



The Treatment and Measurement of Owned Accommodation in the Canadian CPI



UN Network of Economic Statisticians – Prices Sprint, June 2022

Delivering insight through data for a better Canada



Statistics
Canada Statistique
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Canada

I. CANADIAN HOUSING MARKET

II. OFFICIAL TREATMENT OF OWNED ACCOMMODATION (OA) IN THE CANADIAN CPI

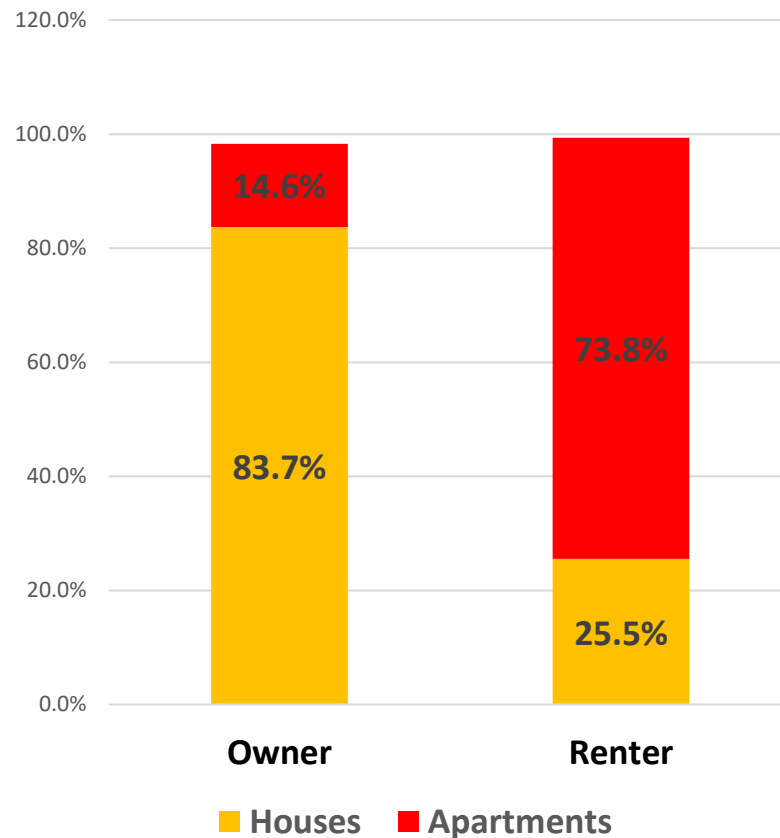
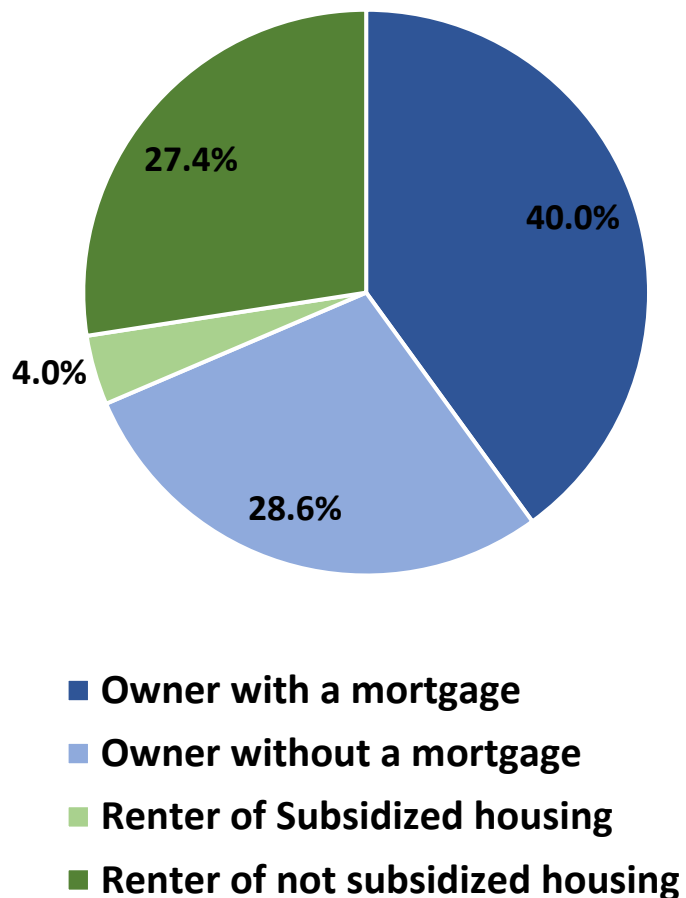
- DATA SOURCES AND METHODS FOR ESTIMATING OA COMPONENTS
- CHALLENGES
- INITIATIVES AND PROPOSED IMPROVEMENTS

