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Recent Evidence on the Resiliency of Flexible Inflation Targeting

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Abstract

This paper assesses the resilience of flexible inflation targeting in the presence of large and persistent supply shocks. Evidence from Canada's post-pandemic experience, new macroeconomic experiments, and policy changes at the Reserve Bank of New Zealand shows that flexible inflation targeting remains a robust framework provided that credibility is preserved. Timely policy action and clear communication are critical for anchoring inflation expectations and sustaining policy flexibility.

Topics: Monetary policy framework and transmission
JEL codes: E5

Overview

The inflation targeting framework has become a cornerstone of monetary policy in many advanced and emerging economies since its initial adoption by New Zealand in 1990. Over the recent years, the global macroeconomic environment has been marked by significant shocks including the COVID-19 pandemic and the post-pandemic inflation surge. As geoeconomic conflict and fragmentation intensify and the global climate transition approaches a critical turning point, the economic environment has become increasingly more susceptible to shocks, complicating policy design. Canada's economy faces an increasingly volatile, shock-prone world particularly as supply shocks, including trade conflicts and supply chain disruptions are becoming more frequent and potentially persistent. This has put the resilience of the inflation targeting framework to the test.

This note examines the resilience of flexible inflation targeting regimes in the face of supply shocks by reviewing recent anectodical and experimental evidence, with a focus on the following specific aspects:

- The performance of the Canadian monetary policy framework during the pandemic and in its aftermath.
- Lessons from Reserve Bank of New Zealand's changes in monetary policy framework and their effects on inflation expectations.
- The role of monetary policy in shaping inflation expectations in a shock-prone world as suggested by controlled lab experiments conducted by Bank Staff.

Overall, the inflation targeting framework has demonstrated considerable resilience and stood to the test of the pandemic. Despite the initial shock, subsequent supply chain disruptions and pent-up demand that led to a surge in inflation, the Bank of Canada raised the policy rate forcefully to bring inflation down, keeping long-run inflation expectations well anchored. Though the inflationary impact of supply shocks could depend on various factors such as the size and persistence of the shocks and the state of the economy, the current framework allows flexibility in its operational design.

Next, we present preliminary evidence from macroeconomic experiments showing that central bank communication can help stabilize and effectively guide inflation expectations following a large and more persistent cost-push shock.

Finally, we discuss a case study of the Reserve Bank of New Zealand (RBNZ). The RBNZ was the first central bank to adopt the inflation targeting framework. The RBNZ has implemented various changes to its framework. We revisit the arguments made for these changes, and stress that after a brief period of experimentation with a dual mandate, the RBNZ has converged back to a framework very similar to the Bank of Canada: a target range of 1 to 3% with an explicit focus on the 2% midpoint.

The Canadian experience since the pandemic

The current inflation targeting framework has proved resilient in the face of the post-pandemic inflation surge characterized by large and persistent supply shocks. The resilience is manifested not only by the realized inflation outcomes but also by continued anchoring of inflation expectations.

Current framework performed well when facing recent supply shocks

The COVID-19 pandemic represented an extraordinary stress test for our inflation-targeting framework, exposing it to unprecedented supply and demand shocks.

In 2020, the virus' global spread forced countries—including Canada—to impose lockdowns. The onset of the pandemic triggered severe supply-chain disruptions—ranging from semiconductor shortages to dramatically higher freight costs—and, when combined with unprecedented fiscal and monetary support, drove goods prices sharply higher (Kryvtsov, MacGee, & Uzeda 2023; Review of the Bank of Canada's Exceptional Policy Actions During the Pandemic, 2024; Hernández de Cos, Forbes and Tombe, 2024; Wu, Xie and Zhang, 2024). By April 2021, CPI inflation had reached the 3 percent upper target band, mirroring trends in other advanced economies.

The inflationary pressure intensified in early 2022, when Russia's invasion of Ukraine sent energy and food costs soaring. Those war-related spikes not only fed directly into headline CPI but also entrenched broader cost pressures. At the same time, firms and governments re-engineered global sourcing strategies to prioritize resilience over efficiency—often at higher cost—while the pandemic's fallout in labour markets (elevated vacancy rates, demographic shifts, and accelerated worker re-allocations) put upward pressure on wage growth across many sectors. Furthermore, when the economy reopened, demand outpaced supply. Consequently, year-over-year CPI inflation peaked at 8.1 percent, the highest level in decades, although Canada's peak remained similar to or below that of many other OECD countries.

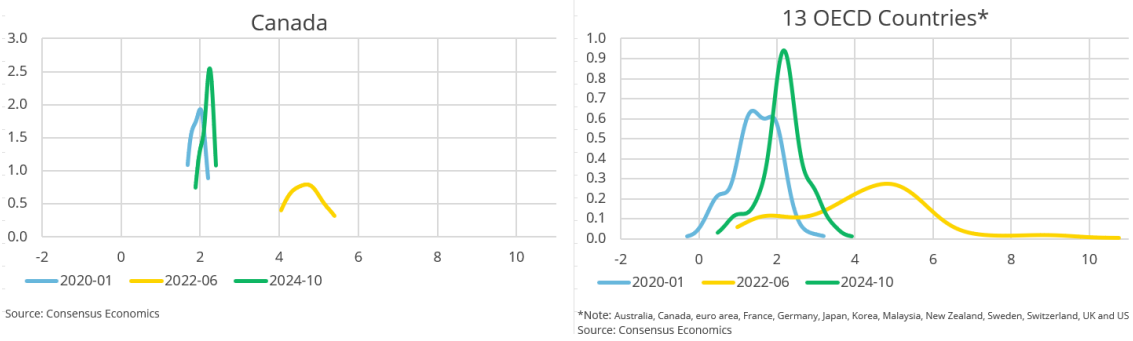
The Bank of Canada responded with its fastest tightening cycle in decades, raising the overnight rate from 0.25 percent in March 2022 to 4.5 percent by January 2023. Monetary policy has worked to restore low inflation, which fell swiftly to 2.8 percent—below the upper control band—by June 2023. Mendes (2024) argues that disinflation occurred unusually fast because, once successive rate hikes removed the economy's large excess demand, prices responded sharply downward—mirroring their earlier rapid rise—as the Phillips curve steepens markedly when demand is extreme. Najjar and Shapiro (2025) also find evidence that the monetary policy tightening was largely responsible for the reduction in actual and expected inflation.

Maintaining inflation expectations well-anchored was crucial (Adrian 2022). As shown by recent literature, de-anchoring amplifies the effect of supply shocks on inflation expectations (Patzelt and Reis 2022) and makes disinflation slower and costlier. Economic theory suggests that when a larger fraction of individuals form their expectations adaptively, chasing the trend, the effects of supply shocks are amplified and more persistent (Kostyshyna, Ozden, & Zhang 2024; Beaudry et al. 2023).

Concerning short-term inflation expectations, they edged higher in 2021–22 in every OECD country (Reis, 2024 John Kuszczak Memorial Lecture at Bank of Canada). In Canada, they restabilized quickly, and faster than other OECD countries, in response to the Bank's unwavering 2 percent mandate: raising interest rates in 2022 has been critical to stabilizing inflation expectations (Mojon 2024; De Fiore, Mojon, Rees, & Sandri 2024).

The left panel of Figure 1 shows the distribution of one-year-ahead inflation expectations across households in Canada before, during and after the pandemic. The right panel shows the same results for other OECD countries. Notice that during the pandemic, Canadian's inflation expectations were less dispersed and lower than those in other countries, which facilitated a prompt restabilization. Moreover, we focused on the households' inflation expectations rather than professional forecasters expectations, as those ones are considered to be less representative of the overall expectations in the economy (Coibion and Gorodnichenko 2025, Laubach conference).

