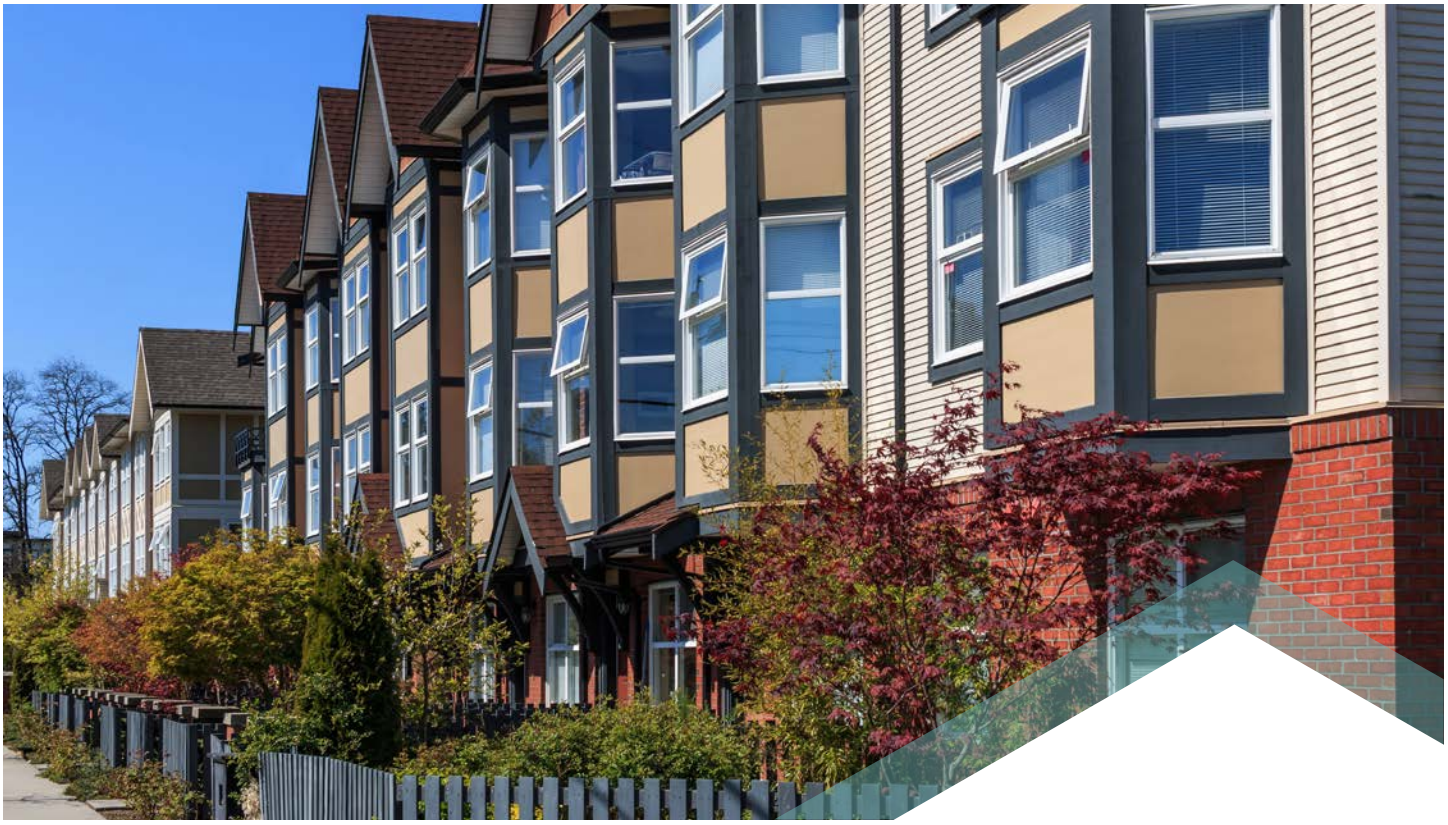

HOUSING RESEARCH REPORT

Study of the Impacts of Rent Control Policies

Canada

CMHC SCHL

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Study of the Impacts of Rent Control Policies

Canada Mortgage and Housing Corporation

KPMG LLP

March 31, 2020

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Executive Summary

The purpose of this study was to analyze the impacts of rent control policies on rental markets. This included analyzing the absence or presence of rent controls, in addition to analyzing specific features of rent control policies. The main potential impacts of rent control policies that were of interest were impacts on the supply of rental units and impacts on the prices of rental units.

The specific features of rent control policies are called "regimes" in this study. The two regimes that the study focused on were:

- Tenancy deregulation, which allows landlords to raise rents between tenancies, and
- New unit exemption, which exempts newly built rental units from rent control for a certain period of time.

The study was made up of three sets of analyses:

(1) **A review of the literature** on the impacts of rent controls and on the history of rent controls in a number of Canadian jurisdictions and two US jurisdictions. The Canadian jurisdictions that were studied in most detail were Ontario, British Columbia, and Manitoba.

Other than findings regarding the strengths and weaknesses of the rent control policies in the jurisdictions reviewed, the main findings of the literature review were:

- Rent control has generally been found to have reduced rental supply as a result of the limits on rent prices, as well as the resulting negative effects on rental property valuations; and
- Rent control can be successful at lowering prices for controlled units. Controlled units are units to which rent control policy applies. (Note that most rent control markets also contain a significant number of uncontrolled units for various reasons, such as special exemptions.)

(2) **A comprehensive statistical analysis** of rental market data, which included:

- Comparisons of rent control markets with non-rent controlled markets,
- Correlations of rental starts and rental prices with market variables in both rent control and non-rent control markets,
- Correlations related to the two rent control regimes defined above, and
- A high-level difference in differences analysis of the impacts of tenancy deregulation.

The main findings were:

- Rental prices appear to be better able to respond to market supply and demand changes in markets without rent control;
- Rental prices appear to be more likely to vary in rent control regimes that are less strict; and
- It is unclear if there is a relationship between rental starts in rent control markets and no rent control markets.

(3) **Two Regression analyses** to evaluate the impacts of the two regimes defined above on rental supply and rental prices. This was done by running panel data regressions, each of which incorporated the data from ten census metropolitan areas, five of which fall under rent control policies and five of which do not have a history of rent control.

The main findings were:

- New unit exemption regimes may lead to an increase in rental prices; and
- Tenancy deregulation regimes may lead to a decrease in rental supply. However, this result may not apply exclusively to tenancy deregulation but rather to the presence of rent controls more broadly.

The study included the consideration of the implications of the findings for two major CMHC housing initiatives -- the Rental Construction Financing Initiative (RCFI), which is designed to increase the supply of rental housing units, and the National Housing Co-Investment Fund (NHCIF), which is designed to reduce the prices of available rental housing units (i.e., increase the supply of “affordable” housing units).

The study findings noted above are not sufficiently robust to enable the development of major findings regarding the implications of rent control for these programs. However, it was possible to identify some types of rental markets within which these two initiatives might be most appropriately targeted:

- For RCFI, rent control markets, both those that contain new unit exemptions and those that do not; and
- For NHCIF, no rent control market, or in rent control markets regimes that include new unit exemption provisions.

These two points are not recommendations, just observations.

Résumé

L'objectif de cette étude était d'analyser les effets des politiques de contrôle des loyers dans les marchés locatifs. L'étude a analysé l'absence ou la présence de mécanismes de contrôle des loyers, ainsi que les caractéristiques particulières des politiques de contrôle des loyers. Parmi les principaux effets possibles des politiques de contrôle des loyers qui ont été relevés, mentionnons les répercussions sur l'offre de logements locatifs ainsi que sur les prix de ces logements.

Les caractéristiques particulières des politiques de contrôle des loyers sont appelées « régimes » dans la présente étude. Les deux régimes visés par l'étude étaient les suivants :

- la déréglementation de la location, qui permet aux propriétaires-bailleurs d'augmenter les loyers lorsqu'il y a rotation de locataires;
- l'exemption visant les logements neufs, qui soustrait les logements locatifs neufs du contrôle des loyers pendant une certaine période.

L'étude comportait trois séries d'analyses :

1) **Examen de la documentation** sur les effets du contrôle des loyers et sur l'historique du contrôle des loyers dans un certain nombre d'administrations canadiennes et deux administrations américaines. Les provinces canadiennes qui ont été étudiées le plus en détail sont l'Ontario, la Colombie-Britannique et le Manitoba.

   Outre les constatations concernant les forces et les faiblesses des politiques de contrôle des loyers dans les provinces et territoires examinés, les principales constatations de l'analyse documentaire sont les suivantes :

   - Le contrôle des loyers a généralement entraîné une réduction de l'offre de logements locatifs en raison des limites de loyers fixées et des effets qui en résultent sur l'évaluation des propriétés locatives.
   - Le contrôle des loyers parvient à faire baisser les prix des logements contrôlés. Les « logements contrôlés » sont les logements visés par la politique de contrôle des loyers. (Il est à noter que la plupart des marchés où l'on exerce un contrôle des loyers comportent aussi un grand nombre de logements non contrôlés pour diverses raisons, comme des exemptions spéciales.)

2) **Analyse statistique complète** des données sur le marché locatif, notamment ce qui suit :

   - Comparaison des marchés où l'on exerce un contrôle des loyers et des marchés non contrôlés;
   - Corrélations entre les mises en chantier de logements locatifs et les prix des logements locatifs, en tenant compte de variables pour les marchés contrôlés et les marchés non contrôlés;
   - Corrélations liées aux deux régimes de contrôle des loyers définis ci-dessus;
   - Différence à grande échelle entre les écarts des différents effets de la déréglementation de la location.

   Voici les principales constatations :

   - Il semble que les prix des logements locatifs sont plus sensibles aux variations de l'offre et de la demande dans les marchés où il n'y a pas de contrôle des loyers.

- Les prix des logements locatifs semblent plus susceptibles de varier lorsqu'ils sont assujettis à des politiques moins strictes de contrôle des loyers.
- Il n'existe pas de lien clair entre les mises en chantier de logements locatifs dans les marchés contrôlés et celles dans les marchés non contrôlés.

3) **Deux analyses de régression** ont permis d'évaluer les effets des deux régimes définis ci-dessus sur l'offre de logements locatifs et les prix des logements locatifs. Des régressions de données par panel ont été effectuées, chacune intégrant les données de dix régions métropolitaines de recensement, dont cinq étaient soumises à une politique de contrôle des loyers et cinq ne l'étaient pas.

   Voici les principales constatations :

   - Les régimes d'exemption pour les logements neufs entraînent une hausse des prix des logements locatifs.
   - Les régimes de déréglementation de la location pourraient faire baisser l'offre de logements locatifs. Toutefois, une telle diminution ne serait peut-être pas exclusivement attribuable à cette déréglementation, mais aussi à la présence accrue d'un contrôle des loyers.

L'étude a tenu compte des répercussions des constatations sur deux grandes initiatives de la SCHL en matière de logement : l'initiative Financement de la construction de logements locatifs (iFCLL), qui vise à accroître l'offre de logements locatifs, et le Fonds national de co-investissement pour le logement (FNCIL), qui vise à réduire les prix des logements locatifs disponibles (c'est-à-dire à accroître l'offre de logements « abordables »).

Les résultats susmentionnés ne sont pas suffisamment solides pour permettre de dégager des constatations importantes en ce qui concerne les effets du contrôle des loyers sur ces grandes initiatives. Toutefois, il a été possible de déterminer certains types de marchés locatifs où ces deux initiatives pourraient être mieux ciblées :

- Dans le cas de l'iFCLL, les marchés où l'on exerce un contrôle des loyers, tant ceux qui prévoient des exemptions pour les logements neufs que ceux qui n'en prévoient pas;
- Dans le cas du FNCIL, aucun marché où l'on exerce un contrôle des loyers, sinon un régime de contrôle des loyers comportant une exemption pour les logements neufs.

Ces deux points ne sont pas des recommandations, seulement des observations.

1 Introduction

1.1 Study purpose and rationale

The purpose of this study was to: *examine and compare rent control policies (including the absence or rollback of rent controls) in Canada's provinces and territories, how these measures have evolved over time, and what impact they may have had on rental housing markets in Canadian cities.*[1]

The rationale for carrying out the study was a follows:

> *There has been limited research by CMHC on the impact of rental control policies, or their absence, since the mid-1990s. Over the last two decades, there have been considerable changes in rent control legislation in provinces and territories, with different configurations of legislation and policy currently in place across Canada. Given the on-going debate in the media and among housing stakeholders on this issue, there is a need to further develop the evidence base on the impact of rental control measures (including different configurations), or their absence, on rental supply and rental affordability [prices] in Canadian cities.*[2]

The Statement of Work goes on to note that this research is important and timely in view of major planned federal government rental supply initiatives.[3]

Note the term "different configurations" in the study rationale paragraph quoted above. This is not just a study of the impacts of rent controls versus no rent controls. Any given rent control policy is made up of a number of different "configurations," or "parameters," otherwise known as "regimes." For example:

- A rent control policy may include "new unit exemptions." New unit exemptions allow for rents for newly built units to be set at prices outside of rent control restrictions for a certain period of time.
- A rent control policy may allow for "tenancy deregulation." Tenancy deregulation allows the landlord to re-set the rent for a unit at what he/she deems to be the market price at the time the tenancy of the unit turns over.

We have used the term "regime" in this study to describe these elements of rent control policies, and much of this study deals with analyzing the effects of different regimes.

1.2 Study phases

This study was carried out from August, 2019, through March, 2020. It consisted of three phases.

Phase 1: Literature review

The two main parts of the literature review were:

(1) Analyses of the evolution of rent control policies and regimes in various jurisdictions, which included:

- Detailed analyses of rent control policies in Ontario, British Columbia, and Manitoba;
- An overview of rent control policies in Quebec and Atlantic Canada; and
- A review of rent control policies in two US cities for comparative purposes – San Francisco and Cambridge, Mass.[4]

(2) Review of the literature on the advantages and disadvantages of rent control policies and regimes.

Phase 2: Analytical Framework. Development of an analytical framework for analyzing the impacts of rent controls and regimes on rental supply and prices.

The analytical framework consisted of two parts:

(1) A methodology for the analysis of summary statistics in order to develop a holistic understanding of how key variables are correlated, and

(2) A statistical regression analysis in order to evaluate the impact of different rent control regimes on rental supply and prices.

Phase 3: Analysis. Application of the analytical framework and reporting.

2 Results of the Literature Review

The full literature review report is contained Appendix A.

2.1 The history of rent controls

The scope of this assignment included a high level assessment of the available rent control literature and data. Rent controls have been used in North America since the end of World War II. A large wartime population moved to concentrated, industrial regions, causing rental prices to increase because rental supply was not able to adjust fast enough. As the increased demand dissipated, rent controls were largely abandoned. It was not until the oil crisis in the 1970s, which led to record inflation across a variety of consumer prices, that rent control was again introduced as a policy instrument. Although each municipality, province, or nation has its own unique rent control policy structure, the policies have evolved through three "generations" (Arnott 1995, Arnott 2003):

- **First Generation: Stringent Rent Control (1920 – 1980s)**

  The first generation was the strictest form of rent control: rental freeze. Many regions imposed strict guidelines that prevented further rent increases beyond a specified level. This type of rent control was intended to prevent unwarranted increases in price and to protect the renter. As a blanket price freeze, landlords chose to leave the market and invest in alternate investment vehicles. This constrained rental supply, causing the market equilibrium to distort.

  Landlords that continued to operate in the market had no incentive to maintain or improve properties, as they were unable to earn back their capital expenses by passing on the cost of the improvements to the renter. Conversely, renters elected to continue to occupy rental units that were degrading in quality, and tenancies extended their stays beyond a normal length as tenants had limited options outside of their current apartment.

- **Second Generation: Rental Regulations (1970s/1980s – present)**

  The second generation of rent controls attempted to address some of the immediate issues identified by the first generation: landlords needed an incentive to continue to operate in the market and to be able to incur capital expenses for the maintenance and improvement of their properties. Therefore, the second generation of rent controls saw a variety of policies that introduced greater flexibility surrounding rental increases. This included the following adaptations (regimes):

  1) **Cost pass-through**

     Cost pass-through exceptions allowed landlords to pass-through increases in their operating costs to the renter (Arnott 1995). Although administratively burdensome, the landlord was no longer at a disadvantage if the utilities, taxes, or other management costs increased dramatically. In certain permutations, these costs included capital expenses, renovations, and maintenance. This way if a landlord chose to rehabilitate their unit, they were able to amortize this cost and pass it through to their tenant through rental increases. The cost pass-through approach was applied in a variety of manners, and its success was contingent on how wide the definition of operating costs was in the policy – if the definition of what qualified as a pass-through cost was strict, the regime operated similarly to a rent freeze.

2) **Hardship allowance and rate of return provisions**

The hardship allowance permitted landlords to increase rent if they could show they were facing cash-flow problems. The intent of these policies was to prevent landlord exits from the market in lieu of losing cash on the property. Similarly, if a landlord could show that he/she was earning a rate of return that was below a reasonable amount, he/she was allowed discretionary increases. (Arnott 1995)

3) **Inflation benchmark**

This policy approach provides a guideline to the landlords, within which they are permitted to increase rent. In most cases the guideline is based off the consumer price index ("CPI"), or another inflation metric provided by the government. (Arnott 1995, Arnott 2003) Rental increases can only be up to the level dictated by the guideline; landlords are permitted to charge below the benchmark.

4) **New unit exemptions**

Second generation rent controls also introduced regimes is to exempt newly-constructed units. The intention was to make sure that investors continue to build rental units, in order to prevent a decrease in supply that was seen under first generation rent controls. These exemptions can range in duration; for example, a newly built unit would be exempt from rent control rules for five years after it was built. Ideally, the exemption duration would be a long enough time frame, that the expectation for future rent controls would not impact the expected return associated with building the new unit. (Arnott 1995)

5) **Tenancy Deregulation**

Tenancy deregulation commits the landlord to maintaining rent within certain guidelines (such as inflation or cost pass-through) during the duration of their tenancy. At the time that the tenancy turns over, the landlord is allowed to set rent at whatever he/she deems to be market price. This allows the market to temporarily reset to market equilibrium price at each tenancy turnover. (Arnott 1995)

Several terms are used in the literature for the opposite of tenancy deregulation – i.e., rent increases are not allowed between tenancies. We use "tenancy regulation.")

6) **Rent level decontrol**

This policy qualifies a property for rent control based upon the level of rent charged. It allows two markets to exist, a luxury market where rents can be set at market price, and a common market where rents are controlled by the legislation.

- **Third generation: Widespread Adoption of Tenancy Deregulation (1970s/80s – present)**

This "generation" reflected the widespread adoption of a specific regime that was part of some second generation rent control policies, tenancy deregulation. Although variations in rent control continue to exist in line with the regimes outlined above, the majority of rent control policies tend to allow for a decontrol in between tenancies.

2.2 History of rent controls in various jurisdictions

2.2.1 The main Canadian jurisdictions studied

The detailed histories of rent control policies in Ontario, British Columbia, and Manitoba are described in Appendix A. The time periods of the main regimes that made up these policies are shown in the tables below.

Summary of main rent control regimes in Ontario (simplified)

Regime	Years applied
No rent control	Until 1975
Frequency of rent increases limited to annually	1992–present
Guidelines restricting the amount of rent increases: • 1992-2006 – a formula based on operating expenses and capital expenses • 2006-present –inflation (Ontario CPI)	1992-present
Exemption for newly built units (with the exception of one year during this period)	1992-present
Tenancy regulation	1985-1998
Tenancy deregulation	1998-present

Summary of main rent control regimes in British Columbia (simplified)

Regime	Years applied
No Rent Control	1983-1994
Frequency of rent increases limited to annually	1974-1983 and 1994-present
Guidelines restricting the amount of rent increases: • 1974-1983 – a formula based on the property, with some exemptions beginning in 1977 • 1983-1994 – N/A (no rent control during this period) • 1994-2001 – No official guidelines but heavy paperwork • 2002–present – Inflation Metric	See column 1
Arbitration	1980-1982; 1994-2001
Exemption for newly built units	1974-1980
Tenancy deregulation	2002-present

Summary of main rent control regimes in Manitoba (simplified)

Regime	Years applied
Rent control policies, but with a number of exemptions and a period of no rent control	1976-1982
Frequency of rent increases limited to annually (There were some limitations from 1976 to 1982, but these were applied inconsistently)	1982-present
Guidelines restricting the amount of rent increases: • 1983-2000 – 1% • 2000-present – loosely correlated with inflation	1983-present
Exemption for newly built units	1976-present
Tenancy regulation	1976-1980
Arbitration	1980-1982
Tenancy deregulation	1983-present (with limitations)

2.2.2 Other jurisdictions reviewed

Quebec

Quebec has no history of formal rental or tenancy price regulation. Since 1980, however, the province has had the Régie du logement, or the Quebec Rental Board. The Board is a specialized tribunal which has a legislative mandate to regulate residential lease matters. The board publishes guidance every year on suggested rent increases but these are not legally binding. This body does have the power, however, to issue binding orders for rent increases when landlords and tenants cannot reach an agreement. In this arbitration process the board assesses what large capital expenses the landlord may have initiated, utility prices, market conditions, and CPI. The Board was given this legal power in 1996 and has it to the current day. Buildings which are younger than 5 years old are exempt from these regulations.