III. ALTERNATIVE APPROACHES TO MEASUREMENT OF OA AND THEIR IMPLEMENTATIONS IN THE CANADIAN CONTEXT

IV. USER PERSPECTIVE - BANK OF CANADA

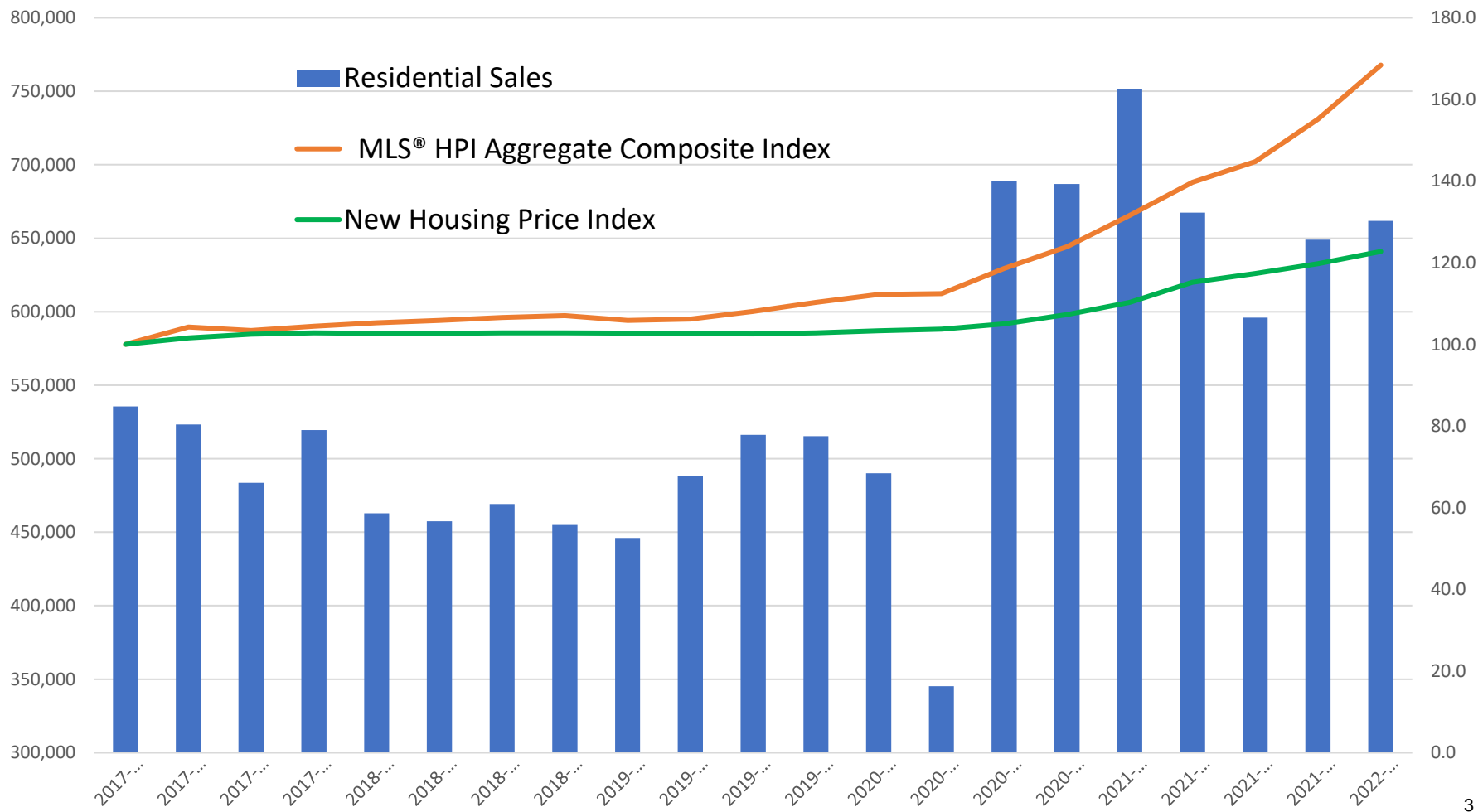
Tenure status of Canadian households, 2018