Figure 1: Canada's Short-run Inflation Expectations rose Less and Restabilized Quickly

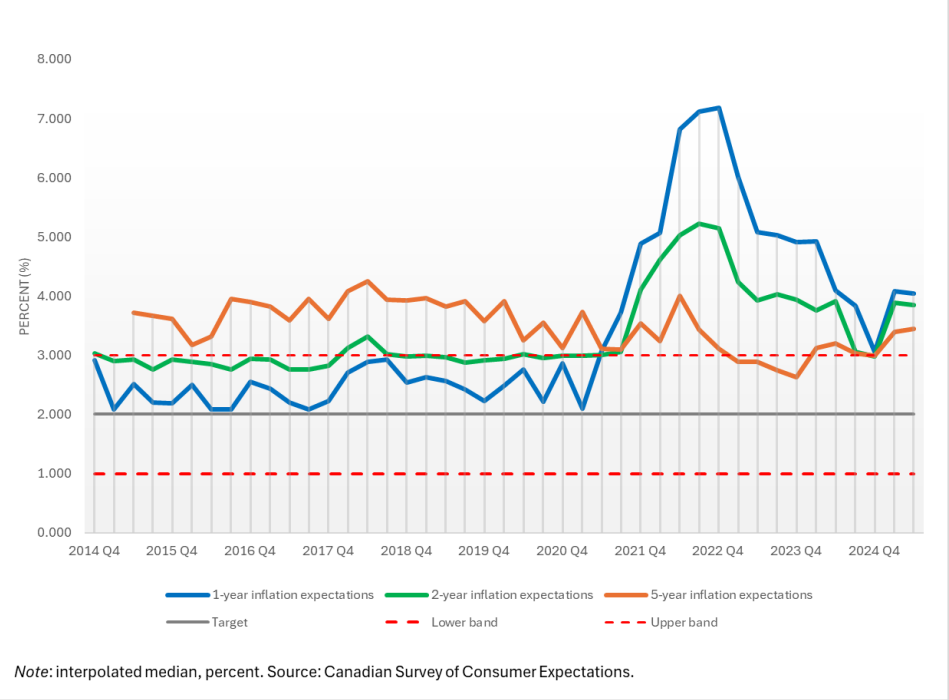


Source: Consensus Economics

*Note: Australia, Canada, euro area, France, Germany, Japan, Korea, Malaysia, New Zealand, Sweden, Switzerland, UK and US
Source: Consensus Economics

Figure 2 reports the median value of the distribution of households' inflation expectations at different horizons. As noted by Ricardo Reis at the Bank of Canada's annual conference, short-term (1-year-ahead) inflation expectations temporarily rose. However, the strong and rapid tightening of monetary policy that began in March 2022 quickly pulled short-term inflation expectations back down, preventing a price-wage spiral.

Figure 2: Long term inflation expectations remained anchored, short-term expectations restabilized



Note: interpolated median, percent. Source: Canadian Survey of Consumer Expectations.

At the same time, Figure 2 also shows that (the median) 5-year inflation expectations remained stable throughout the pandemic-induced inflationary episode, as households maintained trust in the Bank's commitment to the inflation target.

Overall, long-term inflation expectations remained well anchored. Despite the COVID-driven spike in prices, their estimated anchoring parameter remained at zero post-pandemic—exactly as theory predicts when a central bank's target is credible. In other words, because long-forward yields did not become more sensitive to inflation surprises, private-sector agents continued to believe the 2 percent goal would prevail. A clear numerical target can keep expectations anchored even under extreme shocks.

Overall, decades of credible inflation targeting (Mendes 2024) combined with clear, consistent communication (Macklem 2024) sustained public trust and prevented a 1970s-style wage-price spiral during the COVID-19 episode, keeping long-run inflation expectations anchored during the pandemic (Adrian 2022, Mojon 2024).

In sum, the COVID-19 episode put Canada's inflation-targeting framework through its toughest stress test in decades. Large supply-chain disruptions, war-driven energy shocks, tight labour markets and the sudden increase in demand after the end of the pandemic drove headline inflation to multi-decade highs, yet rapid policy tightening, amplified by the non-linear Phillips curve, delivered an unusually swift disinflation. Crucially, long-run expectations remained firmly anchored—thanks to decades of clear targets and consistent communication—preventing a self-reinforcing wage-price spiral.

Current framework provides flexibility to manage shocks of different nature

As supply shocks become more frequent, central banks need to adopt a flexible approach to manage their impacts. This flexibility is essential because the full impact of supply shocks is complex and hard to be accurately assessed with real-time information alone. A flexible approach avoids rigid, potentially ineffective policies that could lead to overly aggressive or reactive monetary policy adjustments, potentially causing unintended negative consequences. The Bank of Canada's current policy framework provides this flexibility in terms of both target range and the time frame to return inflation to target.

The Bank of Canada targets a 2% inflation rate and operates within a 1–3% range. Such flexibility is crucial given the challenges of accurately assessing the magnitude of inflationary impacts of supply disruptions.

A key factor to consider is the magnitude of supply shocks, as a larger disruption can lead to more significant price increases. Recent studies suggest that when inflationary shocks are large, firms tend to adjust prices more frequently. Evidence from European countries show a strong positive correlation between inflation levels and the frequency of price changes (Blanco et al., 2024; Cavallo et al., 2023). This suggests that in a high-inflation environment, the distortions caused by nominal rigidity decrease, as firms adjust their prices more often. It implies that the output cost of disinflationary policy is reduced when firms adjust prices frequently.

The broader state of the economy also plays an important role in how supply shocks affect inflation. As noted, the frequency of price adjustments influences the inflation-output trade-off. Similarly, labor market conditions shape the relationship between inflation and unemployment. Studies from the US and EU find that the Phillips curve steepens when labor markets are tight (Gitti, 2024; Smith et al., 2024), indicating that inflation responds more strongly to changes in unemployment under such conditions.[1]

Because the inflationary effects of supply shocks depend on multiple factors, responding too aggressively to bring inflation back to target could result in substantial output losses. In fact, central banks in advanced economies have historically responded more strongly to demand-driven inflation than the supply-driven inflation (Hofmann et al., 2024). A more muted responses to supply-driven inflation is only effective if inflation expectations remain anchored.

While a target range introduces flexibility, some fear that it could weaken the anchoring of expectations. At the same time, it can enhance credibility by helping central banks avoid

[1] In contrast to these studies, some recent research argues that there is little evidence of non-linearities in the Phillips curve once inflation expectations and cost-push shocks are taken into account (Beaudry et al., 2025; Hazell et al., 2022).

repeated misses of a rigid target. Empirical evidence to date does not suggest that inflation target ranges undermine expectation anchoring (Ehrmann, 2021), though this conclusion may not hold in an era of more frequent supply shocks. In this case, striking the right balance between policy flexibility and expectation anchoring requires nuanced judgment. Although this remains a relatively underexplored area, the analysis presented in the next section aims to provide insights, using experimental evidence. It suggests that as supply shocks become more frequent, inflation expectations may grow less stable, making clear and consistent central bank communication even more vital to maintaining credibility.

Beyond stabilizing inflation, a flexible inflation target range can support more equitable economic outcomes. Monetary policy decisions often have uneven effects across income groups. For instance, low-wage workers and households with limited savings are more vulnerable to unemployment and real income declines during economic downturns. When workers lose their jobs, their skills can deteriorate over time, leading to long-lasting reductions in earnings. In this context, allowing inflation to temporarily rise above the target midpoint to prioritize maximum employment could help support these groups, making monetary policy more inclusive. (Alves and Violante, 2024).[2]

The Bank of Canada also incorporates flexibility in terms of the timeframe for returning inflation to target, aiming to bring inflation back within its target range over a period of six to eight quarters. In general, this medium-term horizon is important because monetary policy operates with lags—policy actions take time to influence inflation and the broader economy. A gradual approach also allows policymakers to collect and analyze incoming data, enabling more informed and effective decisions.

