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Staff analytical paper / Document analytique du personnel —2026-2

Last updated: February 18, 2026

Channels of Transmission: How Mortgage Rates Affect House Prices and Rents in Canada

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DOI: https://doi.org/10.34989/sap-2026-2 | ISSN 3110-9195

Acknowledgements

We would like to thank Yasuo Terajima, Serdar Kabaca, Claudia Godbout, Taylor Webley, Thibaut Duprey, Kerem Tuzcuoglu, Mathias Vieyra, Mike Irvine, Jing Yang, Oleksiy Kryvtsov, Erik Ens and Charles Gaa for their useful comments.

Abstract

We use Canadian data to examine how monetary policy affects house prices and the consumer price index for rent (CPI-rent) through exogenous changes in the mortgage interest rates. Nationwide, tighter monetary policy lowers house prices but raises CPI-rent, likely due to higher user costs for landlords or greater relative demand for rental housing. City-level analysis shows that, in response to tighter monetary policy, house prices fall most in cities where supply is inelastic, while CPI-rent tends to rise in cities with lower proportions of households moving from renting to owning.

Topics: Housing; Inflation and prices; Monetary policy
JEL codes: E31, E52, R21

Résumé

Nous utilisons des données canadiennes pour examiner comment la politique monétaire influence les prix des logements et la composante « loyer » de l'indice des prix à la consommation (IPC) à travers les variations exogènes des taux hypothécaires. À l'échelle nationale, un resserrement de la politique monétaire fait baisser les prix des logements, mais fait monter la composante « loyer » de l'IPC, probablement en raison du coût d'utilisation plus élevé pour les propriétaires ou de la demande relative accrue de logements locatifs. L'analyse par villes montre que les prix des logements baissent surtout aux endroits où l'offre est inélastique, tandis que les loyers selon l'IPC ont tendance à augmenter dans les villes où il y a une moins grande proportion de ménages locataires qui deviennent propriétaires.

Sujets : Logement, Inflation et prix, Politique monétaire
Codes JEL : E31, E52, R21

Introduction

The effect of monetary policy on house prices is well known (Duca, Muellbauer and Murphy 2021; Ehrenbergerova, Bajzik and Havranek 2023), but less is understood about the impact that interest rates have on rents. Recent work addressing this issue in other countries includes Abramson, De Llanos and Han (2025); Albuquerque, Lazarowicz and Lenney (2025); and Dias and Duarte (2019). We focus on evidence from the Canadian market. We argue that the impacts of monetary policy on both house prices and rents are best studied simultaneously and that those impacts are specific to each local market.

Generally, we find that a nationwide increase in mortgage interest rates induced by monetary policy tightening tends to push down house prices and increase the consumer price index for rent (CPI-rent) across the country. Meanwhile, such impacts differ by region: tighter policy pushes prices down by varying degrees across cities and leads to higher rents to be higher in some cities and lower rents in others. We demonstrate that city-specific elasticities of housing supply help explain the variety in price responses, while other factors, such as the wide range of rent-to-own transitions, contribute to the diverse rent responses.

Laying out the transmission mechanisms

We start with the simple investment model in Hall and Jorgenson (1967). The model shows that—in the absence of arbitrage opportunities—an investor must be indifferent between:

- putting an amount, *$p*, in the bank and receiving a return equal to the interest rate, *r*
- purchasing a unit of capital at price, *p*, renting it out at a rate of q, and then selling it at the prevailing price the next period net of depreciation δp and capital gain $\dot{p}$

In other words:

$$rp = q - \delta p + \dot{p}. \tag{1}$$

An alternative interpretation of Equation (1) would be through the lens of the asset pricing of housing. To a housing investor, the price of housing reflects expected future dividends from renting and expected price appreciation net of the depreciation discounted over the future.

For simplicity, we first consider the static version of this model, where house prices do not appreciate and the housing stock does not decline.

In the next section, we consider the dynamic version of this equation, where (expected) price appreciation plays a role. In the static case, we are left with a simplified version of the equation above:

$$rp = q. \tag{2}$$

In partial equilibrium, assuming price, *p*, does not change with interest rate, *r*, we observe the following:

- As *r* increases, rents, *q*, must also increase to make sure investors do not have an arbitrage opportunity.

- If house prices, p, increase, rents must also increase to maintain the same rent-to-price ratio.