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Canadian Housing Market

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Statistics Canada's OA approach

- Measures the impact of price changes on the costs incurred by homeowners while they own and live in a home
- Reflects the costs incurred by the homeowner to use and maintain the home, but not the purchase price of the house
- Uses a simplified user cost approach (excluding some user cost components) to estimate the owner-occupied housing services of a house
 - Excludes return to homeowners' equity and the capital gains.
 - Both outlays are considered as investments rather than consumption.

Statistics Canada's OA approach

OA components

Mortgage
Interest
Costs
(MICI)

Replacement
Costs

Property
Taxes
Including
Special
Charges

Homeowners'
Insurance
Premiums
&
Mortgage
Insurance

Homeowners'
Maintenance
&
Repairs

Other
Expenses

Mortgage interest costs

- Estimates the impact of price changes on the amount of mortgage interest owed by the target population on its mortgage balance
- It is the product of two components:
 - Impact of changing house prices, by comparing the weighted average of housing prices over 300 months between the current and previous period, assuming a standard mortgage is amortized over 25 years
 - Impact of changes in mortgage interest rates on interest amounts between periods, holding the balance of mortgage loans fixed throughout the period of the CPI basket
- Two main data sources:
 - Lending and interest rate data from the monthly Report on New and Existing Lending (A4 return) submitted by banks to the Bank of Canada
 - Housing price indexes, produced and endorsed by Statistics Canada

Homeowners' replacement costs

- Corresponds to the portion of owner-occupied dwellings that is assumed to be consumed
- Represented by the worn-out structural portion of housing (depreciation of housing) or the amount a homeowner must spend to maintain the home's market value
- Derived by adjusting the total value of homes owned in Canada by changes in house prices as reflected by the New Housing Price Index, *exclusive of land*

- ***Property tax (and other special charges):***

- Measures changes through time in the amount of taxes levied on a constant sample of owner occupied dwellings in selected municipalities
- Data sources: collection from municipal offices, online price collection and use of administrative registers

- ***Homeowners' home and mortgage insurance:***

- Measures changes through time in the cost of insuring a fixed stock of dwellings against a specified combination of perils
- Estimated by multiplying two indices:
 - one that measures the change in the value of the replacement cost of properties using a third-party insurance data base (estimated quarterly);
 - one that measures the change in insurance rates by comparing the cost of identical policy profiles using data from insurance companies in the sample

