

The Case for Raising the Bank of Canada's Inflation Target

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Introduction

Nearly thirty years ago, Canada first adopted an inflation-targeting framework to guide its monetary policy. A joint agreement by the Government and the Bank of Canada, the framework is reviewed and renewed every five years. Regular and rigorous reviews of the inflation framework are critical to the Bank of Canada's accountability to Canadians for its mandate to promote Canada's economic and financial welfare. Moreover, as opportunities to engage stakeholders and the broader public in an open and transparent process to improve understanding of Canada's financial markets, the reviews are themselves a tool to maintain the Bank's credibility and operational independence. It is this credibility which, as Governor Poloz wrote to the Minister of Finance during the last renewal, "underpins the success of Canada's inflation-control framework."

The Bank of Canada pursues its mandate through policies to maintain a low and stable inflation environment, thus preserving confidence in the value of money. The current inflation-targeting framework aims to keep inflation at the 2 percent midpoint of an inflation-control range of 1 to 3 percent over the medium term. After six reviews, Canada has yet to make material changes to its monetary policy since 1993. Canada's inflation performance has been better than expected since inflation targeting began in 1991, setting a very high bar for any significant changes (Murray, 2018).

Looking ahead to the 2021 renewal, why might the Bank of Canada, and ultimately Canadians, want to consider raising the inflation target, and how might the Bank do that effectively? There are strong arguments for raising the inflation target; the more significant challenges are in conceiving how to achieve a higher target effectively, for which there is limited empirical evidence but where experimental evidence is instructive. This paper lays out strategies for achieving a higher inflation target through a combination of policy tools, communication, and public engagement.

Section 1: Why raise the inflation target?

Enabling monetary policy to respond to the next economic crisis

A criterion for choosing a monetary policy framework should be that policy will have enough flexibility to respond in the event of an economic shock such as a recession. The standard argument for why a central bank would want to raise the inflation target is straightforward. Nominal interest rates are higher when financial markets anticipate higher inflation. Higher nominal interest rates give central banks more room to adjust downward in the event of an economic slowdown or recession. Higher rates would reduce the likelihood that short-term interest rates would fall to zero - the “effective lower bound” (ELB) constraint on interest rates, a circumstance that would make it much more difficult for monetary policy to revive a struggling economy by lowering interest rates to stimulate demand.

Given historically low interest rates and the likelihood that the trend towards a declining real rate continues, many countries are considering raising their inflation targets to gradually bolstering their interest rates. Returning nominal rates to four or five percent in normal times would provide more leeway to adjust during the next recession (Summers, 2018).

The Bank of Canada repeatedly cut its overnight rate from its January 2020 levels of 1.75 percent to 0.25 percent by March in response to the grim global economic outlook associated with the Covid-19 pandemic. On April 15, 2020, the Bank explicitly stated that they considered the rate to be at its effective lower bound and were not planning to pursue negative interest rates. If the Bank wishes to regain its ability to effectively use the overnight rate as a policy instrument, it must find a way to push the rate back up to *normal* levels. One justification for raising rates is to combat higher inflation.

Inevitable Inflation and Central Bank Credibility

The Bank of Canada has acquired an astounding amount of assets on its balance sheet since March 2020. Total assets exceed \$540 billion in August 2020 as the Bank sought to provide liquidity to private and public debt markets in response to the Covid-19 Pandemic. In July this year, Macklem stated: “Interest rates are very low, and they are going to be there for a long time.”

Unwinding this infusion of liquidity and increasing interest rates over the next few years in response to growing inflation is likely to prove challenging for several reasons. First,

the Bank's commitment to maintaining its credibility limits its ability to deviate much from its Governing Council's official statement that it would "hold the policy interest rate at the effective lower bound until economic slack is absorbed so that the 2 percent inflation target is sustainably achieved."

The federal debt has expanded to over \$1.2 trillion as it has provided necessary supports to Canadian households and firms. As the federal government transitioned from the Canadian Emergency Response Benefit (CERB) to the Canadian Recovery Benefit (CRB) at the end of September, there have also been calls for a basic income program. Given that the economic stagnation is likely to persist well into 2021, tapering off stimulus anytime soon will be met with resistance. That, together with the sheer size of government, corporate and household debt, makes it unlikely that the Ministry of Finance will provide the Bank of Canada a mandate that prioritizes inflation control over economic stabilization. There is a limit to how much governments will be willing and able to rebalance their books through taxation. In the medium-run, at least some of this debt will need to be inflated away.