When evaluating the speed of bringing inflation back to its target, assessing the persistence of supply shocks presents a significant challenge. Even if a shock is temporary, its effects can be long-lasting. For example, a brief supply disruption might discourage investment or reduce firm productivity, leading to higher marginal costs and sustained inflation. If a central bank tightens policy prematurely—without fully understanding the duration or implications of the shock—it risks deepening the economic downturn and amplifying the negative effects (Fornaro and Wolf, 2023).

A gradual policy response is also useful when supply shocks impact sectors unevenly. Inflationary pressures often ease over time as relative prices adjust across the economy. For instance, an energy shock may cause an immediate spike in costs for the manufacturing sector but have a slower, more limited effect on the service sector. As firms and households adapt—by substituting inputs or altering consumption patterns—these

[2] However, if low-income households face higher inflation than high-income households—due to differences in consumption patterns—then allowing inflation to temporarily exceed the target could disproportionately harm them. Cavallo and Kryvtsov (2024) find that during the COVID-19 inflation surge, prices of lower-cost goods rose faster than those of premium products, placing a greater burden on low-income households.

relative price adjustments can reduce inflationary pressure without requiring aggressive intervention (Guerrieri et al., 2023).

In some cases, central banks may face persistent cost-push shocks stemming from sources like wars or geopolitical conflicts. These disruptions can last for years or even decades. Traditional monetary policy models often assume temporary shocks that do not alter the long-run equilibrium. However, persistent shocks can shift both potential output and neutral interest rates. While central banks cannot control these structural changes, they must adapt their policy stance to minimize the costs of transitioning to a new economic equilibrium. In particular, it would be optimal for central banks to commit to a credible, state-contingent plan. During the transition to a new equilibrium, it may be best to initially allow inflation to rise in response to shocks, followed by a gradual tightening of policy to bring inflation back to target. This strategy stabilizes the output gap more effectively and supports a smoother adjustment to the new equilibrium compared to conducting monetary policy under discretion. (Nuno et al., 2024). Climate change presents another example of a potential long-lasting supply shock. According to the Bank of Canada's own transition analysis, the inflationary effects of moving toward a world with frequent climate shocks appear relatively modest under historical monetary policy rules—but this comes at the cost of reduced output (Dahlhaus, 2025). Although the trade-offs are substantial, they remain manageable within the current policy framework.

In all of these cases, a flexible monetary policy operational design is essential—not just for allowing time to assess the nature and impacts of supply shocks, but also for responding to them in a way that supports both price stability and economic resilience.

Monetary Policy Challenges in a More Volatile Economy

Going forward, in a shock-prone world where ongoing structural changes make supply side disturbances becoming more present, supply- and demand-driven inflation needs to be identified in real time as the extent to which either supply or demand factors drive inflation would have important implications for monetary policy (Cacciatore and Gnocchi, 2026, Shapiro, 2024, Schneider, 2025).[3] For instance, monetary policy effectiveness can be undermined when central banks misinterpret persistent economic fluctuations as supply-side phenomena (e.g., technological shocks), rather than demand-driven shocks that can have long-term effects via hysteresis (Fatás and Singh, 2024).

When supply shocks are large, persistent and when the economy exhibits nonlinear behavior, monetary policy might consider front-load tightening during inflationary surges

[3] Both papers underscore the need for refined, real-time tools to guide monetary policy by distinguishing supply vs. demand origins of inflation. While Shapiro (2024) offers a broad decomposition framework, Schneider (2025) provides sector-specific granularity through structural models. Together, they argue for a more nuanced and flexible approach to inflation monitoring and policy calibration in a post-pandemic, shock-prone world.

to exploit favorable inflation-output trade-offs (Karadi et al., 2024). For instance, Erceg, Lindé & Trabandt (2024) build a DSGE model with nonlinear price and wage Phillips curves (the Phillips curve is flat when inflationary pressures are subdued and steepens as inflationary pressures rise), endogenous indexation (firms and workers adjust behavior based on past inflation) and learning (agents initially misjudge the persistence of supply shocks, mistaking them as transitory). This nonlinear framework implies that the standard prescription to "look through" supply shocks is a good policy for small shocks when inflation is near the central bank's target, but it may be quite risky when shocks are large and persistent driving inflation well above target. Moreover, the economic costs of "going the last mile" (returning inflation quickly to target) are high, due to increased persistence and backward-looking behaviors.

Next, a "looking through" policy is a prescription of the literature when supply shocks are small, and inflation expectations are anchored. When faced with the risk of inflation expectations becoming de-anchored, should central banks aggressively tighten monetary policy? Beaudry et al. (2023) develop a model of bounded rationality and show that optimal monetary policy could involve a pivoting behaviour in the sense that central banks could initially look through supply shocks until the shocks cumulate beyond some threshold level, then switch to a very aggressive policy response. Bullard, Grimaud, Salle & Vermandel (2025) develop a heterogeneous-expectations New Keynesian (HENK) model where inflation expectations can become unanchored through social learning. The resulting "inflation scares" increase the real cost of disinflation. They argue that the timing of monetary tightening is more important than the strength, as early action can prevent inflation scares without causing a recession. If tightening is delayed, inflation expectations diverge from the target, leading to persistent inflation, worsened credibility, and higher output losses.

Finally, how should monetary policy respond when central banks face uncertainty about the persistence of inflationary shocks? Bušs & Traficante (2025) develop a New Keynesian model with incomplete information about cost-push shocks. In this model, central banks and the private sector must learn over time whether a shock is temporary or persistent. In this case, ignoring temporary inflation surges can worsen inflation outcomes under uncertainty. If a persistent shock is misjudged as transitory, inflation rises and real interest rates fall, boosting demand and worsening inflation. Tightening earlier when signs of persistence emerge can reduce these risks. Central banks would benefit from adopting flexible, learning-based policy frameworks than rigid look-through strategies under uncertainty.

Experimental evidence on inflation expectations and monetary-policy transmission

The traditional prescriptions of monetary policy in response to supply shocks rely critically on the assumption of rational expectations (Woodford, 2004; Galí, 2015). However, survey-based evidence suggests systematic deviations from rationality (Coibion and Gorodnichenko, 2015). For instance, adaptive learning can amplify the persistence of shocks in the economy (Evans and Honkapohja, 2001; Hommes, 2021), thereby necessitating a stronger policy response to stabilize inflation (Orphanides and Williams, 2003; Hommes et al., 2019; Mausberger, 2021). These findings highlight the importance of understanding expectation formation for the design of effective monetary policy. The issue is particularly salient in today's shock-prone environment, where the use of look-through strategies risks un-anchoring inflation expectations (Walsh, 2022; Bullard et al., 2024). This section contributes to this discussion by drawing on recent experimental evidence (Kostyshyna, Petersen, and Yang, 2025).

Controlled macroeconomic experiments provide a valuable complement to traditional empirical methods and have been applied in the context of the Bank of Canada's Monetary Policy Framework Renewals (Kryvtsov and Petersen, 2021; Kostyshyna, Petersen, and Yang, 2022). Such experiments address the limitations of available data by allowing researchers to test counterfactual policy responses under different environments, for example, varying the size and persistence of supply shocks. They can also offer insights into the appropriate conduct of monetary policy as central banks adapt to evolving economic conditions. Importantly, experimental settings enable the isolation of causal effects of policy interventions on inflation expectations—an exercise that is challenging with observational data due to endogeneity and data constraints. Because expectations are elicited directly from participants, the analysis does not rely on any specific assumptions about expectation formation. Instead, experimental data make it possible to study the behavioural mechanisms underlying expectations and their implications for macroeconomic dynamics. In this way, macroeconomic experiments are uniquely suited to examining monetary policy responses to supply shocks and their consequences for the anchoring of inflation expectations.