Atlantic Canada

Atlantic Canada's rent control policies are relatively more lenient than the rest of the country. Three of the four Atlantic Provinces, Nova Scotia, New Brunswick, and Newfoundland and Labrador, do not have any restrictions on the increase in rent for typical residential properties, although prior to 1993 Nova Scotia had a rent control policy; similarly, New Brunswick had a rent control policy until 1985. These provinces do have many of the regulations other provinces have in place like, restriction on number of times landlords can increase rent, caps on the amount of deposits, rent increase notice regulations.

Prince Edward Island does have established rent control. Rental price freeze existed until January 1, 1976. After this, rent increases were limited to a prescribed percentage to be set out each year by regulation. A tenant could dispute the increase and require a landlord to apply to justify an annual increase. The province has allowable rent increases. This rate of increase each year is determined by Island Regulatory and Appeals Commission (IRAC). The increase is calculated using submissions from tenants, landlords, and other members of the public. This method is paired with CPI guidance as well. Landlords are allowed to increase rent beyond the allowable increase for renovations or high capital expenditures but most go through an appeals process in the IRAC.

San Francisco

Rent control was introduced in San Francisco in 1979. Initially, rental increases were capped at a flat seven percent until 1984 when this was changed to four percent. In 1992, this rule was changed to be tied to a consumer price index, and the guideline was set at 60 percent of CPI, which is how the policy stands today. There have been various changes over time regarding the types of buildings that are subject to rent control.

Landlords are able to increase the rent beyond the standard CPI measure through capital improvements or operating and maintenance rent increases. In either case the rent increase must be approved by the San Francisco Rent Board, with the increase being capped depending on the building type.

In 2019 a statewide rent control scheme was enacted. The law limits rent hikes to five percent per year plus local CPI. The rent control laws for San Francisco are more stringent, making this legislation redundant.

Cambridge

In 1970, Massachusetts permitted municipalities and towns with populations of 50,000 or larger to apply their own local rent control policies. Cambridge established a maximum allowable rent for each controlled property, which targeted fixing the net operating income earned by landlords. Oversight of the application of the policy was overseen by the Cambridge Rent Control Board. As the 1970s and 1980s progressed, the Board authorized increases in rent ranging from 1.15 percent to 3.1 percent; these increases were intended to cover price increases in key housing inputs such as heating, property taxes, and related operation activities. Landlords were allowed to request permission to exceed the guideline in special circumstances, particularly if needed to cover capital investment in the property. Within the Cambridge rent control policy, there was no tenancy deregulation. As a result, landlords were incentivized to remove units from the rental stock and convert them into an investment property that would garner them a longer return. This led to the "Removal Permit Ordinance" which restricted removal of rental units from the market, unless a reasonable argument could be shown that the unit's removal did not adversely affect the market. In 1994, the abolition of rent control was placed on a statewide ballot. Receiving a narrow margin, rent control was removed across the state, with certain short-term extensions.

2.3 Advantages and disadvantages of rent control

Overview

- Impact on supply – Rent control is predominately viewed as decreasing the supply of rental units, because rent control decreases the value of the units, making them unattractive to investors. This was particularly true in the first generation of rent control: price freezes.
- Impact on prices – The raison d'etre of rent control is to keep prices down, and some of the literature and empirical examples suggest that it successfully does that for rent controlled properties (see below). However, when analyzing the rental market in aggregate (i.e., including both uncontrolled units and rent controlled units), average rental prices in the market may not be lower. For example, a very rigorous study commissioned by CMHC found that there was no convincing evidence that rent regulations have significant effects on rents. (Denton et al, 1993).

Almost all modern rent control policies (i.e., post-first generation) contain regimes intended to limit the market distortions of rent controls, such as tenancy deregulation and new unit exemptions. As a result, the literature provides little convincing evidence of the impacts of modern rent control policies on either supply or prices.

The sub-sections that follow summarize some of the impacts of second and third generation rent controls that have occurred in certain situations.

Examples of some of the impacts of rent controls

Impact on prices – Rent control can be successful at lowering prices for controlled properties. For example:

- In Vancouver, controlled and uncontrolled markets had statistically significant differences in price indices. (Marks 1984)
- In Cambridge, controlled units rented between 25 to 40 percent below the price of nearby uncontrolled properties. (Sims 2007).

The confounding factor is that most rent control markets in recent years also contain a significant number of uncontrolled units for various reasons (e.g., special exemptions). These units can be priced substantially higher than units protected by rent control, leading to results such as quoted above from the CMHC study.

Impact on supply – As noted above, rent control is generally viewed as having reduced rental supply as a result of the limits on rent prices (and also the resulting effects on rental property valuations). Some examples:

- San Francisco properties had a higher probability of converting to condominiums if they qualified for rent control. This led to a change in the market composition as high end condominiums replaced rental properties. (Diamond, McQuade, Qian 2019).
- In Toronto, in response to the Rental Fairness Act of 2017, investments originally intended for building purpose-built rentals were being used to build condominiums instead. (Carapetian 2019) This led to decreased investment in building new rentals. (Ruddy 2018)
- Following rent decontrol in Cambridge, units available as rental property increased six percent. (Sims 2007)

Security of tenure – This is generally increased by rent control policies, since the knowledge that prices are controlled enables tenants to feel secure about future price increases, and also because many rent control policies include regulations that protect tenants from wrongful eviction.

Maintenance and rehabilitation – If the rent control policy in place is very strict, landlords are not incentivized to pursue maintenance or rehabilitation during a tenancy. This is because landlords cannot recoup their costs until they are able to raise rent again for the next tenant. It is often found that units in rent control are in a worse state than units that are not found in rent control. For example, in Cambridge chronic maintenance issues were more prevalent in controlled units as opposed to uncontrolled units. (Sims 2007)

Comments on specific regimes

- **Tenancy regulation –** Tenancy regulation (increases in rents not allowed between tenancies) can lead to a large discrepancy between the market equilibrium price for rent and the rental price charged under rent control. Most importantly, a policy that controls rent at the beginning of a new lease will likely not allow landlords to make a sufficient business return. (Whitehead and Williams 2018) This leads to a constrained supply, as units are removed from the market, and investors choose to pursue other assets.
- **Tenancy deregulation –** Each of the markets studied except Cambridge has tenancy deregulation. As discussed above, tenancy deregulation allows for the rental price to correct to the market price in between tenancies. (Diamond, McQuade, Qian 2019)
- **Rent increase guidelines –** Each of the markets studied provides rent increase guidelines that constrain annual rent increases. These are usually based on the rate of inflation (see tables above), most commonly the CPI, even though the CPI is not based on housing-specific inputs.

- **Ability to exceed guidelines –** Each rent control policy studied allows the landlord to exceed the guidelines in certain circumstances – e.g., higher operating costs or capital expenditures.
- **Exemptions –** Many rent control policies allows for exceptions for certain buildings, such as new buildings. Manitoba also has exemptions related to units that have a monthly cost of rent above a certain amount – i.e., an exemption for luxury apartments.

2.4 Summary of strengths and weaknesses of the rent control policies studied

The following table summarizes the identified strengths and weaknesses of the five rent control policies studied in detail. Comments have been provided based on the analysis and comparison of rent control policies and potential impacts only.

Strengths and Weaknesses of Rent Control Policies Reviewed			
	Strengths	**Weaknesses**	**Comments**
British Columbia	• Tenancy deregulation	• Inefficient administration of filings for rent increases	• Lack of new unit exemptions may limit supply
Manitoba	• Tenancy deregulation • Ability to exceed rental guidelines	• Limitation on tenancy deregulation	• Exemptions may help incentivize supply
Ontario	• Tenancy deregulation • Long-term exemptions	• Frequency of Policy Changes	• Frequent policy changes create an environment of uncertainty, which can negatively impact rental unit supply and value
Cambridge	• Guidelines based on housing market factors • Long-term exemptions	• Tenancy regulation	• Tenancy regulation limits supply and decreases the value of the rental unit
San Francisco	• Tenancy deregulation • Long-term exemptions	• Very restrictive guidelines	• Restrictive guidelines may lead to a rental policy that operates more like rental freeze

2.5 Overall findings from the literature review

The rent control literature tends to highlight some of the potential negative aspects of rent control, or, in some cases, the inconclusive impacts of rent control policies. Additional time, improved data, and variation in policies will allow researchers to have a better grasp of how rent control affects the economy. The common features adopted by various regions illustrate how the compromises between tenants and landlords have evolved over time.

3 Results of the Statistical Analysis

The full statistical analysis report is contained Appendix B.

3.1 Introduction

The purposes of the statistical analysis to provide a holistic understanding of the rental market and how certain variables are related. The analysis focuses on three key census metropolitan areas (CMAs) in Canada that have experienced rent control – Vancouver, Toronto, and Winnipeg. Montreal, which has experienced a limited form of rent control, will also be used in a number of the analyses. Two CMAs that have not experienced rent control will be used for comparisons – Calgary and Halifax.

The following table lists these six CMAs, along with three smaller CMAs (italicized) that are used in one analysis.

Rent Control Markets	No Rent Control Markets
Vancouver	Calgary
Toronto	Halifax[5]
Winnipeg	*St. John's*[6]
Montreal (guidance)	
Ottawa	
Victoria	

[5] Halifax had rent control until 1993; this was considered in the analysis.
[6] St. John's has limitations on frequency of rental price increases to one per year
.

The three CMAs used in the main analyses have implemented many of the same rent control policies and regimes over time, as shown below.

Sections 3.2 through 3.5 provide summary statistics for the main variables of interest, rental prices and rental starts, over the entire data period unless otherwise noted. The key variables used in these analyses are:

- **Rental price index (RPI) –** an index reflecting the cost to rent;
- **Deflated RPI –** RPI divided by the consumer price index of the CMA;
- **Rental starts** – the number of new rental construction projects that began during the data period;
- **Construction cost index (CCI) –** an index reflecting the cost of inputs into building housing units; and
- **Price to rent ratio** – an index reflecting the cost to own a housing unit divided by the cost to rent a comparable rental unit.

3.1.1 Limitations

An important limitation of this analysis is that there can be vast economic differences between all of the cities being considered in this analysis. This can vary from their most basic industrial economic structure, to varying nuances associated with the region (i.e., the increase in foreign investment in real estate in both Toronto and Vancouver that was not seen at equivalent levels in Winnipeg), to varying provincial policy . Ideally, the analysis would involve a natural experiment. This could be two cities, in the same province, located in geographically comparable regions. One of the cities would have rent control, while the other would not.

An additional limitation to note when interpreting the results of the analysis is that the rent price index includes both units under rent control and those not under rent control. Therefore, in a region where there may be more uncontrolled units, the rental price index will not necessarily reflect the behaviour of prices in controlled units.

3.2 Direct comparisons of rent control and no rent control markets

The table below shows the average of the annual changes in the deflated rental price index for the two no rent control CMAs and the four rent control CMAs.

CMA	Rent control?	Average annual change in deflated RPI
Calgary	No	-1.1%
Halifax	No	-1.28%
Vancouver	Yes	-0.97%
Toronto	Yes	-1.08%
Winnipeg	Yes	-0.84%
Montreal	Yes	-1.05%

As can be seen, deflated rental prices fell more, on an annual average, in the no rent control CMAs than in the rent control CMAs, although some of the differences are small. This is contrary to expectations; however, given the extended time period of reference, this result can be explained by the volatile housing market.

The table below shows the average of the annual changes in the number of rental starts per 100,000 population for the two no rent control CMAs and the four rent control CMAs.[7]

CMA	Rent control?	Average annual change in rental starts per 100K population
Calgary	No	9
Halifax	No	92
Vancouver	Yes	35
Toronto	Yes	14
Winnipeg	Yes	46
Montreal	Yes	37

Aside from Halifax, which is an outlier in many of these analyses (see Appendix B), rental starts were larger in the rent control markets, which is contrary to expectations. In order to account for any bias related to the fact that Toronto, Vancouver, and Montreal are major business centres, we introduced smaller cities (Victoria, Ottawa, and St. John's) into the analysis in order to assess whether rental starts continued to be larger in rent control markets. Rental starts in Victoria and Ottawa (rent control markets) were comparable to starts in Calgary and St. John's (no rent control markets). Based on this analysis, it appears the impact of rent control on rental starts is inconclusive.

We performed a supplementary analysis comparing rental prices and ownership prices using the price to rent ratio. Calculating the price to rent ratio over time throughout the study period (1971 to 2019) showed that increases in housing prices have been matched by consistent increases in rental prices. We determined that the presence of rent controls appears to have had a limited effect on the movement of rental unit prices relative to housing prices. This is contrary to expectations, particularly for Toronto and Vancouver, which experienced dramatic increases in housing prices in recent years. This contrary result may be explained by the fact that both uncontrolled and controlled rental units are included in the rental price index.

3.3 Correlations between market variables and rental price/supply in rent control and no rent control markets

Observing correlations between variables can provide a bird's eye view of the relationships between variables in certain markets. Different variable relationships in different markets can provide insight into how market fundamentals may foundationally differ as a result of certain government policies. Generally speaking, there are variables that would be expected to be related to one another in a certain way based upon economic principles. For example, if the vacancy rate decreases, it would be expected that in two years the supply of units would increase in order to account for increased demand. Of course, the relationships between variables are often less obvious.

In the analysis that follows we focused on the correlation between the key variables, rental price index and rental starts, with their market supply and demand variables.[8] We included two year lags of some of the variables in order to see if the relationship changed when considering the variables' ability to "predict" the movement of rental price and rental starts.

It should be emphasized that explanations for the behavior of these variables could be a result of market conditions or government policy that we cannot quantify. It is important to consider this when interpreting outputs from the report and to not assume that the correlations that can be drawn from the analyses necessarily imply causations.

The first table below shows the correlations between rental starts and prices and 10 variables that are expected to influence rental supply and demand in markets not under rent control. The second table shows the same sets of correlations for markets under rent control

Correlation: Markets not under Rent Control		
Variables	**Rental Starts**	**RPI**
Rental Starts	1.00	
RPI	-0.04	1.00
Vacancy Rates	0.02	0.07
Immigration	0.02	0.23
Population	-0.38	0.32
CCI	-0.05	0.56
Deflated RPI	0.03	0.22
RPI, 2 year lag	-0.04	-0.07
Immigration, 2 year lag	-0.01	0.01
Population, 2 year lag	-0.38	0.09
CCI, 2 year lag	-0.07	0.03
Vacancy Rates, 2 year lag	-0.06	-0.40

Correlation: Markets under Rent Control		
Variables	**Rental Starts**	**RPI**
Rental Starts	1.00	
RPI	0.08	1.00
Vacancy Rates	-0.03	0.10
Immigration	-0.01	-0.03
Population	-0.33	0.16
CCI	0.06	0.01
Deflated RPI	-0.02	0.24
RPI, 2 year lag	-0.01	0.02
Immigration, 2 year lag	0.01	0.06
Population, 2 year lag	-0.38	0.00
CCI, 2 year lag	-0.06	0.02
Vacancy Rates, 2 year lag	-0.07	-0.28

The majority of the correlations between the rental price index and the market variables show expected signs in the markets not under rent control – i.e., variables that would be expected to track closely with rental price (e.g., vacancy rates, construction cost index, population) have a higher magnitude of correlation in the first table than the second table. This suggests that prices in markets that are not under rent control are better able to adapt to market forces.

The magnitude and direction of correlation appears to be about the same between market indicators and rental supply in both rent control markets and markets not under rent control. Therefore, we are unable to conclude that there is a relationship between how rent control measures influence rental starts.

3.4 Correlations between market variables and rental price and supply under different rent control regimes

In order to understand if there are unique relationships between the market variables and rental starts and prices particular to regimes we analyzed the correlations under four different rental regimes:

1. Tenancy regulation;
2. Tenancy deregulation;
3. New unit exemption; and
4. No new unit exemptions.

The correlation tables are contained in Appendix B. The results are as follows:

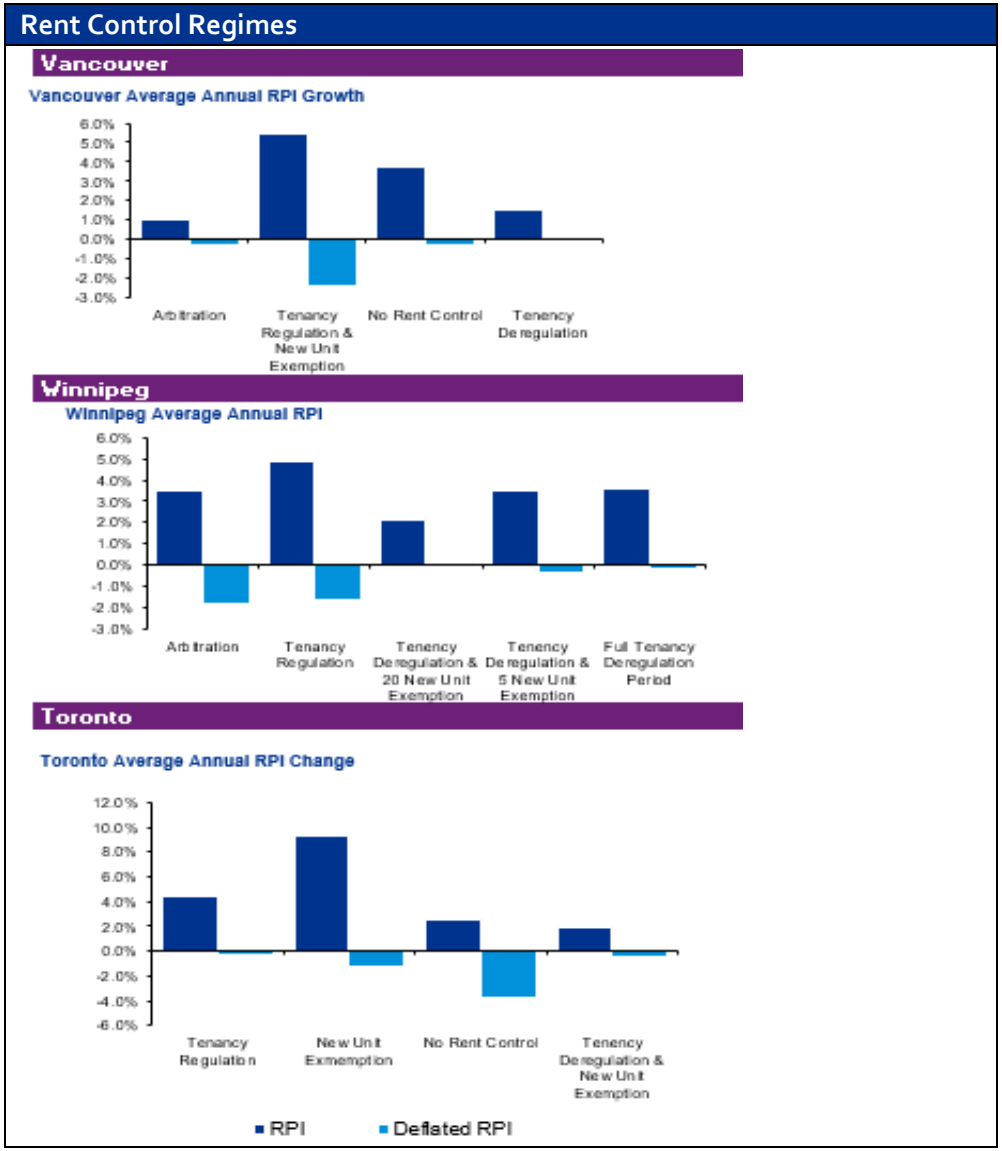
- Tenancy regulation vs deregulation:
  - The supply and demand variables are more highly correlated with rental starts under tenancy regulation than deregulation. This is contrary to expectations since tenancy regulation is a stricter form of rent control, and tenancy deregulation was introduced to allow supply to adjust to market forces.
  - The supply and demand variables are more highly correlated with rental price under tenancy regulation than deregulation. This is also contrary to expectations for the same reasons as listed above.
  - This could be because the time frame under which tenancy regulation was applied was brief and significantly volatile (late 1970s and 1980s). The period of tenancy deregulation has been much longer, introducing many additional confounding factors.
- New unit exemption vs no new unit exemption:
  - In markets with new unit exemptions, the rental supply market is not as highly correlated with factors that would influence supply than in markets with no new unit exemption. This is contrary to expectations, since new unit exemption rules would be expected to help mitigate some of the negative effects that rent control has on the supply of rental units.
  - In general in both regimes prices are comparably correlated with the supply and demand variables. The magnitude of the correlations with demand inputs is slightly higher in regimes with new unit exemptions, which is as expected.