International monetary policy coordination will also hamper the Bank of Canada's flexibility in raising rates. In late August, the Federal Reserve indicated its willingness to exceed 2% inflation to achieve an average inflation target of 2% by keeping the Federal Funds Rate low for an extended amount of time. If the Bank is to avoid appreciating the Canadian Dollar, it will inevitably have to coordinate its rate changes with the Federal Reserve and accept inflation alongside the U.S.

If higher inflation is inevitable, it would be in the Bank of Canada's interest to explicitly raise its inflation target. Otherwise, keeping the target at 2% when clearly their policies (and their neighbours' policies) are clearly aimed at achieving inflation above 2% is sure to confuse markets and the public and risk the Bank's hard-earned credibility.

Risks of deflation

Inflation is not necessarily bad. We want an economy that is growing and evolving. People invest if they see a return to investing, and a meaningful sign that the economy is growing is moderate inflation. A moderate level of inflation also makes it less likely that the economy will experience harmful deflation if economic conditions weaken. This speaks to the necessary trade-off that monetary policy faces between inflation costs and the benefits of avoiding deflation. While over time, a higher inflation rate would reduce the public's ability to make accurate economic and financial decisions, a lower

inflation rate would be associated with an elevated probability of falling into deflation along with fragile economic conditions.

It is important to ask whether and how the nature of the inflation/deflation trade-off may have changed since Canada first chose to define price stability as 2 percent nearly 30 years ago. Not much has changed that bears on the cost of higher inflation in making it harder for economic agents to plan. There are, however, compelling reasons to suggest that the risks of deflation have increased. Deflation or low inflation has taken place in Japan and many countries in Europe over the last twenty years, and both the United States and Canada are thought to be more susceptible to deflation than in the mid-1990s (Summers, 2018).

Public awareness of inflation and monetary policy

Because inflation has remained low and stable for over two decades, Canadians have had very little need to think about it. While the Bank's consistent success adds to its credibility, there is a risk of it becoming an overachiever: at some point, people stop paying attention, becoming less engaged and aware of why monetary policy matters to them. This is problematic because the public's interest and engagement are critical for monetary policy to work effectively.

Recent work has shown that individuals in low inflation contexts have significantly weaker priors about inflation. For example, in the U.S., households are considerably less attentive to inflation when inflation is below three or four percent. When inflation rates are low, surveyed households are more likely to state that they are uninformed and expect inflation to stay the same, leading to larger forecast errors. (Bracha and Tang, 2019; Cavallo et al. 2017).

This lack of awareness is problematic for monetary policy, which aims to influence the economy in part through its effect on inflation expectations. If individuals do not expect much inflation in the near future, they may be reluctant to respond to rate cuts during recessions and periods of economic uncertainty. Higher inflation achieved through a higher inflation target has the potential to increase the public's attention to inflation and make monetary policy more potent.

Opposition to raising the target

The costs and benefits of raising the inflation target were the focus of the Bank's research during the last framework review. In his letter to Minister Morneau, Governor

Poloz concluded that “pursuing a higher target could yield modest and largely temporary improvements in macroeconomic performance by alleviating the effects of the constraints imposed by the effective lower bound on the policy rate. However, estimates of these gains are uncertain and shrink when the potential use of unconventional policy is taken into account.” Of most significant concern was that “Setting a new target would be a departure from the norm and could put at risk the hard-won credibility that underpins the success of Canada’s inflation control framework.”

There are indeed important risks to consider when raising the inflation target. Higher inflation would be a move away from a well-established policy objective of two-percent inflation and risks the Bank of Canada’s credibility. The most material is that the burden of higher inflation rates will be disproportionately felt by households that are less able to protect themselves against rising prices. These are typically low income, hand-to-mouth households with limited ability to save in inflation-protected assets.

Indebted households are also vulnerable if inflation rates were to rise permanently. The oft-cited benefit of higher inflation is that it would reduce household debt burdens, something that is sorely needed in Canada these days. However, this is likely to be a short-term gain. Lenders will take into account higher expected inflation and demand higher interest rates when re-negotiating. Such a response by lenders may leave many households with rigid nominal incomes unable to service their debts and introduce risks to the financial system.

Section 2: How does increasing the inflation target bring about higher inflation?

By raising its inflation target, the Bank of Canada can stimulate inflation through at least two channels.

