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Why consumers disagree about future inflation

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Why Consumers Disagree About Future Inflation

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Abstract

Since 2022, consumer inflation expectations have shifted, with a significant increase in those expecting high inflation in the coming year and a surge in those expecting deflation further in the future. Using data from the Canadian Survey of Consumer Expectations, this paper seeks to assess the factors that influence people to expect high inflation, moderate inflation or deflation. While expectations of high inflation are largely based on perceptions about current inflation, most of those anticipating future deflation do not see the Canadian economy as currently deflationary. Rather, their deflationary outlook since 2022 has hinged on the belief that current inflation-inducing supply and demand factors such as supply chain issues are temporary and will reverse, triggering price declines.

Topics: Inflation and prices

JEL codes: C83, D84, E31

Résumé

Les attentes d'inflation des consommateurs ont changé depuis 2022, ceux-ci étant considérablement plus nombreux à prévoir une forte inflation dans la prochaine année et nettement plus nombreux à envisager une déflation à plus long terme. Tirant partie des données de l'enquête sur les attentes des consommateurs au Canada, ce document se veut une analyse des facteurs qui amènent les gens à anticiper une forte inflation, une inflation modérée ou bien une déflation. Alors que les attentes de forte inflation se basent surtout sur les perceptions de l'inflation courante, la plupart des consommateurs qui entrevoient une déflation future ne considèrent pas que l'économie canadienne soit actuellement dans une situation déflationniste. En fait, leurs attentes de déflation depuis 2022 reposent sur la conviction que l'inflation émanant des facteurs d'offre et de demande que nous connaissons actuellement, liée notamment aux problèmes de chaîne d'approvisionnement, est temporaire et qu'elle va se résorber pour laisser place à des baisses de prix.

Sujets : Inflation et prix

Codes JEL : C83, D84, E31

1. Introduction

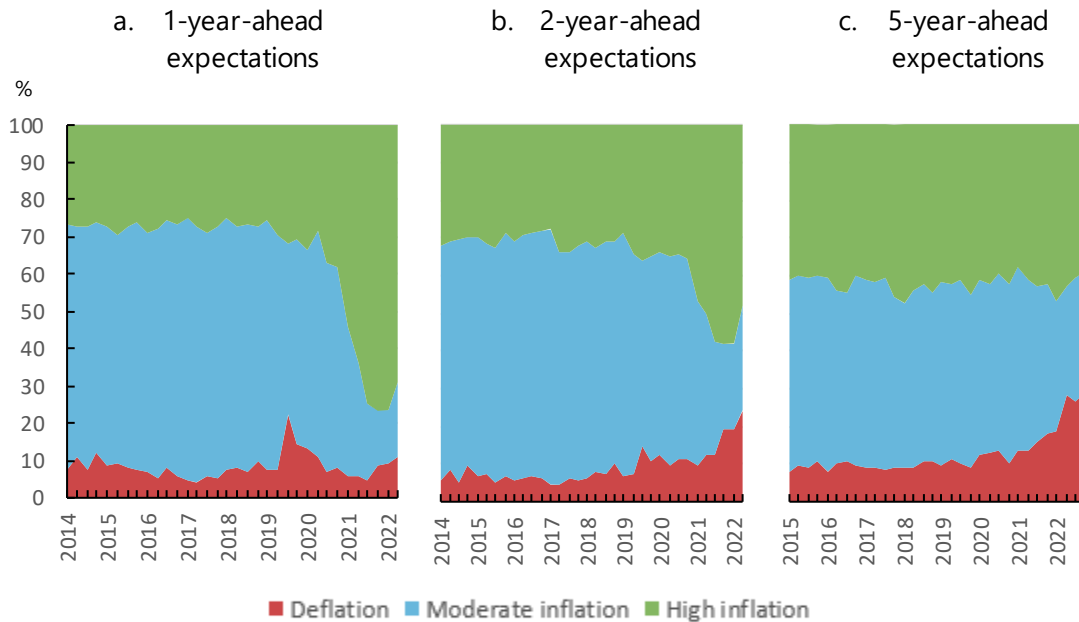
Consumers' inflation expectations—the rate at which people expect prices to rise in the future—matter because they influence consumers' behaviour and actual inflation (see Weber et al. 2022a for a recent review). However, views on future inflation are not uniform across consumers. Further, the distribution of inflation expectations has shifted since early 2022; namely, the share of consumers expecting high inflation in one year has increased substantially, and the share of those expecting deflation in five years has surged (**Chart 1**). These observations raise two questions:

- Why are inflation expectations so varied among consumers?
- What factors might help explain the recent shifts in inflation expectations?

This paper examines how people form expectations and what factors lead some people to expect deflation while others expect moderate or high inflation. Building on the multivariate approach from previous research (Jain, Kostyshyna and Zhang 2022; Mankiw, Reis and Wolfers 2003), we analyze consumers' responses to the [Canadian Survey of Consumer Expectations](#) (CSCE). Specifically, we examine how economic conditions, perceptions of inflation and the narratives people have in mind about inflation affect inflation expectations.¹

Chart 1: Since 2022, the distribution of inflation expectations has changed

Share of respondents expecting inflation in each range



Note: Data for 5-year-ahead inflation expectations begin in 2015Q3.

Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

¹ "Narratives" are causal explanations of economic phenomenon.

Key results:

- Perceived inflation plays a large role in explaining people's inflation expectations. But for those expecting deflation, it plays a much smaller role than it does for those expecting high or moderate inflation.
- The surge in deflation expectations is mainly tied to a belief that prices will reverse after a relatively quick resolution of supply chain issues and other supply and demand factors. Consumers expecting a slow resolution of these issues are more likely to expect moderate or high inflation.
- Respondents don't link their expectations for higher unemployment rates or an upcoming recession with greater expectations of deflation. Instead, households expecting worse economic outcomes mostly have higher inflation expectations.
- Knowledge of the Bank of Canada's inflation-control target range helps keep inflation expectations within the that range of 1%–3%.

2. Data and approach

2.1 The Canadian Survey of Consumer Expectations

To examine the two questions raised, we use inflation expectations data from the CSCE (Khan and Gosselin 2015). This is a nationally representative, internet-based quarterly survey, with a rotating panel of approximately 2,000 respondents each quarter. In addition to asking about their expectations for inflation, the survey asks respondents questions about their labour market expectations and household finances as well as a host of demographic questions about themselves and their household. More recently, the survey has asked several questions on special topics to gain timely insights for policy-making. These include questions about respondents' expectations for the Canadian economy going into a recession in the next year and about their knowledge of the Bank's inflation target. Further, the survey asks respondents directly what factors they think are keeping inflation above the Bank's target. All these additional questions are designed to help us better understand consumers' behaviour, beliefs and expectations during unprecedented times. In this work, we use this unique information to increase our understanding of the forces influencing consumers' inflation expectations.

