Heterogeneity in the Formation of Inflation Expectations: Evidence from Micro Data*

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This version: 2026-04-27

Abstract

Using micro-level data from the Canadian Survey of Consumer Expectations, we estimate an expectations model with time-varying heterogeneity, in which households switch between autoregressive forecasting rules over time. We interpret the aggregate degree of mean reversion as a measure of expectation anchoring and find that it varies over time, in particular in low- versus high-inflation environments, and across demographic groups. Prior to the pandemic, mean reversion dominates and aggregate expectations are relatively homogeneous and well-anchored. By contrast, in the wake of the recent inflation surge, expectations become more heterogeneous and trend-chasing behaviors more prevalent across most groups. This dynamics implies an asymmetric unanchoring risk that is markedly more severe when inflation is above target than below, and mostly driven by differences among age and education groups, while other demographic differences in expectation formation attenuate. Only when inflation is high are trend-chasing behaviors associated with higher expectations for interest rates, wages and house prices, and restrained household spending, and systematically correlate with concerns about monetary policy. Our micro-based insights show how an inflation surge broadly 'scars' forecasting behaviors, which poses a challenge for completing the 'last mile' of disinflation.

Keywords: *inflation expectations; state-dependency; heterogeneity; household survey*
JEL Classification: *E70; E31; D84*

*The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Canada.

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1 Introduction

Amid the recent inflation surge, central banks (CBs) have been particularly concerned that inflation expectations could become unanchored, which would contribute to entrench high inflation [Powell, 2023; Macklem, 2023]. This paper uses micro-level household survey data and model-based analyses to assess this risk in low- versus high-inflation environments. We interpret the degree of mean reversion in inflation expectations as an indicator of anchoring.

Using the survey data from the Canadian Survey of Consumers' Expectations (CSCE) over the period 2014Q4 to 2024Q2, we estimate a time-varying heterogeneous expectations model in which households follow possibly distinct autoregressive forecasting rules. Our estimation results reveal the coexistence of target-reverting and trend-chasing types over time.[1] We then interpret the resulting weighted-average, time-varying autoregressive coefficient over all agent-types as a measure of expectations anchoring. Since agents switch between forecasting types based on their recent relative forecast accuracy, the composition of aggregate expectations varies over time, which leads to variation in the unanchoring risk. In particular, an increased prevalence of trend-chasing types signals a risk of unanchoring inflation expectations. This is because trend-chasing expectations extrapolate the latest inflation trend into the future, which steers expectations away from the target, accentuates the persistence of the shocks on inflation, and complicates the CB's stabilization task. By contrast, the prevalence of mean-reverting types preserves medium-run anchoring, which contributes to eventually close the inflation gap despite transitory inflationary pressures.

We find strong evidence of differences in the composition of inflation expectations during low-inflation and high-inflation periods. During the period of low and stable inflation (2014Q4–2021Q1), aggregate inflation expectations tend to be target-reverting, and we cannot identify any significant heterogeneity or dynamics in the expectation formation process across survey respondents. By contrast, during the post-pandemic inflation surge (2021Q2–2024Q2), households' inflation expectations become significantly heterogeneous. The data reveal coexistence of two distinct forecasting behaviors, namely a near unit-root forecasting model and a diverging trend-chasing model. This heterogeneity

[1] In the paper, we use the terms trend-chasing, trend-extrapolating, and trend-following interchangeably to describe diverging autoregressive forecasting models, i.e. with an autoregressive coefficient above one. Similarly, we use target-reverting or mean-reverting interchangeably to designate forecasting rules where the autoregressive coefficient is lower than one given that we estimate forecasts of the inflation gap with respect to its target.

contributes to increasing the persistence in aggregate inflation expectations indicating a heightened risk of unanchoring of inflation expectations. Moreover, our rolling-window estimates show a pronounced divergence between the two types of forecasts, with trend-chasing behaviors becoming dominant when inflation rises above target after the pandemic. Not only does the mean expectations increase with inflation but so does disagreement between agents about the future stance of inflation, reflected in our framework by the use of distinct forecasting models.

We use the richness of micro-level CSCE data to provide further evidence about heterogeneity in the formation of inflation expectations across socio-economic and demographic characteristics. We find that respondents with lower levels of education, females, and renters are more prone to adopting trend-chasing behaviors than other categories of respondents, and the association between demographics and forecasting behavior is strengthened in the inflation surge. Respondents reporting a low level of credibility about the inflation target or concerns about the level of inflation and respondents attributing a high importance to low and stable inflation are also more likely to have trend-chasing forecasts during the post-pandemic inflation surge. Furthermore, our framework allows us to estimate distinct behavioral parameter values across different groups of respondents. In this respect, we uncover that older respondents, females, home owners with mortgages, and employed people are more responsive to news about inflation. These differences contribute to our understanding of expectation heterogeneity and indicate the need for the design of targeted CB communication strategies.

Next, we provide new evidence linking trend-chasing inflation expectations to other economic and financial expectations available in the CSCE, at different horizons. Specifically, during the post-pandemic inflation surge, trend-chasing short-run inflation expectations strongly correlate with higher forecasts for inflation at longer horizons as well as interest rates, spending growth, taxes, and house price growth, across all horizons. A weaker but significant link exists with higher wage expectations. Importantly, the association between short-run inflation trend-chasing forecasting behaviors and other forecasts (or consumer intentions) only materializes during the inflation surge. In particular, trend-chasing short-term inflation expectations have consistently been associated with higher five-year inflation forecasts since the inflation surge, which reinforces the concern of unanchored expectations.

Finally, the CSCE systematically elicits consumer plans, which allows us to document novel associations between inflation forecasting behaviors and spending intentions. We find that during the recent inflation surge, trend-chasing consumers are more likely than

those who hold mean-reverting inflation expectations to restrain their spending and increase their saving, in particular by postponing major purchases and chasing cheaper shopping deals or seeking additional income opportunities. These behaviors do not align with the standard consumer optimization framework embedded in the majority of macroeconomic frameworks. These findings could pose a substantial challenge to policy design and entail sizeable aggregate demand effects during an inflation surge.

Taken together, our findings speak to the existence of a state-dependent risk of unanchoring of household inflation expectations. During the post-pandemic inflation surge, this unanchoring risk is heightened due to three co-existing developments: i) the emerging heterogeneity in forecasting behaviors that produces significant trend-chasing expectations; ii) higher inflation expectations among these trend-chasers; and iii) a strengthened association between short- and long-term inflation expectations among the trend-chasers when inflation is high. In other words, an inflation surge 'scars' inflation forecasting behaviors widely across various macroeconomic indicators as well as across demographics, and complicates the last mile of disinflation. Accounting further for the impact of these scars on other economic outlooks and behaviors, our results may call for tighter monetary policy than full information rational expectation models typically prescribe to sustainably bring inflation expectations and inflation back on target.

The rest of the paper is organized as follows. After the literature review, Section 2 describes the data used, Section 3 presents the heterogeneous expectations model, Section 4 discusses the dynamics of heterogeneity in inflation expectation in our data, 5 discusses how this heterogeneity relates to other expectations and behaviors, and Section 6 concludes.

Related Literature Our work relates to the theoretical and empirical literature on heterogeneous expectations. The literature on heterogeneous inflation expectations starts with Mankiw et al. [2004]. Evidence of heterogeneity in inflation expectations in surveys is documented in Branch [2004], and D'Acunto et al. [2023] more recently. Meeks and Monti [2023] highlight the quantitative relevance of expectation heterogeneity in accounting for inflation dynamics. relatedly, Reis [2022] and Fofana et al. [2024] provide a comprehensive overview of the time variation in inflation forecast dispersion along large shocks. Our approach emphasizes distinct forecasting models among the population of agents, rather than looking at the cross-sectional dispersion of forecasts. Forecasting lab experiments also support heterogeneity in expectations and switching behaviors between simple heuristics to form a variety of beliefs, including expectations

of asset prices, house prices, or macroeconomic data; see, in particular, Anufriev and Hommes [2012]. The heterogeneous expectation model that we use belongs to the class of heuristics-switching models introduced in the seminal application of replicator dynamics in Brock and Hommes [1997], which has sparked a lengthy literature on both the theoretical and empirical fronts; see Hommes [2021] for a review.

Our work is also related to the literature that assesses the state-dependent anchoring of inflation expectations. Higher sensitivity of inflation expectations to current dynamics in inflation suggests unanchoring of expectations [Gürkaynak et al., 2007; Williams, 2022; Gáti, 2023]. In our environment, the sensitivity of expectations to current inflation increases with the share of trend-chasing expectations in the population.

The papers that are most closely related to ours are Cornea-Madeira et al. [2019]; Cornea-Madeira and Madeira [2022]; Kostyshyna et al. [2026] and Bolt et al. [2019]. These papers show that aggregate inflation and house price times series are consistent with expectations models with time-varying heterogeneity. We extend this line of research to the micro level by analyzing these switching behaviors in household expectations survey data. In particular, we estimate the behavioral parameters for distinct demographic groups that we relate to other beliefs, CB credibility, and consumer intentions. We further emphasize how heterogeneity in expectation formation processes has emerged and evolves in the context of the recent inflation surge.

Other closely related models of heterogeneous expectations include Branch and McGough [2010]; Branch and Evans [2011]; Massaro [2013]; Gasteiger [2014], and Hommes and Lustenhouwer [2019]. Ozden [2025] has brought this class of models to the data using Bayesian techniques. Other relevant approaches to model heterogeneous expectations include a two-type model of pessimistic and optimistic agents [Andrade et al., 2019], Ricardian and non-Ricardian agents [Branch and Gasteiger, 2019], social learning expectations [Arifovic et al., 2013, 2023, 2025], and mixed models of adaptive learning, k-level reasoning, and replicator dynamics [Evans et al., 2025].

2 Data from the Canadian Survey of Consumer Expectations (CSCE)

We use a comprehensive source of household-level expectation data from the Canadian Survey of Consumer Expectations (CSCE). The Bank of Canada introduced this quarterly

survey in 2014 to fill this data gap [Gosselin and Khan, 2015]. Its structure and questions share many similarities with the Survey of Consumer Expectations used by the Federal Reserve Bank of New York [Armantier et al., 2017].

The CSCE is an online representative survey of 2,000 respondents[2] aged 18 and over. The CSCE is a rotating panel where each respondent stays in the survey for four quarters, with an equal number of respondents rotating in and out of the sample in each quarter. A large polling firm implements the CSCE on behalf of the Bank of Canada. The survey collects views of Canadian consumers about inflation, interest rates, and house price growth at different horizons, labor market prospects, household income, tax and spending outlooks, and demographic characteristics. Our data span the period 2014Q4–2024Q2.

Table 1 summarizes the distribution of age groups, education levels, regions of residence, and employment status from the CSCE sample. We also provide the demographic distributions of the Canadian population obtained from Census data in this table for comparison. Overall, the composition of the CSCE sample is similar to the Canadian population, with some differences reflecting less willingness of some groups to participate in this type of surveys. In our empirical analysis, we use the sampling weights provided by the CSCE for each observation based on age, region, and gender to account for its demographic and geographical representativeness in the Canadian population. Moreover, throughout the quantitative analysis in the paper, we use Huber weights to account for outliers and influential observations (see, e.g., in Coibion et al. 2022).

The CSCE uses the following two-part question to elicit one-year-ahead inflation expectations:

Part 1. ***Over the next 12 months***, *do you think that there will be inflation or deflation? (Note: deflation is the opposite of inflation.) Please choose one.*
–Inflation
–Deflation (the opposite of inflation)

Part 2 is then presented separately based on the respondent's answer in the first part:

Part 2. *What do you expect the rate of [inflation/deflation] to be* ***over the next 12 months?*** *Please give your best guess. Please enter a number greater than 0 or equal to 0.*
Over the next 12 months *, I expect the rate of [inflation/deflation] to be .... percent.*

Fig. 1 reports the cross-sectional distribution of these one-year-ahead inflation expectations (see the boxes that represent the interquartile range, IQR) for each quarter of the

[2]The sample size was 1,000 before 2018Q2.

survey, along with realized inflation in Canada (red line with dots; calculated by taking the year-over-year growth rate of the Statistics Canada's CPI all-item series). Until 2020, consumers' inflation expectations track realized inflation, but with a well-documented upward bias; see, for example, Ehrmann et al. [2017] and Schembri [2020] within the Canadian context, and Weber et al. [2022]; D'Acunto et al. [2023] for recent surveys on the systematic upward bias in inflation expectations. In the rest of the paper, to account for this upward bias, we demean the CSCE inflation expectations. The cross-sectional heterogeneity also remains fairly constant up until early 2020, with an IQR around 3 percentage point (p.p.) At the onset of the pandemic, inflation declines while inflation expectations remain relatively stable. However, as realized inflation starts to surge in 2021Q2, reaching an 8% peak in early 2022, consumers' inflation expectations follow this upward trend. During this period, rising inflation expectations are also characterized by higher cross-sectional dispersion, indicating higher disagreement among households regarding future inflation, as shown by the IQR which doubles.[3] As realized inflation starts to moderate, inflation expectations ease but as of 2024Q2, they remain more elevated and dispersed than before 2020. In particular, the IQR remains around 6 to 7 p.p. up until the end of our sample.

Table 2 provides evidence of the heterogeneity in inflation expectations by respondents' demographic characteristics based on summary statistics. Younger respondents, females, and those with lower education attainments and lower levels of income report higher inflation expectations over various horizons, while home owners and employed respondents comparatively report lower expectations. Heterogeneity in inflation expectations is documented in other surveys across different countries.[4] Overall, the demographic patterns in the CSCE summary statistics reported in Table 2 mirror those documented in other comparable institutional surveys (e.g., the Michigan Survey of Consumers): females, lower-income earners, older respondents, and those with lower education attainments report on average higher inflation expectations (see D'Acunto et al. 2023).

In addition to household inflation expectations, we also report on their expectations for interest rate, wage growth, household spending and income, and house price growth expectations over short and long horizons. We include the corresponding survey questions in Appendix A.1. Differences in interest rate expectations across demographic characteristics are similar to those found in inflation expectations (Table App.2). Young respon-

[3] Higher disagreement in inflation expectations during high-inflation period has been reported in other countries by [Mankiw et al., 2003; Reis, 2021, 2022].

[4] See, *inter alia*, Bryan and Venkantu [2001]; Bruin de Bruin et al. [2010]; Madeira and Zafar [2015]; Das et al. [2020]; Andre et al. [2022]; D'acunto et al. [2023].

dents, those with higher level of income and education, and house owners have higher expectations for nominal wage growth, and growth of household spending and income (Table App.1). Young people, renters, males, those with lower levels of income, and those with higher levels of education have higher expectations for house price growth over a short horizon (Table App.3).