Kostyshyna, Petersen and Yang (2025) design a controlled macroeconomic experiment to assess the resiliency of the Bank of Canada monetary policy framework in a world where supply shocks become larger and more persistent. Specifically, they compare the performance of alternative monetary policy rules that are all consistent with the current monetary policy framework but differ in the extent to which supply shocks are looked through. Furthermore, the alternative interest rate rules are complemented with various

communications protocols, which differ in the type and amount of information released by the Bank as the economic environment becomes more turbulent. This study contributes to the experimental macroeconomic literature by explicitly modelling a structural change in the shock process and analyzing a richer set of policies, which also explicitly include a well-specified communication strategy.

The design of a macroeconomic experiment

We consider an environment with supply shocks where the central bank starts by using the following baseline interest-rate rule:

$$i(t) = 0.52 + 0.2i(t-1) + 0.8\big(2.2\,\pi(t) + 0.3\,y(t)\big).$$

This Taylor rule has been used by the Bank of Canada in its projection model () and is based on the historical data. The strength of the response to inflation (2.2) and output gap (0.3) are consistent with estimated values during demand shocks (Kang, Sekkel, Tasking and Yang, 2026). This is a baseline monetary policy in the experiment.

Policy rule. The monetary policy rule employed in the experiment follows the Bank of Canada's projection model and is calibrated on historical data. The coefficients on inflation (2.2) and the output gap (0.3) align with estimates obtained during periods of demand-driven shocks (Kang, Sekkel, Taskin and Yang, 2026). This specification serves as the baseline policy rule in the experimental design.

Supply shock. The experimental economy evolves over two distinct phases. During the first 19 periods, participants face relatively small and stable supply shocks, intended to replicate conditions similar to the pre-pandemic environment. In period 20, a large positive cost-push shock—approximately three standard deviations of the pre-shock distribution—is introduced. From this point onward, the supply shock also becomes more persistent, with its autocorrelation parameter doubling relative to the pre-shock period. Participants across all treatments are explicitly informed of this change, both through on-screen instructions and a formal announcement by the experimenter.

Monetary policy. Following the large cost-push shock, the central bank can pursue one of two strategies. Under the baseline approach, the policy rule remains unchanged, maintaining the original coefficients on inflation and the output gap. Alternatively, the central bank can adopt a more accommodative stance by reducing the inflation coefficient to 1.2. Historical evidence from Canadian data suggests that monetary policy has indeed responded less aggressively to inflation during episodes of supply shocks (Kang, Sekkel, Taskin and Yang, 2026). While such an accommodative stance may help stabilize output, it carries the risk of sustaining higher inflation for longer, thereby increasing the likelihood of de-anchoring expectations.

Communication strategies. The experiment also varies the transparency of monetary policy communication. We consider three approaches that differ in the degree of information provided to participants about the policy framework, its adjustment following the supply shock, and the availability of central bank projections. In the *reduced communication* treatment, participants are informed only about the functional form of the policy rule, without disclosure of the precise coefficients or the timing of the shift to a more accommodative stance. In contrast, the *detailed communication* treatment provides participants with the exact parameter values of the rule, as well as explicit information about the change in the inflation response coefficient and its macroeconomic implications under the accommodative policy regime.

Extended communication. The third approach augments the detailed policy communication with additional disclosure of central bank forecasts for inflation and output over the subsequent six quarters. Prior experimental evidence demonstrates that central bank projections can play an important role in shaping expectations (Mokhtarzadeh and Petersen, 2020; Petersen and Rholes, 2021, 2022). In line with conventional practice, the forecasts in our experiment are generated using the rational expectations (RE) solution. This approach is commonly adopted for several reasons. Most importantly, the central bank's objective is to stabilize expectations by guiding them toward a well-defined and stable equilibrium, exemplified by the RE solution.

Adopting RE-based projections does not imply that participants themselves hold rational expectations. On the contrary, experimental evidence indicates that agents often exhibit non-rational belief formation, with the composition of such beliefs varying across policy environments and evolving over time (Assenza et al., 2019; Pfajfar and Žakelj, 2014). Nonetheless, employing RE projections ensures both tractability and clarity, thereby facilitating the implementation of the experimental design while providing participants with a consistent benchmark for expectations.

Table 1 provides a summary of the policies considered in the macroeconomic experiment.

At the time of writing, we have completed four sessions for each of the six policy treatments (T1–T6 in Table 1).[4] Data collection is still ongoing, and the summary of results presented here will be refined once all experimental sessions have been conducted. Preliminary results are reported in **Figures 3** and **4**.

[4] We plan to complete data collection within the next couple of months.

Table 1: Summary of experimental treatments

	Communication approaches		
	A. Reduced communication	B. Detailed communication	C. Extended communication = detailed PLUS projection
1. Baseline monetary policy	T1: Baseline	T3: Baseline + details of monetary policy	T5: Baseline + explanation of monetary policy + projections
2. More accommodative monetary policy	T2: More accommodative	T4: More accommodative + details of monetary policy	T6: More accommodative + details of monetary policy + projections

Experimental results. Figure 3 reports the outcomes under the baseline policy rule. Each communication strategy is depicted by a distinct color: purple corresponds to the baseline rule with reduced communication (T1), red corresponds to the baseline rule with detailed policy communication (T3), and green to the baseline rule with detailed communication and central bank projections (T5). Within each treatment, outcomes from the four experimental sessions are shown in varying shades of the respective color. The figure plots realized inflation and output alongside average short-term (one-period-ahead) and long-term (six-period-ahead) inflation expectations.

Figure 4 presents the results under the more accommodative policy rule. The color coding is consistent with **Figure 3**: purple denotes reduced communication policy (T2), red denotes detailed communication policy (T4), and green denotes extended communication policy (T6). In these treatments, following the introduction of the positive cost-push shock, participants are explicitly informed of the new (lower) coefficient on inflation in the policy rule as well as its interpretation.

Anchoring of inflation expectations

Based on the data collected to date, the macroeconomic experiments yield several key insights. First, consistent with conventional theory, a more accommodative monetary policy following a large cost-push shock generates higher inflation and a lower output gap (**Figure 4**) compared with the baseline policy that responds strongly to inflation (**Figure 3**). While the immediate effects of the supply shock on inflation and output are similar across both policy regimes, the weaker inflation response under the accommodative policy results in elevated inflation persisting for a longer period.

This persistence of high inflation provides a basis for addressing a central concern of policymakers: can a more accommodative policy un-anchor inflation expectation? Macroeconomic experiments are particularly well suited to this question, as they allow direct analysis of individual participants' short-term and long-term inflation expectations. This leads to our second key finding and primary contribution to the literature: a more accommodative monetary policy reduces the anchoring of inflation expectations.

Figure 4 shows that, under the accommodative policy, short-term inflation expectations remain elevated for a longer period due to the persistence of high inflation. Moreover, this persistence spills over into long-term expectations, with both the magnitude and duration of the spillover exceeding that observed under the baseline policy. Under accommodative policy, long-term expectations become more responsive to contemporaneous shocks and to fluctuations in short-term expectations. In contrast, well-anchored long-term expectations should remain largely unaffected by current shocks or fluctuations in short-term expectations. These results indicate that inflation expectations become un-anchored when monetary policy responds weakly to inflation. By contrast, a strong baseline response contains the cost-push episode, preventing inflation from becoming entrenched and mitigating spillovers into long-term expectations.