The full text of all relevant questions is presented in **Appendix A**.

2.2 A multivariate approach to understand consumers' inflation expectations

A growing literature seeks to understand how consumers form inflation expectations. Much of this literature analyzes the inflation expectations of survey respondents in terms of a linear

function of factors such as demographics and respondents' perceptions of current inflation (D'Acunto, Malmendier and Weber 2022 provide a recent review). Jain, Kostyshyna and Zhang (2022) extend this approach to examine how labour market expectations play a role in forming inflation expectations. Using a logit model, Armantier et al. (2022) narrow in on only consumers who expect deflation, focusing on the 2022 increase in deflationary expectations in the United States.

As in Armantier et al. (2022), we focus on what makes consumers expect deflation. In addition, we analyze the responses of consumers who expect moderate and high inflation. Individual inflation expectations at different horizons ($\pi_{i,t+k}^e$) are expressed with the following equation:

$$\pi_{i,t+k}^e = f(\pi_{i,t}^p, u_{i,t}^p, d_{i,t})$$

where $\pi_{i,t}^p$ is consumers' perception of the current rate of inflation or deflation, from CSCE responses on how individuals perceive inflation or deflation over the past 12 months. Previous research suggests that perceptions of recent inflation are key to understanding inflation expectations (Detmeister, Lebow and Peneva 2016).²

We also include respondents' views on economic conditions ($u_{i,t}^p$). Economic conditions are represented by both current and anticipated labour market situations, as in Jain, Kostyshyna and Zhang (2022).³ These include expected wage growth and the probability respondents assign to an increase in the unemployment rate in the next year. Mankiw, Reis and Wolfers (2003) suggest that consumers consider the unemployment rate when forming inflation expectations. For the 2022 survey responses, we also analyze consumers' expectations that the Canadian economy will fall into a recession in the next year and their expectations for the severity of a recession.

Andre et al. (2022) find that the narratives that people hold about inflation matter for their inflation expectations. Starting in 2022, the CSCE asked consumers what factor they thought was keeping inflation above target, and how long it would continue to influence inflation. We aggregate the different responses to these questions into short- and long-term supply and demand narratives and test their influence on people's inflation expectations.⁴

² We also control for other information respondents may use to form their perceptions of inflation: the actual provincial consumer price index inflation rates in the province where the respondent lives and professional forecasters' inflation expectations. The information provided by professional forecasters is a proxy for information about inflation or "an easily observable public signal," as in Bellemare, Tossou and Moran (2020).

³ In all equations, using data from Statistics Canada (Table 14-10-0287-01), we control for the unemployment rate in the province where respondents reside. This is to account for the state of the labour market, which may influence individual views on the labour market situation and follows from Jain, Kostyshyna and Zhang (2022) and Mankiw, Reis and Wolfers (2003).

⁴ Supply narratives are "supply chain issues," "labour shortages" and "oil and energy prices." Demand narratives are "high government spending," "changes in what consumers bought" and "the strength of demand after lockdowns." See [section A.4](#) in Appendix A for more information.

We also explore respondents' knowledge of the inflation target because previous research finds that survey respondents update their views about inflation from news about the Bank's inflation target (Keshishbanoosy et al. 2022).

Finally, we control for demographic characteristics because they are important for understanding divergence in inflation expectations (Meyer and Venkatu 2011; Armantier et al. 2021). These characteristics include gender, age, numeracy, education, income, marital status and the presence of children under five years old.⁵

To understand how these variables result in people having different inflation expectations, we divide consumers into three categories with different ranges of inflation expectations:

- those expecting deflation
- those expecting moderate inflation, i.e., inflation below 5%
- those expecting high inflation, i.e., inflation above 5%

By estimating logistic models and average marginal effects, we examine how these variables influence the likelihood of a household belonging to each of these categories.⁶

⁵ The impacts of demographic characteristics on inflation expectations are presented in [Appendix B](#). Although different demographic groups have different inflation expectations, demographics alone do not appear to explain the shift in the distribution of inflation expectations in 2022.

⁶ In [Appendix C](#), we report results from a separate binomial logit model, looking at those who expect deflation, moderate inflation and high inflation outcomes, as compared with those in the rest of the sample who do not hold these expectations. We also tested a multinomial logit model where we account for the three specific inflation expectations groups all together, and results are very similar.

3. Results

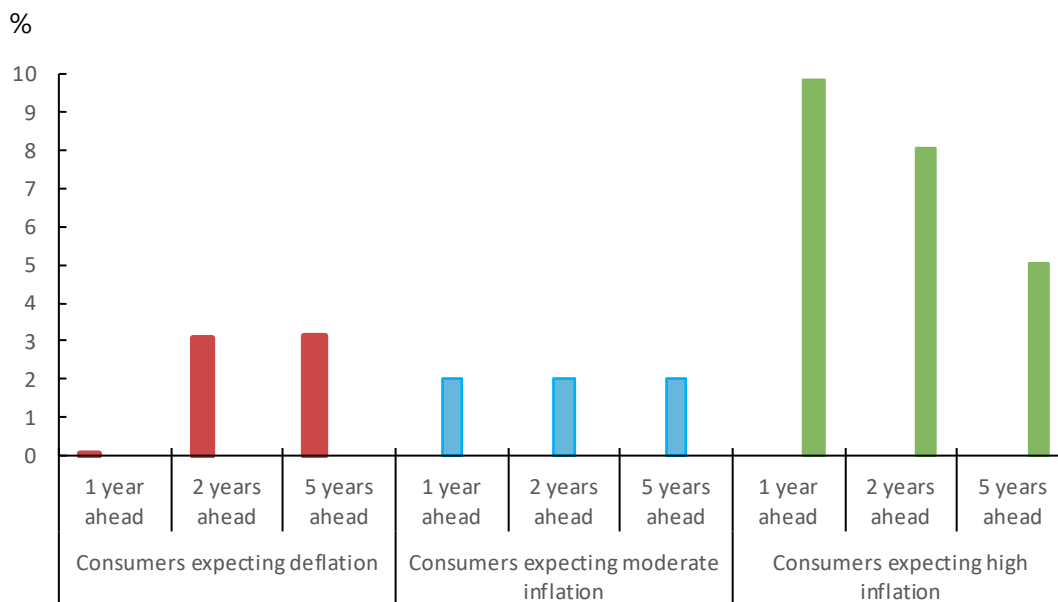
3.1 Perceived inflation plays a much larger role for those expecting higher inflation

We find that perceptions of current inflation are strongly and positively related to the range of inflation a household expects at all time horizons; however, this is not as much the case for perceptions or expectations of deflation. This means that consumers with a current perception of high inflation are more likely to have high inflation expectations, possibly suggesting that their expectations are extrapolations of current experience (**Chart 2**, green bars).