Contrary to inflation expectations, the demographic differences in expectation formation of these other economic variables have been less documented in the related literature. Positions in the life-cycle, group-specific constraints and exposure, as well as country-specific circumstances can contribute to non-systematic demographic differences across datasets. For instance, when it comes to expected house-price growth, using data from the ECB Consumer Expectations Survey in 2020, Bańkowska et al. [2021] show that both respondents aged 18–34 and 65+, and renters, report higher expected growth. In the New York Fed Survey of Consumers Expectations, both those with higher income and education, as well as younger respondents (i.e., below 40 year old), and homeowners report lower expectations for house-price growth and mortgage rates [Federal Reserve Bank of New York, 2025]. When it comes to expected household income growth, older (i.e., above 60 of age) and lower-income respondents have lower expectations, while expected household spending growth is lower among younger and higher-income and highly educated respondents. Wage-growth expectations are also lower for older, lower-education, and lower-income respondents. Our evidence adds to these empirical regularities.

3 Expectation formation with time-varying heterogeneity

3.1 The model

3.1.1 Agents' forecasting behaviors

We develop a model of heterogeneous expectations with a discrete set of J agent-types, indexed by j. We assume that all agent-types use a parsimonious AR(1) model to forecast inflation (see, *inter alia*, Hommes et al. 2023):

$$E^*_{j,t}\pi_{t+1} = \phi_j \pi_{t-1}, \tag{1}$$

where inflation π is expressed in deviation from its target, and each type j uses a distinct autoregressive parameter $\phi_j \in \mathbb{R}$. This is the only difference across the J agent-types.

We do not impose any constraint on the values of the autoregressive parameters ϕ_j. We rather let the CSCE micro data speak and identify the co-existing forecasting behaviors, if any, based on the estimates of these autoregressive parameters. The AR(1) representation is general enough to nest a wide range of heuristics without restricting behavior to a predefined taxonomy. In particular, the model encompasses the following cases.

When $-1 < \phi < 1$, agents expect the inflation gap to shrink over time and inflation to converge back to its target, namely expectations are mean- or target-reverting – and the smaller ϕ (in absolute value), the faster the convergence. This is analogous to anchored expectations since agents believe that inflation returns to the target whenever it has deviated from it in the last period, typically as the result of transitory shocks. For this reason, mean-reverting expectations contribute to stabilizing inflation around the target in the face of adverse shocks, and can be seen as a tailwind for monetary policy. Positive ϕ entail a gradual, smooth convergence back to the target, and negative ϕ indicates a convergence along dampening oscillations around the target, under which households forecast a reversal of the last movement (e.g., expect a small positive gap when inflation was below target). $\phi = 0$ indicates that agents anchor on a target-consistent view toward future inflation (zero gap with inflation target).

The case of $\phi > 1$ describes agents that extrapolate trends, i.e. believe that previous deviations from the target are cumulative and inflation diverges away from the target along ever increasing inflation gaps.[5] Trend extrapolation is meaningful under both positive and negative inflation gaps. When the inflation gap is negative (past inflation is below target), trend-chasers expect it to fall further, while mean-reverting forecasters expect an inflation increase back to the target. In this case, mean-reverting forecasters have higher inflation expectations than trend-followers. Symmetrically, when inflation is above target, trend-followers expect inflation to keep increasing away from the target, so they hold higher expectations than mean-reverting agents who instead expect inflation to fall back toward the target. For this reason, the presence of trend-chasing expectations increases the risks of unanchoring inflation expectations because trend-chasing expectations hinder the stabilization of inflation in the presence of adverse shocks, akin to a headwind for monetary policy. The higher the value of ϕ, the stronger the trend extrapolation and the faster inflation is expected to diverge away from the target.

Finally, $\phi = 1$ is the random-walk belief, under which agents forecast next period's gap to

[5]The theoretical case $\phi_j < -1$ would imply divergence along exploding oscillations, which is not supported by empirical evidence.

remain the same as the current one, implying neither mean reversion nor trend amplification. When inflation is on target (or, equivalently, $\pi_{t-1} = 0$), all forecasting models yield the same predictions, and all agent-types forecast inflation to remain on target in the next period. Therefore, heterogeneity in expectations only matters when inflation deviates from its target.

In the rest of the paper, we consider $J = 2$ types of forecasting models that can occur in every period, which allows for a parsimonious formulation of heterogeneity without ruling out homogeneity. $J = 2$ is rich enough to encompass distinct (and even opposite) effects of expectations on inflation.[6] For instance, the model estimation with $J = 2$ could reveal heterogeneity as the co-existence of one mean-reverting and one trend-chasing model, or heterogeneous degrees of the same behavior (e.g., the coexistence of faster or slower mean-reversion or trend-extrapolation). And, homogeneous type is not ruled out since $\phi_1 = \phi_2$ would imply that all agents agree on their inflation forecasting model, both forecasting types collapse into a single rule, and all agents hold the same inflation expectations. In the estimation below, we proceed by identifying the two autoregressive coefficients ϕ_1 and ϕ_2.

3.1.2 Time-varying heterogeneity in forecasting behaviors

The relative proportion of these two forecasting types in the population of agents varies over the business cycle as follows. In each quarter t, a fraction $\boldsymbol{n_{1,t}}$ of the agents belong to the first type, and the other $\boldsymbol{n_{2,t}} \equiv (1 - \boldsymbol{n_{1,t}})$ belong to the second. The aggregate inflation expectation then evolves as the weighted average of the two forecasts:

$$E_t^* \pi_{t+1} = \boldsymbol{n_{1,t}} \phi_1 \pi_{t-1} + \boldsymbol{n_{2,t}} \phi_2 \pi_{t-1}. \tag{2}$$

where the star-superscript represents a general expectation operator which need not correspond to a rational forecast (in the sense of consistent with the underlying model of inflation).

Agents endogenously switch between types according to the recent relative forecasting

[6] Moreover, adding more types need not improve identification. To see this, in Appendix C, Table App.4 reports estimates for $J = 3$ and $J = 4$ types. Under these additional exercises, while our conclusions from the parsimonious $J = 2$ case carry over, the estimations with $J > 2$ do not deliver meaningful gains in fit or new economic insight. By contrast, these estimates are less stable (weak identification and the added models duplicate existing ones). $J = 2$ then sufficiently allows for distinct behaviors in inflation expectation to be identified. We keep the $J = 3, 4$ exercises in the appendix as robustness checks that confirm—but do not sharpen—our main results.

accuracy of each model. Specifically, the shares of each type $j = 1, 2$ evolve according to a replicator dynamics described by the following set of equations:

$$U_{j,t} = -\frac{FE_t^j}{FE_t^1 + FE_t^2}, \tag{3}$$

$$FE_t^j = \sum_{k=0}^{K-1} \left| E^*_{j,t-k-2}\pi_{t-k-1} - \pi_{t-k-1} \right|, \tag{4}$$

$$\boldsymbol{n_{j,t}} = \frac{\exp\left(\beta U_{j,t}\right)}{\exp(\beta U_{1,t}) + \exp(\beta U_{2,t})}. \tag{5}$$

Let us unpack each of these equations. Variable $U_{j,t}$ is the forecasting accuracy of agent-type $j = 1, 2$. This variable depends on the size of the absolute forecast errors denoted by FE^j and given by Eq. (4), which would have resulted had the agent used type-j model to forecast inflation over the last K periods. Looking only at the recent past allows for the possibility of structural breaks in the time series of inflation and agents' limited memory, which is well-documented both in the survey [Malmendier and Nagel, 2016] and in the lab literature [Anufriev and Hommes, 2012]. In the rest of the paper, we set $K = 4$ quarters (i.e., a year) in line with the related literature (see, for example, Cornea-Madeira et al. 2019). When applying this model to the CSCE data, a year of experience also matches the maximum length of the survey tenure of the respondents in the sample. Eq. (5) is the replicator dynamics, which describes how the forecasting type with relatively lower forecast errors gains market shares at the expense of the other type. Parameter $\beta > 0$ is the so-called intensity of choice: a higher β means a quicker switch to the better of the two rules, and therefore proxies for the degree of rationality of the agents.[7] Parameter β can also be interpreted as the degree of inertia in forecasting behavior, where higher values capture higher levels of attention to forecast accuracy, which entails a quicker shift towards the more accurate forecasting model. This parameter is estimated in our empirical strategy (see Section 3.2).

[7]The literature refers to the polar case of $\beta = \infty$ as the "neoclassical limit" where $n_{1,t} = 0$ or 1 and all agents switch to the better type in every period. In the limiting case where $\beta = 0$, $n_{j,t} = 1/2$, $j = 1, 2$, $\forall t$, so that the distribution of types is always uniform and independent from their relative performances. The case $\beta = 0$ could be interpreted as zero rationality when forecasting performances is ignored in the choice of a forecasting rule.

3.1.3 Measuring aggregate beliefs

We compute the aggregate autoregressive coefficient among all agents in a specific period, denoted by ρ_t, as the weighted average of the two estimated autoregressive coefficients, using the shares of each agent-type in t:

$$\rho_t \equiv \phi_1 \boldsymbol{n_{1,t}} + \phi_2(1 - \boldsymbol{n_{1,t}}) \in [\phi_1, \phi_2]. \tag{6}$$

The aggregate coefficient ρ_t, if $|\rho_t| \in [0, 1)$, indicates that the aggregate expectations are, on average, mean-reverting towards the target. Hence, values of $|\rho_t| \notin [0, 1]$ indicate a loosening of expectation anchoring. In particular, when $\rho_t > 1$, aggregate inflation expectations diverge from the target over time. The case $\rho_t > 1$ requires that at least one $\phi_j > 1$, $j = 1, 2$. Without loss of generality, let $\phi_2 > 1$ and $n_{2,t} \equiv (1 - n_{1,t})$ be the trend-chasing type and its share in the population in t. Eq. (6) then shows how an increase in the prevalence of trend-chasing behavior $(1 - \boldsymbol{n_{1,t}})$ increases ρ_t, which delays or even precludes mean-reversion in aggregate expectations, and jeopardizes their anchoring.

Our expectation formation mechanism is general and does not depend on an underlying macroeconomic model. However, expectations dynamics has naturally important implications for realized inflation and the stabilization trade-off of the central bank. To illustrate how, let us use the context of the baseline New Keynesian Philips curve:

$$\pi_t = \gamma E_t^* \pi_{t+1} + \kappa y_t + \xi_t, \tag{7}$$

where $\gamma \in (0, 1)$ is the discount factor, y_t measures economic activity (typically the output gap with a slope $\kappa > 0$), and some disturbances ξ_t. Replacing the aggregate inflation expectation $E_t^* \pi_{t+1}$ by Eq. (2) results in a backward-looking process where inflation in t depends on inflation in $t - 1$.[8] Under such a process, inflation is expectationally stable when the absolute value of the first derivative with respect to π_{t-1} is strictly lower than one, which is the case whenever $\gamma |\left(\phi_1 \boldsymbol{n_{1,t}} + \phi_2(1 - \boldsymbol{n_{1,t}})\right)| \equiv \gamma|\rho_t| < 1$, or $|\rho_t| < \frac{1}{\gamma} \equiv \bar{\rho}$. Since γ is a discount factor, $|\bar{\rho}|$ is just above one. Moreover, even if $|\rho_t| < |\bar{\rho}|$, the closer it is to this threshold, the more likely escape dynamics can drive inflation away from the target under (at least partly) backward-looking expectations (see, for example, Branch and Evans 2011).

[8] Various micro-foundations have been developed in the literature to allow for such a formulation; see, among many, Branch and McGough [2009]; Kurz et al. [2013]; Andrade et al. [2019]; Hommes and Lustenhouwer [2019]; Arifovic et al. [2025].

We now turn to our estimation strategy of the parameters of the model using households inflation expectations from the CSCE and Canadian inflation time series.

3.2 Estimation strategy with the survey data

First, to jointly estimate the parameters of the model, we write any short-run (1-year) expectation in the CSCE of respondent i in quarter t as:

$$\pi^e_{i,t} \equiv \phi_j \pi_{t-1} + v_{i,t},\ j = \{1, 2\}, \tag{8}$$

where the noise term $v_{i,t}$ reflects idiosyncratic components of respondent i's expectation, perhaps misperception or inattention to past inflation, or confusion in reporting.

The model then consists of the following four parameters to be estimated: the two autoregressive parameters $\phi_1, \phi_2 \in \mathbb{R}$, the intensity of choice $\beta \geq 0$, and the variance of the idiosyncratic noise $\sigma^v > 0$. Following Branch [2004], we assume $v_{i,t} \overset{iid}{\sim} \mathrm{N}(0, \sigma^2_v)$. The fraction of type j (i.e., $n_{j,t}$) given by Eq. (5) may be reformulated as the theoretical probability of a CSCE forecast being of type j. The model-implied probability of a forecast $\pi^e_{i,t}$ to be of type j given the relative accuracy of this type can then be written as:

$$\Pr(\pi^e_{i,t} \in j \mid U_{j,t}) \equiv \boldsymbol{n_{j,t}} = \frac{\exp(\beta U_{j,t})}{\exp(\beta U_{1,t}) + \exp(\beta U_{2,t})}. \tag{9}$$

Given the distribution of $v_{i,t}$, we write the individual-level empirical probability $\Pr\left(\pi^e_{i,t} \in j\right)$ of a given CSCE forecast $\pi^e_{i,t}$ of belonging to type j:

$$\Pr\left(\pi^e_{i,t} \in j\right) = \frac{1}{\sqrt{2\pi}\sigma_v} \exp\left(-\frac{1}{2}\left(\frac{\pi^e_{i,t} - \phi_j \pi_{t-1}}{\sigma_v}\right)^2\right), \tag{10}$$

which means that when a forecast $\pi^e_{i,t}$ is close to the type-j implied forecast $\phi_j \pi_{t-1}$, the probability of this forecast being of type j increases. The probability of observing the

entire CSCE sample with a type assignment has the following density function:

$$Pr(\pi^e_{i,t}, i = 1, \ldots, N, t = 2014Q4, \ldots, 2024Q2 \,|U_{j,t}, \phi_j \pi_{t-1}, t = 2014Q4, \ldots, 2024Q2, j = 1, 2) \tag{11}$$
$$= \prod_t \prod_i \left[\sum_{l \in \{1,2\}} n_{l,t} P(\pi^e_{i,t} \in j = l) \right]$$

where $N = 64,399$ is the total number of forecasts in the CSCE. Combining Eqs. (10) and (11), we may write the log-likelihood function of each $\pi^e_{i,t}$ being a certain belief-type given this type's relative forecasting performance as:

$$\mathcal{L} = \sum_t \sum_i \ln \sum_{j \in \{1,2\}} \frac{\exp(\beta U_{j,t-1})}{\exp(\beta U_{1,t-1}) + \exp(\beta U_{2,t-1})} \times \frac{1}{\sqrt{2\pi}\sigma_v} \exp\left(-\frac{1}{2} \left(\frac{\pi^e_{i,t} - \phi_j \pi_{t-1}}{\sigma_v} \right)^2 \right). \tag{12}$$

We can now estimate the values of ϕ_1, ϕ_2, β, and σ_v that maximize $\mathcal{L}$. For convenience, we estimate ϕ_1 and $\Delta\phi$, where $\phi_1 + \Delta\phi \equiv \phi_2$. We do not impose any restrictions to the values of the behavioral coefficients, and therefore the estimation domain for $\mathbb{R}^4$.[9]

Once the parameter values are estimated, we match every forecast in each period to the most likely type j as given by Eq. (10), i.e. a forecast $\pi^e_{i,t}$ is classified as type $j = 1$ if $\Pr\left(\pi^e_{i,t} \in 1\right) > \Pr\left(\pi^e_{i,t} \in 2\right)$.