The role of communication

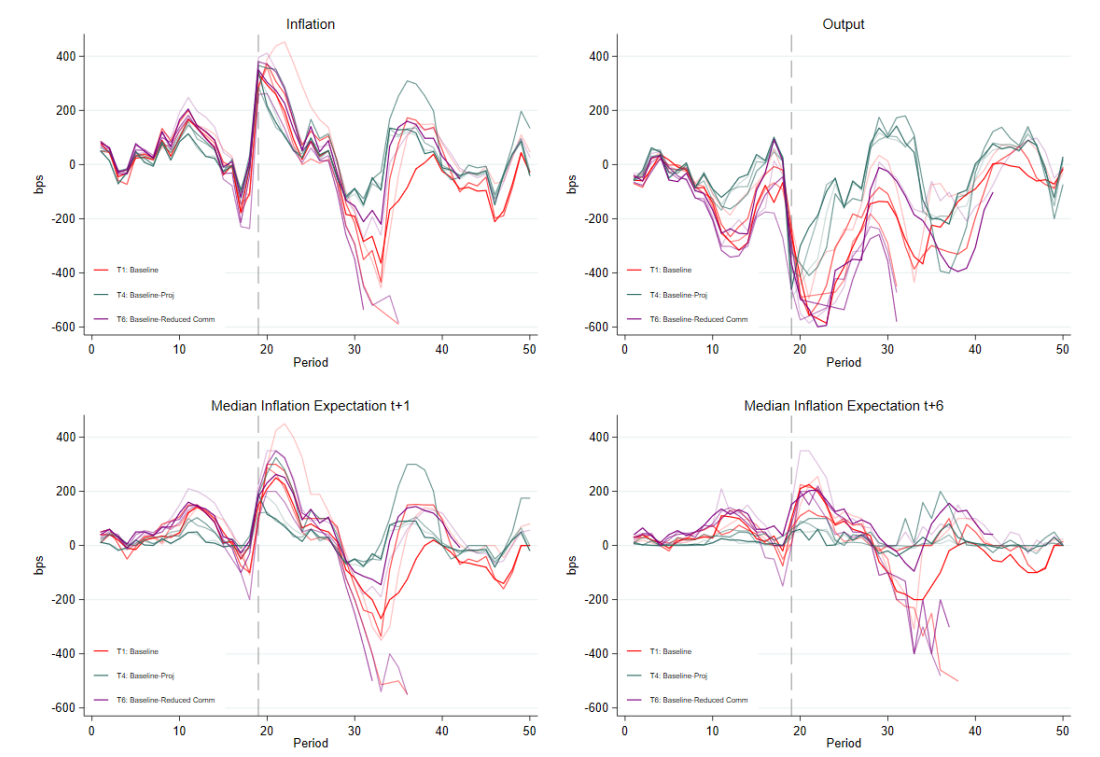
Next, we examine the role of communication in the context of a large cost-push shock. Within each monetary policy regime—baseline or accommodative—we compare three communication strategies: reduced communication (A), detailed communication of the policy rule (B), and extended communication including central bank projections (C). The experimental evidence highlights three main new findings.

First, the dynamics under reduced communication and detailed policy communication are very similar, exhibiting comparable volatility and persistence (red and purple lines in **Figures 3** and **4**).

Second, central bank communication of inflation and output projections contributes to stabilizing expectations and, consequently, economic outcomes. Sessions that include projections (green lines) display lower volatility and persistence than those without projections (red and purple lines). By guiding participants' expectations of inflation and output, projections help anchor inflation expectations and reduce inflation volatility. Even under a more accommodative monetary policy, central bank projections facilitate a rapid return of inflation to its steady state following a large supply shock. The resulting stability of inflation under accommodative policy with projections closely resembles that observed under the baseline policy with a strong inflation response, but without as pronounced a decline in output.

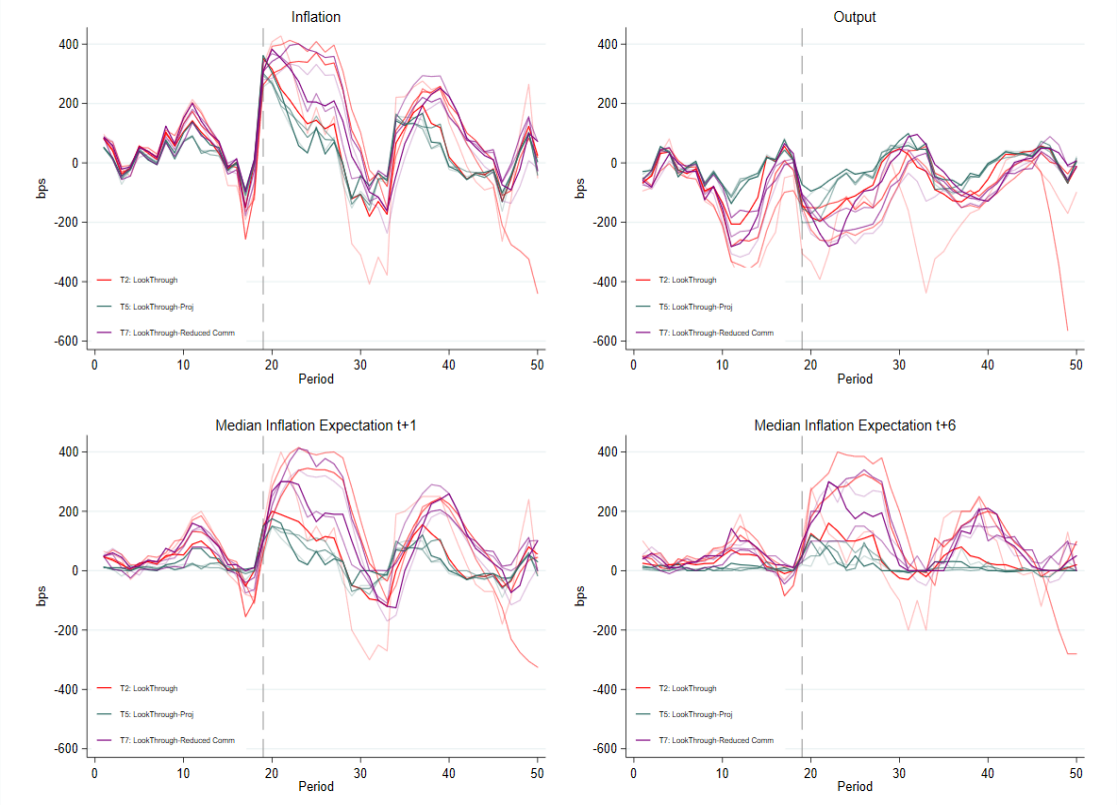
Finally, projections computed using the rational expectations solution effectively steer participants' expectations toward rational benchmarks. When participants view the central bank's projections as credible and incorporate them into their forecasts, their expectations become more closely aligned with rational expectations. As a result, the dynamics of the experimental economies are more stable than in scenarios without central bank communication of projections.

Figure 3. Experimental results from sessions with baseline policy rule.



Notes: This figure shows the experimental outcomes for inflation, output and median expectations for inflation at short and long horizons for the sessions with the baseline policy rule during periods 1 to 50 (response to inflation of 2.2 and response to output gap of 0.3).

Figure 4. Experimental results from session with more accommodative policy rule after the shock.



Notes: This figure shows the experimental outcomes for inflation, output and median expectations for inflation at short and long horizons for the sessions where monetary policy is based on the baseline policy rule (response to inflation of 2.2 and response to output gap of 0.3) until period 19 and on the more accommodative policy rule after the shock in period 20 (response to inflation of 1.2 and response to output gap of 0.3).

