LUBA PETERSEN & SHANNON WELLS

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

Discussion *by* Michael Devereux
page 26

McGill | MAX BELL SCHOOL *of* PUBLIC POLICY

SEPTEMBER 22–25, 2020

Choosing the Right Target: Real Options for the Bank of Canada's Mandate Renewal

A conference organized by
Christopher Ragan and Stephen Gordon

With the Bank of Canada's mandate up for renewal in 2021, McGill University's Max Bell School of Public Policy held a four-day online conference from September 22-25, 2020. The conference was attended by over one hundred policy professionals, students, academics, and monetary policy experts who had the chance to think about, exchange, and question what monetary policy in the post-pandemic era should look like. Recordings of the conference sessions can be accessed at:

https://www.mcgill.ca/maxbellschool/choosingtherighttarget

Authors and discussants

1. THE CASE FOR RAISING THE BANK OF CANADA'S
    INFLATION TARGET: LUBA PETERSEN
    (Department of Economics, Simon Fraser University)

    with Michael Devereux (Vancouver School of Economics)

2. WHY NOT TWO PERCENT OR BELOW?
    AN EVALUATION OF A LOWER INFLATION TARGET
    FOR CANADA: THORSTEN KOEPPL (Queen's University)

    with Bill Robson (Chief Executive Officer, C.D. Howe Institute)

3. NOMINAL GDP LEVEL TARGETING: STEVE AMBLER
    (Professor of Economics, Université du Québec
    à Montréal, David Dodge Chair in Monetary Policy at
    the C.D. Howe Institute)

    with Nicholas Rowe (Formerly of Carleton University)

4. ADOPTING A DUAL MANDATE: DOUG LAXTON (NOVA School of Business and Economics, Portugal)

   with Franciso Ruge-Murcia (Department of Economics, McGill University)

5. CLOUDED IN UNCERTAINTY: PURSUING FINANCIAL STABILITY WITH MONETARY POLICY: SYLVAIN LEDUC (Executive Vice President and Director of Research, Federal Reserve Bank of San Francisco)

   with Jean-François Rouillard (Université de Sherbrooke)

6. THE HISTORY OF INFLATION TARGETING IN CANADA AND THE CASE FOR MAINTAINING THE STATUS-QUO: MICHELLE ALEXOPOULOS (University of Toronto)

   with Edda Claus (Wilfrid Laurier University & Laurier Centre for Economic Research and Policy Analysis)

Panelists

1. DAVID ANDOLFATTO
   Professor of Economics, Department of Economics, Simon Fraser University and Vice President in the Research division of the Federal Reserve Bank of St. Louis

2. DIANE BELLEMARE
   Senator of Quebec

3. KEVIN CARMICHAEL
   Journalist, Financial Post and Senior Fellow, Centre for International Governance Innovation

4. DAVID DODGE
   Economist & Former Governor of the Bank of Canada and former Deputy Minister of Finance Canada

5. ANGELA REDISH
   Professor of Economics, Vancouver School of Economics, University of British Columbia

LUBA PETERSEN & SHANNON WELLS

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

Introduction

Nearly thirty years ago, a joint agreement by the Government and the Bank of Canada set out an inflation-targeting framework to guide its monetary policy. 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 two per cent midpoint of an inflation-control range of one to three percent over the medium term. After six reviews since 1993, Canada has yet to make material changes to its monetary policy. 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.

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 would 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 per cent in normal times would provide more leeway to adjust during the next recession (Summers, 2018).

The Bank of Canada cut its overnight rate repeatedly from its January 2020 levels of 1.75 per cent to 0.25 per cent 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 of this year, Governor Macklem stated that "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 two per cent 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* two per cent inflation to achieve an average inflation target of two per cent by keeping the Federal Funds Rate low for an extended amount of time. If the Bank is to avoid an appreciation of 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 two per cent when clearly their policies (and their neighbours' policies) are clearly aimed at achieving inflation above two per cent 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 two per cent 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 departure from a well-established policy objective of two per cent inflation and risks the Bank of Canada's credibility. The most material change 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. An 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.

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.

# 3. Empirical evidence on raising the inflation target in New Zealand and Japan

After adopting an inflation-targeting mandate, most central banks have kept 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 and 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 zero to two per cent, 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 zero to two per cent to a range of zero to three percent,

effectively raising the midpoint from one to 1.5 per cent. 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 zero to one per cent, increasing the midpoint to two per cent. Over the next five years, average inflation rose to 2.8 percent, and from 2003-2019, averaged two per cent.