We apply this estimation strategy along several sub-samples of the CSCE data to uncover any differences during low-inflation and high-inflation periods, time variation in parameters and heterogeneity across demographic groups. First, we estimate the model on the full sample (2014Q4 to 2024Q2). Second, we split the sample into low-inflation periods, which span from 2014Q4, that start of our sample, to 2021Q1, right before the post-pandemic inflation surge in Canada (see, again, Fig. 1); and call it "pre-HIFE" (pre-High-InFlation-Environment). And, the remaining periods, 2021Q2 to 2024Q2, or "HIFE." Third, we use a 16-quarter rolling-window estimation from the start of the CSCE (in 2014Q4) through the end of our sample (in 2024Q2) to uncover time-variation in parameter values. Finally, we estimate the model across key demographic groups – namely,

[9] We let $\Delta\phi \geq 0$. The inequality on $\Delta\phi$ is only an ordering normalization used to resolve the permutation (label–switching) indeterminacy of the two types in finite–mixture models; it does not restrict ϕ_1 or ϕ_2 because any solution with $\Delta\phi < 0$ can be relabeled (by swapping the type indices) to produce an observationally equivalent likelihood. This normalization improves numerical stability and prevents type jumping across samples or rolling windows, without loss of generality [e.g., Frühwirth-Schnatter, 2006].

age, education, gender, income, housing tenure, and labor-force status – that are known for their association with inflation expectations [D'Acunto et al., 2023]. Our comprehensive application of the heterogeneous expectations model to the CSCE data allows us to show when and whose expectations are more likely to become unanchored, thereby clarifying which audiences, and under which inflation conditions, require stronger or more targeted communication strategies to help keep their expectations anchored.

4 Estimation results

4.1 The dynamics of heterogeneity in inflation expectations

Table 3 in Panel (a) provides the estimated values of the four parameters of the model using the entire CSCE sample. Overall, the data are consistent with the behavioral story underlying the heterogeneous expectations model with the co-existence of two types of forecasting models. In detail, the significantly positive estimate of β indicates that households respond to relative forecasting performance, which is consistent with the switching behavior outlined in the model. The estimated parameter ϕ_1 is significantly different from zero and lower than 1, which indicates the presence of mean-reversion in some of the forecasts. Strikingly, the estimation of $\Delta\phi$ is significantly greater than zero – i.e., ϕ_2 is significantly greater than ϕ_1 – and the implied value of ϕ_2 is around 1.45, significantly larger than one, which implies the presence of trend-chasing forecasting behavior in the data.

Fig. 2 reports the time series of the estimated share of trend-chasing forecasters in the CSCE in each quarter based on this estimation (black solid line with dots), along with realized inflation (red line with circles) and inflation target (red horizontal dashed line at 2%). Up until 2018, inflation fluctuates slightly below the target, so the inflation gap is negative and the share of trend-chasing forecasts is relatively low, around a quarter of the respondents. In 2018 and 2019, the inflation gap is close to zero, so that expectations under two belief-types are too similar to be identifiable from the data.[10] Consequently, the shares of each belief type fluctuate around 50%, with somewhat large fluctuations.

More interestingly, at the onset of the COVID-19 pandemic in 2020, inflation falls sharply below target, and so does the share of trend-chasers, to around 15%. This implies that

[10]This can be clearly seen from the closeness of the black line with 'T' marks (representing the trend-chasing forecasts conditional on the last inflation gap) with the blue line with 'M' marks (representing the mean-reverting expectation) in Fig. 2.

the vast majority of consumers (about 85%) do not expect further disinflation, or even deflation (as evidenced in Fig. 1), and their expectations align more closely with the mean-reverting than to the trend-chasing ones. This pattern probably reflects downward rigidity in inflation expectations. The picture changes drastically during the post-pandemic inflation surge: After inflation overshoots the target on its upward trend (in 2021Q2), the share of trend-chasing inflation expectations–which then extrapolate above-target inflation– sharply increases. Interestingly, trend-chasing behaviors start then losing momentum in 2022Q1-Q2, when inflation reaches its peak, namely *before* inflation starts moderating and the Bank of Canada starts hiking its policy rate (in 2022Q2, see the dotted-dashed line in Fig. 2). This is consistent with the plateauing of expectations observed in these quarters (see, again, Fig. 1). Trend-chasing expectations continue moderating and mean-reverting expectations become more prevalent in 2023Q1. This pattern is an encouraging sign for the anchoring of inflation expectations: many Canadians did not further extrapolate the inflation upswing, even though their expectations remained elevated throughout the disinflation period. This could be a result of the anticipation of the tightening cycle of monetary policy to address high inflation.

Interestingly, in 2023Q2 and onward, trend-chasing expectations gain momentum again and their share reaches above 75% in 2024Q2, our last observation. This renewed shift toward extrapolative forecasting closely mirrors the slowdown in disinflation observed over the same period, as inflation remains persistently above target. This uptick in the trend-chasing behavior, despite a narrowing inflation gap, echoes "the last mile" discussion in Erceg et al. [2024]: in the wake of large inflationary shocks, the Phillips curve steepens, making the complete return to target (i.e., "the last mile") especially costly, which can sustain extrapolative forecasts despite smaller inflation gaps than at the peak of the inflation surge.

Despite persistently below-target inflation during 2014–2017, our estimations show that expectations remained well anchored during this period, with only about 30% of respondents, on average, classified as trend-followers. In contrast, the post-pandemic surge in inflation is accompanied by a marked increase in the prevalence of trend-chasing behaviors, which jeopardize expectations anchoring. This speaks to an asymmetry in the state-dependent risk of expectation unanchoring. This risk appears more serious on the upside, when inflation peaks above target, than on the downside, when inflation hovers below target. However, this result is likely due to much larger deviations of inflation above inflation target during post-pandemic inflation surge than deviations of inflation below target during 2014–2017.

4.2 The heterogeneity in inflation expectations in low- and high-inflation environments

Next we examine the estimates of the behavioral parameters separately for the pre-HIFE and HIFE sub-samples (Table 3 Panel (b)). We can see evidence of a regime shift: in the first part of the sample (2014Q4-2021Q1), the model does not detect any significant heterogeneity in forecasting behaviors: the estimate of $\Delta\phi$ is virtually zero, implying that two types are not different. The common autoregressive parameter is estimated around $\phi \approx -1.3$, but we cannot reject the null hypothesis of it being equal to -1, which suggests that Canadian inflation expectations generally follow a contrarian forecasting rule during this period. In other words, respondents tend to expect reversals of negative inflation gaps (see, again, Fig. 1 for the dynamics of the inflation gap over the sample).

The picture reverses during the post-pandemic inflation surge. Heterogeneity in forecasting behaviors emerges and widens ($\Delta\phi \approx 0.36$), with the data being consistent with two trend-chasing models: one with a relatively weaker $\phi_1 \approx 1.17$ (significantly greater than one), and one with a relatively stronger $\phi_2 \approx 1.53$, significantly greater than the estimated ϕ_1 value. Overall, the post-COVID-19 inflation surge has been accompanied by the emergence of heterogeneity in inflation forecasting behaviors, and a change in these behaviors from stabilizing to diverging models.

Our rolling-window estimates of the model parameters show the evolution of the model parameters. We used rolling window of sixteen quarters, or four years, given the limited size of the sample. Fig. 3 shows the resulting time series of the estimates of ϕ_1 (blue line with "1" markers) and ϕ_2 (black line with "2" markers), along with their 95% confidence intervals in shaded areas. The dynamics of the autoregressive parameters confirms the change in forecasting behaviors and in expectation heterogeneity during the post-pandemic inflation surge. The pre-pandemic period shows no significant heterogeneity in expectation formation, hence the two time series virtually coincide, and both coefficients hover around -1, consistent with the well-documented upward bias in inflation expectations even in a regime of below-target inflation dynamics. Hence, these dynamics do not present risk to anchoring of inflation expectations before 2020.

A pronounced shift emerges after the onset of the pandemic: the two estimates start diverging sharply, with ϕ_2 rising far above one and remaining persistently elevated, while ϕ_1 remains around, or slightly above 1. This divergence signals a switch to extrapolative expectations with a sharpened heterogeneity in expectation formation. Both types of

households expect higher inflation in the future, with a difference that some expect moderate rise in inflation while others increasingly extrapolate recent inflation trends. These dynamics in expectations reveal higher dispersion in inflation expectations. Increased disagreement among agents about future inflation has accompanied inflation surge as discussed in Section 2. Moreover, heterogeneity itself entails additional economic costs by disrupting the transmission of monetary policy, and amplifying the effects of supply shocks [Falck et al., 2021; Bullard et al., 2025].

Our findings highlight a potential mechanism behind this empirically documented evidence about increase in the disagreement in inflation expectations when realized inflation increases above inflation target after the pandemic. Within the context of our model, once inflation starts increasing above the target, agents change their forecasting behaviors and adopt distinct forecasting models, which leads to more heterogeneous forecasts than when inflation was close to the target. Such a heterogeneity in forecasting behavior does not arise when inflation is below target likely because deviations from target were quite small during that period. This heterogeneity in forecasting models emerged rather quickly, namely within three quarters. Moreover, its persistence along the disinflation path contributes to amplify the costs of bringing inflation back to target because at least part of the population continue holding unanchored inflation beliefs.

Recent evidence also links heterogeneity in beliefs to broader socio-political and informational factors, such as political polarization, heterogeneous exposure to economic shocks, or lifetime experiences.[11] We now take advantage of the richness of the CSCE micro data and utilize our sample across demographic groups to shed light on the heterogeneity of inflation expectations.

4.3 The heterogeneity in inflation expectations across demographics

Table 4 provides the estimated values of the model parameters by demographic groups. The estimates of β are positive for all demographic groups when applicable, which provides an additional empirical validation of the behavioral model of expectations switching in the Canadian data.

The estimates per demographic group provide new evidence on the heterogeneity in inflation forecasting models among households. Starting with age groups, younger re-

[11] See, among others, Andre et al. [2022]; Salle et al. [2024]; Hajdini et al. [2025]; Koh et al. [2025]; Luduvice et al. [2025].

spondents (18–24) show virtually no heterogeneity in expectation formation given the non-significant estimate of $\Delta\phi$. The 2.16 estimate of their autoregressive coefficient suggests that younger households exhibit the strongest trend- extrapolation among all demographic groups that we consider. By contrast, the senior respondents, while also characterized by homogeneity in their forecasting models, exhibit fairly quick mean-reverting behavior ($\phi_1 \simeq \phi_2 \simeq 0.8$) and, therefore, display the most anchored expectations across age groups. Heterogeneity in forecasting models does exist among middle-aged respondents, but their forecasting models are best described by two extrapolating forecasting rules ($\phi_1 \simeq 1.22$ and $\phi_2 \simeq 1.53$).

We see similar patterns among respondents with the lowest education attainment to those of young, who are all characterized by a single trend-chasing forecasting rule. However, we detect clear evidence of heterogeneity in forecasting behavior among those with higher education levels, with the co-existence of mean-reverting ($\phi_1 \simeq 0.88$) and trend-chasing behaviors; although the higher the educational attainment of the respondents, the weaker their trend-chasing behavior – i.e., $\phi_2 \simeq 1.62, 1.41, 1.33$, respectively for "high school/lower", "college" and "university/higher."

Gender, income and housing tenure differences further highlight diversity in expectation formation processes. Among women, while our estimations speak for the co-existence two extrapolative models, the heterogeneity within this group is fairly small ($\Delta_\phi \simeq 0.22$). Results are similar among employed respondents. Male respondents, on the other hand, display a striking heterogeneity in their forecasting behaviors ($\Delta_\phi \simeq 1.15$), with a fast mean-reverting type ($\phi_1 \simeq 00.46$) and fairly strong trend-extrapolating beliefs ($\phi_2 \simeq 01.61$). A similar heterogeneity, with both mean-reverting and trend-chasing types, also appears across all income levels, and among owners without a mortgage. Renters are generally trend-chasing ($\phi_1 \simeq 01.61$) with little heterogeneity among them ($\Delta\phi \simeq 0$) Highest earners (over $100K) have the highest degree of mean-reversion ($\phi_1 \simeq 0.51$).[12]

Distinct noise estimates σ_v across demographics further speak for expectations heterogeneity. Households with lower levels of education tend to have higher levels of noise in their forecasts compared with those with college or university degrees, which may reflect lower numeracy and financial literacy and, therefore, confusion when it comes to forming inflation expectations. This is also the case for renters and younger respondents (both potentially correlated). Noisier forecasts among the youngest respondents could reflect a shorter inflation experience to draw from and a more pronounced recency bias compared

[12]One exception is among unemployed people, where the estimate of ϕ_2 is really large, but could suffer from small sample issues.

with older respondents. For reported income levels, interestingly, we see a U-shaped relationship, with the lowest and particularly the highest group having significantly noisier forecasts. Different levels of noise in inflation forecasts may also reflect differences in the sensitivity of their consumption baskets to aggregate shocks and distinct inflation perception. Our findings are consistent with and expand the related literature on the demographic determinants of inflation forecasts (see, e.g., D'Acunto et al. 2023; Bae et al. 2024). Our model provides a behavioral interpretation of these distinct forecasting behaviors.