In general equilibrium, this analysis is more complicated because house prices depend on interest rates. We therefore explicitly write p as a function of interest rate r in the same equation as above:

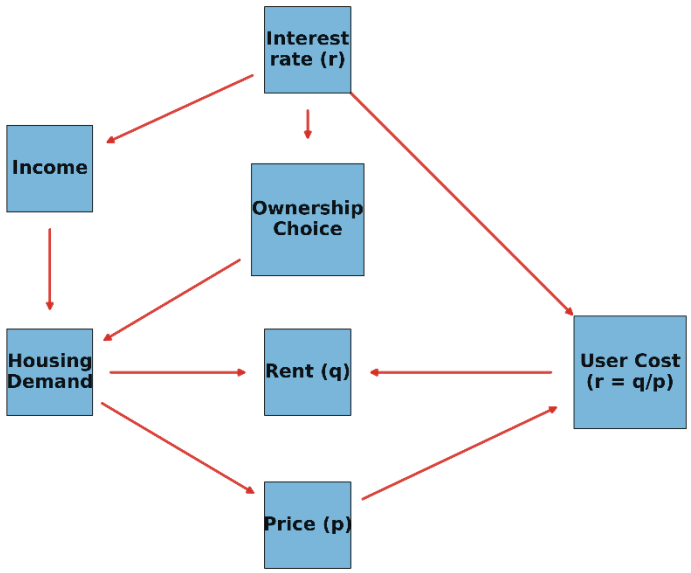
$$rp(r) = q, \tag{3}$$

and take the first derivative of rents, q, with respect to interest rates, r:

$$\frac{dq}{dr} = \frac{dp}{dr} + p(r). \tag{4}$$

Notice that the first term on the right-hand side is *negative* because higher interest rates unambiguously lower housing demand and thus house prices. But the effects on rents can go in either direction and flow through three distinctive channels (**Figure 1**).

Figure 1: Rents react to an exogenous change in the interest rate through various channels



User cost channel: As interest rates increase, landlords want to pass these rate increases on to renters. This channel is particularly relevant if the interest rate changes affect marginal landlords.

Ownership choice channel: The increase in interest rates reduces entry into ownership, which increases the relative demand for rental housing. This puts upward pressure on rents relative to house prices.

Income channel: As interest rates rise, labour markets soften and incomes might decline as a result, reducing the demand for housing. The drop in overall demand for housing puts downward pressure on prices and rents.

Moreover, many of these factors might vary at the local level, causing different effects across cities. For instance, house prices might decline more in cities where supply is inelastic.

Empirical methods

To identify the dynamic causal impacts of changes to monetary policy on house prices and rents through changes to the mortgage rate, we adopt the instrumental variable–proxy structural vector autoregression (IV-SVAR) framework by Stock and Watson (2018), Gertler and Karadi (2015) and Mertens and Ravn (2013).[1]

We collect monthly observations at the national level from 1997 to 2023. For the regional level, we collect monthly observations for 24 cities across Canada between 2005 and 2023. Our estimation sample can be as short as from 2013 to 2023, depending on the specification and data input. **Appendix A** provides details about the data we use in our analysis.

In our IV-SVAR setting, the underlying SVAR model consists of mortgage rate (m_t), house prices (p_t) and rents (q_t). We use monetary policy shocks (s_t) identified by Sekkel, Zhang and Stern (2025) as an external instrument of mortgage rates.

In particular, consider first an SVAR with 24-month lags as follows:

$$AY_t = C_1 Y_{t-1} + \cdot + C_{24} Y_{t-24} + \epsilon_t, \tag{5}$$

with endogenous variables the vector Y_t and ε_t defined as follows:

$$\mathrm{Y_t} = \begin{bmatrix} m_t \\ p_t \\ q_t \end{bmatrix}, \quad \epsilon_t = \begin{bmatrix} \epsilon_{m,t} \\ \epsilon_{p,t} \\ \epsilon_{q,t} \end{bmatrix}.$$

Our goal is to identify the structural shock $\varepsilon_{m,t}$—the shock to mortgage rates—and track its dynamic effects on p_t and q_t (house prices and rents).

