Understanding Shelter Affordability Issues:
Towards a better policy framework in Ontario

Research Report
January 2016

CANADIAN CENTRE FOR
ECONOMIC ANALYSIS

An independent study funded by:

RESCON
25 North Rivermede Road, Unit 13, Vaughan, Ontario L4K 5V4
Richard Lyall, President
e lyall@rescon.com p 905.760.7777 w rescon.com

Canadian Centre for Economic Analysis

About the Canadian Centre for Economic Analysis

The Canadian Centre for Economic Analysis (CANCEA) provides objective, independent and evidence-based analysis dedicated to a comprehensive, collaborative and quantitative understanding of the short- and long-term risks and returns behind policy decisions and economic outcomes.

CANCEA serves municipalities, regions, provinces and industries that seek a best-of-breed understanding of the issues facing them using expertise combined with a realistic, multi-variable, computational socioeconomic policy evaluation platform.

About This Report

This report was prepared by CANCEA on behalf of the Residential Construction Council of Ontario (RESCON). In keeping with CANCEA's guidelines for funded research, the design and method of research, as well as the content of this study, were determined solely by CANCEA. The research was conducted by Paul Smetanin, Ioana Moca, Fawaz Yusuf and Paul Kobak of CANCEA.

Statistics Canada data and relevant literature were used to inform the computer simulation models used to produce the results of this report. All quantitative methods used are documented herewith.

The interpretation and reporting of the results of the mathematical modeling contained within this report do not necessarily represent policy position or the opinion of RESCON.

Forecasts and research often involve numerous assumptions and data sources, and are subject to inherent risks and uncertainties. This information is not intended as specific investment, accounting, legal or tax advice.

ISBN 978-0-9938466-5-6

Citation:

Smetanin, P. Moca, I. Yusuf, F. Kobak, P. Understanding Shelter Affordability Issues. The Canadian Centre for Economic Analysis, 2016.

EXECUTIVE SUMMARY

Housing affordability has grown into a major national concern, affecting many households of different cultural, demographic, and economic backgrounds in Canada. Despite the growing public profile and media interest in this issue, there has been limited appreciation of the broad range of forces creating the problem and complexity of their interaction.

Moreover, while there have been some studies of particular aspects of the affordability problem, there recently has not been a comprehensive study of the full range of demand and supply factors that determine affordability. The result is a clear need for a new framework to identify and connect the high-profile and poorly understood forces shaping the housing affordability problem. Without such an understanding and the ability to accurately measure the costs, benefits and risks of affordability, the debate and policy reaction will not lead to much-needed, sustainable solutions to this problem.

The objective of this research is to qualitatively identify the key concepts and factors to better understand what drives the affordability of shelter in Ontario. Such research is a necessary precursor to our next endeavour, which is a state-of-the-art computer simulation that will quantitatively connect and reproduce all of the major affordability factors across the Greater Toronto and Hamilton Area in a way that would allow extensive investigation into the challenges and risks that affordability pressures create.

Given the weaknesses of the many affordability indices commonly in use, this research offers the more complete Shelter Consumption Affordability Ratio (SCAR) framework to categorize and understand affordability's causes, effects and risks. In that regard, our report has four themes.

Respecting the implications that people have a basic need for shelter, and that shelter is a complex good with multiple characteristics and functions. Market competition between the needs of some and the wants of others gives rise to complicated behaviours around the multiple attributes of housing: structure; land; and proximity to other necessities and other desired activities/locations.

Affordability is more accurately measured as a ratio of all necessary shelter costs to actual income available after all taxes and other necessities. There is an overdue need to fully reflect all necessary shelter costs (actual and imputed rent, taxes, services, transportation) and the actual income available after other payments are made for taxes, food, clothing and private health expenses. Our new measure of affordability contrasts with other indices as it shows a sharply rising trend over the past decade.

Identifying and connecting the little understood policy impacts as well as high-profile factors creating major cost pressures on housing affordability. Infrastructure deficits and planning policies, Provincial growth policies, and municipal regulation and development charges are a few of these "hidden" costs pushing up the price as well as complicating the availability of new housing.

The combination of cheap, accessible credit with inadequate policy oversight has resulted in several major population segments becoming more vulnerable to affordability problems. Low income – and in the GTHA, middle income – segments, and the generations following the baby boomers are particularly at risk from the combination of leverage and income vulnerability. This vulnerability is also creating systemic risk that merits greater scrutiny and rigorous interconnected quantitative assessment.

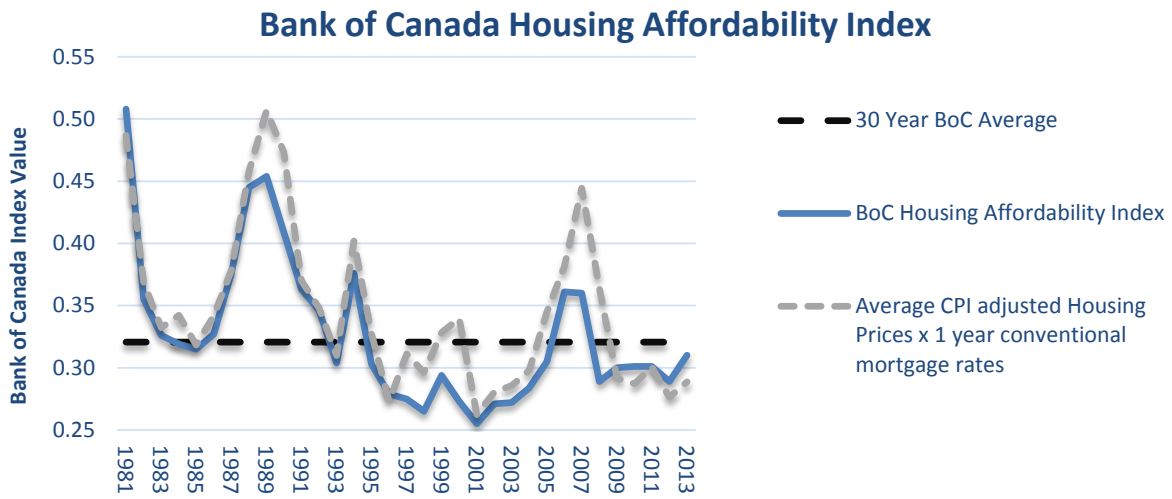
CURRENT AFFORDABILITY INDICES AND DEBATE

The importance of the housing market, and therefore shelter, is evidenced by its ability to affect virtually all facets of the economy. The involvement of multiple stakeholders has resulted in the emergence of a number of different "affordability indices", each of which tends to evaluate the issue from a particular angle. Our research began with the early identification of some of the shortcomings of the commonly used affordability measures:

- **Focus on Home Ownership:** The discussion and measurement of affordability has focused largely on ownership and investment. Overlooked is the "need" component of affordability, which includes the consumption costs of shelter[1] as well as some of the costs of accessing shelter (for example, transportation costs).
- **Averages, aggregates, silos and incomplete data:** Most current indices rely upon an "average understanding" of households and shelter types. Households and the availability of shelter differ significantly, and are rarely represented by averages. Moreover, commonly-used measures tend to be "data limited" and have approached the issue of housing affordability in "topic silos". This has limited their ability to decompose the sources of change and pressure, with an overreliance upon generalizations that ignore important details.
- **Shelter Complexity:** Most current reports do not fully respect the complex role of shelter to different households. Offering a two-parent, two-child household an affordable, three-bedroom home in a remote area might meet the Canada Mortgage and Housing Corporation's definition of suitable shelter. However, this omits crucial issues, such as shelter's proximity to a household's place of employment and necessary amenities, which can decisively affect affordability; such factors differentiate shelter units and influence demand and supply trends over time.
- **Different Stakeholders, Different Indices:** Different stakeholders (e.g. real estate developers, governments, civic NGOs, and financial institutions) have different understandings of affordability and the way to measure it. As a result, the indices these stakeholders use do not comprehensively reflect the extent or the undercurrents of the problem.

By way of example, the widely used Bank of Canada Housing Affordability Index shows that since 2007, affordability has fallen below its long-term average, suggesting that housing affordability has improved over the past decade. The Shelter Consumption Affordability Ratio (SCAR Index) presented in this report shows the opposite – affordability pressures are at an all-time high, with affordability pressures having grown by an average of 12% and 13.5% in Canada and Ontario respectively since 2006. Despite its name, the Bank of Canada Housing Affordability Index is a mortgage payment investment index, a point that can be demonstrated by multiplying average CPI-adjusted housing prices by 1-year conventional mortgage rates.

[1] The consumption cost of shelter deals with the costs of using shelter and does not relate to the "unnecessary" costs of investing in a home. In many cases, households do not need to own their home in order to meet their need for it. The rental focus of the Canadian Rental Housing Index (BCNPHA and Vancity, 2014) is one of the few indices that covers some of the consumption costs of shelter, with limitations.



Our review of available affordability information and analysis revealed significant shortcomings. To better understand the issues, we first consider the characteristics of shelter and then propose a more comprehensive measure of shelter affordability that would better analyze the causes, effects and risks.

CHARACTERISTICS OF SHELTER

An understanding of the issues surrounding the affordability of shelter begins with general concepts that can be used to understand the role and characteristics of shelter.

1. Shelter as a consumption good: Shelter is a non-discretionary good demanded and needed by all people. Usually, it is not ownership of shelter that is non-discretionary; rather it is access and consumption.

2. Shelter consumption needs and wants: Households can consume or purchase housing in excess of their needs. The desire to own additional shelter is therefore discretionary (i.e. as a choice or a "want").

3. Shelter as a composite good: Shelter varies by size, structure, land density, proximity to amenities, and other factors. It is a composite good that serves different purposes for different households and investors.

4. Shelter as a store of value, an investment asset: Shelter also serves as an investment good that has inherent value. It provides its investor with potential returns and exposure to risks. Although the decision to invest in any asset is usually discretionary, some households may not have a choice given: i) developments in ownership; and ii) limited supply and/or high costs in rental markets.

5. Demand, supply and substitution effects: Like any good, shelter is subject to demand and supply pressures that determine prices. While there is no substitute for consuming/using shelter, households can substitute between different housing types (single-family houses, condominiums and built-for-purpose units), between owned and rented shelter, and so on. Shelter is also subject to income effects: increases in net disposable income make shelter more affordable, all else being equal. In addition, "cheap credit" acts as an imperfect substitute for income growth; borrowing increases purchasing power in a similar way to higher discretionary income, but with very different risks.

6. Needs, wants, and crowding-out: Market pressures and limited public policy intervention have meant that more households are unable to meet their shelter needs. Demand from households and investors able to afford more shelter "crowds-out" households motivated to satisfy shelter needs[2]. The availability of cheap credit increases the problem and some households in need of shelter have no choice but to borrow in order to compete, thereby exposing themselves to considerable financial risk.

7. Public policy and the role of government: Public policy is expected to ensure that households in need can access affordable and suitable housing, and that the whole system is stable. Over time, the market may no longer provide suitable and affordable units to fulfil certain households' needs. The presence of investors in the shelter market, including foreign investors, complicates the issue. Crowding-out, speculative behaviour, and the desire for real estate investment could all affect the type of housing supplied by the market in different locations. Increased global integration also means that affordability pressures in one economy could affect Canada's shelter markets as investors relocate funds and resources in response.

The importance of shelter as a need and its composite nature therefore require sophisticated and proactive public policy responses that are based on robust data and analytical tools that can account for the complexity of affordability's challenges.

SHELTER CONSUMPTION AFFORDABILITY RATIO (SCAR INDEX)

CANCEA research yielded an index that focuses on the consumption needs of shelter, termed the Shelter Consumption Affordability Ratio (the SCAR index). The SCAR index more completely reflects both the consumption costs of satisfying shelter need, and households' actual disposable income after payments for taxes, food, clothing and healthcare are made.

$$SCAR = \frac{\text{Shelter consumption costs}}{\text{Discretionary net income after other necessities}}$$

Shelter consumption costs: Unlike other indices, the SCAR Index differentiates shelter consumption from ownership by considering rental costs for tenants, and imputed rent among homeowners who act as their own landlords[3]. Other shelter consumption costs in the SCAR Index include utility expenses, maintenance and repair costs, and property taxes. In addition, households must often travel from their locations of residence to reach necessary amenities and the place of work, transportation expenses are also included.

Discretionary net income after other necessities: This represents income available to pay for the consumption costs of shelter. It is calculated as after-tax disposable income less finance obligations less other necessary expenses: food, clothing, private healthcare costs, and essential non-shelter employment costs.

In anticipation of developing state-of-the-art simulations that will quantitatively connect and reproduce

[2] It is important to note that crowding-out in this context differs from its economics definition. Here it strictly refers to the squeezing out of households with a need to consume shelter.

[3] This concept is already in use as a component of GDP measurement by Statistics Canada, although further CANCEA research is expected to suggest revisions to the methodology.

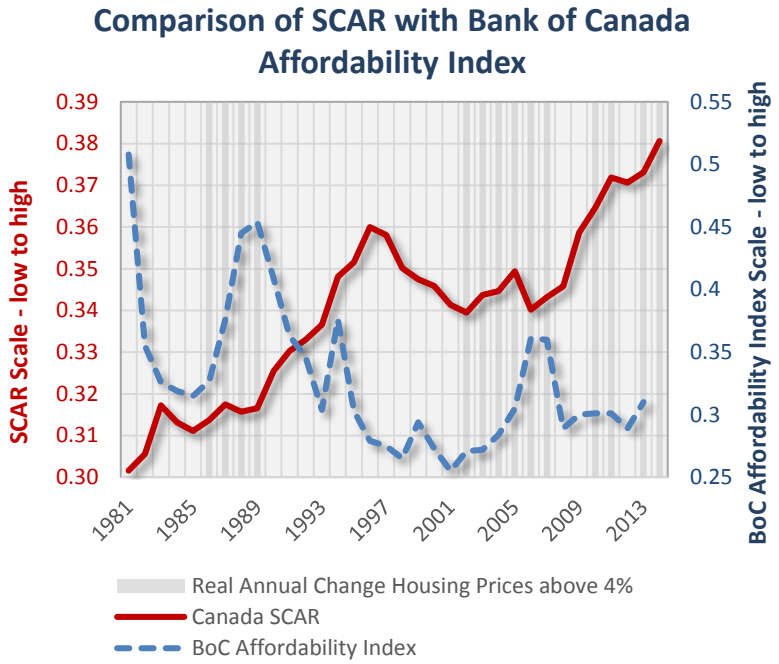
all of the major affordability factors, the SCAR Index was decomposed into factors that influence it. These factors all have a role in the complex interactions that affect the affordability of shelter.

SCAR Index	Components	Influencing Factors
Shelter consumption costs	• **Actual rent** • **Imputed rent** • **Maintenance, repair** • **Insurance** • **Utilities** • **Transportation costs**	• Population growth • Demographic change • Shelter stock, type, state of good repair • Shelter expectations (needs & wants) • Location, proximity, transportation • Shelter formation, type • Density • Rent formation – actual • Rent formation - imputed • Investment (local & foreign), return expectations • Factors of supply (land, materials, labour, private capital, public infrastructure) • Government agency policy (monetary, prudential) • Federal government policy (immigration, taxation) • Provincial government policy (factors of supply, planning, taxation) • Municipal government policy (factors of supply, planning, taxation) • Electricity, natural gas, water, sewage • Proximity costs (eg. transportation) • Insurance
Discretionary net income after other necessities	• **Income from all sources** **less** • **Taxation** • **Finance obligations** • **Food** • **Clothing** • **Private health care** • **Non-shelter essential employment costs**	• Population growth • Demographic change • Productivity trends • Labour demand • Production levels • Private capital attraction • Wage/income formation • Job quality • Non-shelter essential employment costs (eg. daycare) • Income and wealth inequality • Household operating costs and debt • Interest rates, inflation • Dividends, transfers • Capital gains/losses • Government agency policy (monetary, prudential) • Federal government policy (economic development, labour, immigration, taxation, re-distribution) • Provincial government policy (economic development, labour, taxation, re-distribution, health) • Municipal government policy (economic development & related taxation)

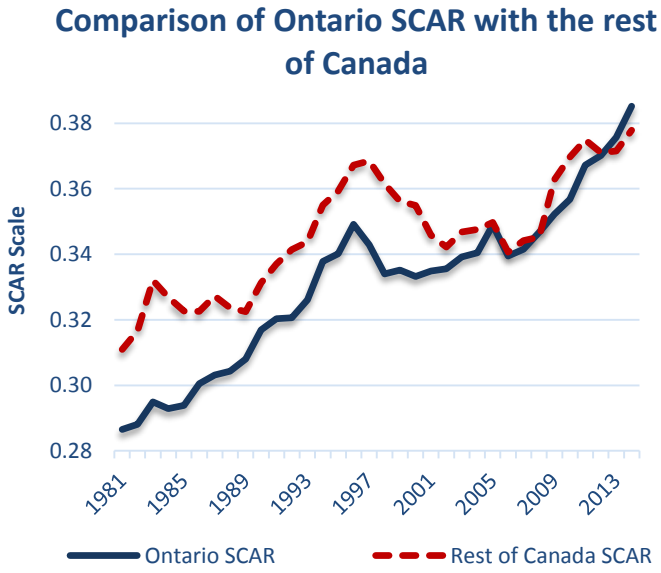
PRELIMINARY SCAR INDEX RESULTS

SCAR Index analysis that is capable of fully exploring, categorizing and determining the forces and consequences of affordability will not be available until completion of our next phase of research and computer simulation development. Notwithstanding, preliminary SCAR Index analysis using aggregate Statistics Canada data sources was performed to demonstrate its insights and signals.

As the following figure illustrates, the overall SCAR Index for Canada reveals a growing affordability problem while the Bank of Canada Affordability Index is currently near its long-term average. In comparison, the Canadian aggregate SCAR Index reveals that affordability pressures are at an all-time high, being 11% above the 30-year average, and 22% higher than levels seen in the early 1980s.



A higher value indicates that shelter is less affordable since a greater proportion of income after other necessities is being spent on shelter. Given that SCAR can measure the actual predicament of households as opposed to only measuring overall affordability, future versions of SCAR will have the ability to delve into the situation of different segments of the population.



Ontario's affordability experience is no different to the rest of Canada's. While it appears that Ontario had lower affordability pressures than the rest of Canada prior to 2001, Ontario seemed not to have emerged with strength from the recession in the early 1990s, with income levels not keeping pace with rent, energy and transportation cost growth. The results for the Greater Toronto and Hamilton Area are expected to be even more pressing, which will be performed as part of our future research agenda.

QUALITATIVE ANALYSIS OF AFFORDABILITY

It is difficult to make precise, complete and conclusive statements about the key processes affecting affordability without the benefits of computer simulation that connects all the factors (a matter for future research). Notwithstanding, during our qualitative analysis, recurrent themes emerged as major effects driving the shelter affordability issue in Ontario. Broadly, they can be summarized into three concepts that can be related to the SCAR Index:

- Generation and distribution of economic prosperity
- Needs, wants, and crowding-out
- Public policy and the role of government

GENERATION AND DISTRIBUTION OF ECONOMIC PROSPERITY

While disposable income has increased for the population in aggregate, the wages paid to the bulk of the population have stagnated. This corresponds to the increase in inequality experienced across Canada over the last several decades, which has accelerated since the financial crisis of 2008. As approximately 70% of Canadians aged 15 and older earn employment income, labour market outcomes are crucial to most households. The overall quality of jobs offered by the labour market has declined, and workers under the age of 45 are disproportionately represented in precarious labour, despite being relatively more reliant upon labour income than other age groups.

Such differences in household income and wealth appear to be leaving an imprint on shelter markets. Coming out of the recession during the 1990s, such differences would influence the consumption and investment expectations of households. However, when coupled with increasingly accessible cheap finance into the 2000s, middle-class households were able to leverage the purchasing power of their disposable income, maintain their consumption levels, and sustain or even enhance their standards of living. Such behaviour appears to have leaked into setting housing expectations in different housing markets.

NEEDS, WANTS, AND CROWDING-OUT

Households participate in the shelter market to serve their “needs” or “wants”. A household looking to satisfy its shelter needs has a greater willingness to pay more as a percentage of its income than a household looking to satisfy its “wants”. The market however, only responds to a household’s ability to

pay, and assumes that willingness and ability to pay correspond to one another. Such an assumption breaks down when confronted with households that "need" shelter and a market failure occurs when those who need shelter the most are not those who are most able to pay for it.

There is evidence that this is occurring. Households looking to satisfy their shelter "wants" are crowding-out (out bidding) those looking to satisfy their "needs". Although the market is empirically characterized by a sufficiently large stock of shelter relative to the number of households, there is a mismatch in the way market competition has allocated that stock to household needs. Symptoms of this crowding-out process include:

- An increasing share of middle-class households in core housing need;
- A rising share of households engaging in risky financing activities to meet their shelter needs and borrowing to meet other needs; and
- Sharp increases in housing prices across rental and ownership markets that generate excessive affordability pressures for a growing proportion of the population

PUBLIC POLICY & THE ROLE OF GOVERNMENT

Given that the consumption of shelter is a need, it becomes a public policy issue to the extent that the satisfaction of housing wants should not restrict the ability of others to meet their "needs", and put major segments or the whole system at risk. In pursuit of these objectives, government employs diverse policies, including fiscal policy, monetary policy, and regulations, which produce direct and indirect impacts on the housing market and shelter affordability. Given the multiple characteristics of shelter, and the potentially risky behaviour of disadvantaged groups in their objective to access housing, careful consideration of the complexity of shelter markets is required during policy formulation; otherwise, unintended consequences may occur.

Government transfers and support of social housing: Although income inequality has been growing in Canada, government taxes and transfers have mitigated approximately 44% of that increase. However, efforts to balance the Federal budget led to a reduction in federal transfer payments in support of social housing programs. Canada's social housing program is among the smallest of most Western nations, with the Federal government ending its supply of social housing units since the early 1990s. Social housing programs in major Canadian centres do not meet the needs of most disadvantaged groups.

Monetary and macroprudential[4] policy: While accommodative monetary policy may continue to be an important stimulus to the economy, it has magnified the differences among households and has given some households a renewed ability to bid for desirable housing or housing that meets their needs. Unfortunately, macroprudential policy in the past has been a lagging control that has operated largely at a distance of the realities behind the role and characteristics of shelter consumption and investment in different markets[5]. The significant ability of monetary policy to change behaviour must be exercised in a highly co-ordinated manner across government tiers and agencies that have the requisite knowledge.

[4] An approach to financial regulation aimed at mitigating the risk to the financial system as a whole ("systemic risk").
[5] Moreover, various economists have questioned the efficacy of macroprudential policy in general.

Labour and product market regulations: The government is also tasked with the challenge of managing labour and product market regulations, which if not balanced correctly (e.g. temporary foreign worker program, issues with digital services and technology policies), can result in labour shortages and productivity slow-downs, among other effects. It is clear that such policies, like the understanding of shelter affordability, must be approached in a holistic and comprehensive way. Without joint and co-ordinated efforts across the numerous policies that impact shelter affordability directly or indirectly, little can effectively be done to alter the trends established through the market.

Public infrastructure investment: Canada and Ontario have under-invested in public infrastructure in this Province over the past several decades. This has the effect of:

- Increasing the costs of transportation, which is one of the fastest growing components of the affordability problem for economically vulnerable groups;
- Reducing economic growth and development, and by extension, the ability of wages to grow for the same group;
- Making some housing markets more attractive than others, which is a key ingredient for the competition that supports the crowding-out process mentioned earlier; and
- Imbalances between Ottawa's and Queen's Park's contributions to public infrastructure (approximately $7.5 billion per year) have compounded with various other factors to place Ontario's economy and a proportion of its fiscal health in a risky predicament.

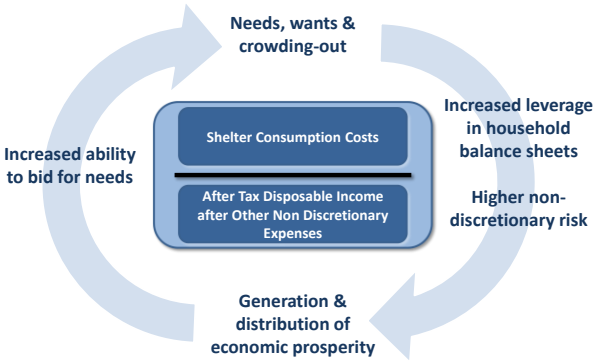
Co-ordination across government tiers and agencies: Co-ordinated and sufficient investment in infrastructure alone may not sufficiently resolve the affordability pressures that arise from challenges associated with growth and planning. Significant imbalances and therefore risks to affordability exist between the multiple tiers of government, such as:

- Federal and provincial defunding of various social housing programs, and the related municipal pressures to bear the full operational and financial responsibility for delivery;
- Transportation in the GTHA, a crucial component of the affordability problem, involves numerous government agencies with different responsibilities;
- Municipalities contribute a significant proportion of the infrastructure that covers the growth of the population and the economy. Unlike the provincial and federal tiers of government, municipalities cannot capitalize on the revenues from economic growth through income and consumption taxes; they are limited to different and "small set" financing instruments, such as development charges, property taxes, and user fees. This mismatch in revenues for municipalities has resulted in new housing development paying disproportionally for essential infrastructure investment, which in turn led to a higher cost of building shelter through increasing municipal charges;
- The inability of socioeconomic growth to pay for infrastructure growth may also discourage sufficient infrastructure investment at the municipal level (possibly affecting the availability of serviceable land) in order to preserve financial sustainability. This could create planning challenges, and make different housing markets more attractive than others, further increasing the crowding-out process.

Intersection of Affordability and Systemic Risk

The affordability problem is a symptom of the challenges of economic and shelter differentiation that exists across Ontario and Canada. The crowding-out problem has been magnified by easy access to cheap credit, which provided households with a greater ability to bid for shelter; it has also led to a near-doubling of the household debt-to-GDP ratio in Canada since 1990. Increasing household debt introduces exposure to non-discretionary financial expenses (such as interest payments and principal amortization) that must be paid. Therefore, the cost of debt turns some portion of a household's discretionary income into non-discretionary risk. The cycle that links the SCAR index to the affordability problem is illustrated.

- Government efforts to sustain economic growth through ultra-low borrowing costs since 2007 contributed to households' ability to bid for shelter via borrowing. This also coincided with increased cross-country capital market liberalization, which has encouraged investors to pursue higher returns in foreign asset markets, such as real estate.



- The result is more highly leveraged households with greater exposure to non-discretionary risk. While low-income households used credit to access increasingly prohibitive shelter, other households collateralized increased housing and financial wealth. The increased risk to households' balance sheets reduces economic growth and contributes to its unequal distribution. A smaller proportion of household income is saved, more is consumed, and more is allocated to financing unproductive debt for inflated asset values.

MIDDLE-CLASS HOUSEHOLDS IN YOUNGER AGE COHORTS AND SYSTEMIC RISK

As of 2015, credit-market debt in Canada stood at around $1.87 trillion, which represents around 21.4% of Canadians' net worth. Around 38% of mortgage holders spend more than 20% of their disposable income on mortgage payments.

- Nearly 840,000 of these households reside in Ontario, representing about 26% of homeowners.
- They spend more than they earn and have an estimated SCAR Index of 62%, which is 1.6 times higher than the Ontario SCAR of 38.5% (or twice the affordability pressure as the rest).
- Of this group, 480,000 households are more likely to be under the age of 45, employed in precarious labour without significant levels of wealth.
- Of the Ontario households renting, 380,000 are in core housing need[6].

Average household debt is 1.64 times the level of disposable income. Considering individuals between 30

[6] As defined by CMHC, a household is said to be in core housing need if its housing falls below at least one of the adequacy, affordability, and suitability standards and it would have to spend 30% or more of its total before-tax income to pay the median rent of alternative local housing that meets all three standards.

and 50 years of age, 70% have a debt-to-income ratio between 1.6 and 1.9 times higher than the Canadian average while earning below the average incomes for their age group. This is a risk from a broader perspective.

WIDER IMPLICATIONS

With "needs", lower-income, middle-class and younger households have become increasingly reliant on cheap credit; economic growth has become more precarious as these groups are now significantly vulnerable to changes in interest rates, job-market pressures, and inflation. Perhaps if nothing changes (interest rates do not increase and/or jobs are not lost), the situation may ride itself out as households pay down their debt levels. Notwithstanding, the real economy is still left with the challenge of increased pressure on discretionary incomes that will certainly reduce future consumption (which is a significant component of economic growth) given current income growth trends.

Aside from the challenges associated with the "status quo", there is the serious systemic risk associated with the identified economically vulnerable households. If confronted with economic pressure, they:

- Are more likely to unload their debt burden through shelter sales in order to reduce their non-discretionary expenses. The spillover effects could reverberate across the economy, creating instability in the housing market and other complementary goods.
- Represent a significant proportion of the consumer base, and can therefore reduce economic growth by much more than would otherwise occur.

Implications for the residential construction industry are also significant. Already confronted with higher construction costs, a significant reduction in shelter prices (following a widespread mortgage default for example) would damage profitability and decrease future housing supply (other things being equal). This would affect the development of different types of shelter, put at risk outstanding construction activity, and generate follow-on economic impacts compounding the other factors mentioned.

Implications for fiscal policy and taxpayers follow accordingly:

- Taxation revenues would decrease and be even more prone to shocks in credit and other markets.
- Monetary policy will also have a more pronounced effect than before.
- Given CMHC's disproportionate exposure to mortgage risks, taxpayers are more likely to bear the financial consequences of borrowers failing to meet their mortgage obligations.
- Canada's position, with near zero short-term interest rates and high total public sector debt-to-GDP levels, has exposed a "trap" that could reduce the effectiveness of the usual stimulus tools (lowering interest rates, borrowing and spending) when most needed, thus placing another significant part of the economy at risk.
- The combination of such events would exacerbate the budget deficit and raise debt-to-GDP levels, at a time when the provincial governments are attempting to reduce both variables to more fiscally sustainable and manageable levels.

CONCLUDING REMARKS

The challenge of ensuring that Canadian households have access to homes that are adequate, suitable to their needs, and affordable is a key public policy concern. Although social housing has been offered as a solution for some of the most disadvantaged Canadian families, affordable housing is now a concern for middle-class families as well.

Affordable housing touches on virtually every aspect of our socioeconomic system, and interacts with numerous flows, changes, and individual behaviour — from micro-level decisions about when, what, and how much to consume, to macro-level phenomena that arise from market and regulatory forces. Current discussions about housing affordability have yet to fully appreciate the interconnections across many of these factors. Many widely used housing affordability indices are insensitive to the many characteristics of shelter, as well as to who is truly at risk of not being adequately served by the system at large. A lack of consensus and the risk of generalization necessitates the development of a more complete framework by which to understand the role of shelter, its interaction with the economy, and the complex behaviours associated with how households access it.

Such a framework involves understanding how much money households have to allocate to the consumption cost of shelter, without compromising other non-discretionary expenses, to yield the SCAR Index. The SCAR Index emphasises the numerous factors and effects that span the entire economy. It is for this reason, ostensibly, that existing analyses and indices have faced shortcomings when attempting to describe the issue of housing affordability.

A qualitative review of the evidence has revealed a number of broad demographic and economic trends, such as rising inequality and an increasingly prohibitive home ownership market, vulnerable groups (such as younger cohorts and older adults retiring with insufficient savings and debt), and risk factors, (including interest rate increases and government co-ordination). However, without fine-grained, connected quantitative analysis that respects the complexity of the relationships, this would merely offer an incomplete view of the housing market and associated affordability issues. In order for policy-makers to effect positive change without risking the health of the economy in other aspects, understanding the nature of shelter, its market, and the factors driving its affordability, becomes crucial. With a more comprehensive view of risks and system dynamics associated with housing affordability — especially regarding influential factors that are less often discussed — perhaps stakeholders could begin to better reconcile their views into a shared goal of prosperity and a high standard of living.

Our future research agenda is aimed at addressing this important challenge, to provide an empirical basis upon which stakeholders can identify the risks and formulate decisions more confidently. The primary objective would be to have a comprehensive, in-depth and proactive policy response to such sources of economic instability. In the words of Albert Einstein: “We cannot solve problems by using the same kind of thinking we used when we created them”. It is in the spirit of these words that this research attempts to add an original contribution to the shelter affordability debate.

TABLE OF CONTENTS

ACKNOWLEDGMENTS

The following people are acknowledged for their co-operation, comments and input that helped in carrying out the research; which included staff from The Residential Construction Council of Ontario, the Building Industry and Land Development Association, Ryerson University and the Canadian Centre for Economic Analysis.

Jason Stewart
Senior Advisor,
Canadian Centre for Economic Analysis
(CANCEA)

Richard Lyall
President,
Residential Construction Council of Ontario
(RESCON)

Bryan Tuckey
President and Chief Executive Officer,
Building Industry and Land Development Association
(BILD)

David Amborski
Professor, School of Urban and Regional Planning
Director, Centre for Urban Research and Land Development
Ryerson University

1.0 INTRODUCTION AND BACKGROUND

The affordability of shelter has been a concern for policy makers over decades. What began as a challenge to ensure that lower income families have access to social housing has now grown into a concern affecting more households and demographics: middle-income households face mounting difficulty finding adequate shelter that is both affordable and appropriate for their needs. With over 13 million households in Canada and growing, the issue of affordable shelter affects the lives of many families of different cultural and socioeconomic backgrounds. As a cornerstone of economic growth, the creation of opportunity, and even population health, shelter touches upon every aspect of a prosperous and thriving society.

Understanding the nature of shelter, its market, and the factors driving its affordability is crucial to understanding the health of the economy and society that relies upon it. Unlike most goods, shelter is characterized by high dimensionality (multiple, interconnected characteristics and functions for different stakeholders), while being indispensable to maintaining quality of life.

All people face a basic need for shelter; however, this does not imply that all people will only consume shelter to satisfy a need. The demand for shelter, whether to satisfy a basic need or to pursue discretionary preferences, is then influenced by market and regulatory forces. The supply of shelter operates in a similar fashion; it reflects agents' discretionary and non-discretionary economic behaviour amid market forces and the influence of system planners and regulations.

The affordability of shelter is a concern for a wide array of stakeholders for different reasons. The purpose of this report is to identify the complex interplay of factors that create the various symptoms of the shelter affordability problem. In that vein, this research offers a qualitative outline of the dimensionality of the markets for shelter and the issues that it creates. This work is undertaken as a precursor to further research on the development and calibration of an advanced simulation platform, which will quantitatively investigate the issues raised in this report, determine the extent of the shelter affordability problem in Ontario (with emphasis on the Greater Toronto and Hamilton Area (GTHA)), and identify the stakeholders who are most affected and at risk.

1.1 SHELTER AFFORDABILITY: DEFINITIONS AND MEASURES

Developing a framework for understanding shelter affordability begins with choosing an accurate and useful definition. Due to a large number of stakeholders with different and frequently unconsolidated viewpoints, the creation of a commonly-accepted definition for shelter affordability has been fraught with challenges.

For example, significant differences exist between the Canada Mortgage and Housing Corporation's (CMHC) definition of core housing need, the broad notion used by the Ontario Ministry of Municipal Affairs and Housing, financial indices of affordability used by the Bank of Canada along with local market commentators, and the definitions adopted by the international community and the United Nations. These differences span the social, market, and equity-related aspects of affordability.

When examining the debate on shelter affordability in both the Canadian and international contexts, an important distinction arises between affordable, social, or subsidized housing, and shelter that households can afford. Affordable housing, also termed social housing, or subsidized housing, usually refers to socially provided shelter that caters to the most disadvantaged individuals in society; rent-geared-to-income homes offered by the Toronto Community Housing Corporation are an example. The scope of this report, however, extends beyond the provision of social housing to include shelter that is affordable to own and consume. At the heart of the report is the distinction between ownership and consumption of shelter, which many definitions of affordability overlook.

> ***"Talk of housing affordability is plentiful, but a precise definition of housing affordability is at best ambiguous"***
>
> ***Linneman and Megbolugbe (1992)***

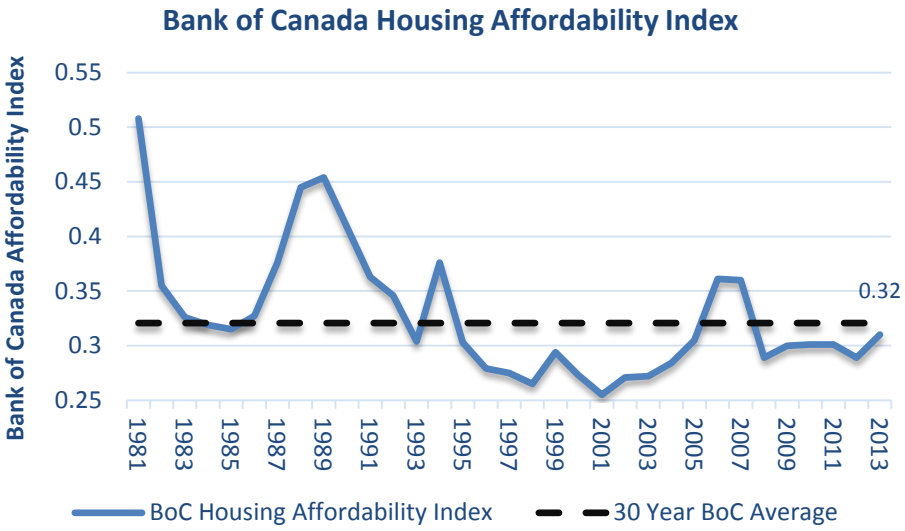
1.2 Current Affordability Indices and Debate

Some of the commonly-cited affordability measures suffer from certain gaps and shortcomings, with the key issues being:

- **Focus on Home Ownership**: Commonly-cited literature, such as housing affordability reports by RBC and the Bank of Canada, tend to focus on the costs of home ownership when discussing affordability. While home ownership is a major contributor to a family's financial stability and security, ownership of shelter is not a necessity in itself; it is the consumption of shelter (whether through ownership or rental) that is non-discretionary. Indices that solely consider home ownership are liable to overlook the more comprehensive costs of access to shelter, which include rental costs.

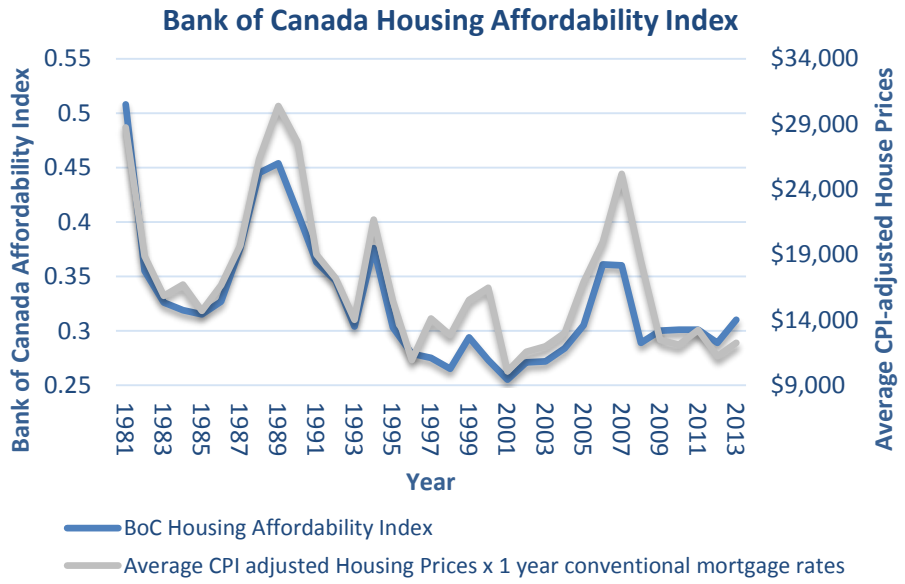
  For example, discussions of affordability are often dominated by investment indices and the affordability of home ownership. Illustrating this is the widely used Bank of Canada Affordability Index, whose trend is visible in Figure 1. According to the Bank of Canada Housing Affordability Index, which has been below its 30-year average approximately 67% of the time, affordability on the surface is not currently a problem.

Figure 1 Bank of Canada Housing Affordability Index



Despite the inclusion of utility fees and household disposable income into its calculations, the Bank of Canada Housing Affordability Index is more representative of an investment index, as Figure 2 demonstrates. Over the past thirty years, given the Index's emphasis on mortgage payments, it has exhibited a 91% correlation with inflation-adjusted average house prices multiplied by the one-year conventional mortgage rate in a given year.

Figure 2 Bank of Canada Housing Affordability Index and CPI-adjusted House Prices



- **Dealing with Averages and Aggregates:** The motivations behind a household's choice of shelter, as well as the way in which they are connected to demand, supply, and financing options, are hidden by averages and aggregates. These indices, whether based on individual or market-level affordability, implicitly assume that consumer (and investor) preferences can be revealed through

their housing. However, these preferences may not be fully reflected because regulations and market forces act as constraints that may distort final choices from initial preferences. For example, households have a need for shelter and cannot reasonably opt not to live in a home, even if regulations and costs grow increasingly prohibitive. Because of this, indices do not reflect the constraints households face to satisfy their fundamental need for shelter.

- **Ignoring household and shelter heterogeneity:** Households differ by size, structure, income levels, age profile, and shelter preferences. As two-thirds of all Canadian households own their homes, the discussion of shelter affordability has focused considerably on the affordability of investing in shelter, without fully addressing the issues of shelter rental and consumption. One exception to this is the Canadian Rental Housing Index, which does use income and supply indicators to score overall rental affordability (BCNPHA and Vancity, 2014). This index, however, suffers from some weaknesses as well, including:
    - The index relies on the use of indicator scores rather than raw data for various shelter-related costs and affordability levels, essentially coarsening the data and relying on arbitrarily defined categories that may need to change in time. In other words, the index suffers from subjective aggregation methods; and
    - The index measures the number of households that overspend on shelter-related needs such as utilities. Measures of overspending implicit in the index rely on arbitrary cut-offs and are not sensitive to the number of households that are just slightly below the cut-off and may be at risk of overspending if the costs of these needs increase. This may limit the ability of policy makers to identify an emerging affordability problem until it is too late.

There is also limited appreciation for the multi-faceted role of shelter as an investment, a consumption, and a composite good. For instance, offering a household comprising two parents and two children an affordable, three-bedroom home in northern Ontario might meet the Canada Mortgage and Corporation's definition of suitable shelter, but this does not consider issues such as shelter's proximity to this household's place of employment and necessary amenities (more on this later in the section).

Behavioural and social dimensions of shelter affordability, including proximity, are therefore not quantified by most aggregate measures, which favour economic and financial indicators such as inflation, interest rates, house prices, and developer costs. Although these widely-used economic and financial metrics are necessary, failure to go beyond them could lead to a lack of understanding of how the shelter market is serving the most vulnerable groups, and more importantly, the nature and magnitude of systemic risk caused by regulations, market forces, and the potentially risky behaviour of disadvantaged groups attempting to access shelter.

- **Different Stakeholders, Different Indices:** Many non-academic stakeholders in the shelter market, including real estate developers, government, civic non-governmental organizations (NGOs), and financial institutions have different conceptions of shelter affordability and the most

appropriate way to measure it. As a result, they often rely on different indices. These different indices are vulnerable to the biases of the stakeholders that use them. For example, banks, financial regulators, real estate organizations, and policy institutes may have particular (and sometimes narrow) fields of interest, which then become embedded in the public debates surrounding shelter affordability. As a result, the indices these stakeholders use do not comprehensively reflect the extent of the problem.

In order to approach the challenge of shelter affordability while taking multiple stakeholder views into consideration, a functional measure of affordability must:

i) Encapsulate the high dimensionality of shelter and its complex relationship to every aspect of society; and
ii) Avoid generalizations, simplifications, internal contradictions, and overreliance on aggregates.

The objective of this study is to propose an original agent-based model that fully identifies the challenges facing Ontario's households as they attempt to consume suitable and affordable shelter. This report provides a qualitative review of the factors, processes, and risks that result from affordability pressures in the GTA and across Ontario. In turn, this will inform the agent-based simulation of these factors and processes, which constitutes the second phase of this project.

The significance of this work cannot be underestimated: it represents an original contribution to the affordability debate by making use of innovative agent-based modeling. At present, many studies have relied on econometric techniques to assess affordability pressures; these techniques are limited by specifications based on assumptions that may not hold in reality. Agent-based modeling overcomes this by dispensing with simplistic assumptions and aggregates in favour of complex systems-based approaches to agent interaction.

Furthermore, this report (and the simulation that follows from it) focuses equally upon ownership and rental of shelter. By focusing on shelter consumption, it sidesteps the aforementioned limitations that affect "investment-based" indices. The incorporation of many households and economic agents with diverse preferences can help pinpoint which demographic group has disproportionately borne the burden of affordability pressures. This is expected to support policymakers develop an informed, proactive, and targeted response to mitigate the negative consequences of these pressures.

The timing of this report and the subsequent simulation is very apposite: the Bank of Canada's Governor, Stephen Poloz, recently suggested that "[borrowers and lenders] bear the ultimate responsibility for their own decisions at the individual and firm level. It is not the role of monetary policy to protect individuals from making bad choices" (Poloz, 2015). However, more economists and public policy figures are starting to take note of the seriousness of this issue and the need for a more proactive public policy response. As this report will reveal, affordability pressures could generate various systemic risks with serious implications that could adversely affect the wider economic framework.

1.3 SHELTER AFFORDABILITY: A FRAMEWORK

The existing literature has revealed three significant shortcomings. First, the heavy use of aggregates, averages, and indices misses the crucial challenges and risks faced by key population segments, as well as the different degrees of affordability in various regions, such as the GTHA relative to the rest of Ontario. Second, these indices may conflate the affordability of access to shelter (which can be achieved through rental, for example) with the affordability of shelter ownership. Third, much of the research, analysis, and resultant conversations approached the issue of shelter affordability in silos. In other words, it failed to recognize the composite role of shelter and its intricate connections across virtually all facets of the economy and society. In order to help disambiguate the topic and resolve these shortcomings, a more comprehensive framework is necessary. Aspects of systems theory and behavioural science were drawn upon to build this framework, which is centered on a set of general concepts that can be used to understand the role and characteristics of shelter, as well as competitions, transactions, and flows associated with the way in which households access it.

"As a policy-maker during the crisis, I found the available models of limited help. In fact, I would go further: in the face of the crisis, we felt abandoned by conventional tools."

Jean-Claude Trichet, Governor of European Central Bank

1.3.1 CHARACTERISTICS OF SHELTER

Shelter is a multidimensional good due to the following reasons:

1. Shelter as a consumption good: Shelter is a non-discretionary good demanded by all people. It is not ownership of shelter that is non-discretionary; rather it is access and consumption. Regardless of whether a household owns their own home, economic theory identifies rent (actual or imputed[7]) as the price of consuming shelter. Homeowners are then essentially acting as their own landlords.

2. Shelter consumption needs and wants: The consumption of shelter is, at first glance, non-discretionary; however, consuming or purchasing shelter units in excess of shelter needs still offers desirable benefits to households. The desire to own additional shelter beyond non-discretionary consumption is therefore a discretionary behaviour (i.e. a choice). The market for shelter reflects the interplay between motivations designed to secure non-discretionary consumption of shelter and motivations leading to additional, discretionary consumption of shelter by different households. Two implications arise immediately from this distinction:

[7] Statistics Canada features a methodology for calculating imputed rent for households that serve as their own landlords rather than those that own their homes and rent to others. This measure is based on a measure of average rent, which is then modified by a shelter unit's characteristics, such as the number of bedrooms, and its quality.

- Economic measures of demand do not differentiate between shelter needs and wants. Households that demand more than is necessary to satisfy their shelter needs place upward price pressure on scarce goods (in this case, shelter). This may reduce the financial ability of other households to satisfy their shelter needs in the same market. In this environment, the discretionary preferences of certain households crowd out the non-discretionary requirements of less affluent households.
- Although there is no substitute for shelter, it is difficult to objectively identify and define how much and what type of shelter is needed for a given household. How much and what type of shelter is needed can be reasonably implied from societal standards and circumstances. Although determining how much and what type of shelter is needed in a societal context renders the definition subjective, this definition is sufficient for the purpose of this framework.

3. Shelter as a composite good: The characteristics of shelter vary by form and function: size, structure, surrounding land density, proximity to necessary amenities, and other factors. The combination of these characteristics renders shelter a composite good, which allows for many types of shelter to be demanded based on household formation and preference combinations. The composite nature of shelter is important since it generates several implications including:

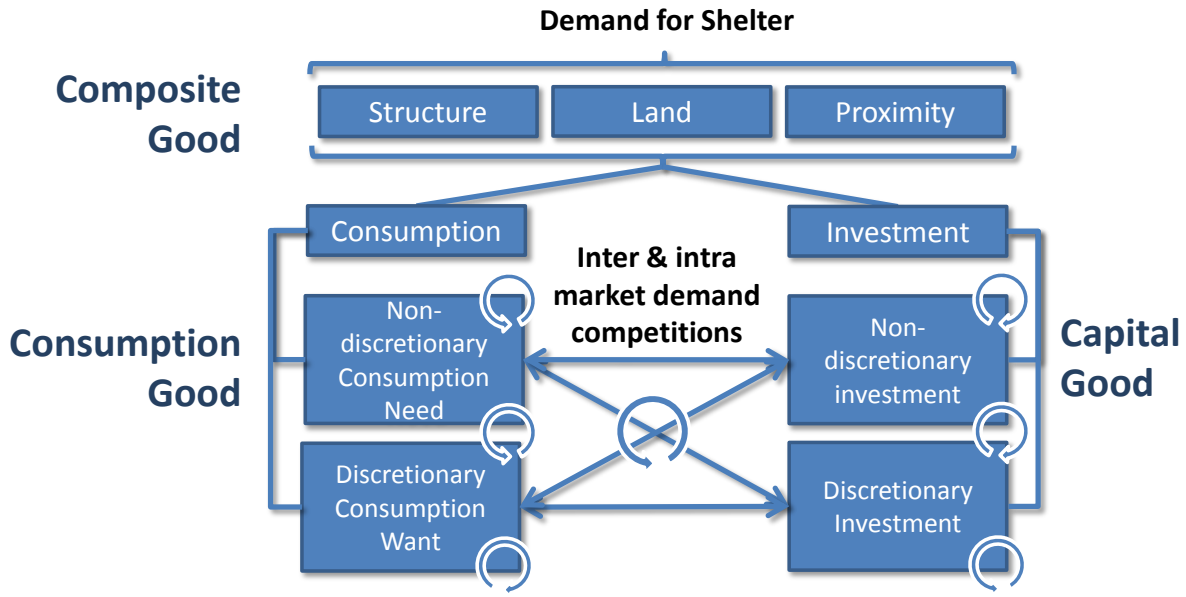
- The way it shapes household demand for different characteristics of shelter, to which developers and planners may respond by choosing the types of units to build and supply. The type of shelter supplied subsequently influences demand[8];
- Spillover price effects into other industries such as real estate and infrastructure;
- Public policy implications for the role of government in establishing an environment that would influence household formation and preferences towards an adequate societal shelter cost.

4. Shelter as a store of value, an investment asset: Shelter also serves as an investment good by virtue of its inherent value. Like any other asset, shelter provides its investor with potential returns and exposure to risks. Although the decision to invest in any asset, including shelter, is usually discretionary, the fact that some base level of shelter is a human need may result in a non-discretionary tenure choice. In other words, some households may be pushed by market and regulatory forces to own their homes and bear otherwise unacceptable expenses and levels of risk, despite merely looking for access to shelter consumption.