Fig. 4 reports the aggregate autoregressive coefficient ρ_t (per Eq. 6) computed for each demographic group separately. The dashed horizontal line is the stability threshold $\bar{\rho}$ introduced in Section 3.1.3; when $\rho_t > \bar{\rho}$, aggregate expectations in that group are trend-chasing on average, and inflation is prone to expectational instability. Before 2020, many groups cluster near or below $\bar{\rho}$. However, starting in 2021, the aggregate autoregressive coefficients rise well above the stability threshold for many groups and remain elevated through the post-pandemic inflation surge. The most anchored profiles throughout are the 55+ year old respondents compared with those younger, owners without a mortgage compared with renters or owners with a mortgage, and those not in the labor force. For these groups, the aggregate mean reversion in their expectations remains near or below $\bar{\rho}$ throughout 2014-2024. By contrast, the young respondents (20-24 year old), those with lower education levels, and renters display expectations consistent with autoregressive coefficients persistently above the stability threshold on average. This observation is in line with the above-discussed homogeneous extrapolative behavior within these groups.[13]

Interestingly, the recent inflation surge also reshapes cross-group differences. For income, prior to 2020, there was a large spread in the aggregate coefficients between the three groups, but the gap recently narrows down, and all three series rise and converge close to each other and above the stability threshold by the end of our sample. We see a similar convergence among home owners and by gender. Among other groups, in particular age groups, labor force status, and respondents with the lowest education attainment versus the rest of the population, forecasting behaviors remain as differentiated as prior to the pandemic. Taken together, Fig. 4 shows that the post-Covid inflationary environment raises extrapolative behavior widely but unevenly across groups. In the wake of the inflation surge, only a younger age and the lowest education level still correlate with distinct

[13]These time series are flat because the expectations of these groups are not heterogeneous on average (i.e. $\Delta\phi$ is not significantly different from zero on these subsamples of specific demographics) and, hence, the groups are characterized by a single autoregressive coefficient (see, again, Table 4).

forecasting behaviors.

Finally, in Table 5, we present the results of probit regression models where the dependent variable is a dummy equal to one if a given respondent is a trend-follower in a given quarter (and zero otherwise). Overall, males and respondents with high education attainments are the only groups that are robustly associated with less trend-chasing behaviors over the whole sample (Col. I), as well as during the low and stable inflation period (Col. II) and the recent inflation surge (Col. III). Most interestingly, controlling for measures of financial stress, numeracy, and "inflation literacy" skills considerably weakens the association between demographics and trend-chasing behavior (Col. IV), and even eliminates it when inflation is close to target (Col. V). The strongest associations remain with respondents under higher financial stress and with lower numeracy skills, who are more likely to hold trend-following expectations than the others, perhaps reflecting pessimism.

Over the recent inflation spike (Column VI), socio-demographic differences in forecasting behavior are more pronounced than in the first part of the sample. Significantly more trend-following behavior among females, low- or high-income groups (compared to middle-income group), married people, employed respondents, and renters persist despite controlling for numeracy and financial stress. This pattern among females may reflect a stronger exposure to food prices during grocery shopping compared to male respondents [D'Acunto et al., 2023]. The patterns among high-income, employed, and married respondents may also reflect an association between larger household sizes – and, hence, larger nominal spending – and trend-chasing behaviors. The higher prevalence of trend-chasing behaviors among renters and lowest earners may reflect a higher vulnerability to price increases due to tighter budget constraints. A self-declared good knowledge of inflation is also associated with trend-chasing, probably translating an increased attention to it in the recent period.

Overall, our findings across both low- and high-inflation periods and demographics tell us when expectations are prone to slip the anchor and whose beliefs drive the risk amid an inflation surge, notably younger and least-educated groups. These results have implications for monetary policy communication and underscore the need of targeted actions, especially during the "last-mile" phase of disinflation, to focus the efforts on those audiences where trend-chasing is most likely to persist.

Next, since the CSCE elicits a wide range of beliefs, we explore how forecasting behaviors of short-run inflation correlate with other economic beliefs and consumer plans.

5 Trend-chasing short-run inflation forecasts and other macroeconomic beliefs

5.1 Trend-chasing behaviors and views about monetary policy and inflation

We use additional survey questions eliciting the respondents' views about the importance of low and stable inflation included in CSCE in 2019 and in 2021. We also use questions eliciting the respondents' beliefs about how frequently the Bank has achieved its target in the past and how often they believe it will achieve its target in the future as a proxy for central bank credibility and a question posed during the post-pandemic inflation surge about how concerned respondents are about inflation relative to the past. The survey questions are included in Section A.1 and the estimation results – similar to above – are presented in Table 6.

Here again, separating the pre- and post-inflation surge periods becomes particularly insightful. While respondents who view low and stable inflation as important are less likely to be trend-chasers when inflation is low in Canada (Col. II), they become considerably more likely to be trend chasers during the recent inflation surge (Col. III). The association between a lack of credibility of the inflation target and trend-chasing forecasting has also become particularly strong in the recent period (Cols. IV and VII). In other words, respondents with a higher level of trust in the CB form their inflation expectations consistently by expecting inflation to return to its target, i.e. they hold mean-reversing expectations. This correlation only materializes during the high-inflation period (see Cols. V and VIII vs. VI and IX). A similar story emerges when considering the association between growing concerns about inflation and forecasting behaviors. When inflation is low (Col. X), growing concerns about inflation are linked to mean-reverting beliefs but become associated with trend-chasing behavior amid the post-pandemic inflation surge.

Overall, our results underline the importance of trust in the CB and the credibility of its target in taming the risk of expectation unanchoring amid an inflation surge. In addition, they support the use of mean-reverting expectations as a proxy for CB credibility in theoretical models [Ozden, 2025; Kostyshyna et al., 2024].

5.2 Trend-chasing behaviors and other macroeconomic expectations

We now explore the association between trend-chasing behaviors in short-run inflation and other economic and financial expectations elicited in the CSCE using the following specification:

$$z^e_{i,t} = c + \alpha_0 \text{Trend-follower}_{i,t} + \alpha_1 \text{HIFE}_t + \alpha_2 \text{Trend-follower}_{i,t} \times \text{HIFE}_t + \alpha_4 \mathbf{X}_{i,t} + \epsilon_{i,t} \quad (13)$$

where the dependent variable $z^e_{i,t}$ is the expectation elicited in quarter t from respondent i concerning either medium-term (two-year) or long-term (five-year) inflation; interest rate over the next one, two, and five years; local house price growth over the next one and five years; nominal wage growth over the next year; or growth in household spending, income, and tax over the next year. The dummy variable $\text{Trend-follower}_{i,t}$ equals one if respondent i's one-year-ahead inflation expectation in quarter t is classified as trend-chasing (as described in Section 3.2), and zero if classified as mean-reverting. The dummy variable HIFE_t, as meniontед ealier, is for "high-inflation environment" and equals to one for the period 2021Q2–2024Q2, and zero otherwise. The vector $\mathbf{X}_{i,t}$ is a set of control variables that gathers demographic characteristics (age, gender, income, marital status, education, labor force status, home ownership status), the region of residence, survey quarter, and tenure fixed effects, which may account for participants' learning through survey participation [Kim and Binder, 2023].

The estimation results are reported in Table 7. In a nutshell, when inflation is low and stable, forecasting behaviors regarding short-run inflation do not significantly matter for expectations of other variables. However, during the recent inflation surge, trend-chasing inflation expectations are strikingly associated with higher expectations for all other variables at all horizons available in the CSCE.

In times of stable and low inflation (corresponding to $\text{HIFE} = 0$), trend-followers tend to have *lower* short- and medium-term inflation forecasts than mean-reverting forecasters since they tend to extrapolate below-target inflation (Cols. I and II). In the long run, both forecaster types expect similar levels of inflation (Col. III). By contrast, during the post-pandemic inflation surge (corresponding to $\text{HIFE} = 1$), the average trend-chasing short-run inflation forecast is about 3.9 percentage points (p.p.) higher than the average mean-reverting forecast (Col. I). While both types of forecasters expect inflation to moderate in the medium to long run, the gap between the two types persists at 3.2 p.p. for two-year-ahead and 2.4 p.p. for five-year-ahead inflation.

These results show that trend extrapolation in short-run inflation expectations during the inflation surge feeds into household longer-term expectations. This is the most concerning finding from the point of view of expectation anchoring. Inflation expectations are often viewed as anchored when *long-term* inflation expectations are insensitive to current shocks that affect the contemporaneous inflation and short-term inflation forecasts [Williams, 2022]. Therefore, our model-based approach, combined with micro-level data, highlights three self-reinforcing developments that contribute to an increase in risk of unanchoring of inflation expectations during an inflation surge: i) an increase in the share of trend-chasing expectations amid a heightened heterogeneity among forecasting behaviors ; ii) higher inflation expectations of the trend-chasing forecasters (Table 7); iii) and a strengthening of the pass-through from short- to long-term inflation expectations among trend-chasers.

Forming trend-chasing short-term inflation expectations is also linked to higher interest rate forecasts at all recent horizons. While during low-inflation period the differences between the two groups are negligible (see Cols. IV to VI in Table 7), inflation trend-chasers recently expect one-year, two-year, and five-year-ahead interest rates to be more than 1 p.p. higher compared with the mean-reverting forecasters. In other words, trend-chasers expect a tighter monetary policy for the foreseeable future. However, the pass-through between their inflation and interest rate forecasts is incomplete since they expect a less than one-to-one adjustment of the interest rate to inflation.

A similar pattern holds for all other forecasts. In the high-inflation environment, trend-chasing inflation forecasters expect higher growth in their nominal spending (by $\simeq$1 p.p.), their wages (by $\simeq$1 p.p.), their household income (by $\simeq$1.1 p.p.), and their tax bill (by $\simeq$1.2 p.p.) compared with the mean-reverting forecasters (see Cols. VII to X in Table 7). During low-inflation period, no sizable difference is found between these expectations for the two forecaster types. Recently, trend-followers also have about more than 2 p.p. higher expectations of house price growth than mean-reverters, which persists over five years.

Our insights on heterogeneity in short-run inflation forecasting behaviors extend to the medium to long run inflation expectations and to other economic and financial forecasts that may have received less attention than inflation expectations in the literature. Our findings point to another channel through which the well-documented fact that heterogeneity in short-run inflation forecasts may impair monetary policy transmission and amplify inflationary pressures, namely: periods of heterogeneity in inflation forecasts are also periods characterized by more disagreement between households about all other

main macroeconomic variables, including the interest rate path. This heterogeneity in views could result in distinct economic behaviors that need not align with standard monetary policy models, and may contribute to increase the persistence of shocks on the economy.

5.3 Trend-chasing behaviors and consumer spending

A fundamental question in studies of expectations in general, and inflation expectations in particular, is how they affect consumer's actions, such as spending. To address this question, we estimate the relationship between trend-chasing in short-run inflation expectations and consumer spending intentions, and assess whether this relationship has changed during the high-inflation period relative to the low-inflation period. CSCE respondents are asked whether they intend to undertake any of the following seven actions in light of their inflation expectations: (1) bring forward major purchases, (2) cut back spending and save more, (3) look to increase income in other ways, (4) postpone major purchases, (5) push for increased pay with their current employer, (6) shop around more for better value goods and services, (7) take no action (the survey question is included in Appendix A.2). Multiple choices are possible. Based on this information, we estimate the following probit models:

$$\mathbb{1}_{i,t}^{A} = c + \gamma_0 \text{Trend}_{i,t} + \gamma_1 \text{HIFE}_t + \gamma_2 \text{Trend}_{i,t} \times \text{HIFE}_t + \gamma_4 \mathbf{X}_{i,t} + u_{i,t}, \tag{14}$$

where the dependent variable $\mathbb{1}_{i,t}^{A}$ equals one if respondent i in quarter t reports the intention to undertake action A in light of their inflation expectations, and zero otherwise. Action A is one of the seven actions listed above. The rest of the variables are defined as in Eq. (13). The estimated marginal effects are presented in Table 8.

Similarly to our results on other macroeconomic beliefs, during low-inflation period, trend-chasing behavior in inflation forecasting does not significantly or substantially influence consumers' plans. However, significant differences between the two types of forecasters arise during the post-pandemic inflation surge. While, in the recent environment, all respondents become more likely to declare that they intend to cut spending and save more (Col. II), postpone major purchases (Col. IV), and push for a pay raise (Col. V), and that they are less likely to undertake no action (Col. VII), trend-followers are *even more likely* to plan any of these actions than mean-reverters. Both types also declare they are more likely to bring forward major purchases (Col. I), but the magnitude of the marginal

effect is smaller than the one associated with postponing such purchases. Trend-followers are also more likely than mean-reverting forecasters to shop around for better prices (Col. VI) and to look to increase their income in other ways (Col. III).

Our findings are at odds with the theoretical prediction of the workhorse Euler equation, which suggests that higher inflation expectations should *increase* consumption. Instead, we observe that trend-chasing consumers tend to reduce spending when inflation is above target, which indicates that the income effect dominate the substitution effect in our data. This deviation from the workhorse model has implications for modeling, prediction, and policy. In particular, this negative impact of trend-chasing inflation behaviors on spending could have a stabilizing impact on inflation through lower demand, but would also worsen the stabilization tradeoff of the CB in face of cost-push shocks. This is one possible channel behind the empirical result that higher disagreement in short-run inflation forecasts worsens the impact of these shocks on the economy [Bullard et al., 2025].

Our findings align with studies like Coibion et al. [2023], Binder and Brunet [2022], and Kostyshyna and Petersen [2024], that report similar negative effects of inflation expectations on spending in Dutch, U.S., and Canadian households, respectively. This effect may be attributed to consumers associating inflation with negative developments in the economy (see Andre et al. 2022; Stantcheva 2024). Importantly, the negative effect of higher inflation expectations on spending plans in our data is consistent with the particularly weak pass-through between inflation expectations and CSCE respondents' nominal wage expectations (see also Jain et al. 2024). In other words, trend-chasing consumers anticipate declining real wages, leading them to restrict spending and, to a lesser extent, seek higher nominal income.

Our exercise bears policy implications as it reiterates the role of the expectation channel in consumer decisions. It also emphasizes real wage expectations to understand consumers' reactions to inflationary shocks, and the potentially sizable aggregate demand effects of heightened forecast heterogeneity.

6 Conclusion

We characterize the heterogeneity in inflation expectation formation among Canadian households over time, including low- and high-inflation periods, and across demographic groups through the lens of a heterogeneous expectation model. Our findings highlight

how the recent inflation surge has altered expectation formation and its interplay with consumer behaviors. Not only do the mean and the cross-section dispersion of households' inflation expectations increase in the wake of an inflation surge, people also change the way they form their expectations and the demographic heterogeneity in inflation forecasting behaviors becomes more pronounced. Over the recent inflation surge, relatively more trend-chasing inflation expectations reverberate into all other economic expectations and consumer spending plans along particularly pessimistic real wage expectations. This behavior could translate into sizable aggregate demand effects since trend-chasers are more likely to report restricting their spending than mean-reverters.