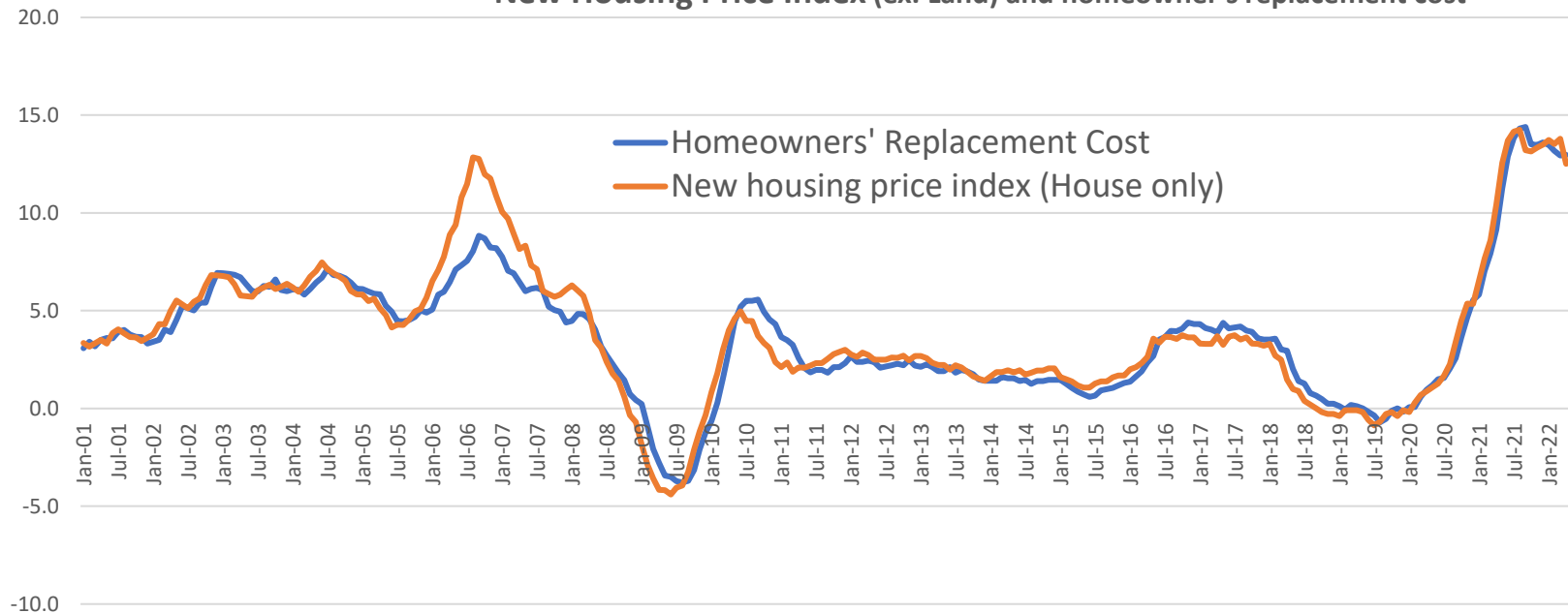
Homeowners' maintenance and repairs and Other owned accommodation expenses:

- Estimated using standard approaches for calculating elementary price indexes
- Data are collected for representative products, or related indexes produced by Statistics Canada are used
- Commission on sale of real estate (not published), reflects the change in residential property prices (based on price indexes for both new and resale housing prices)

Several OA components account for house prices

Year-over-year percentage change

New Housing Price Index (ex. Land) and homeowner's replacement cost



- Replacement costs (**New Housing Prices ex. land**), Home insurance, Property tax, Mortgage interest costs-MICI, Commission on sale of real estate

House Prices - Data Sources

New Housing Price Index

- Collected using Statistics Canada surveys: Data obtained at the time of pre-sale
- Transaction or list price for a model of a house unit as reported by the builder in a given month, exclusive of sales tax
- Developers report the prices for house and land separately
 - in case they cannot report prices for house and land separately, breakdown ratios are applied on total prices
- Matched-model index with explicit quality adjustments
- Hedonic imputation during model replacement

House Prices - Data Sources

Resale Housing Price Index

- Produced by private sector association (Canadian Real Estate Association – *MLS HPI*)
- Calculated using a hybrid modeling approach that merges the Repeat-Sales and Hedonic Price approaches. It reflects contributions of housing features to the home price
- House prices can not be separated from land prices

Recent enhancements to OA measure

- Until February 2021, CPI included only New Housing Price Index in the **Mortgage interest cost** and **Commission on sale of real estate** indexes
- CPI now includes changes in all house prices (new and existing (resale) housing)
- The implementation of resale house price data into the CPI is necessary because:
 1. resale market segment represents about 68% of Canadian residential properties
 2. new and resale house prices have different trends over time
 3. reliable, timely price indexes with good coverage across geographies are available by external providers

Challenges with OA measure

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- Current approach is complex and can be difficult to communicate to the public
 - Some think the mortgage principal payment should be included in the cost of housing
 - Cost of a *house* vs. cost of *housing*
 - Conceptual difference can contribute to the gap between inflation perceptions and official measure
- One official CPI measure used for several different purposes (indexation, monetary policy, social transfers)
- Other approaches to OA also have limitations in terms of practical data limitations and communications challenges

