    - In the sources, we note the date in which the data was compiled. It is important to note that data is subject to historical revisions by the agencies producing the data and therefore, may change from that shown in this report.
- The data used for the forecasts (i.e., population and housing completions) was calculated by the Deloitte's Economic and Policy Advisory team.
- Average growth rates throughout this report are calculated as simple averages not average annual compound rates.
- In our forecast of potential productivity gains we bring the value of the community housing stock as a share of total housing stock to a high level, one not seen in the historical data since 1961-1965. It is possible the observed relationship between community housing and productivity will break down as we move beyond the range of values observed in the past five decades.

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