Our study has important implications for the nature of inflation expectations, macroeconomic modeling, and monetary policy. First, the positive pass-through from unstable trend-chasing prediction models of short-run inflation to long-run inflation poses a substantial state-dependent risk to the anchoring of inflation expectations, exacerbating the persistence of inflationary shocks and entrenching above-target inflation. On the policy front, this paper highlights the added-value of bringing a parsimonious behavioral model to the micro-data. Our framework can be deployed in near real time, matching the frequency of collection of expectation data. Within the context of the Canadian economy, our results may call for higher-for-longer interest rates to durably bring inflation back into the targeted range and ensure the anchoring of inflation expectations. This policy would entail higher output costs and heightened financial vulnerabilities compared with what would prevail had long-run expectations remained well-anchored to the target despite transitory inflationary pressures.

Second, our findings emphasize the potentially sizable impact of household expectation formation mechanisms on aggregate demand and the transmission of monetary policy. Our results also provide a rationale for the empirical finding that more heterogeneous forecasts may impair the transmission of monetary policy and amplify supply shocks, in particular their effects on average inflation expectations. Importantly, consumers need not behave consistently with optimization models based on rational expectations, which calls for further behavioral research beyond inflation expectation formation to inform model-based policy design. Interestingly, in our data, consumer plans are consistent with their real wage expectations. The possible implications of this behavior for aggregate demand suggest an urge to move beyond the (already extensive) research on inflation expectations to emphasize instead the dynamics of real wage expectations as a whole.

Finally, not only do people's inflation expectations differ along demographic groups, but

our results unveil one mechanism behind this heterogeneity, namely the use of distinct *models* of expectation formation. We also find that demographic differences are exacerbated during an inflation spike, which could complicate the design of central bank communication and the coordination of expectations back to the target. Our findings are particularly important since these distinct expectation formation processes concern beliefs about a broad spectrum of economic variables as well as consumer decisions. Differences in trend-chasing behaviors across age groups could be explained by cohort-specific experiences since the recent surge in inflation has no precedent in the lifetime of younger cohorts. Differences across other dimensions, such as education achievements, sex, and house ownership status may relate to distinct group-level economic experiences and exposure to economic information (as surveyed, for example, in Malmendier 2021). Recent contributions also highlight the role of subjective memories of past economic circumstances that are carried out distinctively into expectations (see Salle et al. 2023; Bordalo et al. Forthcoming).

Policy-makers could benefit from this detailed picture of the heterogeneity in expectations to design targeted and differentiated communication policy to mitigate the risk of expectation unanchoring during large inflationary shocks. Additionally, the framework used in this paper could be applied to model heterogeneous, group-specific expectation formation processes in general-equilibrium models. In general, our work calls for further research to understand the sources of these heterogeneous behaviors, which is essential to help predict beliefs, choices, and the effects of policies.

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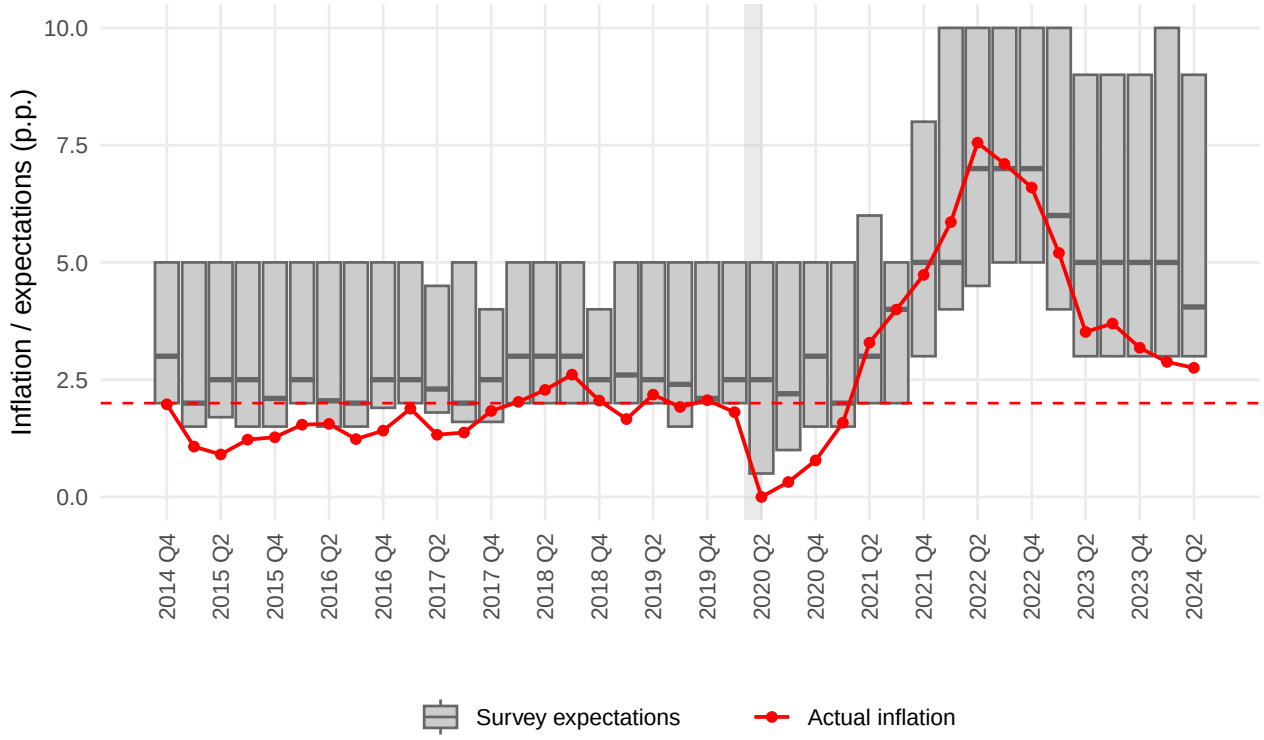
Figure 1: Canada inflation and Canadian households' inflation expectations



Notes: The horizontal dashed red line represents the 2% inflation target adopted by the Bank of Canada in 1991. Actual inflation is computed as the year-over-year growth rate of the Statistics Canada's CPI All-Item time series (Cansim Table 18-10-0004-01). The interquartile range one-year-ahead inflation expectations (vertical bars) are obtained from the Canadian Survey of Consumer Expectations. The shaded vertical bar marks the recession over the sample as defined by the C.D. Howe Institute.

Figure 2: CSCE expectations dynamics, inflation and monetary policy

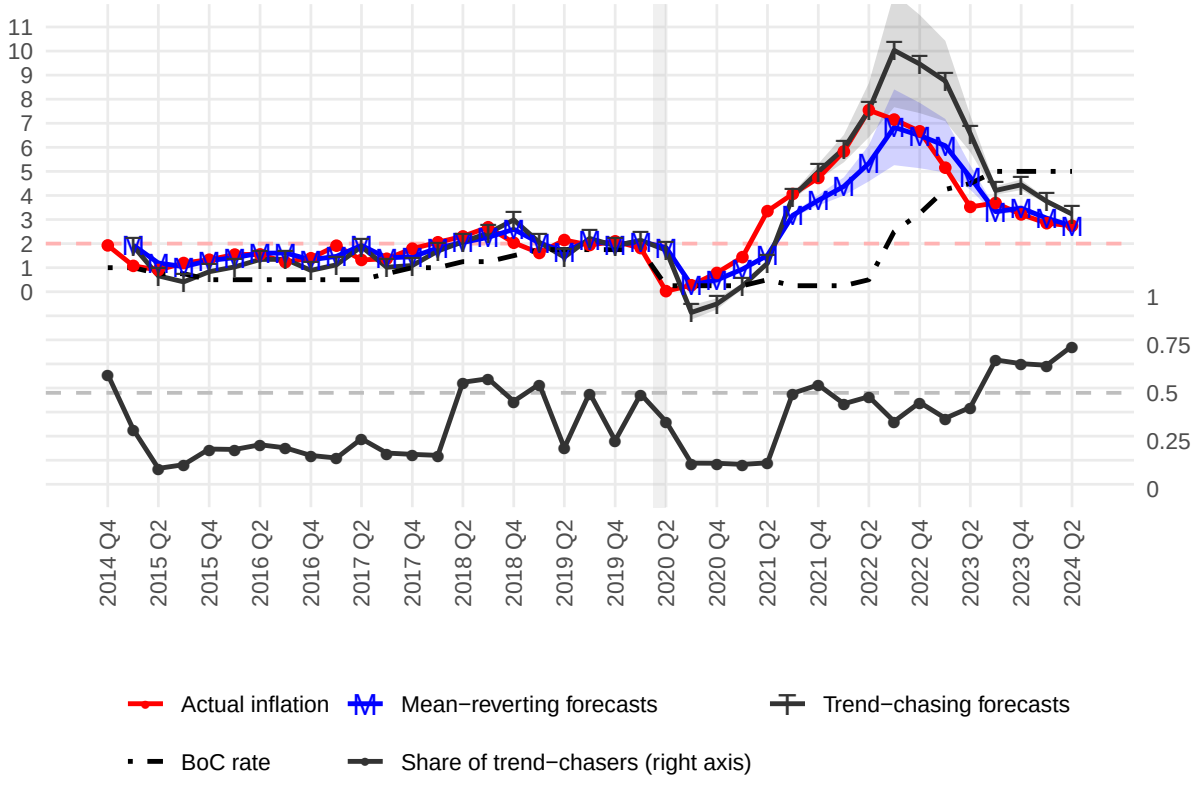


Figure 3: Maximum likelihood estimations of the behavioral model ($\hat{\phi}_1$ and $\hat{\phi}_2$) with rolling time coverage from 4 years (16 quarters)

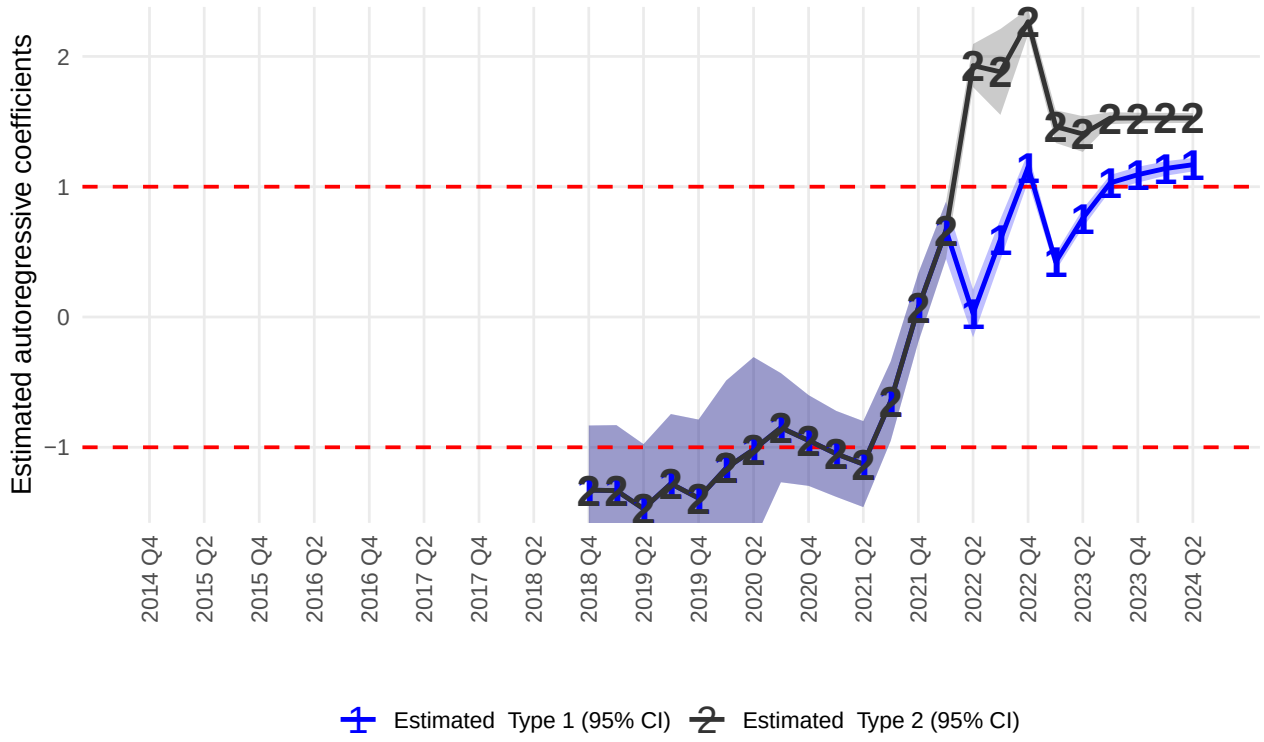
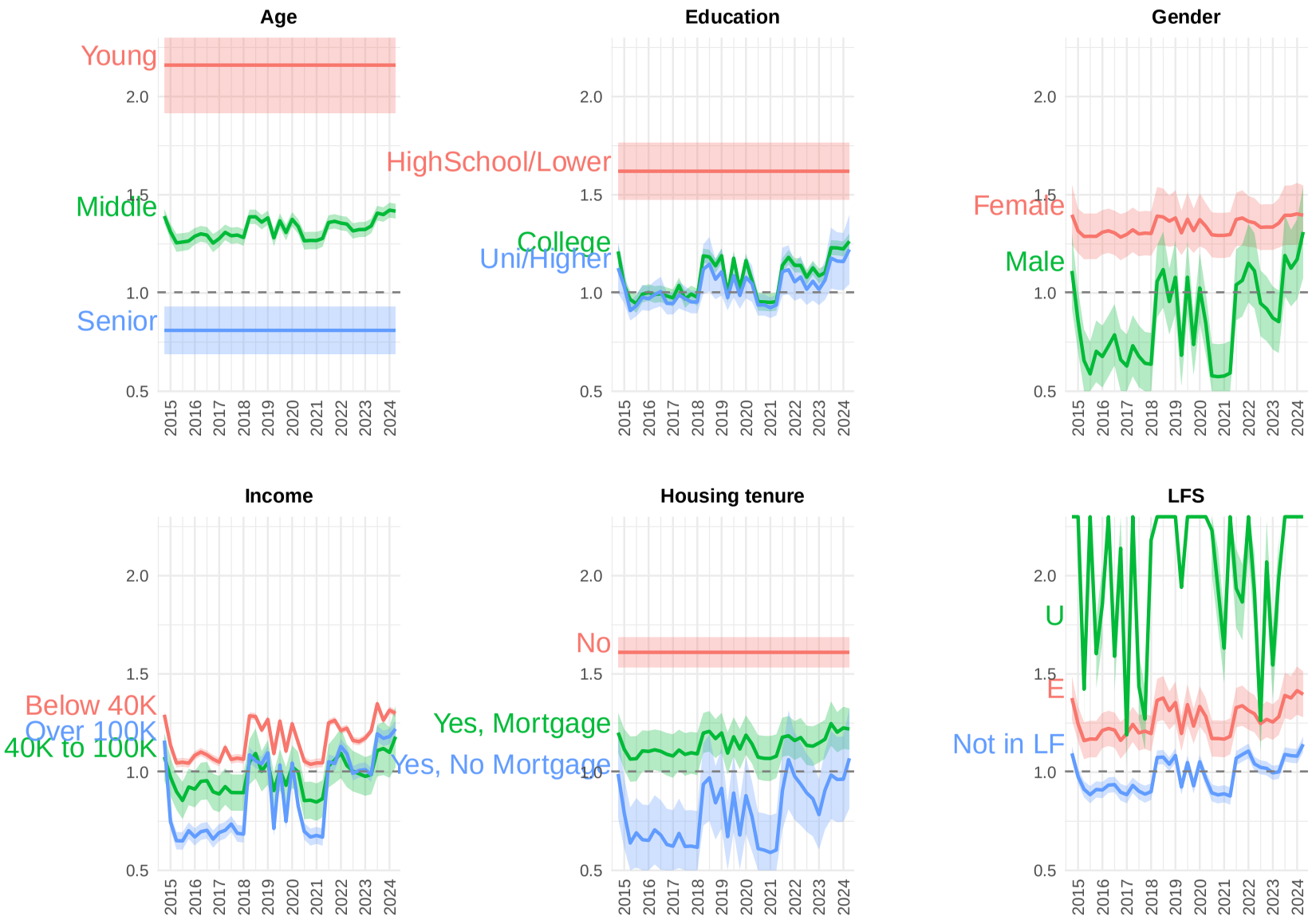