With these characteristics in mind, the demand for shelter is inherently complex, given the interaction of consumption and investment needs, as well as different preferences based on the composite nature of shelter. The framework for market segments demanding shelter and competing amongst each other based on a combination of shelter characteristics is illustrated in Figure 3.

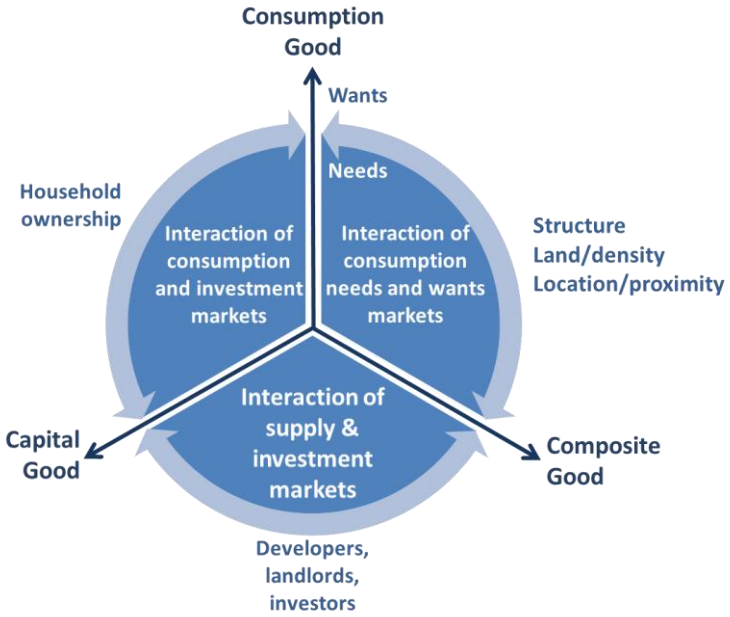
[8] Investors who purchase homes for the sole purpose of capital gains also contribute to demand, which then shapes supply. Therefore, supply is partially shaped by buyers who may have no intention of interacting with consumption-related functions of shelter. Other households, who do consider these consumption-related factors, will face a supply of homes that is influenced by the market behaviours of these investors.

Figure 3 Competitive Pressures For Shelter as a Composite Good



In a similar vein as the demand for shelter in this framework, the supply side also exhibits similar complexity. It becomes easy to see that expanding the number of shelter types or regions, for example, exponentially increases the complexity of this problem. When overlaying the challenge that such forces combine to be different than the sum of their parts (non-linearity) and that different participants have different means of securing their needs and wants (asymmetry of competitive pressures), the complexity of the system and the relevance of the factors involved extends well beyond the reach of intuition.

Figure 4 Complexity of Demand and Supply-side Pressures for Shelter



Shelter is a therefore unique, complex, and highly interconnected topic that touches every aspect of socio-economic phenomena, from a small, local scale to the systemic breadth of the discussion about "needs" and "wants". Its understanding and navigation are confounded by many forces at work such that outcomes across the system are not merely the sum of the actions of individual households and investors. Rather, these forces and behaviours combine to give rise to unintended consequences and unforeseen pressures.

Current difficulties associated with the topic and understanding its key implications lie in:

- The persistent use of averages and aggregates, despite some attempts at disaggregation; and
- The lack of connection between different features of the system that combine to give rise to what is observed.

The research in this report suffers the same fate, considering that the data is presented in silos without the benefit of a quantitative framework that helps organize, structure, and comprehend how the parts conspire to present the whole. However, despite these current shortcomings, different approaches do exist that can reflect the system's complexity and which can tease out the size and shape of potential solutions to the various challenges faced by households throughout the economy.

Agent-based models are built around the notion that the economy should be seen as a complex system, or in other words, composed of many different stakeholders who follow different strategies and behave in ways that represent their local circumstances. These agents interact locally in a direct and indirect manner and can therefore modify the system as a whole through their joint behaviours.

1.3.2 MARKET TRANSACTION CONCEPTS

Given the characteristics of shelter mentioned above, it gives rise to interesting transactional concepts which are noteworthy:

> **5. Demand, Supply and Substitution Effects:** Like any good, shelter is subject to market pressures emanating from demand and supply-side factors that in turn determine prices for different shelter types. While there is no substitute for shelter as a need, there is some substitutability between owned and rented shelter, condominiums and built-for-purpose units, and so on. As a result, changes in the fundamentals for one market would have direct implications on demand and supply, as well as current and future prices, in other shelter markets[9].
>
> The market for shelter is also amenable to income effects. Changes in net disposable income would (other things being equal) make all types of shelter more affordable. Income changes could also influence household preferences towards owned or rented shelter, or towards a given type of shelter (i.e. condominiums or built-for-purpose units). Such effects have a close relationship to "cheap credit" effects whereby the low cost of finance facilitates increased purchasing power

[9] Hedonic pricing models have also been used to model price formation in the real estate market. This type of modeling estimates the impact of shelter's characteristics upon price. In other words, hedonic pricing models attempt to measure the price effects of the many characteristics of shelter that combine to make it a composite good, as described in section 1.

in a similar way that higher discretionary income would.

Investors also play a pivotal role in dictating market dynamics for shelter. The introduction of both local and foreign investors presents a situation that has implications for domestic households. Strong speculative behaviour, the desire to use real estate as a store of investment funds, or shelter/land hoarding could magnify the impact of price increases in the shelter market by reducing the stock available for local household consumption. Resultant unsustainable values could engender systemic risks across the economy should they quickly correct.

6. Needs, Wants, and Crowding Out: Crowding out occurs when the consumption or investment behaviour of one group of economic agents reduces the ability of other agents to access the market. The cost of any need (in this case, shelter) is a function of availability (supply-side) as well as demand. As with any other commodity, shelter prices will respond to significant demand-side pressures; therefore, demand from socioeconomically-privileged households seeking to satisfy their preferences (rather than need for shelter) could dramatically affect prices for available shelter, as well as future supply levels of different shelter types.

Satisfying needs is non-discretionary, and there are no viable substitutes to shelter. As a result, households that need shelter are likely to devote a larger share of their income to acquiring it than those looking to satisfy preferences. Certain households squeeze others out of the shelter market as a result of heterogeneous consumption preferences and differences across income and wealth. When there is income and wealth inequality, there is little pressure on households looking to satisfy "wants" to regulate their shelter consumption; the market translates the additional demand for shelter into price increases that crowd out households looking to satisfy "needs"[10].

Adding to this problem is the inability of the market to automatically correct this imbalance to produce a more equitable distribution of shelter stock, which represents a form of market failure. If households looking to satisfy their "wants" have the purchasing power to pay the higher price to do so, then demand would outpace supply for a given type of shelter; both households looking to satisfy "wants" and those looking to satisfy "needs" would face higher prices. Conceivably, given that some consumption of shelter is a need, those who do not have access to that need value shelter more highly than those who are looking to satisfy a "want". If the shelter market is catering to "wants" while not servicing needs, this leads to allocation inefficiency and constitutes a market failure.

Since they tend to have greater purchasing power, households looking to satisfy "wants" could hold a disproportionate influence in the shelter market, and the availability of cheap credit magnifies this effect. In a low interest rate setting, households looking to satisfy "needs" would be tempted to accumulate relatively cheap debt in order to finance shelter consumption, thereby exposing themselves to considerable financial risk. They effectively become a part of a troubling cycle of borrowing to meet their basic requirement for shelter.

[10] For detailed definitions of "needs" and "wants" households, see section 1.3.3 below.

7. Public policy and role of government: In Canada and other developed countries, there are many instances of government exercising regulatory intervention to correct for market failures and to protect the public good. In addition to market failure, it is also possible that government failure can occur, such that government interventions are inefficient, ineffective, or counterproductive. A responsible mixed market would be one in which the satisfaction of shelter "wants" would not restrict the ability of others to meet their "needs", and put major segments or the whole system at risk. In addition, the conversation about the interaction between shelter "needs", "wants", and the behaviours associated with both, places a public policy emphasis on the topic in which the government plays a role.

If shelter affordability demands a sophisticated and proactive public policy and prudential financial system response, then policy makers will need better tools to understand and navigate the complexity. Otherwise, unintended consequences will occur, and policy makers can become a part of the problem rather than a key ingredient to solutions.

1.3.3 DEFINITIONS OF OTHER IMPORTANT CONCEPTS

Prior to proceeding with the analysis, it is worthwhile to define several important concepts that will be frequently cited in the report.

- **"Needs" households**: These are households whose motivation to participate in the shelter market is purely to satisfy their non-discretionary need to consume shelter. It is very important to distinguish "needs" from low-income households: the "needs" category could, for example, include middle-class households looking for affordable and suitable shelter to satisfy their needs. At the same time, some low-income households may not only be looking to satisfy their shelter needs in the market.

- **"Wants" households:** This category refers to households whose motivation to participate in the shelter market is not only to satisfy a consumption need for shelter, but rather to satisfy a discretionary preference either for additional shelter units or for shelter with preferred characteristics, in excess of need. While some "wants" households will be affluent, this may not always be the case: even middle and low-income households could be considered "wants" households if they participate in the shelter market in order to secure shelter to fulfill preferences rather than needs. As investment is a discretionary activity in this framework, investors, domestic or foreign, are also motivated to fulfill "wants".

- **"Crowding Out"**: This phenomenon is important when discussing shelter affordability challenges. Unlike the economic concept of "crowding out", which refers to the squeezing out of private investment through increased government borrowing and expenditure, "crowding out" in the context of this report will refer to the squeezing of "needs" households out of the shelter market by "wants" households and investors, who are in a better position to satisfy their discretionary shelter preferences. Three ingredients—heterogeneity of households, heterogeneity of investors, and shelter differentiation—facilitate this process as competition for shelter stock intensifies. In effect, this would render "needs" households less capable of finding suitable and affordable

shelter to satisfy their fundamental consumption need for shelter. This will be the focus of section 0.

- **Core Housing Need**: According to CMHC, a shelter unit is rendered "acceptable" if it fulfills the following conditions:
    - Adequacy: Unit does not require major repairs
    - Suitability: In terms of size relative to household requirements
    - Affordability: The shelter unit costs less than 30% of before-tax household income. This figure is an arbitrary measure; however, it is a commonly cited threshold in Canadian literature and identifying an alternative figure is beyond the scope of this study.

      Households are said to be in core housing need if their shelter units do not fulfill at least one of the aforementioned conditions and if they are unable to pay the median rent for alternative local housing meeting all three conditions without spending 30% or more of their before-tax income (Luffman, 2006).

- **Household formation:** Refers to the structure and size of the household (i.e. whether it is made up of married couples with children, single parents, or couples with no children).

- **Systemic risk:** In the context of this report, "systemic risk" refers to risks that are inherent to an entire market segment as well as the wider macroeconomic framework.

1.3.4 SHELTER CONSUMPTION AFFORDABILITY RATIO (SCAR)

The framework attempts to provide the necessary tools to take into account the complex interplay between shelter and other economic and social facets. .

There are various indicators that could signal the presence of a shelter affordability problem. A future analytical exercise could demonstrate that these include:

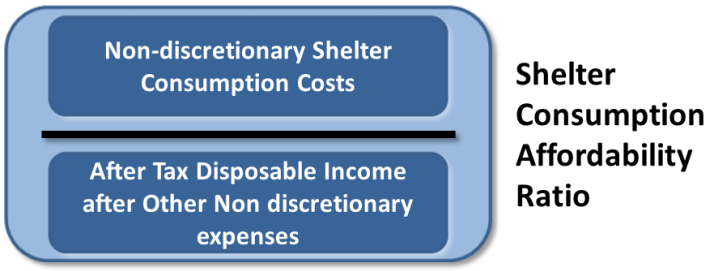
i) **Shelter stock imbalance:** A structural mismatch between total shelter stock and the number of occupied shelter units on aggregate. An example of shelter stock imbalance would be when households in general cannot access their shelter "needs" due to limited aggregate supply;
ii) **Shelter allocation inefficiency:** An allocation mismatch within the existing shelter stock where households are unable to find shelter that is suitable to their "needs" despite adequate supply; and
iii) **Shelter allocation unaffordability**: A situation where financial difficulties make finding acceptable shelter more challenging (and is one factor to understanding the allocation ineffectiveness problem).

Although each of these measures can form an index, the focus of this research is shelter affordability. As a first attempt to organize the concepts and factors at work, an index is proposed that focuses upon the consumption needs of shelter, termed the Shelter Consumption Affordability Ratio, or the SCAR index. Any such index would have to take into account the full consumption costs of shelter and compare them

to a household's net disposable income after deducting the costs of non-shelter necessities (which could include the costs of food, clothing, and other necessities).

A SCAR index considers the consumption cost of satisfying the need for shelter. Mathematically, it is formulated as follows:

Figure 5 Shelter Consumption Affordability Ratio



SCAR numerator: One key difference in the SCAR index compared to other indices is the attempt to separate investment positions from shelter consumption. Therefore, mortgage payments are not considered part of the cost of shelter, but instead actual rent (for renters) or imputed rent (for discretionary and non-discretionary homeowners) are used as the key component of shelter consumption. In addition, the cost of utilities (electricity, water, natural gas) is included under shelter consumption costs. Finally, as people must be able to reach necessary amenities from their location of residence, transportation costs are included to capture the effect of proximity on affordability. For example, if low rent apartments are only available a great distance from the location of jobs, effective shelter consumption costs should be higher than if the same apartment (for the same rent) were available closer to the location of work.

SCAR denominator: After-tax disposable income after other non-discretionary expenses are deducted refers to net disposable income (income after taxes, deductions, and required interest payments) less three necessary consumption expenses: food, clothing, and private health care costs[11]. The denominator excludes any shelter-related consumption costs that are included in the numerator. If incomes are rising more slowly than shelter costs, the index will tend upward, indicating affordability pressures. Similarly, if the costs of required food and clothing, for example, increase more quickly than other components, the SCAR will increase as well, other things being equal.

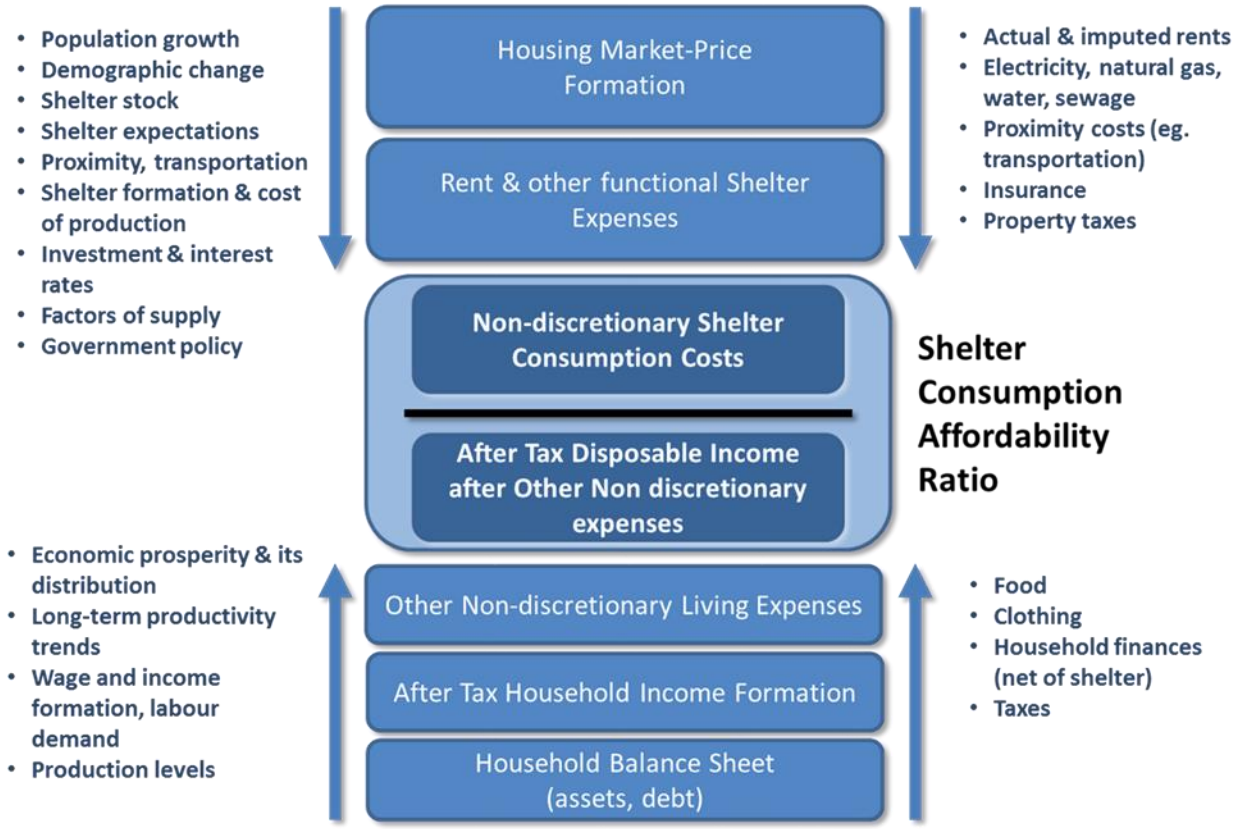
The SCAR aims to measure the costs of shelter consumption (as opposed to investment) necessary to maintain a household relative to available discretionary income. A higher value of the index indicates that shelter is less affordable as a greater proportion of discretionary spending is being spent on shelter. By then allowing for household differences (heterogeneity) and factoring in the multidimensional character of the affordability paradigm, the SCAR represents an improvement over existing indices that should provide a foundation for more effective affordability dialogue and public policy planning and execution.

[11] The nature of the SCAR framework is such that it could be refined in the future to incorporate other non-shelter-related necessities should the evidence point to their growing influence on affordability pressures.

That being said, the SCAR framework does currently exhibit some shortcomings that would warrant future investigation and research; these primarily relate to limitations within the datasets used by Statistics Canada to measure shelter and non-shelter related consumption amongst other issues[12].

Consideration of the SCAR reveals the many factors that contribute to a measure of affordability, which can be initially categorized as factors that affect the consumption cost of shelter (the numerator) and factors that affect a household's ability to pay for using shelter (the denominator). Figure 6 outlines some of the key factors that combine to give rise to SCAR, which are addressed in a summary format in section 2.0.

Figure 6 SCAR: Components, Pressures, and Driving Forces



[12] Detailed information on the SCAR ratio, its components, and some of its limitations is available in the Appendix at the end of this report.

2.0 FACTORS BEHIND AFFORDABILITY

Shelter affordability as measured by the SCAR is directly affected by a combination of demand-side and supply-side variables as discussed in section 1.3.2. In order to understand how various forces measured by the SCAR's numerator and denominator impact shelter affordability, sections 2.2 through 2.7 illustrate broad trends associated with some of the driving forces behind the non-discretionary costs of shelter, income levels and distributions, and non-discretionary expenses.

2.1 OWNERSHIP VS. RENTAL MARKETS AT A GLANCE

In their attempt to access shelter for consumption, households are confronted with two options: to own or to rent. Section 0 discussed how most of the existing literature and measurements of affordability tend to focus on ownership while overlooking the rental and consumption component of shelter. One result of this is that public policy measures have devoted more attention to ownership compared to the rental market. As an example, both federal and provincial governments have supported potential owners "with subsidies and institutional changes (such as lower minimum down payments or the use of [Registered Retirement Savings Plan] (RRSP) funds to [help households] buy a home)" (Hulchanski, 2005).

The rental market, on the other hand, has not received as much public policy attention. For households that cannot afford to own a home, the only choices are the market and non-market (socially supported) rental sector. Households in lower income quintiles are more likely to rent than own shelter (Statistics Canada, 2015). As a result, the rental market could be considered an option for people who cannot afford home ownership to satisfy their shelter consumption needs[13].

However, Canada's rental sector suffers from several market failures: in a 2014 report, the Organization for Economic Cooperation and Development (OECD) stated that "rising house prices have worsened affordability disproportionately for renters, who tend to have lower incomes than homeowners" (Organisation for Economic Co-Operation and Development, 2014). The report also notes that rental markets across Canada's provinces have largely failed to provide affordable units for consumption, and that while "a significant share of condominiums in major cities is rented out, they typically have higher rents and represent a less stable shelter supply for tenants" (Organisation for Economic Co-Operation and Development, 2014. Lack of public policy intervention in the rental market has been cited as a source of failure, with the report advocating for policies that would direct planning efforts towards improving suburban public transit connectivity to alleviate some of the pressures in the rental market (Organisation for Economic Co-Operation and Development, 2014.

The lack of supply of purpose-built rental units relative to condominiums has compounded rental market affordability pressures: less than 10% of housing starts in areas where 50% of Canada's population lives were intended for the rental market (Federation of Canadian Municipalities, 2012). Supply of rental units has failed to match the strength in demand for rental accommodation, especially in major urban areas (Federation of Canadian Municipalities, 2012).

[13] An exception to this would be households who opt to borrow to finance home ownership, as they find rental prices too high to make renting a viable option.

It is interesting to note that:

> "between 1955 and 1980, purpose-built private rental apartments constituted 33 percent of total housing production. During the 1960s, half of [housing] production was rental […] Canadian rental housing in the 1960s accommodated a spectrum of households, from high to low income, its distribution by quintile almost mirroring Canadian society" (Suttor, 2015).

Over time, however, rental production has declined considerably: since 1986, "the ratio of rental production to net rental demand [excluding the outlier 1996-2006 period] has fluctuated between 43 and 59 percent", compared to nearly 100% in the 1960s and 1970s (Suttor, 2015). Greater reliance on filtering[14] has been cited as a primary reason for the decline in rental production as well as the public policy failure to ensure adequate "income-targeted social housing production" in the 1990s (Suttor, 2015).

The introduction of condominiums to the shelter market (since the early 1970s) has also had an impact on the supply of rental and ownership units. Prior to that period, "all areas zoned for medium and high residential densities were by definition rental districts. Low-density zoning tended to be associated with owner-occupied housing" (Hulchanski, 2005). The passage of condominium legislation by provincial governments, however, meant that rental property developers have had to compete with condominium developers. With renters generally earning less income than homeowners, this gave condominium developers an advantage when bidding for land relative to rental property developers. This has also compromised the supply of affordable rental units.

If the rental market is considered the "base", and the ownership market is an "option" for households that can afford it, a case could be made for more proactive public policy measures to create a solid rental sector that mitigates the market's failures (Hulchanski, 2005). Three failures stand out in particular: reduced production of built-for-purpose rental accommodation since the 1980s, growing income and wealth inequality between owners and renters (more on this in section 3), and the lack of "land zoned specifically for rental housing" (Hulchanski D. , 2005) (more on this point in section 2.3).

Differences in market trends and public policy responses across ownership and rental markets are likely to impact households' tenure choices over time, with medium and long term implications on shelter affordability. The following subsections will delve into some of the demand and supply-side factors that directly influence shelter consumption overall.

[14] Suttor defines filtering as follows: "since the 1980s, the majority of housing production [has been] priced for the upper-middle and upper-income quintiles. Added demand [by] middle and lower-middle income groups is met mostly by ownership acquired earlier in the lifecycle, market rental, and affordable resale homes. Growth in the lower quintiles is met by existing rental units shifting from occupancy by middle-income renters as they move out". In other words, the existing rental units filter to lower income quintile households.

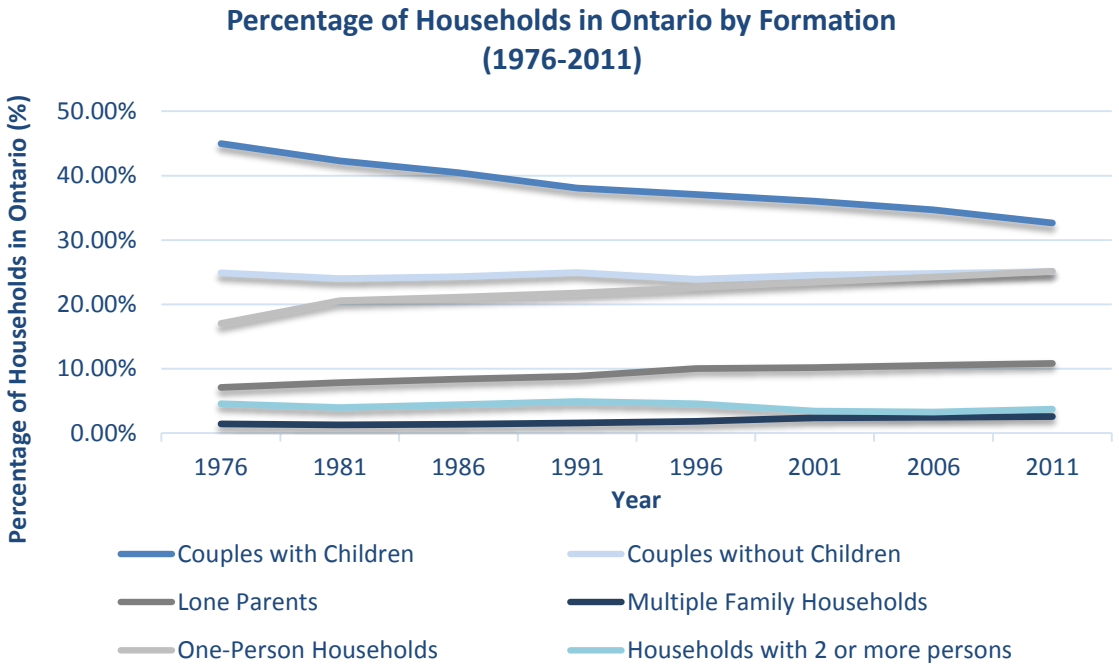
2.2 Shelter Consumption Costs: Demand Side

Demand-side factors that directly influence shelter consumption costs, and in turn, shelter affordability, include demographic influences, investment dynamics, the cost of borrowing, and urbanization, all of which can impact the way households pursue their shelter needs and preferences.

2.2.1 Household Formation

Changes to household size and structure since the early 1970s have significantly impacted aggregate demand for shelter. The number of families characterized by couples with children has fallen faster than families made up of couples with no children and one-person households. These trends are illustrated in Figure 7.

Figure 7 Percentage of Households in Ontario by Type
(Source: Canada Mortgage and Housing Corporation, 2014)



One way developers have responded to this development is that over time, they have been constructing units with fewer bedrooms per kitchen, bathroom, and other features. This effectively increases the marginal cost for each bedroom, rendering shelter more expensive on a per-capita basis relative to household formation. Another factor that may contribute to the decreasing number of bedrooms is an aging population; older households are more likely to be one-person households (Statistics Canada, 2013a).

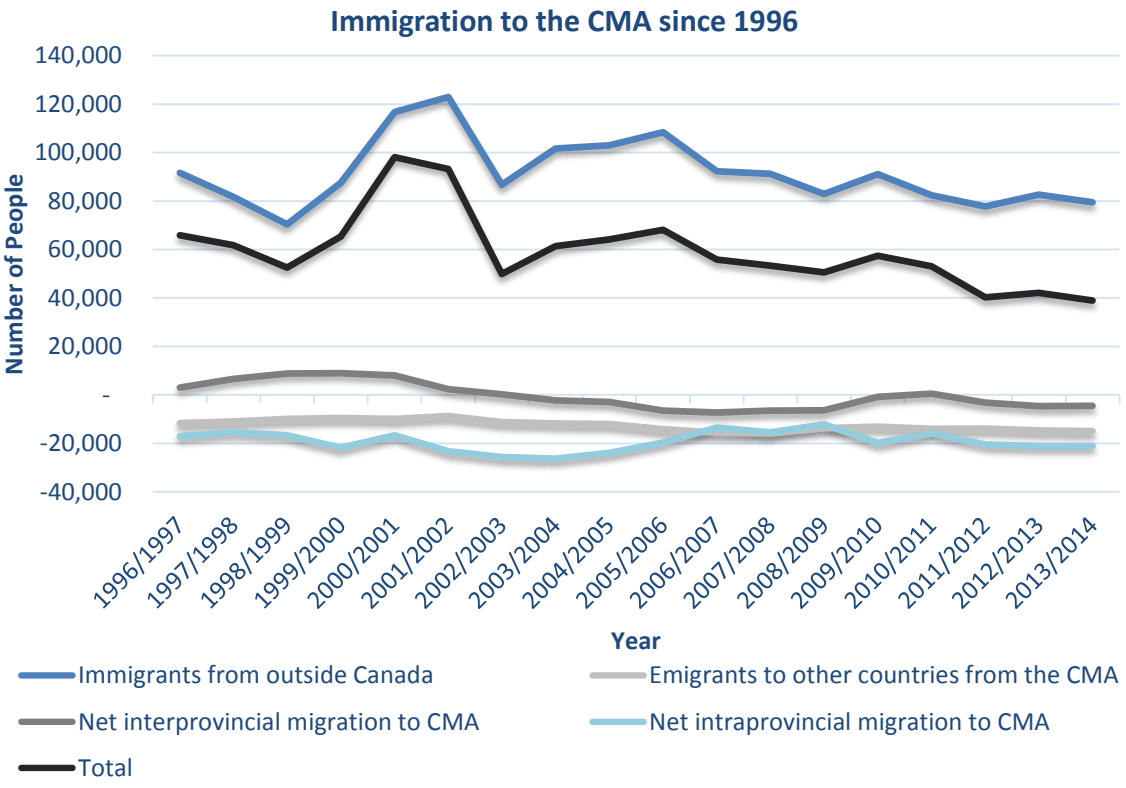
Furthermore, higher proportions of households with children are in core shelter need, and are more likely to demand single-detached homes. These families begin to emerge as a vulnerable group that is potentially crowded out of the shelter that better serves its needs.

POPULATION GROWTH AND IMMIGRATION

Over the past decade, Ontario's population has grown by nearly 1.3 million residents, representing a 10% increase. Population growth is a significant component of shelter demand pressures. Most of this population growth has affected areas outside of the city of Toronto: the city of Toronto absorbed only 16% of the growth, while other areas in the GTHA absorbed about 63%. Future trends also point to consistent demand-side pressure from population growth, with projections expecting another 10% increase in Ontario's population over the next 10 years. The city of Toronto alone is expected to receive around 276,000 new residents over that period.

Immigration from outside Canada has also been a key demand-side driver: over 630,000 individuals have settled in the Toronto CMA over the past decade, of which 55% have been immigrants. A key distinction should be made between immigrants and foreign buyers, as some foreign buyers invest in Canadian shelter markets without necessarily moving to the country (more on this later in the section). Over the past ten years, however, 437,000 people left Toronto, with 55% of them moving to other parts of the province. Almost two thirds of all immigrants rent rather than own shelter, suggesting either that the population of recent immigrants is priced out of home ownership, or that they are looking to satisfy shelter "needs" rather than "wants". Increases in the cost of rent, however, place even heavier burdens on this vulnerable sub-population. This may cause residents of the CMA to relocate to different provinces as a result. This is visualized in Figure 8, below.

Figure 8 Immigration to the Toronto CMA since 1996
(Source: CANSIM Table 051-0047 and 051-0057)

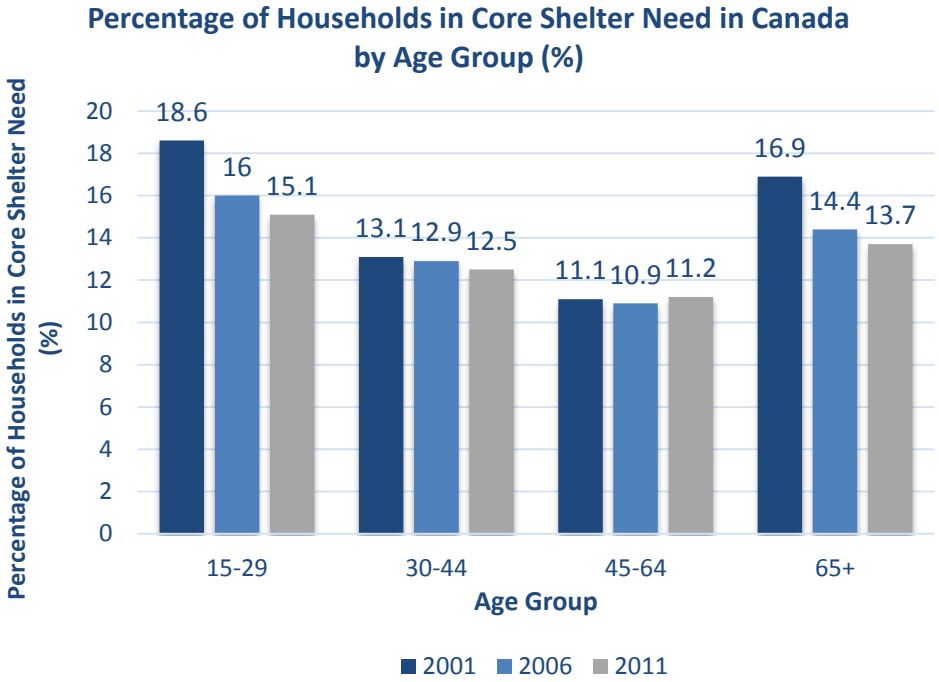


Although the proportion of immigrants that settle in Toronto each year declined from the early 2000s to 2014 due to increased immigration to Alberta and the Western provinces (mainly in response to developments in the oil industry), recent reductions in oil and other commodity prices such as metals may renew net inflows of immigrants into Ontario relative to the Western provinces.

2.2.2 YOUNGER COHORTS AND CORE HOUSING NEED

Across Canada, there has been a drop in percentage of households aged 15-44 who are in core housing need, which is illustrated in Figure 9.

Figure 9 Percent of Households in Core Need in Canada by Age
(Source: Canada Mortgage and Housing Corporation, 2011)



While on the surface it may appear that this group is experiencing healthier shelter market outcomes, this may also suggest less favourable developments. For example, affordability pressures, unfavourable economic conditions, and proximity to urban concentrations have induced younger individuals to delay household creation or to opt for smaller-sized households with fewer or no dependents, which could help ease affordability pressures and reduce the likelihood of falling into core shelter need.

Furthermore, due to the increasingly prohibitive expenses of home ownership, younger households are increasingly opting to rent rather than own in spite of the fact that rental market prices are also increasing. Part of the reason for this relates to weaker job prospects and precarious employment, which are discussed in further detail in sections 2.7.3 and 3.4.2.

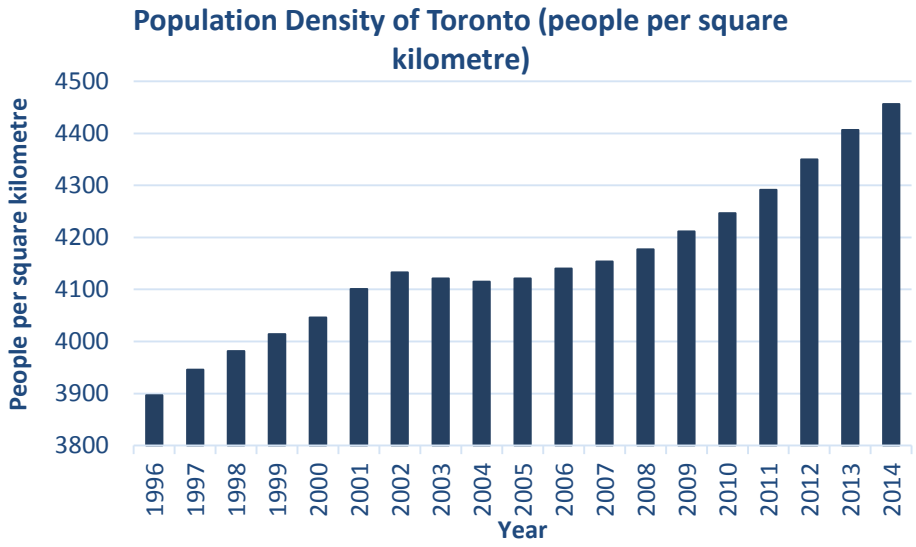
The decreasing affordability of home ownership has swayed young households towards rental. However, the appreciation in rental prices (especially in core urban areas) and the reduction in rental supply caused

by strong demand for upscale condominiums by households looking to satisfy their wants, amongst other reasons, has made renting affordable shelter more difficult as well.

2.2.3 URBANIZATION

Increasing urbanization has also produced demand-side pressures that have had implications on shelter affordability. Toronto, for example, had the highest population density of all major urban centres in Canada, while Toronto, Montreal, and Vancouver's population densities were relatively higher in a sample that included 12 major US urban centres (Hess, Sorensen, & Parizeau, 2007). The growth in Toronto's population density is visible in Figure 10.

Figure 10 Population Density of Toronto (people per square kilometre)
(Source: CANSIM Table 051-0052 and 051-0062)



Urbanization has been a contributing factor to the increased density seen in Toronto (including its downtown core), causing the costs of shelter to surge substantially in this area.

Over 86% of Ontario's residents live in urban areas, and around 60% of these residents are below the age of 45. Urbanization has also had an effect on tenure choice and trend differences across both ownership and rental markets. For example, research has observed that:

> "As the baby boom entered the ownership market, the process of urban gentrification removed both lower-cost ownership housing and rental units from the market […] the loss of the lower-cost rental units was well-documented by municipal housing departments in the 1970s and 1980s" (Hulchanski, 2005)

The increased inflow of young households to urban areas could be indicative of increasing pressure on younger individuals to pursue higher earnings in core metropolitan areas. This would implicitly suggest a "trap" in which young households confronting affordability issues determine that the best solution to address these problems is by relocating to urban areas, which in turn are more costly to live in. Therefore, urbanization could be seen as indirectly conducive to the rise in shelter costs.

2.2.4 INVESTMENT DYNAMICS AND THE MARGINAL INVESTOR

Investment dynamics play a role in shaping market supply and demand. Initial levels of investor confidence are typically followed by increases in existing and new shelter purchases, which fuel higher levels of investor confidence and, in turn, lead to higher prices[15]. Foreign and domestic investors have been actively purchasing existing single detached homes and condo units in Ontario for investment purposes over the past several years. Due to Canada's relatively stable political and macroeconomic environment, foreign investors find the shelter markets in major urban centres such as the GTA and Vancouver lucrative in terms of the risk/reward ratio. However, there are conflicting accounts regarding the number of foreign investors operating in the Canadian market, creating ambiguity and therefore risk as a result of the lack of consensus around this activity. The existence of foreign investment in the domestic market implies that a substantial component of demand for single detached homes emanates from investors with no motive to satisfy their own shelter requirements. Given the competition that already exists between households with and without children for single detached homes, households looking to satisfy their shelter "needs" face additional pressure and barriers to shelter access as a result of households looking to satisfy "wants"—both consumers and investors. This would suggest that increased investor confidence could exacerbate the affordability problem.

Marginal investors are also important agents to consider. In this context, they refer to affluent households and investors (domestic and foreign) who possess the purchasing power to exert disproportionate influence in the shelter market. They exercise a discretionary choice to consume additional units of shelter (mainly for investment purposes in anticipation of improved future valuation), thereby competing with households looking to satisfy their shelter "needs" and pushing some of these households into the rental market. Future price expectations also determine how many properties these investors place on the market, thereby affecting shelter supply. Another issue to consider is that marginal investors who do not reside in Ontario could affect the type of shelter supplied, with significant consequences on resident households. For example, should foreign investors exhibit a preference for smaller condo investments, developers and planners would cater to this preference and gradually change the nature of shelter available to resident households.

As for foreign investment in Canada's and Ontario's shelter market, there is scant data available on how many foreign investors are purchasing Canadian homes, which has created knowledge gaps when it comes to identifying the role of these investors. Nonetheless, realtors in Vancouver's luxury market have observed that "more than 80 percent of buyers have ties to mainland China", with the majority of these individuals having "ambiguous job titles […] which may point to money being earned abroad" (Reuters, 2015).

In itself, foreign investment would not be a problem provided that the needs of resident households are not crowded out of acceptable shelter and that their activity does not induce systemic risks. The possibility of pulling out of the market for speculative reasons engenders vulnerability and exacerbates the extent of a shelter market correction. Monetary policy changes, such as an increase in interest rates, is one way in which such investment behaviours can be disincentivized.

[15] Referred to in systems theory as positive feedback. A "herd" or "crowd" effect, which generally occurs in small increments, and can correct quickly when the resources fueling the process runs out (such as the ability to borrow).

2.2.5 INTEREST RATES

Interest rates carry both market-related and systemic implications. In terms of their direct demand-side impact on the shelter market, they would affect mortgage servicing costs and the decision to borrow money to finance shelter purchases.

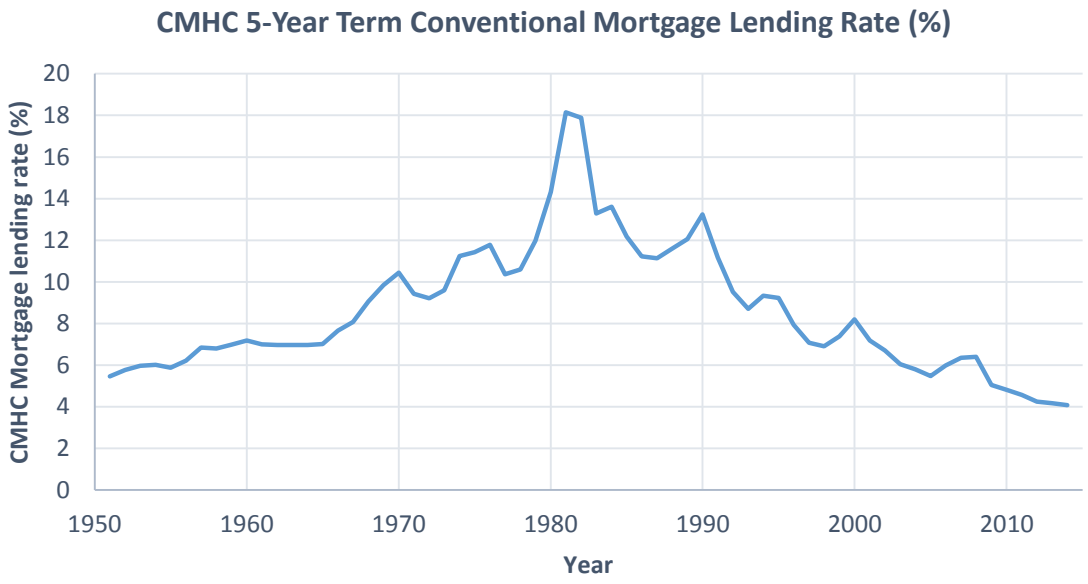
Since the early 1990s, households have increased their consumption levels as their disposable incomes increased. Income per capita and consumption expenditure growth (combined with stable inflation rates and low interest rates) may provide an impression of a society that has accumulated wealth and could afford necessities more easily, but this overlooks other critical developments.

For example, the increase in household consumption coincided with increased home-equity extraction, or household borrowing against equity in existing homes through mortgage debts and home equity lines of credit (HELOC); additional information on household debt is available in sections 2.7.5 and 3.4.5. Research suggests that since the late 1990s, the rise in disposable income has been inadequate to sustain the consumption levels that would satisfy households' needs. As a result, borrowed funds (partly from home-equity extraction) have been increasingly used to finance consumption.

Interest rates are also an important determinant of the demand-side decision to lease or buy, which particularly affects younger households. Small increases in the interest rate could substantially affect the interest payments made by households over the term of a mortgage loan, making rental a more favourable option (other things being equal). For younger households, this would mean that small changes in interest rates could significantly affect the payments made over the course of the mortgage loan, especially if the loan extends over a long period of time. It should be noted that other variables, such as the household's credit score, would also combine with interest rates to influence the overall decision.

Changes to interest rates also carry supply-side implications. Landlords with adjustable rate mortgages endure changes in monthly payments at certain adjustment dates as interest rates move up or down. This could motivate landlords to pass on some of the associated increase in mortgage expense to renters in the form of higher rental rates. In turn, this would affect households' housing tenure choice. It is important to note that macroeconomic variables such as interest rates by themselves cannot indicate whether there is an affordability problem for necessities. As can be seen in Figure 11, present interest rates are at historically low levels and are comparable to where they were in the 1950s, when affordability issues were not as pressing as they are now.

Figure 11 CMHC 5-Year Term Conventional Mortgage Lending Rate (%)
(Source: CANSIM Table 027-0015)



An environment characterized by relatively low interest rates and credit-fueled household consumption has helped divert attention away from fundamental issues in the shelter market that have left a segment of the population squeezed out of access to acceptable shelter. Interest rates therefore have both demand and supply-side implications, also acting as one of the many forces that influences what type of shelter, how much of it, and for whom it is supplied to the market, alongside other cost considerations.

2.3 Supply-side Considerations: Factors that Affect Shelter Supply Costs

Supply-side factors are also implicated in the market dynamics that shape and determine shelter-related expenses. These include production costs, developers' profitability considerations, land supply, and infrastructure provision, amongst others.

Prior to discussing these supply-side factors, it is worth pointing out what type of shelter the market has actually been supplying recently. In core urban areas such as the GTHA, developers have been increasingly constructing multi-unit dwellings, such as condominiums, as opposed to built-for-purpose rental units and single detached homes (CMHC, 2015b). One reason for this is that developers are increasingly catering to affluent households and investor preferences for upscale condominiums. Another reason, however, pertains to developer preferences: according to a Toronto-based developer, while built-for-purpose rental buildings require a large upfront investment and then a long period of time before developers would see a return, a developer would build a condo and then immediately see revenues (Goetz, 2015).

It is also worth bearing in mind that the supply considerations for single-detached homes and condos are different. For example, while various analysts point to overbuilding of condominiums as a risk in Toronto, others suggest that such a risk is overstated in light of the increasing demand for rental properties by millennials (McDiarmid, 2015). Moreover, international migrant demand for condominiums in the city

remains strong (McDiarmid, 2015). This could explain why developers have been less concerned about overbuilding and oversupplying condominiums. In contrast, "the lack of greenfield land available for development in Toronto" implies that single-detached homes in established neighbourhoods are in very limited supply (RBC-Pembina, 2013). Issues of serviced land availability would be more likely to affect the supply considerations of single-detached homes than those of high-rise condominiums.

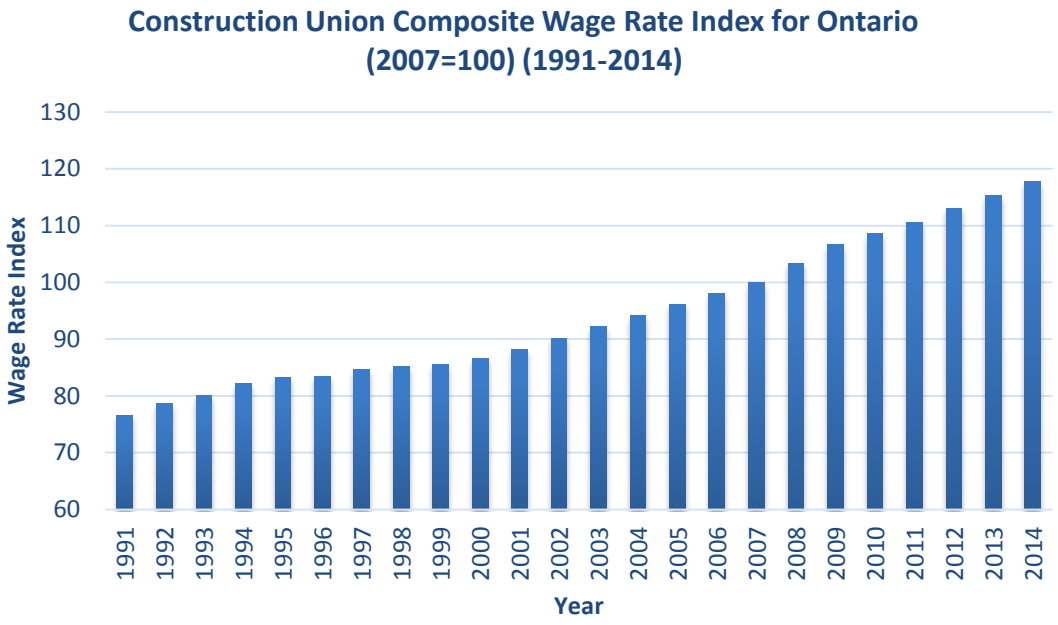
The increase in the supply of condominiums is also consistent with some of the changes in provincial and federal policy that have taken place. It is worth noting, for example, that rental buildings were popular between the post-WWII period and the 1970s. Following this, beginning in the 1980s, both the provincial and federal tiers of government cancelled tax incentives that encouraged affordable rental developments (Goetz, 2015). Others have also cited the role of rent controls in inhibiting and discouraging the development of rental units by artificially lowering prices and creating a supply/demand mismatch in rental markets in both Canada and other countries (CRRA, 2015). In some suburban areas there has been an increase in condo construction, such as in the Mimico and Alderwood area of Etobicoke (McMahon T. , 2014). Nevertheless, the limited supply of shelter stock in these regions has also generated supply-side pricing pressures; this will be discussed in further detail later on in this section.

2.3.1 PRODUCTION COSTS AND DEVELOPER PROFITABILITY CONSIDERATIONS

Three supply-side factors affecting the cost of shelter are unit labour costs, delays to construction, and developers' profitability considerations. For instance, the presence of work stoppages could also delay construction and restrict shelter supply.

While some have argued that land and government-imposed fees and levies have a greater effect on affordability pressures than labour and construction costs (CHBA, 2013), other studies based on Canadian and international experiences opine that reducing the cost of land as well as construction and operations "could make housing affordable for households earning 50 to 80 percent of median income" (McKinsey and Company, 2014). Figure 12 uses Statistics Canada's construction union composite wage rate index as a proxy for unit labour costs across different professions within the construction industry (in line with other studies); it shows that labour unit costs have gone up by over 50% since the early 1990s. Some sources suggest that a similar trend exists for material costs of construction (Carrick, 2015). This would indicate that construction has featured greater production costs over time, which other things being equal would lead to supply-side upward pressures on shelter prices.

Figure 12 Construction Union Composite Wage Rate Index for Ontario
(Source: CANSIM Table 327-0045)



As of 2012, 31.5% of employees in the construction industry were unionized (Galarneau & Sohn, 2014); unionization is a much more important feature in the GTA than other parts of the province (such as Halton, London and Ottawa). In general, unionization of labour presents opposing forces on the issue of affordability: on the one hand, it serves as a potential tool for collective bargaining and amelioration of working conditions. Such issues could improve living conditions for the unionized workers and might indirectly mitigate pressures on household expenses through increasing employment income. On the other hand, unions could also lead to wage inflexibility and reduction of employment opportunities for non-union members; this could potentially worsen affordability pressures for some. In addition, rising labour costs caused by unionization, like rising material costs in general, increase the price of shelter and make it less affordable.

Another problem for the Ontario construction industry at present are the shortages that exist across several professions. The average ratio of entrants to near retirees has been decreasing since 1987 for several professions within the construction industry (these professions could refer, for example, to electricians, machine and crane operators, amongst others). In other words, the industry is losing employees with specialized expertise and experience, while the labour market is failing to recruit and train enough young entrants (who are more likely to be in need of improving their socioeconomic prospects in order to afford shelter and other necessities) to replace these employees (Certified General Accountants, 2012).

2.3.2 LAND SUPPLY

Public infrastructure and land use are arguably the most significant supply determinants of density, proximity and structure, all of which affect whether a unit of shelter is attractive to prospective investors and consumers.

There is continuous debate on whether land availability features as an important supply-side driver of shelter costs, or whether regulations are in fact limiting access to land that could be used to construct more units. This section will highlight the various arguments made by commentators and analysts on the issue of land supply, which can be divided into the following categories:

- Arguments that allude to a shortage of land as a supply-side constraint;
- Arguments that refer specifically to a shortage of serviced land; and
- Arguments that do not consider land supply shortages to be a major constraint.