First, a higher inflation target has a direct effect on the Bank’s policy interest rate. The Bank raises or lowers its policy interest rate, as appropriate, to achieve the inflation target *typically* within a horizon of six to eight quarters—the time that it usually takes for policy actions to work their way through the economy and have their full effect on inflation. A higher inflation target would mean that the Bank keeps its policy rates relatively low for longer to achieve a higher level of inflation. Lower rates make it more affordable for households and firms to borrow and invest. In turn, this increase in demand puts upward pressure on inflation.

A higher target also stimulates inflation by influencing the expectations of individuals and firms. A higher inflation target signals to households and firms that *in the future*, the

Bank would be willing to accept a higher level of inflation before raising rates. Forward-looking households will spend more in the present anticipating higher prices in the future. Likewise, forward-looking firms will start raising prices anticipating their competitors will do the same in the future. Thus, this *expectations channel* of monetary policy has the potential to generate immediate inflation. The expectations channel of monetary policy plays a significant role in the transmission of monetary policy, accounting for between one-half and two-thirds of the stabilizing effects of monetary policy (Kryvtsov and Petersen, 2015).

These predicted channels hinge on critical behavioural assumptions. The Bank's ability to achieve a higher level of inflation critically depends on household and firms' understanding and credibility in the higher inflation target. If the public is skeptical about the Bank's ability to increase inflation to its new level, they may form inflation expectations below the targeted level. Likewise, if they are myopic about future inflation, they have less incentive to adjust their spending, investing, and pricing decisions in the present. Together, these behaviours can make it more challenging for the Bank to achieve its higher inflation target.

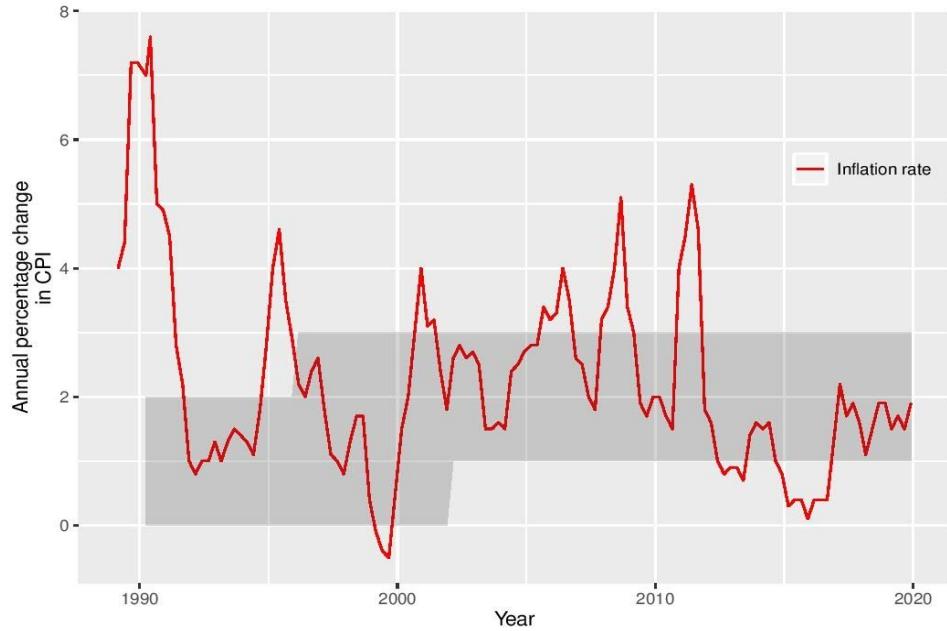
Section 3: Empirical evidence on raising the inflation target in New Zealand and Japan

After adopting an inflation-targeting mandate, most central banks keep their target unchanged or lower it as inflation falls. There are, however, a couple of examples of central banks that have raised their inflation targets that can offer lessons for Canada.

The Reserve Bank of New Zealand (RBNZ) has maintained an inflation target range since 1990. Figure 1 presents historical data on New Zealand's inflation rate and the RBNZ's inflation target. The RBNZ began targeting inflation in the range of 0 to 2 percent, effectively bringing inflation down from 5.7 percent in 1989 to an average of 2.8 percent in the five years that followed. In 1996, the RBNZ increased the range from 0 to 2 percent to a range of 0 to 3 percent, effectively raising the midpoint from 1 to 1.5 percent. Interestingly, the increase in the upper-end of the range coincided with a decrease in inflation from 3.8 percent in 1995 to 2.3 percent in 1996. From 1996 to 2002, inflation averaged 1.8 percent, indicating an apparent convergence of inflation toward the mid-point of the target range.