To achieve this, we use an external instrument, s_t, assumed to satisfy:

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[1] In addition to the baseline, we find that our results are robust to two alternative specifications. The first is a three-variable SVAR with the Cholesky ranking of m_t, p_t and q_t. The second is an SVAR with monetary policy shocks, s_t, directly included as an endogenous variable in addition to the three above, while assuming s_t as contemporaneously exogenous to other variables. Compared with these two alternative specifications, IV-SVAR addresses the potential contemporaneous endogeneity issue of the mortgage rate concerning changes in house prices and rents. Mortgage rates may react in real time to the conditions of the housing market due to both demand and supply factors. Another advantage of our specification over the first alternative is that we instrument the mortgage rate with monetary policy shocks and can therefore directly interpret the dynamic impacts from the mortgage rate as ones stemming from monetary policy changes, which is the exact mechanism we focus on in this paper. In contrast, the impacts estimated from the first alternative specification—even if correctly specified—may pick up the impacts of the mortgage rate that are caused by the risk premium changes, which are not directly linked to monetary policy changes. Compared with the second alternative specification, IV-SVAR is more robust to model misspecifications about the causal dynamics between the mortgage rate, house prices and rents. By adopting IV-SVAR, we focus only on the dynamic impacts of a structural shock to the mortgage rate, which is correctly identified regardless of the remaining model assumptions.

$$E[s_t] \neq 0 \quad \text{(relevance)}$$

$$E[s_t \epsilon_{i,t}] = 0 \ \ \forall j \ \in \{p, q\} \text{ (exogeneity).}$$

In other words, s_t is:

- correlated with the structural shock to m_t, $\varepsilon_{m,t}$
- uncorrelated with the other structural shocks, $\varepsilon_{p,t}$ and $\varepsilon_{q,t}$

This allows us to recover the impulse responses to $\varepsilon_{m,t}$ without fully identifying the entire matrix, A. Only the first column of A^{-1} (associated with $\varepsilon_{m,t}$) is recovered.

Thus, we focus on the impulse response function (IRF):

$$IRF_h = E\left[Y_{t+h} \middle| \epsilon_{m,t} = 1\right] \forall h \ = 0,1 \ldots H,$$

showing how a shock of one unit size to the mortgage rate affects house prices and rents over time.

There are two reasons monetary policy shocks are valid instruments of changes in nationwide mortgage rate for our identification purpose. First, these shocks are not correlated with real-time and past macroeconomic conditions. Second, even hypothetically endogenous changes in monetary policy are unlikely to be endogenous monetary policy responses to movements in housing prices or rents.

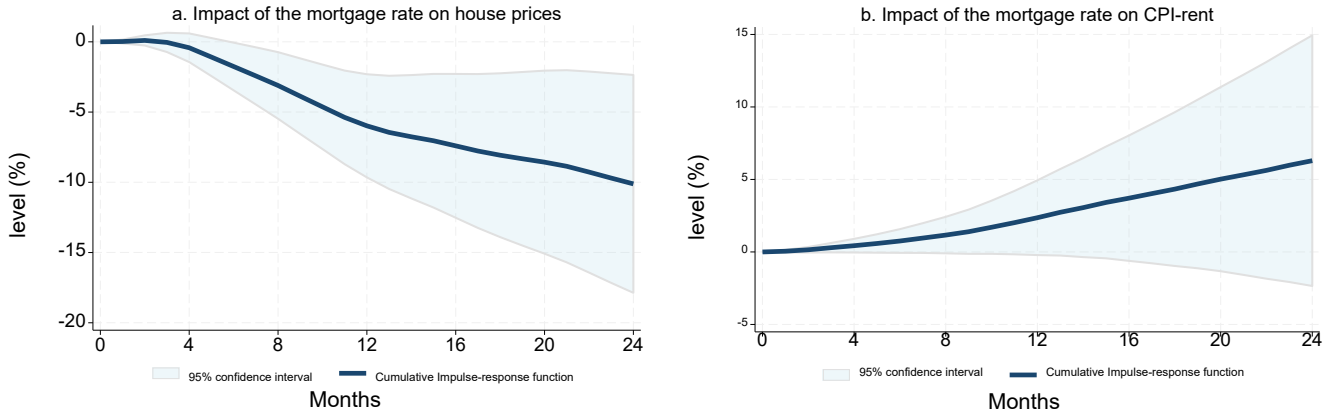
We use the monthly five-year mortgage rate, the year-over-year growth rate from the Canadian Real Estate Association's house price index and CPI-rent inflation to measure *m*, *p* and q, respectively (see **Appendix A** for more detail).