Figure 1. Historical Inflation in New Zealand and the RBNZ Inflation Target Range
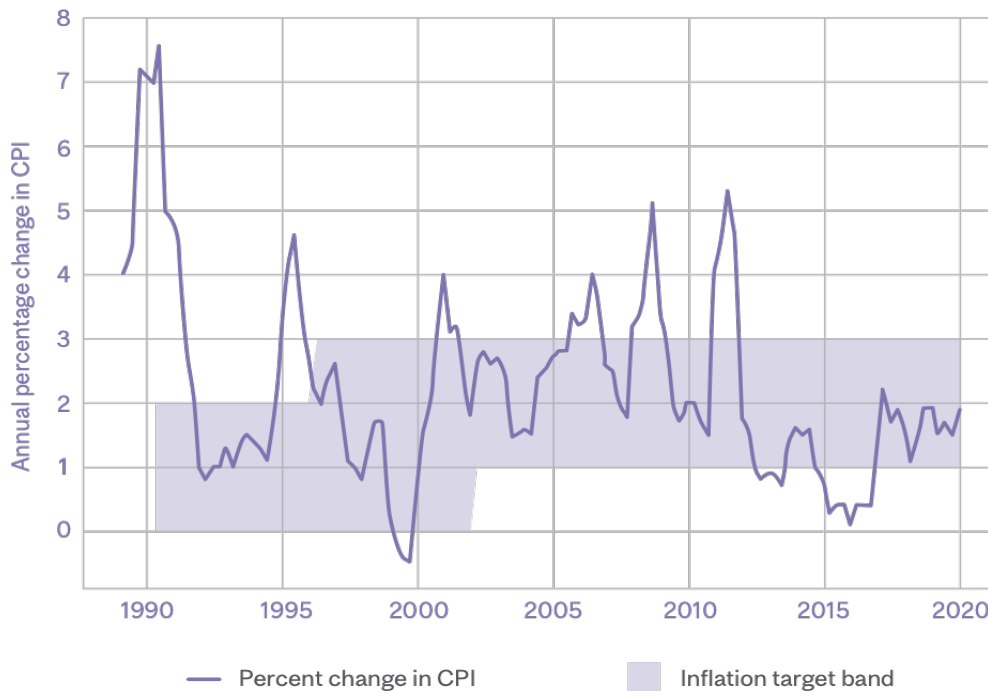

Source: Reserve Bank of New Zealand

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 it 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 Bank of Japan (BoJ) announced that it would explicitly target inflation at one per cent (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, the BoJ further increased its target from one to two per cent. While there was some rapid inflation growth over the next year, inflation has fluctuated between 0.5 and one per cent. Overall, it appears that raising the target had a positive effect on inflation, albeit smaller than intended.

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

Source: Bank of Japan
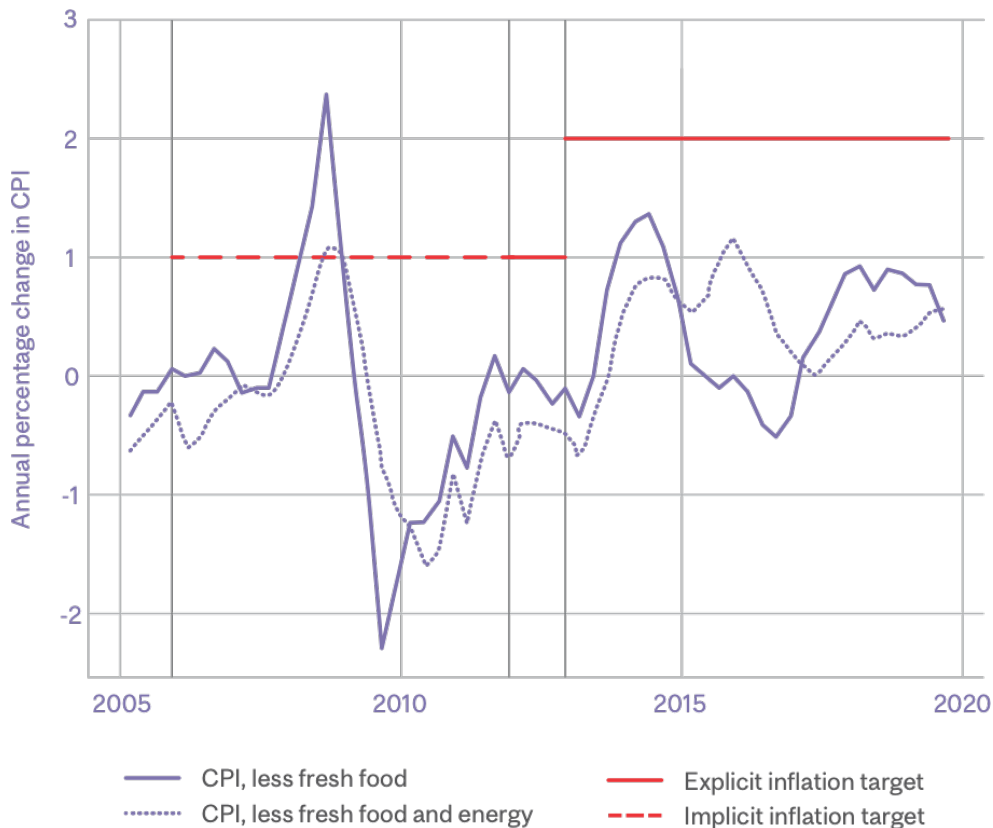
It is difficult to look at Japan's experiences and conclude that the increase

in the inflation target led to the rise in inflation. Other factors may have contributed to higher inflation: for example, improving global economic demand due to unprecedented domestic, foreign quantitative easing and explicit forward guidance.