Addressing the challenges – initiatives and planned improvements

- [Shelter in the Canadian CPI: An overview](#)
- [The Cost of a House versus the Cost of Housing: evaluating different approaches to measuring owned accommodation in the Canadian CPI](#)
- [Consumer Price Index and Inflation Perceptions in Canada: Can measurement approaches or behavioural factors explain the gap?](#)
- CPI [Personal Inflation Calculator](#)
- Promote financial literacy and awareness about the CPI
- Social media and videos/webinars targeted to different types of users

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Alternative approaches for OA

Limitations and practical operational constraints in the Canadian Context



- Rental equivalence approach:
 - Rental market is relatively thin and not well-established, and market distortions (rent controls) exist in some Canadian regions
 - Would need to run a separate owners' rental equivalence survey - costly and includes risk of misestimating costs of housing in some regions and for some dwelling types
- User cost approach (full):
 - It is sensitive to assumptions made for some inputs (forgone interest rate, expected capital gains)
 - Risk of having negative costs of housing in a period of increasing house prices

Alternative approaches for OA

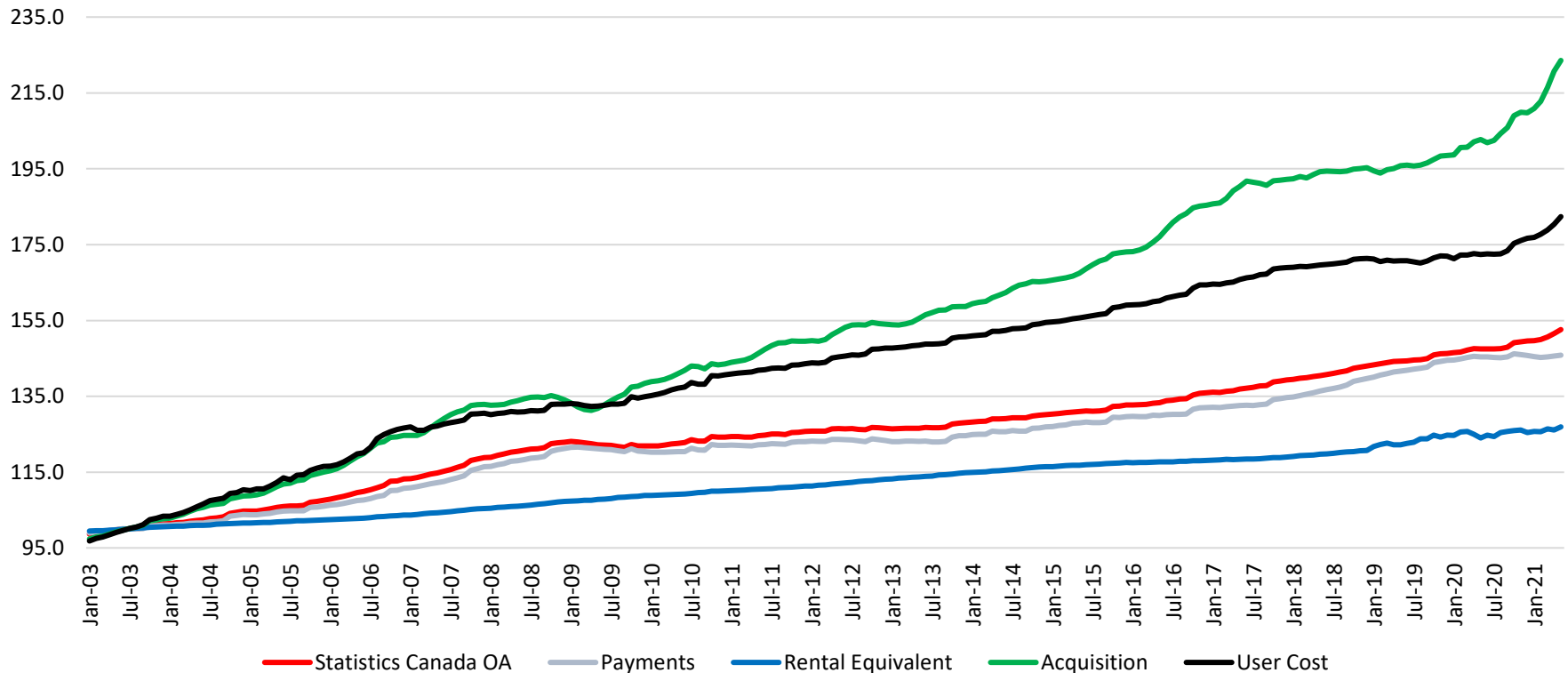
Limitations and practical operational constraints in the Canadian Context