National results

We start by estimating the IV-proxy SVAR at the national level. The estimated cumulated impulse responses along with their 95% confidence intervals are presented in **Chart 1.**

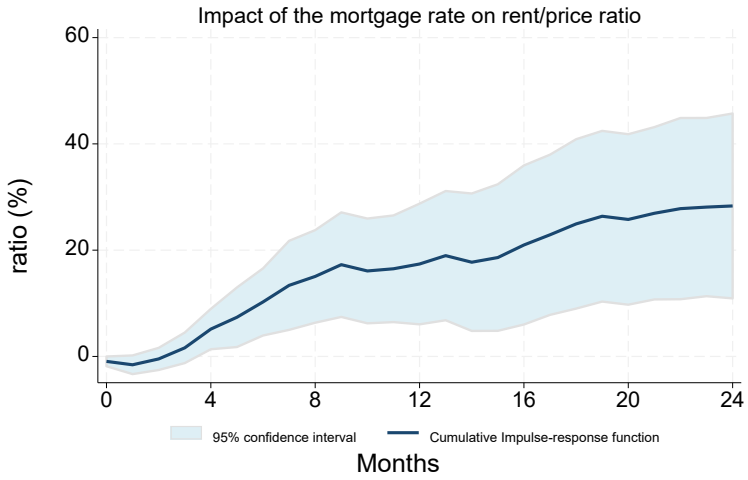
We find that an increase in mortgage rates of 100 basis points (as instrumented for by monetary policy shocks) causes house prices to decline by 5% (10%) over a 1-year (2-year) horizon. In contrast, CPI-rent increases by 2%–3% (5%–6%) over a 1-year (2-year) horizon, although the estimates are less significant. Consistent with the channels of the user cost or ownership choice that were previously explained, the relative prices of renting versus owning, measured as the rent-to-price ratio, increase by around 18% (28%) at a 1-year (2-year) horizon in response to an increase in mortgage rates of 100 basis points (**Chart 2**).

Chart 1: The impact of monetary policy on house prices and CPI-rent



Our estimates of the impact of a monetary policy shock on CPI-rent are similar to Abramson, De Llanos and Han (2025), who use microdata on rent prices, but slightly higher than those of Dias and Duarte (2019). Dias and Duarte (2019) find that a monetary policy shock of 100 basis points raises CPI-rent by 0.6 percentage points over 12 months, while we estimate an increase of 1 percentage point after a monetary policy rate shock of 100 basis points (corresponding to an increase of about 50 basis points in the mortgage rate under an estimated pass-through of 0.5).

Chart 2: The impact of monetary policy on the rent-to-price ratio

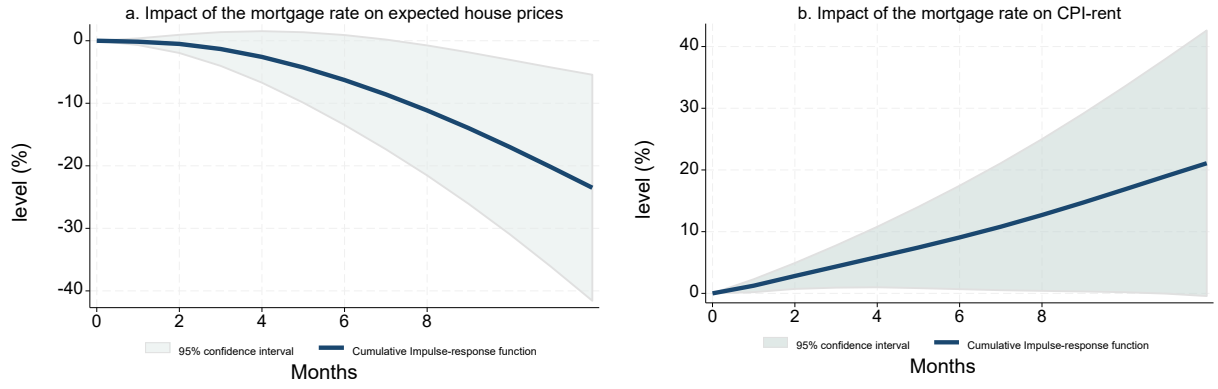


Incorporating house price expectations

Now we move beyond the static scenario of the user cost formula outlined in the beginning of the paper and incorporate expected house price growth. Because investors do not know the future path of house prices with certainty, we use survey-based expectations instead. Specifically, we re-estimate the IV-SVAR model by replacing the actual price, p_t, with expectations for house price growth 12 months ahead from the Canadian Survey of Consumer Expectations (CSCE). Because the CSCE sample period is

significantly shorter, we reduce the length of the lag in our estimation to 4 months.[2] Accordingly, the impulse response functions are shown over a shorter horizon of 8 months in **Chart 3**.