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, 2021; Kostyshyna, Petersen, and Yang, 2020; Jiang and Zhang, 2018; Arifovic, Duffy, and Jiang, 2018).[1]

As do 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. Despite these differences, 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 using 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 effective lower bound. 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 expectations 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 an 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 experiment commissioned by the Bank of Canada, 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, fundamentals-driven recessions of four 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 ten to thirty per cent, 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 Egggertsson 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, Lustenhower 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.

5. 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 one and 1.25 per cent. By contrast, the RBNZ had recent experience achieving higher levels of inflation when it adjusted its mid-point up to two per cent 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 per cent, 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 per cent 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 per cent, the Bank should adjust its targeted range upward to two to four per cent, with three per cent 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 per cent 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 per cent 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 per cent, 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 two per cent 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, focusing on inflation-protected assets and making them more easily accessible can go a long way to building and preserving these households' wealth.

6. 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 test bedding of policy mandates and communication strategies will provide valuable insight into how to successfully transition to a higher inflation target.

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'baye, 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. (2021). 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.

MICHAEL DEVEREUX

Discussion[1]

1. Introduction

The last decade has ushered in a period of collective angst among many of the world's monetary policy-makers. The comfortable truths about the efficacy of flexible inflation targeting that gradually accumulated during the long experience of the 'great moderation' have been severely eroded first by the global financial crisis and the persistence of the effective zero bound in policy rates, and more recently by the global pandemic which again has rendered the standard toolkit of inflation targeting monetary policy ineffective. At this juncture, any return to 'normal times' whereby the Bank of Canada or other central banks can simply rely on judicious adjustment of the policy rate to ensure that inflation converges on average to the targeted two per cent rate seems a long way off. Indeed, most central banks are now committed to years of zero interest rates.

This policy dilemma has led many researchers to investigate alternative options for monetary policy besides that of two per cent flexible inflation targeting. Professor Petersen[2] first provides a thorough overview of the pros and cons of one such option; that of raising the inflation target. She then presents a review of an exciting new research agenda in monetary economics; the use of experimental data, and applies the methodology to explore the feasibility of raising the Bank of Canada's target rate of inflation from two to four percent. Hers is a comprehensive and fascinating study, which offers numerous insights into the hurdles that the Bank would confront from such a radical change in its operating goal.

It is not strictly true that economists ignored the problem of the zero lower bound prior to 2008. After all, Japan had been struggling with deflation and zero interest rates since the turn of the century. But policy-makers and academics really viewed the 'Japan problem' as being one of insufficient commitment to inflation targeting. Even after the great financial crisis, policy-makers were sanguine about the implications for the policy framework. For instance, in 2011, Mishkin argued that:

---

2   All references to Professor Petersen implicitly include her co-author, Shannon Wells.

"Although this [the zero bound] has surely been a major problem in this recent episode, it must be remembered that episodes like this do not come very often. Indeed, we have not experienced a negative shock to the economy of this magnitude for over seventy years. If shocks of this magnitude are rare, then the benefits to a higher inflation target will not be very large because the benefits will only be available infrequently."

With hindsight, it is clear that the macroeconomics profession has woefully underestimated the problem of the zero bound and its implications for effective monetary policymaking. Professor Petersen's paper is very welcome in moving our thinking towards the reality of an environment where central banks are being forced to make difficult choices and to take actions that would have been seen as radical and outlandish a little more than a decade ago. In fact, this reality has been obvious for some time. The global pandemic has made the problem much more apparent and many times more difficult.

I will organize my comments in four steps. First, I will briefly review the case for raising the inflation target as a means to deliver traction to monetary policy in a world of low real interest rates. I then move to the question of how in fact the Bank would go about raising the target, were it to decide to do so. I then take a short but relevant detour into a discussion of the current Bank of Canada's Covid-19 responses, and their implications for inflation. Finally, I discuss the international dimension of monetary policy and its constraints on the Bank's ability to move independently towards a higher target.

2. The policy problem

One of the key problems facing central banks around the world is the trend decline in natural or neutral real interest rates. Economic crises and pandemics aside, this has been a persistent problem at least since the early 1990's. The natural real interest rate is not observable itself, but almost all estimates point to a decline from above three per cent in the late 1980's to around half a percent now. If

expected inflation is anchored around the policy target, this means that most central banks would achieve policy rates of less than three per cent in normal times, giving them much less room to respond to crises than in the past, given an effective lower bound of around zero on policy rates.