However, consumers who expect deflation generally do not see overall prices currently decreasing. Instead, consumers who expect deflation (**Chart 2**, red bars) still perceive actual inflation to be positive on average. This finding may reflect the fact that Canadian consumers have not seen a bout of lasting deflation in the past five decades.

Chart 2: Most consumers base inflation expectations on current perceptions

Perception of current inflation for consumers who expect deflation, moderate inflation and high inflation, aggregated at different time horizons



Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

This finding holds in 2022. This is illustrated in **Chart 3**, which positions each CSCE respondent based on their inflation expectations (horizontal axis) and perception of current inflation (vertical axis). About 90% of the respondents who expect inflation to be 5% or above also perceive current inflation to be 5% or above (red dots in panel a). The shift in perceptions

of current inflation in 2022 explains most of the shift toward higher one-year-ahead inflation expectations.

In 2022, only a modest fraction of those expecting deflation in five years perceive that Canada is currently experiencing deflation (blue dots in **Chart 3**, panel b). Indeed, little has changed over the entire sample in the share of respondents perceiving deflation. This implies that the recent increase in respondents expecting deflation in five years is not due to a change in perceptions of current inflation.

These results are consistent when controlling for people’s demographics and labour market expectations.⁷

Chart 3: Perception of current deflation is uncommon even among people who expect deflation

Respondents’ perceptions about current inflation and expectations for inflation

a. 1-year-ahead individual expectations greater than 5%

b. 5-year-ahead individual expectations for deflation



Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

⁷ These results are presented in [Table C-1](#) in Appendix C. The full text of all questions on inflation expectations are presented in [section A.1](#) of Appendix A.

3.2 Households associate higher expected inflation with worse economic conditions

Consumers' expectations for economic outcomes also matter in their expectations for inflation. Expected increases in the unemployment rate play a role in the formation of inflation expectations for consumers who expect moderate or high inflation.⁸

Consumers who expect the unemployment rate to be higher 12 months from now are more likely to expect high inflation in the next year (**Chart 4**, red dots). Their expectations for wage growth, however, are not a statistically significant determinant of their inflation expectation range (**Chart 4**, blue dots).⁹ This suggests that consumers do not see a trade-off between higher unemployment and inflation, as a typical Phillips curve would suggest. Instead, they embrace a supply-side view because they tie their expectations of higher inflation to worse labour market conditions. This corroborates the finding of Jain, Kostyshyna and Zhang (2022).

This also suggests that the shift toward high inflation expectations in 2022 is not related to expectations about the labour market. The CSCE results indicate that consumers remained optimistic about job prospects in 2022 and early 2023 (see **Chart A-1** in [section A.2](#) of Appendix A). People perceived a low probability of the unemployment rate moving higher one year ahead.

For those expecting deflation, the chance that the survey respondents assigned an increase in the unemployment rate does not factor into their expectations.¹⁰ This is also true for consumers' expectations for wage growth—they do not factor into the expectations for those expecting deflation. Together, these two findings suggests that these consumers do not think deflation would be the outcome of labour market conditions.

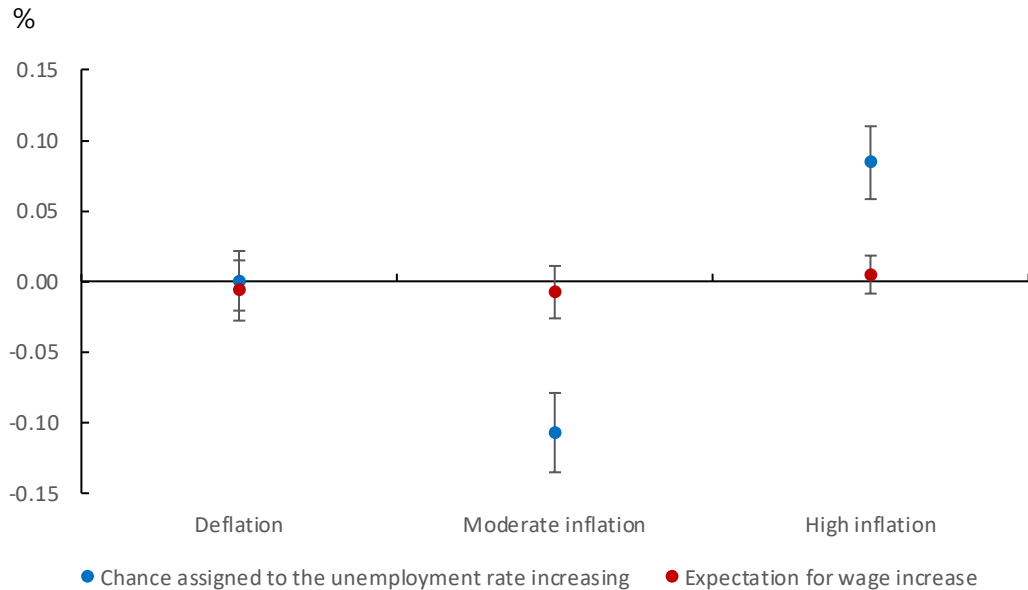
⁸ Questions about labour market expectations are presented in [section A.2](#) of Appendix A, and full regression results are presented in [Table C-1](#) in Appendix C.

⁹ We compute this link with only one-year-ahead inflation expectations because questions about labour market expectations are not available in the medium and long term.

¹⁰ The same conclusion holds for those expecting deflation and the chance assigned to a lower unemployment rate.

Chart 4: Consumers who expect deflation in the next year put no significant weight on their labour market expectations

Difference in probability of expecting inflation in each group*



*In a logit model, this is measured using the average marginal effects (see Armantier et al. 2022).