Figure 4: Time series of the aggregate persistence by demographics



Notes: The horizontal dashed line marks the stability threshold $\bar{\rho}$, which lies just above one. The horizontal ρ_t indicate no switching—that is, no estimated within-group heterogeneity in the AR(1) coefficient (see Table 4). In the labor-force-status (LFS) panel, the "Unemployed" (U) series is scaled because it extends beyond the common y-axis limits imposed for comparability across subplots.

Table 1: Demographic composition in the CSCE

	CSCE		***Canadian Census***
	No. observations (N=64,685)	*Proportion* (%)	*Proportion* (%) (N=36,991,981[a])
Age groups:[a]			
Young	3,139	4.85	8.29
Middle	37,579	58.10	51.10
Senior	23,967	37.05	40.61
Education levels:[b]			
High School/Lower	11,110	17.18	32.50
College/Middle	23,933	37.00	34.60
University/Higher	28,283	43.72	32.90
Sex:[b]			
Female	31,327	48.43	50.73
Male	32,220	49.81	49.27
Income groups:[c]			
Below 40K	13,705	21.19	45.2
40K to 100K	30,063	46.48	44.48
Over 100K	20,418	31.57	10.32
Housing tenure:[d]			
Renter	20,238	31.29	41.20
Owner with mortgage	22,045	34.08	35.50
Owner w/o mortgage	22,378	34.6	23.30
Employment status:[b]			
Unemployed	3,415	5.28	4.54
Employed	38,619	59.70	68.74
Not in labor force	22,164	34.26	26.72
Canada regions:[b]			
Atlantic	14,080	21.77	6.49
British Columbia and Yukon	7,047	10.89	13.81
Ontario	18,697	28.90	38.86
Prairies, NWT, and Nunavut	12,122	18.74	18.47
Quebec	12,724	19.67	22.37

Data sources:
[a]: Statistic Canada (Table 17-10-0005-01). The age groups in Statistics Canada's table are 20–24, 25–54, and 55+, while they are 18–24, 25–54, and 55+ for young, middle-aged, and senior people in the CSCE.
[b]: Statistics Canada's Census and Labor Force Survey (LFS).
[c]Statista's income distribution in Canada in 2020 [Statista, 2020].
[d]: Financial Consumer Agency of Canada's 2023 Report [FCAC, 2023].

Table 2: Summary statistics for inflation expectations by demographic groups

	Inflation expectations (p.p.)					
	One-year-ahead		Two-year-ahead		Five-year-ahead	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
All	3.18	1.80	3.08	1.76	3.35	1.98
Young	3.27	1.95	3.17	1.90	3.59	2.13
Middle	3.11	1.79	3.05	1.75	3.35	1.97
Senior	3.26	1.77	3.11	1.75	3.33	1.96
High school/Lower	3.41	1.90	3.27	1.86	3.50	2.07
College/Middle	3.28	1.80	3.20	1.78	3.50	2.00
University/Higher	3.05	1.75	2.95	1.71	3.21	1.91
Female	3.27	1.93	3.18	1.91	3.51	2.14
Male	3.12	1.67	3.00	1.63	3.22	1.83
Below 40K	3.43	1.90	3.33	1.87	3.60	2.09
40K to 100K	3.22	1.80	3.12	1.78	3.41	2.01
Over 100K	3.00	1.72	2.91	1.67	3.16	1.86
Renter	3.35	1.88	3.24	1.85	3.44	2.07
Owner with mortgage	3.09	1.78	3.01	1.75	3.33	1.96
Owner w/o mortgage	3.13	1.74	3.03	1.70	3.30	1.91
Employed	3.14	1.78	3.05	1.75	3.33	1.97
Unemployed	3.26	1.88	3.20	1.83	3.49	2.04
Not in labor force	3.23	1.80	3.12	1.78	3.36	1.98

Notes: These summary statistics were computed using the CSCE sampling weights and the Huber weights.

Table 3: Maximum likelihood estimations of the behavioral model

	$\hat{\beta}$ (s.e.)	$\hat{\sigma_v}$ (s.e.)	$\hat{\phi_1}$ (s.e.)	$\hat{\Delta\phi}$ (s.e.)	implied-$\hat{\phi_2}$ (s.e.)	N	LL Value
Panel (a):							
Entire time sample	11.75	14.1	0.87	0.58	1.45	64399	-261825.3
	(3.59)	(0.04)	(0.02)	(0.02)	(0.03)		
Panel (b):							
Pre-HIFE (2014Q4 - 2021Q1)	1.87	13.23	-1.31	0.001	-1.31	38415	-121537.06
	(−)	(0.05)	(0.16)	(0.00)	(0.16)		
HIFE (2021Q2 - 2024Q2)	38.79	14.97	1.17	0.36	1.53	25984	-148702.41
	(13.53)	(0.06)	(0.02)	(0.01)	(0.02)		

Notes: HAC (robust) standard errors in brackets. Variance of ϕ_2 accounts for variances and covariance of ϕ_1 and $\Delta\phi$. (-) indicates that the standard error being either very large or undefined; the observed-information matrix is nearly singular in that parameter-direction; log-likelihood profile shows no local curvature, indicating weak identification. Estimates of $\hat{\sigma_v}$ and $\hat{\phi_1}$ are unaffected (cross–covariances $< 10^{-4}$).

Table 4: Maximum likelihood estimations of the behavioral model by demographics

	$\hat{\beta}$ (s.e.)	$\hat{\sigma_v}$ (s.e.)	$\hat{\phi_1}$ (s.e.)	$\hat{\Delta\phi}$ (s.e.)	implied-$\hat{\phi_2}$ (s.e.)	N	LL Value
Young (18-24)	3.58	23.68	2.16	0.001	2.161	3100	-14209.58
	(−)	(0.30)	(0.19)	(0.00)	(0.19)		
Middle (25-54)	3.65	15.4	1.22	0.31	1.53	37376	-155246.3
	(1.61)	(0.06)	(0.02)	(0.02)	(0.02)		
Senior (55+)	3.97	9.53	0.81	0.001	0.811	23923	-87878.91
	(−)	(0.04)	(0.05)	(0.08)	(0.08)		
High school/lower	3.87	18.7	1.62	0.001	1.621	11017	-47894.14
	(−)	(0.13)	(0.08)	(0.00)	(0.08)		
College	14.62	13.76	0.89	0.52	1.41	23821	-96256.02
	(7.59)	(0.06)	(0.02)	(0.02)	(0.02)		
University/higher	6.01	12.16	0.88	0.45	1.33	28207	-110506.67
	(3.84)	(0.05)	(0.02)	(0.09)	(0.09)		
Female	3.97	15.4	1.26	0.22	1.48	31174	-129488.44
	(3.20)	(0.06)	(0.05)	(0.09)	(0.09)		
Male	0.62	12.7	0.46	1.15	1.61	32090	-127201.64
	(0.31)	(0.05)	(0.07)	(0.12)	(0.12)		
Below 40K	151.6	13.26	0.98	0.53	1.51	29976	-120065.03
	(73.26)	(0.05)	(0.00)	(0.00)	(0.00)		
40K to 100K	12	11.96	0.80	0.51	1.31	20370	-79456.44
	(-)	(0.06)	(0.04)	(0.08)	(0.08)		
Over 100K	15.01	18.27	0.51	0.93	1.45	13578	-58714.12
	(6.52)	(0.11)	(0.02)	(0.02)	(0.02)		
Renter	7.99	17.68	1.61	0.001	1.611	20089	-86206.03
	(−)	(0.09)	(0.06)	(0.00)	(0.06)		
Owner with mortgage	37.36	13.81	1.03	0.5	1.35	21980	-88897.38
	(54.02)	(0.07)	(0.05)	(0.03)	(0.06)		
Owner w/o mortgage	0.92	10.16	0.52	0.74	1.26	22311	-83448.6
	(0.55)	(0.05)	(0.08)	(0.13)	(0.13)		
Employed	15.01	14.46	1.11	0.47	1.58	38458	-157313.22
	(3.83)	(0.05)	(0.04)	(0.07)	(0.07)		
Unemployed	3.28	17.56	0.88	19.52	20.40	3384	-14699.85
	(0.16)	(0.23)	(0.06)	(0.98)	(0.98)		
Not in labor force	225.59	12.3	0.84	0.41	1.25	22074	-86735.51
	(94.53)	(0.06)	(0.00)	(0.02)	(0.02)		

Notes: HAC (robust) standard errors in brackets. Variance of ϕ_2 accounts for variances and covariance of ϕ_1 and $\Delta\phi$. (-) indicates that the standard error being either very large or undefined; the observed-information matrix is nearly singular in that parameter-direction; log-likelihood profile shows no local curvature, indicating weak identification. Estimates of $\hat{\sigma_v}$ and $\hat{\phi_1}$ are unaffected (cross–covariances $< 10^{-4}$).

Table 5: Marginal effects of probit models of trend-chasing behaviors

	Dependent variable: Trend-chasing					
	Full Sample	Before-HIFE	HIFE	Full Sample	Before-HIFE	HIFE
	I	II	III	IV	V	VI
Age: 25-54	-0.057^{*}	-0.0003	-0.128^{***}	-0.037	0.020	-0.109^{**}
	(0.033)	(0.047)	(0.049)	(0.034)	(0.048)	(0.050)
Age: 55+	-0.136^{***}	-0.126^{**}	-0.140^{***}	-0.083^{**}	-0.070	-0.086
	(0.035)	(0.049)	(0.052)	(0.036)	(0.051)	(0.053)
Educ: College	-0.089^{***}	-0.063^{**}	-0.112^{***}	-0.074^{***}	-0.040	-0.102^{***}
	(0.019)	(0.026)	(0.027)	(0.019)	(0.027)	(0.028)
Educ: Uni/Higher	-0.116^{***}	-0.092^{***}	-0.139^{***}	-0.084^{***}	-0.047^{*}	-0.118^{***}
	(0.019)	(0.027)	(0.028)	(0.020)	(0.028)	(0.029)
Male	-0.109^{***}	-0.065^{***}	-0.171^{***}	-0.095^{***}	-0.035^{*}	-0.171^{***}
	(0.013)	(0.017)	(0.019)	(0.013)	(0.018)	(0.020)
Income: 40K to 100K	-0.044^{***}	-0.010	-0.088^{***}	-0.018	0.004	-0.046^{*}
	(0.016)	(0.021)	(0.023)	(0.016)	(0.021)	(0.024)
Income: >100K	0.046^{**}	0.014	0.090^{***}	0.017	0.003	0.044
	(0.018)	(0.025)	(0.027)	(0.019)	(0.025)	(0.028)
Married	0.022	-0.039^{*}	0.100^{***}	0.019	-0.035^{*}	0.089^{***}
	(0.015)	(0.020)	(0.021)	(0.015)	(0.021)	(0.022)
Unemployed	0.036	0.056	-0.012	-0.008	0.030	-0.060
	(0.031)	(0.041)	(0.049)	(0.032)	(0.042)	(0.050)
Out of the LF	-0.025	0.012	-0.082^{***}	-0.023	0.007	-0.072^{***}
	(0.017)	(0.022)	(0.025)	(0.017)	(0.023)	(0.026)
Owner with mortgage	-0.054^{***}	0.002	-0.122^{***}	-0.055^{***}	0.010	-0.131^{***}
	(0.018)	(0.024)	(0.026)	(0.018)	(0.024)	(0.027)
Owner w/o mortgage	-0.079^{***}	-0.031	-0.136^{***}	-0.058^{***}	-0.020	-0.096^{***}
	(0.018)	(0.024)	(0.026)	(0.018)	(0.025)	(0.027)
Responsible for financial decision in household				-0.039	-0.068	-0.005
				(0.035)	(0.045)	(0.055)
Debt default probability				0.180^{***}	0.090^{**}	0.288^{***}
				(0.028)	(0.040)	(0.041)
Financially worse off				0.129^{***}	0.002	0.264^{***}
				(0.014)	(0.020)	(0.020)
Know inflation well				0.042^{**}	-0.056^{**}	0.172^{***}
				(0.018)	(0.023)	(0.027)
Easy to express inflation as a number				-0.053^{***}	-0.037^{*}	-0.083^{***}
				(0.016)	(0.021)	(0.024)
Numeracy score				-0.035^{***}	-0.036^{***}	-0.034^{***}
				(0.005)	(0.007)	(0.007)
Constant	0.586^{***}	0.434^{***}	-0.531^{***}	0.604^{***}	0.580^{***}	-0.689^{***}
	(0.058)	(0.071)	(0.077)	(0.071)	(0.086)	(0.100)
Observations	56,923	33,848	23,075	55,371	33,044	22,327
Log Likelihood	$-35,258.760$	$-19,529.000$	$-15,672.970$	$-34,163.530$	$-19,010.470$	$-14,990.060$
Akaike Inf. Crit.	70,629.530	39,143.990	31,405.940	68,451.060	38,118.940	30,052.130