3.5 Dependent variable (price and supply) behavior across regimes within CMAs

Although the analyses above provide a holistic view of how the markets operate within the four basic regimes, we can look at the annualized rental price growth during each specific rental regime within each of the rent control markets. Although underlying market forces can change over time and can influence both rental prices and rental starts, focusing on differences between the regimes within a CMA controls for geographic differences.

Analysis of rental prices within CMAs by regime

The following bar charts show the average annual growth in both the RPI and the deflated RPI during each regime.



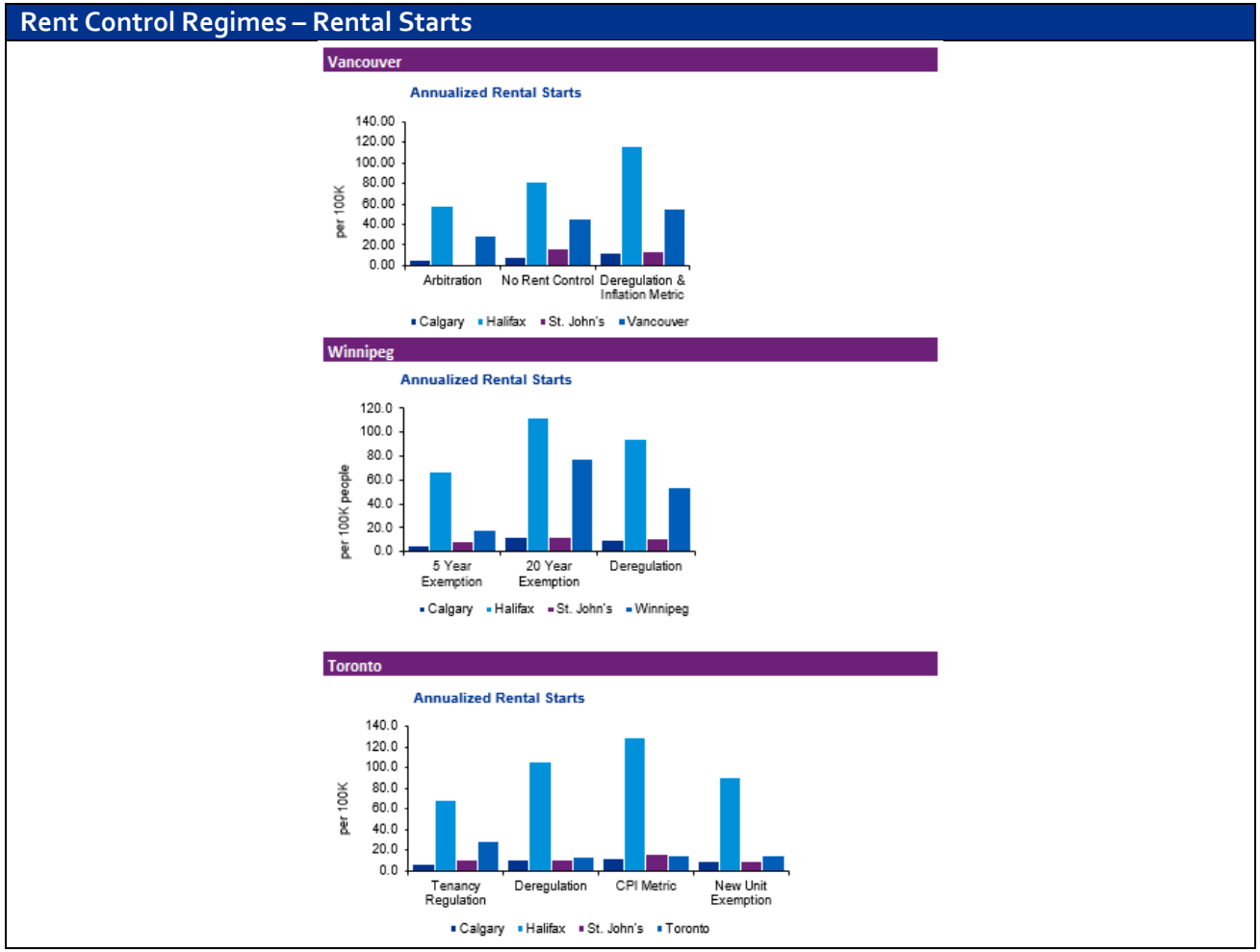
The deflated RPI does not illustrate many clear trends across regimes, except that tenancy deregulation shows the smallest contraction of all the regimes across all three CMAs (except for tenancy regulation in Toronto). This indicates that tenancy deregulation allows the true price of the rental market to adjust to supply and demand.

In summary, however, there do not appear to be consistencies of market behavior in prices across regimes.

Although not shown in the bar charts above, the standard deviation of RPI is higher in the less regulated regimes; this is consistent with theory.

Analysis of rental supply within CMA by regime

The charts below show a similar analysis for rental starts. The rental start data begins close to 1990; therefore, we are limited in the rental regimes we can compare.



The surge in annualized rental starts in Winnipeg during the new unit exemption regime supports the theory that new unit exemptions make the rental supply market more attractive.

The charts for Vancouver provide little insight, with the No Rent Control period introducing fewer starts than Deregulation. This could be a result of the increased demand and population in Vancouver in later years of the Deregulation period. Similarly, within Toronto's market we see the largest rental starts in a period of Tenancy Regulation, which is contrary to expectations.

3.6 Difference-in-differences analysis

A difference-in-difference analysis looks at the average of an economic indicator prior to a policy change, and then looks at the average of the economic indicator after the policy change. This is done both in markets where the policy change occurred (the treatment) and markets where the policy change did not occur (the control). The difference between the before and after period is calculated for both markets, and the difference between these two differences is then attributed to the policy change.

Our difference in differences analyses focused on the effects of one regime change on rental prices, the implementation of tenancy deregulation. We performed three analyses, one each for Toronto, Vancouver, and Winnipeg as the treatment, and with Montreal as the control for each of these. The analyses are summarized in the following table, in which each column represents one analysis.

Difference-in-Difference Analysis			
	Toronto	**Vancouver**	**Winnipeg**
Before Treatment	1985 to 1998	1994-2002	1976-1982
After Treatment	1998 to present	2003 to present	1983 to present
Comparable CMA	Montreal	Montreal	Montreal

The results were as follows.

- **Vancouver:** The analysis indicates that the introduction of tenancy deregulation limited rental price increases. Given our control, this could be both contrary or in line with expectations. This is in line with expectations if we assume that Quebec's arbitration effectively operates closer to no rent control. In this circumstance, we would expect that any type of rent control regime (even a very flexible rent control) would still decrease rental prices. However, this is contrary to expectations if we expect that arbitration acts more like a strict rent control.

  Analysis over the before-treatment period and after-treatment period (and the control CMA) indicates that the introduction of tenancy deregulation had effectively no difference in the increase in average annual rental price index, although it limited the average annual rental price change by 0.01 percent below what it would have been without tenancy deregulation. Analysis over a shorter time period (five years prior to treatment and post treatment) indicates the same effect – the introduction of tenancy deregulation limited the increase in the average annual rental price index by 1.6 points below what it would have been with arbitration, or a stricter rent control.

- **Toronto:** Both analyses showed the same results as Vancouver, the introduction of tenancy deregulation had an impact on limiting the increase in the average annual rental price index below what it would have been with no rent control. Assuming that Montréal's market operates similar to no rent control, this result would be in line with expectations.
- **Winnipeg:** The difference in difference result using the period of 10 years shows the same results as Vancouver; tenancy deregulation kept rental prices lower than in an arbitration market. Again, the interpretation of whether this is contrary or consistent with expectations depends on assumptions regarding the operation of the Montreal market.

3.7 Overall findings from the statistical analysis

1. Rental prices appear to be better able to respond to market supply and demand changes in markets without rent control;
2. Rental prices appear to be more likely to vary in rent control regimes that are less strict; and
3. It is unclear if there is a relationship between rental starts in rent control markets and no rent control markets.

4 Results of the Regression Analysis

The full regression analysis report is included in Appendix C.

The purpose of the regression analyses was to evaluate the impacts of two key rental supply regimes – tenancy deregulation and new unit exemption – on rental supply and rental prices. This was done by running panel data regressions, each of which incorporated the data from ten CMAs, five of which fall under rent control policies and five of which do not have a history of rent control.

The independent variables were as follows:

Market-related variables	Regime variables
Income level and growth	Tenancy regulation
Population level and growth	Tenancy deregulation
Unemployment rate	New unit exemption
Construction cost index	
CPI	
Mortgage rate	
Interest rate	

Two regressions were run – one with the rental price index as the dependent variable and the other with rental starts normalized by provincial population as the dependent variable.

The regressions had the following structure:

$$Y_{it} = \beta X_{it} + + \sum \alpha_i + \sum \gamma \times D_{Year} + u_{it}$$

$$where \quad Y_{it}\ is\ the\ dependent\ variable\ (price\ or\ rental\ starts)\ \ for\ city\ i\ at\ time\ t$$

$$X_{it}\ are\ Independent\ Variables\ for\ city\ i\ at\ time\ t$$

$$\beta\ is\ the\ coefficient\ for\ the\ Independent\ Variables$$

$$\alpha_i\ is\ a\ coefficient\ for\ the\ city\ dummy\ variables$$

$$D_{Year}\ is\ a\ binary\ variable\ for\ n-1\ years\ in\ the\ sample$$

$$\gamma\ is\ a\ coefficient\ for\ the\ year\ dummy\ variables$$

$$u_{it}\ is\ the\ error\ term$$

See Appendix C for a discussion of the statistical tests used to provide information regarding standard error adjustments to improve the estimations, as well as the tests used to check on possible errors resulting from the regression.

To determine the specification for the rental price regression we leveraged insights about variables used in the literature to determine our regression specification. In addition, we supplemented our base choice of indicators with knowledge about market and demand factors in order to determine and assess lags. Lags of no longer than one year were included in the price regression since prices are relatively elastic to demand and supply. Determining the specification of the regression was an iterative process, involving assessing whether key market variables (i.e., increase in CPI led to an increase in RPI) were statistically significant in the expected direction of influence.

Data within the regression was truncated to 1981–2018 because CCI data was not populated until 1981.

The same procedure was used to determine the specification for the rental supply regression. In this case lags of two years were included in the regression to account for the inelasticity and frictions present in the rental supply markets.

Data within this regression was truncated to 1988-2018 because rental start data was not populated until 1988.

4.1 Results

The results of the regressions are shown below. The null hypothesis is that the coefficient is statistically significant than zero. In the table that follows, statistical significance is indicated by stars. If there are stars, it indicates that the coefficient is statistically different than zero with some level of certainty. The summary table below summarizes the significance.

Statistical Significance Legend	
Stars	**Statistical Significance**
*	10 percent
**	5 percent
***	1 percent

Regression Output		
	Dependent Variable: Natural log Rental Price Index	Dependent Variable: Natural log Rental Starts per Capita (provincial)
	b/se	b/se
CPI, natural log	0.574***	
	-0.05	
Annual Population Growth (12 month lag)	2.005***	20.250*
	-0.43	-9.91
Annual Population Growth	-0.121	
	-0.37	
Average Income Growth	-0.087	
	-0.06	
Average Income Growth, (12 month lag)	-0.036	
	-0.06	
Mortgage rate, natural log (6 month lag)	-0.015**	-0.977*
	-0.01	-0.47
Construction Cost Index, natural log (12 month lag)	0.324***	
	-0.02	
Unemployment Rate, natural log (12 month lag)		-0.084
		-0.34
Unemployment Rate, natural log (24 month lag)		-0.841**
		-0.32
Average Income, natural log (12 month lag)		-2.383*
		-0.93
Average Income Growth (12 month lag)		2.244
		-2.07
Population, natural log (12 month lag)		1.194*
		-0.51
GDP Growth		8.29
		-4.61
GDP Growth, 12 month lag		13.858**

Regression Output		
	Dependent Variable: Natural log Rental Price Index	Dependent Variable: Natural log Rental Starts per Capita (provincial)
	b/se	b/se
		-5.05
Constant	**0.533***	**11.012**
	-0.26	-12.78
Tenancy Regulation	**0.003**	**0.491**
	-0.01	-0.25
Tenancy Deregulation	**0.001**	**-0.453***
	0	-0.2
New Unit Exemption	**0.031*****	**0.200**
	0	-0.25

Rental prices

- CPI, CCI, and population growth all have expected positive relationships with rental prices. The only unexpected relationship with the market variables is that an increase in mortgage rates leads to a decrease in rental prices (possibly because increased mortgage rates are generally correlated with increased demand to purchase housing units, which would lead to decreased demand for rental units and, therefore, lower prices).
- Regarding relationships with regime variables, the new unit exemption indicator has a significant positive coefficient. The most likely explanation is that new unit exemptions lead to an increase in the number of uncontrolled units in the rental price index, which would cause the average rental price in the index to increase, since these units are not subject to rent controls. The coefficients on tenancy deregulation and regulation are statistically insignificant, so the regression does not indicate whether these regimes have an influence on rental prices.

Rental starts:

- Population growth and gross domestic product growth all have positive relationships with rental starts. Both of these would be expected to lead to an increase in demand. Unemployment growth has a negative relationship with rental starts. The most likely explanation is that a high unemployment rate is generally correlated with a depressed economy and, therefore, lower construction activity. An increase in mortgage rates leads to a decrease in rental starts. This is expected as the cost of investing in a rental unit increases with an increase in mortgage rates. An increase in population income leads to a decrease in rental starts; the explanation for this could be substitution effects. As the population becomes wealthier, people may elect to purchase a condo unit, rather than stay within a rental unit.
- Regarding relationships with regime variables, the tenancy deregulation indicator has a significant negative coefficient. This is consistent with the theory that rent control policies tend to dissuade supply since the investment return is limited by the policy. It is important to note that as a result of limited supply data, the regression is considering years that were predominately under tenancy deregulation, therefore, this coefficient may be capturing the how rent controls, in general, may have a negative influence on supply. In other words, this may not be a specific nuance to tenancy deregulation.

4.2 Overall findings from the regressions analyses

The regressions analyses provided some evidence that two regime indicators have the expected results:

- New unit exemption regimes lead to an increase in rental prices; and
- Rent control may lead to a decrease in rental supply.

5 Overall Study Findings

1. There is no conclusive evidence that rent controls lead to supply constraints. However, some of the analyses provide indicators that rent control may limit supply.
2. There is no conclusive evidence that rent controls per se lead to lower rental prices. However, some of the analyses indicate that certain rent control regimes may lower rental prices. It also appears that prices are better able to respond to market conditions in no rent control markets.
3. In general, data is not available on a level that allows for conclusive analysis. An analysis that uses unit level data could potentially provide more insight. See Appendix C for further discussion.

6 Implications for CMHC Housing Initiatives

The two CMHC housing strategies that are of specific interest are:

- **The Rental Construction Financing Initiative (RCFI),** a $13.75 billion program which provides low-cost loans to investors/developers intended to encourage the construction of rental apartments in areas where there is a need for additional rental supply. RCFI loans are expected to support the construction of 42,500 units over the period from 2017 to the end of 2027. There are some affordability requirements associated with RCFI loans, but these are not major – rental income for the project overall has to be 10% below market rates, and at least 20% of the units have to have rents lower than 30% of the median gross income for families in the area.
- **The National Housing Co-Investment Fund (NHCIF)**, which is specifically targeted toward the construction or repair of affordable housing rental properties. It will provide $13.2 billion in low-cost loans and/or capital contributions over the next 10 years to create new affordable housing or repair existing affordable housing. The funding is provided to local governments, non-profit housing organizations, rental co-operatives, and other non-federal partners. The objectives of the program are to:
  - expand the existing social and community housing stock; and
  - create a stable supply of affordable housing.

  Program targets include the creation of 60,000 new affordable units and the repair of 240,000 affordable units.

In a broad sense then, RCFI is oriented toward increasing the supply of available rental units in areas where the supply is too low; and the NHCIF is oriented toward lowering the prices of available rental units in areas where the prices are too high.

Given the lack of conclusive findings regarding the effects of rent control and various regimes on rental supply and prices, the implications of rent control for the two programs are minimal. If we stretch from findings to general indications of how these programs would influence, we can say:

- In general, RCFI would be more appropriately targeted to rent control markets than no rent control markets, since previous literature indicates rent control constrains supply. Similarly, studies have shown that units that fall under rent control are of significantly lower quality, than units that are not rent controlled. (Sims 2007)
- Within rent control markets it may be the case that both markets that fall under new unit exemption and those that do not could benefit from RCFI. This is because, in markets that do have new unit exemptions, there may be sufficient supply, however, it may not necessarily be affordable. Therefore, the analyst needs to understand what the make-up is of the market of interest to determine if affordable housing could benefit the region (even if there is not an overall supply issue). Similarly, based upon the literature, it would be expected that there would be supply constraints in markets without new unit exemptions. Therefore, RCFI would benefit these regions by introducing more supply.
- NHCIF would be more appropriately targeted to no rent control markets, since in rent control markets, prices are less responsive to market forces and therefore more stable. In no rent control markets, prices are more correlated with market indicators. Therefore, if there is a surge in the economy or in real estate prices, this can be quickly reflected in rental prices. NHCIF may benefit those volatile or rapidly growing markets that do not have rent control.

- Within rent control markets NHCIF is more appropriately targeted to rent control policies that have new unit exemptions, since it is these markets in which rental prices are more likely to rise beyond affordability.

The table below summarizes the discussion above. It lists markets where each program may theoretically bring a benefit to supply and demand.

Summary Table		
Program	**Rent Control vs No Rent Control**	**New Unit Exemptions vs No New Unit Exemptions**
RCFI	Rent Control	Both
NHCIF	No Rent Control	New Unit Exemptions

Appendix A
CMHC Study on the Impact of Rent Controls: Literature Review

1.0 Background

Rent controls have been used in North America since the end of World War II. A large wartime population moved to concentrated, industrial regions, causing rental prices to increase because rental supply was not able to adjust fast enough. Following the end of the war, and the return home of many soldiers and families, rent controls were largely abandoned, as the increased demand dissipated. It was not until the oil crisis in the 1970s, which led to record inflation across a variety of consumer prices, that rent control was again introduced as a policy instrument. Although each municipality, province, or nation has its own unique rent control policy structure, the policies have evolved through three "generations"(Arnott 1995, Arnott 2003):

First Generation: Stringent Rent Control 1920 – 1980s

The first generation was the strictest form of rent control: rental freeze. Many regions imposed strict guidelines that prevented further rent increases beyond a specified level. This type of rent control was intended to prevent unwarranted increases in price, and to protect the renter. As a blanket price freeze, landlords chose to leave the market, and invest in alternate investment vehicles. This constrained rental supply, causing the market equilibrium to distort.

Landlords that continued to operate in the market had no incentive to maintain or improve properties, as they were unable to earn back their capital expenses by passing on the improvement to the renter. Conversely, renters elected to continue to occupy rental units that were degrading in quality; tenancies extended their stays beyond a normal length as tenants had limited options outside of their current apartment.

Second Generation: Rental Regulations 1970s/1980s - present

The second generation of rent controls attempted to address some of the immediate issues identified by the first generation: landlords needed an incentive to continue to operate in the market and to be able to incur capital expenses for the maintenance and improvement of their properties. Therefore, the second generation of rent controls saw a variety of policies that introduced greater flexibility surrounding rental increases. This included the following adaptations:

1) **Cost pass-through**

   Cost pass-through exceptions allowed landlords to pass-through increases in their operating costs to the renter (Arnott 1995). Although administratively burdensome, the landlord was no longer at a disadvantage if the utilities, taxes, or other management costs increased dramatically. In certain permutations, these costs included capital expenses, renovations, and maintenance. This way if a landlord chose to rehabilitate their unit, they were able to amortize this cost and pass it through to their tenant through rental increases. The cost pass-through approach was applied in a variety of manners, and its success was contingent on how wide a definition the policy defined as the operating costs (Manitoba). The stricter the definition of what qualified as a pass-through cost, the more similar to a rent freeze this policy operated.

2) **Hardship allowance and Rate of return provisions**

The hardship allowance permitted landlords to increase rent if they could show they were facing cash-flow problems (Manitoba source). The intent of these policies was to prevent landlord exits from the market in lieu of losing cash on the property. Similarly, if a landlord could show that he/she was earning a rate of return that was below a reasonable amount, he/she was allowed discretionary increases. (Arnott 1995)

3) **Inflation benchmark**

This policy approach provides a guideline to the landlords, within which they are permitted to increase rent. In most cases the guideline is based off the consumer price index ("CPI"), or another inflation metric provided by the government. (Arnott 1995, Arnott 2003) Rental increases can only be up to the level dictated by the guideline; landlords are permitted to charge below the benchmark.