In 2003, the RBNZ raised the lower bound of the range from 0 to 1 percent, increasing the midpoint to 2 percent. Over the next five years, average inflation rose to 2.8 percent, and from 2003-2019, averaged 2 percent.

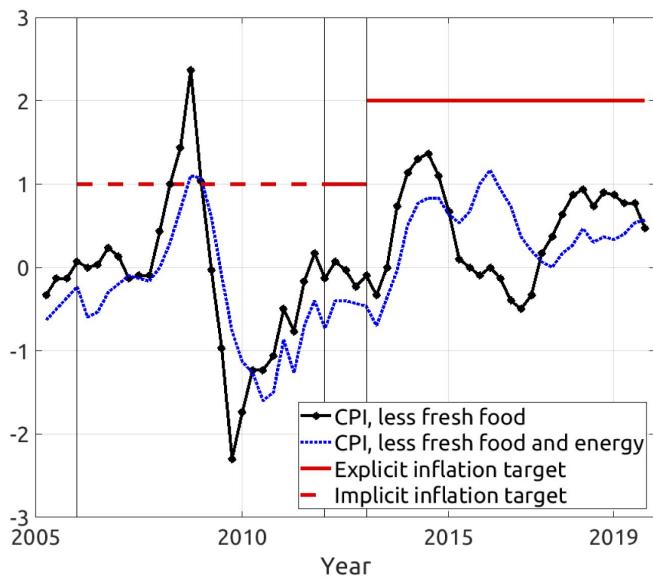
Figure 1. Historical inflation in New Zealand and the RBNZ inflation target range



The RBNZ has been effective at guiding inflation toward the mid-point of its inflation target range. It appears that raising the lower-bound on the inflation target range was more effective at generating inflation than raising the upper-bound. Raising the upper-bound when inflation was already above that upper-bound did not appear to drive inflation upward.

More recently, Japan experimented with communicating an explicit inflation target and raising its target. Figure 2 presents recent historical inflation data for Japan. In February 2012, the BoJ announced that it would explicitly target inflation at 1 percent (this had been the implicit mid-point of an acceptable range of inflation since 2006). This announcement led to a modest reduction in deflation. In January 2013, BoJ further increased its target from 1 to 2 percent. While there was some rapid inflation growth over the next year, inflation has fluctuated between 0.5-1%. Overall, it appears that raising the target had an overall positive effect on inflation, albeit smaller than intended.

Figure 2. Historical inflation in Japan and the BoJ's inflation target (Nakata, 2019)



It is difficult to look at Japan's experiences and argue that the increase in the inflation target led to the rise in inflation. Other factors may have contributed to higher inflation (e.g. improving global economic demand due to unprecedented domestic, foreign quantitative easing and explicit forward guidance).

Section 4: Using laboratory experiments to design and test monetary policy

In the absence of compelling empirical evidence, experimental methods offer an alternative approach to identifying the causal effects of monetary policy on expectations and decisions. In economics laboratory experiments, participants are incentivized to behave as economic agents. Typically, they are paid to behave as professional forecasters (to forecast accurately economic variables), as households (to maximize their utility through consumption, labour supply, or investment decisions), or as firms (to maximize their profits). In these controlled settings, the experimenter can, for example, systematically vary the inflation target - while controlling all other features of the environment - to understand how expectations and decisions would respond. That is, better causal inference can be achieved in a 'cleanly-designed' laboratory experiment.

Laboratory experiments can fill important empirical gaps in our understanding of inflation. First, there exist relatively few datasets that track - at the individual level - household inflation expectations and their financial decisions for an extended period. Lengthy panel datasets combining individual expectations and decisions can be collected to understand how both variables evolve in response to policy. Experiments

are also useful in collecting data that is difficult to pin-down in surveys such as existing knowledge, information, and information transmission.

Most importantly, experimental methods support policy innovation. Without risks to the economy, laboratory experiments can be used to test and understand how future monetary policies, if implemented, would influence economic expectations and behaviour. It would be dangerous for central banks to toy with their inflation targets or communication strategies for academic inquiry. In the lab, however, it is possible to observe and learn in a controlled manner how individuals would react to such policy changes. For these reasons, the Bank of Canada has been investing in the design of laboratory experiments to understand expectation formation under different monetary policy regimes, competing currencies and payment systems (Amano, Shukayev and Warnick, 2011; Kryvtsov and Petersen 2015, 2019; Kostyshyna, Petersen, and Yang, 2020; Jiang and Zhang, 2018; Arifovic, Duffy, and Jiang, 2018).¹

Like in theory and simulations, laboratory experiments face important concerns related to their external validity. External validity is typically challenged in two ways: first, the design of the economy and data-generating process are necessarily simplistic to allow for better inference. This concern can be addressed by exploring the same questions in various economic domains, more complicated settings, and comparing experimental findings to real-world empirical evidence.