- Payment approach:
 - It is not fully consistent with cost-of-living indexing: it ignores replacement cost
 - It gives a prominent role to mortgage interest costs (and possibly mortgage repayments)
- Acquisition approach:
 - It encompasses instantly the effect of housing price increases in the CPI
 - It is not consistent with the cost of living indexing
 - Expenditure weights and housing transaction prices vary considerably over time and by geographic locations
- Statistics Canada continues to discuss the treatment of housing with peer statistical institutions, price experts and international organizations.
- Research on this topic is ongoing to evaluate future planned improvements to OA in the CPI

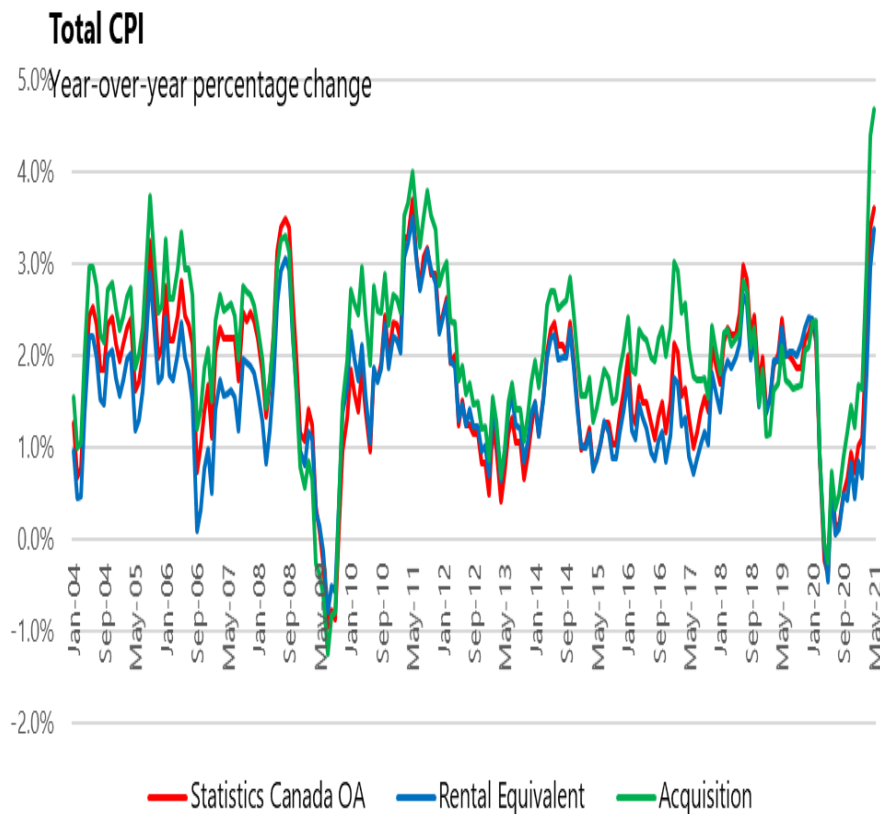
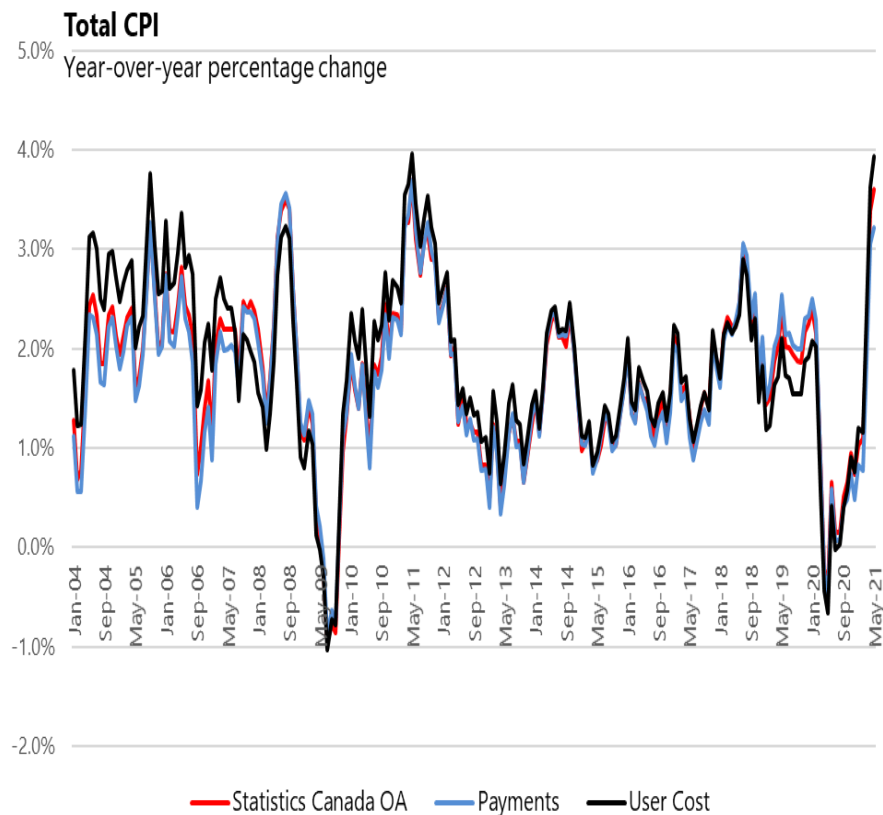
Different approaches give a wide range of possibilities for OA