Ontario's Ministry of Municipal Affairs and Housing states that where new development is to occur, planning authorities are required to maintain at least a 3-year supply of land with sufficient servicing capacity for residential units at all times (Ministry of Municipal Affairs and Housing, 2006).

When discussing land supply issues in Ontario, it is important to raise the issue of the Greenbelt Plan, which was introduced in 2005 to provide clarity and certainty about urban structure, and where and how future growth should be accommodated (RBC-Pembina, 2013). The provincial government and the construction industry are divided over the merits of the Plan and its proposal to protect about 400,000 hectares of land within the Greater Golden Horseshoe from urban development. While some opponents in the construction industry argue that removing such land from potential development would create supply-side shortages that would raise home prices, the provincial government maintains that protecting the Greenbelt is necessary to reduce urban sprawl and to conserve environmentally sensitive areas in light of the demographic pressures that Ontario faces (Ministry of Municipal Affairs and Housing, 2015).

With that in mind, the Greenbelt Plan discussion points to the debate on whether land supply significantly affects shelter affordability in Ontario. One strand of the debate argues that government barriers to total shelter supply in the GTHA (irrespective of the type of shelter unit constructed) are primarily responsible for affordability pressures as they hinder the market's ability to match supply to demand (Lighthall, 2004). A 2011 RESCON report, for example, notes that shelter supply has been constrained through a shrinking inventory of available building lots. The shortage has resulted in rapid rises in land prices, estimated at 141% over the past decade, or more than 9% per year (Dunning, 2011).

Others point to scarcity of serviced land rather than government regulation. For example, Frank Clayton of the Centre for Urban Research and Land Development at Ryerson University, attributes the sharp increase in shelter prices over the past decade to a drop in the availability of serviced lots, which occurred in spite of the Provincial Policy Statement requiring municipalities to maintain a three-year supply of land with servicing capacity (Clayton, 2015). This view is also shared by some developers as well as the BILD Association, which considers the limited supply of serviced lots a serious problem especially in the GTHA (Ervin, 2015).

In addition to direct policies governing land supply, other development policies may also contribute to the regulatory framework that has caused a potential shortage in serviced land. For example, in the case of municipal finance, if development charges are priced according to average development costs in a region rather than marginal costs, then urban sprawl may be encouraged. While average cost pricing is not the only potential cause of urban sprawl, developers are not necessarily incentivized to build in such a way that supports intensification objectives rather than outward expansion as a result of development charge policies alone. In other words, one of many possible reasons for a potentially insufficient supply of serviced land at a given point in time in a particular region is that average cost development charge pricing encourages its consumption rather than its conservation.

A third side of the argument contends that there is in fact enough land available to develop properties, and other issues are primarily responsible for affordability pressures. For example, RBC-Pembina's 2013 report, Priced Out, states that there is an adequate supply of land in the GTA for approved and future residential developments, with municipal projections pointing to the fact that 81% of the land available for development will still be unused by 2031 (RBC-Pembina, 2013). The same report also suggests that land supply is not an issue for areas outside of Toronto. However, the findings of this report have been challenged by a more recent Neptis report that looked at land supply in the GTHA. That report notes that even though total available land supply is meant to accommodate population growth up to 2031, this overlooks the "time lag between the designation of land [available] for urban use and the time that land is serviced with sewer, water pipes and other infrastructure and ultimately built upon" (Neptis, 2015). Moreover, the rate at which land supply was being urbanized slowed down by 16% since 2001, meaning that the supply of land suitable for development in urban areas has not kept pace with demand (Neptis, 2015). Finally, the report acknowledges lack of diversification of shelter stock in the GTA as another supply-side factor driving affordability pressures (Neptis, 2015).

A greater share of the research points to the scarcity of serviced land as a major constraint to shelter supply and as a primary supply-side factor pushing shelter prices upward. Research by Frank Clayton indicates that at some point in the future, current land release policies may create constraints on land availability in Ontario as a whole (Clayton, 2015). It is worth noting that land scarcity has hit core areas of urban cities the most—the very areas to which young households are attracted to for career and lifestyle reasons. On the other hand, other researchers have also suggested that pressures on shelter affordability do not primarily emanate from constraints in land supply, and are more susceptible to demand-side factors.

It is important to bear in mind that the impact of releasing more serviced land on affordability pressures largely relies on the concomitant public policy measures taken to ensure that affordable shelter is built on newly available land. In other words, the release of additional serviced land would have to be accompanied by appropriate zoning and other regulations to ensure that the land is used in such a way that does not only meet developer profitability requirements, but that it also results in the supply of affordable shelter, which the market on its own may not guarantee. How shelter prices would be affected by these pressures would likely depend on the type of shelter developers would build on the released land. For example, should developers build upscale properties on newly available land in response to "wants" demand, then shelter prices would not necessarily decline since demand for shelter by "wants"-pursuing households would crowd out demand by households pursuing shelter "needs". The relationship

between the two variables is complex: they could be positively or negatively correlated, or not correlated at all depending on how supply and demand-side factors collectively interact.

For example, closely linked to the concept of land supply is the level of infrastructure provided on any land that is allocated to residential development, as it also generates pricing pressures and may, in some cases, act as a supply constraint.

2.3.3 INFRASTRUCTURE PROVISION

The literature on the relationship between transportation infrastructure, land value, and real estate prices is extensive. International experience reflects a mixed picture, suggesting that provision of and access to transportation networks has an ambiguous effect on shelter affordability.

On one hand, transportation that links rural and suburban areas to economically-active core metropolitan areas would induce households to relocate to these regions in order to avoid the exorbitant ownership and rental costs of living in core areas. Depending on whether the difference in shelter prices in core and non-core areas exceeds the cost of transportation, demand-side pressures on shelter in core areas could be alleviated. This could occur because transportation networks would enhance the composite profile of shelter units in non-core areas by improving their proximity aspect. Another reason for this effect concerns the fact that transportation facilitates business creation and a more diffuse economic development process, which could attract some households to live in these newly-growing areas and generate affordability pressures in those regions.

Looking specifically at transportation infrastructure, over 40% of suburban residents still commute to work using congested highways leading to the downtown core (which accounts for nearly 50% of Ontario's GDP) (TD Economics, 2015). While this correlates to the urbanization pattern discussed in section 2.2.3, it also suggests that there is a dysfunctional pattern of economic development that could be contributing to imbalances in the pricing of shelter across different parts of Ontario. Better infrastructure would help attract businesses and economic activity to other parts of the province, which would in turn diffuse affordability pressure in areas such as Toronto's downtown core. The more transportation corridors and regional road support built and used, for example, the greater the possibility that price pressures would diffuse from the core towards suburban and other areas of the province.

On the other hand, it is also important to bear in mind that over time, diffusion of growth may generate greater capital and maintenance costs on transportation infrastructure, as well as congestion, if infrastructure and transportation network plans do not accommodate the capacity necessitated by increased spatial growth in suburban and non-core areas. If these costs are passed onto households through higher transit fares or municipal fees or taxes, they would reduce disposable income and make shelter in general (whether in core urban areas or otherwise) less affordable.

It is also important to recognize that transportation has an ambiguous impact on overall affordability, even in core areas where the diffusion effect is expected to relieve demand pressures. The expansion/renovation of transportation networks could lead to an appreciation in land value and real estate around transportation infrastructure because both transportation infrastructure and mass transit can act as differentiators of shelter, leading to greater competition for shelter units situated near them.

Moreover, as this report demonstrates, the issue of affordability results from the interaction of multiple variables within a complex system of processes. Isolating the effect of transportation on affordability could prove difficult.

The provision of transportation infrastructure, therefore, allows for the differentiation of shelter. Differentiation itself is what allows for the process of households looking to satisfy their "wants" to crowd households looking to satisfy their "needs" out of the market. Because public infrastructure is a scarce resource that is laid in discrete quantities, certain households are able and willing to bid higher for these properties in order to make use of the adjacent transportation network and infrastructure (Real Estate Investment Network, 2010). In this way, less affluent households would tend to be priced out of such well-serviced areas, exacerbating the affordability issue.

These effects are also difficult to pinpoint in practice, particularly in the GTHA. One of the reasons for this may be the underinvestment in infrastructure in general, which could have inhibited spatial diffusion and other effects; infrastructure underinvestment is discussed in greater detail in section 3.5. In order to truly appreciate the relationship between transportation, shelter costs, and affordability, a systems approach to modeling the interaction across variables that uses areas such as the GTHA for analysis could prove useful.

2.3.4 DEVELOPMENT CHARGES

Costs associated with growth within a specific region are often incurred prior to the creation of new shelter units. Development charges levied by municipalities fall under this category: these charges are imposed on property developers by municipalities to recover expenditures incurred during the installation of the new infrastructure; a significant proportion of these charges are then passed on to homeowners (along with carrying charges), thereby adding to final shelter sale prices. Alternatively, these costs are capitalized into land values, which may also affect the final shelter sale prices faced by consumers. The Development Charges Act (1997) was introduced to provide municipalities with the financial capacity to pay for future growth. The Act, however, provided little guidance with regards to details on how charges could be calculated for each region (Government of Ontario, 1997). Bill 73, the Smart Growth for Our Communities Act, 2015 (Bill 73, Smart Growth for Our Communities Act, 2015) introduced a number of provisions that would overcome gaps in The Development Charges Act. For instance, the bill offers municipalities additional methods by which it can fund growth-supporting infrastructure, including transportation; promotes transparency in the process of setting development charges; and includes residents in the growth planning process (Ministry of Municipal Affairs and Housing, 2015).

Different municipalities have been levying development charges using different processes, which usually depend on their respective levels of infrastructure stock and land servicing requirements. As an example, development charges for Caledon, a more rural region, were considerably higher than those in Mississauga, an urban area, in the early 2000s as Caledon lacked the necessary infrastructure stock in the beginning. However, as differences in infrastructure stock reduced over time, development charge rates levied in both regions also converged.

Therefore, regions in need of infrastructure investment for development are more likely to levy higher charges or capitalize these costs into pre-development land values, which are then passed onto

developers who in turn pass a substantial share onto households. An interesting observation to make is that rates differ across regions but not shelter type (Building Industry and Land Development Association, 2001-2015). In other words, the rates imposed on single-detached and multiple apartments in a given region are similar. This implies that rates do not necessarily influence the choice of shelter type developed in a particular region. On the other hand, infrastructure provision would significantly influence the extent of development in a region, which would play a substantial role in shaping developers' preferences for increased shelter development in a particular area.

In some cases, inefficient development charge pricing may disincentivize growth from occurring where growth plans require it to. For example, if average-cost pricing rather than marginal-cost pricing is employed when development charges are set, urban sprawl rather than intensification may be encouraged (Baumeister, 2012). This occurs because with average-cost pricing, developers looking to build in areas where infrastructure is in place subsidize the growth in non-core areas where infrastructure is yet to be built. In that regard, development charges that use average-cost pricing do not incentivize intensification, all else being equal. The costs posed by development charges are then passed onto homeowners, who in some cases, are required to bear the costs not only of the infrastructure they need, but also the infrastructure backlog that must be resolved in that region. When shelter markets are strong, developers are able to transfer virtually all of the increase in development charges to the homebuyer (Fathers, 2014).

Figure 13 Trend of Average Development Charges in the GTA in Real Terms
(Source: BILD)

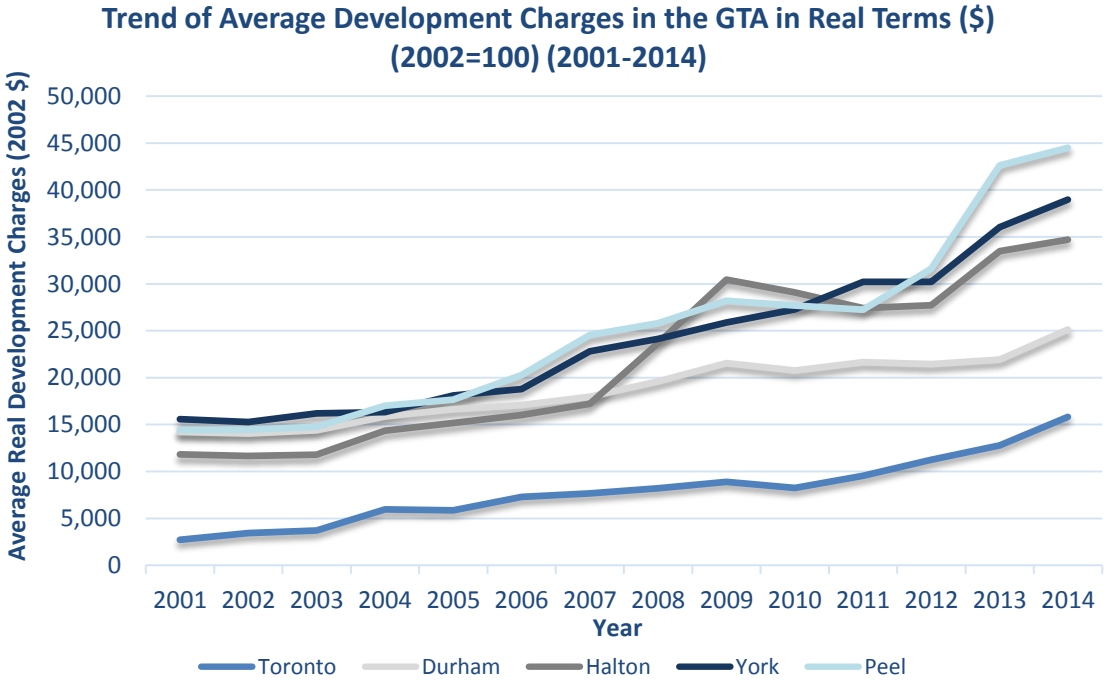


Figure 13 looks at the trend of development charges in real terms across five regions of the GTA from 2001 to 2014. Over that period, charges in Toronto increased by 478%, compared to 77% in Durham, 194% in Halton, and 209% in Peel. This could suggest that the city of Toronto experienced significant fiscal

pressures generated largely by the aforementioned population flows into the city over the past decade, and the associated infrastructure and service requirements these flows generated. On average, charges in the city of Toronto increased by 21% annually since 2010, faster than any other region within the GTA and Ontario. Another possible reason for this increase in the case of Toronto is that development charges are a way to fund new capital that otherwise would not get built because councillors would be reluctant to raise property taxes to pay for it. Growth in the city of Toronto is driven mostly by intensification rather than outward expansion. This carries implications not only for shelter affordability (given that some of the charges are passed onto households) but also for economic growth in Toronto (since the downtown area accounts for the majority share of the province's GDP).

Nonetheless, development charges in Toronto are lower in absolute terms than they are in the other four GTA regions: this could be because the city has a higher number of residents than the other regions, meaning that the rates charged to each developer could be lower, or a result of the fact that the city has lower infrastructure requirements than the other regions and therefore requires less revenue to be raised from development charges. Changes to development charges are also dependent on other demand-side factors: for example, demand for home ownership at present is robust and interest rates are low. Therefore, while development charges are primarily affecting developers' profit margins at present, changes to employment prospects, interest rates, or reduced consumer confidence could drive the City of Toronto to revise charges to extract more revenue. In addition, municipal legislation and procedures aside from those related to development charge pricing also have impacts on the nature of the supply of shelter.

2.3.5 DELAYS TO PLANNING AND SUPPLY PROCEDURES

Planning delays directly affect the supply of property to the market. Differences in implementation of municipal policy and oversight lead to significant regional fragmentation, resulting in different zoning and shelter policies across municipalities. These could delay the issuance of building permits (which could take up to 10 months) and cause builders to incur significant costs; other things constant, this would reduce shelter supply. Some studies allude to the importance of rezoning costs to shelter supply. By affecting approval timelines and regulatory costs, zoning bylaws could dictate "how land may be used; where buildings and other structures can be located; the types of buildings that are permitted and how they may be used; [and] the lot sizes and dimensions, [and] parking requirements" amongst other issues (Green, Herzog, & Filipowicz, 2015). While the precise impact of zoning on shelter supply is "difficult to measure" (Green, Herzog, & Filipowicz, 2015), a few observations can still be made. For example, current zoning bylaws in Toronto are complicated compared to most North American cities (Martin Prosperity Institute , 2010). In addition, the percentage of residential development requiring rezoning in Toronto is higher than the Greater Golden Horseshoe average, while the cost and fees are also higher by comparison (Green, Herzog, & Filipowicz, 2015). This has had an adverse effect on shelter affordability. A few suggestions were proposed by studies to alleviate this problem, including:

- Introducing a bonus system (as a zoning tool) to allow for additional height concessions on new developments in exchange for commitments to build affordable shelter units. This has been implemented successfully in New York City (Martin Prosperity Institute , 2010)
- Creative use of incentivized zoning to help neighbourhood development and improve shelter

affordability. In Seattle, for example, this has been used to mitigate affordability pressures while facilitating increased density in the downtown core (Martin Prosperity Institute , 2010)

- Use inclusionary zoning practices; these refer to bylaws that "require a given share of new construction to be affordable for people with low to moderate incomes" (Martin Prosperity Institute , 2010)
- Stronger commitment to expand the supply of affordable shelter in Toronto.

Regulatory practices can also affect the completion and delivery of shelter stock to the market. It is worth noting, for example, that the World Bank's Doing Business survey of business regulations ranks Canada 20th amongst OECD countries (and 53rd globally) when it comes to dealing with construction permits to build a warehouse (this refers to the ease of procedures, time and cost to complete all formalities to build a unit) (World Bank Group, 2015). The issuance of building permits has also been delayed by the existence of bylaws on shelter accessibility and environmental considerations; this has been especially significant in Vancouver, where it can take up to eight months to get a permit as opposed to four-to-six weeks without these bylaws.

A recent review by RESCON identified 45 government agencies that are directly involved in the process of home development in Ontario, adding significant procedural requirements to the supply of shelter units. The costs of these delays, along with other shelter-related charges and hidden fees, could account for as much as one fifth of the total cost of a home within the GTA according to the review. Another report by Bousfields and Altus Group for the Ontario Association of Architects noted that across municipalities, it took at least 6 months between submission and approval of a development application type in over 50% of cases (Bousfields and Altus Group, 2013). Meanwhile, in 2008, the Residential and Civil Construction Alliance of Ontario (RCCAO) issued a report evaluating reforms that were meant to tackle the building permit process in the GTA. One of its major findings is that not only is the business model under which GTA municipalities operate (which is based on peak period demand levels) costly and inefficient, but there is also a lack of qualified full-time staff to manage the process, especially during construction booms. Complicating the issue even further are the following matters:

- No comprehensive measures of municipal performance with respect to permit processing exist;
- Meeting legislated timeframes for making decisions on permits remains a challenge for many GTA building departments;
- It is essentially impossible for municipalities to meet the 30-day timeframe for making decisions on permits for complex buildings; and
- Municipal practices contribute to inefficiencies in the permit processing system, while some builder practices contribute to these inefficiencies as well.

Other factors responsible for backlogs in issuing construction permits could also include high demand for construction units and inadequate information for staff to make timely decisions on permit issuance. The financial costs of these delays could be substantial: in Vancouver, for example, it has been estimated that delays are costing builders and homeowners $30 million on financing charges alone, and that does not include the direct spending of over $1 billion on construction that is deferred for half a year. Therefore, these planning and processing delays produce significant financial ramifications that could be implicitly reflected in shelter prices.

2.4 Other Factors Behind Shelter Consumption Costs

In addition to factors that primarily affect shelter consumption costs through either supply or demand, other expenses exist that can impact investors, consumers, landlords, and tenants in different ways. These include property taxes, user fees, maintenance and utility costs, and non-discretionary transportation expenses.

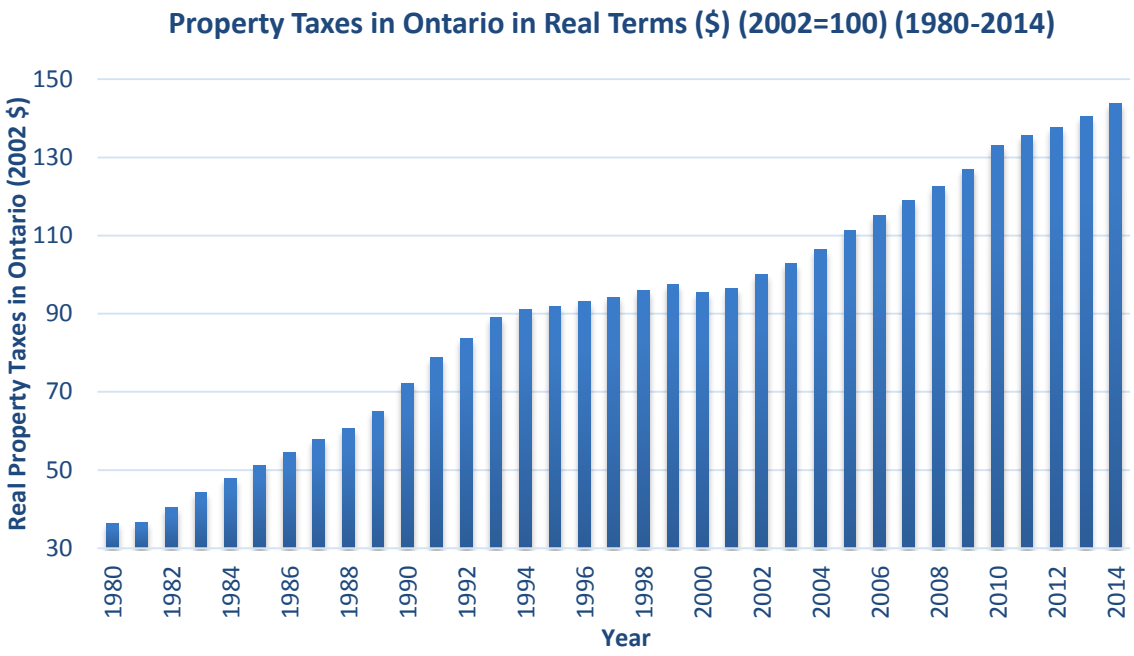
2.4.1 PROPERTY TAXES

Property taxes are incurred by owners of shelter, and represent one form of expenses associated with the structure and existence of the shelter asset. Figure 14 reveals that in real terms, property taxes in Ontario have increased by nearly 350% since 1980. These taxes are determined by the municipality through a calculation that is based on property value, the applicable municipal tax, education tax rate, and the municipality's own revenue needs.

Other things being equal, an increase in property taxes on shelter owners would discourage households from considering ownership. However, this overlooks the fact that shelter owners could end up passing some of the increase in property taxes on to renters, thereby increasing rental prices. In fact, some research suggests that renters in Ontario may be paying approximately $1000 more in property taxes than those who live in a similar owned home in the same location, the cost of which is implicit in rent (Chopowick, 2015). Property tax legislation has been subject to multiple reforms in Ontario, with a notable one occurring in 1998, in which a market value system was phased in for the calculation of taxes residential properties. However, inequities in terms of property tax burdens between homeowners and renters were not resolved, and this introduced problems associated with the market value assessment of properties (Slack, 2002). This implies that tenants of built-for-purpose rental units, especially low-income tenants, may be disproportionately and regressively taxed (Slack, 2002). Despite this, there is a hypothetical scenario in which increases in property taxes on expensive residential properties could be used to raise revenue to build more affordable shelter.

Ontario's contemporary experience would suggest that this has not been the case, and that the increase in property taxes has made ownership a more costly endeavour in some municipalities (for example, Toronto). This is consistent with the aforementioned observation that even affluent households are increasingly renting property in core urban areas as they see rental as a more financially-viable option.

Figure 14 Property Taxes in Ontario in Real Terms
(Source: CANSIM Table 326-0021)

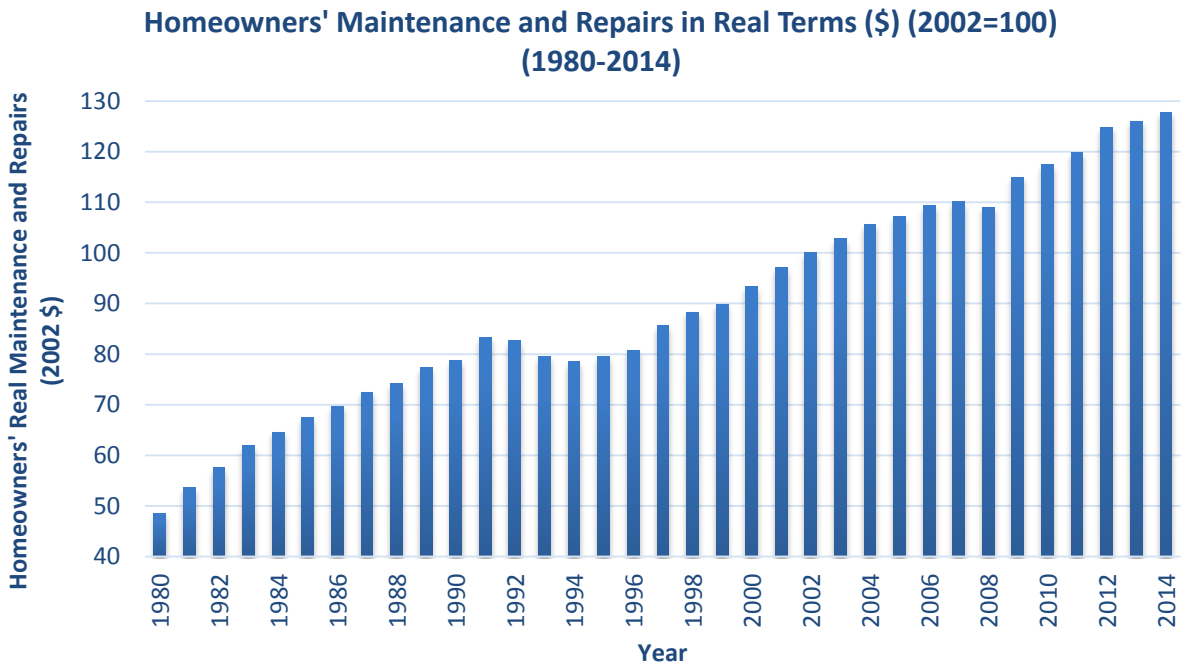


2.4.2 MAINTENANCE AND REPAIR COSTS

Maintenance and repair costs relate to rehabilitating the shelter unit to protect its structure from disrepair, which could reduce the unit's potential value. Figure 15 portrays the trend of increasing maintenance and repair costs since 1980. This could imply that over time, homeowners have increasingly invested in maintaining their property in anticipation of a stronger shelter market over time, that input costs (i.e. labour and materials) have increased over time (making repairs more expensive), and/or that maintenance requirements are increasing in tandem with shelter values. Older units would also require more maintenance over time, adding to the overall cost.

An increase in repair costs could theoretically impact rental prices as homeowners would factor in the increase in expenses when setting rental rates for future tenants. This would make rental less affordable. An increase in maintenance costs would have an ambiguous effect on households' motivation to own, however, depending on their expectations of future shelter market prices among other factors.

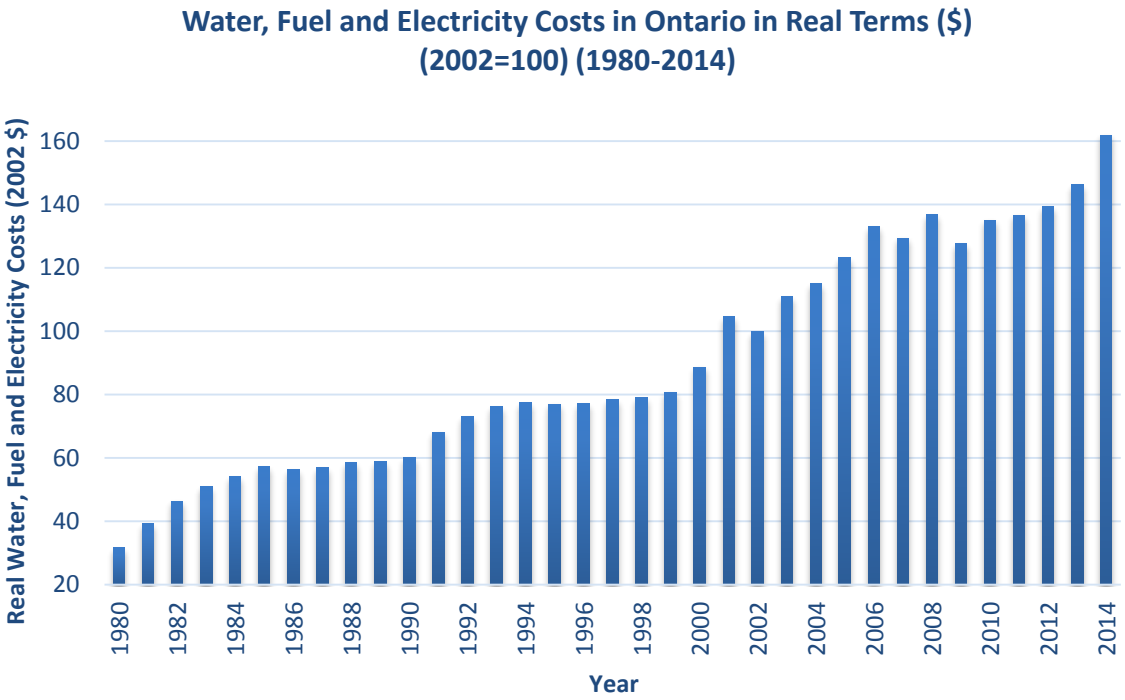
Figure 15 Maintenance and Repair Costs in Ontario since the late 1970s
(Source: CANSIM Table 326-0021)



2.4.3 UTILITY COSTS

Utility costs are one type of expense that is incurred as a result of the need to operationalize shelter. Figure 16 shows that these costs have increased by nearly a factor of 5 in real terms since the late 1970s. These costs are expected to be incurred by either homeowners or renters depending on the consumption status of the unit. Rising utility prices would equally affect both rental and ownership markets, and are unlikely to significantly impact a household's tenure choice. However, future research and additional data on utility fees and their relationship to costs of delivery could illustrate cost pressures that vary with infrastructure provision and other factors, for example. This may subsequently reveal variable implicit costs that are borne by homeowners and renters.

Figure 16 Utility Costs in Canada
(Source: CANSIM Table 326-0021)



Lastly, investors are unlikely to bear the affordability consequences of increased utility costs since they would either lease their units to renters who would end up bearing this burden, or leave the unit unoccupied, in which case utility costs from consumption would be negligible.

2.4.4 USER FEES AND SERVICE CHARGES

User fees and service charges have been a growing source of revenue generated by municipalities (for example, the City of Toronto) to mitigate fiscal pressures, and are also implicit expenses associated with operationalizing shelter. The City has more than 3,000 different types of user charges, which include TTC fares and fees for fitness classes at municipal recreation centres (Slack & Cote, 2014). These fees are usually billed to residents irrespective of whether they rent or own their residences. Given that property taxes and other revenue sources have remained relatively constant over time in terms of their contribution to total revenue (while user fees have increased proportionally), this may imply a shift in the cost burden from homeowners (or those who bear property tax expenses) to shelter consumers irrespective of their ownership status, as user fees are charged to residents. Research on the city of Toronto illustrates that user fees and service charges per household have increased by around 20% since the early 2000s, adding to a household's shelter consumption costs (Slack & Cote, 2014).

2.4.5 TRANSPORTATION EXPENSES

In order for households to be able to operationalize their shelter, households must access amenities, employment, and other institutions that would allow them to secure necessities by traveling to and from their homes. In that regard, transportation expenses are incurred as a result of having to meet these necessities while still consuming the shelter that they need; this reflects the proximity aspect of the composite nature of shelter. Failure to consider transportation costs that are incurred as a result of shelter's proximity to necessary amenities may overstate the affordability of shelter units that could be inconveniently far from a household's place of employment, retail and shopping centres, schools, and other institutions, which would therefore impose higher non-discretionary (transportation) expenses on the household.

Some literature identifies that land and property value increases the closer a shelter unit is to urban amenities *up to a certain proximity*, after which negative externalities (such as congestion and noise) could begin to reduce property values (Real Estate Investment Network, 2010). However, the distance at which negative externalities begin to supersede the positive price effects of proximity is negligible—often less than one kilometer—when analyzing effects across urban, suburban, and rural areas. In fact, when considering that shelter that is close to amenities imposes relatively small non-discretionary transportation expenses on one hand but high proximity-induced property value premiums on the other, the trade-off between non-discretionary transportation expenses and property value premiums begins to emerge. Generally, with all else being equal:

- **Shelter units with the highest premium** would be located in walkable urban areas where many amenities are within walking distance, and which are well-serviced by relatively less expensive public transit. Non-discretionary transportation expenses are low, but accessibility is high.
- **Shelter units with medium premiums** tend to be in suburban areas, which often necessitate car ownership since sparser public transit does not necessarily allow for convenient access to all amenities. Homes are not as expensive as in urban areas, reflecting moderate accessibility.
- **Units with the lowest premiums tend to be in relatively remote rural areas**, which may feature minimal or no public transit. Accessibility in this scenario is lowest, as are home prices.

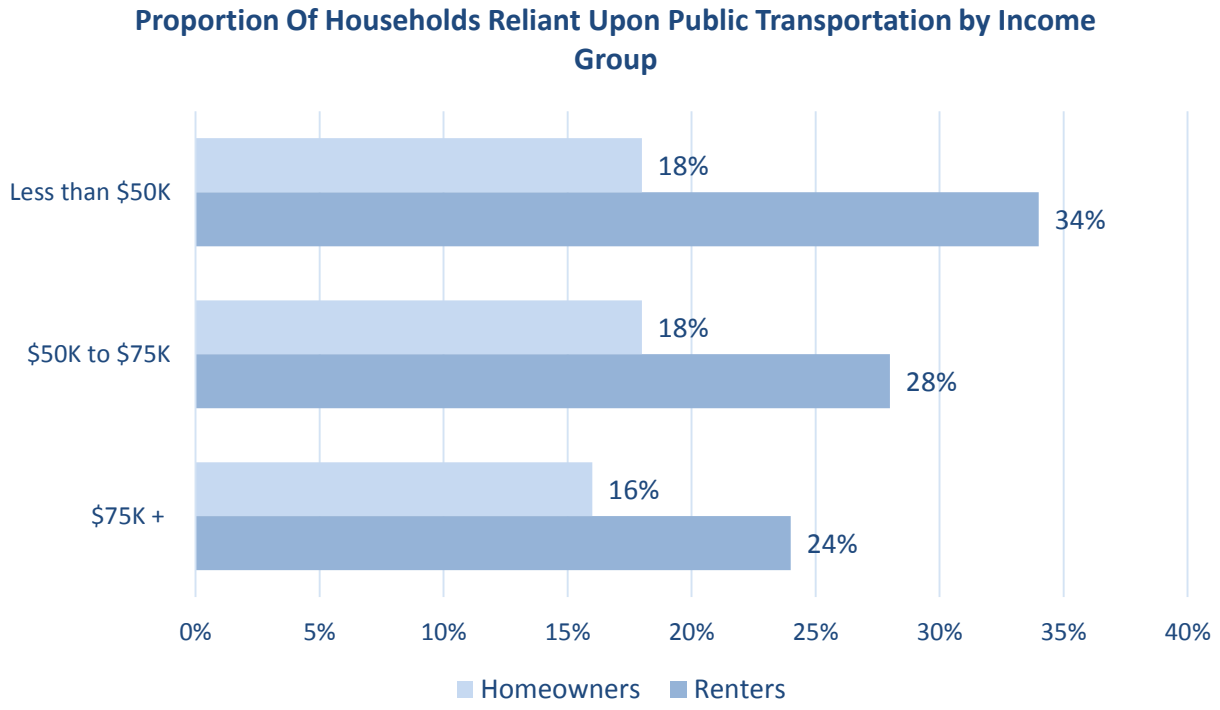
It becomes clear that property value (and its impact on rent), property taxes, maintenance costs, utilities, and service fees do not capture the breadth of shelter consumption costs imposed on the household. The relationship between a home's location, the access it offers to necessary infrastructure and amenities, and the trade-off between non-discretionary transportation expenses and location-related premiums are also crucial.

For instance, Figure 17 reveals that renters are more reliant upon public transportation than homeowners, which is consistent with the fact that a higher supply of rental units is available in highly urbanized areas that feature high walkability and well-serviced public transportation systems. Figure 17 also shows that reliance upon public transportation appears to be more income elastic among renters than homeowners. This is consistent with the following effects:

- Public transportation is less expensive than private transportation; and
- Higher income households are more likely to own rather than rent their shelter.

This implies that renters may face budgetary constraints which not only led them to their tenure choice, but also to their transportation mode choice. It is important to note that some households rent even though they could afford to own, which implies that tenure choice was primarily discretionary without being driven by an attempt to satisfy a need. These higher income renters may be captured by the group that earns over $75,000 in annual income in Figure 17, which exhibits a reliance on public transit that is more similar to that of homeowners than that of low-income renters.

Figure 17 Proportion of Households Reliant Upon Public Transportation by Income
(Source: The Metro Vancouver, 2015)



Research has shown that Toronto residents in the neighbourhoods with the lowest average incomes have to commute further to find employment, and also tend to live in areas that are less well serviced by public transit. This implies that home premiums in core areas are so high that they form an insurmountable financial hurdle for low-income households. If these households cannot travel to find or improve their employment using public transit, and also do not have access to private transportation, their incomes and financial situations are unlikely to improve. In that regard, transportation expenses, location-related shelter premiums, and the distribution of households by socioeconomic status within Toronto and surrounding areas entrench economic vulnerability and inequality (Hulchanski, 2010).

2.5 International Comparisons

Affordability pressures in the shelter market are not solely confined to Ontario and Canada; they have become a predominant problem across the developed world.

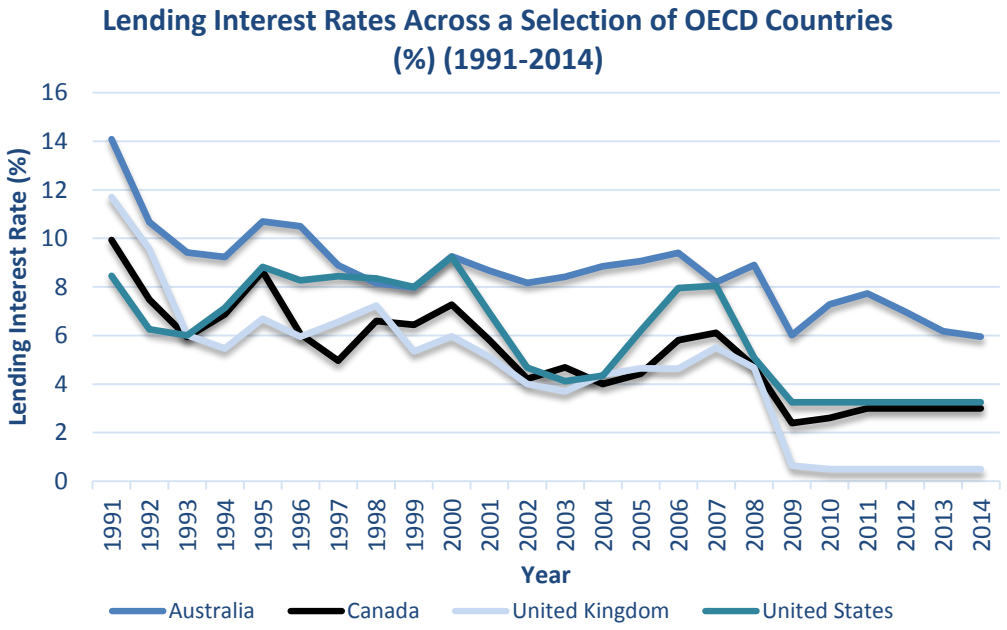
Many of the demand-side phenomena observed in Canada have also featured in other parts of the world. Similar to household formation trends in Ontario, which saw a 5-10% decrease in the number of households consisting of married couples, there has been a near-10% drop in these households in the UK over the past two decades. There has also been a shift in young individuals' preference for staying with their parents for longer: an ONS survey from the UK, for example, noted that "the number of young adults living with their parents has increased by a quarter since 1996, with high house prices and growing youth unemployment forcing many to remain in the family home" (The Guardian, 2014). The international dimension of the affordability challenge is further demonstrated by the fact that in Australia, "about 1 in 4 adults aged between 20 and 34 are still living with their parents due to the rising ratio of real housing prices vis-à-vis real average full-time earnings" (Rodgers, 2015).

Immigration and population growth pressures have also intensified the demand-side competition for shelter in some of the world's largest metropolitan areas. London, for example, experienced a 1.4% annual average percentage growth rate between 2004 and 2014 according to the ONS, while New York City experienced 3.9% growth in population over 4 years. Immigration, in particular, has played a pronounced role in New York as well as London, the latter of which had 2.8 million foreign-born residents in 2014 according to Oxford University's Migration Observatory.

Similarities could also be seen in the profile of tenure choice. In the UK, for example, "the foreign-born population is almost three times as likely to be in the private rental sector (39% in 2015) compared to the UK-born population (14%)" (The Migration Observatory UK, 2015). This may be due to the fact that immigrants generally find it more difficult to integrate into local employment markets and secure stable employment, which would provide them with a stronger financial foundation to consider home ownership (Hadi & Labonte, 2011). Younger people in the UK have also opted to rent rather than own, especially in the Greater London Area, and similar trends exist in Australia and the United States.

With regards to foreign and marginal investors, these agents have played an arguably more important role in dictating shelter market patterns in the UK than in Canada. A recent report by Civitas, a non-governmental organization (NGO), mentioned that "the UK property market is being used as an investment vehicle by the global super-rich while hundreds of thousands of younger residents are being priced out of the market and rents are eating into more and more of people's salaries" (Civitas, 2015). In the case of the UK, foreign investors have largely inflated property resale values across all types of properties (detached houses, multiunit apartments etc.), making them less accessible to a majority of resident households. Even lending interest rates exhibited similar patterns internationally since the early 1990s, as illustrated in Figure 18.

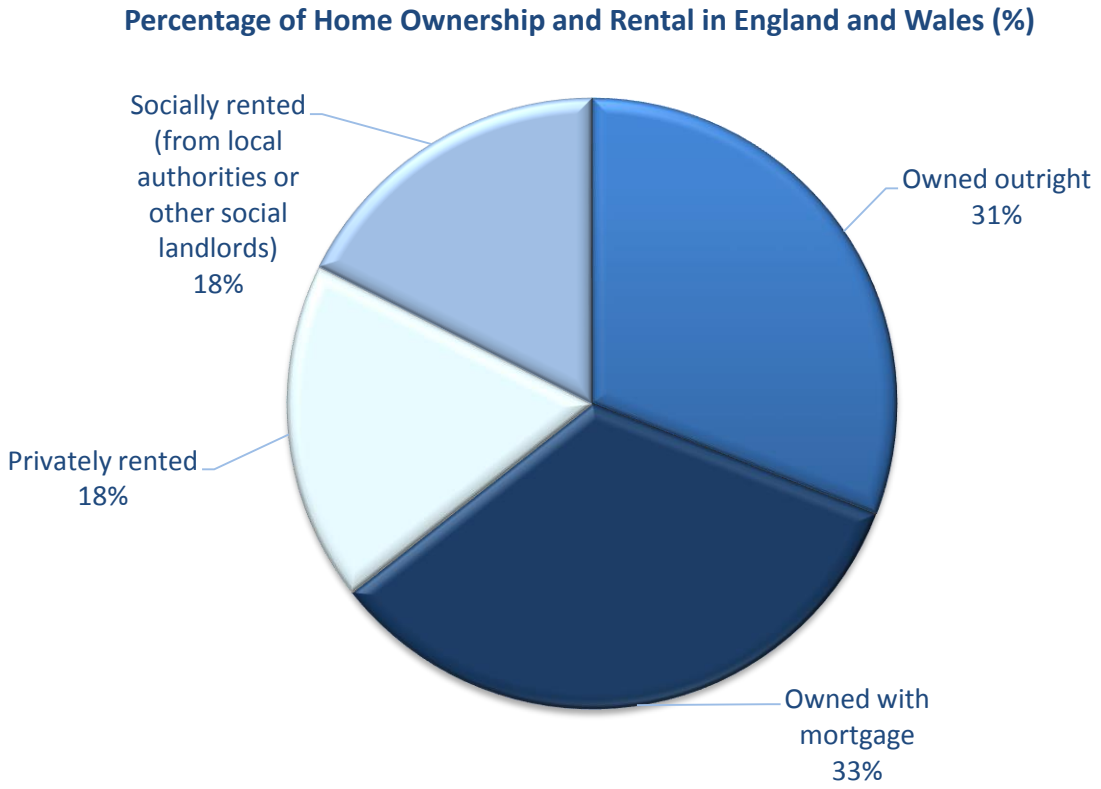
Figure 18 Lending Interest Rates across a Selection of OECD Countries (%)
(Source: The World Bank)



Although similarities among different countries' shelter markets exist, there have been notable public policy differences between Canada and some of the aforementioned countries. In the UK, for example, there has been a greater emphasis by successive governments on providing social housing to help economically-vulnerable groups to access their shelter needs. As Figure 19 shows, approximately 18% of households in England and Wales rely on social landlords to access shelter. Moreover, on average, social housing has represented nearly 16% of total shelter stock in England and Wales since 2010 (Office of National Statistics UK, 2015). Meanwhile, in Canada, "only 5% of households live in non-market social housing- the smallest social shelter sector of any Western nation except for the United States" (Hulchanski, 2007)

Moreover, some countries have taken greater measures to address the effect of foreign investors on local shelter markets. Australia, for example, introduced a system whereby foreign investors looking to buy residential real estate have to apply to a Foreign Investment Review Board (FIRB); one reason this was introduced is to ensure that total shelter stock is increased and that Australians are not adversely affected by foreign investment activity (Australian Government, 2015). In the UK, like in Canada, governments have not devoted significant attention to the role of foreign investors. According to a 2014 report by Civitas, the UK should introduce foreign investment controls "to ensure that any non-resident purchases are in the public interest" (Green & Bentley, 2014). This would mirror the Australian, Danish, and Swiss models; in Switzerland, for example, there is a highly decentralized system that "relies on local authorities to exert control" (Green & Bentley, 2014).

Figure 19 Home Ownership and Rental in England and Wales
(Source: Office of National Statistics UK)



Lastly, when discussing affordability pressures, it is also important to compare the influence of supply-side factors across the countries in question. In the UK, there is a near-unanimous acknowledgement that aggregate shelter stock lags behind aggregate demand for shelter[16] in spite of "a series of planning liberalisation measures [that] boosted housebuilding" (Allen, 2015). Such measures included reviving the Right to Buy scheme that helped more households purchase their own homes, as well as the more controversial measure of converting office space and business buildings into homes (Allen, 2015). Like some stakeholders suggest in Ontario, a lack of serviced land has been identified as a significant impediment to increasing shelter supply in the UK (Clare, 2013).

Meanwhile, among policy makers in Australia, there has been greater acknowledgement of the importance of "equitable provision of infrastructure" in order to help diffuse affordability pressures in core areas such as downtown Sydney (Urban Development Institute of Australia, 2008). Infrastructure provision has posed a greater public policy challenge for authorities in the UK by comparison: in England, growing economic dependence on London and the Southeast regions has created pronounced chasms in economic development between Southern and Northern regions of the country, with adverse ramifications on long-term economic growth and standards of living.

[16] Later in the report, the concept of "shelter stock imbalance" will be introduced, which specifically looks at aggregate supply and aggregate demand for shelter. In the Canadian case, it will be shown that there are minimal imbalances.

2.6 Other Factors that Could Affect Local Shelter Markets

So far, the discussion centred primarily on local demand and supply-side factors and their impacts on shelter markets in Ontario and Canada.

Equally important to acknowledge, however, is the impact of affordability pressures in overseas markets on local shelter market trends. Increasing cross-country capital market liberalization and public policy efforts by governments to attract foreign investment since the 1990s have fostered a more integrated global economy in which developments on one side of the globe could reverberate more easily to foreign markets.

The difficulties in the US shelter market that preceded the 2008 financial crisis serve as an illustrative example. While Canada's financial system during that crisis was relatively more resilient than that of other developed countries, the crisis has affected the country's economic growth projections in light of its overreliance on exports to the United States as a source of growth. This in turn reduced aggregate household disposable income and made shelter consumption less affordable. There have also been more direct effects of the US crisis on Canadian shelter markets: for example, foreign investors wary of adverse market developments in the US resorted to investing in UK, Australian, Canadian, and other shelter markets that were deemed more secure. This would intensify demand-side competition for Canadian shelter and further squeeze economically-vulnerable households out of accessing affordable and suitable units.

There are other factors that carry equally significant repercussions on shelter affordability in Canada:

- Adverse developments in local and foreign equity markets;
- Changes to taxation and regulatory regimes that affect non-residents;
- Transparent legal systems; and
- Foreign expectations of future trends in Canada's shelter market

Over the past few months, Shanghai's stock market has experienced significant turmoil: stock markets rallied considerably during the first half of 2015, defying stock market fundamentals and prompting concerns of a stock bubble that would crash imminently. Consumer and investor confidence in China slowly eroded, and both Chinese and foreign investors started withdrawing from these stock markets in favour of more secure forms of investment. As a result, major shareholders have sold $58 billion of Chinese shares in the first half of 2015, with a significant share of China's wealthy investors consequently opting to invest in Australian, British, and Canadian shelter markets (Reuters, 2015). In this case, developments in a given market in an overseas economy have generated additional demand-side pressures that carry affordability implications for "needs" and other economically vulnerable households in Ontario and Canada.

Taxation and regulatory frameworks are also an important consideration when discussing the impact of international developments. As an example, many wealthy foreign investors have taken advantage of loopholes in the Canadian taxation system to purchase shelter units without incurring significant capital gains tax expenses in the process (Tomlinson, 2015). According to David Chodikoff, a Toronto-based tax lawyer, Canadian taxation laws are very friendly to foreign investors, who are merely using legal tax-

avoidance manoeuvres to store their wealth in Canadian properties. This contrasts with the situation in Australia, where stricter restrictions were imposed on what type of residential property foreign investors could buy in order to 'level the playing field' for Australian homebuyers (Kingsley, 2015). Other things being equal, foreign investors are more likely to invest in countries that have less strict taxation and regulatory regimes: Canada's friendlier regimes relative to Australia and the United States would make its shelter markets more lucrative to investors as a result.

Developments in local stock markets also impact shelter markets. Investors (domestic or foreign) usually pursue stores of wealth that would generate the highest possible expected returns with minimal risk. Toronto's stock market, for example, is heavily reliant on the performance of stocks in mining firms, which in turn are reliant on relatively volatile prices in metals and commodity markets (Posadzki, 2015). Other things being equal, increased stock market volatility would induce investors to store their wealth in property markets (local and possibly foreign). This could explain why the percentage of Canadian households holding mutual funds and stocks has been dropping since 1999: according to Statistics Canada, the share of households investing in mutual funds fell from 14% to 11.6%, while those owning stocks dropped from 9.9% to 8.5% (Kirby, 2014). This becomes very interesting when one considers that the value of households' investment portfolios has risen faster than the value of homes (Kirby, 2014). Much like regulatory factors and international developments in foreign equity and real estate markets, changes to investor sentiment about local stock markets could influence demand-side pressures on shelter markets in Ontario and Canada.