Note: Bars represent the 95% confidence interval around the point estimate of the logit model.

Sources: Canadian Survey of Consumer Expectations and Bank of Canada calculations

Last observation: 2023Q1

Next, we consider consumers' expectations for economic growth. Over the second half of 2022, media frequently discussed a potential upcoming recession. To understand whether consumers held this view, we added questions to the CSCE asking people to estimate the probability of a recession and how they would characterize an upcoming recession.¹¹

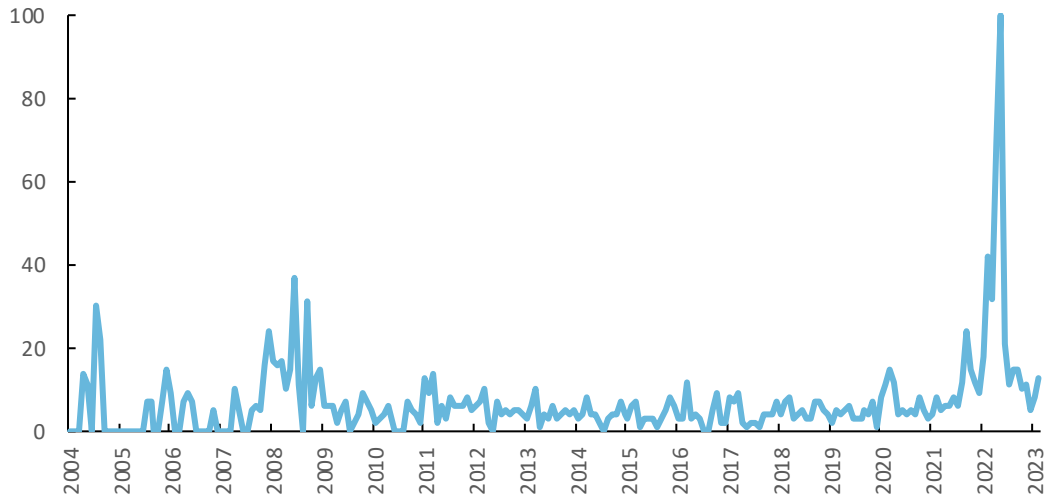
Consumers who put a 50% or higher probability on a recession occurring in the next year are also less likely to expect deflation or modest inflation. This is even more evident when consumers expect a recession in the next year to be long and severe. Instead, the CSCE found that in the period between the first quarter of 2022 and the first quarter of 2023, people who expected a recession were more likely to expect high inflation. These findings are similar to those of Armantier et al. (2022), who note that US consumers do not link their expectations for an economic slowdown with deflation, again confirming that consumers tend to hold a supply-side view. This suggests that these consumers may worry about a period of weak economic growth and high inflation, or stagflation. Indeed, internet search trends in Canada show that interest in the topic of "stagflation" was at a two-decade high late in 2022 (Chart 5).

¹¹ These questions are presented in section A3 of Appendix A. The results of these regressions are presented in Table C-2 in Appendix C.

Chart 5: Stagflation was on peoples' mind in late in 2022

Search interest in the topic "stagflation" in Google searches

Index



Note: The value 100 represents peak search interest, and other points show interest relative to that peak.

Source: Google Trends

Last observation: March 2023

The finding that people who expect a recession are more likely to expect high inflation mirrors the finding that people who expect the unemployment rate to go up are more likely to expect high inflation. Jain, Kostyshyna and Zhang (2022) suggest that consumers view high inflation as bad for the Canadian economy and the labour market. The results in this paper support this claim. Canadians seem to think that when the economy is performing poorly, unemployment and high inflation are more likely.

3.3 Expected deflation in the long term is linked to a quick resolution of supply chain issues

To better understand what households think is keeping inflation above the Bank's target, we introduced several questions that directly ask what factors people think are the cause of inflation. We combine the responses into demand and supply narratives as described in [section A.4](#) of Appendix A.

Consumers who expect the factors preventing inflation from returning to target to resolve in the next two years are more likely to expect deflation in five years (**Chart 6**). This result holds in a regression after controlling for demographics, perceptions of inflation and labour market variables.¹² This positive relationship provides some explanation for the increase in the share of consumers expecting deflation. In most cases, these consumers are talking about supply

¹² Detailed regression results are presented in [Table C-3](#) in Appendix C.

chain issues, which they see as temporary. Similarly, those who see temporary demand-side issues boosting inflation are more likely to expect deflation at the two-year and five-year horizons. In most cases, these consumers think pent-up demand related to pandemic lockdowns and recent broad shifts in demand toward other products are keeping inflation above the target. All of this suggests that part of the increase in expectations for deflation is coming from consumers who believe that temporary issues will resolve, leading to price reversals. The expectation for price reversals is consistent with what Armantier et al. (2022) find for the United States, but the finding of the specific narrative beliefs behind the people's expectations for price reversals is novel to this study.

People who expect demand-side factors to take longer than two years to resolve are more likely to anticipate persistently high inflation. These are often people who believe government spending is contributing to inflation remaining persistently above target. People who hold this view are more likely to see this as a long-term issue.

Chart 6: People who believe temporary factors are keeping inflation high are more likely to expect deflation in 5 years

Share of consumers expecting deflation in 5 years



Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

3.4 Knowledge of the Bank's inflation target tempers inflation expectations

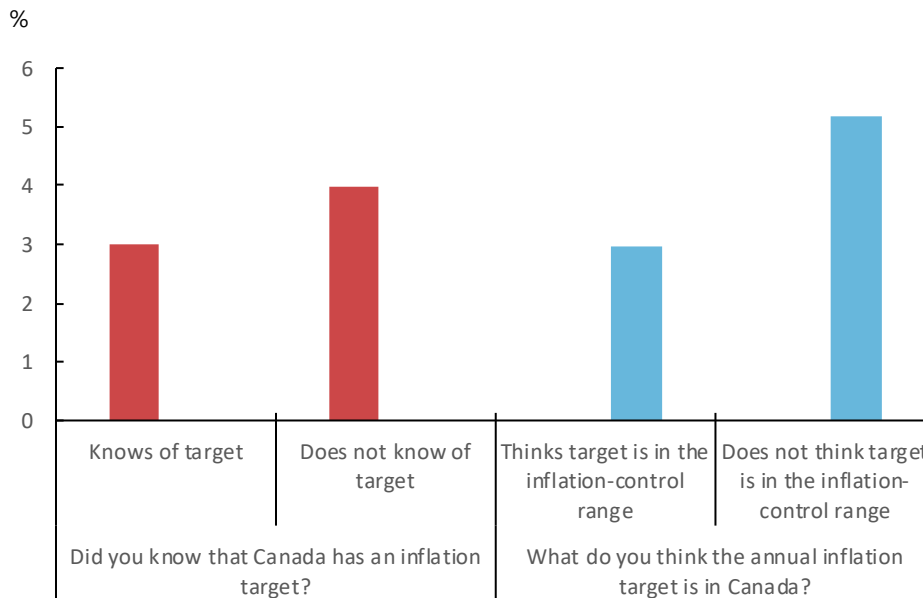
Finally, we ask about people's knowledge of inflation to assess how knowing about the Bank's policy to target inflation influences whether they have high or moderate inflation or deflation