Notes: The reference group is aged 18–24, with "high school or lower" education, female, income level of $\leq 40k$, not married, employed, and renter. All estimations include Canadian regions, survey-quarter, and survey tenure effects, and use survey sampling weights. Variables about financial decisions, debt default, and knowledge of inflation are based on the survey questions included in Appendix A.1. Numeracy score is the number of correct answers to five questions about numerical skills. Standard errors are reported in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Marginal effects of probit models of trend-following behavior and monetary policy perception

	Dependent variable: trend-following, that is, a dummy = 1 if respondent i in quarter t is a trend-follower, 0 if mean-reverter											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Importance of low inflation	0.111	−0.261*	0.384***									
	(0.120)	(0.151)	(0.148)									
BOC achieved target in the past				−0.126**	0.031	−0.232***						
				(0.050)	(0.075)	(0.069)						
BOC can achieve target in the future							−0.112***	0.074	−0.164***			
							(0.032)	(0.074)	(0.035)			
Concerned about inflation										0.284***	−0.206**	0.266***
										(0.031)	(0.085)	(0.036)
Constant	−0.297	0.425	−0.083	−0.177	0.221	0.289	−0.105	0.208	0.445***	0.208*	0.295	0.241*
	(0.237)	(0.332)	(0.306)	(0.220)	(0.313)	(0.292)	(0.130)	(0.312)	(0.133)	(0.122)	(0.311)	(0.135)
Quarters	2019Q4, 2021Q4	2019Q4	2021Q4	2019Q4, 2021Q4	2019Q4	2021Q4	2019Q4, 2021Q4-22Q4	2019Q4	2021Q4-22Q4	2019Q4, 2021Q4-22Q4	2019Q4	2021Q4-22Q4
Observations	3,713	1,845	1,868	3,713	1,845	1,868	9,246	1,845	7,401	9,287	1,844	7,443
Log Likelihood	−2,388.569	−1,019.359	−1,287.565	−2,384.770	−1,021.266	−1,283.147	−6,435.737	−1,020.890	−5,398.335	−6,544.019	−1,014.362	−5,339.016
Akaike Inf. Crit.	4,829.137	2,088.719	2,625.130	4,821.541	2,092.532	2,616.293	12,929.470	2,091.780	10,846.670	13,138.040	2,078.724	10,728.030

Notes: All estimations include controls for demographic characteristics (age, gender, income, marital status, education, labor force status, home ownership status), fixed effects for Canadian regions, survey-quarter, and survey tenure. Sampling weights and Huber weights are used in all regressions to control for outliers and influential observations. Variables about the importance of low inflation, the ability of the Bank of Canada to achieve its target, and concern about inflation are based on the questions that are included in some quarters of the survey listed in the line "Quarters." These questions are included in Appendix A.1. HAC (robust) standard errors are reported in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Estimates of the link between trend-chasing in inflation expectations and other key economic expectations

VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
		Inflation			Interest rate		Spending	Wage	Income	Tax	House prices	
HORIZON	one-year	two-year	five-year	one-year	two-year	five-year	one-year	one-year	one-year	one-year	one-year	five-year
Trend-following	-0.187***	0.0442**	0.173***	0.105**	0.0788**	0.166***	-0.133***	0.224***	0.202***	0.174***	-0.500***	-0.346***
	(0.0224)	(0.0220)	(0.0299)	(0.0423)	(0.0379)	(0.0314)	(0.0321)	(0.0201)	(0.0232)	(0.0266)	(0.0567)	(0.0909)
HIFE	1.021***	0.111***	-1.019***	0.0804**	0.217***	-0.0359	-0.201***	0.953***	0.441***	-0.360***	-0.164***	-0.814***
	(0.0192)	(0.0207)	(0.0327)	(0.0383)	(0.0342)	(0.0275)	(0.0293)	(0.0253)	(0.0254)	(0.0278)	(0.0533)	(0.0785)
Trend-following * HIFE	4.096***	3.203***	2.217***	1.429***	0.251***	0.396***	1.127***	0.763***	0.968***	1.023***	3.095***	2.561***
	(0.0375)	(0.0392)	(0.0619)	(0.0650)	(0.0581)	(0.0467)	(0.0493)	(0.0419)	(0.0451)	(0.0506)	(0.0870)	(0.130)
Constant	0.937***	1.345***	2.513***	4.313***	2.312***	3.834***	2.714***	3.606***	4.431***	5.339***	5.366***	4.759***
	(0.0545)	(0.0615)	(0.0913)	(0.102)	(0.0950)	(0.0847)	(0.0786)	(0.0635)	(0.0734)	(0.0837)	(0.136)	(0.217)
Observations	51,589	50,123	37,587	52,124	27,918	49,202	51,719	40,934	40,532	40,187	47,947	43,505
R-squared	0.449	0.249	0.079	0.041	0.030	0.049	0.041	0.130	0.078	0.040	0.066	0.059

Notes: This table presents the estimation results of Equation (13). All estimations include controls for demographic characteristics (age, gender, income, marital status, education, labor force status, home ownership status), Canadian region fixed effects, survey-quarter fixed effects, and survey tenure. In each regression, we use the sampling weights and the Huber weights to control for outliers and influential observations. HAC (robust) standard errors are reported in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Marginal effects from estimated probit models of consumer spending intentions

	Dependent variable:						
	Bring forward major purchases I	Cut spending/ save more II	Seek income opportunities III	Postpone major purchases IV	Push for pay raise V	Look for cheaper shopping VI	Do nothing VII
Trend-following	0.006**	0.002	0.005**	0.009**	-0.008**	-0.009**	-0.003
	(0.004)	(0.007)	(0.006)	(0.006)	(0.005)	(0.007)	(0.006)
HIFE	0.075***	0.078***	0.053*	0.188***	0.027**	0.042*	-0.098***
	(0.018)	(0.024)	(0.022)	(0.024)	(0.019)	(0.023)	(0.018)
Trend-following * HIFE	0.004	0.072***	0.034***	0.069***	0.050***	0.040***	-0.080***
	(0.007)	(0.012)	(0.011)	(0.011)	(0.010)	(0.012)	(0.009)
Num.Obs.	32931	32931	32931	32931	32931	32931	32931
AIC	17304.6	40205.7	33075.0	31157.3	27012.4	38534.5	31749.1
BIC	17783.6	40684.6	33553.9	31636.2	27491.3	39013.4	32228.0
Log.Lik.	-8595.322	-20045.840	-16480.493	-15521.654	-13449.183	-19210.234	-15817.541
RMSE	0.26	0.45	0.40	0.38	0.35	0.44	0.39

Notes: This table presents the estimated results of Equation (14). The dependent variable in each column is the dummy variable equal to one if the respondent reports the intention to undertake one of the suggested actions. All columns include controls for demographics (age, gender, income, marital status, education, labor force status, home ownership status), Canadian region fixed effects, survey-quarter fixed effects, and survey tenure. In each regression, we use the sampling weights and the HAC (robust) standard errors are reported in parentheses. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.

A Survey questions

A.1 Questions about expectations and intentions

The following two-part question is used to elicit respondents' point forecast for inflation in two years, $\mathrm{E}_{i,t}\pi_{t+2yr}$.

Part 1. *Now we would like you to think about inflation further into the future. Over the 12-month period between [t+12 and t+24], do you think that there will be inflation or deflation? Please choose one.*

- *Inflation*
- *Deflation (the opposite of inflation)*

Part 2. *What do you expect the rate of [inflation/deflation] to be over that period? Please give your best guess. Please enter a number greater than 0 or equal to 0.*
Over the 12-month period between [t+12 and t+24],

- *I expect the rate of [inflation/deflation] to be .... percent*

The following two-part question is used to elicit respondents' point forecast for inflation in five years, $\mathrm{E}_{i,t}\pi_{t+5yr}$.

Part 1. *Looking further into the future, say five years from now, do you think that there will be inflation or deflation? (Note: deflation is the opposite of inflation). Please choose one.*

- *Inflation*
- *Deflation (the opposite of inflation)*

Part 2. *What do you expect the rate of [inflation/deflation] to be five years from now? Please give your best guess. Please enter a number greater than 0 or equal to 0.*

- *Five years from now, I expect the rate of [inflation/deflation] to be .... percent*

Wage growth expectations The following two-part question is used to elicit respondents' point forecast for the growth of **their own** earnings in one year, $\mathrm{E}_{i,t}(\mathrm{w})_{i,t+1yr}$. This question is posed to respondents who have responded to an earlier survey question that they are currently *employed* full-time or part-time:

Part 1. *Please think ahead to **12 months from now**. Suppose that you are working in the exact same (main) job at the same place you currently work, and working the exact same number of hours. What do you expect to have happened to your earnings on this job, before taxes and deductions? Please choose one. **Twelve months from now**, I expect my earnings to have...*

- *increased by 0% or more*
- *decreased by 0% or more*

After the respondent answers the previous question, the second part of the question is presented separately.

Part 2. *By about what percent do you expect your earnings to have [increased/decreased]? Please give your best guess. Please enter a number greater than 0 or equal to 0.*
Twelve months from now, I expect my earnings to have [increased/decreases] by .... percent

Note that this question elicits the growth of the respondent's *own* earnings *conditional* on the respondent working in the *same* job and working the *same* hours, or in other words, the expectations about the *individual hourly* wage growth of a *job stayer*.

Interest rate expectations are elicited using the following questions.

At what level do you think that interest rates on things such as mortgages, bank loans, and savings will be? Please enter a number.

- ***One year from now**, interest rates will most likely be .... percent*
- ***Two years from now**, interest rates will most likely be .... percent*
- ***Five years from now**, interest rates will most likely be .... percent*

Expectations about household income growth over the next year , $\mathrm{E}_{i,t}(\text{income})_{i,t+1yr}$, are based on the following questions.

Next we would like to ask you about your overall household income going forward. By household we mean everyone who usually lives in your primary residence (including yourself), excluding roommates and renters.

Part 1. **Over the next 12 months** , what do you expect will happen to the total income of all members of your household (including you), from all sources before taxes and deductions? Please choose one.

- **Over the next 12 months** , I expect my total household income to...
  - increased by 0% or more
  - decreased by 0% or more

Part 2. By about what percent do you expect your total household income to [increase/decrease]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- **Over the next 12 months** , I expect my total household income to have [increased/decreased] .... percent

Household spending growth expectations are elicited based on the following question.

Now think about your total household spending, including groceries, clothing, personal care, housing (such as rent, mortgage payments, utilities, maintenance, home improvements), transportation, recreation and entertainment, education, and any large items (such as home appliances, electronics, furniture, or car payments).

Part 1. Over the next 12 months, what do you expect will happen to the total spending of all members of your household (including you)? Please choose one.

- Over the next 12 months, I expect my total household spending to...
  - increase by 0% or more
  - decrease by 0% or more

Part 2. By about what percent do you expect your total household spending to [increase/decrease]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- Over the next 12 months, I expect my total household spending to [increase/decrease] by .... percent

Expectations for the growth rate of taxes are elicited based on the following questions.

Part 1. Suppose that 12 months from now, your total household income is the same as now. What do you expect to have happened to the total amount of taxes you will have to pay, including federal, provincial and local income, property and sales taxes? Please choose one.

- Twelve months from now, I expect my total taxes to have...
  - increase by 0% or more
  - decrease by 0% or more

Part 2. By about what percent do you expect your total taxes to have [increased/decreased]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- Over the next 12 months, I expect my total taxes to [increase/decrease] by .... percent

Next we would like you to think about home prices nationwide. We would also like to get an understanding of how changes in house prices may impact your attitude to spending in general.

Part 1. Over the next 12 months, what do you expect will happen to the average home price nationwide? Please choose one.

- Over the next 12 months, I expect the average home price to...
  - increase by 0% or more
  - decrease by 0% or more

Part 2. By about what percent do you expect the average home price nationwide to [increase/decrease]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- Over the next 12 months, I expect the average home price to [increase/decrease] by .... percent

Perceptions about the growth of local house prices are elicited using the following questions.

Part 1. Over the last 12 months, what do think happened to the average home price in your area? Please choose one.

- Over the last 12 months, the average home price in my area...
  - increased by 0% or more
  - decreased by 0% or more

Part 2. By about what percent do you think the average home price in your area [increased/decreased]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- Over the last 12 months, I think the average home price in my area [increased/decreased] by .... percent

Expectations for the growth in local house prices over the next year are elicited based on the follwing questions.

Part 1. Over the next 12 months, what do you expect will happen to the average home price in your area? Please choose one.

- Over the next 12 months, I expect the average home price to...

  - increase by 0% or more
  - decrease by 0% or more

Part 2. By about what percent do you expect the average home price in your area to [increase/decrease]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- Over the next 12 months, I expect the average home price to [increase/decrease] by .... percent

The expectations for the growth of local house prices over the next five years are elicited based on these questions.

Part 1. Over the next 5 years, what do you expect will happen to the average home price in your area? Please choose one.

- Over the next 5 years, I expect the average home price to...
  - increase by 0% or more
  - decrease by 0% or more

Part 2. By about what percent do you expect the average home price in your area to [INSERT increase/decrease BASED ON RESPONSE TO Q4.7 PART 5A]? Please give your best guess. Please enter a number greater than 0 or equal to 0.

- Over the next 5 years, I expect the average home price to [INSERT increase/decrease BASED ON RESPONSE TO Q4.7 PART 5A] by a total of .... percent

A.2 Questions about intended actions

Which, if any, of the following actions are you taking, or planning to take, in light of your expectations of [inflation/ deflation] over the 12-month period between [t+12 and t+24]? Please select all that apply.