Lessons from Reserve Bank of New Zealand (RBNZ) changes in monetary policy framework

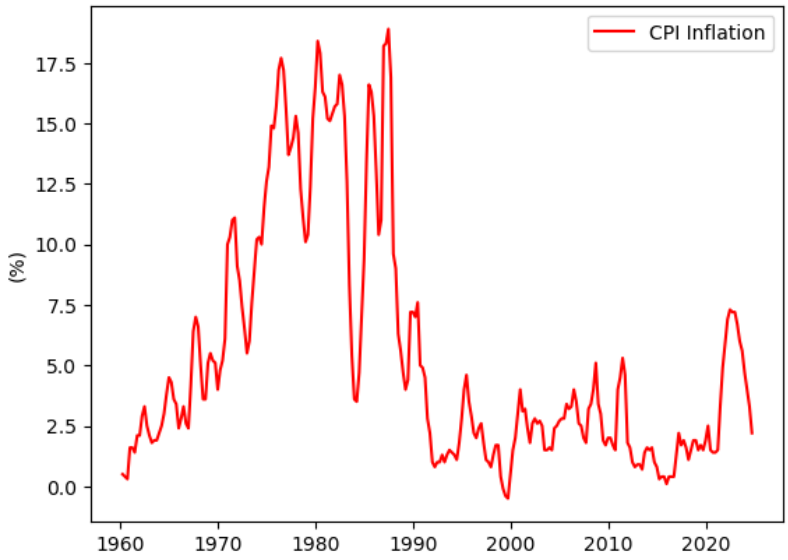
How has the RBNZ monetary policy framework evolved since the introduction of inflation targeting?

The RBNZ provides an interesting case study of a central bank that has frequently adjusted its monetary policy framework. We begin this section with a brief chronology of the main changes to the RBNZ's framework and the motivations behind them. In doing so, we review the rationale presented by the RBNZ for these changes and document their effects on long-run inflation expectations. We find that earlier adjustments to the inflation targeting framework—such as (i) narrowing the target range from 0–3% to 1–3%, and (ii)

placing explicit emphasis on the 2% midpoint, thereby aligning the RBNZ's approach more closely with that of the Bank of Canada—contributed positively to anchoring long-term inflation expectations in New Zealand.

In 1990, the RBNZ was the first central bank to adopt inflation targeting as a monetary policy framework, and price stability was defined as an inflation target of 0% to 2%. The framework emerged as a response to the high inflation rates that plagued the economy during the 1970s and 1980s, as shown in Figure 5. The primary rationale was to anchor inflation expectations and return to price stability. The evidence of its effectiveness was immediate—within a year, inflation fell rapidly, signaling the credibility and impact of the new monetary policy approach.

Figure 5: New Zealand CPI inflation



The main changes following the introduction of inflation targeting focused on the target ranges. For example, in 1996, the inflation target band was adjusted to 0-3%. This change was driven by the need for greater flexibility in balancing inflation control with other macroeconomic objectives, such as unemployment and output stabilization. Policymakers also recognized the lagging nature of monetary policy's impact on inflation, necessitating a wider target range to accommodate such delays (Brash, 1997). Research by Lewis and McDermott (2016) found that while inflation expectations increased across short and medium horizons following this change, long-term expectations remained stable.

The 2002 adjustment narrowed the band to 1%-3%, raising the target midpoint to 2% to align with concerns that the previous target had been too low, potentially constraining economic growth (McDermott & Williams, 2018). Political perspectives played a role in this decision, reflecting broader economic priorities such stronger growth and more stable

exchange rates (McDermott & Williams, 2018). According to Lewis and McDermott (2016), long-term inflation expectations shifted upward in a statistically significant manner.

In 2012, an explicit focus on a 2% inflation target was added. This shift aimed to anchor inflation expectations more firmly and reduce economic volatility (Kendall & Ng, 2013). While this adjustment was subtle, evidence from Lewis and McDermott shows that professional forecasters expectations slowly converged to the 2% target and have remained firmly anchored around it. As a result of this change, New Zealand's inflation targeting regime ultimately aligned with the parameters adopted by Canada: explicit focus on the 2% midpoint of a target range of 1 to 3%.

The 2018 revision marked a significant policy shift, as New Zealand formally adopted a dual mandate. Alongside price stability, the central bank was tasked by the new government with considering maximum sustainable employment (MSE) in its monetary policy decisions. The rationale was to formalize the importance of labor market outcomes for monetary policy and minimize economic downturns (Kendall & Ng, 2019). The two objectives of price stability and MSE were found to not be in conflict except in specific situations and that increasing focus on the labour market could yield to welfare gains (Reserve Bank of New Zealand, 2023). Jacob and Ozbilgin (2021) used a medium-scale open-economy general equilibrium model calibrated to New Zealand to find that adding a second policy objective of stabilising the labour market improves social welfare at any level of inflation stabilisation, but that the effects are smaller if the central bank is highly reactive to inflation and even turn negative when the economy is driven solely by cost-push shocks affecting prices and wages. However, Jacob and Wadsworth (2018) found no substantial difference in how New Zealand (single mandate) and the United States (dual mandate) responded to inflation and economic activity, nor in their economic outcomes. The authors used a simplified version of a general equilibrium model used by the RBNZ to do macroeconomic forecasting in which the policy rules are Taylor rules. They find that the coefficients on both the output gap and inflation are similar in the two equations. They conclude by stating that the adoption of a dual mandate would have a limited effect on policy decisions.

In 2023, New Zealand returned to a single inflation-targeting mandate, removing MSE from its policy objectives. The rationale was to rebuild the credibility of the inflation target following the disruptions caused by post-COVID inflationary pressures (Treasury of New Zealand, 2023). The 2023 five-year review of the Remit (the document from the Ministry of Finance outlining monetary policy objectives) consulted with the population and the results showed that the vast majority preferred a hierarchical ordering of the objectives prioritizing price stability. Furthermore, a majority of Monetary Policy Committee members supported the hierarchical ordering as it could provide better clarity on how the MPC should manage trade-offs between the inflation and MSE objectives when they arise

and support the credibility of the price stability objective (Reserve Bank of New Zealand, 2023). Consequently, following its experiment with a dual mandate, New Zealand's inflation targeting regime returned to a framework consistent with that of Canada.

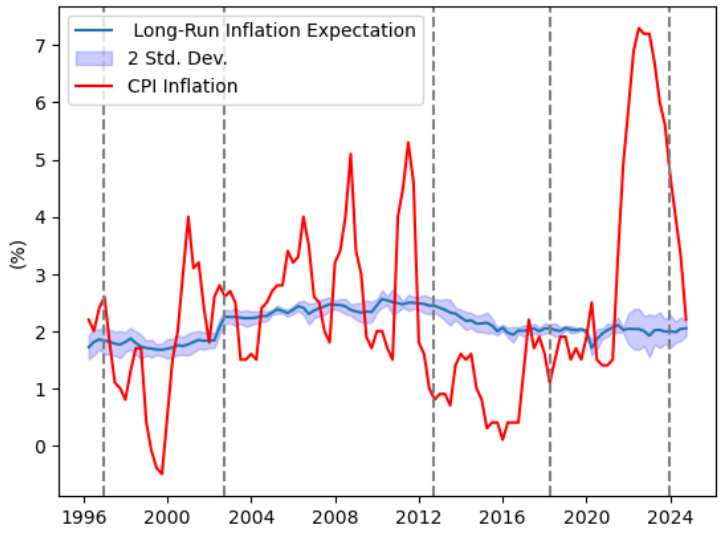
How have these changes impacted the long-run inflation expectations of professional forecasters in New Zealand?

Lewis and McDermott (2016) study the effects of the RBNZ changes in the inflation targeting to the long-run inflation expectations of professional forecasters in New Zealand. They argue that the announcement of an explicit focus on the 2% mid-point of the target range helped anchor long-run inflation expectations.

In this section, we revisit their analysis and update their results to include the last two changes to their framework, namely the introduction and withdrawal of the dual mandate. To estimate a robust measure of inflation expectations, Lewis and McDermott (2016) fit a Nelson-Siegel term structure model as used by Aruoba (2020) using various surveys of professional forecasters for consumer price inflation. Long-run inflation expectation is set as equal to the estimated level factor in the term structure of inflation expectations. In the appendix, we describe the data and the method in detail.