expectations.¹³ When comparing Canadian and US inflation expectations, Bellemare, Tossou and Moran (2020) find that Canadian consumers put less weight on past inflation expectations than US consumers do. In other words, Canadian consumers' expectations are less extrapolative and more rational than those of American consumers. The authors suggest that this may be linked to the relative simplicity of the Bank of Canada's 2% inflation target compared with the dual mandate of the US Federal Reserve.

We find that consumers who are aware of the Bank's policy on inflation tend to have more moderate five-year-ahead inflation expectations than those who are not aware of it (**Chart 7**). Those who know the target is in the 1% to 3% range also have lower inflation expectations. Thus, efforts to communicate the target range to those who do not know it could help keep inflation expectations anchored.

Chart 7: Awareness of the inflation target matters in anchoring inflation in the long run

Median inflation expectations in 5 years



Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

¹³ The full text of these questions is presented in [section A.5](#) of Appendix A.

4. Conclusion

In this paper, we show that consumers who form moderate or high inflation expectations have different views on the factors that contribute to inflation than consumers who expect deflation do.

When we look at shifting expectations since 2022, we see that an increase in the share of people who expect high inflation in the short term has coincided with higher perceived current inflation. This extrapolative behaviour points to the importance of understanding why a gap could exist between perceived inflation and official measures of inflation (Keshishbanoosy et al. 2022). It also highlights the risk policy-makers run by allowing inflation to be too high for too long. Reducing the perception-measurement gap could be a way to anchor inflation expectations.

We also find that consumers associate higher expected inflation with worse economic conditions; this finding corroborates other studies. However, we also find—and this is new—that this association does not apply for those who expect deflation. One policy implication is that it might be more challenging to anchor expectations when the economy faces negative supply shocks.

Expectations for deflation in the long term have also increased since 2022. Some Canadians anticipate that prices will reverse after temporary factors, mainly supply chain issues and pandemic-related changes in demand, are resolved. Most consumers, however, still expect inflation in five years to be close to or above the Bank's inflation target range.

Finally, we show that knowledge of the Bank's inflation target helps anchor expectations. Thus, increasing efforts to communicate the target range to those who do not know it could help keep inflation expectations in check. The [Explainers](#) on the Bank's website and education programs at the Bank of Canada Museum are steps in that direction.

Appendix A: Canadian Survey of Consumer Expectations questions

This appendix presents the full text of relevant questions from the CSCE.

A.1 Questions about inflation expectations

The CSCE asks respondents about their perception of current inflation. Then it asks them about their expectations for inflation in one, two and five years. It follows the approach of the Federal Reserve Bank of New York's Survey of Consumer Expectations (Federal Reserve Bank of New York 2013). First, it asks respondents if there has been inflation or deflation (defined as the opposite of inflation). Then it asks respondents to give their point estimate for inflation at the time horizon specified in the question. These questions are presented to respondents as follows:

Q1.A: Over the last 12 months, do you think that there has been inflation or deflation?

(Note: deflation is the opposite of inflation). *Please choose one.*

- Inflation
- Deflation (the opposite of inflation)

Q1.B: What do you think the rate of [inflation/deflation] was **over the last 12 months**?

Please give your best guess. *Please enter a number greater than 0 or equal to 0.*

Over the last 12 months, the rate of [inflation/deflation] was ___ %

Q2.A: 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)

Q2.B: 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 ___ %

Q3.A: 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)

Q3.B: 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 ___ %

Q4.A: 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)

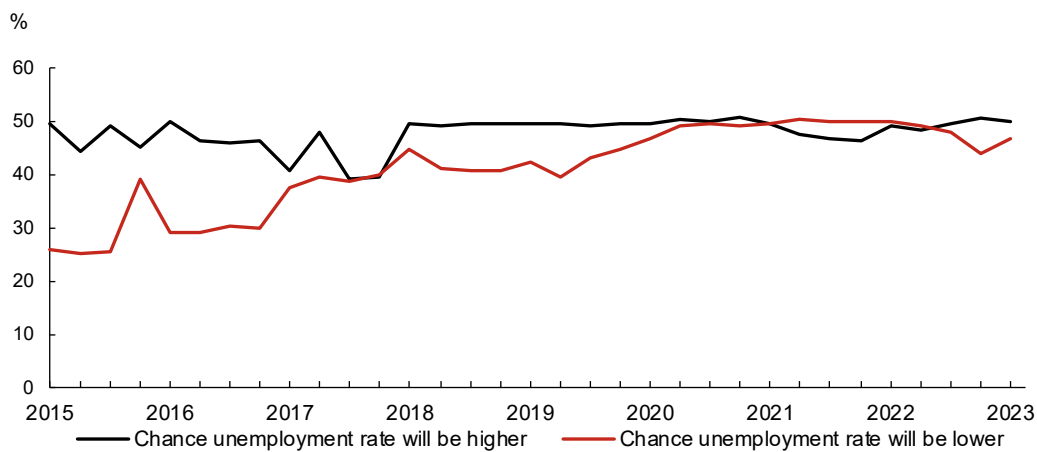
Q4.B: What do you expect the rate of [inflation/deflation] to be **five years from now?** Please give your best guess. *Please enter a number greater than 0 or equal to 0.*

Five years from now, I expect the rate of [inflation/deflation] to be ___ %

A.2 Questions about labour market expectations

Since its inception, the CSCE has included a block of questions on consumers' expectations for the labour market. The results of the question on expected changes in the unemployment rate are presented in **Chart A-1**. Similar to the questions on inflation expectations, these questions follow the approach of the Federal Reserve Bank of New York's Survey of Consumer Expectations (Federal Reserve Bank of New York 2013).