4) **Exemptions for newly-constructed units**

Second generation rent controls also introduced policies is to exempt newly-constructed units. The intention was to make sure that investors continue to build rental units, in order to prevent a decrease in supply that was seen under the first generation rent control. These exemptions can range in duration, with the ideal length being long enough, such that the expectation of rent control's impact on the return of the building is not influenced. (Arnott 1995)

5) **Within Tenancy Regulations or Tenancy Deregulation**

Tenancy deregulation commits the landlord to maintaining rent within certain guidelines (such as inflation or cost pass-through) during the duration of their tenancy. At the time that the tenancy turns over, the landlord is allowed to set rent at whatever he/she deems to be market price. This allows the market to temporarily reset to market equilibrium price at each tenancy turnover. (Arnott 1995)

6) **Rent level decontrol**

This policy qualifies a property for rent control based upon the level of rent charged. It allows two markets to exist, a luxury market where rents can be set at market price, and a common market where rents are controlled by the legislation.

The second generation of rent controls comprised different combinations of these policy components. Over the course of many years, regions learned about the pros and cons of each policy nuance and how each of the above items could properly or improperly incentivize behavior. In addition to the rent control policies, the second generation of rent controls included favorable tenant treatment.(Arnott 1995, Arnott 2003) This included rent increase appeal procedures, eviction procedures favoring the tenant, and building maintenance requirements; policies such as these were often introduced to enhance security of tenure for renters. Security of tenure is the notion that a tenant feels that they will not be unexpectedly forced to leave their current residence due to factors outside of their control: large rental price increases, eviction by the landlord, etc.

Third Generation: Tenancy Rent Control or Tenancy Deregulation 1970s/1980s - present

The third generation of rent control refers to the widespread adoption of tenancy rent control or tenancy deregulation. Tenancy rent control permits rental rates to only be regulated during a specific tenancy; any tenant turnover allow for the rate to be reset. (Arnott 2003) This "generation" reflected the widespread adoption of a specific policy component of second generation rent controls. Although variations in rent control continue to exist in line with those outlined above, the majority of rent control policies tend to allow for a decontrol in between tenancies.

2.0 Rent Control Regimes

Rent control policies are approached in different manners globally, particularly dependent on policy maker motivations. In Europe, where policymakers tend to favour equality of outcome, rent control policies have trended to protect the tenant, and exhibit stricter rent control regimes (Arnott 1995, Arnott 2003). Conversely, in North America, policymakers tend to favour equality of opportunity and the merits of the free market, therefore rent control policies attempt to balance the interests of the landlord and the tenant.

Examples of the Canadian Experience

Within Canada, rent control varies by province. Although the federal government initially was in charge of setting policies, they provided this regulatory power to the provinces in the mid-1900s (Schuss 2018). As a result, each province has experienced their own rent control evolution over the past half century.

Ontario

During WWII federal policy mandated a general freeze on Ontarian rents. This was gradually repealed however in the post-war period and rent control did not return to Ontario until 1975. Rent increases were capped at 8 percent and only applied to residential units occupied prior to January 1, 1976. In 1985 the Rent Regulation Act tightened controls to *all* residential units and established a maximum rent increase based on CPI or a four percent increase, whichever was less (Residential Rent Regulation Act, 1986).

In the early 1990s, Ontario's rent was governed by the Rent Control Act of 1992. Rent was set at maximum rate, provided by the province. This rate was calculated according to a weighted average of operating cost categories and capital expense categories. Rent was permitted to be increased at 12 month intervals according to these guidelines. A landlord could apply to increase rent *above* the guideline amount in light of increases in operating expenses, eligible capital expenditures, or the addition of new services as part of the rental agreement (Rent Control Act, 1992) In addition, this act introduced exemptions for newly built buildings in order to prevent any disincentive to rental supply in the market.

The Rent Control Act of 1992 was then replaced by the Ontario Tenant Protection Act of 1998. This act permitted rent to be set at any rate for the beginning of a tenancy; rent was then limited to increases permitted within the rental guidelines during a tenancy. As part of the Residential Tenancies Act of 2006, the rental guideline was changed to follow the Ontario consumer price index. The most recent development in rent control policy in 2017 removed rent control exemptions for new properties; the exemption was reinstated after one year. Today, the rental guideline does not apply to new buildings first occupied after November 1, 2018 and the rental guideline is based on the Ontario Consumer Price Index (Ontario 2019).

Figure 1: Summary Table – Ontario's Rent Control Regimes

Summary of Key Features of Ontario's Rent Control Regimes since 1990	
Key Features	**Years Applied**
Rent Increase Frequency Restrictions	1992 to present
Rental Increase Guideline- internal metric	1992 - 2006
Rental Increase Guideline - Inflation based	2006 to present
Application for Rental Increase due to increased expense or services	1998 to present
Tenancy Deregulation	1998 to present
Exemption for Newly Built Units	1992 to 2017; 2018 to present

British Columbia

Rent controls were first introduced in British Columbia in the 1950s, when the Federal government placed the responsibility of rent control on the provinces (Schuss 2018). In 1954, British Columbia passed the *Rent Control Act* which dictated that the municipalities would have control over the rental market. The municipalities generally did not choose to implement local rent control policies (Schuss 2018). In 1960, the Landlord and Tenant Act of 1960 was approved and gave tenants and landlords certain rights under the law, but did not have any legal implications for rent control. The Land and Tenant Act of 1970 introduced provincial rent controls, and focused on limiting the quantity of rental increases applied. Landlords were only entitled to a rental increase once every twelve months, and were required to provide three months of advance notice. By the release of the Landlord and Tenant Act of 1974, rental price increases were limited in magnitude and tied to the property, not the tenant. However, an extended period of rental decontrol began in 1977 with the Residential Tenancy Act, where newly built units and units that rent for over $400 a month were exempt from the rent control restrictions. In 1983, rent controls were eliminated; tenants were not even permitted to bring a large rent increase in front of a review board. This period lasted until 1992, when rent review was reinstated. Although landlords were allowed to increase rent to any level, if a tenant put the increase up for review, the landlord needed to spend hours filling out required paperwork to prove the increase. This indirectly kept rent increases at lower levels. In 2001, a rent control limit was officially set at inflation plus 2 percent. In 2017, the rent control limit was changed to track inflation. Landlords are permitted to apply for rent increases above the guideline in case of significant repairs or renovations, as a result of financial loss or increased operating or financing costs (Schuss 2018).

Figure 2: Summary Table – British Columbia's Rent Control Regimes

Summary of Key Features of British Columbia's Rent Control Regimes	
Key Features	**Years Applied**
Tenancy Regulation Rent Control	1974 to 1980
Rent Increase Frequency Restrictions	1970 to Present
Rental Increase Guideline - Inflation based	2002 to Present
Application for Rental Increase due to increased expense or services	1994 to Present
Tenancy Deregulation	2002 to Present
Exemption for Newly Built Units	1974-1980

Manitoba

In 1976, rent regulations were introduced in Manitoba. A guideline and cost pass-through approach were adopted. Units built after 1976 were exempt from rental regulations for five years. A period of decontrol started in 1978, with certain areas removing rent control completely, and larger cities exempting rent control for properties where rent was greater than $400. Deregulation applied everywhere in Manitoba by 1980 and was replaced by an arbitration system where a tenant could submit a request for review of a rental increase. However, this period of deregulation was short-lived, and rent regulations were reintroduced in 1982 such that rental increases must stay within the provincial guideline. Rental complexes with less than three units are subject to tenancy deregulation. Between 1993 and 2000, this guideline was set at one percent, although it is said to consider inflationary changes to utilities, property taxes, and other operational expenses. Since 2000 it has loosely correlated with the provincial consumer price index (Grant, 2011). Landlords are permitted to apply for increases above the guideline that are a result of changes to operating expenses, capital expenses, financial loss or additional service provision. Units built between 2001 and February 2005 are exempt from rental control for the first 15 years of tenancy, while units built or occupied after March 2005 are exempt from rent control for the first 20 years of tenancy. Other exceptions include recently renovated units for 5 years, and units with a monthly rent that exceeds a certain threshold. (Grant, 2011)

Figure 3: Summary Table – Manitoba's Rent Control Regimes

Summary of Key Features of Manitoba's Rent Control Regimes	
Key Features	**Years Applied**
Tenancy Regulation Rent Control	1976 to 1980
Rent Increase Frequency Restrictions	1982 to Present
Rental Increase Guideline- internal metric	1982 to Present
Application for Rental Increase due to increased expense or services	1982 to Present
Arbitration System	1980 to 1982
Tenancy Deregulation	1982 to Present (limited)
Exemption for Newly Built Units	1982 to Present

Atlantic Canada

Atlantic Canada's rent control policies are relatively more lenient than the rest of the country. Of the four Atlantic Provinces three, Nova Scotia, New Brunswick, and Newfoundland do not have any restrictions on the increase in rent for typical residential properties. These provinces do have many of the regulations other provinces have in place like, restriction on number of times landlords can increase rent, caps on the amount deposits, rent increase notice regulations.

Prince Edward Island (PEI), does have established rent control. Rental price freeze existed until January 1, 1976. After this, rent increases were limited to a prescribed percentage to be set out each year by regulation. A tenant could dispute the increase and require a landlord to apply to justify an annual increase. The province has allowable rent increases. This rate of increase each year is determined by Island Regulatory and Appeals Commission (IRAC). The increase is calculated using submissions from tenants, landlords, and other members of the public. This method is paired with CPI guidance as well. Landlords are allowed to increase rent beyond the allowable increase for renovations or high capital expenditures but most go through an appeals process in the IRAC.

Although not currently, Nova Scotia prior to 1993 did have rent control in place. Prior, Nova Scotia maximum rent increases were calculated using a CPI measure with no extra return. There were increases beyond this through application process and hearing before Rental Board. After 1993 residential rent control was removed and today only rent control for manufactured homes in mobile home parks remains.

Quebec Canada

Quebec has no history of formal rental or tenancy price regulation. The province has had from 1980 however, the Régie du logement, or the Quebec Rental Board. Before this only the federal rent control legislation applied in Quebec. The Board is a specialized tribunal which has a legislative mandate to regulate residential lease matters. The board publishes guidance every year on suggested rent increases but these are not legally binding. This body does have the power, however, to issue binding orders for rent increases when landlords and tenants cannot reach an agreement. In this arbitration process the board assesses what large capital expenses the landlord may have initiated, utility prices, market conditions, and CPI. The Board was given this legal power in 1996 and has it to the current day. Buildings which are younger than 5 years old are exempt from these regulations.

Examples of the United States Experience

The rent control experience in the US has differed from the Canadian experience. In Canada, rent control policies tend to be set provincially, with particular rules or exceptions to policies existing in certain municipalities. In the United States, rent control has historically been applied municipally, although there are cases where states have enforced rent control or decontrol.

Federal rent control was first instituted as an emergency following World War I in 1921. The Supreme Court in *Block v. Hirsh* upheld rent ordinances, but only as a temporary and emergency measure. In peacetime in 1924, the court ruled against rent control in *Chastleton v. Sinclair* as it could not be applied consistently under the 5th Amendment. In 1941, Congress enacted the Emergency Price Control Act which put a price ceiling on rent in defense areas. Rental rates were able to be amended by government administrators to a maximum amount. (Radford, 2011) The Supreme Court in the 80 years following consistently ruled against federally mandated rent control. Because of this rent control at the national level has never been implemented but state and municipal regulation is applied.

San Francisco

Rent control was introduced in San Francisco in 1979. Initially, rental increases were capped at a flat seven percent until 1984 when this was changed to four percent. In 1992, this rule was changed to be tied to a consumer price index, and the guideline was set at 60 percent of CPI, which is how the policy stands today. In addition, initial rent control policy exempted all owner-occupied units of 4 units or less. This rule was reversed in 1994, which removed this small multi-family exemption and subjected all units built in 1979 or earlier to rent control, with units being built since 1980 as exempt. The introduction of Proposition I in 1994 expanded the type of housing which could be controlled. However, exceptions to rent controlled still applied to hotels, non-profit cooperatives, dormitories, and units which have undergone substantial rehabilitation (i.e. gutting).

Landlords are able to increase the rent beyond the standard CPI measure through capital improvements or operating and maintenance rent increases. In either case the rent increase must be approved by the San Francisco Rent Board with the increase being capped depending on the building type the unit resides.

In 1985 the California State Legislature enacted the Ellis Act which prohibited local municipalities from having bylaws which prevent landlords from evicting tenants to remove their property from the rental stock. It essentially allowed landlords to “quit” the renting business and evict their tenants without municipality regulation. This policy allows landlords to transfer the property where it can be redeveloped or converted into other types of housing which happened extensively in San Francisco (Diamond, McQuade, & Qian 2019).

In 2019 Governor Newsom signed Assembly Bill (AB) 1482 which enacted a statewide rent control scheme. The law limits rent hikes to five percent per year plus local CPI. For San Francisco proper however, its rent control laws are more stringent making AB 1482 redundant.

Figure 4: Summary Table – San Francisco's Rent Control Regimes

Summary of Key Features of San Francisco's Rent Control Regimes	
Key Features	**Years Applied**
Rent Increase Frequency Restrictions	1979 to Present
Rental Increase Guideline- internal metric	1979 to 1992
Rental Increase Guideline - Inflation based	1992 to Present
Application for Rental Increase due to increased expense or services	1979 to Present
Tenancy Deregulation	1979 to Present
Exemption for Newly Built Units	1979 to Present

Cambridge

In 1970, Massachusetts permitted municipalities and towns with populations of 50,000 or larger to apply their own local rent control policies. Cambridge, Massachusetts established a maximum allowable rent for each controlled property, which targeted fixing the net operating income earned by landlords in 1967, and adjusting for inflation. This policy applied to all non-owner occupied units built prior to 1969; units built after 1969, owner-occupied condominiums, and non-residential structures that had been converted into rental properties were exempt from the policy. Oversight of the application of the policy was overseen by the Cambridge Rent Control Board. As the 1970s and 1980s progressed, the board authorized increases in rent ranging from 1.15 percent to 3.1 percent; these increases were intended to cover price increases to key housing inputs such as heating, property taxes, and related operation activities. Landlords were allowed to request permission to exceed the guideline in special circumstances, particularly if needed to cover capital investment in the property. Within the Cambridge rent control policy, there was no tenancy deregulation. As a result, landlords were incentivized to remove units from the rental stock and convert them into an investment property that would garner them a longer return. This led to the "Removal Permit Ordinance" which restricted removal of rental units from the market, unless a reasonable argument could be shown that the unit's removal did not adversely affect the market. In 1994, the abolition of rent control was placed on a statewide ballot. Receiving a narrow margin, rent control was removed across the state, with certain short-term extensions provided to certain individuals.

Figure 5: Summary Table – Cambridge's Rent Control Regimes

Summary of Key Features of Cambridge's Rent Control Regimes	
Key Features	**Years Applied**
Tenancy Regulation Rent Control	1967 to 1994
Rent Increase Frequency Restrictions	1967 to 1994
Rental Increase Guideline- internal metric	1967 to 1994
Application for Rental Increase due to increased expense or services	1967 to 1994
Exemption for Newly Built Units	1967 to 1994

3.0 Advantages and Disadvantages of Rent Control

Primer

Rent control is predominately viewed as a negative policy instrument. Rent control fundamentally distorts the market because limiting the rental price negatively impacts the return that the rental unit can achieve. This causes the supply of rental units on the market to decrease. Therefore, uncontrolled rental units comprise a limited supply, and can be priced substantially higher than the rent charged on units protected by rent control. This impacts new entrants to the rental market. New entrants to the market are students, young families, young adults, and other liquidity constrained members of society (Arnott 1995). This group tends to include a significant portion of the population that rent control policies are intended to protect. However, although the majority of the empirical and theoretical literature appears to promulgate this assessment, there are pockets of literature that do not find a link between rental price and a decrease in housing supply or increase in average rental prices across the market. Assorted studies have been unable to link the supply of rental units with rent control, arguing that mainly the positive aspects of rent control (i.e., price control and transfer of wealth) are observed in practice (Grant, 2011). A previous study commissioned by CMHC found that there was no convincing evidence that rent regulations have significant effects on rents, the construction of rental units, or on vacancy rates (Denton et al, 1993). Although this suggests that rent control does not lead to market distortions, the lack of significant effect on rents suggests that rent control may be a relatively ineffective policy tool.

It is important to note that in making any assessment about recent rent control regimes, it is difficult to quantify and draw causal inference with respect to rent control policies. (Arnott 1995). First, it is challenging to find the data required that would allow an economist to control for all the influencing factors impacting their dependent variables; this makes it difficult to make a robust empirical assessment of a rent control policy. Second, many jurisdictions that now have tenancy deregulation policies, initially had stricter rent control policies; depending on how long these policies were in effect, it is possible that the historic rent control policy will have a unquantifiable influence on the current state of the rental market (Arnott 1995). This can make it difficult to identify what outcomes result directly from current rent control policy, and which are related to previous, stricter policies. Third, there are a number of factors that can impact the housing market: associated government policies, taxation, the business cycle, or idiosyncratic nuances specific to a certain geography. It is difficult to tease these items out and clearly identify the impact of rent controls. All things considered, theoretical assessments can be hypothesized based upon rational human behavior. In certain cases, these theoretical positions have been supported through empirical evidence.

First Generation Rent Control Assessment

Economists astoundingly agree that the first generation of rent controls had an overall negative impact on the economy. Freezing the price of rental units decreased the expected payoff of the investment immediately, forcing investors to exit the market. This is because expected inflation alone leads to decreasing expected returns for the asset. As a result, rental supply decreases, which reinforces a larger disparity between the price that would be charged in an unregulated market and the price charged under rent control.

For those landlords that continued to operate in the market, they had no incentive to maintain or improve properties, as they were not able to earn back their capital expense by passing on the improvement to the renter. Renters elected to continue to occupy rental units that were not in a livable condition; tenancies extended beyond their normal length as tenants had limited options outside of their current apartment. Although rent control forced rent prices down, the supply and quality of rental units was negatively impacted (Arnott 1995).

Second Generation and Tenancy Deregulation

The resounding negative assessment associated with first-generation rent control are not as obvious under tenancy deregulation regimes. This is because certain aspects of tenancy deregulation provide enough flexibility to minimize distortion to the market.

The sections that follow summarize key areas where second generation rent controls and tenancy deregulation have a direct impact.

Security of Tenure

The goal of many rent control programs is to ensure security of tenure (Arnott 1995). Second generation rent control and tenancy regulation rent control have been very successful at ensuring security of tenure for those tenants that live in rent controlled units (Arnott 2003). Second generation rent control and tenancy regulation rent control typically include policies that protect the tenant from wrongful eviction. In many cases, a landlord needs to make a case in front of a rental tribunal that provides cause for the eviction of a tenant. This includes situations in which a landlord would like to evict his tenant in order to convert the unit from the rental market. Policies have been introduced that prevent the landlord from converting their property and decreasing supply in the market (Autor et al 2012). In New York and San Francisco, mobility of tenants has been shown to be significantly lower in rent controlled units compared to uncontrolled units (Diamond, McQuade, Qian 2018).

Although beneficial to tenants, strict enforcement procedures can make it difficult and costly for landlords to obtain vacancies, particularly if their request for vacancy is a result of bad behavior by the tenant.(Whitehead and Williams 2018). If there is a mismatch between the tenant and the landlord, the market does not allow the two participants to naturally separate, which leads to a welfare loss. Security of tenure is often designed to protect the tenant at the expense of the landlord. However, security of tenure allows for certainty in future cash flow; certainty is appreciated by both tenants and landlords. (Arnott 1995)

In addition to policies that are intended to protect the tenant, the design of rental price guidelines also incentivizes security of tenure. Tenants are aware that the rental price of their unit could fall below the market price; they therefore develop a preference for a long-term stay. As a result, when tenants are looking for rent controlled apartments, they tend to plan for a long-term tenancy. Tenants do not want to be evicted, and often develop a healthy and proactive relationship with a landlord to avoid this. The promise of security of tenure, incentivizes good behavior on part of the tenant. (Arnott 2003) Security of tenure therefore benefits the part of the population that is less likely to move, compared with those that have more short term plans.

Price Control

A benefit of tenancy deregulation is the flexibility it provides the market to naturally reset. If a rental unit price is significantly lower than the market price, the price is able to reset to the market price upon a tenant's departure from the unit (Arnott 2003) [9]. This allows for the controlled market to adjust back to the free market from time to time.

Regardless of the interpretation of its distortionary effects, rent control is empirically successful at lowering prices for controlled properties. In Cambridge, San Francisco, and Vancouver, rent prices in controlled units were less than prices in uncontrolled units. In Vancouver, controlled and uncontrolled markets had statistically significant price indices, highlighting how rent control fundamentally effects how the asset is valued (Marks 1984). In Cambridge, controlled units rented between 25 to 40 percent below the price of nearby uncontrolled properties. (Sims 2007) However, in analyzing the market in aggregate, it is unclear whether rent control achieves the goal of price control. Although the controlled units have prices that appear to be market prices, the strain that rent control may put on the uncontrolled markets can lead to an average rental price that is actually *higher* on average.