A second concern regarding the validity of experimental economic data is that participants are usually drawn from non-representative subject pools such as undergraduate student populations. Undergraduate students are typically recruited because of geographic convenience, their ability to learn information to play games quickly, and their relative affordability. At the same time, these participants tend to be younger and less financially literate, with distinctly different experiences with inflation and monetary policy than older generations. Recent evidence by Cornand and Hubert (2019) suggests that human subjects across various laboratory experiments are comparable to surveyed households, firms and professional forecasters in that they form comparably large and autocorrelated forecast errors and rely on historical inflation to form their expectations.

¹ For surveys on the value of experimental methods for designing monetary policy, see Amano, Kryvtsov and Petersen (2014), Cornand and Heinemann (2017), Duffy (2012).

Experimental evidence on inflation targeting

Laboratory experiments are currently used to gain valuable insights into how to effectively raise inflation targets when economies are near or at their effective lower bounds. These experiments explore various approaches, including different rules for determining the target, central banks' responsiveness, and communication strategies. Most experiments on this topic use a 'learning-to-forecast' framework where groups of participants are tasked with forming expectations about macroeconomic variables. Their expectations are aggregated and used by automated households and firms, as well as policymakers, to make decisions that, in turn, influence the macroeconomy. Participants are paid solely based on their forecast accuracy (as opposed to the outcomes of the economy). The purpose of these experiments is to understand how policy can influence how people view the future economy.

Learning-to-forecast experiments have demonstrated that a central bank can better coordinate expectations and achieve convergence of inflation to its targets through more aggressive policy responses to inflation. Larger policy reactions to deviations of inflation from target effectively discourage participants from forming more extreme expectations or use destabilizing trend-extrapolating forecasting heuristics (Assenza et al. 2019; Kryvstov and Petersen, 2015; Pfajfar and Žakelj, 2014, 2018; Mauersberger, 2019). The ability for monetary policy to work effectively relies critically on the economy being sufficiently far from its ELB. Inflation expectations can become highly pessimistic and unanchored if there is insufficient room to adjust interest rates downward. (Hommes, Salle, and Massaro 2019).

Recent experimental research has investigated whether different policy regimes can manage expectations at the ELB. These experiments typically involve having participants form expectations in a relatively stable economy sufficiently far from their ELB before imposing a large negative temporary or permanent demand shock. In all cases, the experiments have maintained the same policy rule outside of and at the ELB.

Arifovic and Petersen (2017) compare expectation formation in environments where the central bank maintains a constant inflation target to one where it follows history-dependent inflation targets (essentially, a constant price level target expressed as an evolving inflation target). Under a history-dependent inflation target, the central bank would increase its target if the economy falls short of achieving its most recent inflation target. Moreover, the target exhibits some persistence such that the target remains high, even as the economy rebounds. In a demand-driven recession, such a target should create significantly more inflationary expectations, and in turn, reduce the

duration and severity of liquidity traps *if* agents in the economy form rational expectations.

Arifovic and Petersen find that forecasters' willingness to respond to the evolving, history-dependent inflation target depends on how quickly fundamentals improve. Slow recovery of fundamentals makes it very unlikely that expectations coordinate on the higher targets. Credibility in the central bank's targets declines as it continued to raise its target in response to its past deviations. Indeed, credibility modestly improves when the central bank uses a qualitative rather than quantitative description of their inflation target ("the central bank is aiming for high/low inflation" rather than announcing ever-increasing numerical targets). Arifovic and Petersen note that the constantly fluctuating inflation target might be confusing for participants to understand. In pilot treatments, the authors also explore the effects of introducing a fixed but higher inflation target as the economy enters the ELB. The constant inflation target was no more ineffective at coordinating inflation expectations. Introducing guaranteed fiscal stimulus together with a constant inflation target, on the other hand, props up demand and inflation directly and is significantly more effective at stimulating inflation expectations and reducing both the economic severity and duration at the ELB.