Finally, foreign expectations of future trends in Canada's shelter markets also affect current market realities. For example, "the vast majority of Canadian bank economists, political leaders and industry insiders say the risk of a housing-bubble collapse [in Canada] is minimal" (Tencer, 2015). At the same time, however, a group of "large US investors who made significant money predicting the collapse of the US housing bubble in the late-2000s are now betting on a housing-market collapse in Canada by putting money against Canadian banks, mortgage insurers and subprime lenders" (Tencer, 2015). This example highlights the fact that both domestic and foreign assessments of present and future outlooks of Canada's shelter markets can influence current market trends. The Bank of America has declared "shorting Canadian banks" as the second-best investment of 2015, while the ratio of house prices to incomes is near an all-time high (Tencer, 2015). Whether these trends would precipitate a housing bubble collapse remains to be seen; nevertheless, the divergence between local and foreign market assessments serves to highlight the importance of identifying both factors when analyzing factors behind local shelter market trends.

Ultimately, this illustrates that by virtue of a more globalized economic environment, local shelter markets do not only reflect the interaction of local demand and supply-side factors, but are also influenced by foreign market outcomes and foreign agents' expectations. Canada's financial sector is relatively open and integrated compared to other developed countries, which makes its shelter markets more prone and vulnerable to developments across other domestic and foreign markets.

2.7 After-Tax Disposable Income after Other Non-Discretionary Expenses

Household income is influenced by the health of the economy, which in turn is dependent on variables such as productivity, aggregate income, employment levels, dynamics associated with the proportion of national income accruing to households, the cost of consuming the goods and services they need, and the way in which they smooth consumption patterns using debt.

2.7.1 Income and Productivity: Aggregate Productivity Growth has been Declining

Decreases in productivity restrict economic growth. If economic growth declines, society can expect less aggregate income to share among its constituents. In Canada, as demonstrated in Figure 20 and Figure 21, multifactor and labour productivity growth have been declining for decades (Russell & Dufour, 2007); (Baldwin, Gu, Macdonald, & Yan, 2014). These declines reflect similar global trends that could be directly linked to declines in savings and investment, low levels of technological growth and adoption, and insufficient investment in human capital (Baldwin, Gu, Macdonald, & Yan, 2014).

Figure 20 Multifactor Productivity: Business Sector
(Source: CANSIM Table 383-0021)

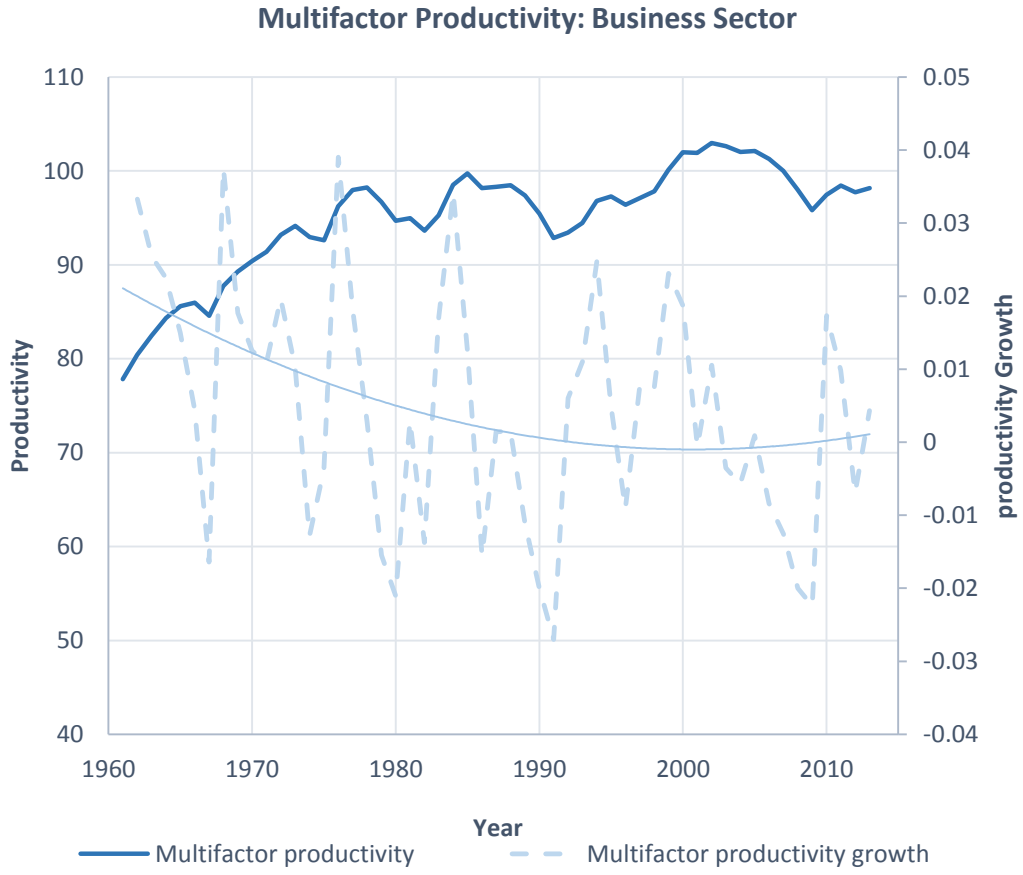


Figure 21 Labour Productivity: Business Sector
(Source: CANSIM Table 383-0021)

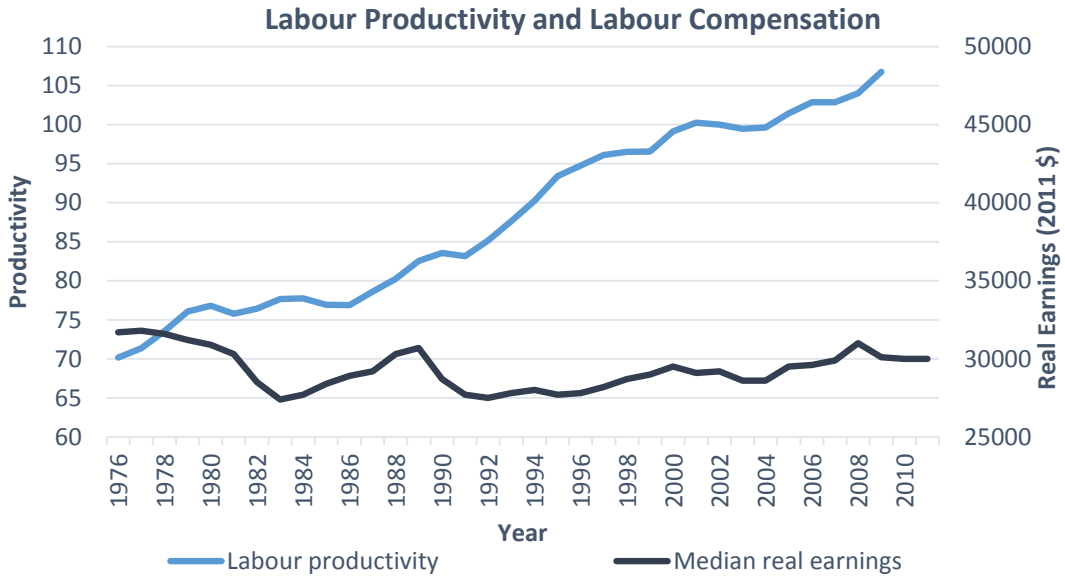
Although capital intensity was the single largest contributing factor to labour productivity up to 2000, the decline in multifactor productivity (capturing the diffusion and adoption of technological improvements and organizational efficiency) has been primarily responsible for continued drops in labour productivity since 2000. This in turn has been primarily attributed to declines in the manufacturing sector (Baldwin & Gu, 2009).

> ***"Compared with the problem of slow productivity growth, all our other long-term economic concerns—foreign competition, the industrial base, lagging technology, deteriorating infrastructure and so on—[…] matter only to the extent that they may have an impact on our productivity growth"***
>
> ***Paul Krugman***

As labour productivity declines in particular, wages can also be expected to fall at the same rate given that they should reflect labour productivity. This effect is compounded by the fact that labour's share of income declined alongside the reduction in labour productivity (Sharpe, Arsenault, & Harrison, 2008); (Russell & Dufour, 2007). The decline in labour's share of income, and the accompanying increase in the profit share, could be a by-product of less efficient use of inputs. This implies that productivity growth declines. These combined forces can compound the downward pressure on the wages and incomes earned by households.

Given this, wages could be expected to grow at a declining rate, mimicking the trends in labour productivity and labour's share of income. In fact, median real wages of Canadian households have been stagnant for over thirty years (Sharpe, Arsenault, & Harrison, 2008); (Russell & Dufour, 2007). The divergence between labour productivity growth and that of median real earnings would suggest that labour is earning an even smaller share of aggregate income than would be expected. This effect is illustrated below in 0. Further discussion about aggregate household income, which consists primarily of employment or labour income, continues in section 2.7.2.

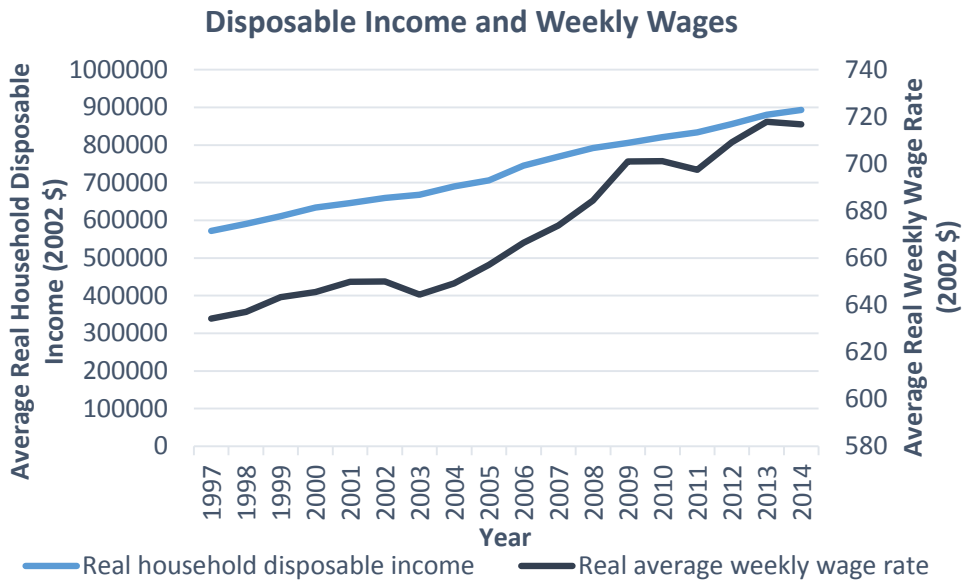
Figure 22 Labour Productivity and Labour Compensation
(Source: CANSIM Table 383-0008 and 383-0021)



2.7.2 AGGREGATE INCOME TRENDS

Aggregate real household disposable income has been increasing in Canada since the 1980s (Statistics Canada, 2015k). This implies that, on aggregate, Canadian households have more income available today to fund the consumption of goods and services that they need and want, and more income to also finance household savings and investments. Rising aggregate incomes have been identified as one of the most influential drivers of growing house prices (Schembri, 2015), as the additional purchasing power allows Canadian households to bid more for shelter and other essentials. This upward trend in real aggregate disposable household income is illustrated in Figure 23.

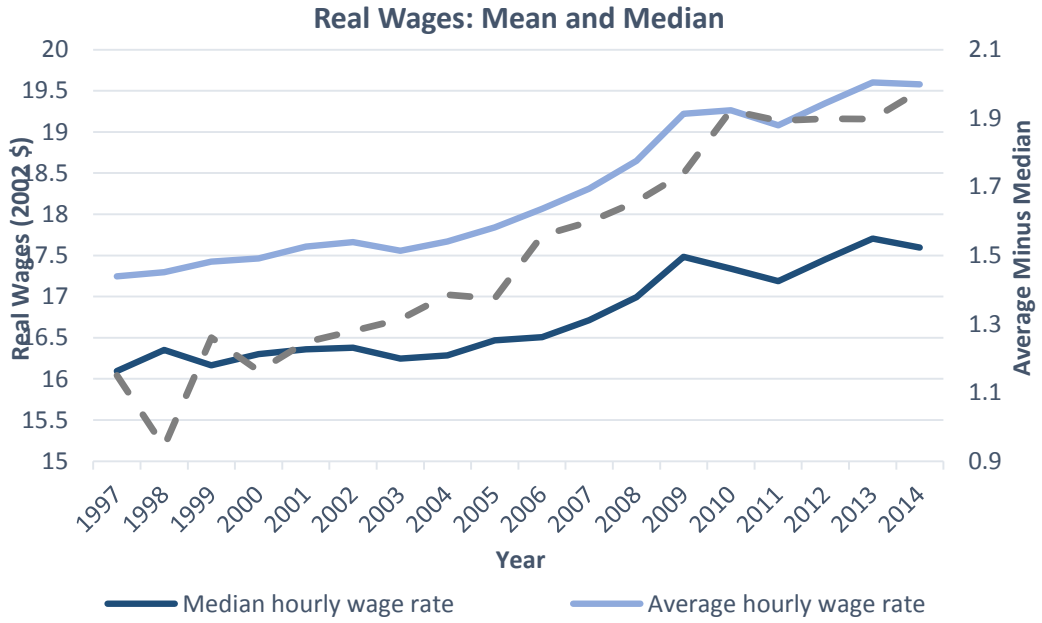
Figure 23 Real Household Disposable Income: Canadian Aggregate
(Source: CANSIM Table 380-0072, 326-0021, and 282-0070)



Average real wages have also been increasing, as illustrated in Figure 24. However, median real wages, as mentioned in section 2.7.1, have been relatively stagnant (Russell & Dufour, 2007); (Statistics Canada, 2015f). The increasing discrepancy between average and median real wages implies that there are more individuals earning incomes at the lower end of the distribution; however, individuals at the high end of the income distribution are now earning disproportionately more and are pushing average wages up annually. This implies that the growth observed in aggregate real household disposable income and real average wages is not enjoyed by every household, suggesting an increase in inequality. The relationship between median and average real wages is also illustrated in Figure 24.

Figure 24 Real Wages: Mean and Median

(Source: CANSIM Table 282-0070 and 326-0021)



Aggregate disposable household income does not only include wages, however. In order to more fully understand the changes in real disposable household income and their primary beneficiaries, it is also important to illustrate the major income sources of Canadian households. These sources include employment income, investment income, and government transfers; combined, these account for approximately 92% of all household income earned in 2010[17] (Statistics Canada, 2015a).

It is important to note that not all Canadian households earn income from all sources, and not all income sources contribute equally to aggregate income. This implies that the behaviour associated with a particular income source would disproportionately affect the groups of households that more heavily relied on it. For instance, approximately 70% of Canadians earned employment income (according to the 2011 National Household Survey, NHS), while around 29% of Canadians over the age of 15 earned investment income (Statistics Canada, 2015a). Older Canadians more frequently received income from government transfer payments and investment income, while the top three deciles were more likely to earn investment income than other Canadians (Statistics Canada, 2015a). This implies that older and higher income households, who more frequently rely on investments as a source of income, are at higher risk if that income is volatile. Alternatively, those aged 25 to 54, who rely more heavily on employment income, are not as severely affected by investment income volatility, but may be more vulnerable in the event of a job loss. Section 3.4 delves into some of the dynamics underlying the trend of increasing disposable income and average wages, as well as any imbalances hidden by these aggregates. However, the importance of employment income cannot be understated; as 70% of Canadians earn employment income, labour market frictions, employment, and job quality are crucially important to the Canadian labour force and its dependents.

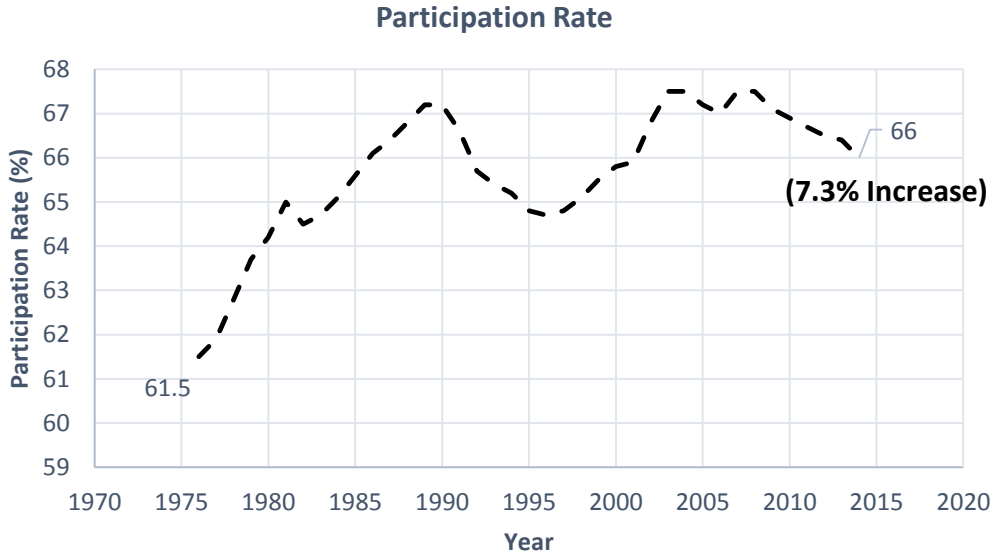
[17] Income sources not included in this analysis include retirement income/pensions and other, uncategorized sources of income.

2.7.3 AGGREGATE EMPLOYMENT AND JOB QUALITY

Aggregate real disposable income has been increasing in Canada along with average real weekly wages, which could potentially disguise the extent of income inequality. A similar effect occurs with the employment rate, which exhibits a cyclical pattern but is nonetheless higher than it was during the previous market crash of the 1990s (Statistics Canada, 2015b). When comparing the employment rate to the participation rate, it appears that the participation rate explains most of the changes in employment in aggregate, as shown in Figure 25 and Figure 26.

Figure 25 Employment Rate: Canada *(Source: CANSIM Table 282-0002)*

Figure 26 Participation Rate: Canada (Source: CANSIM Table 282-0002)



However, the quality of jobs that have been created, primarily since the 2008 financial crisis, has declined (Tal, 2015). In order for families to afford the goods and services that they want and need, as well as plan their consumption over time, income must be relatively stable or predictable. In order for households to earn sufficient, stable income, a high employment rate and the availability of reliable employment (i.e. not part-time or self-employment) are both necessary. Since 2000, part-time jobs as a proportion of total jobs have increased by 8.4% (Statistics Canada, 2015g), implying that more households are partially or fully reliant upon lower or less reliable earnings. This places pressure on households' ability to afford shelter, since families must earn sufficient, reliable income over decades to be able to finance a mortgage or cover the increasing cost of rent. The rise in part-time employment in Ontario and Canada is illustrated in Figure 27 and Figure 28 (Statistics Canada, 2015d).

Upward trends in nominal wages, as well as the participation and employment rates, hide significant disparities in who occupies which jobs, which jobs exhibited the highest wage increases, and whether the post-recession employment rate is a function of the participation rate alone.

Figure 27 Part-Time Jobs as Proportion of Total Employment: Canada and Ontario
(Source: CANSIM Table 282-0007)

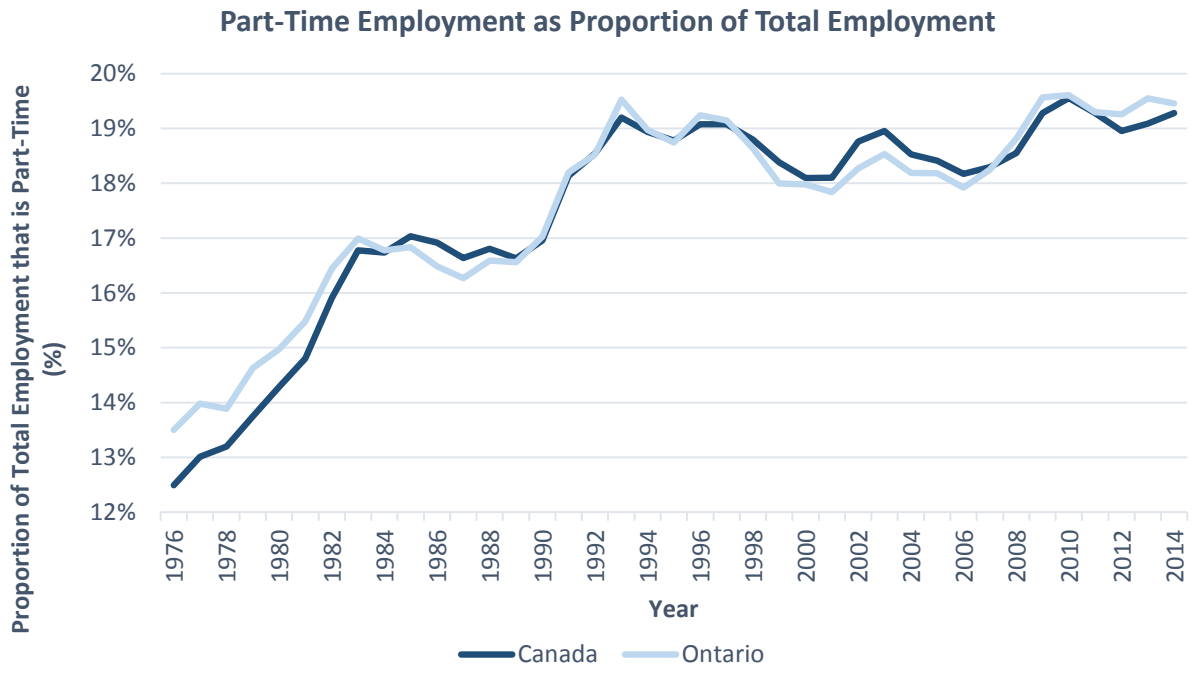
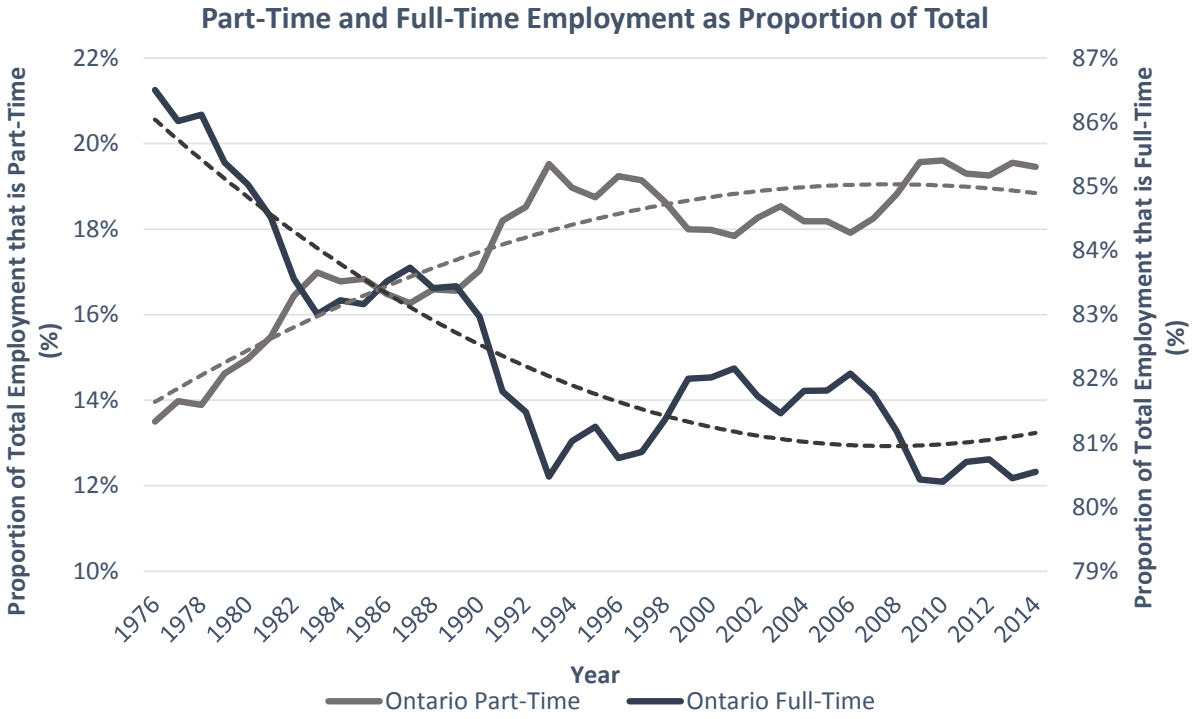


Figure 28 Part-Time and Full-Time Employment Proportions of Total Employment
(Source: CANSIM Table 282-0007)



2.7.4 EXPENSES AND CONSUMPTION OF NECESSITIES

Aside from the effects of job quality and employment outcomes, if the cost of goods rises, households can be expected to face squeezes on their levels of disposable income, all else being equal. The CPI has been relatively stable over time; on average, since the 2008 financial crisis, it increased by approximately 1.5% every year (Statistics Canada, 2015h). This average, however, hides variations in annual increases over that period. For instance, in 2011, the CPI increased by 2.9%, while in 2013, it only grew by 0.9% (Statistics Canada, 2015h). This highlights the risks associated with aggregate measures of prices facing the average Canadian consumer; anticipating price fluctuations in the recent economic climate has been relatively more difficult, especially for households whose budgets are constrained and for whom actual non-discretionary expenses must therefore align with expectations.

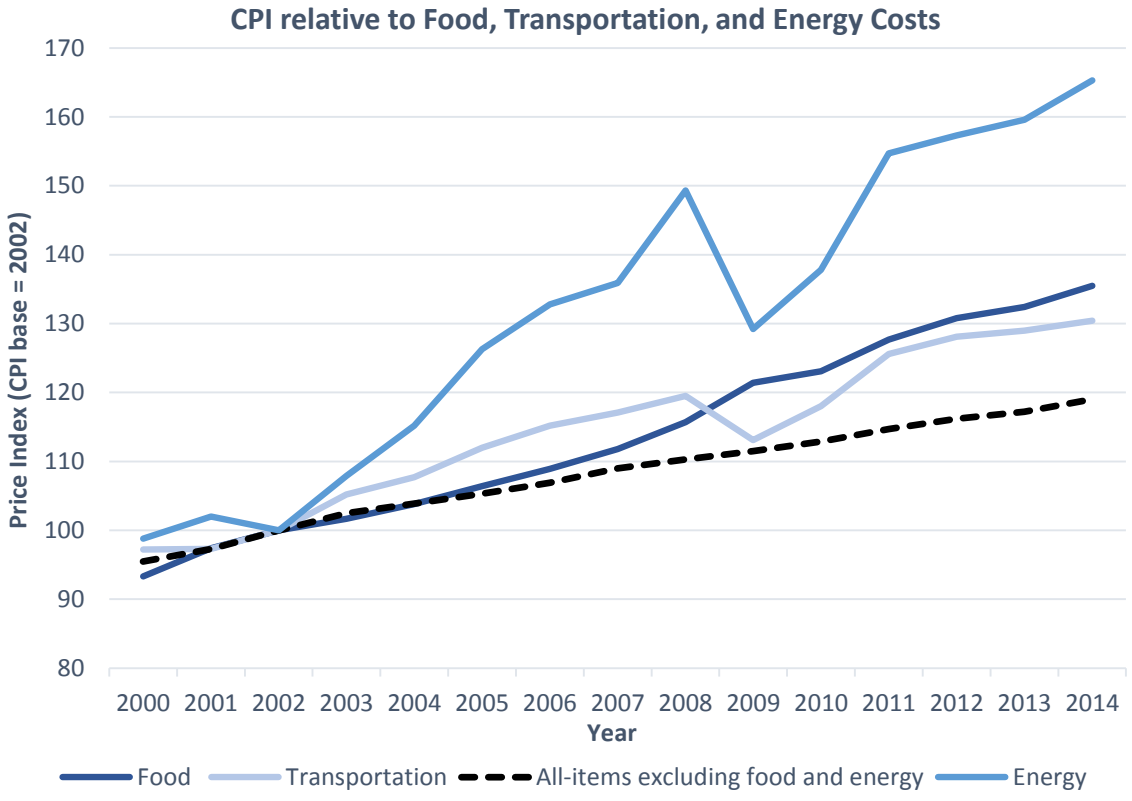
In addition, the aggregate rise in the CPI hides variability not just in its annual growth, but the growth of its components. On aggregate, total expenditures increased by 13.7% between late 2008 and 2012, while average prices of the CPI's associated items increased by only 4.2% (Sauve & Battams, 2013). Over this same period, median weekly wages grew by 2% (Statistics Canada, 2015f). Spending increases are a result of both an increase in price levels and the purchase of more goods; roughly two-thirds of the overall expenditure increase between 2008 and 2012 was a result of price increases (Sauve & Battams, 2013).

These price increases are especially visible in the cost of necessities; food, transportation, and energy costs have risen faster than the CPI in Ontario since the early 2000s, as shown in Figure 29, putting

pressure on households that spend more of their income on non-discretionary goods (Statistics Canada, 2015h). Transportation prices include the cost of fuel, and therefore they exhibit a similar trend to that of the energy component of the CPI. In other words, the increase in the cost of necessities has squeezed lower and middle income households, who find themselves having to do more with less. Since 2012, the depreciation of the Canadian dollar has led to an increase in consumer prices by 0.6 percentage points, with significant upward pressure on prices of:

- Food and beverages;
- Clothing and footwear;
- Personal and healthcare;
- Household operations and equipment;
- Transportation; and
- Recreation items (Petramala, 2015).

Figure 29 CPI: Food, Transportation, and Energy
(Source: CANSIM Table 326-0021)



Despite short-term volatility in the CPI, households have been allocating their budgets to similar bundles of goods over time, illustrating the relatively smooth pattern of household consumption relative to household income and price changes. Furthermore, on aggregate, shelter comprises 22% of average household expenditures (Statistics Canada, 2015c). This provides the impression that shelter appears affordable, but does not assess the different challenges associated with access to affordable shelter that are faced by different groups.

Savings and consumption rates are also important indicators of the health of household finances and the economy at large: households' relatively stable expenditure profile in the face of rising prices and stagnant median incomes implies that consumption expectations and smoothing behaviour have been more influential in dictating expenditure trends than price levels have. This is consistent with the increase in consumption rates and the decline in savings rates between 1980 and 2005 (Statistics Canada, 2015m).

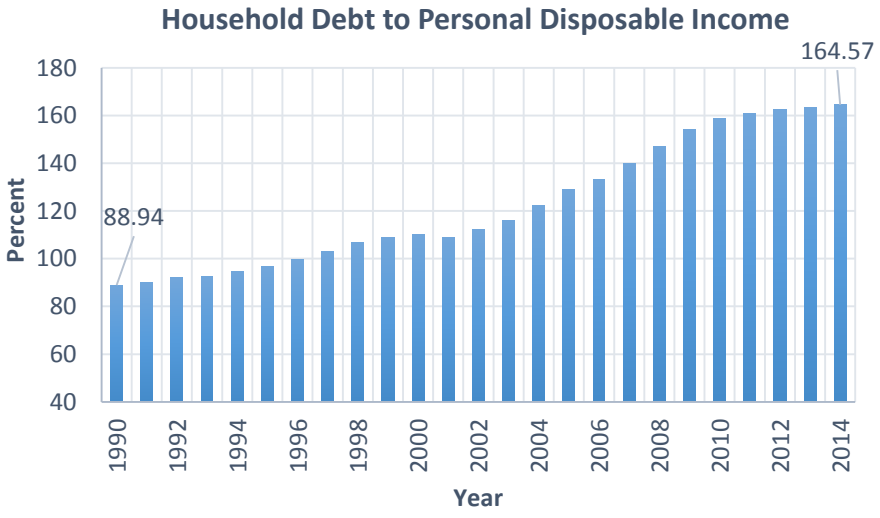
As prices increase relative to median incomes, households have resorted to consuming more and saving less of their incomes over time in order to maintain their standards of living (Statistics Canada, 2015h); (Statistics Canada, 2015m); (Sauve & Battams, 2013). In cases where incomes have been unable to meet the consumption expectations of households, debt has also been an option to engage in consumption smoothing, which many households have done. This has significant implications on the affordability of shelter: by engaging in higher consumption of other goods, households would have less purchasing power to finance shelter consumption; in other words, shelter becomes less affordable, other things being equal.

However, it is also important to note that since the 2008 financial crisis, households have begun to reverse the trends of high rates of consumption, potentially as a result of lower levels of consumer confidence. This reversal, however, has not yet been sufficient to correct surges in debt-financed consumption.

2.7.5 HOUSEHOLD DEBT

Aggregate debt ratios illustrate increasing debt relative to income. Meanwhile, there have also been increases in net worth and assets, primarily as a result of real estate market developments. Households carried approximately $0.89 of debt per dollar of income in the early 1990s, which has risen to over $1.64 per dollar today (Statistics Canada, 2015j). This rise is due to increases in both mortgage and consumer debt, with mortgage debt being responsible for approximately three quarters of the overall increase (Uppal & LaRochelle-Cote, 2015).

Figure 30 Household Debt-to-Personal Income Ratio
(Source: CANSIM Table 378-0123)

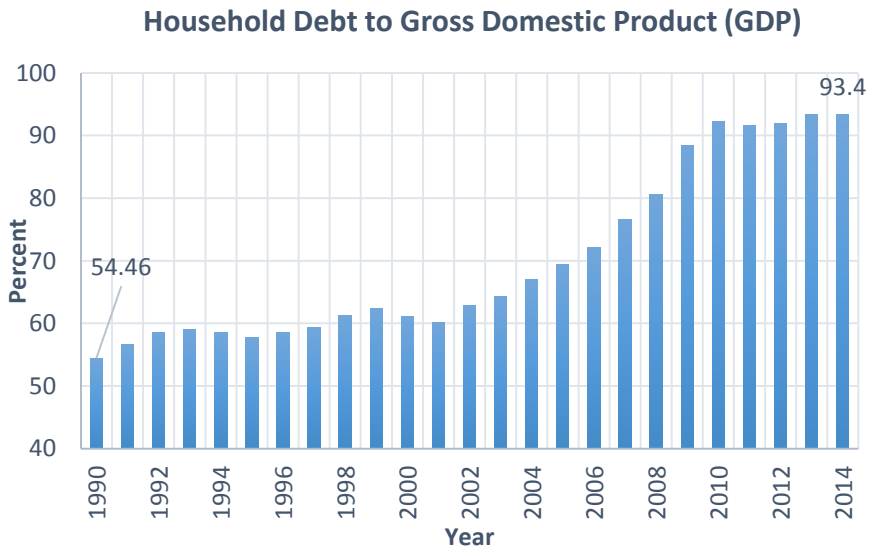


Mortgage debt: The ratio of mortgage debt to disposable income doubled over the past 30 years, increasing from 50% to 100% (Crawford, 2012). Income increases among certain groups in a low interest rate environment are a key factor driving increased mortgage debt (Crawford, 2012).

Consumer debt: Consumer debt rose overall, and secured personal lines of credit (PLCs) now occupy a significantly higher share of all consumer debt. Secured PLCs or home-equity loans rose from 11% of all consumer debt in 1995 to 50% in 2011 (Crawford, 2012).

In the late 1990s, home equity extraction loans represented approximately 2.2% of disposable household income; by 2007, this proportion rose to 9%, while mortgage debt associated with new home purchases, by comparison, only increased from 2.3% to 3.4% over this time period (Bailliu, Kartashova, & Meh, 2011). Alarmingly, the majority of these loans were used to finance consumption and debt repayment (Bailliu, Kartashova, & Meh, 2011). This is illustrated by the increase in debt to GDP, which implies that debt may not be used productively.

Figure 31 Household Debt to GDP Ratio
(Source: CANSIM Table 378-0123)



The increase in shelter prices allows households that already own a home to leverage their equity and borrow against it or to refinance their home. Increases in disposable income, low interest rates, and diverse credit products have also been contributing factors (Bailliu, Kartashova, & Meh, 2011). Furthermore, consumer expectations regarding persistently low interest rates may have influenced this trend, potentially making the threat of an interest rate increase appear less likely and inspiring complacency amongst certain borrowers.

An unsustainable increase in aggregate debt-to-income ratio leads to systemic risk, with adverse implications to intergenerational mobility and future levels of income inequality. Although this is not solely a Canadian phenomenon (with central banks across the developed world suppressing interest rates and thereby encouraging indebtedness), the effects of such policies are no less salient domestically.

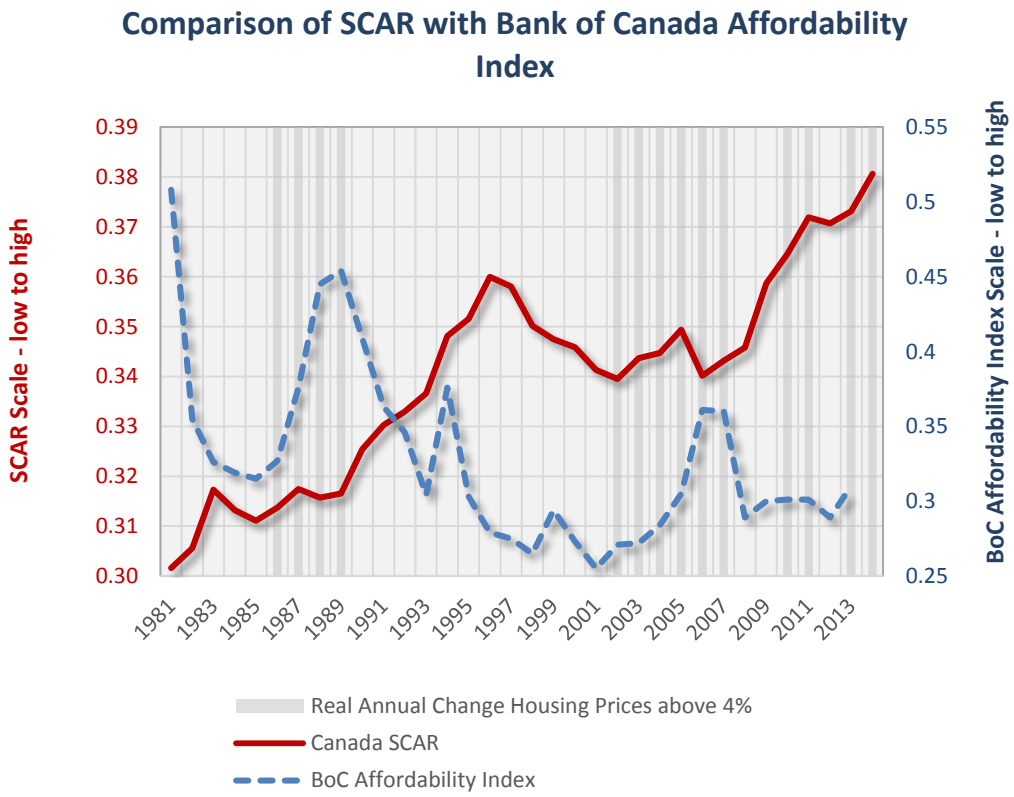
3.0 UNDERCURRENTS OF AFFORDABILITY

Previous sections have outlined a new framework for the role of shelter in the economy, and the way in which various market and regulatory forces can impact the affordability of shelter by inducing pressures in demand and supply. In order to reconcile these forces (as explained in section 0) into a more comprehensive and cohesive measure of affordability, a preliminary version of the SCAR has been calculated. The subsequent sections illustrate some of the preliminary findings associated with shelter affordability as measured by the SCAR.

3.1 AVERAGE SCAR INDEX

The current analysis is limited by the data available and current modeling limitations that prevent the incorporation of connections across underlying trends. However, to provide an early indication of what a SCAR index might reveal, currently available historical Statistics Canada data has been used to construct a preliminary version of SCAR. Figure 32 shows the average SCAR for Canada (CSCAR) on average based on Statistics Canada data (with *Prosperity at Risk*[18] estimates to supplement the last couple of years where final Statistics Canada data has not yet been released). For the majority of time during the last 35 years, the SCAR index has been continually increasing except for a period in the late 1990s and early 2000s. Periods of real average shelter prices changes of 4% or more are also indicated in Figure 32.

Figure 32 SCAR - Canadian Average



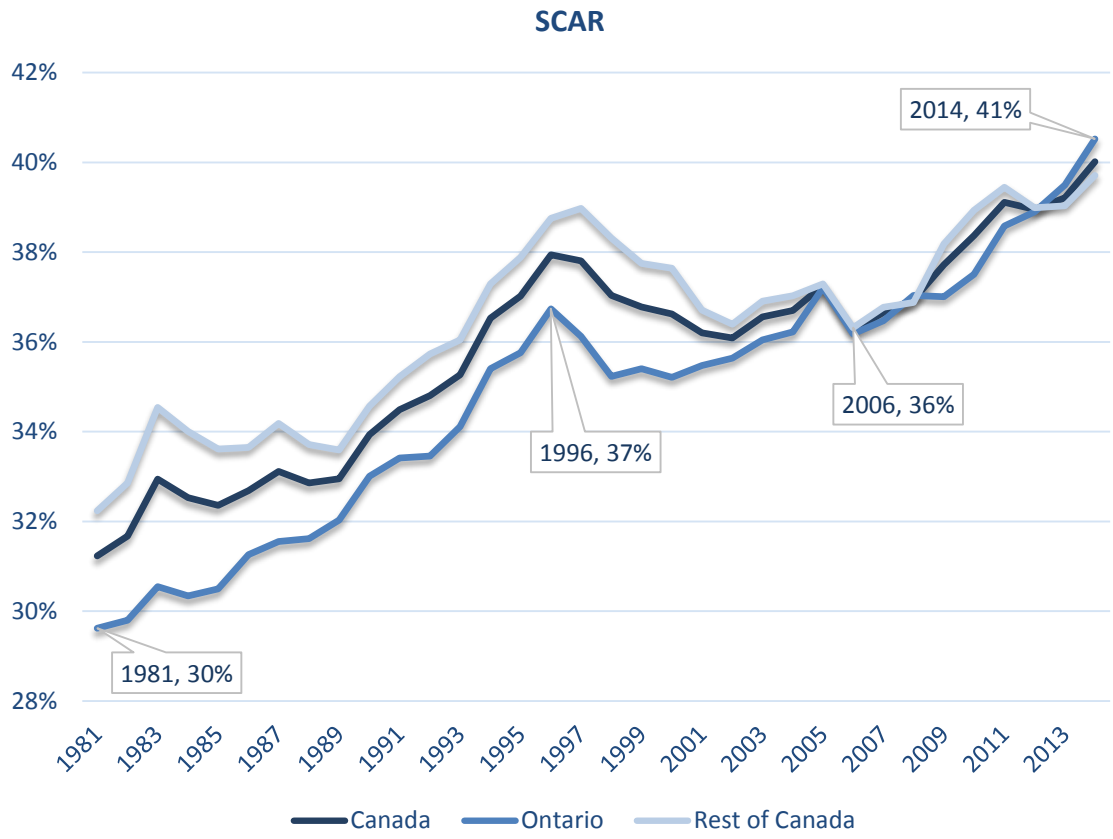
[18] Details about *Prosperity at Risk* will be made available in the full report

While for the past 30 years, the Bank of Canada Housing Affordability Index has been under its average 67% of the time, and is currently near its average, the SCAR indicates otherwise; SCAR values are at a 30-year high. Since 1983, the Bank of Canada Index suggests that affordability has improved by 5% whereas the SCAR Index suggests otherwise, with an increase in pressures on shelter affordability of 19%.

Given the multifactor character of the SCAR, which focuses upon the way a household can financially support its consumption cost of shelter, the SCAR is less volatile as it represents structural economic trends, and unlike the Bank of Canada Index, shows its most significant increases during periods of falling or stagnating house prices. The period between 1989 and 1996 is noteworthy; during this time, the SCAR increased by 13.7%, which corresponds to the recession in the early 1990s. The period since 2007 is again showing an increase in affordability problems that is reminiscent of the trends observed in the 1990s, and is now taking the SCAR to historical highs. In contrast, the Bank of Canada Housing Affordability Index is showing a reduction in affordability problems.

When Ontario is analyzed separately from Canada, the SCAR index is increasing more dramatically for Ontario and now visibly exceeds the Canadian average.

Figure 33 SCAR: Ontario and the Rest of Canada



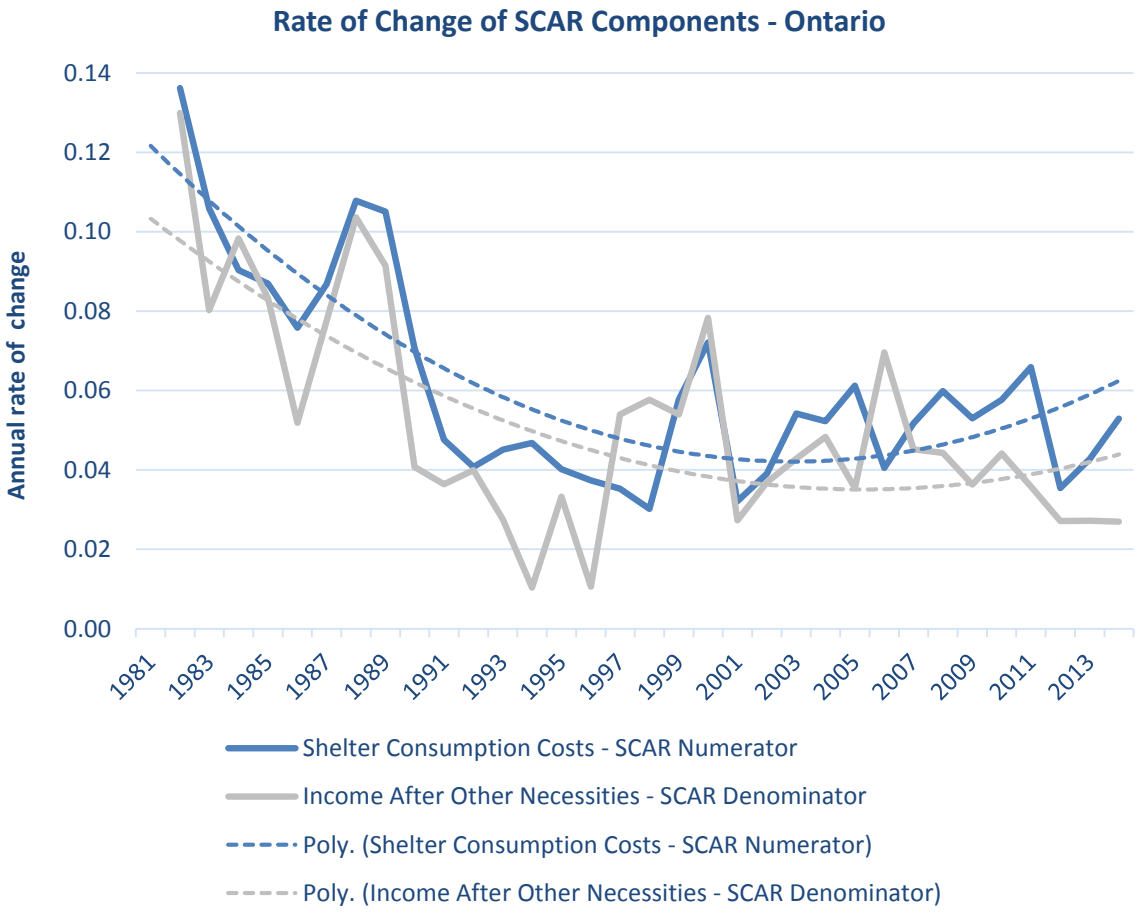
It is important to note that aggregate indices can hide the different challenges faced by various sub-populations. The difference between Ontario's estimated index and the Canadian average is just one example of how average indices can hide significant variability. A more thorough understanding of the

index's reliance on income, age distributions, household types, and location would provide greater penetration into the question of shelter affordability for the various sub-groups within the overall population. For example, future research could incorporate more precise data in order to examine differences in affordability pressures as measured by the SCAR across various regions in the GTHA.

The SCAR Index suggests that since 1981, affordability pressures in Ontario have been generally lower than the average for other parts of Canada, exhibiting relative alignment with the rest of the country in 2011/2012. From 1996 to 2014, the Ontario SCAR has increased, indicating a 10.3% increase in the proportion of discretionary income required to cover shelter costs.

In order to obtain better clarity into what is driving the changes in SCAR for Ontario, the ratio can be decomposed into the individual, annual rates of change of its numerator and denominator over time. This is illustrated in Figure 34. The general deterioration of average income after other necessities (SCAR denominator) during the 1990s and since 2006 is noteworthy, as it has led to the cost of shelter as a proportion of income to increase to historically high levels.

Figure 34 Rate of Change of SCAR Components - Ontario



3.2 Relating Key Findings

In absence of an ability to investigate and determine the robustness of the insights to which previous sections allude, a comprehensive literature review was conducted in order to identify some of the salient causes of the changes in Canada's SCAR. Based on this qualitative investigation, there appear to be several dynamics underlying affordability pressures.

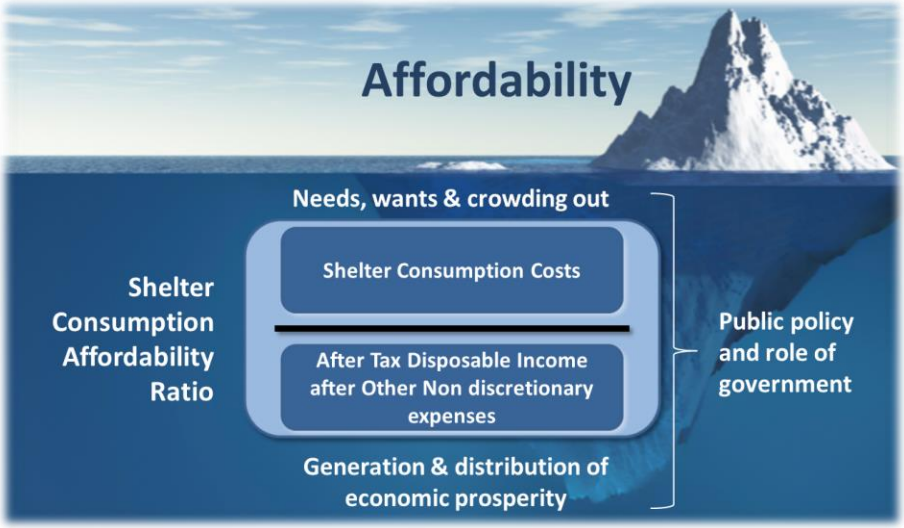
In no particular order:

- Differences in household income and wealth appear to be leaving an imprint on shelter markets. Coming out of the recession during the 1990s, such differences would ordinarily govern the consumption and investment expectations of households. However, when coupled with accessible cheap finance beyond 2000, middle-class households were able to leverage the purchasing power of their disposable income, maintain their consumption levels and sustain or enhance their standard of living. Such behaviour appears to have leaked into expectation competitions in shelter markets.

- Shelter ownership markets are dominated by a competition of wants (both resident and foreign), which appears to have set the stage for a cycle of wants outbidding the needs, and lower discretionary income households competitively responding through accessing cheap credit. The process has, over time, reduced the net discretionary income available to such households by way of mortgage amortization and interest payments. This has three key risk results:

(1) Potential suppression of future consumption patterns given the pressure on net discretionary income;
(2) Exposure to interest rate increases which will further increase non-discretionary expenses, assuming an illiquid shelter market at the time; and
(3) Greater exposure to poor labour market outcomes, such as unemployment or precarious labour, which would reduce net discretionary income.

Figure 35 Undercurrents of Affordability: Related Key Findings



3.3 NEEDS, WANTS & CROWDING OUT

Responsible public policy and market stewardship is centered on two concepts:

1) Those in pursuit of things that they want should be allowed to do so insomuch as it does not compromise the ability of others to obtain necessities.
2) The behaviour of individuals looking to satisfy their wants and needs should not present a systemic risk; in other words, the system should be sustainable.