One additional externality of the price differential that exists between the controlled and uncontrolled markets is the impact on the valuation of properties. Aside from decreases in rental prices, property values have also been shown to decrease in practice. In Cambridge, controlled rental units were valued 50 percent less than the value of the uncontrolled properties (Autor et al 2012). Immediately after Cambridge's rent control was removed, there was an 18 to 25 percent increase in the value of these properties. This likely results from the increased expected revenue due to the property, the performance of maintenance activities on the unit following decontrol, and the idea that the neighborhood composition improved following the removal of rent control.(ibid) However, this devaluation is not only confined to the controlled units; units that were never subject to rent control also saw an increase in value in Cambridge (Autor et al 2012). One factor leading to this is that a shortage of rental supply will lead to an increased demand for owner occupied units. This will shift investor supply into owner occupied units, lowering investor demand for rental units. This will decrease the value of the uncontrolled rental units, as demand for rental units decreases. From the government's perspective, this could mean valuable erosion of the property tax base (Grant 2011).

It is not only the direct constraint on pricing that leads to devaluation. When the economic environment is uncertain, investors associate more risk with their asset, and discount their future earnings. (Whitehead and Williams 2018) This compounds the devaluation associated with decreased rental prices.

Supply

As a result of the pricing and valuation impacts described above, rent control policies have largely been said to lead to a supply shortage. In order to respond to this decrease in value, resulting either from uncertainty or rent control itself, investors will reallocate their funds into investing in alternative vehicles: condominiums or other forms of private housing. This phenomenon was observed both in Cambridge and San Francisco. San Francisco properties had a higher probability of converting to condominiums if they qualified for rent control. This led to a change in the market composition as high end condominiums replaced rental properties; upper-class populations moved in, leading to high income inequality (Diamond, McQuade, Qian 2019). In Toronto, in response to the Rental Fairness Act of 2017, investments originally intended for building purpose-built rentals were being used to build condominiums instead (Carapetian 2019) This led to decreased investment in building new rentals, a lower vacancy rate and bidding wars that actually increased average rent paid.(Ruddy 2018) Following rent decontrol in Cambridge, units available as rental property increased six percent (Sims 2007). This was matched by a simultaneous increase in building permits for rental property of 20 percent (Autor et al 2012).

However, one author argued that it is difficult to blame rent control for investor disinterest in the rental property market; he argues that investors are equally disinterested in low and middle-income housing in deregulated markets. In other words, many of the common problems associated with rent control are also problems in non-regulated markets (Mackinnon 2008). The explanation for decreases in rental housing stock within Manitoba is largely attributed to more of the population being in a financial space where they can elect homeownership (Grant 2011).

In addition, it is possible that rent control could actually lead to an increase in rental unit production. This is because of the tenant behavior that rent control incentivizes. Under rent control, tenants have no incentivize to move; therefore, they are more likely to stay in the same place for an extended period of time to save money. When the tenant exits the rental market, he/she will have saved sufficient funds to be able to move into owner-occupied housing. Given the number of people that choose long-term rent control as a way to save money, there will be an increased demand for rental housing, which can be filled by investors. Although an interesting position, there is no empirical evidence to support this.

Maintenance and Rehabilitation

If the rent control policy in place is very strict, landlords will not be incentivized to pursue maintenance or rehabilitation during a tenancy. This is because landlords cannot recoup their costs until they are able to raise rent again for the next tenant. Even then, they are likely unable to raise rent high enough to pay off the costs of the maintenance. Sometimes, the tenant may choose to pay for maintenance costs herself because the landlord is hesitant to do so (Arnott 2003). In addition, rehabilitation expenses do not happen at a time that would be required by the unit. The landlord will never do this during a tenancy because he/she will be unable to recoup her investment in the rehabilitation due to rent control. Often, rehabilitations will be pushed to the transition between tenants so that the landlord can recoup the incurred costs. (Arnott 2003)

It is often found that units in rent control are in a worse state than units that are not found in rent control. In Cambridge, chronic maintenance issues were more prevalent in controlled units as opposed to uncontrolled units (Sims 2007). Following rent decontrol, permits for building improvements increased, highlighting the long-deferred investments for unit improvement by landlords (Autor et al 2012).

However, evidence in Manitoba suggests that when you control for the year that the unit was built, the quality of the unit is the same, if not higher in quality than the rest of Canada.(Grant 2011) This may be directly linked to Manitoba's generous rehabilitation exemptions and speed over which landlords can amortize these costs. (Grant 2011)

Search Process

There are certain associated search costs that are decreased with the introduction of rent control. In a perfectly competitive market, without restrictions on landlord behavior, a “bad tenant” can be immediately evicted for poor behavior or failure to pay. The landlord has no incentive to warn the next landlord about the “bad tenant” and then this same process continues, where the bad tenant continues their behavior with new landlords, causing major welfare and search losses in the system (Arnott 2003). Rent control limits these search costs, forcing the current landlord to take action and incent the bad tenant to rectify their behavior.

However, second generation rent controls and tenancy decontrol also extend the search process in the housing market. Tenants are looking for a rental unit that fulfills most of their preferences, because they know they will be staying there for an extended period of time. Similarly, landlords will be picky in selecting tenants. This will either be because they are incentivized to choose tenants who will stay for shorter terms (such that rent can reset more frequently to the market rate) or because they may choose tenants who are more reliable and well behaved (childless couples, the elderly) (Arnott 2003). This will necessarily lead to longer search times for both parties. In addition to the extended search process, it can lead to a screening process that leaves less desirable tenants outside of the market. (Grant 2011) This results in keeping tenants out of the market who may actually need the rental price support. Newer tenants tend to be more liquidity constrained and dependent on lower rent prices. Often, new tenants are forced into the uncontrolled market, since the supply is larger there. Therefore, rent control ends up hurting this population as they have to seek out living arrangements in the uncontrolled market. Therefore, there is likely very little evidence of any type of income redistribution as a result of rent control. (Grant 2011) If the goal is to help the poorer population, subsidizing housing for the poor would be more successful at redistributing income to those in need (Arnott 2003).

4.0 Assessment of the Rent Control Policies in the Example Regimes

The five rent control regimes described above have evolved in a similar manner through time. There are similar key policy overlaps in each regime, although their unique nuances may differ slightly. The table below summarizes the main characteristics that each regime exhibits, and the sections that follow will assess each regimes approach to these characteristics.

Rent Control Regimes: Summary of Characteristics					
Rent Regulation	**British Columbia**	**San Francisco**	**Manitoba**	**Ontario**	**Cambridge**
Tenancy Regulation Rent Control	■		■	■	■
Tenancy Deregulation	■	■	■	■	
Rental Increase Guideline- internal metric	■	■	■	■	■
Rental Increase Guideline - Inflation based	■	■	■	■	
Application for Rental Increase due to increased expense or services	■	■	■	■	■
Exemption For Newly Built Units	■	■	■	■	■

Tenancy Regulation Rent Control

Each of the above geographies, except San Francisco, had tenancy regulation rent control policies in place during the initial stages of their rent control regimes. Cambridge is the only jurisdiction where tenancy regulation rent control was never removed. Given the strict nature of tenancy regulation rent control, it can lead to a large discrepancy between the market equilibrium price for rent, and the rental price charged under rent control. Most importantly, a policy that controls rent at the beginning of a new lease will likely not allow landlords to make a sufficient business return (Whitehead and Williams 2018). This necessarily leads to a constrained supply, as units are removed from the market, and investors choose to pursue other assets. Cambridge and San Francisco attempted to prevent the decrease in supply by introducing acts that prevent the easy conversion of rental properties. However, assorted empirical analyses have proven that these acts were unsuccessful (Diamond, McQuade, Qian 2019; Sims 2007; Autor et al 2012).

If the policy goal is the decrease rental prices for those in rent controlled housing, then tenancy regulation rent control is successful. However, those covered by rent control are often not representative of the target population of many rent control policies (the disadvantaged). There are spillover effects of tenancy regulation rent control that cause rent in non-controlled housing to increase. In certain circumstances, the target populations will find themselves outside of rent control, and are forced to pay higher rental prices. Inter-tenancy rent control does not allow the market to reset, at any point, causing investors and tenants alike to pay the costs associated with a distorted market.

Tenancy Deregulation

Each regime, except Cambridge, has tenancy deregulation. Tenancy deregulation allows for the rental price to correct to the market price in between tenancies (Diamond, McQuade, Qian 2019). However, this is nuanced in Manitoba, where rent for buildings that are comprised of four or more rental units, is only allowed to increase to the average rent for comparable units. (Grant 2011). Although distortions still exist, tenancy deregulation minimizes the disparity between the controlled and uncontrolled markets (Arnott 2003). However, many of the same disadvantages associated with tenancy regulation rent control continue to exist, on a smaller scale. Investment in rental supply can decrease since investors expect tenants to exceed an average stay in their unit, because tenants know their departure will cause them to pay market price in another location (Diamond, McQuade, Qian 2019). The value of rental properties decreases because the expected return is lower.

However, due to the ability of a rental unit to reset its price, tenancy deregulation is superior to tenancy deregulation, in that the rental market is not completely separated from the free market. Manitoba's policy is unique in that constrains post-tenancy rental increases in rental buildings with four or more units. This policy likely operates more similarly to tenancy regulation rent control since the price is not necessarily set at the market price, but constrained to the average price for a comparable unit, which includes both controlled and uncontrolled properties.

Rent Increase Guidelines

Each of the rent regimes provides rental increase guidelines that constrain annual rent increases. The guideline is based on an array of calculation approaches, mainly using the local consumer price index as a guideline. The table below summarizes the various calculation guidelines used in the various rent regimes:

Rent Control Guidelines	
Jurisdiction	**Guideline Calculation Base**
Ontario	Lesser of CPI or 4 percent (historically); CPI (currently)
British Columbia	CPI + 2 percent
Manitoba	Basket of utilities, taxes, and operating costs (historically), CPI (currently)
San Francisco	60 percent x CPI
Cambridge	Basket of utilities, taxes, and operating costs

Although CPI is the most frequently used metric to calculate the rental increase guideline, it is not a perfect metric. The total CPI basket is not based on housing specific inputs, in other words, the housing market could be seeing higher rates of inflation than the economy as a whole (Grant 2011). Although this approach is intended to keep rental increases in line with wage inflation, wage inflation is also not directly correlated with CPI. Therefore, using CPI to calculate rental increase is not the most accurate manner of assessing market appropriate increases. San Francisco's policy is the most restrictive as it keeps rental increases *below* inflation. This approach negatively impacts the value of rental properties. British Columbia allows for flexibility around CPI, such that if the housing market inputs are inflating at a higher rate, the rental market is not (as) constrained. If rental prices are not increasing as rapidly as the guideline, landlords will not necessarily raise to the

guideline, because a competitor landlord would be willing to lower his/her price to select the tenant. Therefore, a more generous guideline could be beneficial in decreasing the disparity between the controlled and uncontrolled market, which helps to minimize the associated distortions.

Ideally, the guidelines would be set in a manner more correlated with the housing market. For example, Cambridge based its guideline calculation on the movement of property tax, utilities prices, and inflation in operating expenses.

The extent to which any guideline is binding is dependent on the ease and ability of a landlord to appeal for a rental increase above the guideline. (Whitehead and Williams 2018) By introducing flexibility to exceed guidelines, the government can protect against landlords' losing money on their investments.

Ability to exceed guidelines

Each regime allows for the landlord to apply to increase the rent above the guideline in certain circumstances. The most common are to cover financial losses related to increased operating expenses and eligible capital expenditures. In Manitoba and Ontario, prices can be increased to account for an increase in services provided to the tenant. Cambridge only allowed these increases in special circumstances, particularly required capital expenditures. The intent of these provisions is to allow landlords the ability to pass on their costs of maintaining the property. This way, they are able to upkeep the quality of the unit, without sacrificing losing a return on the rent. It is important that the definition of what qualifies as increased operating expenses and capital expenditures is flexible enough that landlords are actually able to benefit from improving the building. Wide encompassing definitions coupled with generous ability to amortize the associated costs protect and dissuade landlords from leaving the market, while also maintaining quality and service to rental units.(Grant 2011) In addition, it is key that the administration associated with filing and applying for an increase is relatively efficient. If not, the rent control guideline is effectively binding. For example, to apply for an increase above the guideline in British Columbia costs $300 (British Columbia 2019). If the rental increase is marginal, the price alone, aside from the paperwork may disincentivize a landlord.

Exemptions

Each regime allows for an exemption for certain buildings. Many rent control policies allows for exceptions for certain buildings, such as new buildings. In San Francisco this also applies to rental units that have undergone significant rehabilitation. In Manitoba, the exemption ranges between 15 and 20 years, conditional on the year the unit was built. Exemptions, in particular, those that are long-term help to prevent limiting rental supply (Grant 2011). However, in spite of these long-term exemptions, both San Francisco and Cambridge had decreases in rental unit supply, which suggests that although the long-term exemptions may dilute the negative impact, they do not resolve the issue in its entirety.(Diamond, McQuade, Qian 2019; Sims 2007; Autor et al 2012)

In addition to exemptions on newly built units, British Columbia and Manitoba also have exemptions related to units that have a monthly cost of rent above a certain amount, a luxury exemption. This type of exemption limits the rent control market further, allowing landlords to target a wealthier population with rental increases. However, it would be important to assess if, in response, landlords begin to oversupply the luxury market, which would then lead to a strain on the controlled market. Importantly, this type of response would benefit the wealthy, which is generally not the policy goal of a rent control policy.

Consistency

In each regime, the rent control policy has undergone significant transformations. Unfortunately, the political volatility associated with rent control can lead to the negative outcomes of rent control policies, even in the absence of the implementation of a stricter policy. The uncertainty associated with the future trajectory of the policy compounds the negative outcomes that are a direct result of rent control. Governments should prioritize having a clear and consistent message for rent control in order to minimize as much uncertainty as is feasible surrounding such a political policy.(Whitehead and Williams, 2018)

Summary

The following table summarizes the strengths and weaknesses of the five rent control regimes considered in this report.

Strengths and Weaknesses of Rent Control Regimes Reviewed			
	Strengths	**Weaknesses**	**Comments**
British Columbia	• Tenancy deregulation	• Inefficient administration of filings for rent increases	• Lack of new unit exemptions may limit supply
Manitoba	• Tenancy deregulation • Ability to exceed rental guidelines	• Limitation on tenancy deregulation •	• Exemptions may help incentivize supply
Ontario	• Tenancy deregulation • Long-term exemptions	• Frequency of Policy Changes	• Frequent policy changes create an environment of uncertainty, which can negatively impact rental unit supply and value
Cambridge	• Guidelines based on housing market factors • Long-term exemptions	• Tenancy regulation	• Tenancy regulation limits supply and decreases the value of the rental unit
San Francisco	• Tenancy deregulation • Long-term exemptions	• Very restrictive guidelines	• Restrictive guidelines may lead to a rental policy that operates more like rental freeze

5.0 Conclusion

The rent control literature tends to highlight the negative aspects of rent control, or, in some cases, the inconclusive impact of rent control policies. Additional time, improved data, and variation in policies will allow researchers to have a better grasp of how rent control affects the economy. The common features adopted by various regions illustrate how the compromises between tenants and landlords that have evolved over time.

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Appendix B
Study on the Impacts of Rent Controls: Working Paper on the Statistical Analysis

Study on the Impacts of Rent Controls: Working Paper on the Statistical Analysis

Prepared by: KPMG
February 25, 2020; Updated March 29, 2020

1.0 Introduction & Summary

This report summarizes a series of statistical analyses of rental market data. The purpose is to provide a holistic understanding of the rental market; understanding how certain variables are related, or unrelated, which can help to provide insight into each market and rent control policies as a whole. This will serve as a foundation for our specification of the regression portion of the analysis which will follow shortly.

This report is structured by first identifying the markets of interest and describing the variables used in the analysis. The analysis follows, focusing first discussing the differences in rental prices and rental starts in Rent Control Markets and markets that do not fall under rent control. We then progress to a more detailed analysis, looking into the differences between rental regimes within the Rent Control Markets.

This report is a high level assessment of summary statistics of each market. Explanation for the behavior of these variables could be a result of market conditions (e.g., a commodity crash) or government policy that we cannot quantify. It important to consider this when interpreting outputs from the report and to not assume that the correlations that can be drawn from the analyses necessarily imply causations.

Our analysis of the statistics reveals interesting patterns and nuances that can be observed in the data which highlight that prices may be less elastic under rent control regimes. There does appear to be a relationship in the ability of rent control regimes, particularly tenancy deregulation, to impact the magnitude by which rental prices increase. However, these results are not consistent and it is therefore difficult to conclude that any relationship exists between rental prices and rent controls. The regression analysis will help to provide more insight on the relationship between rent controls and rental prices.

There is some evidence that rental supply is correlated with rent controls, and rental regimes, particularly regimes that include new unit exemptions and those that do not. A common critique of rent control is that it stifles investor interest in the rental market, and diminishing supply in times of heavy rent regulation is a pattern that can be observed in the data. In addition, markets that have rent control appear to be less correlated with supply side, demand side, and market indicators, which may imply that rental supply is slightly less elastic than in markets without rent controls.

The main findings are summarized at the end of the report.

1.1 Definitions of Markets and Rental Regimes

Our analysis will focus on six key Census Metropolitan Areas (“CMAs”) within Canada:

Rent Control Markets	No Rent Control Markets
Vancouver	Calgary
Toronto	Halifax[10]

Winnipeg	*St. John's*[11]
Montreal (guidance)	
Ottawa	
Victoria	

Note: The italicized CMAs will be incorporated within certain analyses to shed additional light on the nuances of the Rent Control Markets vs. the markets that do not fall under rent control

Although the selected CMAs have implemented many of the same policies over time, the specific dates during which these policies were applied differed. The timeline graphic below summarizes the assorted rent control regimes of the three major provinces addressed in this exercise.[12]

Using the above as a guide, we have determined that the following five policies encompass the key different rent control regimes. Each of the three rent control jurisdictions *experienced each of these, except that Manitoba had no period with the absence of rent controls. The four regimes are defined below:*

- **Tenancy Regulation:** rental prices are controlled for the property. In other words, even when a rental unit turns over to a new tenant, the rental price can only be increased according to the rent control policy rules;
- **Tenancy Deregulation:** rental prices are only controlled during the tenancy. In other words, when a rental unit turns over to a new tenant, rental prices can be adjusted to the market price;
- **Exemption for newly built units:** rental prices are not controlled for newly built rental units for a specified period of time (in most circumstances, 15-20 years);
- **No-exemption for newly built units:** rental prices apply to all rental units; and
- **Absence of rent controls**

Many of the Rent Controlled Markets have sub-regimes where they control rental price increases according to different metrics (CPI, internal metrics, two percent cap, etc). In the circumstances, we assume that these varied approaches do not have a unique impact on rental price and supply behavior. This is because these metrics often effectively operate similar to pegging to CPI. Government internal metrics use a basket of goods comprised of maintenance costs, and other inputs to the cost of operating a rental unit; generally changes in the basket of goods will closely follow changes in CPI. Therefore, we focused on tenancy rent control regulation and new unit exemption regulations as our key rent control regimes.

2.0 Variables of Interest

Our analyses will focus on summary statistics involving key variables in the housing markets. These are variables that we believe are key inputs or outputs related to rental housing starts and rental housing prices. The variables and their reason for inclusion are summarized below:

Supply Side

- The **vacancy rate** indicates how much of the current rental stock is being used. With regard to rental supply, if the current rental stock has a lot of capacity, there is no need to build additional buildings; the inverse is true if the current rental stock is almost entirely in use. With regard to rental prices, if the current rental stock has a lot of capacity, renters have many units to choose from and will be able to negotiate the rental price down; the inverse is true if the current rental stock is almost entirely in use.
- **Rental Price Index** can influence the supply of units on the market; if rental prices are low, investors do not believe they will receive as large of a return on their investment and will elect to pursue alternative investments.
- The **construction cost index** reflects the cost of inputs into building housing units. As the construction cost index increases, the decision to develop additional rental units will decrease.
- **Rental supply** will reflect the size of the market, and indicate how many new units were introduced to the market each period.

Demand Side

- **Population growth** leads to increased demand, increased demand leads to an increase in building to accommodate the increase in the long term; in the short term the increased demand could lead to increased prices if there are not enough rental units available to meet the demand. Varying components of population growth can be included. Certain demographic information, including age and marital status, can be important indicators of the population seeking rental units.
- **Immigration** can lead to increased demand as more new entrants to the economy are settling into their new home.

Market Controls

- **Inflation Rate** is related to the increase or decrease of prices across a basket of goods.. If the inflation rate of the economy decreases in general (wages, cost of utilities, etc) we would expect rental prices to also decrease by a certain amount. Often provincial CPI and Rental Price Index track each other very closely.