Chart A-1: Expected change in the unemployment rate has been stable



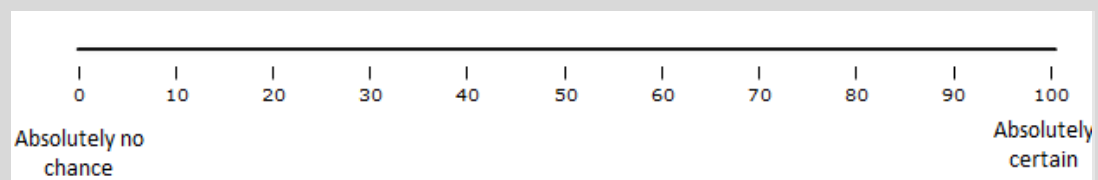
Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

They are aimed at understanding views on the labour market from the worker's point of view. The CSCE asks many of other labour market questions in addition to these. The full text of the questions used in this exercise are as follows:

Q1: What do you think is the percent chance that **12 months from now** the unemployment rate in Canada will be higher/lower than it is now?

Please enter your response in the box below, where 0% means "Absolutely no chance" and 100% means "Absolutely certain".



Note: Randomly assign respondents to see the words "higher" or "lower".

Q2: Please think ahead to **12 months from now**. Suppose that you are working in the exact same "[use "job" if respondent has one job and "main job" if more than one 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

Q3: 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.

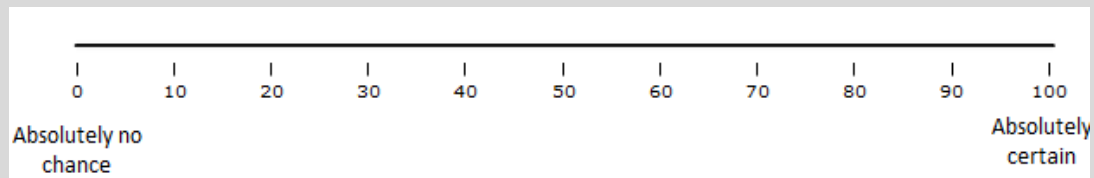
Twelve months from now, I expect my earnings to have [increased/decreased] by ___ %

A.3 Questions about expecting a recession

During the second half of 2022, the CSCE asked respondents questions about their expectations for a recession in Canada. Media in Canada and internationally were reporting on the potential for an upcoming recession, and the Bank was interested in understanding how this was impacting consumers' expectations. The full text of the questions is as follows:

Q1: What do you think is the chance that the Canadian economy will be in recession within the next 12 months?

Please enter your response in the box below, where 0% means "Absolutely no chance" and 100% means "Absolutely certain".



If **Q1** is greater than zero, then ask the following question:

Q2: How would you characterize the expected downturn in the economy? Choose the mostly likely option

1. Mild and short-lived
2. Mild but prolonged
3. Moderate severity and length
4. Severe but short-lived
5. Severe and prolonged

A.4 Questions about narratives of inflation

The CSCE has also asked consumers about their beliefs about inflation. The question is in two parts. First, consumers are asked whether they think the pandemic has affected the Bank's ability to control inflation. Consumers are then asked to identify the most important factor that affected the ability of the Bank to control inflation. The list of factors that the survey provides respondents is drawn from two places. First, in post-survey interviews with roughly 40 respondents, we ask more detailed open-ended questions that touch on the most topical parts of the quarterly survey. The topics respondents focus on help form the list of factors. Second, Andre et al. (2022) survey many households to determine the factors they see as driving inflation. The list provided in this work also informs the list the CSCE shows respondents. In the analysis, "supply chain issues," "labour shortages" and "oil and energy prices" are considered supply narratives. Demand narratives are "high government spending,"

“changes in what consumers bought” and “the strength of demand post-lockdowns.” The full text of the questions is as follows:

Q1: Do you think the pandemic has impacted the ability of the Bank of Canada to control inflation in Canada?

- Yes, it’s more difficult now for them to control inflation
- Yes, it’s less difficult now for them to control inflation
- No impact, the authorities have a similar ability to control inflation

Q2: (If Q1 = Yes, it’s more difficult) What is the most important factor that affected the ability of the Bank of Canada to control inflation in Canada? *Choose one.* (note: randomly assign respondents to Group A or Group B)

Group A

1. the persistence of the pandemic
2. supply chain issues
3. lack of global coordination for vaccinations
4. labour shortages
5. high government spending
6. climate change
7. oil and energy prices

Group B:

1. the persistence of the pandemic
2. supply chain issues
3. labour shortages
4. high government spending
5. climate change
6. oil and energy prices
7. businesses tried to increase their profits
8. changes in what consumers bought
9. Russia’s invasion of Ukraine
10. the strength of demand post-lockdowns
11. Others [please specify]

Q3: You mentioned [**insert option that was chosen**] as the most important factor impacting the **Bank of Canada’s** ability to control inflation. When do you expect that this issue will stop affecting inflation?

- Less than a year
- 1–2 years
- 3–5 years
- More than 5 years

A.5 Questions about knowledge of the target inflation rate

Questions about consumers' understanding of inflation were broadened during the pandemic to better understand consumers' knowledge of the policies around inflation and their understanding of it. Of the consumers who know that Canada has an inflation target, most are able to say that the target is around 2%, in line with the actual target. For consumers who are unaware that Canada has an inflation target, we still ask for their best guess of what they think the inflation target is. The rate they provide is higher than that provided by those who know that the Bank has a target, and it drifted up throughout 2022.

Q1: Did you know that Canada has an inflation target?

- Yes
- No

Q2 What do you think the annual inflation target is in Canada? __%

Appendix B: Impact of demographics on inflation expectations

Table B-1 summarizes the regression results by demographics for each forecasting horizon and for each range of inflation expectations. Women, individuals with low numeracy skills and those with children are less likely to be in the moderate inflation expectations group. Racialized groups and Indigenous people seem to expect high inflation more often than other groups do. This suggests that these groups may purchase different goods and services than others, and they may experience price changes that diverge from those the rest of the population experiences, leading to more extreme expectations. Alternatively, they may not have as complete an understanding or may have less experience thinking about inflation. Or the costs of overpredicting inflation may be lower than the costs of underpredicting inflation for these groups. Those with higher education, those with higher incomes and older people are more likely to expect moderate inflation. These findings align with existing literature, such as Bellemare, Tossou and Moran (2020) and Weber et al. (2022b).