It is possible that the shelter market has failed to meet either or both of the above stipulations. If households are consuming shelter that they want, in excess of what they need, and others are left unable to acquire shelter that is in accordance with their needs, then a crowding out situation may be in place. This occurs by virtue of consumption and investment patterns by households with greater bidding power, which end up disproportionately shaping shelter prices. These forces combine to price certain households out of the shelter market.

This is theorized to occur in the following way:

- In the shelter market, households are motivated to bid for shelter, either to satisfy only their shelter "needs" or to satisfy shelter "wants". It is important to note that whether a shelter unit is ground-related or in a high-rise building is not relevant to the satisfaction of shelter needs in this framework.
- Investors also bid for shelter, attempting to satisfy their investment preferences.
- The market does not distinguish between agents' motivations. Certain households, both those looking to satisfy their needs and those looking to satisfy their wants, are outbid by others who have greater bidding power. At the end of this process, four types of "crowding out" could have occurred, and are listed below:
    1. **"Wants" crowding out "wants":** Multiple households pursuing shelter preferences compete for shelter units that would exceed their shelter needs. Some of these households have higher bidding power, and outbid others on those units, implying that the supply of shelter is then allocated to those with the highest levels of demand, in terms of both willingness and ability to pay. This is considered an economically efficient[19] outcome, assuming ability and willingness to pay correspond with one another.
    2. **"Needs" crowding out "wants"**: Multiple households with different purchasing or rental motivations compete for the same units. At the end of the bidding process, those who need the shelter unit secure it. This is considered an economically and socially efficient outcome, based on the assumption that those who "need" the shelter unit value it more than those who "want" it. In other words, the "needs" household's ability to pay corresponds to its willingness.

[19] Market, or Pareto efficiency refers to a situation in which it is not possible to make someone in the market better off without making someone worse off. For example, assume two households are competing for the same shelter unit, and based on the characteristics of the dwelling and the respective characteristics of the households, one household needs that unit, while another household simply wants that unit. We assume that the ability of the "needs" household to acquire that unit is a more efficient outcome than if the "wants" household purchases it. In other words, the "needs" household's higher willingness to pay corresponds to its ability to pay.

3. **"Needs" crowding out "needs"**: Multiple households pursuing the consumption of their shelter needs bid for the same units, and those with a greater ability and willingness to pay are able to secure shelter. This may be a public policy concern because certain households are not able to meet their needs; however, because both households in this example were looking to satisfy shelter needs, the outcome is a function of differing ability rather than willingness to pay between these households.
4. **"Wants" crowding out "needs"**: Households looking to satisfy their shelter preferences have a higher ability to pay, and the market responds to that ability to pay—bidding power—rather than willingness to pay (or degree of need). This is an inefficient outcome. Although the shelter is secured by the highest bidder, the bid offered by the "needs" households was not a reflection of their willingness to pay. In this regard, market failure has occurred and affordability becomes a public policy concern.

The four possible outcomes of the bidding process are illustrated in Figure 36.

Figure 36 Crowding out: the four possible outcomes of bidding on shelter

- This process then repeats itself, with some new cohort of households demanding shelter, and other agents in the market supplying it, including landlords, other households, developers, and others. However, those who supply shelter in this subsequent cohort have observed the outcomes of the previous bidding process and use that information to maximize their profits in this round. For example, if outcome 4 ("Wants" crowding out "needs") occurred, the new supply of shelter will disproportionately cater to those with a greater ability to pay. In other words, developers may build units that cater to the preferences of "wants" households. This also puts upward price pressure on the now shrinking supply of homes that would cater to "needs"

households. This outcome is an important focus in this study, as preliminary analysis has suggested it may be one of the primary causes of affordability pressures, with concomitant public policy implications.

- In this way, demand-side effects raise the prices of various shelter units, with certain shelter units experiencing upward price pressures from supply constraints as well. At the heart of the matter is the market's inability to distinguish between willingness and ability to pay, and the subsequent assumption that these two aspects of demand correspond with one another.

Empirically, households looking to satisfy their needs find themselves less capable of securing such shelter, and the problem has become more acute over time in light of the fact that affordability challenges are becoming an obstacle for a growing share of middle-class residents, as opposed to affecting mainly low-income residents.

At the heart of this "crowding out" problem lie three ingredients that facilitate the process:

- Heterogeneity of Households: Households have different characteristics (in terms of size and demographic profile), income and wealth profiles, as well as preferences.
- Differentiation of Shelter: Since it is a composite good, shelter varies by size, number of bedrooms, quality, and geographic location, among other features. Non-shelter characteristics can actually differentiate shelter as well, such as access to transportation and proximity to amenities.
- Heterogeneity of Investors: Investors (whether foreign or domestic) also exhibit different preferences, budget constraints, access to credit, and motivations. Their behaviour could also have a disproportionate influence on prices (for example, in the case of marginal investors).

Strictly looking at the demand side of the market, the eroding affordability of shelter could be explained by intense competition between prospective investors and consumers. The intensity of this competition is driven by the fact that these heterogeneous agents find themselves in a low-interest rate environment that facilitates cheap credit access and allows them to compete for a limited supply of differentiated shelter. Differential access to credit among agents, with frequently better access to credit by high-income households, accelerates this process by aggravating the imbalance. Over time, property developers respond to this situation by catering to "wants" preferences to better maximize profit streams. The result is a possible exacerbation of the problem.

There are certain symptoms within the shelter market that could suggest whether a "crowding out" problem does in fact exist, and these are highlighted below.

SHELTER STOCK IMBALANCE

Shelter stock imbalance refers to the circumstance in which the total number of shelter units does not match the total number of households within geographical boundary, such as Ontario. In extreme cases, too few units relative to the number of households would represent a supply constraint. In this case, households would each bid for shelter and certain households would be bid out of the market, or

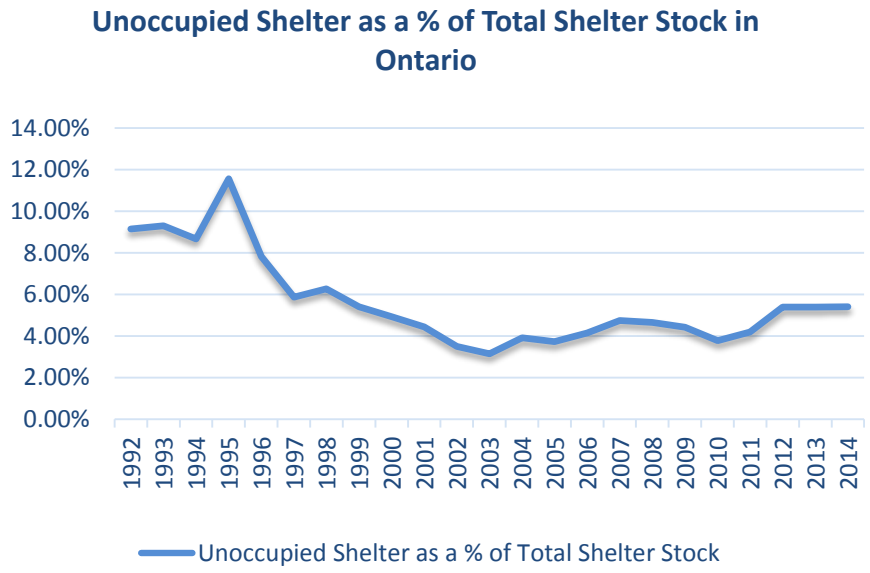
"crowded out".[20] However, in the hypothetical scenario where there is a large excess of shelter units relative to households, there will be no crowding out if households are homogeneous and shelter is undifferentiated. By its nature, the concept of shelter stock simply looks at aggregates and hence would not take these issues into account.

The number of unoccupied shelter units (excess supply of units) as a percentage of total units constructed in Ontario has not exceeded the 6% threshold since the late 1990s. This is shown in Figure 37. The small nature of the imbalance between total shelter unit supply and demand could reflect a natural adjustment or time lag between construction schedules and household purchases rather than a structural misalignment.

This indicates that there has been no significant shelter stock imbalance over the past couple of decades, and therefore stock imbalances would not by themselves implicitly suggest the presence of a "crowding out" problem in Ontario.

Figure 37 Unoccupied Shelter Units as a Proportion of Total Shelter Supply Units in Ontario

(Source: Canada Mortgage and Shelter Corporation, 2014)



SHELTER ALLOCATION INEFFICIENCY

Despite shelter stock being relatively balanced, shelter allocation inefficiency may still be a symptom of the crowding out effect. Shelter allocation inefficiency is a concept that compares the actual and optimal allocation of households' needs to shelter stock. In other words, not all households are consuming shelter—either through rental or ownership—that corresponds to their shelter needs. In some cases, households rent or own shelter in excess of their needs, and in other cases, they rent or own shelter that

[20] Shelter stock imbalance can be indicative of crowding out even with homogeneous agents, provided that there was insufficient supply of shelter relative to households. In this case, the affordability problem arises solely as a result of a supply constraint.

does not meet their needs.

One of the clues to the increase in affordability pressures in spite of the minimal imbalance between total shelter stock and total shelter demand lies in the profiles of shelter that households are occupying now compared to the early 1990s. Since the early 1990s, the percentage of single detached dwellings owned by households (out of all owned dwellings) has decreased from 82% to 73% (CMHC, 2015); Ontario's households are increasingly living in row houses and apartments (condominiums for example).

Shelter preferences geared to satisfying wants and investor demand for upscale condominiums in core urban areas have been one factor in driving developers' preference to build more condominiums with smaller-sized units, which in turn allowed developers to maximize profit margins given the scarcity of land in these areas. The reduction in supply of single-detached units as well as the rise in prices of condominium units in both ownership and rental markets meant that households looking to satisfy their needs are less likely to find suitable and affordable shelter. The effect has been particularly felt by households in younger cohorts, who are increasingly opting to move to core urban areas as noted in section 2.

Another factor behind the shelter allocation inefficiency is the shift in preferences of socioeconomically-privileged households. Increasing demand for upscale rental properties has placed upward pressure on rental costs, as well as the number of condominium starts as a proportion of total property starts, since 2005 (which reached 34% in 2014, as opposed to the 8% accounted for by primary built-for-rental properties) (CMHC, 2015). Renters are more likely to be in core housing need, further suggesting that they are getting squeezed by the growing preference of high–income households to rent shelter.

This discussion points to the fact that the presence of allocation inefficiency in the shelter market could serve as a symptom of the "crowding out" problem: imbalances in the supply of single-detached dwellings relative to condominiums, for example, are partly a result of preferences by households looking to satisfy their "wants" for certain types of dwelling overriding the shelter demand of those looking to satisfy "needs". Some of these households looking to satisfy "wants" are foreign investors with primarily financial motivations behind their decision to buy shelter, and act upon present and future expectations of shelter value without necessarily taking the suitability of the shelter unit into consideration.

With that in mind, developers respond by catering to the preferences of households looking to satisfy "wants" and attempting to maximize their own profits by reducing unit size to extract greater profit margins. As a result, there are less suitable shelter units for consumption by households looking to satisfy their "needs", and the market would be dominated by highly-priced units meant to cater to "wants"-type preferences. This, combined with the intense competition, would further drive shelter prices upward, generating greater affordability pressures[21].

Over time, this would induce households looking to satisfy their "needs" to borrow more in order to compete with "wants", while households looking to satisfy their "wants" may also end up obtaining additional credit in order to retain their market power. This cycle of borrowing and the supply effects described above intensify the competition for existing shelter supply.

[21] Shelter allocation inefficiency could result either from the presence of differentiated shelter, the existence of heterogeneous agents, or both.

Allocation inefficiency, amongst other factors, can be a symptom of crowding out. Although it is not the only possible cause, it could indicate a scenario in which not all agents are able to satisfy their needs affordably, while others are consuming in excess of them.

SHELTER ALLOCATION AFFORDABILITY

A symptom of the increased crowding out of households looking to satisfy their needs is the exorbitant increase of shelter prices in rental and ownership markets, exceeding what market fundamentals would predict. This has been principally fueled by the aforementioned "crowding out" process. It is interesting to note that younger people and parents with children at home (i.e. households that are more likely to be looking to satisfy needs) were more likely to hold debt. Moreover, 38% of mortgage-holding homeowners exhibit unsustainable consumption patterns as a result of heavy reliance on credit, spending nearly 113% of their disposable income (Chawla, 2011).

A situation emerges in which the households looking to satisfy their "needs" are also fueling their own crowding out by accessing cheap credit to afford shelter in response to the pricing pressures across both ownership and rental markets. Rental prices have increased faster than either inflation or real wages since the early 1990s. With overall vacancy rates tightening considerably, especially in the GTHA, a situation has arisen in which a greater proportion of low and middle-class households are in core housing need. This has induced some of these households to consider home ownership, with a picture emerging of increased borrowing by households that see the differentiation in shelter as well as cheap credit access as good opportunities to pursue more desirable shelter.

The increase in affordability pressures generated by growing access to cheap credit is another symptom of the intense competition being driven by agent heterogeneity and shelter differentiation. It is important to realize that cheap credit access intensifies the competition for shelter not just between high-income and low-income individuals: it allows individuals across the income spectrum to better satisfy their preferences even if their needs are already met. This has been an overriding demand-side determinant of shelter pricing pressures, with developers' profit-margin considerations being a key supply-side determinant of these pressures.

SYSTEMIC IMPLICATIONS OF CROWDING OUT

The intense competition for shelter is hence driven by a combination of both market and systemic ingredients. Looking strictly at the shelter market, it is difficult to envisage intense competition between "needs" and "wants" for shelter in a scenario where agents (households, investors, etc.) were homogeneous and shelter is not differentiated in nature. In this hypothetical scenario, developers would provide shelter that would satisfy every agent's preferences. The differentiated nature of shelter means that not all units are created equal, and the heterogeneous nature of agents with different purchasing powers, preferences, and motivations means that property developers may not necessarily supply the same number of units to satisfy each agent's preferences. The presence of foreign investors also means that developers do not necessarily supply the market with shelter that would be suitable for a resident household. In fact, investors could influence the supply of shelter even if they mainly view it as an investment good.

The interaction of these phenomena has led to a situation in which certain households (those looking to satisfy their "needs", in this case) are prevented from acquiring suitable shelter by those looking to satisfy their "wants". This is implied by looking at the allocation inefficiency and affordability challenges in Ontario's shelter markets: allocation inefficiency is partly a consequence of the fact that property developers are catering to the preferences of households and investors looking to satisfy "wants" for a type of shelter with particular accessibility, size, and location, as opposed to the type of shelter that is demanded by households looking to satisfy their "needs". This causes affordability pressures which are then compounded by access to cheap credit.

What is also clear is that the intense competition has been fueled by systemic ingredients such as low interest rates (highly accommodative monetary policy), increased cross-country capital market liberalization (which has encouraged foreign investor to consider arbitrage opportunities in overseas markets), and inflation-targeting policies. Section 3.6 will delve deeper into the systemic risks that would arise from this situation, but it is important to identify that while highly accommodative monetary policy was pursued by different OECD economies (including Canada's) to generate economic growth and raise the disposable incomes of low and middle-class households, it has produced circumstances that have squeezed vulnerable economic groups (such as those looking to satisfy "needs", low-income, and single-parent households) out of finding suitable shelter and securing their financial status.

The public policy implications are complex but pressing: the scant availability of data on foreign investment in shelter markets across Canada means that little guidance is available on how to address the role of foreign investors in intensifying the competition for shelter, while the increased accessibility to home equity extractions puts CMHC and Canadian taxpayers at heightened risks given that the federal government acts as a guarantor to nearly 80% of mortgages. Increasing reliance on credit by households of all profiles aggravates the crowding out problem while exposing a majority of households to non-discretionary risk and the entire economy to a precarious path of economic growth.

3.4 Generation & Distribution of Economic Prosperity

The amount of income earned in an economy and the way it is shared among households dictates the ability of households to bid for shelter, the degree to which they can leverage themselves, and which households hold greater purchasing power. If income is shared unequally, those with higher levels of income or wealth (and, by extension, higher purchasing power) may be able to outbid lower income households in such a way that:

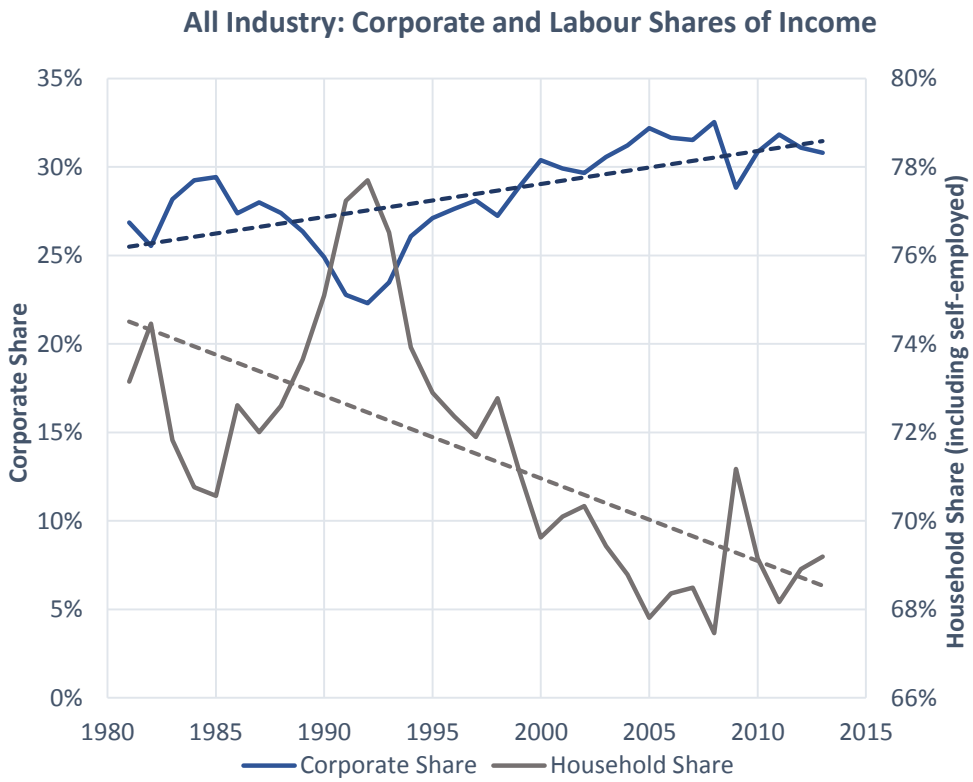
i) Higher income households price others out of the market;
ii) Higher income households disproportionately affect demand patterns; and
iii) The strong influence of high income households on demand will then disproprtionately influence supply patterns also, as developers produce and offer shelter that maximizes profits.

Therefore, the genertion and distribution of income, in combination with cheap, accessible credit, may create circumstances that are conducive to crowding out by creating heterogeneous households and inviting investors to participate in the shelter market.

3.4.1 INCOME INEQUALITY: THE FACTORS OF PRODUCTION

Inequality in income accruing to different factors of production is growing, with a smaller share of aggregate income accruing to labour since the 1980s (Sharpe, Arsenault, & Harrison, 2008). The fall in labour's share of income is a global and complex phenomenon, the complete analysis of which is beyond the scope of this report. Broadly, it has been attributed to changes to the regulatory framework, such as increasing openness to trade, and macroeconomic effects, such as factor-biased technological progress and productivity (Neiman, 2013).

Figure 38 Labour's Share and Corporate Share of Income
(Source: CANSIM Table 384-0037)



One other potential cause of the reduction in labour's share of income in Canada has been corporate tax cuts, which increased the corporate profit share with the intent of spurring capital investment and economic growth. However, businesses have been re-investing less despite corporate tax cuts; following corporate tax reforms in 1988, corporate cash flows increased while business capital investment fell, despite the reduction in the federal statutory tax rate from 36% to 28% (Stanford, 2011).

More recently, business capital investment (which includes structures and equipment/machinery) in Canada declined by 24% between late 2008 and 2009 in real terms, the largest annual decline seen since the Great Depression (Stanford, 2011). Research suggests that the reduction in private capital investment is driving the decline experienced in the Canadian economy, and has rendered its post-recession recovery lacklustre and slow (Stanford, 2011). Since then, Canada has experienced a surge in capital investment in the energy and mining sectors between 2010 and 2013; however, these effects have since reversed and

have not been sufficient to derail long-term trends.

The fall in labour's share has also contributed to stagnant real wages, despite increasing labour productivity, as discussed in section 2.7.1. As the Canadian labour share fell by an average of 0.17% annually between 1961 and 2007 (with a sharper decrease visible between 1980 and 2005), median wages for Canadian workers have been roughly stagnant since the 1970s (Sharpe, Arsenault, & Harrison, 2008). This directly impacts households as a result of the following three factors:

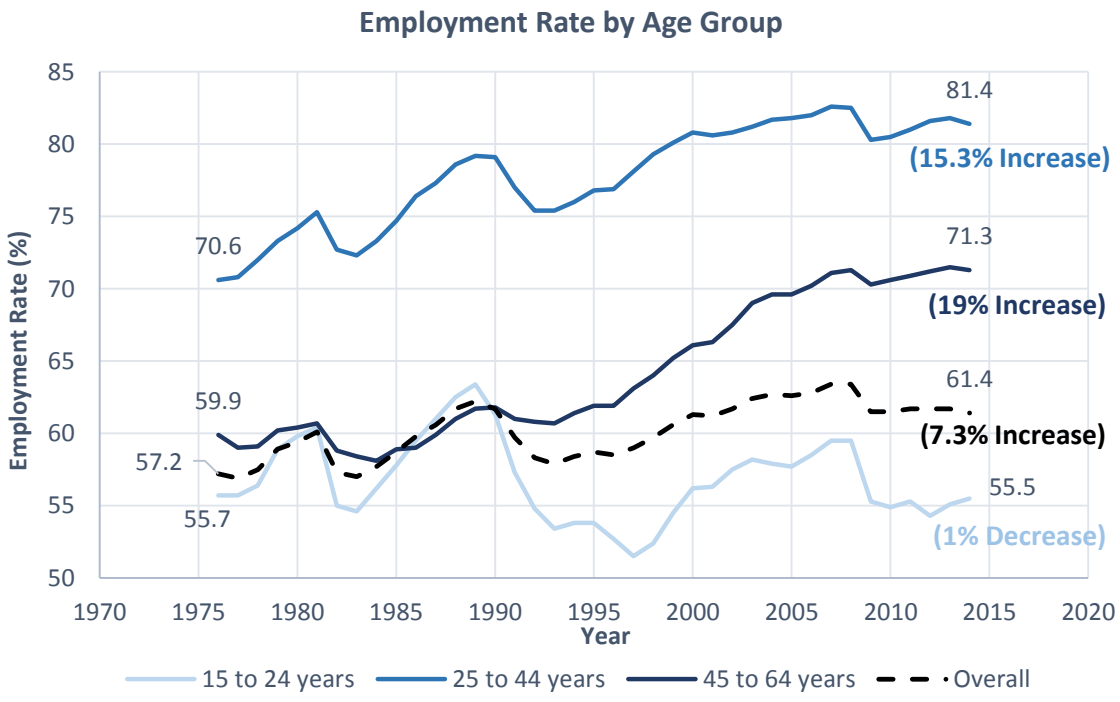
- A decline in labour's share of income is linked to stagnant wages (Russell & Dufour, 2007);
- Employment income as reflected by wages is the largest aggregate income source for Canadians, which will be discussed further in section 3.4.3 (Statistics Canada, 2015a); and
- Stagnant wages are linked to increased income inequality (Sharpe, Arsenault, & Harrison, 2008).

In other words, the fall in labour's share of income and some of its effects can directly be linked to inequality among households.

3.4.2 INCOME INEQUALITY: SYMPTOMS OF THE LABOUR MARKET

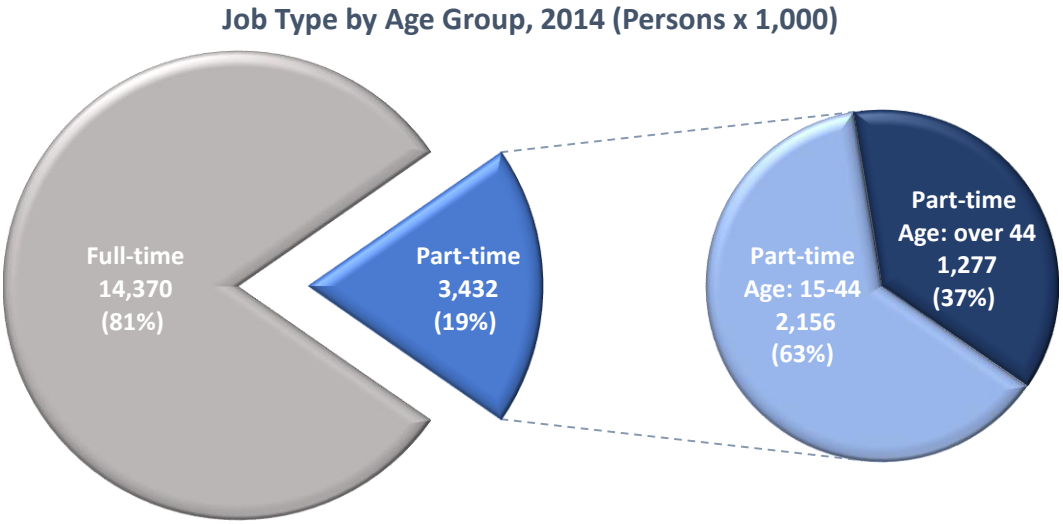
Another effect of the decline in labour's share of income, if not completely reflected in wages, is poor employment outcomes for certain groups. Although aggregate employment levels do not look particularly troubling, aggregate employment trends hide unequal trends that become visible when disaggregating by age groups. Those between the ages of 15 and 24 saw negligible increases in their participation and employment rates (Statistics Canada, 2015g). Since the mid-1990s, employment creation disproportionately accrued to workers between the ages of 45 and 64 (Statistics Canada, 2015g).

Figure 39 Employment Rate by Age Groups
(Source: CANSIM Table 282-0002)



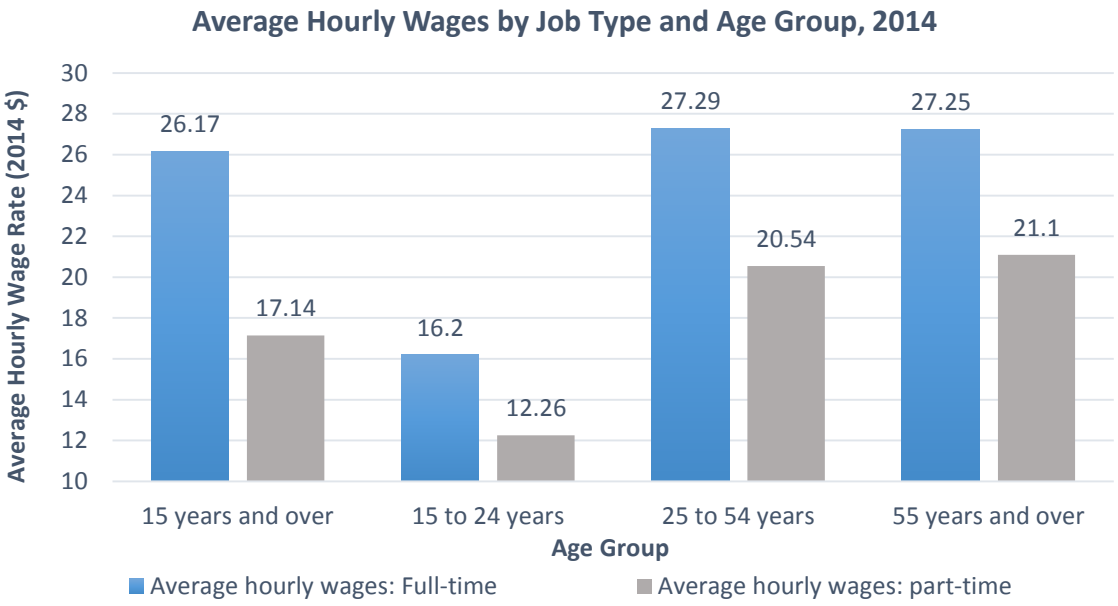
Furthermore, jobs categorized as precarious labour are disproportionately filled by younger workers. Approximately 57% of all employed Canadians are under the age of 45 (Statistics Canada, 2015d). However, almost two-thirds of all part-time jobs are occupied by Canadians under the age of 45, while only about half of all full-time jobs are occupied by members of this age group (Statistics Canada, 2015d).

Figure 40 Job Type by Age Group
(Source: CANSIM Table 282-0002)



This has significant wage impacts for workers who hold part-time jobs: in 2014, the average hourly wage rate of those in part-time jobs was 34.5% lower than those who held full-time jobs. This is biased downward by the significant proportion of individuals aged 15 to 24 who worked part-time, and who earned lower wages than other age groups did, both in full-time and part-time work. As this group is more likely to be enrolled in secondary and post-secondary education, their lower earnings profile in itself is not necessarily problematic. However, part-time workers aged 25 to 54 still earned an average of 25% less each hour than their peers in full-time work. This is illustrated in Figure 41.

Figure 41 Average Hourly Wages by Job Type and Age Group, 2014
(Source: CANSIM Table 282-0070)

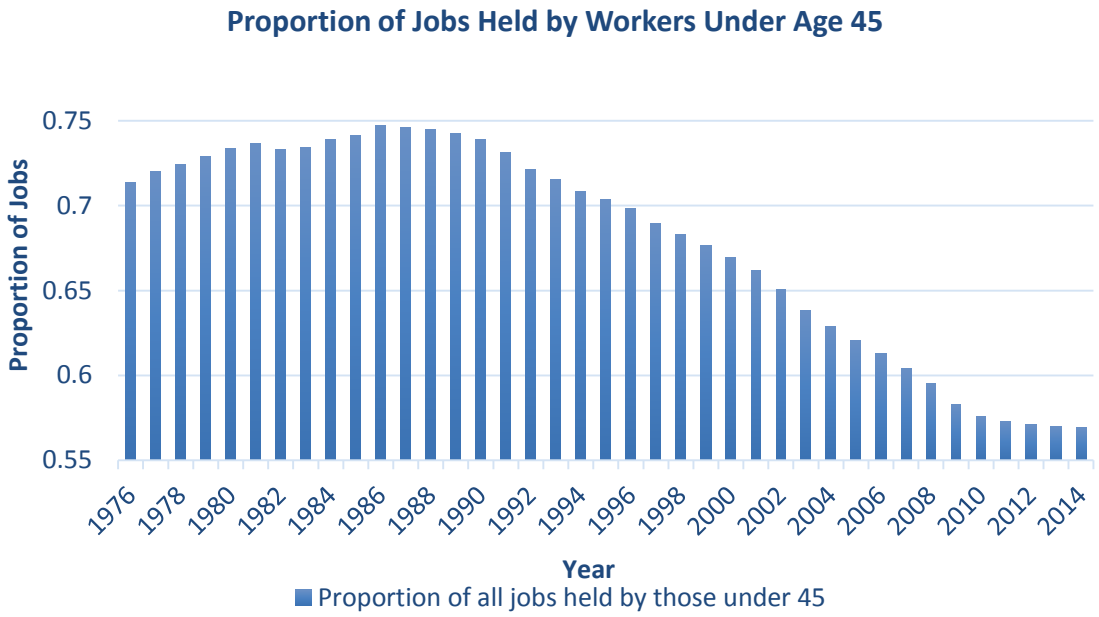


This was a trend that began in the early 1990s, and was accompanied by a period of declining wages among this cohort, which has been attributed to the following characteristics among this group:

- Decline in unionization;
- Decline in the number occupations held in STEM fields; and
- Reduced participation in high-paying sectors, such as public service (Galarneau, Morissette, & Usalcas, 2013).

Note that since the 1990s, and especially following the financial crisis of 2008, the proportion of jobs held by those under the age of 45, shown in Figure 42 (Statistics Canada, 2015d).

Figure 42 Proportion of Jobs Held by Workers Under Age 45
(Source: CANSIM Table 282-0002)



Improvements in employment for older Canadians, especially since the 2008 financial crisis, could be limiting the ability of younger individuals to realize the benefits of aggregate job creation. It is important to note that other factors may be influencing this trend, such as occupation-skill mismatches among younger cohorts, labour market imbalances including the excess demand for occupations in the science, technology, engineering, and mathematics fields, and others.

Despite the range of potential sources of this effect, the current situation, left unchecked, poses a significant risk to those individuals who are attempting to start their careers, raise capital to purchase a home, and then sustain a mortgage through consistent employment that pays competitive wages.

3.4.3 INCOME INEQUALITY: WAGES, MARKET INCOME, AND DISPOSABLE INCOME

The Gini coefficient[22] for total household income in Canada has also been rising since the 1980s; this is illustrated in Figure 43. When market income is considered, (that is, employment earnings, net investment income, retirement income, and other forms of income) the top 20% of Canada's highest earners had their average market income rise by 28.9% between 1976 and 2011, while the bottom income quintile saw real declines in their market incomes by 22.5% (Rajotte, 2013), as shown in Figure 44.

The Gini coefficient for after-tax income has been significantly lower than that of market income, indicating that government transfers have been somewhat successful in mitigating inequality (Statistics Canada, 2013e); (Sharpe & Capeluck, 2012). However, even when solely considering after-tax income, inequality has increased nationally over time. The Gini coefficient over time for market, total, and after-tax income is illustrated in Figure 43.

[22] A commonly used measure of income distribution, which varies from 0, indicating perfect equality, to 1, indicating that all of the wealth is concentrated in the hands of one person, household, or other economic unit.

Figure 43 Gini Coefficient: Canada
(Source: CANSIM Table 202-0705)

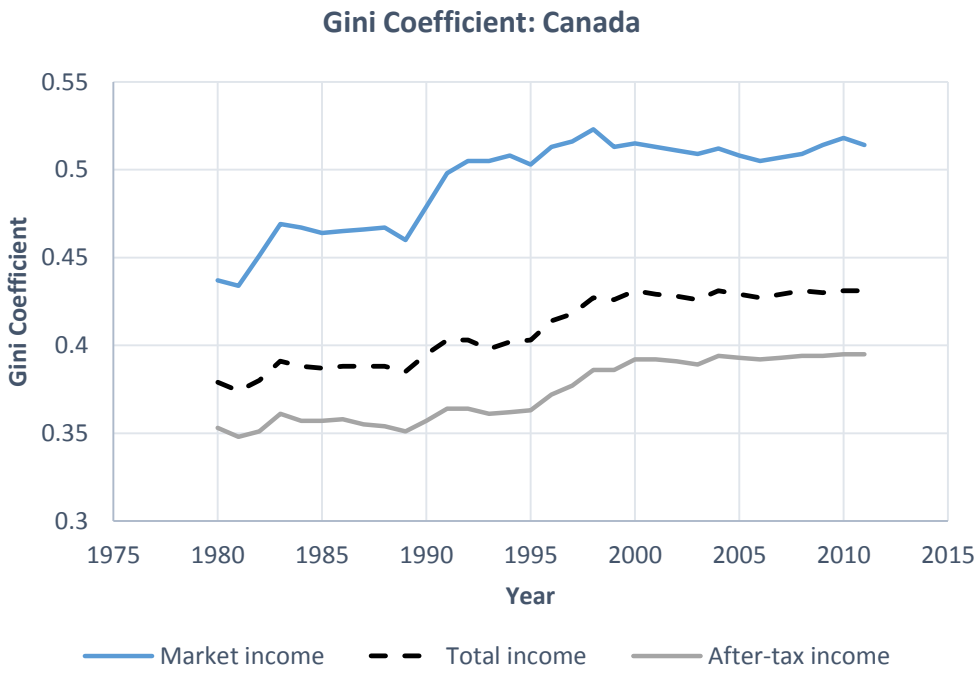
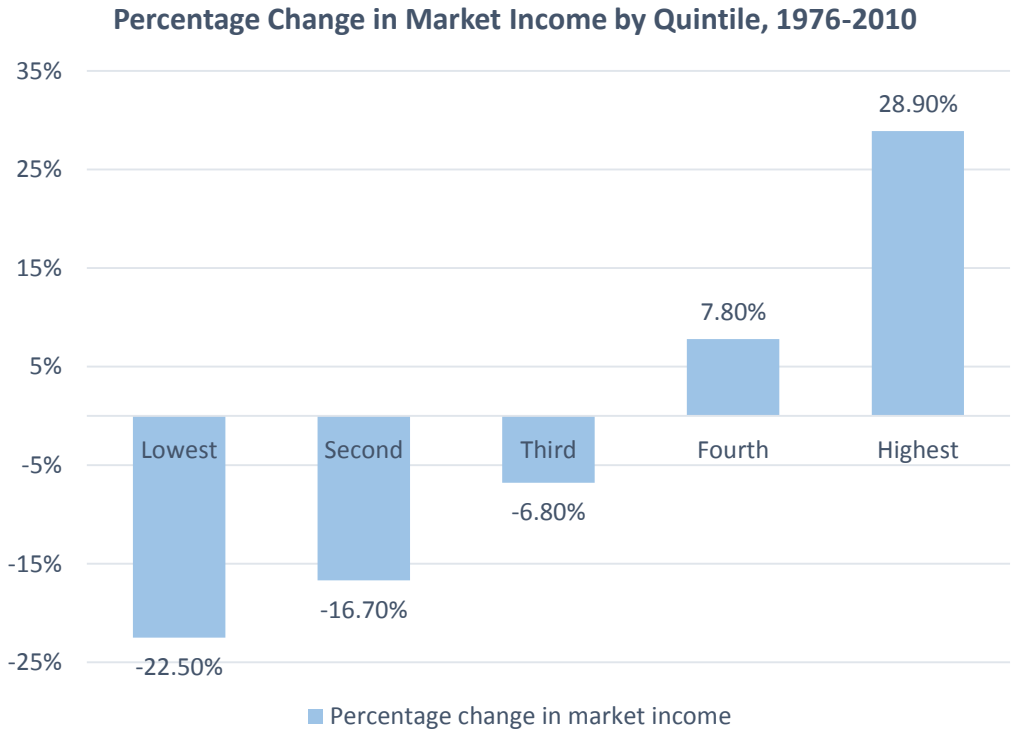


Figure 44 Percent Change in Market and Disposable Income by Quintile
(Source: Rajotte, 2013)



COMPONENTS OF HOUSEHOLD INCOME: WAGES

Employment earnings represent the largest source of income to Canadians households, comprising three quarters of all income earned in 2010, shared among almost 70% of the population (Statistics Canada, 2015a), as illustrated in Figure 45 and Figure 46.

Figure 45 Proportion of Canadians Earning Employment Income by Income Decile: 2010
(Source: Statistics Canada National Household Survey, 2011)

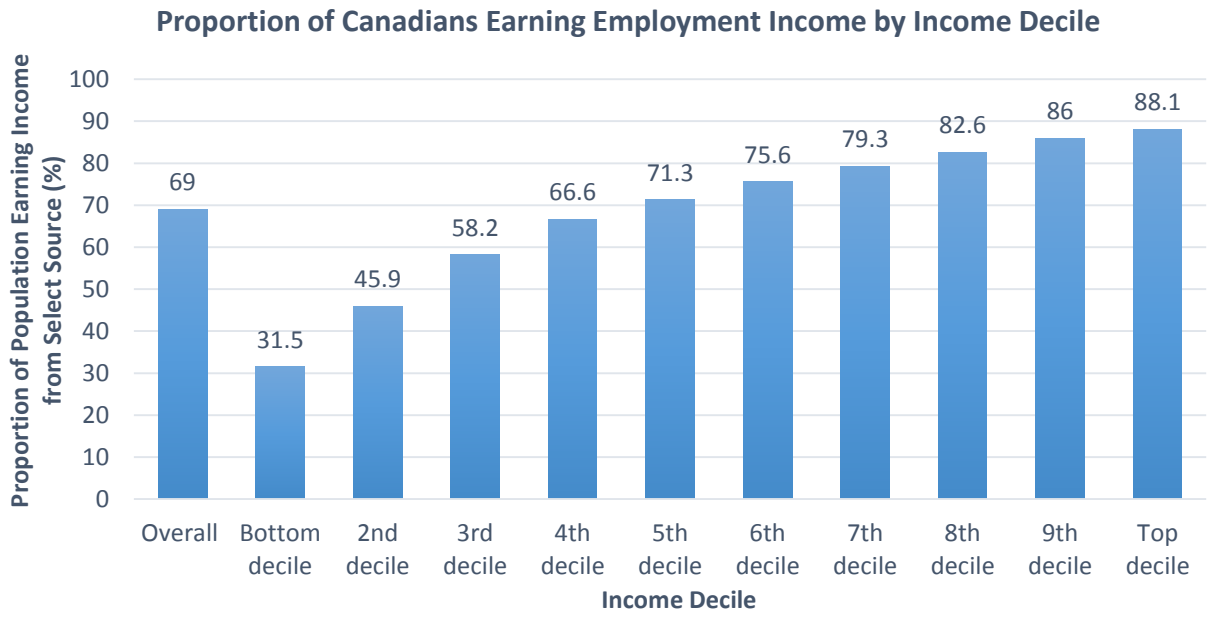
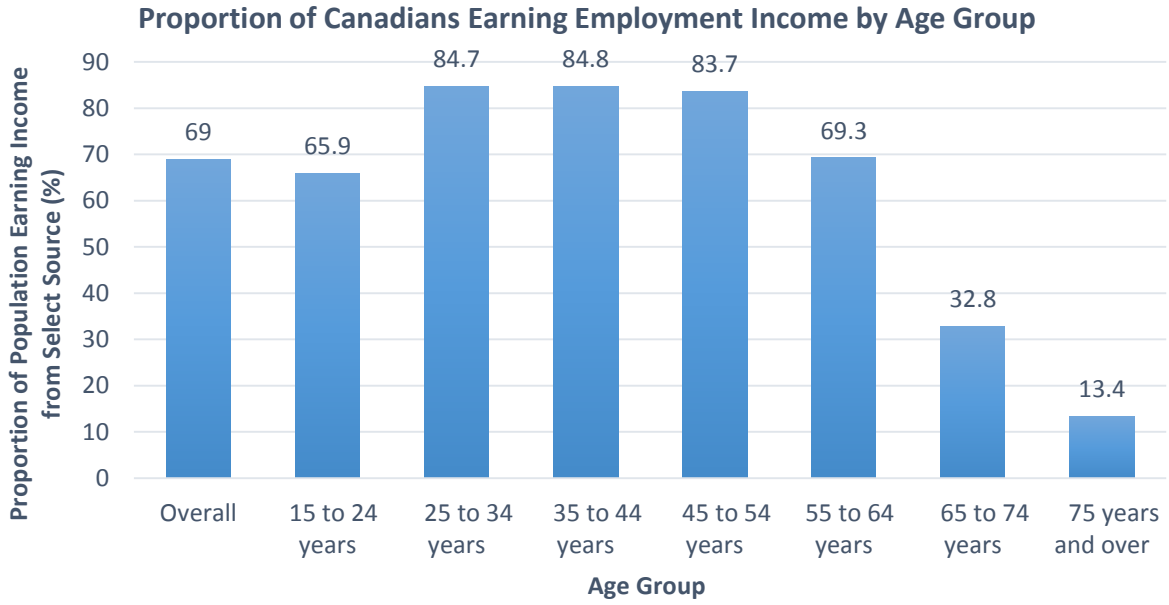


Figure 46 Proportion of Canadians Earning Employment Income by Age Group: 2010
(*Source: Statistics Canada National Household Survey, 2011)*



Usually when analyzing the dynamics associated with employment earnings, wages are used as a proxy. A cursory glance reveals growing discrepancies in wage rates across industries, as shown in Figure 47. Growing wage inequality across industries could also serve to explain the growing inequality in employment income among Canadians, with possible implications for inequality across households of different socioeconomic, educational, and professional backgrounds. Future research could reveal relationships between industry characteristics, educational attainment of workers, and industry wage inequality, as well as the influence these variables have on household income inequality.

Labour productivity by itself appears to be a relatively weak predictor of average industry wages (Statistics Canada, 2014); (Statistics Canada, 2015e), implying that wage inequality across employment sectors may not necessarily be driven by differential productivity growth, and could be the result of other variables, including:

- Labour market institutions;
- Sectoral idiosyncrasies related to technological advancement and productivity growth;
- Commodity price influences; and
- Market forces, including changes in the prices facing consumers relative to the prices of goods and services they produce (Sharpe, 2006).

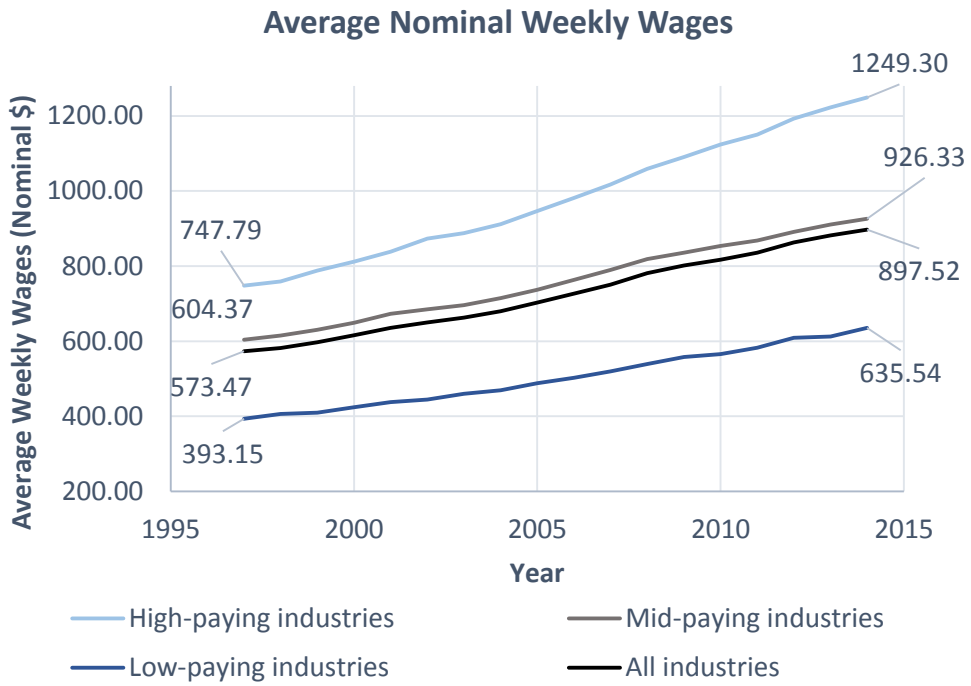
The wage formation process is a complex phenomenon that impacts different households in different ways. The rising cost of shelter has emphasized the importance of the wage formation process to shelter affordability, and the need to better understand this process. Table 1 illustrates the industries that comprise those in the high-paying, mid-paying, and low-paying categories[23] (Statistics Canada, 2015e). Interestingly, 29% of the jobs in 2013 are in high-paying industries (5.3 million of 18 million), of which 63% (3.3 million of the 5.3 million) are government sector jobs (including education) (Statistics Canada, 2015e). This may indicate that the public sector is paying inefficiently high wages as a result of unions, or it may be a result of human capital-related factors, such as education or labour market experience.

Table 1 Low-, Mid-, and High-Paying Industries
(Source: CANSIM Table 282-0072)

Low-paying Industries (wages below 85% of average wages)	Mid-paying Industries (wages between 85% and 115% of average wages)	High-Paying Industries (wages greater than 115% of average wages)
Agriculture [111-112, 1100, 1151-1152] Trade [41, 44-45] Business, building and other support services [55-56] Accommodation and food services [72] Other services [81]	Manufacturing [31-33] Transportation and warehousing [48-49] Finance, insurance, real estate and leasing [52-53] Health and social assistance [62] Information, culture, and recreation [51, 71]	Forestry, fishing, quarrying, oil and gas [21, 113-114, 1153, 2100] Utilities [22] Construction [23] Professional, scientific and technical services [54] Educational services [61] Public administration [91]

[23] Based on data corresponding to the time period spanning 1997 to 2014. North American Industry Classification System (NAICS) 2007 codes are presented in square brackets.

Figure 47 Wage Inequality Growth by Sector
(Source: CANSIM Table 282-0072)



COMPONENTS OF HOUSEHOLD INCOME: INVESTMENT INCOME

Investment income comprised approximately 5% of all income earned in 2010. In 2010, approximately 29% of all Canadian households earned investment income (Statistics Canada, 2015a). Households aged 55 and older were more reliant on investments as a source of income than the average household. Similarly, a greater proportion of households in the top three income deciles earned some form of investment income than the population average, as shown in Figure 48 and Figure 49 (Statistics Canada, 2015a).

Despite the apparent link between older households, high-income households, and households that draw upon investments for income, it is important to note that high reliance on potentially volatile investment income relative to other sources (Sauve & Battams, 2013), which is the case for the oldest Canadians, may expose these households to certain risks. As they seldom draw upon employment income, these households will then increasingly rely upon transfer income to supplement any gaps left by fixed incomes or pensions, which would consequently place additional burden on the labour force and younger cohorts.

High-earning households have the discretion to save and invest in assets, in addition to retaining levels of consumption that are at least as high as those of lower income families. These assets appreciate in value and generate additional income and wealth, leading to greater purchasing power; the cycle then repeats. The cyclical relationship between income, wealth, and investment could entrench inequality over time.