In a recent Bank of Canada-commissioned experiment, Kostyshyna, Petersen, and Yang (2020) conduct a horse-race of different monetary policy mandates to evaluate the efficacy of alternative targets in managing expectations away from and at the ELB. This work is the broadest in scope in that it compares expectation formation across many different types of mandates that consider constant targets (inflation and average inflation targeting, and dual mandates) as well as level target (price and nominal GDP). Their design differs in two meaningful ways from Arifovic and Petersen. First, in their price-level targeting treatment, they communicate price level targets in terms of the price level rather than an evolving inflation target. Second, they focus solely on relatively short-lived fundamentally-driven recessions of 4 quarters where there is less opportunity for pessimism to get out of control.

Kostyshyna et al. find that constant inflation targets significantly outperform price level and nominal GDP targets in terms of inflation and output gap stability both before and after an episode at the ELB. A dual mandate of inflation targeting and output gap stabilization does even better to rein in expectations. Level targets, in contrast, require too much optimism and credibility in higher un-seen inflation to successfully coordinate expectations out of the ELB.

Higher inflation targets are also prescribed to tackle secular stagnation - a permanent situation of low or no economic growth that many developed economies are seemingly finding themselves in (Eggertsson, Mehrotra and Robbins, 2019). Recent experiments by Petersen and Rholes (2020) examine this policy recommendation in an experimental overlapping generations economy populated by consumers who make forecasts and spending decisions. Consumers are exposed to a permanent aggregate deleveraging shock that lowers aggregate demand. To combat the deflationary episode, the central bank raises its inflation target from 10 to 30%, which would be a necessary level of inflation to return the economy to its full-employment equilibrium. Such a change in the target, as both the authors and Eggertsson et al. admit, requires an incredibly large adjustment in inflation expectations.

Of the seven independent economies that experienced a secular stagnation, all initially responded positively to the higher inflation target, with participants forming more inflationary expectations and spending more. None, however, converged to the new higher target. Three economies experienced an ever-deepening recession with persistent deflation. The remaining four converged toward low or zero inflation. In all economies, credibility in the central bank's new inflation target diminished over time as inflation remained sluggishly low.

These various experiments suggest that adjusting the inflation target continuously or once-and-for-all can be challenging. This is not to say that it is impossible to raise an inflation target successfully. Ahrens, Lustenhouwer and Tettamanzi (2018) show that credibility-driven adjustments of the inflation target can work effectively to manage expectations at the ELB. In their experiments, each period the central bank can update its announced inflation target. The announced target adjusts based on the past credibility in the announced target: if the target was perceived by forecasters to be credible in the previous period, the central bank increases the target further. If not, it adjusts it to better reflect recent inflation. They show that a *slow and steady* adjustment of the inflation target in line with realized inflation can effectively build up a high level of persistent credibility, bring about faster economic recovery and higher inflation.

Section 3: Strategies for Implementing a Higher Inflation Target

We conclude by highlighting some communication and credibility strategies the Bank of Canada may consider when implementing a higher inflation target.

Credibility and communication

The experimental evidence consistently demonstrates the importance of central bank credibility in achieving its communicated inflation targets. Raising a target too much and too fast without evidence of higher inflation can generate confusion, pessimistic expectations and distrust in the central bank.

Raising the inflation target to levels that have not been experienced in decades is bound to be met with skepticism. Japan raised its inflation target to two percent in 2013 before even reaching its original one percent target (which had only been achieved briefly in 2008). Inflation expectations now appear to be anchored between 1 and 1.25 percent. By contrast, the RBNZ had recent experience achieving higher levels of inflation when it adjusted its mid-point up to two percent in 2003 and was more successful at achieving its target.

If the Bank of Canada were to pursue a mid-point inflation target of three percent, it would need to demonstrate its ability and willingness to accept such levels of inflation. Indeed, younger Canadians have limited experience with higher inflation levels and will need to 'see it to believe it' (Malmandier and Nagel, 2016). Conveniently, the Bank currently aims to achieve inflation in the targeted range of one to three percent within a horizon of six to eight quarters. In the short-run, the Bank could maintain its existing policy target range while inflation creeps upwards. As it approaches three percent, the Bank should adjust its targeted range upward to two to four percent, with three percent as the focal mid-point of that range. Otherwise, maintaining the existing range will create expectations that the Bank will contract inflation back toward its two percent mid-point target.

The Bank of Canada may consider revisiting the inflation statistics they wish to target. There is frequent debate about whether Statistics Canada's CPI measurements adequately capture shelter and food price growth. A three percent inflation target may not seem so unrealistic to Canadians living in cities like Toronto and Vancouver with persistently high house price growth. Indeed, the pandemic has created substantial inflation in many consumer goods. The silver lining to this recent event is that it could normalize a higher level of inflation moving forward.