The following table summarizes the data used, sources, frequency, and years of availability.

Supply Side, Demand Side and Market Control Variables				
Variable	**Source**	**Dates**	**Frequency**	**Geographic Unit**
Rental Starts	CMHC	1982-present	Monthly	CMA
Condominium Starts	CMHC	1982-Present	Monthy	CMA
Rental Price Index (“RPI”)	Statistics Canada	1971-Present	Monthly	CMA
Consumer Price Index (“CPI”)	Statistics Canada	1971-Present	Monthly	CMA
Vacancy Rates	CMHC	1992-Present	Annual	CMA
Construction Cost Index (“CCI”)	Statistics Canada	1981- Present	Quarterly	CMA
Immigration	Statistics Canada	1971-Present	Annual	Provincial
Population	Statistics Canada	1952-Present	Annual	Provincial

There are three key transformations made to the data.

1. **Annual growth rates**: calculated as the percent change in the variable from its value one year ago; and
2. **Annualized growth rate**: calculated as the growth or contraction over an entire period, divided by the total number of years elapsed in that period. We use the annualized growth rate in circumstances where we are looking at the change over a specific period, and want to be able to understand how that would translate to an annual metric.
3. **Deflated rental price index**: calculated as the rental price index divided by the consumer price index of the CMA. The rental price index tracks the CPI very closely; this is because price increases that result from economic forces (i.e., input cost increases) are often passed onto the consumer through higher rent prices, similarly, increases in CPI due to wage inflation can translate in a higher willingness to pay by the consumer, and therefore the price of rent can be bid higher. By deflating the rental price index, we are trying to isolate movement in the rental price index that is separate from movement related to inflation. Both deflated rental price index and the rental price index can provide insight into the market. The deflated value adjusts for price movements and allows the analyst to understand changes in *real* terms. In other words, if inflation did not exist, would there be an increase in the cost of a good. The unadjusted value provides insight into the variable in terms of the price level at the time.

3. Summary Statistics

3.1 Rent Control Markets v. No Rent Control Markets

The tables below summarize basic summary statistics over the entire data period for our main variables of interest: rental price index and rental starts. Average rental price index changes and deflated rental price index changes are relatively similar in both Rent Control Markets and No Rent Control Markets. Calgary, a larger market that may be more comparable to Vancouver, has had the same average annual rental price growth as Vancouver over its history. Winnipeg has had the smallest contraction in the deflated rental price index, while Calgary has realized the largest contraction in rental price index of all of the CMAs.

One pattern that can be observed from these summary statistics is that the standard deviation in housing starts appears to be significantly larger in the Rent Control Markets as opposed to the markets without rent control. This excludes Halifax which appears to be an outlier, as shown throughout analyses in this document. The higher standard deviation could highlight the increased uncertainty in Rent Control Markets as investors are unsure of the expected payoff resulting from the building new rental units due to policy changes. Conversely, it could be argued that it would be expected to observe increased standard deviation in No Rent Control Markets since investors would be more inclined to follow the market; if prices increase, they would invest in more rental units, if prices decrease, they would not. This same volatility exists in markets that have rent controls, however the *upside* or the opportunity to earn money due to increase in rent prices is limited because the upside is capped by rent control policies. Therefore, the unregulated market is a better place to invest because although they can experience the same downturns as a regulated market, their potential for a larger return on their investment is higher. However, there could be multiple reasons for this, including the relative size and population of the selected Rent Control Markets as opposed to the No Rent Control Markets.

Key Statistics

Location	Average Annual Change	Standard Deviation
Rent Control		
Vancouver		
Rental Price Index	2.9%	0.02
Delated RPI	-1.0%	0.02
Rental Starts[13]	45	35
Toronto		
Rental Price Index	3.0%	0.02
Delated RPI	-1.1%	0.02
Rental Starts	18	14
Winnipeg		
Rental Price Index	3.1%	0.02
Delated RPI	-0.8%	0.02
Rental Starts	51	46
Montreal		
Rental Price Index	2.8%	0.02
Delated RPI	-1.1%	0.02
Rental Starts	58	37

Location	Average Annual Change	Standard Deviation
No Rent Control		
Halifax		
Rental Price Index	2.6%	0.02
Delated RPI	-1.3%	0.02
Rental Starts	92	51
Calgary		
Rental Price Index	2.9%	0.04
Delated RPI	-1.1%	0.02
Rental Starts	9	8

Summary Charts

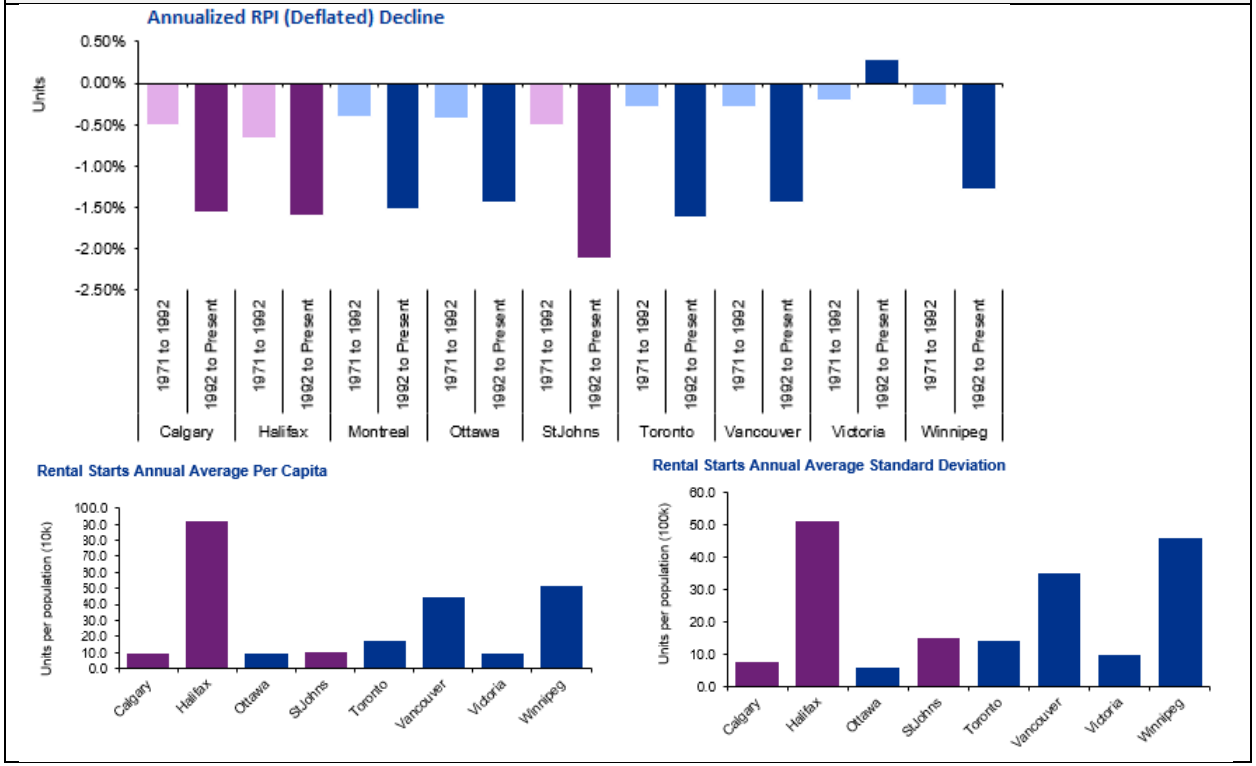
The information summarized above can be depicted graphically to visually demonstrate the difference between the Rent Control Markets and the No Rent Control Markets. The graphs that follow summarize the average annual RPI and standard deviation of RPI in select cities. For each city, the graphs summarize rental price index and variation as it relates to the period 1971 to 1992, and 1992 to present.[14] Later in this paper, we will focus on specific rental regime dates; this analysis is intended to mark an average breaking point where rental markets in general became less regulated through tenancy decontrol.

As markets continue to remove regulations, we would expect that the rental prices would operate in a more comparable manner between Rent Control Markets and No Rent Control Markets. In these circumstances, however, the pattern is not as dramatic as would be expected. Both Rent Control Markets and No Rent Control Markets see similar changes in their Annualized contractions during both periods.

Aside from Halifax, rental starts per 100,000 population were generally larger in the Rent Control Markets[15]. This could result in large part from the population and immigration increases in the regions during the time period. In order to account for any bias related to the fact that Toronto and Vancouver are business centers of Canada, we introduced slightly smaller cities, Victoria, Ottawa, and St. John's in order to assess if rental starts continued to be largest in Rent Control Markets. Rental starts in Victoria and Ottawa were comparable to normalized rental starts in Calgary and St. John's. Therefore, these charts are inconclusive on the impact of rent control on rental starts.

Figure 1

Summary Statistics



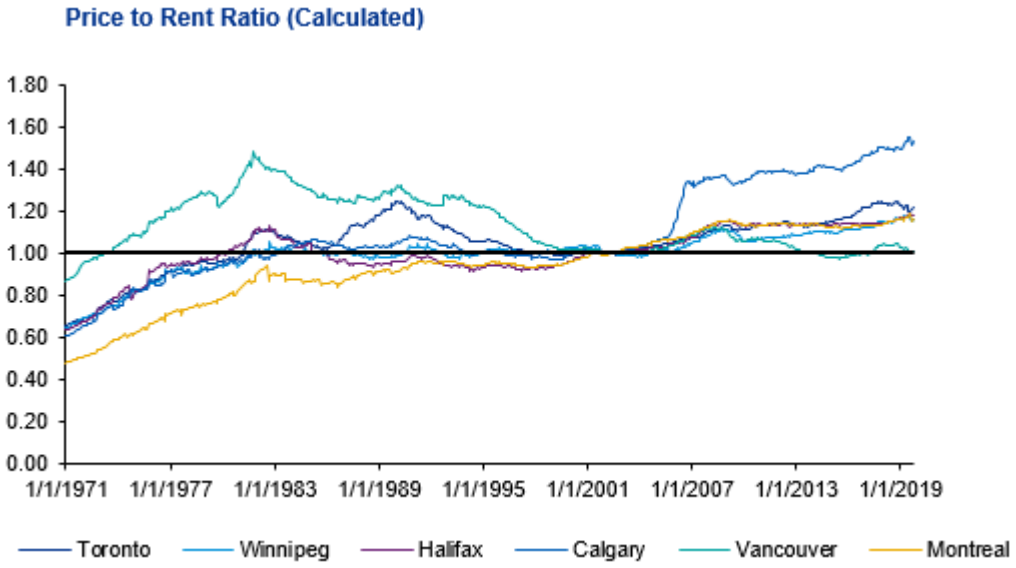
Rent Prices and Ownership Prices

The larger rental starts in Vancouver could be partially explained by looking at the price-to-rent ratio. The price-to-rent ratio is a ratio that depicts a consumer's preference to own property as opposed to rent a unit. When the ratio is greater than one, it costs more to own a property than it does to rent; this is indicative of increased demand in the owner-occupied market, and could signal an expected change in preference of the consumer to live in a rental unit. The ratio being larger than one makes sense anecdotally, since it is well known that since the mid-1980s, home and condo prices in Vancouver have increased dramatically, forcing consumers into the rental market since they cannot afford to own. In the circumstances, the price-to-rent ratio has been calculated as the ratio between the rental accommodation index and the owned accommodation index in the CPI.

The chart below shows the price-to-rent ratio for each of the CMAs. Montreal and Toronto have significant periods of a price-to-rent ratio that is less than one; demand for rental units likely increased, increasing the value of rental units, which led to additional units being built. Conversely, the price-to-rent ratio could be lower in those areas because the market was oversupplied at one point or another through its history.

Figure 2

Price-to-Rent Ratio (Calculated)



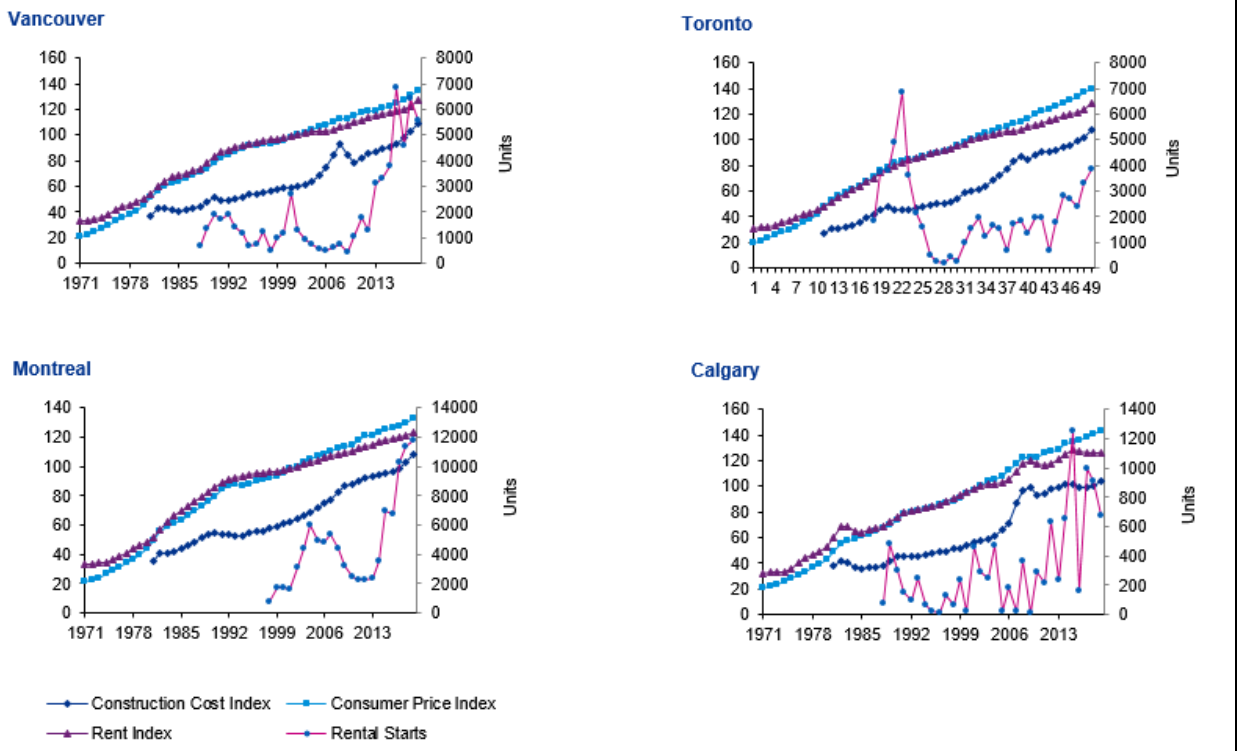
An interesting thing to note in the chart above is that given the dramatic increase in housing prices in both Toronto and Vancouver over recent years, it would be expected that the price to rent ratio would shoot up significantly larger than one. This is because rental unit price increases are capped, therefore the increase in cost of ownership would increase the numerator faster than the denominator. In fact, what we see in this graph is the opposite, in the No Rent Control Markets, the price-to-rent ratio has increased significantly in recent years while the increase in Vancouver and Winnipeg has been lower. This suggests that the increase in housing prices has been matched by consistent increases in rental prices. The presence of rent control appears to have a limited effect on the movement of rental unit prices.

Rent Control and Market Inputs

Although the figures above have not indicated that behavior of rental prices is significantly different between Rent Control Markets and No Rent Control Markets, an interesting relationship does exist between the construction cost index and rental prices.

Figure 3

RPI and CCI



In an unregulated market, we would expect to see the rental price index track the construction cost index. This is because an investor would consider the cost of the inputs (the construction costs) in determining his price. The sales price paid by the investor for the rental unit, will in-turn dictate the rental price that is passed along to tenants. An interesting item to note is the relative “smoothness” of the rental price index in the rent controlled cities (Vancouver, Toronto, Montreal) as opposed to Calgary. In fact, the rental price index in the rent controlled cities tends to move conversely to the local construction cost index; this highlights the effect that rent control policies may have on the ability of the rental market to respond to changes in inputs, as it is more likely to follow the evolution of the consumer price index. Calgary’s rental price index very closely follows the variation in the construction cost index.

Correlations

Observing correlations between variables, such as the correlation between RPI and CCI, listed above, can provide a bird's eye view of the relationships between variables in certain markets. Different variable relationships in different markets can provide insight to how market fundamentals may foundationally differ as a result of certain government policies. Generally speaking, there are variables that would be expected to be related to one another in a certain way based upon economic principles. For example, if the vacancy rate decreases, there may be an expectation that in two years, the supply of units would increase in order to account for increased demand. However, the relationship between certain variables are less obvious. For example, increases in construction costs could lead to decreased rental housing starts, as the expense associated with building the units would increase. Conversely, increased rental housing starts could lead to higher demand for inputs, and increased construction costs. Both a positive and negative correlation between the variables could be explained expectations of market interactions In the analysis that follows, we focused on the correlation between the key variables, rental price index and rental starts, with their market supply and demand variables.[16] We included two year lags of some of the variables in order to see if the relationship changed when considering the variables' ability to *predict* the movement of rental price and rental starts.

Rent Control v. No Rent Control Markets

In the tables below, markets are separated into Rent Control Markets and No Rent Control Markets.[17] With respect to Rental Starts, many of the supply and demand input relationships appear to behave consistent with expectations in Rent Control markets and markets that do not have rent control.

The majority of the correlation observed between rental price index and the market variables show expected signs in the markets not under rent control. Certain variables that would be expected to track closely with rental price (vacancy rates, construction cost index, population, and immigration) have a higher magnitude of correlation in markets not under rent control. This could suggest that, as one would expect, prices in markets that are not under rent control are better able to adapt to market forces, a characteristic that would be muted in Rent Control Markets. The particularly strong correlation between construction cost index and the rental price index in the markets without rent control provides additional support to the graphical representation presented earlier in the report.

Correlation: Markets not under Rent Control		
Variables	**Rental Starts**	**RPI**
Rental Starts	1.00	
RPI	-0.04	1.00
Vacancy Rates	0.02	0.07
Immigration	0.02	0.23
Population	-0.38	0.32
CCI	-0.05	0.56
Deflated RPI	0.03	0.22
RPI, 2 year lag	-0.04	-0.07
Immigration, 2 year lag	-0.01	0.01
Population, 2 year lag	-0.38	0.09
CCI, 2 year lag	-0.07	0.03

Vacancy Rates, 2 year lag	-0.06	-0.40

Correlation: Markets under Rent Control		
Variables	**Rental Starts**	**RPI**
Rental Starts	1.00	
RPI	0.08	1.00
Vacancy Rates	-0.03	0.10
Immigration	-0.01	-0.03
Population	-0.33	0.16
CCI	0.06	0.01
Deflated RPI	-0.02	0.24
RPI, 2 year lag	-0.01	0.02
Immigration, 2 year lag	0.01	0.06
Population, 2 year lag	-0.38	0.00
CCI, 2 year lag	-0.06	0.02
Vacancy Rates, 2 year lag	-0.07	-0.28

The tables above become particularly interesting when they are broken down further to compare the relationships of market variables with rental price and rental unit starts during the selected regimes.

Rent Control Regimes

In order to understand if there are unique relationships between the variables of interest and rental starts and rental price index particular to regimes, we looked at the data under four different rental regimes:

1. Tenancy Regulation
2. Tenancy Deregulation
3. New Unit Exemptions
4. No New Unit Exemptions

The tables that follow show correlation between key variables and rental starts and RPI within the four key rental regimes.

Tenancy Regulation v Tenancy Deregulation

The first two charts summarize variable correlation in markets with tenancy deregulation and tenancy regulation.[18] The supply and demand market indicators appear to have greater correlation on rental unit starts under tenancy regulation as opposed to tenancy deregulation, which contradicts expectations. One would assume that in a market with fewer regulations, the rental unit starts would be correlated with movements in supply and demand inputs. Similarly, the supply and demand market indicators appear to be strongly correlated with respect to rental price index during a period of tenancy regulation, which also contradicts expectations. In

general, in cases in which variable relationships are similar between the two regimes, it is hard to make any conclusions about fundamental market differences in the two regimes.