Figure 48 Proportion of Canadians Earning Investment Income by Income Decile: 2010
(*Source: Statistics Canada National Household Survey, 2011)*

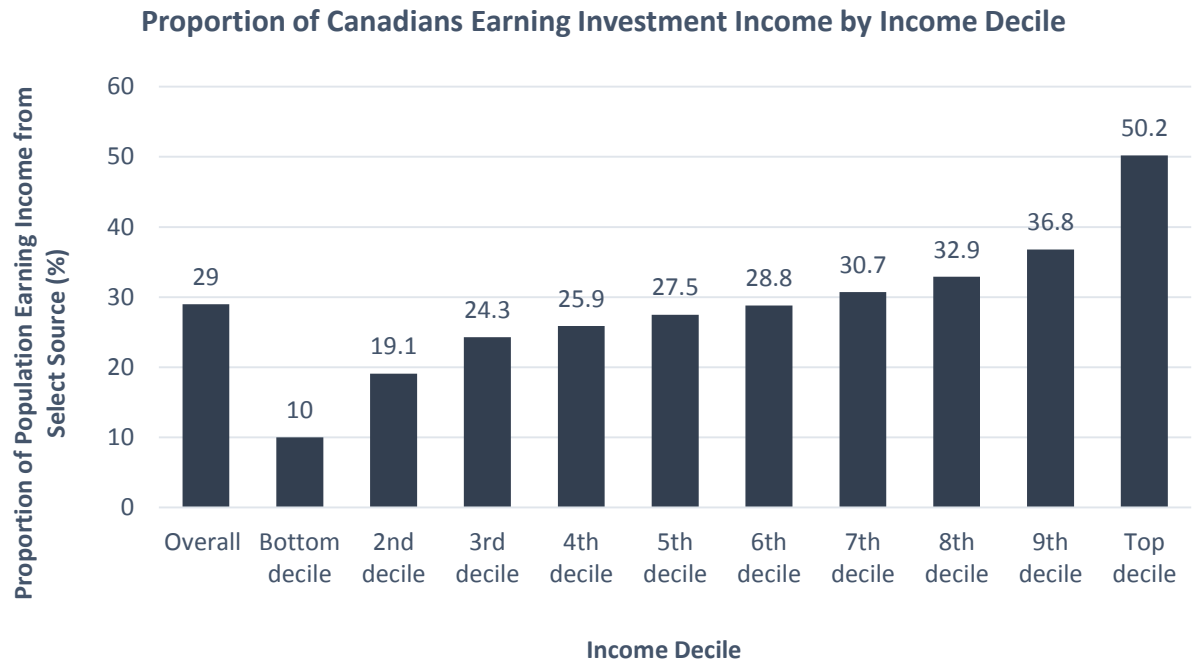
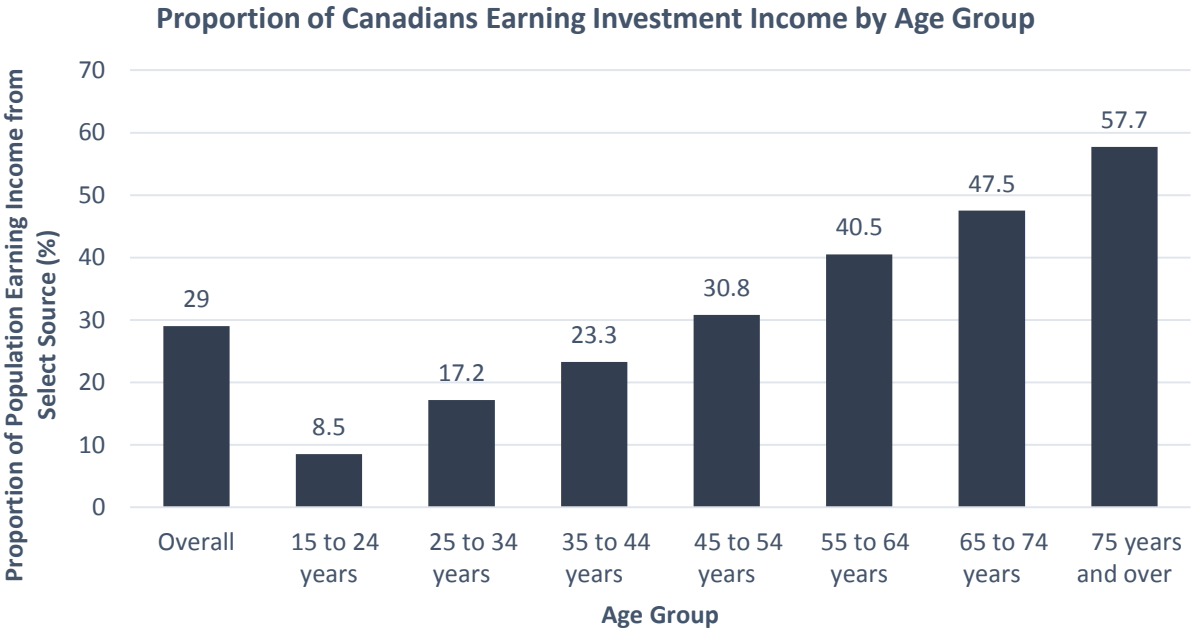


Figure 49 Proportion of Canadians Earning Investment Income by Age Group: 2010
(*Source: Statistics Canada National Household Survey, 2011)*



The greatest growth in income has accrued to high-net worth families in older age groups since the 1970s, primarily as a result of the real estate market. Income and wealth are therefore conflated partly as a result of real estate appreciation: households that were wealthy enough to afford a home saw increases in

wealth, which augmented their purchasing power, all else being equal. However, other groups face an even greater disadvantage than they did four decades ago: middle-class families in their thirties have relatively less wealth today than their counterparts did in the 1970s (Macdonald, 2015). This could be a result of the fact that appreciating prices act as barriers to entry, which then do not allow young families to purchase a home and realize wealth and income benefits from value increases, thereby corroborating the income-investment-wealth cycle described above.

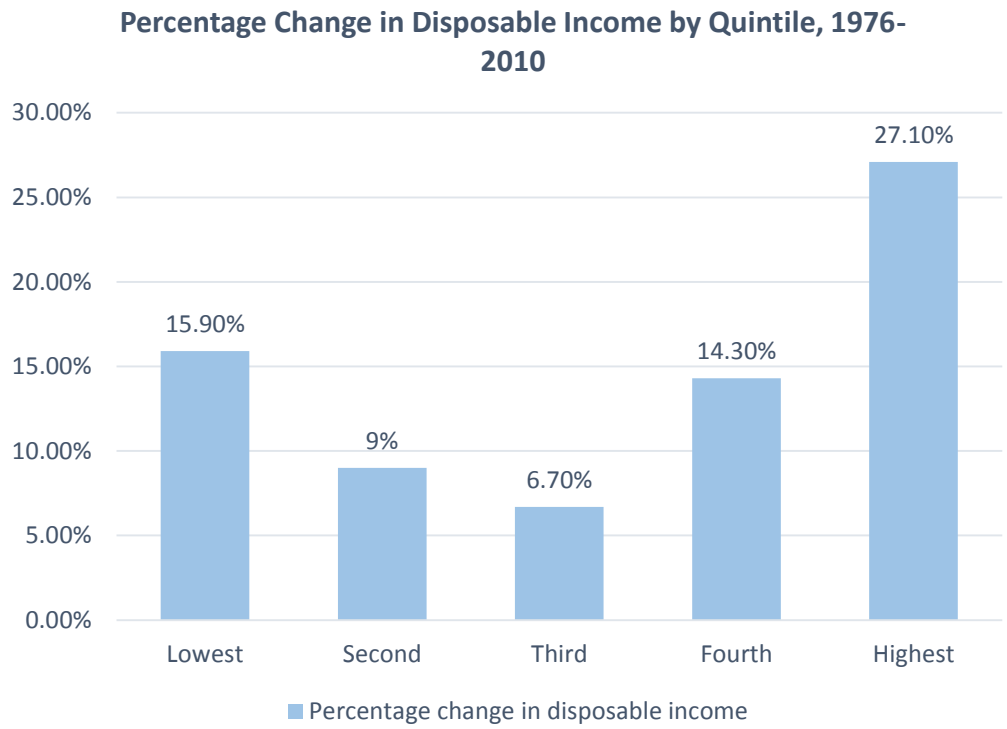
Linking this to the issue of shelter affordability, it becomes clear that younger households may be more vulnerable by virtue of the fact that their income sources are less diversified than their older counterparts (they have lower levels of investment income on which to rely, as well as precarious employment from which to accrue wages) (Statistics Canada, 2015a). The oldest households, which rely primarily on non-employment income, are also at risk, especially if investment income is volatile. However, they are usually not an age group that is just entering the shelter market, and therefore are less likely to shoulder high levels of new mortgage debt under their precarious income circumstances.

Other things being equal, labour market inefficiencies are consistent with the fact that a greater fraction of employment created after the 2008 recession went to older individuals (Sauve & Battams, 2013), leaving the younger households (who are already more reliant on employment income) in a more financially vulnerable position. This has undermined their ability to sustainably consume affordable and suitable shelter.

COMPONENTS OF INCOME: GOVERNMENT TRANSFERS AND PAYMENTS

Government transfers have reduced income inequality, but have not completely mitigated it. After-tax income levels of households in the bottom quintile have increased since the mid-1970s, which was caused in large part by government transfers over that period (Rajotte, 2013); (Sharpe & Capeluck, 2012). This is illustrated in Figure 50. Government transfers comprised over 12% of all income earned in 2010 (Statistics Canada, 2015a). However, among those aged 65 and older, government transfers made up over 40% of household income (a median of $14,500 per household in 2010), while comprising only 7% of the income earned by households aged 25 to 54 (a median of $2,000 per household in 2010) (Statistics Canada, 2015a).

Figure 50 Percentage Change in Disposable Income by Quintile, 1976-2010
(Source: Rajotte, 2013)



Furthermore, while older Canadians have seen much greater wealth increases than those of younger cohorts, they are also more reliant upon government transfers and investment income, the latter of which may be more volatile (Sauve & Battams, 2013); (Statistics Canada, 2015a). The aging population will place increasing burdens on younger cohorts to finance these transfers to older individuals, and this would potentially add another hindrance to their earning potential. The proportions of Canadians earning transfer income by decile and age groups are illustrated in Figure 51 and Figure 52 respectively.

Figure 51 Proportions of Canadians Earning Transfer Income by Decile: 2010
(*Source: Statistics Canada National Household Survey, 2011)*

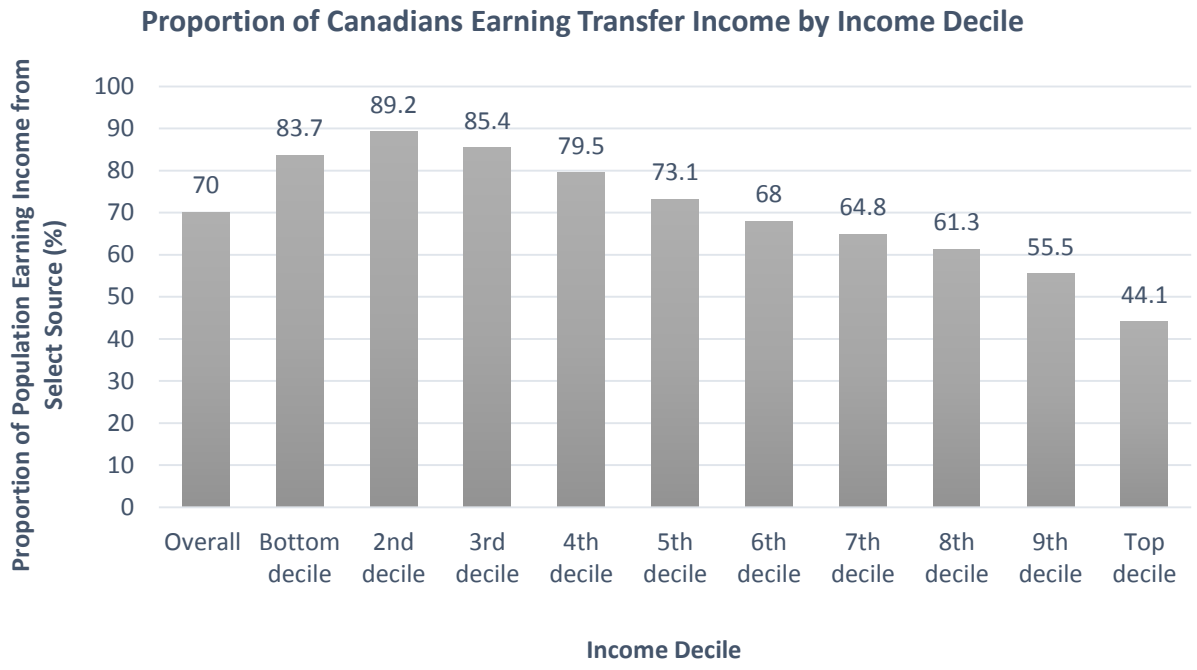
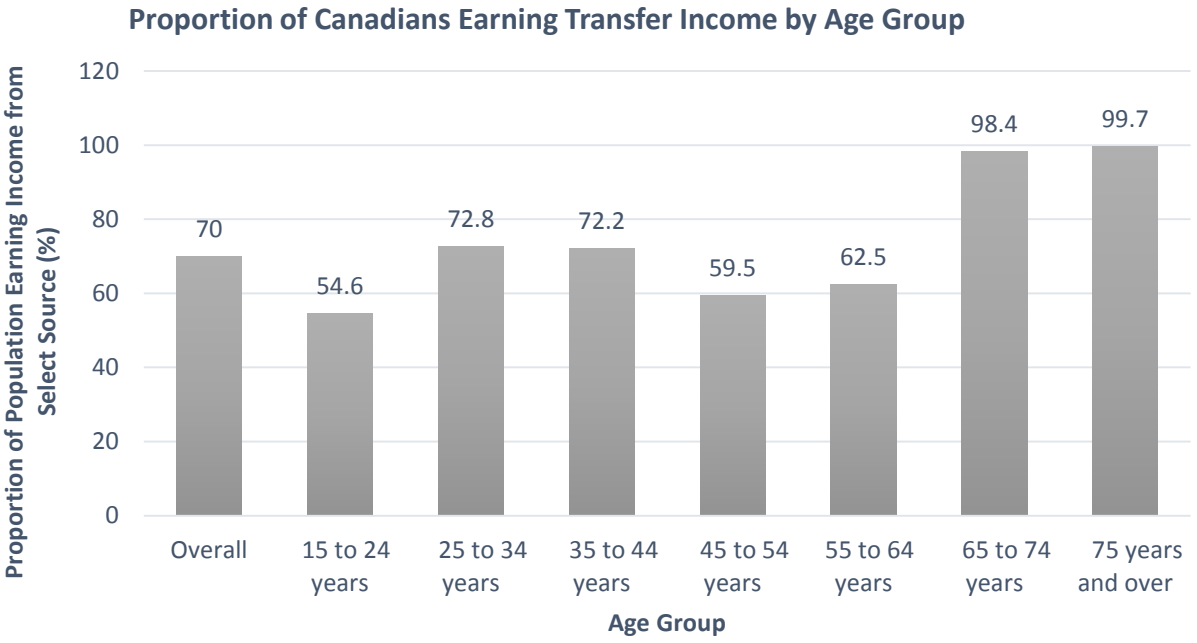


Figure 52 Proportions of Canadians Earning Transfer Income by Age Group: 2010
(*Source: Statistics Canada National Household Survey, 2011)*



Government transfers also carry public policy implications in the context of shelter affordability: on one hand, poorly-designed transfers could impede economic efficiency and reduce aggregate income, which

would affect household disposable income and make shelter consumption less affordable. On the other hand, in light of the greater challenges confronted by vulnerable economic groups in the shelter market, these transfers are required to supplement their income levels and facilitate the consumption of necessities. It would seem from the above analysis that these transfers have targeted a certain group of vulnerable individuals (those in older age groups) whilst inadequately providing for households in younger age cohorts who are less likely to be able to find affordable and suitable shelter. Given that younger cohorts are a larger demographic group, their inability to secure higher levels of income and wealth would also put the government's taxation base and fiscal commitments in greater jeopardy.

3.4.4 HOUSEHOLD EXPENSES: THE COSTS OF NEEDS AND WANTS

Households of different income quintiles face different expense profiles and varying degrees of affordability pressures. The lowest income quintile consistently spends approximately half of its budget on food, shelter, and clothing, while the top quintile spends only a quarter of its budget on these items (Statistics Canada, 2015c). To acquire the same amount of food, shelter and clothing that the average Canadian household consumes, a lowest-income quintile household would need to spend its entire budget on these items (Statistics Canada, 2015c). Figure 53 shows the breakdown of household expenditures for the lowest income quintile in 2013, while Figure 54 illustrates that of the highest income quintile. Rising cost pressures of these essentials has also led to a squeeze on discretionary incomes for all households, but in particular for lower income households.

Figure 53 Expenditures: Lowest income quintile
(Source: CANSIM Table 203-0022)

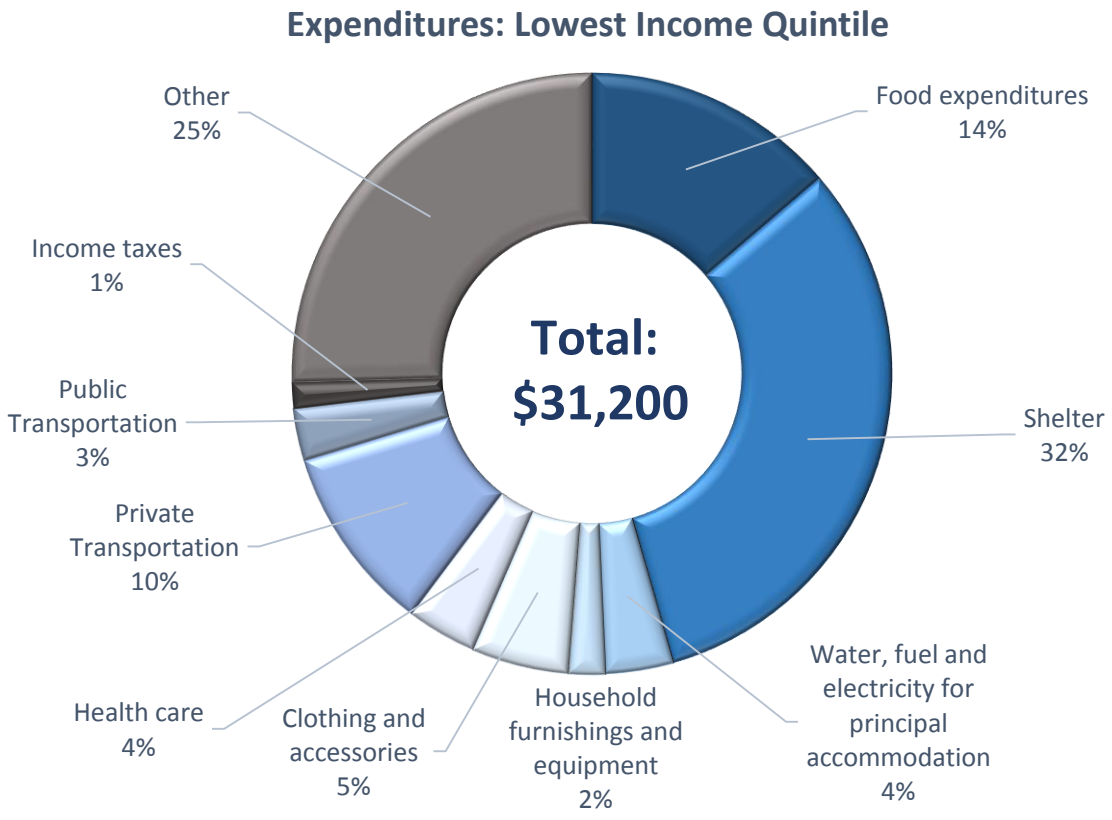
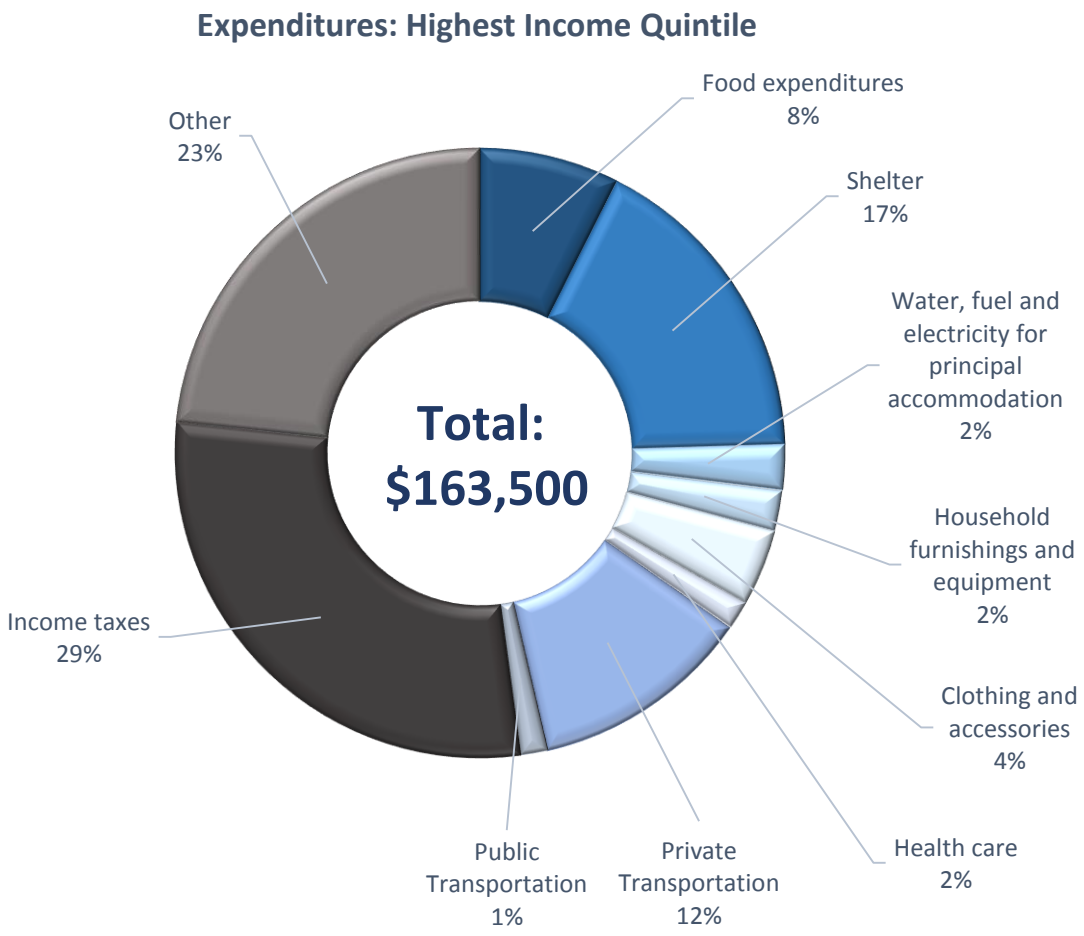


Figure 54 Expenditures: Highest income quintile
(Source: CANSIM Table 203-0022)



FOOD EXPENDITURES

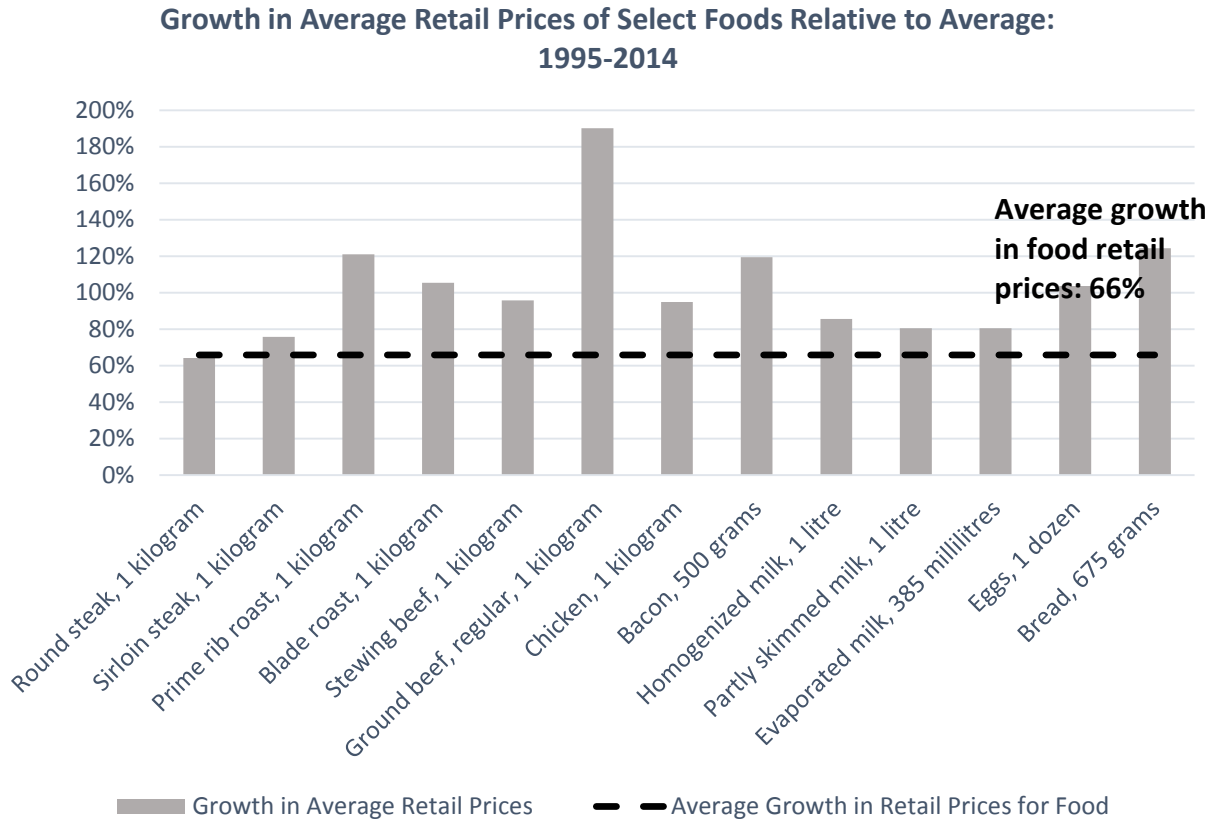
The average retail prices[24] for food in Canada have increased by 66% between 1995 and 2014 (Statistics Canada, 2013b). Research has shown that households who bear mortgage or rent expenses spend less on food overall, indicating that the households, particularly those with low incomes, are pressured into choosing between necessities as incomes are squeezed by rising costs (Kirkpatrick & Tarasuk, 2003). The affordability of shelter and that of other needs are therefore intrinsically linked. Not only are lower-income households forced to substitute between these needs, but they also substitute between food groups, potentially sacrificing nutrition for caloric intake (Kirkpatrick & Tarasuk, 2003).

Past research has shown that lower income households purchase fewer servings of meat and alternatives and milk products (Kirkpatrick & Tarasuk, 2003). This may be further exacerbated by divergent growth in retail prices of different foods: prices of meat and dairy products have generally grown significantly faster than food prices on average (Statistics Canada, 2013b). This implies that lower income households are

[24] Prices are in nominal terms

unable to meet all of their food-related needs by choosing cheaper substitutes of the same type of good; they are facing constraints that force them to substitute amongst needs. The growth in retail prices for select products over the last 20 years is illustrated below in Figure 55. Therefore, a relationship between the affordability of shelter and food insecurity begins to emerge: certain households are faced with the stark choice between fulfilling their fundamental nutritional need to survive and shelter.

Figure 55 Growth in Average Retail Prices of Select Foods Relative to Average: 1995-2014
(Source: CANSIM Table 326-0012)

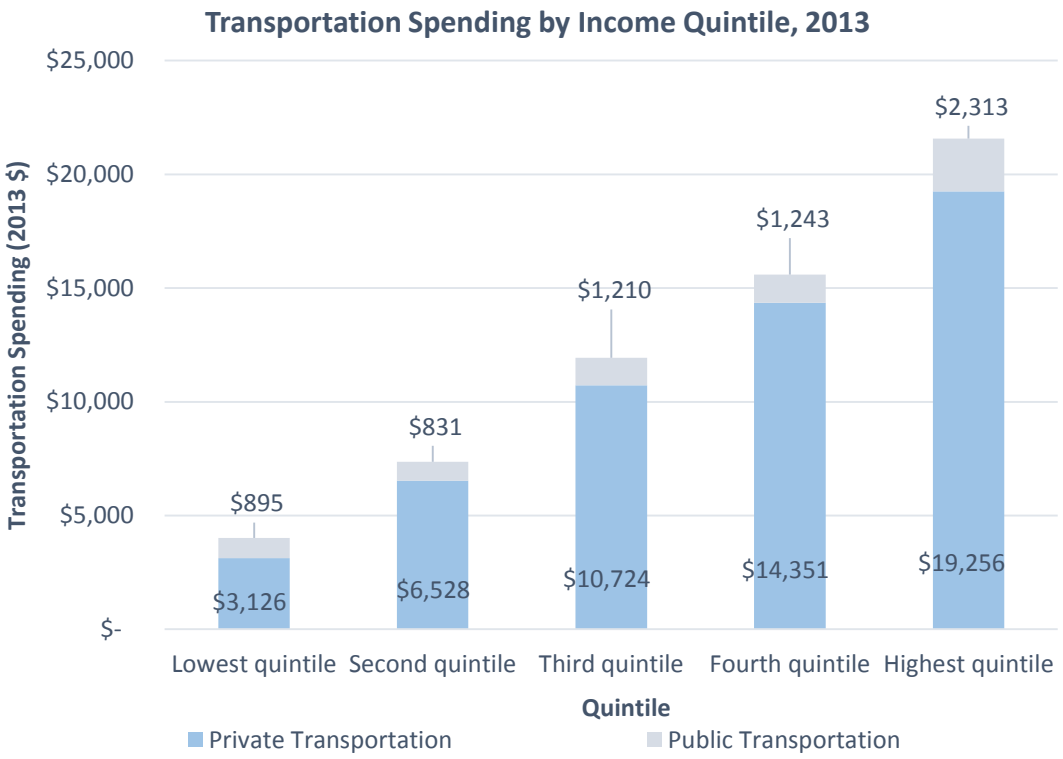


TRANSPORTATION EXPENDITURES

As in the case of food, increases in the price of transportation have disproportionate impacts on lower income households, whose budgets may not absorb increases in non-discretionary spending[25]. Lower income quintiles are relatively more reliant upon public transportation than private transportation (Statistics Canada, 2015c), and while higher income quintiles spend more on all forms of transportation, they spend significantly more in both relative and absolute terms on private transportation (Statistics Canada, 2015c). This is illustrated in Figure 56. Public transportation responds to the income effect, but not as much as private transportation does.

[25] In this case, a budget can be said to absorb increases in non-discretionary spending if only discretionary spending is reduced as a result. In other words, households are not forced to substitute between needs.

Figure 56 Transportation Spending by Income Quintile, 2010-2013
(Source: The Metro Vancouver, 2015)



There are important ramifications from this discussion: those who have access to reliable private transportation enjoy higher proximity benefits from a given home than someone who relies on public transit to make the same commute, especially if public transportation does not directly service that commute. In that regard, higher income households and homeowners, who are more likely to have access to private transportation[26], can choose to live outside of exorbitantly-priced core urban areas and commute from suburban or rural locations. Renters and lower-income households, who are more reliant upon public transportation, are more likely to face proximity constraints due to the higher affordability pressures they face. In Toronto, for example, low-income households who would be reliant on public transportation may be pushed to live in areas that are poorly serviced by transit as a result of unaffordable shelter in other, more convenient locations (Hulchanski, 2010). These households may then sacrifice access to necessary amenities and employment in order to secure shelter consumption.

Most employment opportunities are created in urban areas. If a low-income household is employed in an urban area, it needs to live in an area that allows for convenient access to the location of employment. Given that low-income households are more reliant on public transportation (Toronto Medical Officer of Health, 2013), this implies that these households will need to choose among areas that are serviced by public transportation if they are to meet their needs. Urban areas are more likely to be serviced by public transportation than rural and suburban areas, and are also more likely to feature higher shelter costs, as discussed in section 2.4.5.

[26] Refer to section 2.4.5.

Therefore, low-income households that are employed in urban areas and do not have immediate access to private transportation could be forced to choose urban shelter that is less affordable if they are to keep their jobs. Alternatively, these households will choose affordable shelter over access to employment, and therefore entrench their economically vulnerable positions. In this way, transportation-related pressures:

- Concentrate low-income households and other economically vulnerable groups in areas that are serviced by public transportation, which would prevent them from taking advantage of more affordable shelter in less accessible suburban and rural areas. Alternatively, households would choose access to shelter over access to employment, such that affordability pressures indirectly exacerbate issues of poverty and inequality; and
- Disproportionately impact low-income households, who are usually limited by the mobility constraints imposed by public transit, as well as the budgetary constraints imposed by their incomes and expenditures on other needs. Any increase in the cost of private transportation further reduces the ability of low-income households to substitute away from public transit, while higher-income households may be able to absorb such cost increase more easily.

Some research suggests that lower income households face higher private transportation costs in both absolute and relative terms[27] . For example, in some parts of the United States, lower income neighbourhoods face higher gasoline prices (Knowles-Myers, Close, Fox, Meyer, & Niemi, 2010). For low-income households, who spend approximately as much on transportation (both private and public) as they do on food (Statistics Canada, 2015c), such an outcome could imply that there exist unmeasurable barriers to private transportation access by lower income households, effectively trapping them in the less affordable urban shelter market if they hope to pursue employment and other economic opportunities.

HEALTHCARE EXPENDITURES

Since the 2008 financial crisis, spending on necessities has grown, with health-related expenditures experiencing the greatest growth (especially in-hospital and outpatient health services, which grew by 28% and 27% respectively) (Lafrance & LaRochelle-Cote, 2011); (Sauve & Battams, 2013). Cost increases, as opposed to demographic changes, have been a significant driver of expenditure increases (Canadian Institute for Health Information, 2014).

While healthcare expenditures have been growing at a slower pace since 2011, they have generally outpaced GDP according to the Canadian Institute for Health Information (Canadian Institute for Health Information, 2014). Only 70%[28] of all health care expenditures are financed by the public sector and since 2012, private sector[29] expenditures on health have grown faster than those of the public sector (Canadian Institute for Health Information, 2014).

[27] Relative to their incomes

[28] The public sector's share of health expenditures in Canada is less than the OECD average (Canadian Institute for Health Information, 2014). In Ontario, an even smaller share of health expenditures is attributable to the public sector than Canada overall, approximately 68% (Canadian Institute for Health Information, 2014).

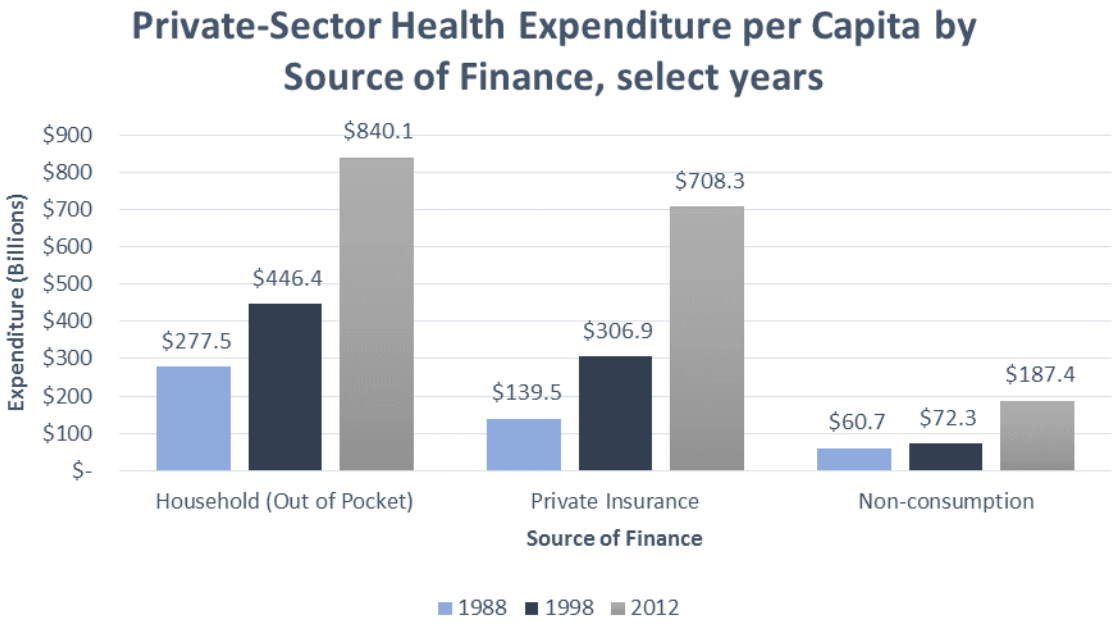
[29] Private sector expenditures include household spending as well as expenditures by private insurers.

Of all private health expenditures, most have been paid for out-of-pocket by households since the late 1980s. Since then:

- Out-of-pocket spending increased by 4.7% annually, from $277 to $840 per capita;
- Spending by private insurance increased by 7% annually, from $139 to $708 per capita; and
- Non-consumption expenditures also increased by 4.8% annually, from $60 to 187 per capita (Canadian Institute for Health Information, 2014).

The change in private-sector health expenditure per capita since 1988 is illustrated below in Figure 57.

Figure 57 Private-Sector Health Expenditure per Capita by Source of Finance in Canada
(Source: Canadian Institute for Health Information, 2014)



The rise in cost of private health expenditures has differential impacts on households of different socioeconomic groups. For instance, older households spend proportionally more on healthcare than younger cohorts (Lafrance & LaRochelle-Cote, 2011). As the population ages, more households are expected to increase their spending on healthcare. While increased out-of-pocket health expenses for older households may not squeeze budgets for the relatively affluent cohort of older Canadians, fixed-income retirees and future cohorts who approach retirement with insufficient savings will be at risk of incurring unsustainable expenses, especially if Old Age Security and other transfer payments are not able to cover the basic needs of older Canadians, which is what some research suggests (Townson, 2012).

In addition, households living in the poorest neighbourhoods are associated with higher rates of mortality from a variety of illnesses, and some research suggests that even when controlling for risk factors, health differences persist as a result of the quality of health care that they receive (Tjepkema, Wilkins, & Long, 2013); (Raphael, 2000). Meanwhile, approximately 10% of Canadian households do not adhere to medical prescriptions as a result of cost (Law, Cheng, Dhalla, Heard, & Morgan, 2012). As in the case of food expenditures, low-income households engage in unfortunate trade-offs between their needs, and the

increased costs of healthcare, food, transportation, and shelter interact to create a nexus of disadvantage and induced substitutability among components that are necessary to maintain a basic standard of living.

Analysis of the way in which other needs are being squeezed by the affordability of shelter is beyond the scope of this study. Without additional data, it is not possible to determine which necessary goods and services are sacrificed for others when households are not able to afford all of them simultaneously. However, it is clear that all households are facing a more expensive market for essential items. For more affluent households, this may not necessarily lead to forced substitution among needs, with the result being only a squeeze on discretionary income. However, this is not the case for those with greater budgetary constraints. Higher pricing pressures on necessities would undermine household purchasing power and increase the consumption cost of shelter, with economically vulnerable groups such as younger, lower income, and households looking to satisfy their needs being the most at risk of consuming unaffordable and unsuitable shelter.

A final point to raise is that price indices hide the relative purchasing power of different households, which are a result of both different income levels and different consumption choices that must be made within budgetary constraints. An increase in the price of these goods that is concomitant with a stable household expenditure profile would imply that households, on aggregate, are increasingly engaging in debt-financed consumption, since income growth has been unable to outpace consumption spending.

3.4.5 HOUSEHOLD DEBT AND INEQUALITY

Households have been saving less since the 1980s, and consuming more, which puts their future purchasing power and ability to afford necessities at risk (Statistics Canada, 2015m). This is illustrated in Figure 59 and Figure 60. However, this pattern is to be expected given the relationship between interest rates, the savings rate, and the rate of inflation, and especially given inflation-targeting practices. The reduction in interest rates induces households to borrow more, which allows them to consume more and therefore increases inflation. However, the rate of inflation has not increased substantially; in fact its annual rate of growth has exhibited a downward trend since 2000, as is visible in Figure 58 (Statistics Canada, 2015h). This implies that consumption alone may not be sufficient to sustain growth without the contribution of other factors, such as private capital investment (as discussed in section 3.4.1).

Figure 58 CPI: All items and annual rate of change
(Source: CANSIM Table 326-0021)

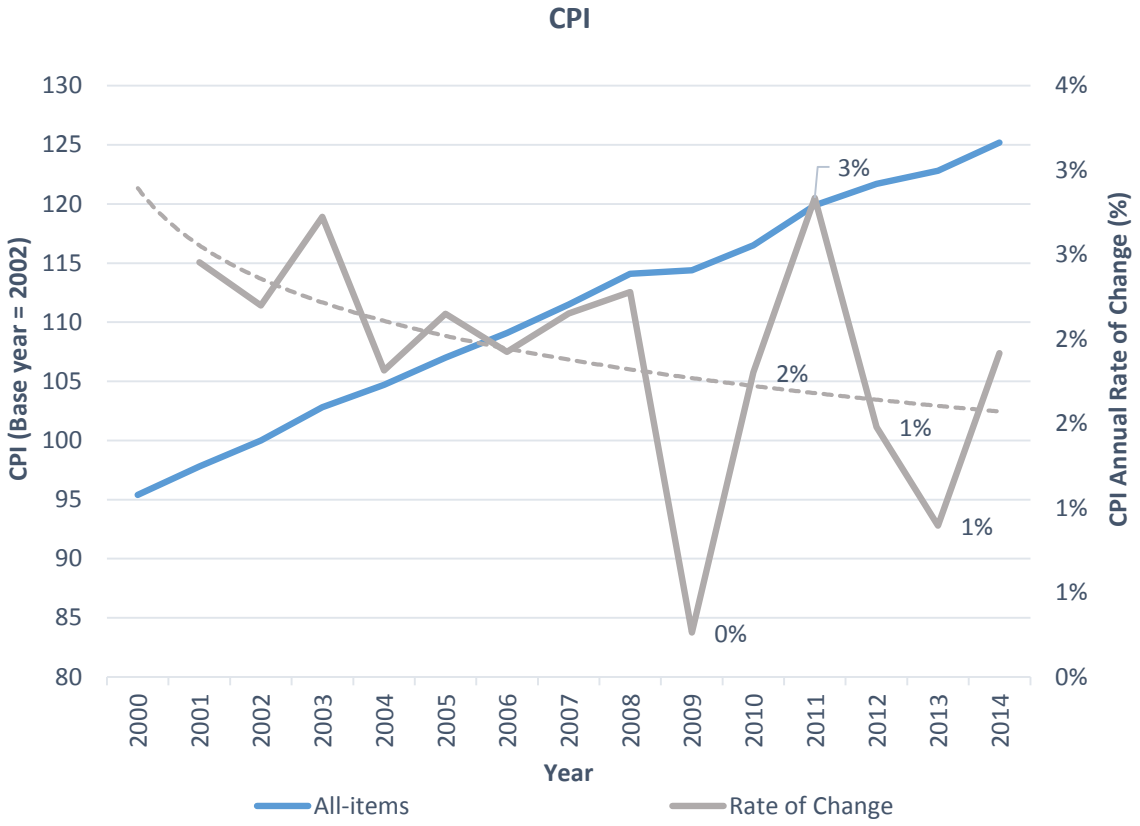


Figure 59 Savings Rate
(Source: CANSIM Table 384-0040)

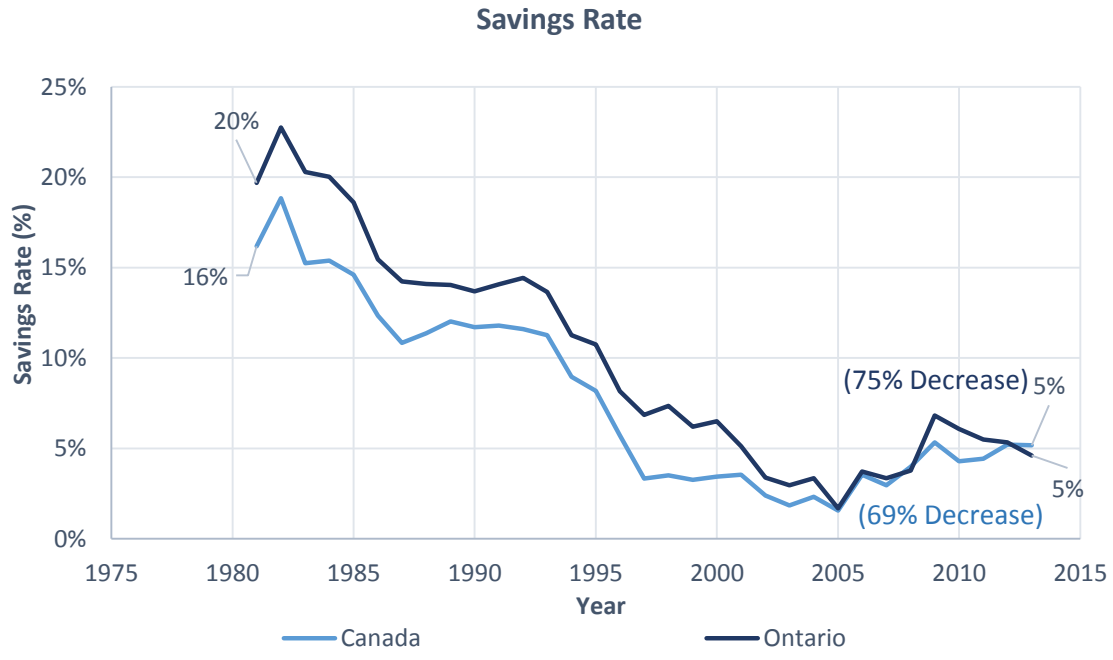
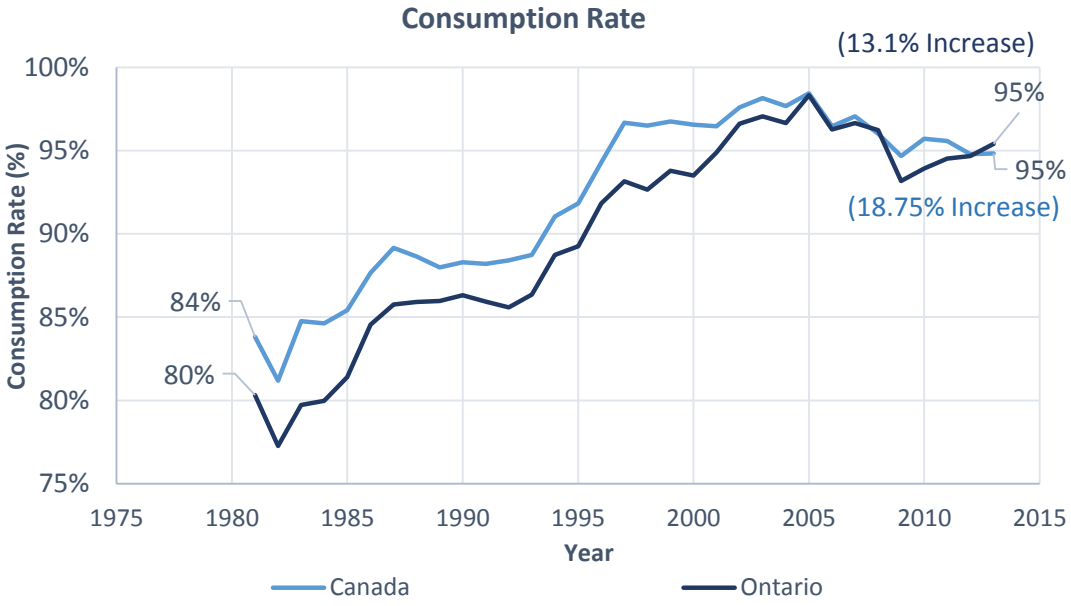


Figure 60 Consumption Rate

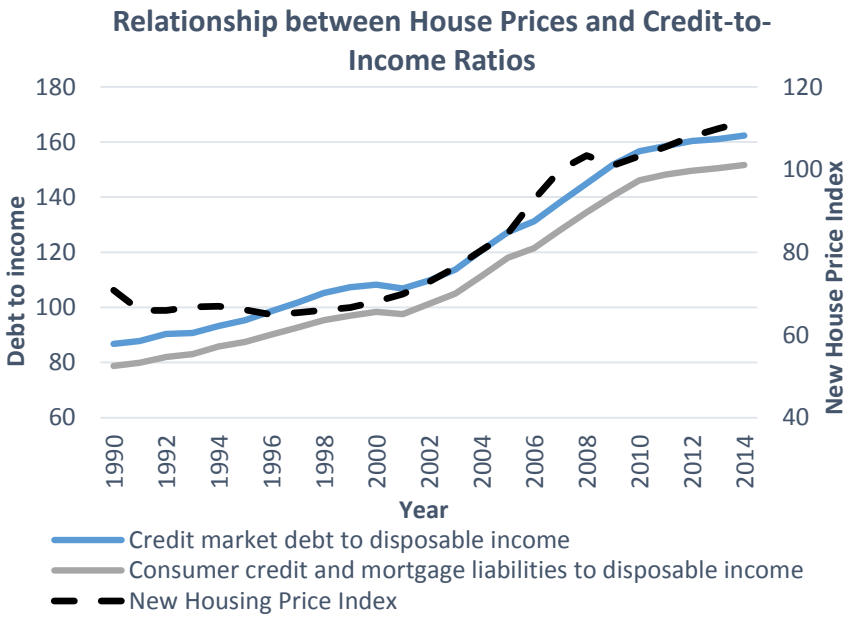
(Source: CANSIM Table 384-0040)



As debt is used to smooth consumption over the lifetime of a household, significant amounts of debt have been used to finance consumption (Bailliu, Kartashova, & Meh, 2011). Mortgage debt and consumer credit are on the rise, with mortgage debt responsible for most of the increase. Rising house prices, low interest rates, and increased disposable incomes have increased both mortgage debt and home equity loans (Bailliu, Kartashova, & Meh, 2011). The relationship between house prices and credit-to-income ratios is shown in Figure 61 (Statistics Canada, 2015j); (Statistics Canada, 2015i).

Figure 61 House Prices and Credit-to-Income Ratio

(Source: CANSIM Table 378-0123 and 327-0046)



Debt increases among lower income quintiles are slightly more attributable to consumption than mortgage debt, relative to the Canadian average (Uppal & LaRochelle-Cote, 2015). Given that these households' expenditures on necessities such as food are already significantly lower than average even in the face of rising prices, this trend may be a result of poor financial literacy, or due to difficulty in meeting necessary levels of consumption without resorting to debt financing.

Looking at household debt by age, it is interesting to note that families in their 30s have more debt today than their counterparts did in the late 1990s, with no significant increase in assets or net worth (Uppal & LaRochelle-Cote, 2015). These families find themselves in a financially vulnerable position given that they are often entering their first mortgage. However, expectations of mortgage debt do not preclude the accumulation of financial risk; those aged 15 to 34 faced increases in their debt burden with no corresponding increase in assets or net worth between 1999 and 2012; the debt is not only a result of mortgages, but also secured PLCs and home-equity loans (Bailliu, Kartashova, & Meh, 2011).

Aside from younger families, Canadians aged 65 and older saw their levels of household debt increase from 27% to 43% since the 1990s (Uppal & LaRochelle-Cote, 2015). This may imply that some older households are not financially stable into retirement, echoing responses to consumer surveys indicating that households estimate they will not have enough money saved by the time they expect to will retire (Sauve & Battams, 2013). This may place additional burdens on younger cohorts. Figure 62 illustrates the build-up of credit particularly for households under the age of 50 in 2012, while Figure 63 illustrates the greater leverage of higher-income households (Macdonald, 2015).