Chart 3: The impact of monetary policy on expected price growth and CPI-rent



In the dynamic framework, we find that house price expectations decline after a positive mortgage rate shock, while rents rise significantly (**Chart 3**). The increase in CPI-rent is estimated to be more significant than in the baseline. This indicates that both current house prices and expectations of future growth of house prices fall. As a result, the anticipated negative capital gains from home ownership necessitate increases rents to compensate for the increased user cost.

Regional variations

The various mechanisms we outlined earlier will likely vary at the city level. For instance, differences in the types of landlords prevalent in an area (e.g., whether they own a rental property with a mortgage or without one or whether they own many properties or just one) might mean the user cost channel operates differently across cities, while demographic variations might affect the decisions of renters transitioning into ownership. To investigate these more thoroughly, we estimate our IV-proxy SVAR regressions at the city level.

High versus low supply elasticity

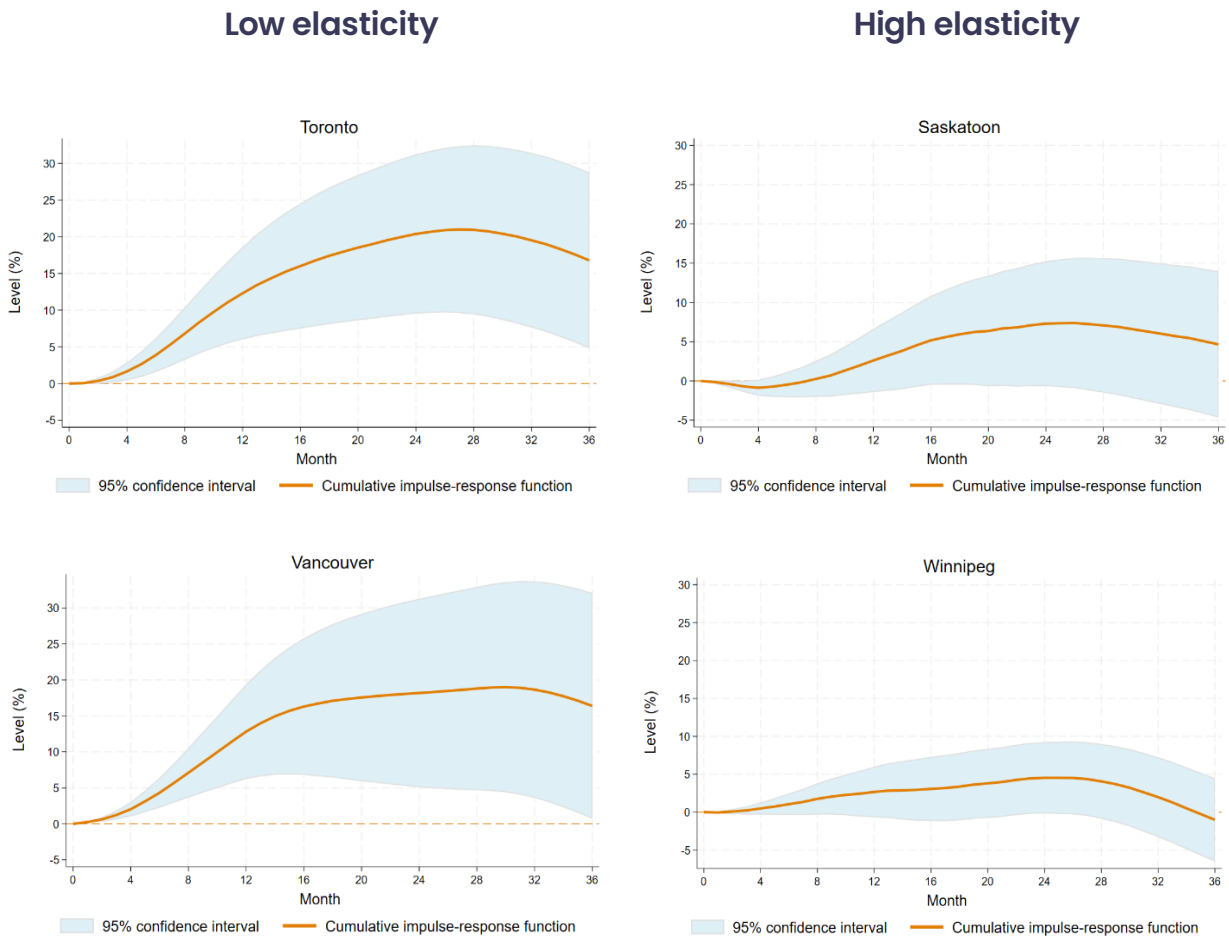
We inspect the variety in responses along the time-invariant housing supply elasticities across Canadian cities estimated by Paixão (2021). Because interest rate shocks can be thought of as shifting the housing demand curve, cities with highly inelastic supply would imply larger price movements than areas with high supply elasticity. And this is indeed what we observe.