To push inflation closer to three percent, the Bank will need to use a combination of conventional and unconventional policy tools such as keeping the overnight rate constant or lowering it, injections of liquidity into the economy, helicopter drops of money, and increased communication to the public of its interest in higher inflation. Recent and continued fiscal stimulus will be critical in fueling inflation over the near future as private sector confidence remains shaky.

Effective communication will play an essential role in guiding expectations to a new, higher inflation target. First, the Bank of Canada must be transparent about its new inflation target. Private sector and household expectations are firmly and impressively anchored on the Bank's current 2-percent inflation target (even when inflation falls below target). Significant public outreach is necessary to shift expectations. Clear communication of the inflation target has also been shown to be valuable in laboratory experiments when a central bank faces a dual mandate to stabilize both inflation and the output gap. It can speed up the convergence of inflation to the target and better coordinate inflation expectations (Cornand and M'Baye, 2018; Mirdamadi and Petersen, 2018). While the Bank does have an explicit strict inflation target, it also acknowledges concern for output stability. Depending on how aggressively the Bank responds to the output gap, there may be considerable value to explicitly communicating its new inflation target.

Communicating relevant, simple to understand information is key to managing inflation expectations. People have difficulty using less relevant policy rate projections, price level targets or forward guidance to inform their inflation expectations. Instead, communicate explicitly about inflation to manage inflation expectations. Ideally, the information that is communicated should stay steady or adjust slowly over time. Moreover, relatable information about *observed* past variables is more likely to be utilized than *uncertain* future information. Simple, relatable communication has also been shown to improve comprehension and trust in a recent Bank of England survey experiment (Bholat et al., 2019).

Inflation projections have the potential to guide expectations to a new higher inflation target when the economy faces the ELB, but how those projections are constructed matters. Projections are significantly more effective when they are precise. Communicating inflation point projections, rather than density forecasts, significantly reduces inflation forecast errors and disagreement among forecasters, individual uncertainty, and improves central bank credibility (Rholes and Petersen, 2020).

Financial Education and Inclusion

Low income, financially excluded households are likely to bear the brunt of higher inflation. This is the segment of the population who has the highest marginal propensity to consume and should - at least in theory - be most responsive to low real interest rates.

To make a higher inflation target more palatable to Canadians, the Bank of Canada and the Department of Finance should develop strategies to buffer less wealthy households from the costs of inflation. For example, the Bank of Canada can partner with financial education organizations to improve their outreach and the public's financial literacy and inclusion. Likewise, making inflation-protected assets more focal and easily accessible can go a long way to building and preserving these households' wealth.

Section 4: Concluding Remarks

The risks presented by the current low interest environment require that the Bank of Canada give serious consideration to raising its inflation target. Raising the target would allow scope for inflation to increase, and in time, for nominal interest rates to move to higher levels. The Bank would then have more flexibility to reduce rates in the event of a recession. Like Summers, we recommend an inflation targeting policy where policy rates return to around 5 percent in normal times.

Increasing the inflation target must be done carefully. Given that there are very few cases of countries in similar circumstances where inflation targets have increased, experimental methods are invaluable for testing potential paths forward. Further experimental work investigating how to transition from a two percent to three or four percent inflation targets is needed to assess the effectiveness of setting hard a target to anchor expectations indefinitely versus a qualitative strategy to manage expectations through enhanced and potentially novel communications efforts.

References

Ahrens, S., Lustenhouwer, J. & Tettamanzi, M. (2018). The Stabilizing Role of Forward Guidance: A Macro Experiment. BERG Working Paper 137.

Amano, R., Kryvtsov, O., & Petersen, L. (2014). Recent developments in experimental macroeconomics. *Bank of Canada Review*, 2014 (Autumn), 1-11.

Amano, R., Engle-Warnick, J., & Shukayev, M. (2011). Price-level targeting and inflation expectations: experimental evidence (No. 2011, 18). *Bank of Canada working paper*.

Arifovic, J., Duffy, J. M., & Jiang, J. H. (2017). Adoption of a new payment method: theory and experimental evidence (No. 2017-28). *Bank of Canada Staff Working Paper*.

Arifovic, J., & Petersen, L. (2017). Stabilizing expectations at the zero lower bound: Experimental evidence. *Journal of Economic Dynamics and Control*, 82, 21-43.

Assenza, T., Heemeijer, P., Hommes, C. H., & Massaro, D. (2019). Managing self-organization of expectations through monetary policy: a macro experiment. *Journal of Monetary Economics*.