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Owned Accommodation: All Approaches Indexes 2003=100



The rental equivalent approach shows the lowest rate of growth in CPI Inflation



Volatility in OA indexes and total CPI

	Official	Payments	Acquisition	Rental equivalence	User cost
OA indexes	1.36	1.48	2.21	0.51	7.16
Total CPI	0.72	0.72	0.78	0.64	1.43

Standard deviation of year-over-year growth rates, 2004 -2022

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What is the principal role of Bank of Canada?

- ✓ promote the economic and financial welfare of Canada

How to achieve it?

- ☐ By keeping inflation low and stable
- ☐ Target is defined as y-o-y change in CPI

House prices and CPI: what is best for monetary policy?

Should Central Banks target house prices directly?

A. Not recommended

- ☐ What drives changes to house prices not obvious
- ☐ Hard to predict level of house price fundamentals

Better to: Look at impact of house prices:

- ✓ Indirectly through wide capacity pressures
- ✓ Stability of the financial system
- ✓ Use of other housing indicators developed to measure housing price inflation

Which approach to owned accommodation (OA) is better in CPI ?

Criteria for evaluating OA approaches

Target=Cost of housing not houses

**Practical
Considerations**

Data limitations

**Monetary Policy
Perspective**

Gap with households perceptions

Volatility

Easy to communicate

Summary of evaluation: cost of housing more relevant for Canadian CPI

	Target	Practical Considerations	Monetary Policy	
Approaches	Cost of Housing	Data Limitations	Volatility	Perception Gap
Official Canadian CPI	+	+	+	-
Rental equivalence	+	-	+	-
Acquisition	-	+	-	+
Payments	-	+	+	-
User cost (full)	+	-	-	-

Summary

Monetary policy should react to house prices indirectly through capacity pressures

Pros and Cons for each OA approach but those aligned with cost of housing are more relevant for CPI

Official CPI approach to OA in Canada acceptable compromise



For more information on the Canadian CPI

- [Consumer price index portal](#)
- [Canadian CPI reference paper](#)
- For more information, please contact:
 - Heidi Ertl, heidi.ertl@statcan.gc.ca
 - Faouzi Tarkhani, faouzi.tarkhani@statcan.gc.ca
 - Patrick Sabourin, psabourin@bank-banque-canada.ca



THANK YOU
QUESTIONS?