When we divide cities into groups with low versus high elasticity based on their median value, we find that the rent-to-price ratio responds sharply (around +20%, on average, two years after the shock) to an increase in mortgage rates in areas with low supply elasticity, such as Vancouver and Toronto. Meanwhile, in areas with high supply elasticity, such as Winnipeg and Saskatoon, the ratio does not

[2] The results are robust to including 8- or 12-month lags.

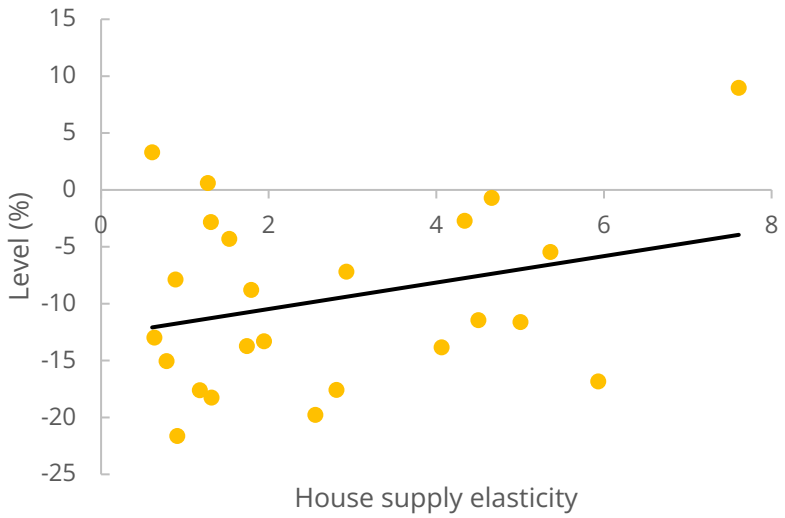
react as much (around +5%, on average, two years after the shock). **Chart 4** shows the estimated IRFs of the four selected cities.

Chart 4: The impact of monetary policy on the rent-to-price ratio is sharper in areas with low supply elasticity



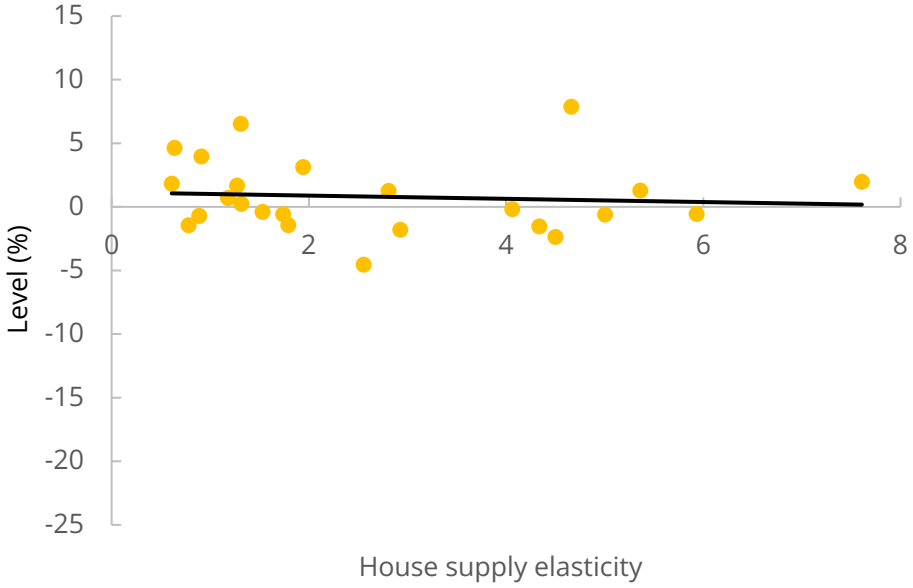
The impact of the mortgage rate on the rent-to-price ratio can be driven by impacts on CPI-rent (the numerator), house prices (the denominator) or the relative impact on both. In the case of Canada, we find that the overall impact on the rent-to-price ratio is driven by impacts on city-level house prices, which respond sharply to a monetary policy shock, as opposed to CPI-rent, which does not react as much to the same shock. **Chart 5** plots the point estimate from each city-level impulse response for house prices at the two-year mark (each dot is the estimate for one city). In most cities, the point estimates are statistically significant, and we observe a positive relationship between supply elasticity and the impact of mortgage rates.