Ball, L. (2014). The Case for a Long-Run Inflation Target of Four Percent. IMF Working Paper, WP/14/92.

Bholat, D., Broughton, N., Ter Meer, J., & Walczak, E. (2019). Enhancing central bank communications using simple and relatable information. *Journal of Monetary Economics*, 108, 1-15.

Bracha, A. & Tang, J. (2019). "Inflation Thresholds and Inattention." Federal Reserve Bank of Boston Research Department Working Papers No. 19-14.

Cavallo, Alberto, Guillermo Cruces, and Ricardo Perez-Truglia. (2017). "Inflation Expectations, Learning, and Supermarket Prices: Evidence from Survey Experiments." *American Economic Journal: Macroeconomics*, 9 (3): 1-35.

Cornand, C., & M'baya, C. K. (2018). Does inflation targeting matter? An experimental investigation. *Macroeconomic Dynamics*, 22(2), 362-401.

Cornand, C., & Hubert, P. (2019). On the external validity of experimental inflation forecasts: A comparison with five categories of field expectations. *Journal of Economic Dynamics and Control*, 103746.

Cornand, C., & Heinemann, F. (2014). Experiments on monetary policy and central banking. *Experiments in macroeconomics*, 17, 167-227.

Duffy, J. (2016). "Macroeconomics: A Survey of Laboratory Research," in: J.H. Kagel and A.E. Roth (Eds.), *Handbook of Experimental Economics Volume 2*, Princeton: Princeton University Press, pp. 1-90.

Eggertsson, G. B., Mehrotra, N. R., & Robbins, J. A. (2019). A model of secular stagnation: Theory and quantitative evaluation. *American Economic Journal: Macroeconomics*, 11(1), 1-48.

Eggertsson, G., & Woodford, M. (2003). The zero bound on interest rates and optimal monetary policy," Brookings Papers on Economic Activity.

Filardo, A. J., & Hofmann, B. (2014). Forward guidance at the zero lower bound. BIS Quarterly Review March.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. Behavioral and brain sciences, 33(2-3), 61-83.

Hommes, C., Massaro, D., & Salle, I. (2019). Monetary and fiscal policy design at the zero lower bound: Evidence from the lab. Economic Inquiry, 57(2), 1120-1140.

Jain, M., & Sutherland, C. S. (2018). How do central bank projections and forward guidance influence private-sector forecasts? (No. 2018-2). Bank of Canada Staff Working Paper.

Jiang, J. H., & Zhang, C. (2018). Competing currencies in the laboratory. Journal of Economic Behavior & Organization, 154, 253-280.

Kostyshyna, O., Petersen, L. and Yang, J. (2020) A horse-race of competing monetary policy targets. Working in progress.

Mokhtarzadeh, F. & Petersen, L. (2020). Coordinating expectations through central bank projections. Experimental Economics. Forthcoming.

Murray, J. (2018). Why the Bank of Canada sticks with a 2 percent inflation target. Rethinking the Fed's 2 Percent Inflation Target, 19-22.

Kryvtsov, O. & Petersen, L. (2020). Central Bank Communication That Works: Lessons from Lab Experiments. Journal of Monetary Economics. Forthcoming.

Malmendier, U., & Nagel, S. (2016). Learning from inflation experiences. The Quarterly Journal of Economics, 131(1), 53-87.

Mauersberger, F. (2019). Monetary policy rules in a non-rational world: A macroeconomic experiment. Available at SSRN 3060341.

Nakata, T. (2019). "Raising the Inflation Target: Lessons from Japan," FEDS Notes. Washington: Board of Governors of the Federal Reserve System, January 8, 2020.

Petersen, L. & Rholes, R. (2020). "Unconventional Monetary Policy at the Zero Lower Bound". Work in progress.

Pfajfar, D., & Žakelj, B. (2014). Experimental evidence on inflation expectation formation. *Journal of Economic Dynamics and Control*, 44, 147-168.

Pfajfar, D., & Žakelj, B. (2018). Inflation expectations and monetary policy design: Evidence from the laboratory. *Macroeconomic Dynamics*, 22(4), 1035-1075.

Rholes, R. & Petersen, L. (2020). "Should central banks communicate uncertainty in their projections?", *Discussion Papers dp20-01*, Simon Fraser University.

Summers, L. (2018). Why the Fed needs a new monetary policy framework. *Rethinking the Fed's 2 Percent Inflation Target*, 1-9.