Figure 6 below shows the estimate of the level factor L(t), proxying for long-run inflation expectations together with its 95% confidence bands. The dashed lines represent the previously discussed main changes to the RBNZ monetary policy framework.

Figure 6: Estimates of long-run inflation expectations L(t)



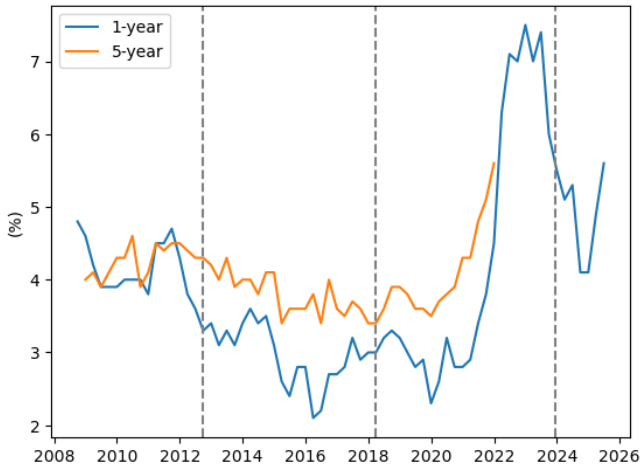
Notes: This figure shows the estimates of long-run inflation expectations for New Zealand given by the factor L(t) in equation (1). The red line represents annual CPI inflation, and the dashed vertical lines signal dates with a significant monetary policy framework change (see text for more details).

It is clear from the figure that some changes to the RBNZ framework have had a marked effect on long-run inflation expectations. For example, the 2002 change of inflation target range from 0 to 3% to 1 to 3% is associated with a significant increase of approximately 40 bps to the long-run inflation expectation. Similarly, the explicit focus on the 2% midpoint led to a slow convergence of long-run inflation expectations to this value. Finally, it is interesting to note that there were no marked changes to long-run inflation expectation during the introduction and removal of the dual mandate and the Covid pandemic, reflecting the dividends of having had low and stable inflation during the previous 30 years. Nonetheless, as discussed in their last review of their monetary policy framework in 2023 (Reserve Bank of New Zealand, 2023), the RBNZ believed that a framework prioritizing the price stability mandate would improve the ability of the MPC to communicate and clarify how to manage the trade-off between inflation and employment, therefore facilitating the successful conduct of monetary policy. With the elimination of the dual mandate in 2024, the RBNZ returned to a monetary policy framework closely resembling that of the Bank of Canada.

Evidence from household expectations

The RBNZ conducts the Tara-ā-Whare Household Expectations Survey on a quarterly frequency. From this survey they publish the Household inflation expectations (H1) table, detailing households' current perception of inflation as well as 1,2 and 5 years ahead expected inflation. Around 1000 randomly selected New Zealand residents aged 18+ and part of an online survey panel are asked their estimate of inflation in a specific period. They are asked to choose between different intervals ranging from "-10% to -0.1%" to "More than 15.5%", and the answers are weighted using Random Iterative Method (RIM) before being aggregated to the mean and median.

Figure 7: Households mean expected inflation rates 1-year and 5-year



Notes: This figure shows the average of households' inflation expectations 1 and 5 years from now. The 5 years series is discontinued in December 2021. The dashed vertical lines signal dates with a significant monetary policy framework change (see text for more details).

Household inflation expectations are well known to be higher and more volatile than professional forecasters. However, the effects of some changes to the framework of the RBNZ on households' expectations are consistent with the long-run estimates of professional forecasters. The figure shows that the 2012 change to explicit focus on the 2% midpoint is followed by a substantial decrease of both 1-year and 5-year expectations. The main difference between the professional forecasters and households is the evident de-anchoring of households' expectations during the pandemic inflation surge. While one would expect 1-year ahead expectations to increase during the pandemic, the close to 2% increase in average 5 years expectations is clear evidence of de-anchoring that might have contributed to the inflation surge itself. The regulatory impact statements conducted by the Treasury in 2018 and 2023 prior to the mandate changes noted the risk that market participants and the public interpret the new objective as weakening the focus on inflation, and that some aspects of the Reserve Bank's work, especially related to the maximum sustainable employment (MSE) objective, are not well understood by them (Treasury of New Zealand, 2023). The de-anchoring of households' expectations shows that those concerns were warranted and ultimately led to the removal of the MSE objective.

References

Adrian, Tobias. “Are Household Inflation Expectations De-Anchoring?” International Monetary Fund Speech, (2022).

Alves, Felipe, and Giovanni L. Violante. "Some like it hot: Monetary policy under Okun’s hypothesis." Manuscript, (December 2023).

Aruoba, S. Borağan. "Term structures of inflation expectations and real interest rates." Journal of Business & Economic Statistics, Vol. 38, No. 3, (2020): 542-553.

Auclert, Adrien, Hugo Monnery, Matthew Rognlie, and Ludwig Straub. “Managing an Energy Shock: Fiscal and Monetary Policy.” National Bureau of Economic Research, No. w31543, (2023).

Beaudry, Paul, Thomas J. Carter, and Amartya Lahiri. “The Central Bank's Dilemma: Look Through Supply Shocks or Control Inflation Expectations?” National Bureau of Economic Research, No. w31741, (2023).

Beaudry, P., Hou, C., & Portier, F. (2025). On the Fragility of the Nonlinear Phillips Curve View of Recent Inflation (No. w33522). National Bureau of Economic Research.

Blanco, Andres, Corina Boar, Callum Jones, and Virgiliu Midrigan. “Non-linear Inflation Dynamics in Menu Cost Economies.” National Bureau of Economic Research, No. w32094, (2024).

Brash, Don. “The new inflation target and New Zealanders’ expectations about inflation and growth.” Address to the Canterbury Employers’ Chamber of Commerce, Christchurch, (January 23, 1997).

Bullard, Jim, Alex Grimaud, Isabelle Salle and Gauthier Vermandel. "Soft Landing and Inflation Scares," Tinbergen Institute Discussion Papers 25-001/VI, Tinbergen Institute, (2025).

Bušs, Ginters and Guido Traficante. “The Return of Inflation: Look-Through Policy Under Incomplete Information.” Latvijas Banka Working Papers 2025/02.

“Canada: Staff Concluding Statement of the 2022 Article IV Mission.” International Monetary Fund, (October 12, 2022).

Cantelmo, Alessandro, Nikos Fatouros, Giovanni Melina, and Chris Papageorgiou. “Monetary policy in disaster-prone developing countries.” International Monetary Fund, (2022).

Cacciatore, Matteo and Stefano Gnocchi. “A Monetary Policy Framework for a Volatile World.” Staff Analytical Paper 2026-xx, Bank of Canada, (2026).

Cavallo, Alberto, Francesco Lippi, and Ken Miyahara. “Inflation and misallocation in new Keynesian models.” Einaudi Institute for Economics and Finance, (2023).

Cavallo, A., & Kryvtsov, O. (2024). Price discounts and cheapflation during the post-pandemic inflation surge. Journal of Monetary Economics, 148, 103644.

De Fiore, Fiorella, Benoit Mojon, Daniel Rees, and Damiano Sandri. “Monetary Policy Frameworks Away from the ELB.” BIS Working Papers 1156, Bank for International Settlements, (2023)

Erceg, Christopher, Jesper Linde, and Mathias Trabandt. “Monetary Policy and Inflation Scares.” IMF working Paper No. 2024/260, (2024).

Fatás, Antonio and Sanjay R. Singh. “Supply or demand? Policy makers’ confusion in the presence of hysteresis.” European Economic Review, Volume 161, (2024).