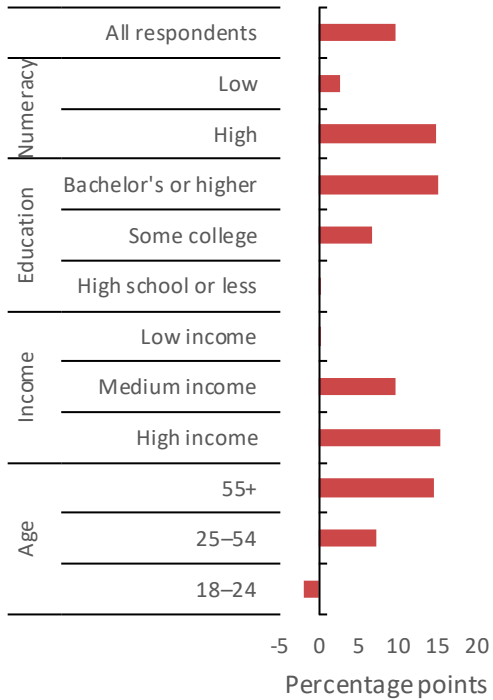
The changes in distributions for inflation expectations since 2022 are widespread across demographic groups. For most of these groups, the share expecting high inflation in the next year has increased (**Chart B-1**, panel a). The notable exceptions are young people, those with a high-school education or less, and low-income groups. But these groups are already well represented among those expecting high inflation, and the decline in their shares is modest.

The share of people expecting deflation in five years has increased across all respondents, regardless of age, income, numeracy or education (**Chart B-1**, panel b). This observation aligns with the comparable increase in deflation expectations in the United States (Armantier et al. 2022).

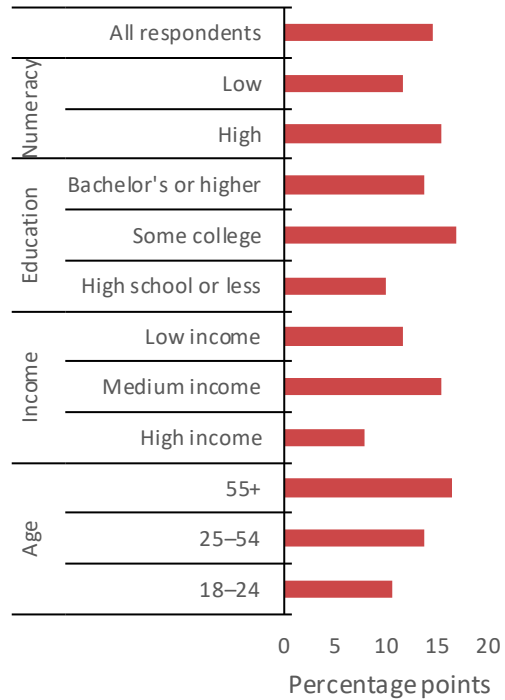
Chart B-1: Most demographic groups contributed to the change in inflation expectations

Change in share of respondents expecting inflation in each range in 2022Q1–2023Q1, compared with 2014Q1–2021Q4 average

a. Change in share of respondents expecting high inflation in the next year



b. Change in share of respondents expecting deflation in 5 years



Source: Canadian Survey of Consumer Expectations

Last observation: 2023Q1

Table B-1: Average marginal effects of demographics on inflation expectations, 2014Q4–2021Q4

	a. 1-year-ahead expectations			b. 2-year-ahead expectations			c. 5-year-ahead expectations		
	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation
Female	0.007*	-0.036***	0.028***	0.007*	-0.053***	0.059***	0.024***	-0.093***	0.078***
	0.003	0.004	0.004	0.003	0.005	0.005	0.004	0.006	0.006
Age 24–54	-0.028**	0.044***	-0.011	-0.041***	0.049***	-0.006	-0.037**	0.065***	-0.022
	0.009	0.011	0.010	0.010	0.014	0.014	0.011	0.016	0.016
Age 55+	-0.061***	0.061***	-0.008	-0.082***	0.087***	-0.025*	-0.075***	0.092***	-0.031*
	0.009	0.012	0.011	0.010	0.014	0.014	0.011	0.017	0.017
Low numeracy	0.032***	-0.060***	0.033***	0.044***	-0.093***	0.070***	0.050***	-0.090***	0.057***
	0.003	0.004	0.004	0.003	0.005	0.005	0.004	0.006	0.006
Some college	-0.019***	0.018**	0.000	-0.012**	0.031***	-0.023**	-0.025***	0.025**	-0.001
	0.005	0.006	0.006	0.005	0.007	0.008	0.006	0.009	0.009
Bachelor’s degree or higher	-0.024***	0.038***	-0.016**	-0.020***	0.063***	-0.058***	-0.038***	0.077***	-0.049***
	0.005	0.006	0.006	0.005	0.008	0.008	0.006	0.009	0.009
Income \$40,000–\$100,000	0.000	0.034***	-0.032***	-0.014**	0.052***	-0.050***	-0.018**	0.061***	-0.045***
	0.004	0.006	0.006	0.004	0.007	0.007	0.006	0.008	0.009
Income \$100,000+	-0.008*	0.060***	-0.049***	-0.022***	0.089***	-0.085***	-0.039***	0.111***	-0.082***
	0.005	0.007	0.006	0.005	0.008	0.008	0.006	0.010	0.010
Married	-0.012***	0.002	0.006	-0.006*	0.001	0.007	-0.002	-0.017**	0.014*
	0.003	0.005	0.004	0.004	0.005	0.006	0.004	0.007	0.007
Children	0.012**	-0.018*	0.006	0.016**	-0.021*	0.015*	0.022**	-0.039***	0.023*
	0.005	0.007	0.007	0.006	0.008	0.008	0.007	0.010	0.010
	0.017	-0.051*	0.024	0.028	-0.062*	0.056*	-0.009	-0.055*	0.067*
Racialized groups	0.015	0.024	0.020	0.019	0.024	0.024	0.022	0.025	0.027
Indigenous	0.012	-0.125*	0.040	-0.030	-0.018	0.124*	0.025	-0.148*	0.119*
	0.030	0.066	0.041	0.030	0.058	0.058	0.054	0.060	0.065
Pseudo R-squared	0.2654	0.4356	0.4425	0.1709	0.3246	0.2541	0.0881	0.2016	0.1312
Observations	42,526	42,473	40,483	42,517	42,449	42,471	40,492	40,426	40,450

Note: This table presents the average marginal effects of belonging to each group after a logistical regression. Each column represents a single equation. Each equation includes controls for the quarter, province, perceived inflation, actual inflation lagged one quarter, professional forecasters' inflation forecasts and the contemporaneous provincial unemployment rate. Standard errors are cluster robust, clustered on the individual respondent. These regressions cover the period 2014Q4–2021Q4. Data for racialized groups and Indigenous peoples begin in the third quarter of 2021. * if p<.1, ** if p<.01, *** if p<.001.