Correlation: Markets under Tenancy Deregulation		
Variables	**Rental Starts**	**RPI**
Rental Starts	1.00	
RPI	0.09	1.00
Vacancy Rates	0.00	0.14
Immigration	-0.02	-0.05
Population	-0.32	0.14
CCI	0.06	-0.02
Deflated RPI	-0.01	0.25
RPI, 2 year lag	0.01	0.04
Immigration, 2 year lag	-0.01	0.05
Population, 2 year lag	-0.37	-0.01
CCI, 2 year lag	-0.07	0.00
Vacancy Rates, 2 year lag	-0.06	-0.27

Correlation: Markets under Tenancy Regulation		
Variables	**Rental Starts**	**RPI**
Rental Starts	1.00	
RPI	0.02	1.00
Vacancy Rates	-0.18	-0.07
Immigration	0.09	0.06
Population	-0.42	-0.02
CCI	0.51	0.05
Deflated RPI	0.13	0.25
RPI, 2 year lag	0.17	-0.26
Immigration, 2 year lag	-0.43	0.02
Population, 2 year lag	0.33	-0.04
CCI, 2 year lag	-0.39	0.00
Vacancy Rates, 2 year lag	-0.24	-0.28

New Unit Exemption v No New Unit Exemption

The following two tables summarize variable correlation in markets with new unit exemption and those that do not have new unit exemptions.[19] It is interesting to note that in the markets with new unit exemptions, the rental supply market is not a highly correlated with factors that would influence supply than in markets with no new unit exemption. The expectation would be that new unit exemption rules *may* help to mitigate some of the negative effects that rent control has on the supply of rental units, however, that is not shown in these correlation results.

In both new unit exemption regimes and no new unit exemption regimes, prices are comparable correlated with their supply and demand variables. The magnitude of the correlations on demand inputs is slightly higher in regimes with new unit exemption. The logic behind this would be that a larger portion of the rental market does not fall within rent control regulations under new unit exemption. Since the rental price index includes all rental prices, which includes the of units that do not fall under rent control, the response of the rental price index to supply and demand inputs may be more elastic in the new unit exemption regime.

Correlation: Markets under New Unit Exemption Regime

Variables	Rental Starts	RPI
Rental Starts	1.00	
RPI	0.07	1.00
Vacancy Rates	0.05	0.11
Immigration	-0.03	-0.03
Population	0.10	0.25
CCI	0.07	-0.02
Deflated RPI	-0.03	0.27
RPI, 2 year lag	0.09	-0.02
Immigration, 2 year lag	-0.03	0.11
Population, 2 year lag	-0.01	-0.12
CCI, 2 year lag	0.00	-0.04
Vacancy Rates, 2 year lag	-0.03	-0.32

Correlation: Markets without New Unit Exemption Regimes

Variables	Rental Starts	RPI
Rental Starts	1.00	
RPI	0.19	1.00
Vacancy Rates	-0.05	0.08
Immigration	-0.13	-0.03
Population	-0.03	0.07
CCI	0.08	0.04
Deflated RPI	-0.05	0.20
RPI, 2 year lag	0.02	0.12
Immigration, 2 year lag	-0.19	-0.04

Population, 2 year lag	0.01	-0.01
CCI, 2 year lag	-0.05	0.09
Vacancy Rates, 2 year lag	-0.12	-0.20

Dependent Variable Behavior across regimes, within Province

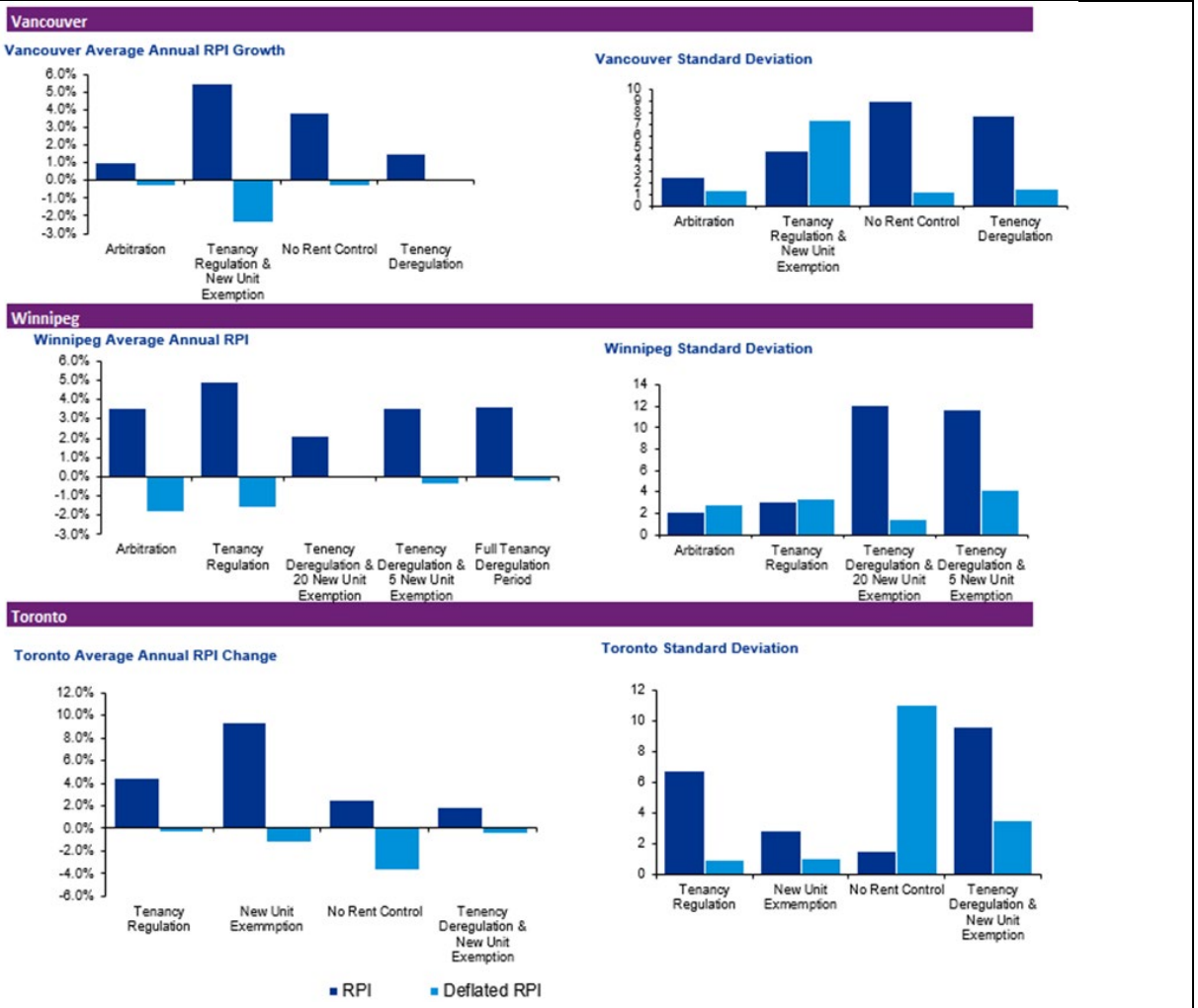
Although the charts above provide a holistic view of how the markets operate within the four basic regimes, we can look at the annualized rental price growth during each specific rental regime within each of the Rent Control Markets. Although underlying market forces can change over time (i.e., a commodity shock), which can influence both rental prices and rental starts, focusing on differences between the rental regimes *within* a CMA controls for geographic differences. Note that although the analysis is performed within the same CMA, this does not control for business cycles throughout the time period.

Rental Prices

In the charts that follow, we look specifically into rental price activity within each regime. The charts on the left summarize average annualized growth in both the deflated and unadjusted rental price index over the regime. The charts on the right summarize the standard deviation of the deflated and unadjusted rental price index during the regime.

Figure 4
Rent Control Regimes

Figure 4



There are not many clear trends that can be identified across regimes for rental price growth with respect to the deflated rental price index. However, tenancy deregulation does show the smallest contraction across all three markets; hold for Toronto where tenancy regulation has an equally small contraction in deflated rental price index. This might indicate that the tenancy deregulation allows the true price of the rental market to adjust to supply and demand, as these periods reflected the smallest levels of deflated rental price contraction. Similarly, tenancy regulation shows the largest annual decline in prices in Vancouver, and large annualized decline in Winnipeg. This can highlight how constraining the ability to allow the market to correct itself may lead to a market that has prices that are artificially deflated. However, we would expect to see growth in the Rent Control Markets where there is a no rent control regime. We see the opposite, for example,

in Toronto there is a very large decline in the rental price index while this policy was in place. When focusing on the unadjusted rental price index, the new unit exemption generally shows higher price growth; however, this could be related to alternative metrics not related to the housing market (other reasons for inflation).

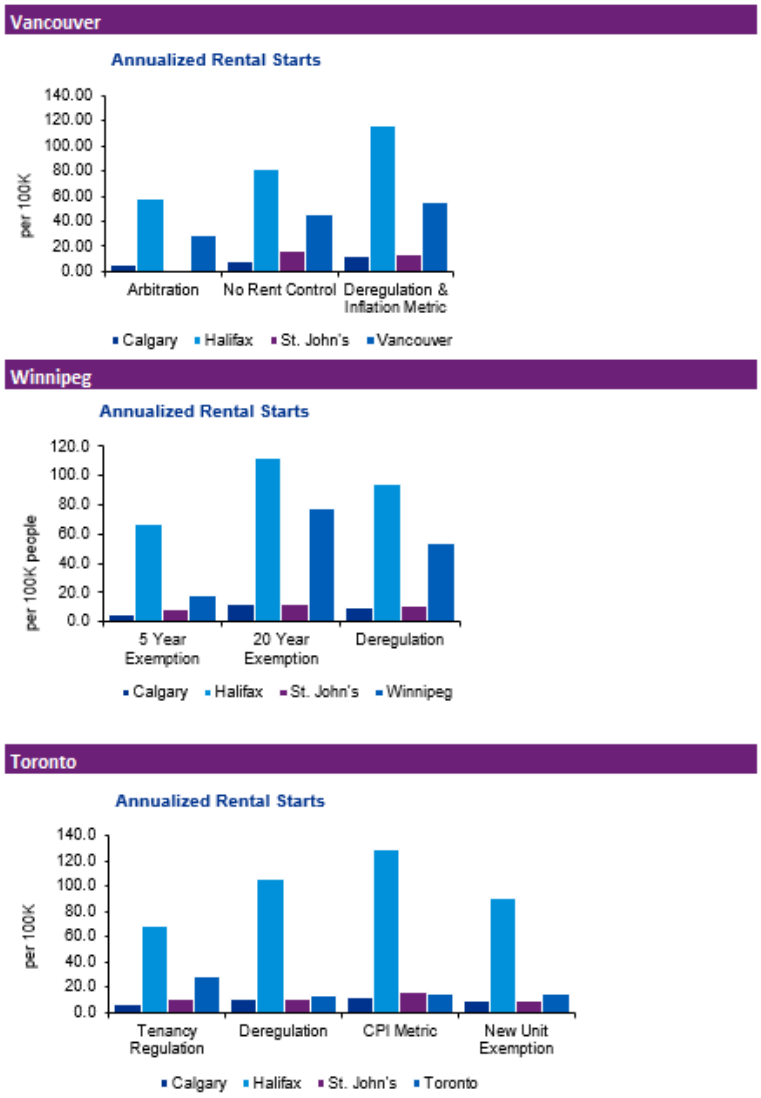
There are no clear patterns in rental price variance during the tenancy regulation period as the rental price index variance for tenancy regulation is large for the Vancouver and Toronto markets, while Winnipeg's market has low variation. This could be because of geographic and size differences. Winnipeg's geography can allow for a reasonably more elastic rental supply economy, unlike in Vancouver where there are geographic constraints on building space. In summary, there do not appear to be consistencies of market behavior in prices across the regimes.

Rental Starts

The below charts show a similar exercise for rental starts. The rental start data begins close to 1990, therefore we are limited in the rental regimes we can compare.

Figure 5

Rent Control Regimes – Rental Starts



The most interesting result is the surge in annualized rental starts in Winnipeg during New Unit Exemption regimes. New unit exemptions are intended to make the rental supply market more attractive; the exemptions delay the date at which rental prices will be subject to rent control. This way, the negative impact of rent control on the investment return of the rental unit is pushed to a time in the future that the investor will value less. This appears to be supported in the above charts where rental starts increase during the period. Again, it is important to note in interpreting these charts, that the15-20 year New Unit Exemption regime in Manitoba coincided with a period of high population and immigration growth in recent years, which could influence the surge in annualized rental starts shown in the tables above.

One unexpected relationship we see in Toronto's market is during the tenancy regulation rental regime. During this regime annualized rental starts were significantly higher as opposed to the rental regimes that were less regulated. As shown in Figure 2, during the same period, the price-to-rent ratio was significantly lower than one, which would incent investors to build rental units. This may explain the unexpected outcome seen above.

In the Vancouver market, the price-to-rent ratio was the lowest it has been during the inflation metric regime, therefore rental units would have been an attractive investment.

Difference in Differences

We can take this one step further and compare what occurred in the Rent Control Markets during the time period with what was happening in No Rent Control Markets in the same time period. This approach *may* be able to shed light on how far from the true market the rental markets in Vancouver, Toronto and Winnipeg were performing.

An ideal comparison would exist if rent control were set by municipalities, and there were a way to compare prices within a similar geography, with comparable size populations and demand factors. However, in Canada rental policy is set provincially, therefore we must compare across geographies. Unfortunately, this introduces additional variance that explains the differences in market performance (i.e., the markets being used for comparable purposes rely on different industries and have different demographic make-ups that can impact the local economy). Still, the comparison may provide insight to the treatment effect of the rental regimes.

The difference-in-difference analysis looks at the average of the economic indicator prior to the policy change, and then looks at the average of the economic indicator after the policy change. This is done both in markets where the policy change occurred (the treatment) and markets where the policy change did not occur (the control). The difference between the before and after period is calculated to show the within region change between the different time periods. The difference between these differences is then attributed to the policy change.

There are a handful of rent control regimes in each Rent Control Market that make it difficult to perform a difference in difference analysis. Therefore, the analysis that follows will focus on one regime change: the implementation of tenancy deregulation.

Assumptions

The analysis is summarized in the table below:

Difference-in-Difference Analysis			
	Toronto	**Vancouver**	**Winnipeg**
Before Treatment	1985 to 1998	1994-2002	1976-1982
After Treatment	1998 to present	2003 to present	1983 to present
Comparable CMAs	Montreal	Montreal	Montreal

There are a few key things to note about the different regions:

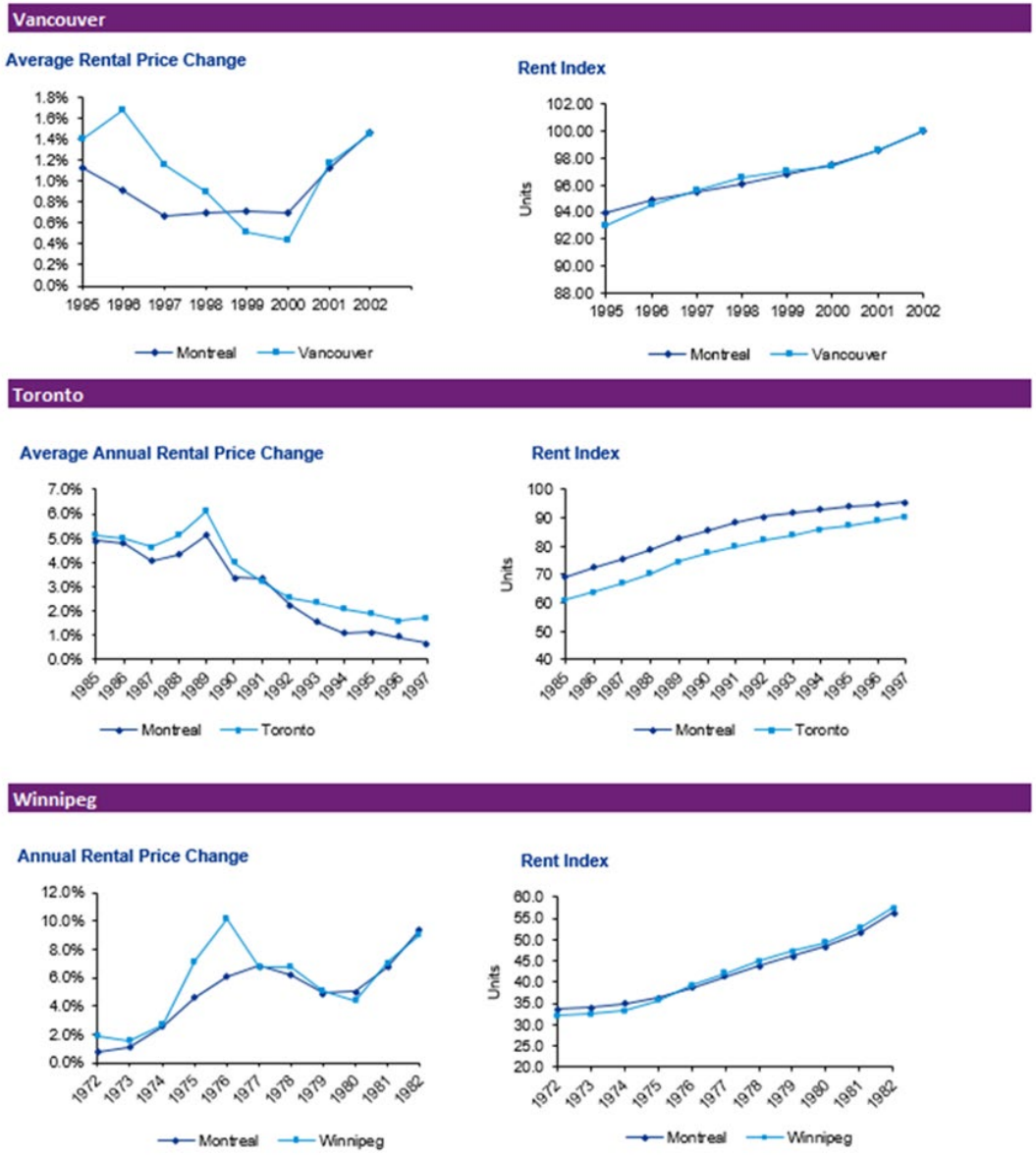
1. Vancouver: Vancouver moved from a period of arbitration (before treatment) to tenancy deregulation (after treatment). Montreal is an arbitration market, therefore any differences resulting from tenancy deregulation will be quantify the effect of going from arbitration to rent control, specifically a rent control regime of tenancy deregulation
2. Toronto: Toronto had both tenancy regulation rent control and the introduction of exemption for new units in the "before treatment" period. This is being compared to the consistent rental guideline policy of Montreal. It is important for the reader to note that both the different policies occurring in the "before treatment" could influence the results.
3. Winnipeg: Similar to Toronto, the "before treatment" period was tenancy regulation rent control in Winnipeg, therefore the analysis looks at moving from one policy metric to another. This is not the clean approach that would be preferred for a difference in difference analysis.

An important component of difference-in-difference analysis is the parallel assumption. This means that the comparable markets should be moving in *parallel* prior to the treatment. As long as this holds, it is reasonable to assume that any difference that may occur after treatment between the regions is due to the treatment itself.

The graphs below show the trajectory of rent price index in each of the "before" periods for each city. The parallel assumption appears to hold the strongest between Toronto and Montreal, and then between Winnipeg and Montreal and Vancouver and Montreal. In addition, both Toronto and Winnipeg rental price indices are correlated 0.99 with Montreal rental price index during the before period. Vancouver's rental price index is correlated 0.98 with Montreal's rental price index.

Figure 6

Parallel Assumption



Vancouver

The table below summarizes the difference-in-difference results for Vancouver.

Vancouver Difference-in-Difference						
	Control CMAs Average Annual Rental Price Change	Treatment CMA Average Annual Rental Price Change	Difference	Control CMAs Average Rent Index	Treatment CMA Average Rent Index	Difference
Before Treatment	0.9%	1.2%		96.3	96.1	
After Treatment	1.2%	1.4%		112.1	111.9	
Difference	0.30%	0.29%	-0.01%	15.8	15.9	0.0

The difference between the before treatment period and the after treatment period in Montreal was a 0.30 percent decrease in the average annual rental price change in the period. The difference between the before treatment period and the after treatment period in Vancouver was a decrease of 0.29 percent in the average annual rental price change in the period.

In the absence of the treatment (tenancy deregulation), the assumption is that the annual rental price change in Vancouver would have been a decrease of 0.29 percent. This means that the introduction of tenancy deregulation had an impact of decreasing the annual rental price by 0.01 percent. Intuitively, the expectation would be that the introduction of rent control would decrease the average annual rental price change further than the control, where no price controls exist.

However, the converse result is realized in the average rental price index changes. In the absence of the treatment (tenancy deregulation), the assumption is that the annual rental price change in Vancouver would have been an increase of 15 units. This means that the introduction of tenancy deregulation led to an increase in the rental price index of 0.04. However, this result could be because the treatment periods are quite large, which introduces geographic differences that are harder to control for over extended periods of time (i.e., Vancouver's robust rental market growth in the 2000s).

As a robustness check, we shortened the time frame to be five years prior to treatment and post treatment.