Fornaro, Luca, and Martin Wolf. "The scars of supply shocks: Implications for monetary policy." Journal of Monetary Economics, Vol. 140, (2023): S18-S36.

Gitti, Giulia. "Nonlinearities in the Regional Phillips Curve with Labor Market Tightness." Mimeo, Collegio Carlo Alberto Turin, (2024).

Guerrieri, Veronica, Michala Marcussen, Silvana Tenreyro, and Lucrezia Reichlin. “The art and science of patience: Relative prices and inflation.” Centre for Economic Policy Research, (2023).

Hazell, J., Herreno, J., Nakamura, E., & Steinsson, J. (2022). The slope of the Phillips Curve: evidence from US states. The Quarterly Journal of Economics, 137(3), 1299-1344.

Hofmann, Boris, Cristina Manea, and Benoit Mojon. "Targeted Taylor rules: monetary policy responses to demand-and supply-driven inflation." BIS Quarterly Review, Bank for International Settlements, (2024): 19.

Jacob, Punnoose, and Murat Ozbilgin. “Welfare gains in a small open economy with a dual mandate for monetary policy.” CAMA Working Paper, Canberra: Australian National University, No. 89/2021, (October 12, 2021).

Jacob, Punnoose and Amber Wadsworth, “Estimated policy rules for different monetary regimes: Flexible inflation targeting versus a dual mandate” Analytical note, Reserve Bank of New Zealand, (2018).

Karadi, Peter, Anton Nakov, Galo Nuno, Ernesto Pasten, and Dominik Thaler. "Strike while the iron is hot: optimal monetary policy with a nonlinear Phillips curve." BIS Working Papers 1203, Bank for International Settlement, (2024).

Kang, Kira, Rodrigo Sekkel, Temel Taskin and Jing Yang. “Supply and demand-driven inflation: decomposition and policy implications”. Staff Analytical Paper, (2026).

Kendall, Ross, and Tim Ng. “Monetary policy strategy in New Zealand.”, Reserve Bank of New Zealand Bulletin, Reserve Bank of New Zealand, Vol. 82, No. 3, (April 2019).

Kendall, Ross, and Tim Ng. “The 2012 Policy Targets Agreement: an evolution in flexible inflation targeting in New Zealand.” Reserve Bank of New Zealand Bulletin, Reserve Bank of New Zealand, Vol. 76, No. 4, (December 2013).

Kostyshyna, Olena, Tolga Özden, and Yang Zhang. “Endogenous Credibility and Wage-Price Spirals.” Staff Working Paper, Bank of Canada, (2024).

Kostyshyna, Olena, Isabelle Salle, and Hung Truong. “Anchored Inflation Expectations: What Recent Data Reveal.” Staff Working Paper, Bank of Canada, (2025).

Kostyshyna, O., Petersen, L., & Yang, J. Beyond "Looking Through": Monetary Policy Responses and Communication Under Supply-Driven Inflation (Staff Working Paper forthcoming). Bank of Canada.

Kryvtsov, Oleksiy, Jim MacGee, and Luis Uzeda. “The 2021-22 Surge in Inflation.” Staff Discussion Paper 2023-3, Bank of Canada, (2023)

Macklem, Tiff. “Delivering Price Stability – Learning from the Past, Preparing for the Future.” Speech at the Greater Vancouver Board of Trade, (December 16, 2024).

McDermott, John, and Rebecca Williams. “Inflation targeting in New Zealand: an experience in evolution.” Speech delivered to the Reserve Bank of Australia, Sydney, (April 12, 2018).

Mendes, Rhys. “Sticking the Landing: Keeping Inflation at 2%.” Speech at Greater Charlottetown Area Chamber of Commerce, (November 26, 2024).

Mojon, Benoit. “Monetary Policy Frameworks and Challenges Ahead.” Bank of Canada Annual Conference, (November 7, 2024).

Najjar, Rami, and Adam Shapiro. “Does Monetary Policy Tightening Reduce Inflation.” FRBSF Economic Letter 2025-03, Federal Reserve Bank of San Francisco, (2025).

Nuño, Galo, Philipp Renner, and Simon Scheidegger. "Monetary policy with persistent supply shocks." CESifo Working Paper Series, CESifo, No. 11463, (2024).

Patzelt, Paula, and Ricardo Reis. “Estimating the rise in expected inflation from higher energy prices.” Discussion Papers 2411, Centre for Macroeconomics, (2024).

Ricardo Reis. “The credibility revolution in inflation expectations.” John Kuszczak Memorial Lecture at Bank of Canada Annual Conference, (2024)

Reserve Bank of New Zealand. “Supporting New Zealand’s economic stability.” Five-year review of the Remit that guides monetary policy decisions: Advice to the Minister, (April 27, 2023).

Schneider, Jan David. “The sectoral origins of post-pandemic inflation.” Bank of Canada Staff Working Paper, forthcoming.

Shapiro, Adam Hale. “Decomposing Supply- and Demand-Driven Inflation.” Journal of Money, Credit and Banking, 2024.

Smith, Simon C., Allan Timmermann, and Jonathan Wright (2024). "Nonlinear Phillips Curves." FEDS Notes, Washington: Board of Governors of the Federal Reserve System, (September 4, 2024).

The Treasury of New Zealand. “Regulatory Impact Statement: Removing the ‘dual mandate’ from the Reserve Bank of New Zealand Act 2021.” (December 6, 2023).

Appendix

We first describe the data we used to replicate this work, followed by a brief description of the Nelson-Siegel model applied to the estimation of the term structure of inflation expectations.

Data: The term structure of inflation expectations is estimated using various surveys of economists and businesses. We use the Reserve Bank of New Zealand’s Survey of expectations (M14) at the 1- and 2-years horizons, the ANZ Bank’s Business Outlook survey at the 1-year horizon, and the Consensus Economics forecasts at the 2,3,4,5,6,7- and 10-years horizons. The data is quarterly, and we have data available from 1995Q1 to 2024Q3.

Methodology: The different surveys are combined at each quarter to create expectation curves using the Nelson-Siegel model, as in Aruoba (2020). The model is simply a nonlinear regression widely used in practice for fitting the term structure of interest rates, as shown in the equation below.

$$\pi^{e}_{NS}(t, \tau - 1, \tau) = L(t) + S(t) \cdot [\text{Slope loading}] + C(t) \cdot [\text{Curvature loading}]$$

where $\pi^{e}_{NS}(t, \tau - 1, \tau)$ is the Nelson-Siegel annual inflation expectation, t is the observation date, τ is the horizon of the expectation and L(t), S(t), and C(t) are the Level, Slope, and Curvature factors. The Slope loading and Curvature loading are functions of τ and δ, with δ being the decay parameter which controls how quickly the Slope and Curvature decay to 0[5]. Fixing δ for the whole sample, we can calculate the Slope and

[5] $[\text{Slope loading}] = \frac{1}{\delta}\{\exp(-\delta[\tau - 1]) - \exp(-\delta\tau)\}$
and $[\text{Bow loading}] = \frac{1}{\delta}\{\exp(-\delta[\tau - 1]) - \exp(-\delta\tau)\} + \{[\tau - 1]\exp(-\delta[\tau - 1]) - \tau\exp(-\delta\tau)\}$

Curvature loadings then estimate L(t), S(t) and C(t) for every quarter using an OLS regression. We then estimate the optimal value of δ at 1.656718 by minimizing the sum of squared errors between estimated and observed expectation data over the whole sample using an optimization function.

The Level is the long-term asymptotic level of the expectation curve, which is understood to be the measure of long-term inflation expectations. The Slope is the initial slope of the curve at short horizons. The Curvature controls how the curve bends between the short- and long-term horizons. Taking the level estimated at each quarter gives us the long-run inflation expectation line.