Appendix C: Tables of results

We run separate regressions for each inflation expectation horizon: one year ahead, two years ahead and five years ahead. Similarly, we run separate regressions for the three ranges of inflation expectations: deflation, moderate inflation and high inflation. As in Armantier et al. (2022), average marginal effects are calculated. See Williams (2012) for a discussion on how to interpret these marginal effects.

Table C-1: Average marginal effects of perceptions on inflation expectations, 2014Q4–2021Q4

	a. 1-year-ahead expectations			b. 2-year-ahead expectations			c. 5-year-ahead expectations		
	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation
Current inflation perception	0.381*** 0.017	0.671*** 0.009	0.714*** 0.010	0.256*** 0.009	0.556*** 0.005	0.552*** 0.006	0.182*** 0.008	0.422*** 0.011	0.400*** 0.007
Professional forecasters' expectations	-0.026 0.036	-0.086* 0.048	-0.101 0.083	0.179** 0.063	-0.170* 0.093	-0.061 0.088	0.020*** 0.005	0.011 0.007	-0.012 0.007
Actual provincial inflation rate, lagged	0.001 0.008	-0.004 0.010	-0.001 0.009	-0.002 0.004	-0.006 0.006	0.005 0.006	-0.001 0.024	-0.005 0.007	0.008 0.008
Unemployment rate	0.002 0.004	0.007 0.005	-0.005 0.005						
Probability of unemployment rate increasing	0.000 0.000	-0.001*** 0.000	0.001*** 0.000						
Wage expectation (x100)	-0.006 0.011	-0.008 0.009	0.005 0.006						
Pseudo R-squared	0.237	0.445	0.457	0.1709	0.3245	0.2541	0.088	0.202	0.131
Observations	12,562	12,551	11,977	42,517	42,449	42,471	40,492	40,426	40,450

Note: The table presents the average marginal effects of belonging to each group after a logistical regression. Each column represents a single equation. Each equation includes controls for the quarter, province and demographic controls: sex, age, numeracy, education, income, marital status and children. Standard errors are cluster robust, clustered on the individual respondent. * if $p < .1$, ** if $p < .01$, *** if $p < .001$.

Table C-2: Average marginal effects of expectation of a recession on inflation expectations, 2022Q1–2023Q1

	a: 1-year-ahead expectations			b: 2-year-ahead expectations			c: 5-year-ahead expectations		
	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation
Expecting a recession	-0.035** 0.010	-0.011 0.013	0.016 0.012	-0.014 0.016	-0.043** 0.016	0.067** 0.019	0.003 0.018	-0.030* 0.018	0.037* 0.020
Pseudo R-squared	0.083	0.148	0.529	0.026	0.072	0.024	0.029	0.085	0.045
Observations	5158	5154	5157	5157	5153	5156	5156	5151	5154
Expecting recession to be long and severe	-0.066** 0.024	-0.051* 0.026	0.048* 0.019	-0.102** 0.032	-0.058* 0.031	0.157*** 0.035	-0.070** 0.032	-0.062** 0.033	0.132*** 0.031
Pseudo R-squared	0.089	0.135	0.542	0.044	0.080	0.030	0.048	0.096	0.049
Observations	1,966	1,963	1,965	1,966	1,963	1,965	1,965	1,962	1,964

Note: The table presents the average marginal effects of belonging to each group after a logistical regression. Each column represents a single equation. Each equation includes controls for the quarter, province, perceived inflation, actual inflation lagged one quarter, professional forecasters' inflation forecasts, the contemporaneous provincial unemployment rate and demographic controls: sex, age, numeracy, education, income, marital status and children. Standard errors are cluster robust, clustered on the individual respondent. * if $p < .1$, ** if $p < .01$, *** if $p < .001$.

Table C-3: Average marginal effects of demand and supply narratives on inflation expectations, 2022Q1–2023Q1

	a: 1-year-ahead expectations			b: 2-year-ahead expectations			c: 5-year-ahead expectations		
	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation	Deflation	Moderate inflation	High inflation
Supply narratives, resolving in 2 years or less	0.025*** 0.009	0.018 0.013	-0.025* 0.011	0.044** 0.015	0.074*** 0.017	-0.115*** 0.018	0.047** 0.016	0.076*** 0.017	-0.121*** 0.017
Supply narratives, resolving in more than 2 years	-0.008 0.008	-0.035* 0.015	0.012 0.012	-0.042** 0.014	0.012 0.017	0.042** 0.020	-0.011 0.017	0.004 0.018	0.015 0.020
Demand narratives, resolving in 2 years or less	0.016 0.014	-0.007 0.022	-0.021 0.016	0.098*** 0.027	0.068* 0.027	-0.153*** 0.030	0.072** 0.027	0.067* 0.028	-0.113*** 0.027
Demand narratives, resolving in more than 2 years	-0.020* 0.009	-0.062*** 0.014	0.021 0.013	-0.038* 0.015	-0.043* 0.018	0.089*** 0.021	-0.034 0.018	-0.020 0.020	0.064** 0.022
Pseudo R-squared	0.131	0.165	0.510	0.068	0.103	0.058	0.041	0.101	0.075
Observations	6,736	6,729	6,733	6,736	6,729	6,733	6,734	6,726	6,730

Note: The table presents the average marginal effects of belonging to each group after a logistical regression. Each column represents a single equation. Each equation includes controls for the quarter, province, perceived inflation, actual inflation lagged one quarter, professional forecasters' inflation forecasts, the contemporaneous provincial unemployment rate and demographic controls: sex, age, numeracy, education, income, marital status and children. Standard errors are cluster robust, clustered on the individual respondent. Demand narratives are high government spending, changes in what consumers bought and the strength of demand post-lockdowns. Supply narratives are supply chain issues, labour shortages and oil and energy prices. * if $p < .1$, ** if $p < .01$, *** if $p < .001$.

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