Chart 5: Response of house prices two years after a monetary policy tightening shock (an increase of100 basis points)



However, the response of CPI-rent does not vary substantially with the supply elasticity across cities (**Chart 6**). The weak and ambiguous relationship between supply elasticity and CPI-rent likely reflects the influence of multiple, sometimes opposing, factors that shape how CPI-rent responds to changes in interest rates. As mentioned previously, when the interest rate increases, the user cost channel and the ownership channel push CPI-rent up, but the income channel pushes CPI-rent down.

Chart 6: Response of CPI-rent two years following a monetary policy tightening shock (an increase of 100 basis points)



Ownership channel

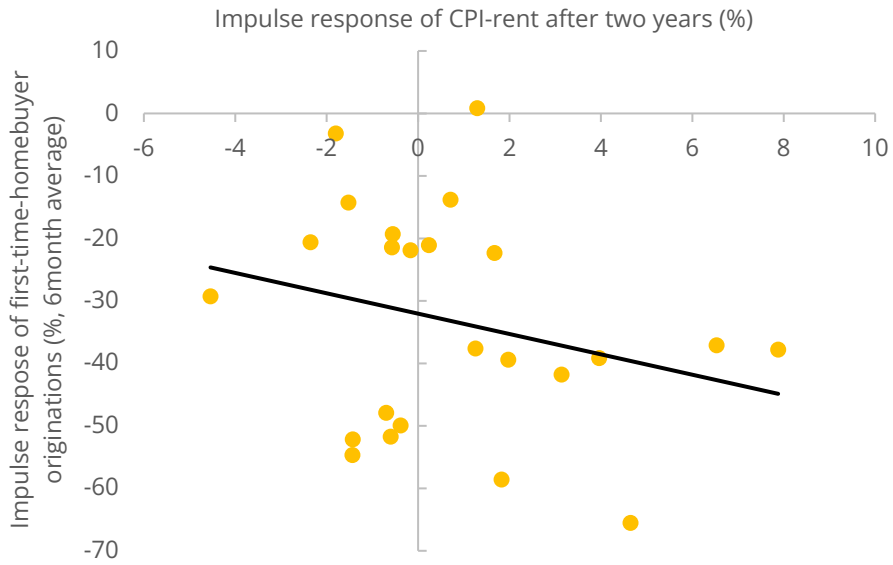
We investigate the ownership channel of this dynamic further. The intuition is that a positive mortgage rate shock means fewer renters can transition into homeownership, putting upward pressure on CPI-rent.

Our city-level proxy for rent-to-own transitions is the count of new mortgage originations made by households without a previously recorded mortgage account, i.e., first-time homebuyers. We use data from TransUnion on mortgage originations, available since 2015.

We run our IV-proxy SVAR framework (as before, we instrument mortgage rates with monetary policy shocks) using the log level of mortgage originations for first-time homebuyers and the rent-to-price ratio with only six lags, given the shorter sample.[3] We use the rent-to-price ratio in this specification because it captures the price of renting relative to that of owning.

We find that, generally, areas that see the largest declines in mortgage originations for first-time homebuyers six months after the shock are the areas where, on average, CPI-rent responds most positively two years after the shock (**Chart 7**). **Appendix B** provides the impulse response functions for selected cities.

Chart 7: **Cities that see a greater decline in fist-time homebuyer originations six months after a mortgage rate increase also see a greater increase in CPI-rent two years after the increase**



[3] Because the number of originations is naturally affected by the size of the city, we take a log transformation of the number of originations. This ensures that all dynamics, including impulse responses, can be interpreted as percent changes specific to each city.

Conclusion

We find evidence that the impact of monetary policy on house prices and CPI-rent operate through various channels and that these impacts vary by region.

While house prices unambiguously decline after a shock to mortgage rates induced by monetary policy, the extent to which they do depends on the elasticity of housing supply in that area. After a demand shock induced by monetary policy [tightening?], we find that a more inelastic supply implies larger price movements.

CPI-rent's response to such shocks is more ambiguous and can go in either direction. User cost effects imply landlords want to pass on their increased mortgage costs to renters. Indeed, we find that lower expected prices lead to higher rents, maybe because landlords seek to increase rents to compensate for lower expected capital gains. Fewer rent-to-own transitions put additional upward pressure on rents. Indeed, we find that cities with the largest declines in originations for first-time homebuyers after a mortgage rate change are also cities where CPI-rent increases more. In contrast, the negative labour market impacts of tighter monetary policy may reduce household income and therefore lower demand for rental units. The overall quantitative assessment of the strength of each channel is left for future research.