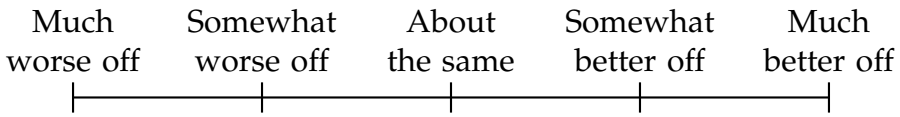
1. Bring forward major purchases (such as furniture or appliances)
2. Postpone major purchases
3. Cut back spending and save more
4. Shop around more for better value goods and services
5. Push for increased pay with current employer

6. Look to increase income in other ways (e.g., change jobs, take on second job, work more hours with current employer)

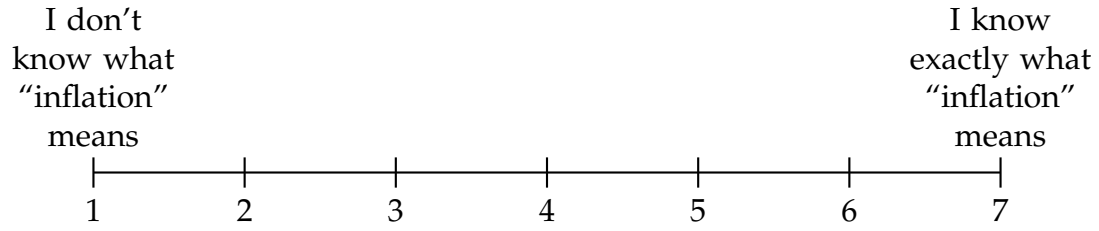
7. Take no action

A.3 Additional questions

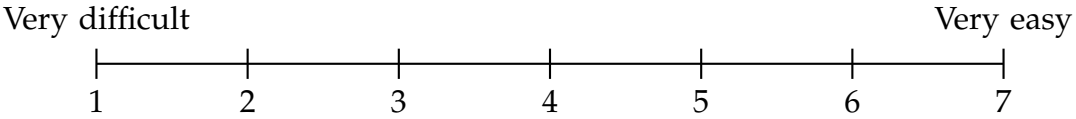
Variable *financially worse off* used in Table 5 is defined using the following question. This variable is equal 1 if respondent has reported being much worse off or somewhat worse off than 12 months ago.
Do you think you (and any family living with you) are financially better or worse off these days than you were 12 months ago? Please select only one.



Variable *know inflation well* used in Table 5 is defined based on this question. It equals 1 if the respondent reports knowledge of inflation of 5 and above, and equals 0 otherwise.
The next few questions are about inflation. On a scale of 1 to 7, how well would you say you understand what "inflation" means?

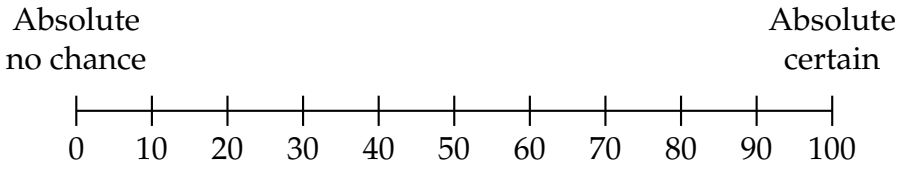


Variable *easy to express inflation as a number* used in Table 5 is based on the following question. It equals 1 if a respondent reports ease equal to 5 or above and equals 0 otherwise.
On a scale of 1 to 7, how easy is it for you to express the rate of inflation as a number? Please select only one

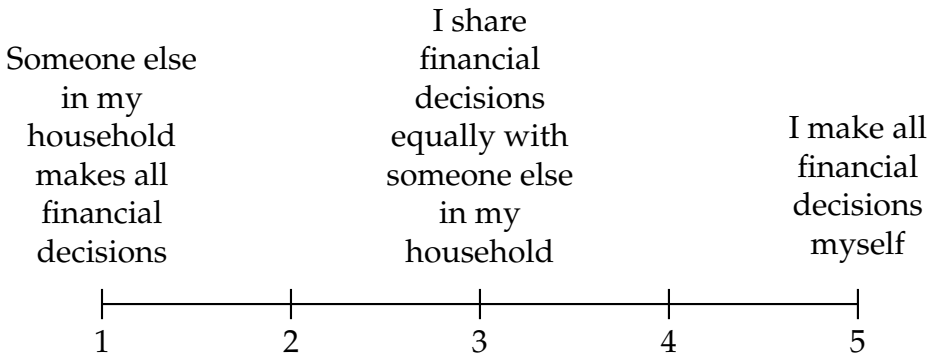


Variable *Debt default probability* in Table 5 is based on the following question.
What do you think is the percent chance that, over the next 3 months, you will NOT be able to make one of your debt payments (the minimum required payments on credit and retail cards, auto loans, student loans, mortgages, or any other debt you may have)?

Please enter your response in the box on the left or by clicking on the scale below, where 0% means "Absolutely no chance" and 100% means "Absolutely certain".



Variable *responsible for financial decisions* in Table 5 is based on the following question. It equals 1 if a respondent reports answers equal to 3 or above, and is equals 0 otherwise. On the scale below, which of the following best describes how financial decisions are made in your household? Please select only one.



A.4 Questions about inflation target and importance of low inflation

Variable *BOC achieved inflation in the past* in Table 6 is based on the following question. It equals 1 if a respondent reports "always" or "most of the time," and equals 0 otherwise. How often do you think the Bank of Canada has achieved its inflation target in the past?

1. Always
2. Most of the time
3. Some of the time
4. Never

Variable *BOC can achieve target in the future* in Table 6 is based on the following question. It equals 1 if a respondent reports "always" or "most of the time," and equals 0 otherwise. How often do you think the Bank of Canada can achieve its inflation target in the future?

1. Always

2. Most of the time
3. Some of the time
4. Never

Variable *importance of low inflation* in Table 6 is based on the following question. It equals 1 if a respondent reports "very important" or "somewhat important" in this question, and equals 0 otherwise.
In your view, how important is it that Canada has low and stable inflation? Scale of very important to not important

1. Very important
2. Somewhat important
3. Not very important
4. Not important at all

Variable *Concerned about inflation* in Table 6 is based on the following question. It equals 1 if a respondent reports "Inflation is more of a concern," and equals 0 otherwise.
How has your view about inflation changed in the last five years? Choose one.

1. Inflation is more of a concern
2. Inflation is less of a concern
3. Inflation concerns me to the same degree
4. Inflation is not and never was a concern to me

B Additional summary statistics of the CSCE

Table App.1: Summary statistics of spending, wage, income, and tax expectations by demographic groups

	One-year-ahead expectations (%)							
	Spending		Nominal wage		Income		Taxes	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Young	4.80	2.88	2.60	1.71	3.71	2.07	2.84	2.38
Middle	4.48	2.74	2.08	1.61	3.08	1.92	2.82	2.26
Senior	4.40	2.61	1.90	1.62	2.59	1.79	2.83	2.29
High school/Lower	4.45	2.75	2.02	1.63	2.71	1.88	2.68	2.30
College/Middle	4.61	2.70	2.01	1.59	2.88	1.86	2.80	2.27
University/Higher	4.36	2.68	2.11	1.63	2.99	1.88	2.91	2.27
Female	4.51	2.81	2.01	1.59	2.77	1.92	2.81	2.33
Male	4.43	2.59	2.11	1.64	3.02	1.83	2.85	2.22
Below 40K	4.59	2.82	1.90	1.66	2.67	1.92	2.33	2.33
40K to 100K	4.44	2.70	2.02	1.60	2.80	1.85	2.86	2.28
Over 100K	4.41	2.63	2.15	1.60	3.17	1.87	3.07	2.20
Renter	4.67	2.79	2.23	1.66	3.04	1.95	2.43	2.32
Owner with mortgage	4.46	2.69	2.02	1.58	2.97	1.85	2.96	2.22
Owner w/o mortgage	4.29	2.63	1.96	1.61	2.72	1.83	3.01	2.26
Employed	4.40	2.71	2.06	1.61	3.07	1.90	2.92	2.25
Unemployed	5.61	2.96	-	-	3.73	2.06	2.93	2.44
Not in labor force	4.42	2.63	-	-	2.56	1.80	2.66	2.30

Notes: See Table 2. Wage expectations are only elicited for respondents who declare they are employed.

Table App.2: Summary statistics of interest rate expectations by demographic groups

	Interest rate expectations (%)					
	One-year-ahead		Two-year-ahead		Five-year-ahead	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Young	4.01	1.91	4.67	2.18	5.23	2.44
Middle	3.65	1.68	4.18	1.89	4.70	2.12
Senior	3.69	1.64	4.21	1.82	4.71	2.02
High school/Lower	3.90	1.82	4.46	2.04	4.97	2.28
College/Middle	3.85	1.69	4.41	1.90	4.94	2.13
University/Higher	3.51	1.62	4.00	1.80	4.50	2.01
Female	3.78	1.76	4.35	1.99	4.86	2.23
Male	3.59	1.61	4.09	1.77	4.59	1.97
Below 40K	3.85	1.86	4.48	2.09	5.03	2.35
40K to 100K	3.70	1.68	4.25	1.87	4.77	2.09
Over 100K	3.54	1.57	4.02	1.74	4.50	1.95
Renter	3.88	1.83	4.45	2.06	4.96	2.30
Owner with mortgage	3.61	1.60	4.14	1.78	4.62	2.00
Owner w/o mortgage	3.59	1.63	4.11	1.81	4.65	2.01
Employed	3.64	1.66	4.17	1.86	4.68	2.09
Unemployed	3.72	1.81	4.33	2.04	4.85	2.29
Not in labor force	3.74	1.69	4.26	1.88	4.77	2.10

Notes: See Table 2.

Table App.3: Summary statistics of house price expectations by demographic groups

	House price expectations (%)					
	One-year-ahead		Two-year-ahead		Five-year-ahead	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Young	4.36	3.67	6.30	5.46	4.54	3.60
Middle	3.85	3.58	6.26	5.16	3.90	3.60
Senior	3.85	3.62	7.19	5.22	3.90	3.69
High school/Lower	3.63	3.54	5.78	5.19	3.84	3.62
College/Middle	3.85	3.61	6.48	5.22	3.97	3.67
University/Higher	3.94	3.60	7.09	5.21	3.88	3.61
Female	3.78	3.68	5.95	5.29	3.95	3.73
Male	3.98	3.53	7.38	5.15	3.92	3.55
Below 40K	3.97	3.63	6.18	5.32	4.20	3.69
40K to 100K	3.90	3.59	6.55	5.19	3.95	3.63
Over 100K	3.77	3.58	7.10	5.19	3.74	3.60
Renter	4.18	3.65	6.45	5.34	4.16	3.70
Owner with mortgage	3.73	3.55	6.42	5.12	3.82	3.57
Owner w/o mortgage	3.77	3.59	7.00	5.18	3.86	3.65
Employed	3.91	3.58	6.49	5.19	3.94	3.60
Unemployed	3.84	3.68	6.48	5.37	4.09	3.74
Not in labor force	3.81	3.61	6.96	5.24	3.90	3.67

Notes: See Table 2.

C Estimation results with $J > 2$ types

We allow for $J > 2$ types and consider three cases. The first case, we estimate an additional AR(1) coefficient (the third type). That is, we now estimate ϕ_1, $\Delta_2\phi$ and $\Delta_3\phi$, where $\phi_2 \equiv \phi_1 + \Delta_2\phi$ and $\phi_3 \equiv \phi_1 + \Delta_3\phi$, together with the switching sensitivity β and noise σ_v. The second case, we add a fourth type and estimation additionally $\Delta_4\phi$, where $\phi_4 \equiv \phi_1 + \Delta_4\phi$. Finally, for the third case, we let $J = 3$ but fix the third forecasting type $\phi_3 = 0$, i.e., the "steady-state belief" model under which these third-type agents anchor their expectation at the inflation target.

The estimation results are presented in Table App.4. All our findings under the parsimonious case of $J = 2$ conclusions are preserved under these alternatives: we still find coexistence of mean-reverting and trend-chasing rules, post-2020 strenghtening of heterogeneity, and an asymmetric unanchoring risk. Adding types does not yield meaningful gains in fit or the discussion in the main text. By contrast, the $J > 2$ specifications are less stable: additional coefficients are weakly identified as shown in the table, AR coefficients duplicate existing ones. We therefore retain $J = 2$ as the baseline for inference and interpretation, reporting the $J = 3, 4$ exercises as robustness checks that confirm—but do not sharpen—our main results.

Table App.4: Maximum likelihood estimations of the behavioral model

	$\hat{\beta}$ (s.e.)	$\hat{\sigma_v}$ (s.e.)	$\hat{\phi_1}$ (s.e.)	$\hat{\Delta_2\phi}$ (s.e.)	$\hat{\Delta_3\phi}$ (s.e.)	$\hat{\Delta_4\phi}$ (s.e.)	N	LL Value
Panel (a): $J = 3$ types								
Entire time sample	3.972	14.093	0.876	0.651	0.654	–	64399	-261818.719
	(1.29)	(0.04)	(0.01)	(0.04)	(0.05)			
Pre-HIFE (2014Q4 - 2021Q1)	2.000	13.227	-1.197	0.001	-0.369	–	38415	-121537.116
	(11.66)	(0.05)	(0.33)	(0.58)	(−)			
HIFE (2021Q2 - 2024Q2)	61.042	14.974	1.166	0.362	0.362	–	25984	-148701.412
	(16.51)	(0.06)	(0.02)	(0.01)	(0.01)			
Panel (b): $J = 4$ types								
Entire time sample	3.444	14.101	0.870	0.498	0.498	0.498	64399	-261821.626
	(1.34)	(0.04)	(0.04)	(−)	(−)	(−)		
Pre-HIFE (2014Q4 - 2021Q1)	2.001	13.227	-1.179	0	-0.278	-0.278	38415	-121537.131
	(−)	(0.05)	(1.53)	(3.05)	(2.45)	(2.45)		
HIFE (2021Q2 - 2024Q2)	14.992	14.979	1.216	0.105	0.105	0.105	25984	-148720.42
	(17.30)	(0.06)	(0.03)	(−)	(−)	(−)		
Panel (c): $J = 3$ types and fixing $\phi_3 = 0$ ('steady-state' belief)								
Entire time sample	14.911	14.091	1.099	0.525	–	–	64399	-261793.606
	(3.00)	(0.04)	(0.02)	(0.07)				
Pre-HIFE (2014Q4 - 2021Q1)	-24.828	13.227	-1.298	0.001	–	–	38415	-121535.814
	(24.82)	(0.05)	(0.23)	(0.30)				
HIFE (2021Q2 - 2024Q2)	59.706	14.975	1.207	0.320	–	–	25984	-148704.2
	(17.05)	(0.06)	(0.01)	(0.01)				

Notes: HAC (robust) standard errors in brackets. Variance of ϕ_2 accounts for variances and covariance of ϕ_1 and $\Delta\phi$. $(-)$ indicates that the standard error being either very large or undefined; the observed-information matrix is nearly singular in that parameter-direction; log-likelihood profile shows no local curvature, indicating weak identification. Estimates of $\hat{\sigma_v}$ and $\hat{\phi_1}$ are unaffected (cross–covariances $< 10^{-4}$).