Figure 62 Average Debt to After-Tax Income by Age Group, 2012
(*Source: Statistics Canada Survey of Household Spending, 2012)*

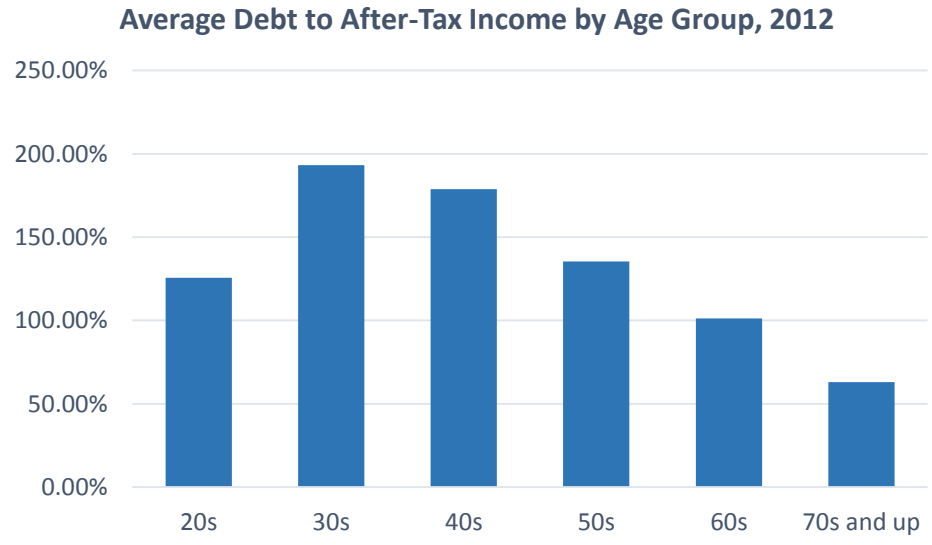
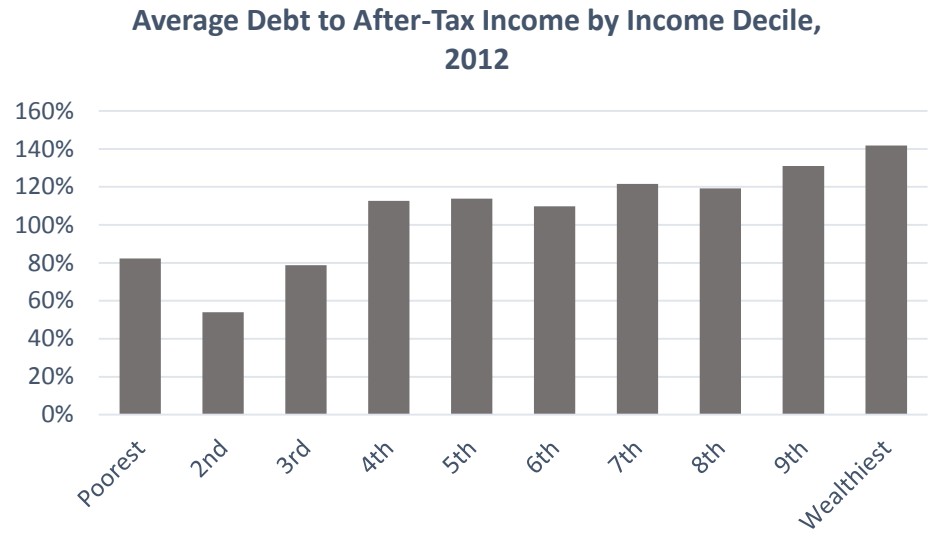


Figure 63 Average Debt to After-Tax Income by Income Decile, 2012
(*Source: Statistics Canada Survey of Household Spending, 2012)*



An increase in the interest rate could threaten the sustainability of the economy's current borrowing and lending dynamics, further undermining the affordability of shelter to households. In fact, current debt levels are unsustainable irrespective of future interest rates. As household debt increases, especially among vulnerable groups and constrained households, interest payments convert discretionary income into a non-discretionary expense. This significantly reduces the ability of households to weather economic shocks, such as spikes in living costs, interest rate changes or job losses. In this context, the role of government becomes apparent as a crucial mediator of risk, which can improve outcomes and economic stability using a variety of policy tools.

3.5 Public Policy & The Role of Government

The affordability problem and the risks described in previous sections could serve as a symptom of wider economic imbalances, with public policy implications for government. Effective government intervention through labour and product-market regulation, infrastructure investment, income redistribution and financial and policy coordination across multiple tiers of government may support market forces in helping to correct problems of shelter affordability.

When the discussion about shelter is focused on the competition between the pursuit of "needs" and "wants", and particularly if certain households are left unable to meet their "needs", this may become a topic of interest for policymakers. Policies that have impacts upon the ability of households to meet their "needs" and "wants" are not just those with shelter affordability as their mandate; the externalities of policies across many seemingly unrelated aspects of the economy can contribute to the different levels of affordability facing households, and which are implicitly reflected in the SCAR, as discussed in sections 1.3.4 and 3.1. Furthermore, any government policies that influence the heterogeneity of households or the differentiation of shelter, either directly or indirectly, may impact circumstances in such a way that

the crowding out of needs by preferences is supported or mitigated, depending on the structure of the policy and its beneficiaries. Although market rather than regulatory forces often drive many of the variables pertaining to shelter affordability, the following non-exhaustive list of dimensions are actionable by the multiple tiers of the Canadian government:

- **Labour market outcomes, including employment and wages**, which impact household budgets and their overall ability to allocate expenditures across discretionary and non-discretionary expenses. Examples of policies that directly impact labour market outcomes include occupational licensing, the availability of training programs, minimum wage regulations, union regulations, and policies geared to mitigate any surplus or shortages of labour.
- **Taxes on income and consumption**, which also impact the budgets of households and the affordability of goods that are taxed. Regressive tax structures, for example, can differentiate households' disposable incomes and preferences, which is conducive to the crowding out effect discussed in section 0. These may also serve as incentives or disincentives for the consumption or investment on taxed goods.
- **Taxes on growth,** such as development charges levied by municipalities. These influence the building costs of shelter, which then carry through to supply-side decisions about where to build, how much to build, and for whom. Supply-driven decisions then influence the demand for shelter by constraining and influencing the options available to households.
- **Government transfers,** which are often intended to mitigate disparities in standards of living, but which also contribute to the heterogeneity of households. For instance, if income inequality is targeted by government transfers, then by definition certain households will be more reliant upon government transfers as their source of income. Varying reliance upon different income sources may then influence household choices.
- **Product market regulations**, which combined with labour market regulations, can have impacts on the level of domestic and foreign private capital investment in Canadian industries, and the way in which its productivity-enhancing effects are diffused. This, in turn, impacts labour and multifactor productivity levels, which affect corporate and household incomes.
- **Growth planning and zoning regulations,** which influence the supply of shelter in a similar way to growth taxes. In addition, they impact real estate prices in different areas by affecting the level and growth in land value through land use policies. These guide both shelter supply and demand-related decisions through regulation-imposed constraints, such as the availability of land, and incentives, such as those created by shelter prices.
- **Infrastructure provision,** which is a unique form of government spending as its impacts are widely felt throughout the economy. The provision of infrastructure impacts virtually all aspects related to the supply and demand for shelter, from shelter tenure choice to the cost of building a home. Infrastructure lays the groundwork on which the economy operates, and influences both the opportunities for economic growth and spatial development, and the constraints on them.
- **The division of responsibilities among tiers of government,** which may create risks, funding gaps, or imbalances if approached incorrectly. Any inefficiencies are then transferred to residents by means of potentially inefficient service provision and revenue generation.

All of these and other policies and regulations have impacts either directly on the shelter market, or upon

other facets of the economy that impact it. In addition to these, as discussed in section 2.2.5, the government also regulates access to credit and the costs of borrowing through the Bank of Canada's interest rate objectives and the type of policy tools used to manage financial sustainability and inflation.

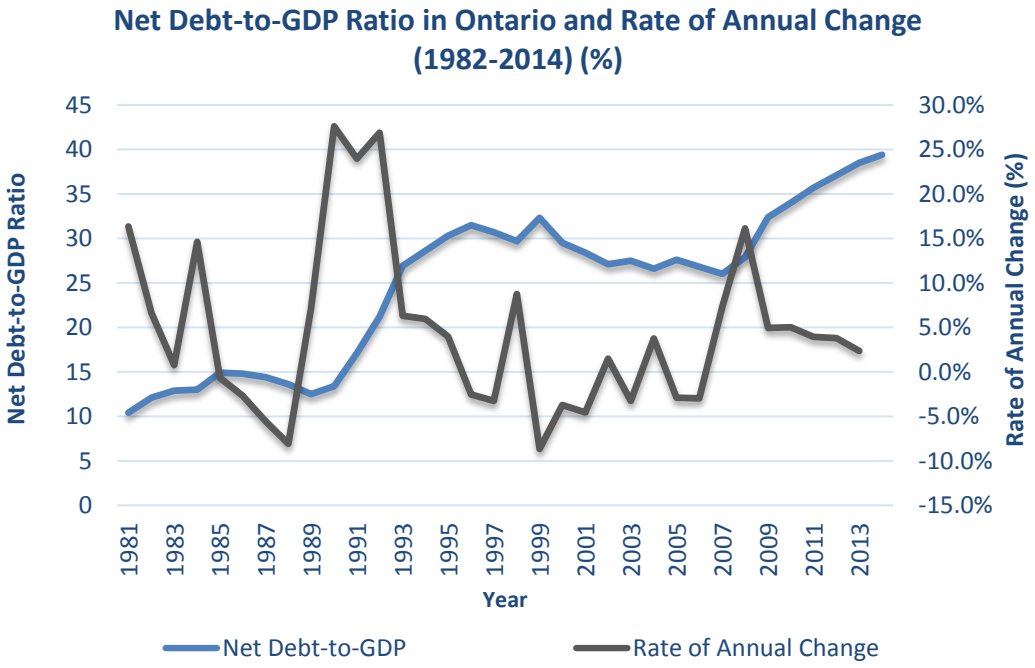
A complete analysis of the government's role in affecting the level of shelter affordability and the identification of an optimal policy blend that improves affordability without harming other parts of the economy is beyond the scope of this analysis. However, several salient policy factors, as well as the government's role, have been identified and are discussed in the subsequent sections.

3.5.1 HOW THE GOVERNMENT CONTRIBUTES TO NEEDS/WANTS CROWDING OUT

Much like households and investors, governments make behavioural decisions in response to economic phenomena that generate important ramifications to other agents and the wider system. Through its action (or in some cases, inaction), it has contributed to the situation whereby households who are looking to satisfy their "wants" are crowding those who are satisfying their "needs" out of the shelter market. There are several mechanisms by which this has happened.

The provincial government has been borrowing heavily over the past two decades to finance spending commitments in the face of budgetary constraints. Ontario has been incurring a deficit since the 2008 financial crisis, with the deficit standing at over $10 billion for the current fiscal year (Ontario Ministry of Finance, 2015). Meanwhile, the Province's net debt-to-GDP ratio increased by 29% since the 1980s, standing at a record 39.4% for the current fiscal year (RBC Economics, 2015) (see Figure 64).

Figure 64 Net Debt to GDP Ratio and its Rate of Annual Change in Ontario
(Source: CANSIM Table 378-0123)



In its 2015 Budget, the Government of Ontario has committed itself to eliminating the deficit by the 2017-18 fiscal year. The Budget also makes a commitment to invest more than $130 billion over 10 years in public infrastructure. To reconcile these two commitments, tough measures to reduce spending on healthcare and education have been imposed, and a hard line has been taken on labour negotiations.

Vulnerable economic groups (including households looking to satisfy their shelter "needs", low-income groups, young individuals, and single-parent households) are likely to bear a significant share of the burden implied by these measures. These measures would reduce household disposable income and potentially increase the expenditure incurred to finance non-shelter related necessities, making shelter consumption less affordable in the process. These groups may be more likely to resort to credit-financed consumption under these circumstances, which would intensify the bidding process for shelter between heterogeneous households and fuel the crowding out process.

At the same time, federal and provincial governments have faced significant challenges on other fronts. For example, both tiers of government have been unable to effectively track and measure levels of foreign investment in domestic shelter markets, which has complicated efforts to ascertain the role played by these investors in intensifying the competition for shelter between households looking to satisfy their "wants" and those looking to satisfy their "needs". This is particularly an issue in Vancouver and the GTHA, where in a recent panel discussion on this topic, CMHC chief executive Evan Siddall posited that foreign buyers account for a substantial portion of the demand for pricier, luxury single-family homes. He acknowledged that CMHC lacks an understanding of the extent of foreign ownership in Canada, which presents a bigger risk to shelter market stability than domestic markets by virtue of the fact that foreign investment is more mobile and subject to capital flight. Therefore, inadequate oversight of foreign investment activity has curtailed the design and implementation of possible measures to mitigate the impact of foreign investor demand on competition and crowding out in shelter markets.

Another challenge relates to infrastructure investment: the aforementioned vertical imbalance in infrastructure spending across the federal, provincial and municipal tiers affects shelter affordability in two ways:

1) Due to the differentiated nature of shelter as a product, investment in infrastructure could alter a shelter unit's profile and the costs associated with its access (whether in the ownership or rental market). Therefore, it would directly affect the cost of consuming shelter.

2) Infrastructure investment generates positive externalities that would enhance GDP growth, raise aggregate incomes, and help households better afford shelter (other things being equal).

By adding to the differentiation of shelter, infrastructure investment intensifies the competition between households that need shelter and households that are trying to satisfy "wants". In an environment of easy access to cheap credit, unsustainable debt accumulation and wealth gaps, this would exacerbate the crowding out process.

3.5.2 MACROPRUDENTIAL POLICY AND INTEREST RATE OBJECTIVES

The Bank of Canada has targeted inflation using interest rates since the early 1990s, which has been effective in anchoring expectations of growth. However, the 2008 financial crisis revealed that insufficient oversight of systemic financial risk can have devastating consequences (Kim, Kim, & Park, 2011). As the value of assets grew relative to capital, leverage increased, and household indebtedness ballooned (Jenkins & Longworth, 2015). This illustrates that although both monetary and macroprudential policy are countercyclical, one in absence of the other is insufficient to target both economic and financial growth and stability (Jenkins & Longworth, 2015). Macroprudential policy, which focuses on managing financial stability, can help to counteract these effects by smoothing credit cycles and the cycles associated with asset inflation ballooned (Jenkins & Longworth, 2015).

Unlike monetary policy, which operates using interest rates as its primary tool and is most effective in targeting business cycles and inflation, macroprudential policy, which targets the financial cycle, includes many more instruments and is primarily regulated by the Office of the Superintendant of Financial Institutions (OSFI) with input from other Canadian institutions (Ragan, 2011). These can be used in such a way that they are time-variant and sensitive to the dynamics of the economy. For instance, during periods of rapid credit growth, taxes can be levied on additional credit, which are then relaxed when credit growth slows (Jenkins & Longworth, 2015). It is important to note that the use of multiple tools, namely monetary, macroprudential, and fiscal policy, must be met with knowledge of their interrelated impacts and collaboration among all government bodies responsible for implementing them (Ragan, 2011); (Jenkins & Longworth, 2015). For example, monetary policy can respond to certain productivity shocks through the management of inflation, while macroprudential policy can respond to them by managing distortions in financial markets and lending.

The recent financial crisis can also be understood as a manifestation of various shocks. For instance, there was an imbalance between the output lost due to employment and incomes and overinvestment and therefore asset inflation in the shelter market (Jenkins & Longworth, 2015). Some economists suggest that a multinational lack of countercyclical pressure against financial excess, or in other words, insufficient macroprudential policy implementation, was a leading cause of the collapse that catalyzed the subsequent recession (Kim, Kim, & Park, 2011) Between 2008 and 2010, macropruduential policies were enacted to limit the adverse economic impacts of debt accumulation.

Macroprudential policies were tightened four times by OSFI between 2008 and 2012 in terms of loan-to-value ratios and amortization periods (Jenkins & Longworth, 2015). This helped to reduce the use of home equity for the purpose of borrowing, as well as to induce households to pay their mortgages off faster. Since then, research by the Bank of Canada has demonstrated that loan-to-value regulations are among the most effective and least costly means of reducing household debt, while other research has suggested that debt-to-income limits may be more effective in reaching stabilization objectives (Alpanda & Zubairy, 2014); (Schembri, 2015). However, the multiple rounds of macroprudential tightening have shown promise in the growth of household credit and shelter prices in five provinces, including Ontario, Alberta, and British Columbia, potentially by improving employment rate, the debt-to-service ratio, and the savings rate (Liu, 2014).

That being said, the efficacy of macroprudential policies in mitigating the adverse effects of unsustainable debt accumulation has also been questioned by some economists. Looking at the experience of Sweden, for example, the International Monetary Fund (IMF) noted that while the literature largely shows that these policy instruments are helpful in slowing credit growth, the overall verdict is less positive once mortgage supply and mortgage demand-side macroprudential policy measures are simultaneously implemented (IMF, 2014). Moreover, a paper by Smets (2013) rendered macroprudential policy "insufficient" to reduce the risks from unsustainable growth in household debt, and its effectiveness in avoiding systemic risks "unproven" (Smets, 2013). In addition, without careful consideration of the interaction between these policies, the application of monetary, fiscal, and macroprudential policy may create detrimental rather than beneficial effects upon affordability. For example, high rates of income tax and low costs of borrowing may actually increase inequality and decrease access to affordable shelter (Stiglitz, 2014)

Access to credit has not been facilitated only through highly accommodative monetary policy: financial innovation has made it much easier for households to access cheap credit. The presence of web-based services that provide extensive information on different mortgage, credit card and insurance providers as well as microfinance institutions that provide economically-vulnerable households easier access to loans, money transfer and insurance services are also playing an increasingly important part. For example, Nobel Prize-winning economist Muhammed Yunus, a microfinance pioneer, opined in 2010 that "he sees an opportunity in Canada for microfinance services to address the economic challenges of vulnerable groups such as immigrants and Aboriginals" (Stern, 2015).

In sum, the Canadian economy may still need accommodative monetary policy in order to sustain demand until a full recovery begins to take hold. However, without the management of financial stability, cheap credit and different degrees of access to it by different households gives rise to a situation in which not only can the pursuit of "wants" crowd out the pursuit of "needs", but also in which the entire system faces significant risks to stability. Financial stability must be pursued with close oversight and cooperation among multiple governing bodies, and must take into consideration the other policies that impact aggregate demand and growth, including the performance of labour market, consumption, investment levels, and all other fiscal and monetary effects.

3.5.3 LABOUR MARKET REGULATIONS

Occupational licensing requirements are responsible for labour shortages in certain occupations, such as the skilled trades, acting as barriers to entry and labour mobility (Palacios, Gainer, Karabegovic, & Veldhuis, 2009). However, labour market shortages have been created across numerous sectors in large part by the mismatch between labour force skills and labour market requirements. Mismatches have led to shortages in:

- STEM fields,
- ICT fields,
- healthcare, and
- low-skilled occupations (Komarnicki, 2012).

Individuals working in fields that do not match their skills experience depressed wages and greater difficulty securing high-quality positions. Mismatches are also more prevalent among young workers (Yuen, 2010). Therefore, the skills-occupation mismatch experienced primarily by younger cohorts presents another explanation for precarious employment and lower income opportunities (Yuen, 2010).

One response to labour shortages has been the use of temporary foreign workers (TFWs), which are hired to fill positions that cannot be filled by the Canadian labour market in order to keep wages reasonable, keep production costs low, maintain production levels, and protect consumers from associated price surges (Gross, 2014). However, expansions of TFW programs may have adversely affected local labour markets. Influxes of TFWs may have led to increased unemployment in:

- occupations requiring a post-secondary diploma (high-skilled),
- occupations requiring up to four years of secondary school, and
- occupations requiring up to eight years of formal education (low-skilled) (Gross, 2014).

Labour market regulations must therefore strike a balance between:

- Incentivizing domestic workers to acquire skills demanded by the labour market in order to ensure more equitable outcomes, and therefore improved shelter affordability, particularly for younger, vulnerable cohorts; and
- Supplementing labour shortages with foreign labour to support production capacity, and keep consumer prices lower by ensuring wages are reasonable.

3.5.4 PRODUCT MARKET REGULATIONS

Low productivity growth has been attributed to inward-focused and potentially restrictive government regulation in several sectors. In particular, ICT investment increases both labour and multifactor productivity by means of capital intensity and the diffusion and adoption of technology (Sharpe, 2006). The impacts of these effects support certain sectors more than others, and sectors that are dependent on ICT investment are important causes of divergent levels of productivity growth throughout the OECD (Schiantarelli, 2008).

Canada's ICT investment levels are among the worst in the OECD, with the gap most visible in the business sector (Rao, Souare, & Wang, 2010); (Sharpe & Rai, 2013). Excessive regulation in information and communication technology (ICT) sector inhibits diffusion of productivity gains to more sectors, stunting future economic growth.

Product market regulations should therefore strike a balance between:

- Protecting domestic firms (in order to keep income in the hands of Canadian workers, businesses and stakeholders and prevent crowding out); and
- Encouraging investment (in order to boost productivity growth, increase employment, reduce production costs, and improve domestic standards of living).

Otherwise, excessive regulation of ICT and other, similar types of capital investment can dampen employment, disproportionately impact lower-income workers, exacerbate inequality, and reduce

potential economic growth (Gu & Lafrance, 2008); (Conway & Nicoletti, 2007).

3.5.5 REDISTRIBUTION POLICIES AND INCOME INEQUALITY

Income gaps between the highest and lowest quintiles have widened in Canada since the mid-1970s. As inequality is linked to a myriad of social problems, including criminal activity and challenges associated with shelter affordability, all tiers of the Canadian government have engaged in various forms of social support and redistributive efforts through taxes and transfers.

Inequality and poverty are intrinsically linked; an increase in income inequality can result in both the prevalence and depth of poverty in an economy (Naschold, 2002). In turn, affected individuals then experience growing challenges with mental and physical health, food security, and access to suitable and affordable shelter. The lack of access to shelter, in particular, is problematic; often, the inability of disadvantaged groups to meet their shelter needs traps these individuals in poverty (Hoeppner, 2010). Therefore, when inequality rises, poverty follows suit, and the following demographic groups are among those that have historically been at risk[30]:

Seniors: Poverty among the elderly has been virtually eliminated since the 1960s, when Canada experienced one of the highest elderly poverty rates among OECD countries. This success was attributed to various federal transfer programs, including Guaranteed Income Supplement programs, Old Age Security, and the Canada Pension Plan (Hoeppner, 2010).

Lone-parent families: Since the mid-1990s, the poverty rate among lone-parent families declined from approximately 53% to 32%, but by 2008, it was still over three times higher than the poverty rate of two-parent families (Hoeppner, 2010). Lone-parent families are particularly vulnerable if there are barriers to childcare access.

Recent immigrants: Recent immigrants tend to face greater barriers to employment and were more heavily impacted by the recession resulting from the 2008 financial crisis (Hoeppner, 2010). Recent cohorts of economic immigrants have experienced poorer economic performance than previous cohorts did, despite high levels of education and labour market experience. Barriers including accreditation of foreign education, language, and other institutional challenges have been named as potential causes (Hoeppner, 2010). Failure to help immigrants integrate effectively deprives both the immigrant families and the economy of the growth that could be created when the human capital of new immigrants is effectively leveraged.

Low-wage workers: Approximately a third of all low-income families in the late 2000s were the working poor (Hoeppner, 2010). These individuals tend to hold less than a high school diploma, tend to be young, and have a disability (Hoeppner, 2010). Approximately half of these individuals also have children. Some research suggests that these individuals face little benefit from working at their current jobs than from simply depending on government transfers for all of their income. The prevalence of low-quality work has been a contributing factor, and is consistent with the increase in such jobs among younger cohorts, as

[30] Other groups at risk of poverty in Canada include children, women, individuals with disabilities, racialized minorities, Aboriginal populations, and unattached individuals (Hoeppner, 2010).

discussed in section 3.4.2 (Hoeppner, 2010).

In Canada, inequality in market income increased during the economic downturns of the early 1980s and early 1990s, respectively, and did not decrease when the economy subsequently improved (Green, Riddell, & St-Hilaire, 2015). Between the mid-1990s and 2000, redistributive efforts by the government declined, leading to an increase in both market and after-tax income inequality. Since 2000, inequality in market and after-tax income has remained high but flat over time[31] (Green, Riddell, & St-Hilaire, 2015). Redistributive efforts reduced income inequality by 24% since 2010, with 71% of the effect being a result of income transfers (and the remaining 29% due to taxes) (Sharpe & Capeluck, 2012). The types of transfers offered, as well, provide an idea of the beneficiaries of these efforts: approximately 3 quarters of all federal transfers were allocated to old age security, employment insurance, or child tax benefits, suggesting that the federal government has focused on ensuring that the unemployed, the elderly, and families with children are supported (Statistics Canada, 2011). In other words, policies broadly target some of the population subgroups that are at risk of poverty. Furthermore, certain transfers, such as the Canada Pension Plan and child benefits, have grown more redistributive as a result of the expansion of eligibility criteria to serve a greater number of individuals in need (Green, Riddell, & St-Hilaire, 2015)

In Ontario, income inequality is higher than the national average, but the Province has been able to prevent its increase since 2000 as a result of extensive government transfers (Primarily social assistance, including income maintenance, and social insurance, including workers' compensation) (Statistics Canada, 2011); (Statistics Canada, 2013e).

The ability of the federal and provincial tiers of government to mitigate inequality is central to ensuring that as many families as possible have access to affordable shelter. This generates a positive effect on a household's ability to afford shelter, as well as systemic effects through increases in economic growth and aggregate income (this occurs by virtue of the fact that household consumption represents the largest component of a country's GDP).

Despite significant efforts and a number of successes in reducing income inequality and poverty in Canada, challenges still remain and are growing. For example, while low-income groups continue to require government assistance in the form of progressive taxation and transfer programs, the growing shelter affordability problem among the middle class has not yet been fully addressed.

SOCIAL HOUSING

Aside from taxes and transfers to mitigate the effects of poverty and rising income inequality, the government offers social housing programs to disadvantaged households. Some of the programs offered in Ontario include shelter units whose rental costs are geared to the incomes of residents, rental supplement programs, and affordable housing (Toronto Community Housing, 2015); (Region of Peel, n.d.). However, social housing programs especially in Toronto suffer from excess demand, significant backlogs in terms of the waitlist, and a dire need of funding for repairs (Smetanin, Stiff, McNeil, Moca, & Katsivo, 2015). Approximately 5% of Canadian households live in social housing, which renders Canada's social housing system among the smallest of all Western nations (Hulchanski, 2007). In other words, Canada's

[31] See Figure 43.

social housing system is ill-equipped to meet the social need for shelter, which the market system was never designed to do (Hulchanski, 2007). Households that cannot afford shelter "live in a society in which access to one of the essentials of human life is priced beyond their ability to pay for it" (Hulchanski, 2005)

In 1996, social housing programs were transferred from the federal government's jurisdiction to the provinces despite the reduction in federal transfers of support to the provinces since the 1980s. Most provinces (with the exception of Quebec, British Columbia, and Ontario) avoided investing in social housing. Overall, research suggests that the government has failed to address the needs of low-income renters by focusing on subsidies and supportive programs geared towards homeownership and the provision of a limited number of high-quality social housing units to a minority of households in need (Hulchanski, 2007). In other words, the government has failed to address the growing need for affordable shelter, which is not necessarily social housing or dwellings that are "targeted at the greatest need" (Hulchanski, 2004). In addition, the provision of programs and subsidies that benefit investors and homeowners have not "trickled down" into a supply of affordable rental housing in the private market (Hulchanski, 2005)

As the number of individuals who cannot afford to meet their shelter needs grows amid rising income inequality and surging shelter costs, government support for a very limited number of highly disadvantaged households may not be sufficient to ensure that all Canadian households are able to meet their shelter needs, either in public or private shelter markets.

3.5.6 GOVERNMENT INVESTMENT IN INFRASTRUCTURE

Public infrastructure plays a vital role in ensuring continued economic prosperity. However, infrastructure investment in Ontario has suffered from three main problems:

i) Underinvestment in infrastructure, which has caused an infrastructure deficit and reduced economic growth potential in Ontario;
ii) The volatility of investment in infrastructure, which reduces the benefits of the total investment amount; and
iii) Imbalances in the sharing of costs, risks, and rewards between the federal government and the Province of Ontario, which compromises both the benefits and the sustainability of government infrastructure budgets.

INFRASTRUCTURE DEFICIT

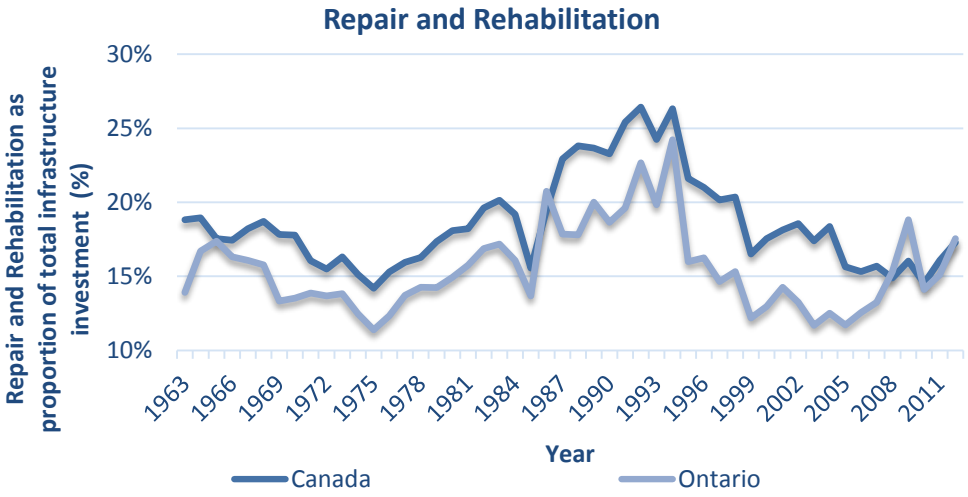
Throughout the 1960s in Ontario, significant investments in infrastructure were made. However, investment levels in infrastructure fell considerably between the mid-1970s and 2000, leading to a decline in both the quantity and quality of infrastructure in Ontario (Cautillo, Zon, & Mendelsohn, 2014). This period of low investment has led to an estimated national infrastructure deficit of over $123 billion[32] (Cautillo, Zon, & Mendelsohn, 2014). In addition, the lack of sufficient public infrastructure also directly impacts economic productivity. For example, an Organisation for Economic Co-operation and Development (OECD) study estimates that insufficient transportation infrastructure costs Toronto $3.3

[32] 2007 estimate

billion dollars annually due to traffic congestion (Organisation for Economic Co-Operation and Development, 2010).

In general, Ontario's investment in public infrastructure has been considerably less than the national average. In addition, as shown in Figure 65, Ontario has also been investing less than the national average on maintaining the state of good repair of its infrastructure assets.

Figure 65 Repair and Rehabilitation



The underinvestment in public infrastructure in Ontario may have cost:

- The provincial economy over 1% of its annual growth in real gross domestic product (GDP) (Stiff, Smetanin, & McNeil, 2011).
- For individual workers, depending upon the number of years they plan on staying in the labour force, it could have cost them between $20,000 and $60,000 in current dollars. Younger workers are bearing disproportionately higher costs (Stiff, Smetanin, & McNeil, 2011).
- Businesses also face the loss of an annual 0.7% increase in profits (Stiff, Smetanin, & McNeil, 2011).

In addition to these costs to households, businesses, and the economy, past underinvestment in infrastructure implies that current and future homeowners will be responsible for funding the resolution of this backlog. In other words, certain cohorts of homeowners may be required to invest more than their fair shares in infrastructure as a result of past underinvestment, creating additional affordability pressures for this group.

This underinvestment in infrastructure therefore has multiple impacts upon both the demand and supply of shelter. For instance:

i) Infrastructure investment or underinvestment is linked to the quantity of serviced land available for residential construction, as discussed in section 2.3.2, presenting a potential supply constraint.

ii) As discussed in section 2.3.3, underinvestment in infrastructure may prevent the diffusion of real estate prices from urban to suburban and rural areas, placing particular affordability pressures on shelter affordability in metropolitan cores.

iii) Depressed GDP growth as a result of infrastructure underinvestment limits the growth in aggregate household income, which in turn reduces their capacity to afford their "needs" and "wants", all else being equal.

iv) Poor wage outcomes also present budgetary constraints, especially for younger workers who already face poor labour market outcomes, as discussed in section 3.4. This implies that infrastructure underinvestment may exacerbate the intergenerational income and wealth inequality in the face of the rising cost of "needs", including shelter.

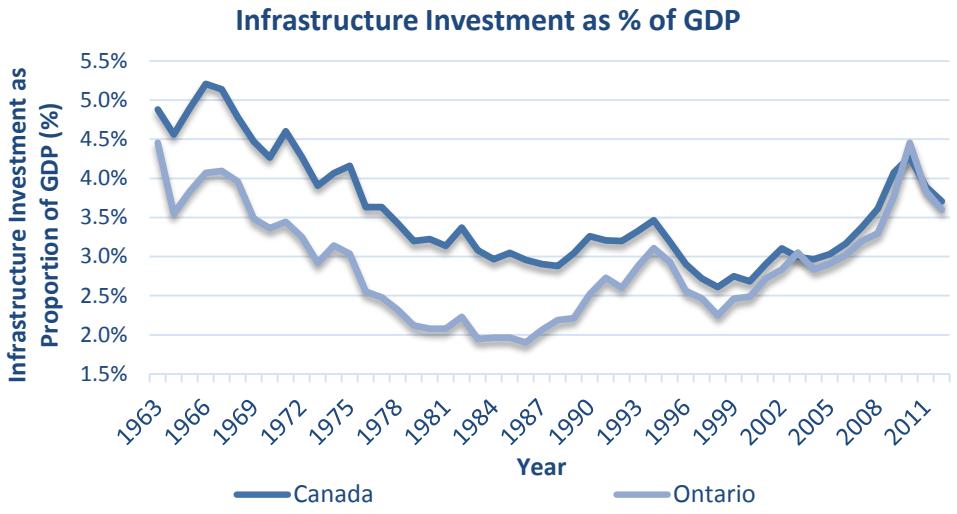
Future research could further analyze the impact of infrastructure investment on the level of inequality in Ontario based on financing methods, macroeconomic parameters, regulatory frameworks, and other characteristics of the province. This would help to identify the beneficiaries of investment and how much of the benefit accrues to various population subgroups.

VOLATILITY OF INFRASTRUCTURE INVESTMENT

Not only are there costs associated with underinvestment in infrastructure, but also with the pattern of spending. The level of infrastructure investment in Ontario has varied considerably over the past 50 years. As a percentage of Ontario's GDP, it has ranged from a high of 4.5% in the mid-sixties to lows of 2% in the mid-eighties. As shown in Figure 66, the trend has been reversing with increased investment throughout the 2000s, peaking with the stimulus spending in 2009 before falling again. Note that Figure 66 excludes investment in intellectual property (i.e. software, research, and development).

Unstable investment in infrastructure, or the failure to allocate the same proportion of GDP to infrastructure each year, can compromise the benefits of investment. Research has shown that as annual spending volatility grows for the same total value of investment, benefits in terms of GDP growth decline. In fact, if the Province can expect a given GDP boost from the investment of infrastructure under a stable spending schedule, then under an unstable spending schedule, it would have to spend more in absolute terms and more relative to GDP to achieve the same benefits. The reason for this is that the instability introduces frictions that do not lend themselves to growth that is as pronounced.

Figure 66 Infrastructure Investment as % of GDP



INFRASTRUCTURE IMBALANCE BETWEEN OTTAWA AND QUEEN'S PARK

If infrastructure investment were to follow in proportion to the benefit received while targeting 5% of GDP for infrastructure investment, an updated analysis that takes the recent reduction in federal stimulus spending into consideration indicates that the Province of Ontario and the province's municipal governments would be expected to fund approximately 62% of the cost, while the federal government would fund the remaining 38% (Smetanin, Stiff, & Kobak, 2014). However, the Province of Ontario and its constituent municipalities currently cover 89% (49% from Queen's Park and the remaining 40% from municipalities), while the federal government provides the remaining 11% (Smetanin, Stiff, & Kobak, 2014).

While municipalities are required to invest in the majority of infrastructure (including transit, water and waste water, and local roads), they do not have significant direct access to prosperity-related sources of revenue (i.e. income, corporate, or consumption taxes). As a result, they do not see a natural return on their investment and must instead rely heavily on property taxes, development charges, and user fees. This implies that those who benefit from infrastructure investment and growth are not necessarily those who pay for it, not only among tiers of government, but also in terms of residents. Additional discussion on fiscal imbalances and limitations of municipal finance follows in 3.5.7.

3.5.7 FISCAL IMBALANCES ACROSS TIERS OF GOVERNMENT

IMBALANCE: FEDERAL TO PROVINCIAL

In terms of public policy implications to shelter affordability, the fundamental issue with federal redistributive efforts (e.g. social support programs) is not higher deficits, but an increased risk of fiscal unsustainability (Organisation for Economic Co-Operation and Development, 2014); (Beckman, Fields, & Stewart, 2014).

The offloading of responsibility by the federal government has been an unfortunate side effect of

balancing the budget (Beckman, Fields, & Stewart, 2014); (Ontario Ministry of Finance, 2014). For example, responsibility for social housing was transferred from the federal to the provincial governments, and finally to municipal governments. Cuts to social housing and related programs have also caused social housing to become relatively more expensive for residents; today, 1% of the Canadian budget is allocated to social housing, which accommodates 5% of Canadian households (Smetanin, Stiff, McNeil, Moca, & Katsivo, 2015); (Vakili-Zad, 2004); (Hulchanski, 2005).

VERTICAL IMBALANCE: PROVINCIAL AND FEDERAL TO MUNICIPAL

The Province of Ontario provides conditional and unconditional transfers and grants to municipal governments, while municipal governments are tasked with providing a diverse array of services to residents—to support both growth and existing residents—without running an operating deficit (Federation of Canadian Municipalities, 2015); (Slack E. , 2010).

However, provincial legislation in Ontario is designed such that municipalities do not have financial tools that allow them to benefit from economic prosperity within their jurisdictions: they do not collect income or consumption taxes like the provincial and federal tiers of government do. Instead, they rely on property taxes, transfers from other orders of government, user fees, and development charges (which are only intended to fund growth).

Although municipalities by and large have strong credit ratings, low levels of debt, and healthy-looking balance sheets, the disproportionate level of responsibility relative to funding could hide an important problem: the fiscal balance of municipalities may itself be a symptom of persistent underinvestment in infrastructure due to the lack of sustainable capital investment financing methods—which may eventually present itself as an expense in the balance sheets of Canadian households (Cote & Fenn, 2014); (Nicola Crawhall and Associates, 2015).

URBAN AND REGIONAL PLANNING: LEGISLATION AND CO-ORDINATION

In addition to the responsibilities borne by municipalities amid declining support from higher tiers of government, regional and urban planning legislation also presents municipalities with insufficient incentives and tools to effectively plan for and accommodate growth.

The Places to Grow Act, 2005 and the associated Greater Golden Horseshoe Growth Plan provide municipalities with growth guidelines, including projections that must be used for planning (Places to Grow Act, 2005). In that way, provincial legislation transfers development risk from the Province of Ontario to Municipal governments, who may then be required to plan for and service growth that does not occur (Nicola Crawhall and Associates, 2015); (Smetanin & Stiff, 2015).

Municipalities bear the cost of new infrastructure for a long time, as they must finance infrastructure in anticipation of growth (Nicola Crawhall and Associates, 2015). As the region's population and employment grows, they finance the debt ensuing from this growth with development charge revenues. Against a backdrop of insufficient revenue, funding and coordination with other tiers of government, municipalities have resorted to increases in development charges, and sometimes even property taxes and user fees to finance debt used for infrastructure investment and service delivery (Nicola Crawhall and Associates,

2015). This is especially true in urbanized areas, where generating sufficient development charge revenues to cover intensification-supporting debt is more difficult (Nicola Crawhall and Associates, 2015). This implies that the beneficiaries of growth are not always those who bear the costs, placing inequitable portions of the financial burden and risk of expected growth on existing taxpayers and residents.

Another controversial issue associated with shelter affordability is land supply, whereby some stakeholders argue that the Province has not effectively met serviced land requirements, potentially leading to shortage of single-detached houses and exacerbating shelter allocation inefficiency (Clayton, 2015). However, if expensive homes are built on newly available serviced land, this may simply represent an extension of existing market dynamics, wherein households with greater purchasing power that are looking to satisfy their wants influence the supply of homes built on newly available land, crowding out households looking to satisfy their shelter "needs".

3.6 Intersection of Affordability and Systemic Risk

3.6.1 Generation and Distribution of Economic Prosperity

Cheap access to credit has led to an increased ability to bid for needs and wants:

- Before the 2008 financial crisis, the share of sub-prime mortgage loans in the United States was nearly 24% (Johnson, 2015). At present, the exact corresponding figure for Canada is unknown.
- In Canada, mortgage holders that spend more than 20% of their disposable income on mortgage payments tend to spend over 40% of their income on shelter-related costs, spend more than they earn, and represent around 38% of all mortgage-holding homeowners. Of this group, around 57% are under the age of 45 (Chawla, 2011). This group has debt levels well in excess of the national average and are more likely to be exposed to the effects of precarious employment.
- According to the Bank of Canada, about 35% of new, uninsured mortgages lent by smaller federally regulated banks since the end of 2012 could be considered 'non-prime' (Johnson, 2015).

This highlights the potential dangers that result from certain household behaviour. Adding urgency to the situation is the growing suspicion that mortgage industry professionals are increasingly helping their clients get around "soaring home prices, stagnating incomes, fierce competition among brokers, lenders and real estate agents, and tighter federal mortgage lending rules" to qualify to buy a home (McMahon T. , 2015). According to Stuart Levings, the CEO of Genworth MI Financial Inc., "people who are salaried and altering their income for the most part are probably just facing into some of the affordability pressures because of the level of house prices today and are trying to buy a home that's out of their reach" (McMahon T. , 2015).

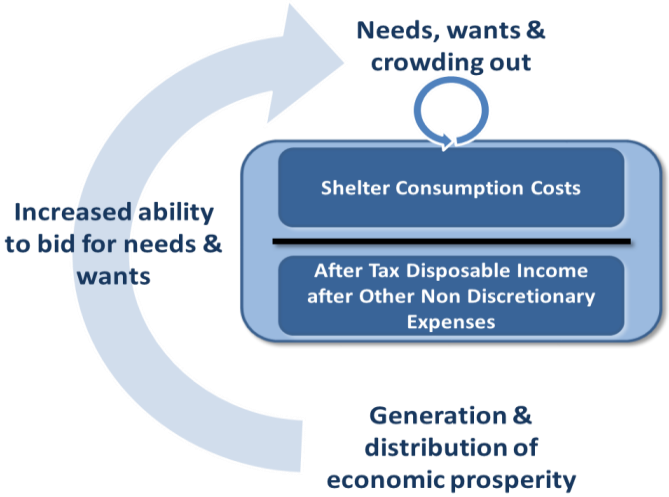
The competition between "needs" and "wants" for affordable shelter (and other necessities) intensified during the 1990s as a result of the following factors:

- Differences in household incomes and wealth: Since the 1980s and 1990s, a growing disparity in discretionary income across households was emerging, with the "middle-class" taking on more consumer debt coming out of the recession in the 1990s to finance consumption expectations.

This was made possible by households' growing access to cheap credit, the differentiated nature of shelter and the positive capital gains expectations of investors (both domestic and foreign).

- Foreign investment: The 1990s also coincided with increased cross-country capital market liberalization, which has encouraged investors to pursue higher returns in foreign asset markets, including real estate and shelter in Canada.

- Cheap, accessible credit: Following the recession of the 1990s, central banks introduced quantitative easing through interest rate reductions to boost economic growth by encouraging greater consumption, as household consumption forms a significant component of overall GDP.



The above diagram illustrates the beginning of a cycle where differences across disposable income combine with access to cheap credit, higher capital gains expectations and international/local investors to create a competition of needs and wants. This produced pricing pressures that have been primarily generated by participants motivated by wants.

As a result, needs households find themselves in a situation such that the only way to secure affordable shelter would be to access cheap credit. This is made all the more possible by the highly accommodative monetary policy adopted by Canada and other OECD countries. Highly accommodative monetary policy generates two opposing effects on the affordability of shelter:

- On the one hand, it could facilitate an increase in economic growth and aggregate incomes in the short-to-medium term (other things being equal), which would increase households' disposable incomes.
- On the other hand, it could also exacerbate the "crowding out" process in shelter markets.

3.6.2 HOUSEHOLD BALANCE SHEETS AND NON-DISCRETIONARY RISK

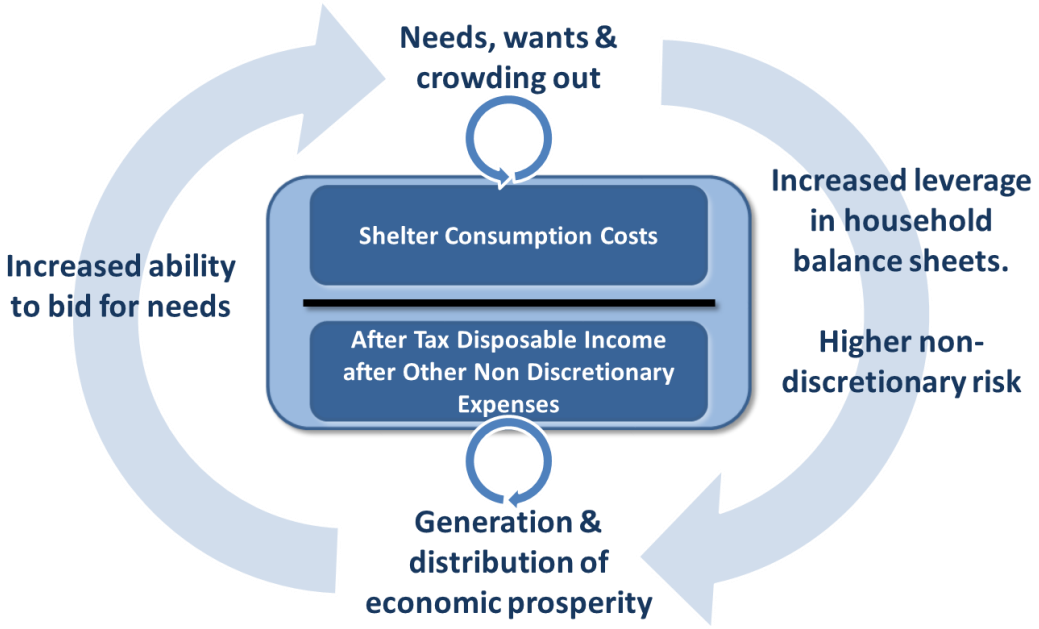
Increased borrowing by households has increased the leverage in their balance sheets and introduced higher non-discretionary risks:

- Since the early 1980s, mortgage and consumption debt have both grown by a factor of 10, while shelter values have grown only by 6 times (Statistics Canada, 2014b).
- The build-up of mortgage debt is more concentrated amongst people aged 50 years or less. It is this group that has felt the brunt of the affordability problem in Ontario and Canada.
- Nearly 57% of individuals under the age of 45 had a mortgage in excess of 20% of their disposable income. In Ontario, close to 40% of mortgage holders pay more than 20% of their disposable income on mortgage payments (Chawla, 2011).

The past few decades witnessed relatively modest economic growth when compared, for example, to the golden age between the 1950s and early 1970s (this era also preceded globalization and the advent of digital technology, both of which had far-reaching economic impacts). Combine this with the growth in household debt levels and a picture emerges of an increasingly-leveraged household (this applies to households of all income quintiles) that is unable to sustain the growth in debt through concomitant increases in income.

This has led to a troubling cycle of debt built up around need and want competition, which can affect the numerator of the SCAR, with a risky feedback loop back into the denominator of the SCAR via exposure to interest rate risks and job losses.

Figure 67 Dynamics and Processes affecting the SCAR



Increasing household debt introduces exposure to non-discretionary financial expenses (such as interest payments and principal amortization) that must be paid. This has the effect of converting what was once a discretionary disposable income buffer into non-discretionary expenses.

- Over the past few decades, economic growth has not kept pace with the growth in household debt. In other words, household balance sheets started to expand aggressively on the asset and liability sides without compensating growth in household incomes.

- This mismatch between debt levels and income and/or wealth, exposes the household to greater non-discretionary risk from financial expenses (interest and principal amortization). An increase to the interest rate, a reduction in shelter prices, and/or decreases to disposable income would magnify the risk and make bankruptcies more possible.

In summary, the cycle in Figure 67 follows the sequence below:

- Government efforts to generate and distribute economic prosperity since the late 1990s had contributed to household ability to bid for shelter and other necessities through increased borrowing.
- This then led to a situation in which wants preferences crowd out households in need of shelter.
- Increased competition in the shelter market has led to more leveraged households with greater exposure to non-discretionary risk.
- Another cycle of debt adds to the challenge as some households collateralize increased shelter and financial wealth.
- The increased risk to households' balance sheets inhibits the generation and distribution of economic prosperity through greater pressure on consumption habits and the concern of households to cover the cost of their mortgages.

3.6.3 MIDDLE CLASS HOUSEHOLDS IN YOUNGER AGE COHORTS AND SYSTEMIC RISK

The systemic risks are primarily sourced from younger households who belong in middle-class income quintiles:

- Young households are less likely to hold secure employment with sufficient income, more likely to hold higher consumption-to-disposable income ratios, are more likely to have purchased homes over the past 10 years.

- Young households (especially ones with high mortgage-liability ratios[33]) are also more likely to consume rather than save, with that consumption likely to be driven by further borrowing in what effectively becomes a troubling cycle of consumption, borrowing, and debt[34].

[33] Mortgage-liability ratio refers to the regular mortgage payment (principal and interest) paid by the household during the reference year expressed as a percentage of its disposable income in that year.

[34] It is worth noting that renters are not exposed to such liquidity and market risks: their relatively smaller leverage provides them with greater financial flexibility. Nevertheless, they also find themselves curtailed relative to home owners when it comes to accessing credit instruments such as home equity lines of credit (HELOCs) should they require them.

Figure 68 Average Debt Divided by Average After-Tax Income by Decile and Age Group
(Source: Statistics Canada Survey of Household Spending, 2012)

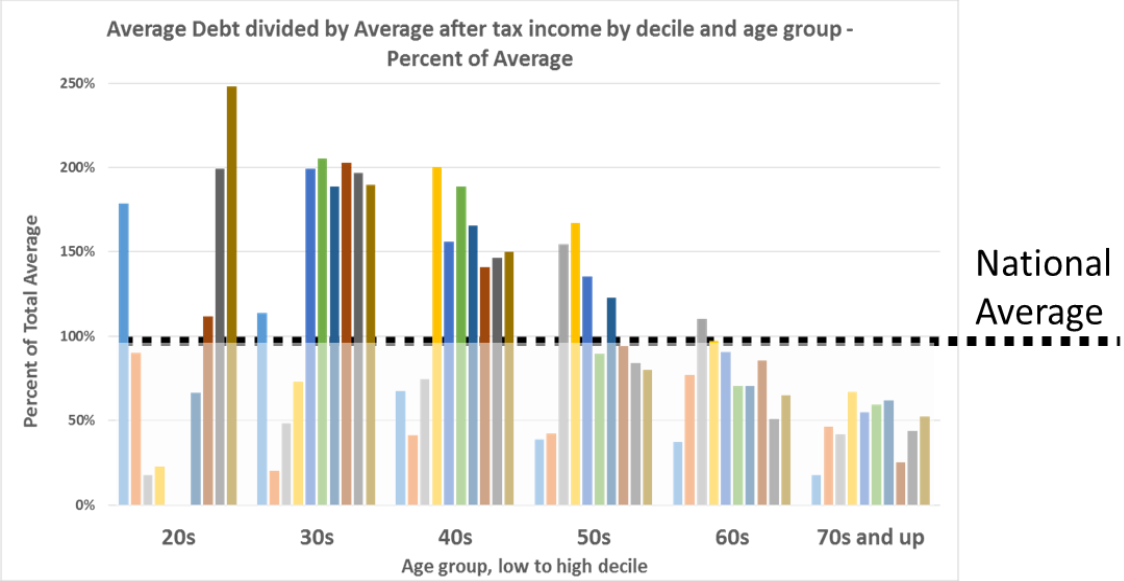


Figure 68 illustrates how households in middle-class income deciles as well as younger households are contributing to the perpetuation of systemic risk. The chart reveals several important observations:

For people in their 30s and 40s, about 70% will have debt-to-income levels about 1.5-1.9 times higher than the national average. 30-40% of these people are below the average income for their age cohort.

38% of mortgage holders in Canada spend 20% or more of their disposable income on mortgage payments, of which 44.9% are in Ontario (Chawla, 2011). As mentioned previously, 57% of these individuals are likely to be under the age of 45 and are more likely to have purchased their home on average for 4.9 years (indicating greater exposure to higher shelter values).