Vancouver Difference-in-Difference						
	Control CMAs Average Annual Rental Price Change	Treatment CMA Average Annual Rental Price Change	Difference	Control CMAs Average Rent Index	Treatment CMA Average Rent Index	Difference
Before Treatment	0.9%	0.9%		97.8	97.9	
After Treatment	1.4%	0.9%		104.2	102.7	
Difference	0.4%	0.0%	-0.5%	6.4	4.8	-1.6

This result is more intuitive. The introduction of tenancy deregulation (or going from a no rent control regime to rent control) caused an additional 0.5 percent decrease in average annual rental price change during the period. This is supported by the result for rental price index, where the presence of tenancy deregulation continued to limit the increase in rental price index by 1.6 points.

Toronto

The table below summarizes the difference-in-difference results for Toronto.

Toronto Difference-in-Difference						
	Control CMAs Average Annual Rental Price Change	Treatment CMA Average Annual Rental Price Change	Difference	Control CMAs Average Rent Index	Treatment CMA Average Rent Index	Difference
Before Treatment	2.8%	3.5%		96	78	
After Treatment	1.9%	1.6%		146	109	
Difference	-0.8%	-1.9%	-1.1%	49	31	-18

The difference between the before treatment period and the after treatment period in the Montreal was a 0.8 percent decrease in the average annual rental price change in the period. The difference between the before treatment period and the after treatment period in Toronto was a decrease of 1.9 percent in the average annual rental price change in the period.

In the absence of the treatment (tenancy deregulation), the assumption is that the annual rental price change in Toronto would have been a decrease of 0.8 percent. This means that the introduction of tenancy deregulation had an impact of decreasing the annual rental price change by 1.1 percent. This insinuates that the rent control regime successfully lowered rental price increases.

There is a similar result when analyzing the rental price index. In the absence of the treatment (tenancy deregulation), the assumption is that the rental price index in Toronto would have increased by 49 points. This means that the introduction of tenancy deregulation had an impact of decreasing the rental price index change by 18 points.

As a robustness check, we shortened the time frame to be five years prior to treatment and post treatment; as noted, the same result holds.

Toronto Difference-in-Difference						
	Control CMAs Average Annual Rental Price Change	Treatment CMA Average Annual Rental Price Change	Difference	Control CMAs Average Rent Index	Treatment CMA Average Rent Index	Difference
Before Treatment	1.5%	1.9%		105.6	87.3	
After Treatment	2.4%	2.0%		118.8	95.4	
Difference	0.9%	0.1%	-0.8%	13.2	8.1	-5.1

Winnipeg

The table below summarizes the difference-in-difference results for Winnipeg.

Winnipeg Difference-in-Difference						
	Control CMAs Average Annual Rental Price Change	Treatment CMA Average Annual Rental Price Change	Difference	Control CMAs Average Rent Index	Treatment CMA Average Rent Index	Difference
Before Treatment	6.7%	7.0%		52	48	
After Treatment	2.4%	2.4%		124	101	
Difference	-4.2%	-4.6%	-0.4%	72	53	-19

The difference between the before treatment period and the after treatment period in the Montreal was a 4.2 percent decrease in the average annual rental price change in the period. The difference between the before treatment period and the after treatment period in Winnipeg was a decrease of 4.6 percent in the average annual rental price change in the period.

In the absence of the treatment (tenancy deregulation), the assumption is that the annual rental price change in Winnipeg would have been a decrease of 4.2 percent. This means that the introduction of tenancy deregulation had an impact of decreasing the annual rental price change by 0.4 percent. This insinuates that the rent control regime successfully lowered rental price increases.

The similar result holds in Winnipeg for the rent price index. In the absence of the treatment (tenancy deregulation), the assumption is that the annual rental price change in Winnipeg would have increased by 72 points. This means that the introduction of tenancy deregulation had an impact of decreasing the rental price index change by 19 points. This insinuates that the rent control regime successfully lowered rental price increases.

As a robustness check, we shortened the time frame to be five years prior to treatment and post treatment.

Winnipeg Difference-in-Difference						
	Control CMAs Average Annual Rental Price Change	Treatment CMA Average Annual Rental Price Change	Difference	Control CMAs Average Rent Index	Treatment CMA Average Rent Index	Difference
Before Treatment	6.4%	6.4%		55.0	50.2	
After Treatment	4.8%	5.5%		78.4	69.0	
Difference	-1.6%	-0.9%	0.6%	23.4	18.7	-4. 7

This result changes, and suggests that the introduction of tenancy deregulation led to a 0.6 percent increase in average annual rent price change. This could be for a variety of reasons, including that the "before treatment period" included tenancy regulation in Winnipeg. Since Montreal and Winnipeg were operating under the parallel assumption, this would insinuate that Montreal's market was performing comparable to an tenancy regulation regime- therefore the change to a less strict rent control regime by Winnipeg would actually lead to slightly higher average annual rent price changes. Unfortunately, this inconsistency results by merit of the inability to control for geographic discrepancies in both policy and market in the Canadian market.

Limitation

One limitation of this analysis is understanding how the arbitration system in Montreal operates. If the arbitration system is binding, i.e., if it functions comparable to a strict rent control policy, then the conclusions above will not hold. The conclusions above rely on the assumption that arbitration is the lowest enforcement version of rent control.

Regression Discontinuity Design Robustness Check

As a robustness check, we performed a simple regression discontinuity design for each of the above markets. This included a policy change variable, a time trend, and monthly dummies. The logic is that the in a period closely surrounding the policy change, the underlying economic model explaining the data may shift. This would be shown as a significant coefficient on the policy change variable.

The basic specification is shown below:

$$\ln(RPI) = \beta_0 + \beta_1 D_{intervention} + \beta_2 t + \beta_3 t^2 + \sum \beta_{month} D_{month}$$

The table that follows summarizes the coefficient and t-statistic associated with each regression.

RDD Estimation						
	Toronto		Vancouver		Winnipeg	
Date of Policy Change	June 1998		November 2002		January 1982	
	Coefficient	T-Statistic	Coefficient	T-Statistic	Coefficient	T-Statistic
β_0	2.5491	267.62 (0%)	2.7193	212.82 (0%)	2.8925	156.9 (0%)
β_1	-0.0875	-16.61 (0%)	-0.1055	-13.52 (0%)	0.2008	20.7 (0%)
β_2	0.0064	147.94 (0%)	0.0060	97.89 (0%)	0.0046	42.9 (0%)
β_3	-4.41x10-6	-84.45 (0%)	-4.23x10-6	-51.72 (0%)	2.95x10-6	-27.0 (0%)
β_{month}	Insignificant		Insignificant		Insignificant	

Both Vancouver and Toronto have statistically significant negative coefficients on the policy change. This should be interpreted as the introduction of tenancy deregulation led to a decrease in rental prices over the time period. The opposite coefficient is observed in Winnipeg, which could be due in part to the long time horizon present after the policy change in Winnipeg. When performing the regression on a smaller dataset (5 years before and after the policy change), Vancouver's result reverses, while Toronto's and Winnipeg's remain significant and with the same sign.

The results for Toronto are consistent with the difference-in-differences analysis, while the results in Winnipeg and Vancouver may highlight the sensitivity of the outcome.

4. Conclusion

In summary, we were able to assess three main findings through our analysis:

1. Rental prices appear to be better able to respond to market supply and demand changes in markets without rent control.
2. Rental prices appear to be more likely to vary in rent control regimes that are less strict.
3. It is unclear if there is a relationship between rental starts in rent control markets and no rent control markets.

In general, there is some evidence that rental unit supply can be influenced by rent controls while rental prices may not. It appears that rental unit supply has a higher correlation with supply and demand inputs in markets that are less regulated. This suggests that the more recent policy mechanisms that have been introduced within more recent rental regimes allow the rental market to adapt to supply and demand forces in a more elastic manner than is observed during periods of tighter rent controls. Although there are instances where similar relationships are observed between rental price and less regulated markets, the relationships are not consistent throughout analyses, and are therefore relatively inconclusive.

Appendix C
Study on the Impacts of Rent Controls: Working Paper- Initial Regression Specifications

Study on the Impacts of Rent Controls: Working Paper- Initial Regression Specifications

Prepared by: KPMG March 31, 2020

Overview

This part of the rent control analysis is intended to evaluate the impact of different rent control regimes on rental supply and rental prices. This will be done by employing statistical regression analysis covering ten CMAs, five of which fall under rent control policies, and five of which do not have a history of rent control. Any information we are able to assess from these regressions will be used to inform comments on the potential implications of rent control regimes on the success of supply-oriented National Housing Strategy initiatives.

Data availability

The ideal approach for analyzing the impact of different rent control regimes on pricing would be to run a hedonic regression. A hedonic regression would leverage data that easily identifies units that fall under rent control and units that do not. This type of data allows the analysis to control for intrinsic pricing qualities across rental units, and estimate the impact of rent control on pricing outcomes. Similarly, using unit level data throughout time could provide insight about rental supply and conversion activity during different rental regimes.

However, unit level data on rental prices does not exist. This is because for the unit level data that does exist, only information on the valuation of the building is reported. This assessed value is based upon the market value of the rental building or unit, not taking into consideration the actual rental return earned by the property. In these circumstances, we were required to use CMA-level and provincial level data beginning in the 1970s and ending today. There are a few key limitations to note with the use of this data. Most importantly, the rental price index incorporates both units that fall under rent control and units that do not fall under rent control. Therefore, in certain geographies where there has been a large build of new rental units in recent years, and a small historical supply, the balance of the rental price index may actually have more units that are exempt from rent control than that fall under it. This will prevent us from being able to confidently estimate the relationship between rent control and rental price.

In addition, to properly identify the specification for the rental price and rental supply equations would be an extensive academic exercise, outside of the scope of this engagement. Using existing literature in housing and rental housing, conversations with CMHC, and analysis of relationships between variables, we will develop four specifications to pursue. Given this, we will not be able to declare the magnitude of the impact of certain rent control regimes on rental supply or rental prices, however, we may be able to assess if the regime has a upward, downward, or no influence on the dependent variables.

Potential Regression

There are two alternative approaches with respect to the regression analysis. The first is to run a CMA specific regression for each rent control area of interest, and to assess the particular market demand function for each region. Although more time intensive, this approach would provide the benefit of understanding market specific responses to rent control regimes (it is fair to assume that rent control can influence different markets in different ways, based upon a variety of factors- including their supply elasticity and local demographics). However, this exercise would be extensive and out of the current scope of this engagement.

Therefore we will run a panel data regression, incorporating all of the CMAs and time series data into one regression. This is consistent with the approach taken in the 1994 rent control paper produced by CMHC (the paper produced by CMHC noted that a pooled OLS was used; data used in the report was time series for metropolitan areas, comparable to the dataset we have compiled). The table below summarizes the dependent variables included and a few of the sources where these variables were used to forecast rental price or rental starts.

Potential Regression Variables	
Variable	**Source**
Income Level & Growth	(Malpezzi) (CMHC 1991)
Population Level & Growth	(Malpezzi) (CMHC 1991)
Unemployment Rate	
Construction Cost Index	(Early)
CPI	(Early) (CMHC 1991)
Interest Rate	(Early) (CMHC 1991)
Geography Dummy (not needed with fixed effects)	(Early)

Panel time-series data presents its own statistical complications when interpreting the results. There are many statistical exposures that can effect both the efficiency and consistency of the coefficient estimators. Two ways to control for this are by incorporating fixed effects for location and time. In addition, different statistical tests can help inform us about the standard errors, which provides insight about the efficiency and consistency of the estimations. Using these, we can identify standard error adjustments that may improve the estimators. We will assess the model in the following manner to learn more about our specification:

1. Heterogeneity: We will perform a test and visual assessment of errors to understand if they are homogeneously distributed. If they are not, we can statistically control for this using robust standard errors
2. Spurious Correlation: We will check the residuals of the regression with the Fisher-type test utilizing the augmented Dickey-Fuller test to ensure stationarity in the residuals
3. Hausman Test: If feasible, this test will provide insight into whether a fixed effects regression or random effects panel regression will yield more efficient and consistent estimators in the panel regression

4. Multicollinearity assessment: We will assess the stability of the model (changes in coefficients when adding predictors, very high standard errors, etc.) which would indicate existence of multicollinearity.

In the circumstances where the above tests do not show results that are in line with assumptions made about the regressions, we will incorporate adjustments to the standard errors and data, where possible.

The regressions that follow have the following structure:

$$Y_{it} = \beta X_{it} + + \sum \alpha_i + \sum \gamma \times D_{Year} + u_{it}$$

$$where \quad X_{it} \; are \; Independent \; Variables \; for \; city \; i \; at \; time \; t$$

$$\beta \; is \; the \; coefficient \; for \; the \; Independent \; Variables$$

$$\alpha_i \; is \; a \; coefficient \; for \; the \; city \; dummy \; variables$$

$$D_{Year} \; is \; a \; binary \; variable \; for \; n-1 \; years \; in \; the \; sample$$

$$\gamma \; is \; a \; coefficient \; for \; the \; year \; dummy \; variables$$

$$u_{it} \; is \; the \; error \; term$$

We have controlled for both fixed effects and time effects through city and year dummies. We assume that there are time effects specific to certain years that would be correlated with the error term. In addition, we assume that there are time invariant effects specific to cities that would be correlated with the error term.

A common issue in long time-series panel data is related to cross-sectional dependence or contemporaneous correlation. In order to assess the existence of this in our residuals, we performed the Pasaran Cross-sectional Dependence test, and determined that contemporaneous correlation existed. To control for this, we applied Driscoll and Kraay standard errors[20].

As a final check on the errors resulting from our regression, we checked to ensure stationary errors through a Fisher-type test leveraging the augmented Dickey-Fuller and were able to reject the hypothesis that the panel of errors had a unit root.

The null hypothesis is that the coefficient is statistically significant than zero. In the table that follows, statistical significance is indicated by stars. If there are stars, it indicates that the coefficient is statistically different than zero with some level of certainty. The summary table below summarizes the significance.

Statistical Significance Legend	
Stars	**Statistical Significance**
*	10 percent
**	5 percent
***	1 percent

The results for each regression follow[21]:

Regression Output		
	Dependent Variable: Natural log Rental Price Index	**Dependent Variable: Natural log Rental Starts per Capita (provincial)**
	b/se	**b/se**
CPI, natural log	**0.574*** **	
	-0.05	
Annual Population Growth (12 month lag)	**2.005*** **	**20.250***
	-0.43	-9.91
Annual Population Growth	**-0.121**	
	-0.37	
Average Income Growth	**-0.087**	
	-0.06	
Average Income Growth, (12 month lag)	**-0.036**	
	-0.06	
Mortgage rate, natural log (6 month lag)	**-0.015** **	**-0.977***
	-0.01	-0.47
Construction Cost Index, natural log (12 month lag)	**0.324*** **	
	-0.02	
Unemployment Rate, natural log (12 month lag)		**-0.084**
		-0.34
Unemployment Rate, natural log (24 month lag)		**-0.841** **
		-0.32
Average Income, natural log (12 month lag)		**-2.383***
		-0.93
Average Income Growth (12 month lag)		**2.244**
		-2.07
Population, natural log (12 month lag)		**1.194***

Regression Output		
	Dependent Variable: Natural log Rental Price Index	Dependent Variable: Natural log Rental Starts per Capita (provincial)
	b/se	b/se
		-0.51
GDP Growth		**8.29**
		-4.61
GDP Growth, 12 month lag		**13.858****
		-5.05
Constant	**0.533***	**11.012**
	-0.26	-12.78
Tenancy Regulation	**0.003**	**0.491**
	-0.01	-0.25
Tenancy Deregulation	**0.001**	**-0.453***
	0	-0.2
New Unit Exemption	**0.031*****	**0.200**
	0	-0.25

In the sections that follow, we discuss the approach to determining the specification, and an overview of the results.

Rental Prices

We leveraged insights about variables used in the cited literature, above, to determine our regression specification. In addition, we supplemented our base choice of indicators with knowledge about market and demand factors in order to determine and assess lags. Lags of no longer than one year were included in the regression since prices are relatively elastic to demand and supply. Determining the specification of the regression was an iterative process, involving assessing if key market variables (i.e., increase in CPI led to an increase in RPI) were statistically significant in the expected direction of influence.

Data within the rental price panel regression was truncated to between 1981-2018. This is because CCI data was not populated until 1981; Regina did not have CCI data until 2017.

CPI, CCI, and population growth all have expected positive relationships with rental prices. An increase in input prices (CCI) or prices across the economy (CPI) will lead to an increase in rental prices. In addition, increased demand (population growth) also comes through as increased rental prices. This occurs because there are frictions associated with increasing the rental unit supply market (i.e., construction time, financing, etc) that do not allow supply to immediately meet demand.

An increase in mortgage rates leads to a decrease in rental prices. This inverse relationship could be because mortgage rates generally increase as the demand to purchase housing units increases. Therefore the lagged mortgage rate may be capturing preference changes by consumers to purchase a house in lieu of renting. This would lead to a decreased demand for rental units, and therefore lower prices.

Interestingly, only the new unit exemption indicator had a significant positive coefficient. The new unit rent control regimes allow for newly built units to be set at prices outside of rent control restrictions. Since the rental price index includes both controlled and uncontrolled units, the amount of uncontrolled units in the index would increase within a new unit exemption regime, causing the average rental price to increase, since these units are not subject to rent controls. Another explanation would be that investors who have portfolios of real estate would increase their rent on new units in order to compensate for the lost return on their units that are subject to rent control. The coefficients on tenancy deregulation and tenancy regulation are statistically insignificant. It is unclear if these regimes have an influence on rental prices.

Rental Starts

Similar to the process for the rental price regression, we leveraged insights about variables used in the cited literature above in determining our regression specification. In addition, we supplemented our base choice of indicators with knowledge about market and demand factors in order to determine and assess lags. Lags of two years were included in the regression to account for the inelasticity and frictions present in the rental supply markets. Determining the specification of the regression was an iterative process, involving assessing if key market variables (i.e., increase in population led to an increase in starts) were statistically significant in the expected direction of influence.

Data within the rental starts panel regression was truncated to between 1988-2018. This is because rental starts data did not begin being populated until 1988.

In the regression performed by CMHC in 1994, instrumental variables were used in place of vacancy rate and rental price index. We explored these approaches although it did not significantly improve the fit of the regression; therefore we chose to pursue a specification that did not have endogenous variables. Instead, we included the unemployment rate which is a market metric that can help provide similar market insight to that which would be provided by the vacancy rate (the series are positively correlated).

Our dependent variable is rental starts normalized by provincial population. Ideally, we would use CMA population, however, time series of the length required do not easily exist, and interpolating a time series for each CMA using relationships between the CMA and Provincial data was an exercise outside the scope of this engagement. Therefore, a key assumption of these regressions is that population of the CMA increased proportionally to the population of the province. Since we are using larger cities, the majority of the growth in population likely occurred in the CMAs being tested. If this assumption does not hold, then certain relationships inferred by the regression will not hold.

Population growth, unemployment rate, and gross domestic product growth all show positive signs. This is expected as an increase in demand (population growth) would lead to more starts, and a decrease in demand (high unemployment rate) may lead to a depressed economy, and fewer building activities. GDP growth indicates growth in the market, which increases both investment demand for starts and tenant demand for starts. The year lag of income shows an inverse relationship. This can be explained by consumer preference changes; as income increases, consumers may choose to purchase homes or condominiums, thereby reducing rental starts. This type of variable is likely location dependent, and would differ across cities.

In this regression, the only significant rental regime indicator is on tenancy deregulation. The relationship between the tenancy deregulation regime and rental starts is negative; this follows theory that rent control policies tend to dissuade supply since the investment return is limited by the policy.

Ideas and Limitations

Rental Prices

In the circumstances, and using the data that exists, running the regressions listed above for each CMA would provide more insight about market specific responses to various rent control regimes. The underlying independent variables that influence rental price may differ across CMAs. Performing CMA specific regressions would allow for additional certainty in coefficient estimation and understanding of how different rent control regimes impact different markets.

Data limitations provide a hurdle in estimation of the rental price regression. If unit-level data existed, a hedonic regression would allow for a way to directly estimate the impact of a rent control policy on price. Similarly, the existence of data in smaller cities on the border of no rent control and rent control provinces would allow for a natural experiment in which to compare how pricing differs across the two locations.

Rental Starts

The rental starts regression could benefit from a handful of different approaches that would likely improve the fit and therefore explanatory power of the regression. At its most basic level, running the above regressions for each CMA would provide significant insight about how rent control coefficients may differ in each; patterns that emerge in the coefficients may lead to explanations about how rent control regimes affect markets differently.

In addition, retrieving an accurate CMA level population would help to ensure the accuracy of the regression. It is possible that there are times when CMA-specific rental starts increased, but the provincial population increased faster outside of the CMA, therefore the increase in starts is not captured in the variation.

Finally, including endogenous variables such as rental price or rental vacancy rates may add additional explanatory power to the regression that is not currently being captured. However, this would entail more complex instrumental variable panel regression modeling, which is outside the scope of this engagement.[22]

The insight of any of the above changes could provide more insightful output than the current panel results.

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