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Appendix A: Data used for analysis

Time period: For the national analysis, data are available from 1997 to 2023, unless otherwise noted. For regional analysis, data are available from 2005 to 2023, unless otherwise noted.

House prices: The primary measure of house prices is the benchmark house price calculated by the Canadian Real Estate Association. This measure is available for both the national and city levels, allowing for consistent estimates across various measures of aggregation. Unlike average transaction prices, the benchmark house price is adjusted for changes in quality to capture the underlying value of a typical home, enabling comparison across cities.

Rents: The primary measure of rent prices is the CPI-rent index published as part of the CPI by Statistics Canada. Using CPI-rent is consistent with the primary objective of this analysis: assessing the impact of monetary policy on rents as measured in the inflation statistics. In 2019, the methodology used to measure CPI-rent from a matched-model approach to a hedonic price model, which caused the volatility of the CPI-rent series to change. The empirical results reported in this paper are robust to such measurement changes.

CPI-rent can be thought of as a stock measure of rents. It contains not only the rates of new rental contracts given prevailing market conditions but also the rents paid by existing tenants, subject to adjustment frictions. Naturally, it therefore moves more slowly than market rents (Adams et al. 2024; Loewenstein, Meyer and Verbrugge 2024; and Ball and Koh 2025).

Monetary policy shocks: We primarily use the shocks constructed by Sekkel, Zhang and Stern (2025) following the methodology of Gürkaynak, Sack and Swansonc (2005). Our methodology uses intraday changes in bankers' acceptances futures contracts (BAX1 minus BAX4), which reflect market expectations for the three-month Canadian Dollar Offered Rate over horizons spanning the current quarter and the next three quarters. These shocks isolate both target rate surprises and forward guidance components around central bank communications, capturing the immediate and path-dependent effects of monetary policy on Canadian financial markets.[4] For most of our analyses, we use target rate surprises, although our results are robust to using other shocks or a combination of shocks. They are available from 1997 to 2023.

Mortgage rates: We use the five-year mortgage rate throughout our analysis. The five-year mortgage rate is the simple unweighted average of weekly posted rates across major financial institutions (banks, trust companies, credit unions, savings and loans, and life insurance companies), aggregated to a monthly frequency.

House price expectations: We use the Canadian Survey of Consumer Expectations to measure house price growth expectations for the following year. These data are collected quarterly beginning in 2015. We linearly interpolate it into monthly frequency.

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[4] All our empirical results remain similar when we alternatively use the shocks constructed by Champagne and Sekkel (2018) as the residuals from a meeting-by-meeting regression of intended changes in the Bank of Canada's policy interest rate on real-time staff forecasts of output and inflation, US interest rates, and the USD/CAD exchange rate—following the narrative identification strategy of Romer and Romer (2004) but adapted to Canadian institutional features and accounting for the regime shift introduced by inflation targeting in 1991.

First-time homebuyer transitions: We use TransUnion data on real estate secured loans to measure the number of mortgages originated by first-time homebuyers. These data are available starting in 2015, which means all analysis using this data is restricted to this start date.

Cities for the regional analysis: The cities we include are Calgary, Edmonton, Gatineau, Guelph, Halifax, Hamilton, Kelowna, Kitchener, London, Moncton, Montréal, Oshawa, Ottawa, Québec, Regina, Saskatoon, St. Catharines, St. John's, Sudbury and Toronto

Appendix B: Impulse response functions for the effect of mortgage rates on first-time homebuyer transitions

In this section, we present the response of mortgage originations by first-time homebuyers to a mortgage rate shock. We use the same instrumental variable–proxy structural vector autoregression (IV-SVAR) approach as before, but because the data on first-time homebuyers are available only starting in 2015, we are restricted to using six lags in our regressions. When performing our scatter plots, we focus on the average response of originations in the first six months, which is the peak of the impulse response function.

Chart B-1 shows the underlying impulse response of mortgage originations by first-time homebuyers for selected cities. As noted in the main text, we find that census metropolitan areas with the most negative response in originations by first-time homebuyers also have the most positive response in rents to the same mortgage rate shock.

Chart B-1: The impact of monetary policy on first-time homebuyers across cities
Impact of mortgage rate on first-time homebuyer originations