Households with a high mortgage-liability ratio have different spending patterns than those with a low mortgage-liability ratio: they spent 44% of their disposable income on shelter as opposed to 20% for those with a lower ratio (Statistics Canada, 2014b).

Households with a high mortgage-liability ratio spent more than they earned, with expenditures exceeding their disposable income by 13% (Chawla, 2011).

A situation is evolving in which middle-class households in younger age cohorts find themselves more likely to:

- Hold a mortgage to finance home ownership;
- Find it difficult to purchase and own shelter for the first time;
- Have a higher debt load and mortgage-to-liability ratio;
- Incur higher expenditures (in some cases even exceeding disposable income); and
- Consume than save.

3.6.4 WIDER IMPLICATIONS

With “needs”, lower-income, middle-class and younger households increasingly reliant on access to cheap credit, the economic growth process has become more precarious, such that a significant proportion of the population is economically vulnerable to changes in interest rates, job-market pressures (loss of employment that in some cases is temporary or part-time), and inflation.

Given the cycle mentioned above, an array of systemic risks emerge for the integrity of the Canadian real economy and its financial system. It appears that if nothing changes, interest rates do not increase and/or jobs are not lost, then the situation may ride itself out as households pay down their debt levels. However, even under such a status quo scenario, the real economy is still left with the challenge of increased pressure on discretionary incomes that have been used to finance past consumption via debt. Moving forward, the increasing debt of many younger households may stifle future consumption, which makes up a significant component of economic growth.

Aside from the challenges associated with the status quo, there is the systemic risk associated with economically vulnerable households:

- Vulnerable households are more likely to hold higher mortgage to income debt levels, which can lead to disproportionately high non-discretionary expenses and debt repayment terms. When confronted by systemic pressures, these households would likely attempt to unload their debt burden through shelter sales. The impact of such “asset unloading” would reverberate across the economy, creating the risk of a liquidity problem in the shelter market as well as a drop in prices of complementary goods (through cross-price effects).

- Given that the economically vulnerable group represents a significant proportion of the Canadian consumer base, increases in the interest rate or job losses would also have a greater impact than usual, reducing economic growth by much more than would otherwise occur. Greater economic uncertainty is bound to reduce household and investor confidence, which would in turn lead to reduced consumption and investment over the medium-to-long run.

Implications for the residential construction industry are also significant:

- Already confronted with higher construction costs, a significant reduction in shelter prices (following a widespread mortgage default for example) would damage profitability and decrease future shelter supply (other things being equal).

- This would affect the development of different types of shelter, including single-detached houses that are already in high demand especially in core urban areas. Outstanding construction is also put at risk of non-completion, disrupting shelter stock balance and exacerbating problems of allocation efficiency as a result. This would risk making shelter even less affordable than it is at present.

- Given the importance of the construction industry to the Ontario and GTHA economies, the reduction in residential construction activity would have significant follow-on economic impacts that would compound the other factors mentioned.

Implications for fiscal policy and taxpayers follow accordingly:

- Taxation revenues would decrease and be even more prone to shocks in credit and other markets. Monetary policy will also have a more pronounced effect than before, which would raise questions about the Bank of Canada's current inflation-targeting procedures.

- Given CMHC's disproportionate exposure to mortgage risks, taxpayers are more likely to bear the financial consequences of borrowers failing to meet their mortgage obligations. CMHC recently "stress-tested" its own financial health in a scenario like the 2008 US housing market crash. The results would be an almost eight-fold increase in insurance claim losses over five years and a loss of over $10 billion (CBC News, 2015).

- Given that interest rates are already low and deficit and debt-to-GDP levels are relatively high, a "trap" could emerge whereby the federal government would be restricted in terms of fiscal and monetary-policy measures that it could adopt to stimulate consumption and investment.

- The combination of such events would exacerbate the budget deficit and raise debt-to-GDP levels, at a time when the federal and provincial governments are attempting to reduce both parameters to more fiscally sustainable and manageable levels.

Shelter affordability is now a systemic and societal problem that has generated significant risk to Ontario's economic prosperity. It will need a sophisticated, proactive and co-ordinated response by government agencies; such a response would require a different line of analysis and co-ordination to the one that was present during the creation of the problem.

3.7 Agent-Based Modeling: An Alternative Framework to Analyze Shelter Affordability

From a geopolitical and economic standpoint, the 1990s marked a significant moment in terms of how market economies have responded to local, regional, and international developments. This period coincided with:

- The end of the Cold War;
- The war in the strategically-important Persian Gulf;
- A recession across much of the developed world;
- Increased reliance on China's macroeconomic performance; and
- The challenge of integrating post-Soviet economies to the international political and economic order.

This provided the context for the US-led drive for greater global economic integration, as Western countries initiated a series of trade and capital market liberalization measures in the hope that economic liberalization would create greater prosperity for all and stabilize the geopolitical climate.

The drive towards economic liberalization was consistent with:

- The growing development and sophistication of financial markets;
- Increased consumerism, as households of different income quintiles took advantage of the expansionary monetary policies adopted at the time; and
- Increased activity in stock and real-estate markets as investors looked to augment their wealth.

With the increase in economic interconnectedness came increases in aggregate wealth and household consumption in many economies, as well as the increased risk that local instability would reverberate across the global economy.

The 2008 financial crisis could be interpreted as the culmination of events that stretch back to the 1990s, as economic agents (from households to investors to governments) responded to the behaviour of others and made decisions under economically challenging circumstances. It also served as a powerful reminder of the limitations that exist in conventional, mainstream macroeconomic modeling tools: identifying and analyzing the fundamental drivers of the crisis has been a difficult endeavour for economists who rely on conventional models of economic behaviour. Socioeconomic phenomena by and large are complex, interconnected, and difficult to understand and appreciate if modeled individually and under restrictive conditions.

According to Domenico Delli Gatti, an economics professor[35],

> "Until some years ago, researchers used mathematically sophisticated but conceptually simple macroeconomic models in order to study real life situations. These models were perfectly adequate for interpreting macroeconomic developments in "normal times". However, once the crisis set in, it immediately became apparent that they had serious limitations" (Grella).

These limitations become equally evident when one tries to identify and analyze the issues around the affordability of shelter.

3.7.1 SHORTCOMINGS TO CONVENTIONAL APPROACHES TO ANALYZING SHELTER AFFORDABILITY

This research highlighted the need to understand shelter as a uniquely complex and multidimensional good in order to appreciate how shelter affordability is strongly connected to the wider economy. Shelter affordability touches every aspect of socio-economic phenomena—from household behaviour to the public policy role of government, to the role of financial markets. Understanding and navigating these issues is made more complex by the presence of many forces that work simultaneously, such that the outcome across the wider system is not simply the sum of the actions of individual households and

[35] Domenico Delli Gatti is a Professor of Political Economy at the "Università Cattolica del Sacro Cuore" in Italy. His main research interests include complexity modelling, financial economics, and international economics.

investors. In addition, these forces are so complexly intertwined that they often give rise to unexpected consequences.

Conventional modeling continues to rely on averages and aggregate measures of economic variables that fail to distinguish effects across different segments of the population and the economy. This reliance has also limited the models' ability to connect the different features of the system in order to provide a more holistic picture of effects and outcomes. The research cited so far in this report suffers the same fate, as it often presents data in silos, without making use of a quantitative framework that better organizes, structures, and identifies how the parts interact to create the whole. Some of the key weaknesses of conventional approaches are listed in Table 2.

Table 2 Shortcomings of Conventional Modeling

Oversimplification of economic agents, such as households and investors	Agents of the same type possess the same characteristics and behave in the same way. Every agent is assumed to have rational expectations, to have access to perfect information about economic outcomes and the behaviour of other agents, and to hold no inherent biases or preferences aside from what generates maximum utility.
Agents make decisions in isolation	By virtue of the "perfect information" assumption, agents do not need to factor in the decisions of other agents (whether of the same type or not) when formulating their own expectations and decisions.
Restrictive assumptions on agent interaction through market mechanisms	Interactions across economic agents are not fully appreciated in existing models, and do not generally feature when these models are used to identify potential policy measures. Furthermore, interactions among agents is perceived as linear and uniform in nature, and therefore small changes to the system would not significantly impact the wider economy.
Absence of the financial sector	Financial institutions are an economic agent that is often not incorporated, since the models had a built-in assumption that these markets always cleared by virtue of Fama's efficient market hypothesis (which states that asset prices fully reflect all available information).
Absence of labour market imperfections	The labour market is assumed to be perfect, with no regulatory impediments affecting market clearing and the relationship between demand and supply.
Absence of fiscal/monetary policy interactions	Monetary and fiscal policy parameters are viewed in isolation, allowing for a partial overview of monetary and fiscal policy changes on the wider system.
Restrictive assumptions about the features of the economy	Economies are assumed to be closed, static, and linear at equilibrium; market adjustments would always tend to equilibrium. This is consistent with the oversimplification of agents. As a result, these models treat the pre and post-shock scenarios as equivalent since the market has tended back to a 'status-quo', without allowing for the fact that the 'status-quo' has actually changed.
Linearity	The wider economy is always a sum of its individual components and sectors

According to J. Doyne Farmer, Professor of Mathematics at the University of Oxford,

> "Current economic theory is almost entirely based on the notion of equilibrium…However, in many situations, there is no unique equilibrium. When there are multiple equilibria, it may be difficult to predict which [one] agents will converge to; in other circumstances they may fail to converge to any equilibrium at all." (Grella)

By virtue of the differentiated nature of shelter as a good, the different purposes it could serve (i.e. consumption or investment) for an economic agent, and its need and want characteristics, the issue of shelter affordability cannot be fully understood by using dynamic stochastic general equilibrium (DSGE) models. Shelter affordability demands a sophisticated and proactive public policy, and prudential financial system response, then policy makers would need more appropriate tools to understand and navigate the complexity; otherwise, unexpected consequences would arise, and policy makers would find themselves constrained rather than key ingredients to potential solutions.

3.7.2 FURTHER RESEARCH: AGENT-BASED MODELING AS AN ALTERNATIVE

The 2008 financial crisis has shown that certain commonly used economic models "neither represent the financial system accurately nor allow for the booms and busts observed in the real world". Policymakers are embracing this conclusion too; for example, Professor Farmer cautions that "if you think that—in today's high-tech age—heads of Government and their economic teams are using sophisticated computer models to lead their countries out of the current crisis, think again!" In another publication, he claimed that world leaders "are flying the economy by the seat of their pants" as a result of the limited analytical tools they are reliant on to tackle the complex economic challenges faced since the crisis (Grella).

New approaches are available that would help analysts delve into the complex issues surrounding shelter affordability and identify the scope and shape of the challenges posed by the affordability problem. These approaches revolve around the concept of agent-based modeling (ABM). Agent-based models are built around the notion that the economy should be seen as a complex system composed of many different stakeholders who follow different strategies and behave in ways that reflect their local circumstances. These agents interact in a local, direct and indirect manner and can therefore modify the system as a whole through their joint behaviour.

One important feature of these models is that they could incorporate the behaviour of banks. Instead of treating banks as merely intermediaries between savers and borrowers, they could now be more accurately modeled as profit-seeking firms that could offer loans opportunistically and affect the wider economy. ABM would also allow economists to model scenarios where the economy expands and contracts in the absence of external shocks. Another useful feature of these models is that they allow for agent heterogeneity: this means that one could better distinguish the effect of shelter affordability problems on the behaviour of households of different income, wealth, and occupational backgrounds. A better understanding of the different responses of agents would provide a greater appreciation of the linkages and interconnectivity across economic variables.

Systems analysis using ABM could serve as the way forward to:

- Deal with the aforementioned limitations that afflict conventional models;
- Identify and measure the sequence, structure and size of expected risks to the shelter market and the wider system; and
- Allow for simulations to be run to develop preventative measures and propose innovative solutions.

The task of using ABMs to model shelter affordability issues is logistically complex, and would require vast

amounts of elaborate and specific data. Nevertheless, sophisticated methods and computer systems are in place that could simulate the complex dynamics underlying the affordability issue; at present, economics has not taken full advantage of these methods.

Phase 2 of this research is aimed at addressing this important challenge, to provide an empirical basis upon which stakeholders can identify the risks and formulate decisions more confidently. These stakeholders include:

- Taxpayers (and, by proxy, government agencies);
- The residential construction industry;
- Firms that rely upon the financial stability of Canadian consumer and credit markets; and
- Different tiers of government.

The primary objective would then be to have a ready-to-go, proactive policy response to sources of economic instability. In the words of Albert Einstein: “we cannot solve problems by using the same kind of thinking we used when we created them”. It is in the spirit of these words that this research attempts to add a significant and original contribution to the shelter affordability debate.

4.0 CONCLUDING REMARKS

The challenge of ensuring that Canadian households have access to homes that are adequate, suitable to their needs, and which they can afford is a key public policy concern. Although social housing has been offered as a solution for some of the most disadvantaged Canadian families, it is now unable to meet burgeoning demand. Furthermore, affordable shelter is now a concern for middle-class families as well, who may be struggling to maintain their standards of living while incurring growing mortgage, rental, and other shelter-related expenses.

Affordable shelter touches on virtually every aspect of a prosperous economy, and interacts with numerous flows, dynamics, and individual behaviour—from micro-level decisions about when, what, and how much to consume, to macro-level phenomena that arise from market and regulatory forces.

Current discussions about shelter affordability have yet to fully appreciate the interconnection between many of these themes. For instance, many widely-used shelter affordability indices used as market barometers of risk and economic pressures are insensitive to several characteristics of shelter and its multi-faceted role not only as an investment good, but also as a composite and consumption good. Furthermore, discussions of aggregate figures and biases arising from different stakeholder viewpoints have created a system of disjointed and sometimes incongruous definitions of affordability, with little appreciation of who is truly at risk or is not being adequately served by the system at large. This lack of consensus and the risk of generalizations necessitates the development of a new, more comprehensive framework by which to understand the role of shelter, its interaction with the economy, and the dynamics associated with how families and households access it.

This new framework starts with looking at supply and demand-side dynamics associated with the stock of shelter relative to the number of Canadian households. It follows by considering whether homes are allocated such that the basic shelter needs are met for all families while certain households pursue the things that they want. Finally, it assesses whether the allocation is affordable to all households subject to market and regulatory forces. This involves understanding how much money households have to allocate to shelter without compromising other non-discretionary expenses, and what the true costs of shelter are. These two forces combine to form the Shelter Consumption Affordability Ratio. It becomes clear that behind these two major forces lie numerous constraints and effects that span the entire economy. It is for this reason, ostensibly, that existing analyses and indices have faced shortcomings when attempting to describe the issue of shelter affordability, with no single organization or regulatory body offering a comprehensive understanding of all the hidden forces and factors underlying it.

A qualitative review of the evidence has revealed a number of broad demographic and economic trends, such as rising inequality and an increasingly prohibitive home ownership market; vulnerable groups, such as younger cohorts and older adults retiring with insufficient savings and debt; and risk factors, such as interest rate increases and government co-ordination. However, without fine-grained, connected quantitative analysis that respects the complexity and relationships, this offers only an incomplete view of the shelter market. In order for policy-makers to effect positive change without sacrificing the health of the economy in other aspects, understanding the nature of shelter, its market, and the factors driving its affordability is crucial. With a more comprehensive view of risks and system dynamics associated with

shelter affordability—especially regarding influential factors that are less often discussed—stakeholders can begin to reconcile their viewpoints into a shared goal of prosperity and a high standard of living.

5.0 BIBLIOGRAPHY

Allen, K. (2015, November 12). *New housing supply surges by a quarter*. Retrieved November 21, 2015, from Financial Times UK: www.ft.com

Alpanda, S., & Zubairy, S. (2014). *Addressing Household Indebtedness: Monetary, Fiscal or Macroprudential Policy?* Ottawa: Bank of Canada.

Australian Government. (2015). *Residential Real Estate.* Canberra: Foreign Investment Review Board.

Bailliu, J., Kartashova, K., & Meh, C. (2011). *Household Borrowing and Spending in Canada.* Bank of Canada, Canadian Economic Analysis Department, Ottawa.

Baldwin, J., & Gu, W. (2009). *Productivity Performance in Canada 1961 to 2008: An Update on Long-term Trends.* Statistics Canada, Economic Analysis Division. Minister of Industry.

Baldwin, J., Gu, W., Macdonald, R., & Yan, B. (2014). *Productivity: What Is It? How Is It Measured? What Has Canada's Performance Been Over the Period 1961 to 2012?* Statistics Canada. Ottawa, ON: Minister of Industry.

Baumeister, M. (2012). *Development Charges across Canada: An Underutilized Growth Management Tool.* Toronto: Institute on Municipal Finance & Governance.

BCNPHA and Vancity. (2014). *Canadian Rental Housing Index.*

Beckman, K., Fields, D., & Stewart, M. (2014). *Canada's Economic and Fiscal Prospects.* Ottawa: The Conference Board of Canada.

Bill 73, Smart Growth for Our Communities Act (Legislative Assembly of Ontario 2015).

Bousfields and Altus Group. (2013). *Site Plan Approval process in Ontario.* OAA.

Building Industry and Land Development Association. (2001-2015). *Summary of Development Charges in the GTA.* Building Industry and Land Development Association.

Canadian Institute for Health Information. (2014). *National Health Expenditure Trends, 1975 to 2014.* Spending and Health Workforce.

Carrick, A. (2015, June 18). *A still moderate core for US and Canadian construction material costs*. Retrieved from Daily Commercial News: http://dailycommercialnews.com/Economic/News/2015/6/A-Still-Moderate-Core-for-US-and-Canadian-Construction-Material-Costs-1008444W/

Cautillo, C., Zon, N., & Mendelsohn, M. (2014). *Rebuilding Canada: A New Framework for Renewing Canada's Infrastructure.* University of Toronto, School of Public Policy and Governance. Toronto: Mowat Centre.

CBC News. (2015, November 11). *CMHC Says Foreign Buyers may be Pushing up Luxury Housing Prices*. Retrieved November 14, 2015, from CBC News: http://www.cbc.ca/news/business/foreign-buyers-cmhc-1.3313969

Certified General Accountants. (2012). *Issue in Focus: Labour Shortages in Skilled Trades -- The Best Guestimate?* Certified General Accountants.

Chawla, R. K. (2011). *the distribution of mortgage debt in Canada.* Ottawa: Statistics Canada.

CHBA. (2013). *Government-Imposed Costs Impact Housing Affordability.* CHBA.

Chopowick, M. (2015, October 15). *The Rent is Too Damn High (and city taxes are to blame).* Retrieved from Federation of Rental-housing Providers of Ontario: https://www.frpo.org/lobby-view/cities-still-ripping-off-renters

Civitas. (2015). *Restrictions Needed on Overseas Investment in UK Housing Market.* London: Civitas.

Clare, D. (2013, April 8). *Lack of Land Holding back Housing for most needy*. Retrieved Nov 21, 2015, from The Guardian: The Guardian website

Clayton, F. (2015). *Why There is a Shortage of New Ground-Related Housing in the GTA.* Ryerson University.

CMHC. (2011). *Housing Conditions and Core Housing Need.*

CMHC. (2015). *Housing Market Indicators.*

CMHC. (2015b). *Housing Market Outlook: Ontario Region Highlights.* CMHC.

Conway, P., & Nicoletti, G. (2007). Product Market Regulation and Productivity Convergence: OECD Evidence and Implications for Canada. *International Productivity Monitor, 15*, pp. 3-24.

Cote, A., & Fenn, M. (2014, November). Provincial-Municipal Relations in Ontario: Approaching an Inflection Point. *IMFG Papers on Municipal Finance and Governance, 17*.

Crawford, A. (2012, Winter). What Explains Trends in Household Debt in Canada. *Bank of Canada Review: Household Finances and Financial Stability*, pp. 3-15.

CRRA. (2015). *Rent Control Seminar.* Retrieved from

http://c.ymcdn.com/sites/www.crra.ca/resource/resmgr/Education/Rent_Control_Seminar_-_David.pdf

Dunning, W. (2011, September). *Restricted land supply and rising housing costs in the GTA.* Retrieved from RESCON: http://www.wdunning.com/docs/RESCON-11-10-17.pdf

Ervin, M. (2015, December 2). *Affordability looms large in GTA Housing Market*. Retrieved from Reminetwork.com: https://www.reminetwork.com/articles/affordability-looms-large-in-gta-housing-market/

Fathers, F. (2014). *Residential Development Charges Lead to a Hidden Tax for City Residents.* Fraser Institute.

Federation of Canadian Municipalities. (2012). *No Vacancy: Trends in Rental Housing in Canada.* Ottawa: FCM.

Federation of Canadian Municipalities. (2015). *Municipal Finance and Intergovernmental Arrangements.* Policy Statement.

Galarneau, D., & Sohn, T. (2014, April 28). *Long term trends in unionization*. Retrieved from Statistics Canada: http://www.statcan.gc.ca/pub/75-006-x/2013001/article/11878-eng.htm

Galarneau, D., Morissette, R., & Usalcas, J. (2013). *What has changed for young people in Canada?* Ottawa: Statistics Canada.

Goetz, S. (2015, September 22). *Metro asks developer: why so many condos, so few rentals in Toronto?* Retrieved November 10, 2015, from Metro: http://www.metronews.ca/news/toronto/2015/09/22/metro-asks-developer-why-so-many-condos-so-few-rentals.html

Government of Ontario. (1997). *Development Charges Act 1997*. Retrieved from http://www.ontario.ca/laws/statute/97d27

Green, D., & Bentley, D. (2014). *Finding Shelter: Overseas Investment in the UK Housing Market.* London: Civitas.

Green, D., Riddell, W., & St-Hilaire, F. (2015). *Income Inequality The Canadian Story.* The Institute for Research on Public Policy.

Green, K. P., Herzog, I., & Filipowicz, J. (2015). *Residential Land-Use Regulation in Ontario's GGH.* Toronto: Fraser Institute.

Grella, D. (n.d.). *Coping with financial crises: a multi-disciplinary agent based research project.* CRISIS.

Gross, D. (2014). *Temporary Foreign Workers in Canada: Are They Really Filling Labour Shortages.* Economic Growth and Innovation. Toronto: C.D. Howe Institute.

Gu, W., & Lafrance, A. (2008). *Productivity Growth in Canadian and U.S. Regulated Industries.* Ottawa: Minister of Industry.

Hadi, A., & Labonte, R. (2011). *Housing and Health of Recent Immigrants in Canada: A Narrative Review.* Ottawa: ElExchange.

Hess, P., Sorensen, A., & Parizeau, K. (2007). *Urban Density in the Greater Golden Horseshoe.* Toronto: Centre for Urban and Community Studies.

Hoeppner, C. (2010). *Federal Poverty Reduction Plan: Working in Partnership towards Reducing Poverty in Canada.* House of Commons, Canada, Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities.

Hulchanski, D. (2004). What Factors Shape Canadian Housing Policy. In R. Young, & C. Leuprecht, *The State of the Federation 2004 - Municipal-Federal-Provincial Relations in Canada.* McGill-Queen's University Press.

Hulchanski, D. (2005). *Rethinking Canada's Housing Affordability Challenge.* University of Toronto, Centre for Urban and Community Studies. Toronto, ON: Government of Canada's Canadian Housing Framework Initiative .

Hulchanski, D. (2007). *Canada's Dual Housing Policy.* Centre for Urban and Community Studies. Toronto: University of Toronto.

Hulchanski, D. (2010). *The Three Cities within Toronto: Income Polarization Among Toronto's Neighbourhoods 1970-2005.* University of Toronto, Cities Centre.

IMF. (2014). *Sweden: Selected Issues Paper.* Washington DC: IMF Country Report No. 14/262.

Jenkins, P., & Longworth, D. (2015). *Securing Monetary and Financial Stability: Why Canada Needs a Macroprudential Policy Framework.* C.D. Howe Institute.

Johnson, S. (2015). *Canada's subprime mortgages are only 5%.* Market Realist.

Kim, K., Kim, B., & Park, H. (2011). Monetary policy framework and financial procyclicality: international evidence. *Macroprudential regulation and policy, 60*, 51-57.

Kingsley, B. (2015, April 17). *Fears about Foreign investors buying Australian real estate are misplaced*.

Retrieved from Domain: http://www.domain.com.au/news/fears-about-foreign-investors-buying-australian-real-estate-are-misplaced-20150420-1mnjee/

Kirby, J. (2014, February 27). *The Verdict is in: stocks beat real estate as an investment*. Retrieved from Macleans: http://www.macleans.ca/economy/realestateeconomy/the-verdict-is-in-stocks-beat-real-estate-as-an-investment/

Kirkpatrick, S., & Tarasuk, V. (2003). The relationship between low income and household food expenditure patterns in Canada. *Public Health Nutrition, 6*(6), 589-597.

Knowles-Myers, C., Close, G., Fox, L., Meyer, J., & Niemi, M. (2010). Retail Redlining: Are Gasoline Prices Higher in Poor and Minority Neighborhoods? *Economic Inquiry, 49*(3), 795-809.

Komarnicki, E. (2012). *Labour and Skills Shortages in Canada: Addressing Current and Future Challenges.* Ottawa, ON: Public Works and Government Services Canada.

Lafrance, A., & LaRochelle-Cote, S. (2011). *Consumption Patterns among Aging Canadians: A Synthetic Cohort Approach.* Statistics Canada, Economic Analysis Division, Ottawa, ON.

Law, M., Cheng, L., Dhalla, I., Heard, D., & Morgan, S. (2012). The effect of cost on adherence to prescription medications in Canada. *Canadian Medical Association Journal*, 1-6.

Lighthall, W. (2004). *New Ontario greenbelt plan will impact land supply and prices.*

Liu, Y. (2014). *Macro-Prudential Policy and Canadian Housing Market.* Simon Fraser University.

Luffman, J. (2006, November). *Measuring Housing Affordability*. Retrieved from Statistics Canada: http://www.statcan.gc.ca/pub/75-001-x/11106/9519-eng.htm

Macdonald, D. (2015). *The Wealth Advantage: The Growing Wealth Gap Between Canada's Affluent and the Middle Class.* Canadian Centre for Policy Alternatives.

Martin Prosperity Institute . (2010). *Zoning for a Better Toronto.* Toronto: University of Toronto Cities Centre.

McDiarmid, J. (2015, April 30). *How condo developers are bracing for a choppier market ahead*. Retrieved from Canadian business: http://www.canadianbusiness.com/economy/2015-condo-market-toronto-vancouver/

McKinsey and Company. (2014, October). *Tackling the World's Affordable Housing Challenge*. Retrieved from Insights and Publications: http://www.mckinsey.com/insights/urbanization/tackling_the_worlds_affordable_housing_chal

lenge

McMahon, T. (2014, August 7). *Charting Toronto's housing bubble pt 2: houses vs condos*. Retrieved from Maclean's: http://www.macleans.ca/economy/realestateeconomy/charting-torontos-housing-bubble-pt-2-houses-vs-condos/

McMahon, T. (2015, October 30). How mortgage fraud is thriving in Canada's hot housing market. *The Globe and Mail*.

Ministry of Municipal Affairs and Housing. (2006). *Growth Plan for Greater Golden Horseshoe*. Retrieved from https://www.placestogrow.ca/index.php?option=com_content&task=view&id=9&Itemid=14

Ministry of Municipal Affairs and Housing. (2015, November 3). *Bill 73 - proposed Smart Growth for our Communities Act*. Retrieved from Ministry of Municipal Affairs and Housing: http://www.mah.gov.on.ca/Page11014.aspx

Ministry of Municipal Affairs and Housing. (2015, April 24). *Greenbelt Protection*. Retrieved from http://www.mah.gov.on.ca/Page187.aspx

Naschold, F. (2002). *Why Inequality Matters for Poverty.* Overseas Development Institute, Mokoro and Oxford Policy Management.

Neiman, B. (2013). The Global Decline of the Labor Share. *The Quarterly Journal of Economics, 129*(1), 61-103.

Neptis. (2015). *Understanding the fundamentals of the growth plan.* Toronto: Neptis.

Nicola Crawhall and Associates. (2015). *Implementing the Growth Plan: Seeking Provincial and Municipal Alignment to Support a Prosperous Ontario.*

Office of National Statistics UK. (2015, August 5). *Housing Stock*. Retrieved from http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Affordable+Housing#tab-data-tables

Ontario Ministry of Finance. (2014). Chapter IV: National Leadership — Strong Ontario, Strong Canada. In *Ontario Economic Outlook and Fiscal Review.* Queen's Printer for Ontario.

Ontario Ministry of Finance. (2015). *Bulding Ontario up: 2015 Budget*. Retrieved from Ministry of Finance: http://www.fin.gov.on.ca/en/budget/ontariobudgets/2015/

Organisation for Economic Co-Operation and Development. (2010). *OECD Territorial Reviews: Toronto, Canada 2009.*

Organisation for Economic Co-Operation and Development. (2014). *OECD Economic Surveys: Canada.*

Palacios, M., Gainer, A., Karabegovic, A., & Veldhuis, N. (2009). *Measuring Labour Markets in Canada and the United States.* Fraser Institute.

Petramala, D. (2015). *Canadian Consumer Prices Riding on Loonie's Wings.* TD Bank Group, TD Economics.

Places to Grow Act, 2005. (2005). Ontario, Canada.

Poloz, S. (2015). *Integrating Financial Stability into Monetary Policy.* Bank of Canada, National Association for Business Economics, Washinton, D.C.

Posadzki, A. (2015, November 23). *Weak metals prices hurt mining stocks, weigh on Toronto stock market*. Retrieved from Canadian Business: http://www.canadianbusiness.com/business-news/futures-point-to-lower-open-for-u-s-markets-amid-news-of-pfizer-allergan-deal/

Ragan, C. (2011). The Evolution of Canadian Monetary Policy: Successful Ideas through Natural Selection. In A. Sharpe, & F. Gorbet, *New Directions for Intelligent Government in Canada* (pp. 49-80). Centre for the Study of Living Standards.

Rajotte, J. (2013). *Income Inequality in Canada: An Overview.* House of Commons, 41st Parliament, Standing Committee on Finance.

Rao, S., Souare, M., & Wang, W. (2010). *Canadian Inward and Outward Direct Investment: Assessing the Impacts.* Industry Canada, Economic Research and Policy Analysis Branch.

Raphael, D. (2000). Health inequalities in Canada: current discourses and implications for public health action. *Critical Public Health, 10*(2), 193-216.

RBC Economics. (2015). *Canadian Federal and Provincial Fiscal Tables.* RBC.

RBC-Pembina. (2013, November). *Priced out: understanding the factors affecting home prices in the GTA.* Retrieved from Pembina: https://www.pembina.org/reports/priced-out.pdf

Real Estate Investment Network. (2010). *Brand New Report: Impacts of Transportation Improvements on Hamilton Real Estate.* REIN.

Region of Peel. (n.d.). *Apply for Social Housing*. Retrieved from Region of Peel: https://www.peelregion.ca/housing/social/

Reuters. (2015, July 12). *China's Rich seek shelter from stock market storm in foreign property*. Retrieved from The Guardian: http://www.theguardian.com/business/2015/jul/12/chinas-rich-seek-shelter-from-stock-market-storm-in-foreign-property

Reuters. (2015, November 2). *Royal Bank of Canada scraps limit on size of newcomer mortgages*. Retrieved November 3, 2015, from Reuters: http://www.reuters.com/article/2015/11/02/canada-china-mortgages-idUSL1N12T4EP20151102#Pb3hHMKSMW5VZKp2.97

Rodgers, S. (2015, June 13). *Housing Affordability: how Generation Y lost its way home*. Retrieved from The Australian: http://www.theaustralian.com.au/opinion/housing-affordability-how-generation-y-lost-its-way-home/story-e6frg6zo-1227395357697

Russell, E., & Dufour, M. (2007). *Rising Profit Shares, Falling Wage Shares.* Canadian Centre for Policy Alternatives, Toronto, ON.

Sauve, R., & Battams, N. (2013). *The Current State of Canadian Family Finances.* The Vanier Institute of the Family, Ottawa, ON.

Schembri, L. (2015, August 25). *The Long-Term Evolution of House Prices: An International Perspective.* Retrieved from Bank of Canada: http://www.bankofcanada.ca/2015/08/long-term-evolution-house-prices/

Schiantarelli, F. (2008). *Product Market Regulation and Macroeconomic Performance: A Review of Cross-Country Evidence.* World Bank.

Sharpe, A. (2006). *The Relationship between ICT Investment and Productivity in the Canadian Economy: A Review of the Evidence.* Ottawa: Centre for the Study of Living Standards.

Sharpe, A., & Capeluck, E. (2012). *The Impact of Redistribution on Income Inequality in Canada and the Provinces, 1981-2010.* Ottawa: Centre for the Study of Living Standards.

Sharpe, A., & Rai, V. (2013). *Can the Canada-U.S. ICT Investment Gap be a Measurement Issue?* Centre for the Study of Living Standards. Ottawa: Industry Canada.

Sharpe, A., Arsenault, J. F., & Harrison, P. (2008). Why Have Real Wages Lagged Labour Productivity Growth in Canada. *International Productivity Monitor, 17*, 16-27.

Slack, E. (2002). Property Tax Reform in Ontario: What Have We Learned? *Canadian Tax Journal, 50*(2), 576-585.

Slack, E. (2010, June 8). Financing Canadian Municipalities. *South African Study Tour*. Toronto.

Slack, E., & Cote, A. (2014). *Is Toronto fiscally healthy?* University of Toronto.

Smetanin, P., & Stiff, D. (2015). *Population and Job Growth Planning: Socioeconomic issues with Places to*

Grow. Toronto: The Canadian Centre for Economic Analysis.

Smetanin, P., Stiff, D., & Kobak, P. (2014). *Ontario Infrastructure Investment: Federal and Provincial Risks & Rewards.* Toronto, ON: The Canadian Centre for Economic Analysis.

Smetanin, P., Stiff, D., McNeil, D., Moca, I., & Katsivo, L. (2015). *Socio-Economic Analysis: Value of Toronto Community Housing's 10-Year Capital Investment Plan and Revitalization.* Toronto: Canadian Centre for Economic Analysis.

Smets, F. (2013). *Financial Stability and Monetary Policy: How Closely Interlinked?* Stockholm: Sveriges Riksbank Economic Review.

Stanford, J. (2011). *Having Their Cake and Eating It Too: Business Profits, Taxes and Investment in Canada: 1961 through 2010.* Ottawa, ON: Canadian Centre for Policy Alternatives.

Statistics Canada. (2011, November 7). *CANSIM Table 384-0009 Government transfer payments to persons, provincial and economic accounts.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3840009

Statistics Canada. (2013, June 27). *CANSIM Table 202-0705 Gini coefficients of market, total and after-tax income, by economic family type*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2020705

Statistics Canada. (2013a). *Canadian households in 2011.* Ottawa: Statistics Canada.

Statistics Canada. (2013b, February 20). *CANSIM Table 326-0012 Average retail prices for food and other select items.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3260012

Statistics Canada. (2013c, February 6). *CANSIM Table 051-0052 Estimates of population by census division, sex and age group for July 1, based on the Standard Geographical Classification (SGC) 2006*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=510052

Statistics Canada. (2013d, February 6). *CANSIM Table 051-0047 Components of population growth by census metropolitan area, sex and age group for the period from July 1 to June 30 based on the Standard Geographical Classification (SGC) 2006*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=510047

Statistics Canada. (2013e, May 27). *CANSIM Table 202-0076 Gini coefficients of market, total and after-tax income, by economic family type.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2020705

Statistics Canada. (2014, December 11). *CANSIM Table 383-0029 Labour productivity and related variables by business sector industry, consistent with the North American Industry Classification System (NAICS) and the System of National Accounts (SNA), provinces and territories.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3830029

Statistics Canada. (2014b). *Survey of Household Spending.* Statistics Canada.

Statistics Canada. (2015, November 13). *Table 2 Ownership rate by age of primary household maintainer and household total income*. Retrieved from Statistics Canada: http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/2011002/tbl/tbl02-eng.cfm

Statistics Canada. (2015a). *2011 National Household Survey: Data tables.* Retrieved from Statistics Canada: http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/dt-td/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=0&PID=106649&PRID=0&PTYPE=105277&S=0&SHOWALL=0&SUB=0&Temporal=2013&THEME=98&VID=0&VNAMEE=&VNAMEF=

Statistics Canada. (2015b, January 28). *CANSIM Table 282-0002 Labour force survey estimates (LFS), by sex and detailed age group.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2820002

Statistics Canada. (2015c, January 22). *CANSIM Table 203-0022 Survey of household spending (SHS), household spending, Canada, regions and provinces, by household income quintile, annual.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2030022

Statistics Canada. (2015d, November 6). *CANSIM Table 282-0007 Labour force survey estimates (LFS), by NAICS, sex and age group unadjusted for seasonality.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2820007

Statistics Canada. (2015e, January 29). *CANSIM Table 282-0072 Labour force survey estimates (LFS), wages of employees by type of work, North American Industry Classification System (NAICS), sex and age group.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2820072

Statistics Canada. (2015f, November 6). *CANSIM Table 282-0073 Labour force survey estimates (LFS), wages of employees by job permanence, union coverage, sex and age group.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26

Statistics Canada. (2015g, January 28). *CANSIM Table 282-0123 Labour force survey estimates (LFS), by provinces, territories and economic regions based on 2011 census boundaries.* Retrieved from

Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2820123

Statistics Canada. (2015h, November 20). *CANSIM Table 326-0020 Consumer Price Index.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?id=3260020

Statistics Canada. (2015i, November 12). *CANSIM Table 327-0046 New housing price index.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3270046

Statistics Canada. (2015j, September 11). *CANSIM Table 378-0123 National balance sheet accounts, financial indicators, households and non-profit institutions serving households.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?id=3780123

Statistics Canada. (2015k, November 30). *CANSIM Table 380-0072 Current and capital accounts - Households, annual.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3800072

Statistics Canada. (2015m, November 10). *CANSIM Table 384-0040 Current accounts - households, provincial and territorial.* Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3840040

Statistics Canada. (2015n, December 8). *CANSIM Table 027-0015 Canada Mortgage and Housing Corporation, conventional mortgage lending rate, 5-year term*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=270015

Statistics Canada. (2015o, February 11). *CANSIM Table 051-0057 Components of population growth by census metropolitan area, sex and age group for the period from July 1 to June 30, based on the Standard Geographical Classification (SGC) 2011*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=510057

Statistics Canada. (2015p, February 11). *CANSIM Table 051-0062 Estimates of population by census division, sex and age group for July 1, based on the Standard Geographical Classification (SGC) 2011*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=510062

Statistics Canada. (2015q, January 29). *CANSIM Table 282-0070 Labour force survey estimates (LFS), wages of employees by type of work, National Occupational Classification for Statistics (NOC-S), sex and age group*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=2820070

Statistics Canada. (2015r, January 23). *CANSIM Table 326-0021 Consumer Price Index*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3260021

Statistics Canada. (2015s, November 26). *CANSIM Table 327-0045 Construction union wage rate index*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3270045

Statistics Canada. (2015t, December 4). *CANSIM Table 383-0008 Indexes of labour productivity, unit labour cost and related variables, seasonally adjusted*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3830008

Statistics Canada. (2015u, February 2). *CANSIM Table 383-0021 Multifactor productivity, value-added, capital input and labour input in the aggregate business sector and major sub-sectors, by North American Industry Classification System (NAICS)*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3830021

Statistics Canada. (2015v, November 9). *CANSIM Table 384-0037 Gross domestic product, income-based, provincial and territorial*. Retrieved from Statistics Canada: http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3840037

Stern, M. (2015). *The microcredit movement: a Canadian perspective*. Retrieved Nov 24, 2015, from socialfinance.ca: http://socialfinance.ca/2012/03/08/the-microcredit-movement-a-canadian-perspective/

Stiff, D., Smetanin, P., & McNeil, D. (2011). *Public Infrastructure Investment in Ontario: The Importance of Staying the Course.* RiskAnalytica. The Residential and Civil Construction Alliance of Ontario.

Stiglitz, J. (2014). *Reforming Taxation to Promote Growth and Equity.* Roosevelt Institute.

Suttor, G. (2015). *Rental Housing Dynamics and Lower-Income Neighbourhoods in Canada.* Toronto: University of Toronto Cities Centre.

Tal, B. (2015). *Employment Quality -- Trending Down.* CIBC World Markets Inc.

TD Economics. (2015). *GTA Housing Boom Masks Growing Structural Challenges.*

Tencer, D. (2015, June 24). *Investors who made cash off US housing collapse now betting against Canada*. Retrieved from Huffington Post Canada: http://www.huffingtonpost.ca/2015/06/24/canadian-housing-bubble-accident-waiting-to-happen_n_7657018.html

The Guardian. (2014, January 21). *Record Levels of Young Adults Living at Home, says ONS*. Retrieved from The Guardian: http://www.theguardian.com/money/2014/jan/21/record-levels-young-adults-living-home-ons

The Metro Vancouver. (2015). *Housing and Transportation Cost Burden Study.*

The Migration Observatory UK. (2015, September 21). *Migrants and Housing in the UK: Experiences and Impacts*. Retrieved from The Migration Observatory: http://www.migrationobservatory.ox.ac.uk/briefings/migrants-and-housing-uk-experiences-and-impacts

Tjepkema, M., Wilkins, R., & Long, A. (2013, July). *Cause-specific mortality by income adequacy in Canada: A 16-year follow-up study.* Retrieved from Statistics Canada: http://www.statcan.gc.ca/pub/82-003-x/2013007/article/11852-eng.pdf

Tomlinson, K. (2015, October 7). *Foreign investors avoid taxes through Canadian real estate*. Retrieved from The Globe and Mail: http://www.theglobeandmail.com/report-on-business/economy/housing/the-real-estate-beat/foreign-investors-avoid-taxes-by-buying-real-estate-in-canada/article26683767/

Toronto Community Housing. (2015). *Rent at Toronto Community Housing*. Retrieved from Toronto Community Housing: http://www.torontohousing.ca/rent_toronto_community_housing

Toronto Medical Officer of Health. (2013). *Next Stop Health: Transit Access and Health Inequities in Toronto.* Staff Report, City of Toronto.

Townson, M. (2012). *Old Age Security: Can We Afford It?* Technical Paper, Canadian Centre for Policy Alternatives.

Uppal, S., & LaRochelle-Cote, S. (2015). *Changes in debt and assets of Canadian families, 1999 to 2012.* Ottawa: Statistics Canada.

Urban Development Institute of Australia. (2008). *Housing Affordability in Australia.* Sydney: UDIA.

Vakili-Zad, C. (2004). Housing or Dehousing? The Public Housing Waiting List, Eviction, and the Homeless in Toronto, Canada. *Journal of Affordable Housing & Community Development Law, 14*(1), 63-81.

World Bank Group. (2015). *Doing Business: Measuring business regulations*. Retrieved from http://www.doingbusiness.org/rankings

Yuen, J. (2010). *Job-education match and mismatch: Wage differentials.* Statistics Canada, Income Statistics Division, Ottawa, ON.

A. APPENDIX: FURTHER INFORMATION ABOUT THE SCAR INDEX

A.1. ABOUT THE SCAR

From the qualitative research outlined in the report, CANCEA created a Shelter Consumption Affordability Ratio (SCAR index) that focuses on the consumption needs of shelter. The ratio divides a household's "shelter consumption costs" by its "discretionary net income after deducting other necessities". This Appendix will:

- Detail the exact components that are used to calculate the SCAR
- Outline some of its limitations

A.2. COMPONENTS OF THE SCAR

The following tables list all of the components used to calculate the SCAR index. The first table outlines all the data (from Statistics Canada) used to calculate shelter consumption costs (the numerator of the SCAR), while the second one outlines all the data used to calculate discretionary net income after deducting non-shelter-related necessities.

Component	Description	Years Used in Dataset	CANSIM Table Used
SHELTER CONSUMPTION COSTS (THE NUMERATOR OF THE SCAR)			
Gross imputed rent	Costs that would be incurred by homeowners consuming shelter	1981-2008	381-0010
Gross rent paid	Rental expense paid by households that consume shelter through renting	1981-2008	381-0010
Other shelter expenses	Other expenses (e.g. materials and services for home repair and maintenance) incurred by households consuming shelter	1981-2008	381-0010
Expenditure on electricity	Cost of electricity used during shelter consumption	1981-2008	381-0010
Expenditure on natural gas	Cost of natural gas used during shelter consumption	1981-2008	381-0010
Expenditure on other fuels	Cost of other fuels (e.g. heating oil and propane) used during shelter consumption	1981-2008	381-0010
Expenditure on motor vehicle repairs	Repairs to vehicles (transportation allows households to access amenities and features as a cost of consuming a given unit of shelter)	1981-2008	381-0010
Expenditure on motor fuels and lubricants	Motor fuels and lubricants used to facilitate vehicle consumption	1981-2008	381-0010
Expenditure on other motor vehicle related services	Other services to maintain a vehicle's operational ability	1981-2008	381-0010
Expenditure on purchased transportation	Other transportation including public transit and taxis	1981-2008	381-0010
Household consumption expenditure: rental fees paid	Substitutes for "Gross rent paid" for new time period	2009-2014	381-0023
Household consumption expenditure: imputed rental fees	Substitutes for "Gross imputed rent" for new time period	2009-2014	381-0023
Household consumption expenditure: materials and services to maintain and repair dwelling	Substitutes for "other shelter expenses" for new time period	2009-2014	381-0023
Household consumption expenditure: electricity	Substitutes for "expenditure on electricity" for new time period	2009-2014	381-0023
Household consumption expenditure: gas	Substitutes for "expenditure on natural gas" for new time period	2009-2014	381-0023
Household consumption expenditure: other fuels	Substitutes for "expenditure on other fuels" for new time period	2009-2014	381-0023

Household consumption expenditure on water supply and sanitation services	Water and sanitation facilities are needed by households consuming shelter	2009-2014	381-0023
Household consumption expenditure on used motor vehicles	Expenditure on motor vehicles used to access necessary amenities from shelter location	2009-2014	381-0023
Household consumption expenditure on other vehicles	Expenditure on other vehicles used to access necessary amenities from shelter location	2009-2014	381-0023
Household consumption expenditure on spare parts and accessories for vehicles	Maintenance of vehicles used when accessing amenities; this is an important component of shelter due to its nature as a composite good	2009-2014	381-0023
Household consumption expenditure on fuels and lubricants	Expenditure on fuels and lubricants used to facilitate vehicle use for transportation	2009-2014	381-0023
Household consumption expenditure on maintenance repairs of vehicles	Maintenance repairs of vehicles used for transportation	2009-2014	381-0023
Household consumption expenditure on parking	Parking for vehicles used	2009-2014	381-0023
Household consumption expenditure on railway transport	To account for households using railway transport to access amenities	2009-2014	381-0023
Household consumption expenditure on urban transit	To account for households using urban transit to access amenities	2009-2014	381-0023
Household consumption expenditure on interurban bus	To account for households using interurban buses to access amenities	2009-2014	381-0023
Household consumption expenditure on taxi and limousine services	To account for households using taxis to access amenities	2009-2014	381-0023
Household consumption expenditure on air transport	To account for households using air transport to access amenities	2009-2014	381-0023
Household consumption expenditure on water transport	To account for households using water transport to access amenities	2009-2014	381-0023
Household consumption expenditure on other transport services	To account for households using other transport services to access amenities	2009-2014	381-0023

Component	Description	Years Used in Dataset	CANSIM Table Used
DISCRETIONARY NET INCOME AFTER OTHER NECESSITIES (THE DENOMINATOR OF THE SCAR)			
Household disposable income (includes interest expenses and Canadian Pension Plan contributions)	Disposable income reflects income accrued from all sources (employment, transfers, CPP contributions, etc.) less all taxes paid on these sources	1981-2008	384-0040
Personal expenditure on food and non-alcoholic beverages	Food is typically considered "necessities; their consumption reduces the net discretionary income available to consume shelter	1981-2008	381-0010
Personal expenditure on men's, women's and children's clothing	Clothing is another non-shelter related necessity that reduces the net discretionary income available to consume shelter	1981-2008	381-0010
Personal expenditure on clothing repair and alterations	Repairs and alterations to ensure clothing remains effective for consumption	1981-2008	381-0010
Personal expenditure on footwear	Much like clothing, footwear is a non-shelter related necessity	1981-2008	381-0010
Personal expenditure on medical care	Access to healthcare is considered a necessity by most of the literature, and is thus included in the SCAR	1981-2008	381-0010
Personal expenditure on hospital care and the like	Care provided when visiting hospitals or clinics is considered a necessity	1981-2008	381-0010
Personal expenditure on accident and sickness insurance	Expenditure for coverage against certain accidents and sickness	1981-2008	381-0010
Personal expenditure on drugs and pharmaceutical products	Expenditure on medication is considered a necessary component of healthcare	1981-2008	381-0010
Household consumption expenditure on pharmaceutical products and other medical products	Substitutes for "personal expenditure on drugs and pharmaceutical products" for new time period	2009-2014	381-0023
Household consumption expenditure on out-patient services	Substitutes for "personal expenditure on hospital care and the like" for new time period	2009-2014	381-0023
Household consumption expenditure on hospital services	Substitutes for "personal expenditure on hospital care and the like" for new time period	2009-2014	381-0023
Household consumption expenditure on health insurance	Substitutes for "personal expenditure on accident and sickness insurance" for new time period	2009-2014	381-0023

Note that some of the data series used for shelter consumption costs and non-shelter-related necessities have slightly changed in 2009 due to Statistics Canada's incorporation of new cost components and breakdowns. A similar change has occurred in late 2015, which the SCAR framework would take into account when measuring shelter consumption affordability.

For the numerator of the SCAR, the expenses detailed in the previous table are added to obtain total shelter consumption costs. For the denominator of the SCAR, the sum of non-shelter necessities is deducted from household disposable income (which includes income a household accrues from employment, government transfers, pension plans and interest) to generate discretionary net income after other necessities[36]. The ratio of the two measures yields the SCAR index.

A.3. CURRENT LIMITATIONS OF THE SCAR

It should be noted that the SCAR index shown in sections 3.1 and 3.2 of the report is preliminary in nature: it only serves as a preview of the affordability trends that SCAR could generate for Ontario and the rest of Canada, without providing the "high-resolution" details that the framework can produce. Nevertheless, in spite of being more comprehensive and informative than other indices that are commonly-used, the SCAR index exhibits some limitations of its own, three of which stand out in particular:

- The SCAR at present uses aggregate household disposable income for the denominator. Future research would attempt to expand the analysis to account for income (and, if possible, wealth) differences and the variation in affordability pressures experienced by households of different income quintiles.

- At present, the SCAR restricts non-shelter necessities to food, clothing and healthcare, without factoring in the possibility that the concept of "necessity" could change with time to include other goods and/or services.

- The components of the SCAR do not distinguish between expenditure that is necessary and expenditure that is discretionary. For example, "personal expenditure on footwear" features in the denominator under "non-shelter-related necessities". However, Statistics Canada's data would lump both expenditure on basic footwear and expenditure on luxury shoes under the same category, when the latter expenditure is motivated by discretion rather than necessity. In other words, the expenses used in the SCAR may not reflect household expenditure on strictly needed items.

With that being said, the SCAR framework introduced in this report does represent a significant improvement and extension to existing analyses and measurements, and provides a solid basis for future progress in analyzing and addressing affordability issues.

[36] The versatility of SCAR means that the set of non-shelter-related necessities included in the ratio could be refined to improve future calculations if required.