How should the policy maker respond to this challenge? Much of the literature has been consumed with this problem in recent years. There are three or possibly four alternative suggestions for gaining more leverage for monetary policy when at the zero lower bound. The earliest suggestion was to use 'forward guidance', promising 'lower for longer' in interest rates. This option is limited due to the absence of effective commitment. The second is to engage in quantitative easing (QE), or large scale asset purchases, to affect economic activity due to portfolio effects, even in the absence of interest rate control. Many macroeconomists are skeptical of QE's effectiveness, since such portfolio substitution effects are difficult to pin down in a reliable fashion. Then there is the option of raising the inflation target, to give the central bank a bigger cushion for dealing with bad shocks. After the global financial crisis, Olivier Blanchard, Larry Summers and others argued forcefully for a rise in the inflation target of the Fed to four per cent from the prevailing two per cent. Of course, there is a fourth possibility of 'going negative', having policy rates below zero. But even if this were an option, there is still a lower limit to which rates can be pushed, so the problem is not eliminated.

The theoretical case for a higher inflation target can be made in a standard New Keynesian model where there is a trade-off between the costs of inflation in normal times versus the loss of policy autonomy during a zero lower bound episode. A number of papers have studied this trade-off within quantitative models. [3] Most of the papers conclude that there may be a case for a slight increase in the target, but these models generally embed substantial costs of inflation due to price dispersion coming from the assumption of Calvo adjustment in price setting. It is worth noting that the empirical support for this type of price dispersion is quite weak. [4] This goes back to an old problem in monetary policy. While rising inflation is seen as a big risk by policy-makers, the actual welfare costs of relatively low rates of inflation are surprisingly elusive.

3   See for instance, Andrade et al. 2019

4   See Nakamura et al. 2018

3. How to do it?

To move on to the second question: if we want to raise the inflation target, how would we actually go about it? Professor Petersen's paper gives a very cogent discussion on this issue. Two decades ago, this question would have seemed trivial, since economists were pretty united in the belief that central banks can achieve whatever inflation rate they want. But in recent years, the experience of persistent target undershooting has made this a key concern. For many central banks, inflation has come in below target year after year. This raises a problem of credibility—can we get to four per cent when we often miss two per cent? Granted, the Bank of Canada's record is better than many others. And in Canada, inflation expectations have been quite well-anchored around the target for a long time. But in a sense, this raises another problem, since the very success of the Bank in gelling expectations may make it difficult to communicate a higher target. Another non-trivial problem is in the transition. The goal of raising the inflation target is to allow the Bank to operate in normal times with higher policy rates. But to push up inflation and inflation expectations, interest rates would have to stay *lower* for a longer period. Again, communicating this trajectory to the public may be a challenge.

Not everyone in the profession is tied to the New Keynesian view of the world. An influential subgroup of economists have argued for a 'New-Fisherian' theory of interest rate policy and inflation expectations. If the Fisher relationship holds in the long run at least, then to target higher inflation we need higher nominal rates. But the new Fisherian argument is that the failure to achieve target inflation *may be the consequence of* low interest rates. [5] Indeed, the example of Japan in Professor Petersen's paper may be evidence for that argument. So, could we achieve higher target inflation by simply raising policy rate? While appealing intellectually, it is worth noting that policy-makers (and many academics) are deeply skeptical of this line of thinking.

There remains, however, the problem of how the Bank of Canada would go about changing expectations in moving to a 4 percent inflation target? Basic

5   See for instance, Williamson, 2019.

New Keynesian models are pretty useless in this regard. In the standard model, expectations simply jump when the rule is changed. It is critical to have more evidence on how expectations are formed, and how to shift them effectively. In this respect, it is worth flagging the current Bank of Canada focus on increasing direct communication with the public as quite useful. But a more theoretical foundation for the dynamics of expectations may lie in the experimental approach surveyed in the present paper. The results of these experiments imply that expectations formation is critically tied to fundamentals. But again, this comes with a caveat. How much responsiveness to we want in inflation expectations? One of the magic elements of inflation targeting is that expectations become very sticky. Would it be difficult to reshape expectations around a higher target without losing this property?

4. Pandemic policy and inflation targeting

Professor Petersen suggests that the Bank of Canada's large balance sheet expansion in response to the pandemic may indirectly help it transit to a higher inflation target. This is because the higher outstanding nominal debt will increase the pressure for inflation—indeed it offers a separate reason to raise inflation; to dilute the ongoing debt. But this strategy contains multiple risks. There is the risk of 'fiscal dominance' if government primary deficits are not stabilized. On the other hand, if QE is deemed ineffective, it may worsen the credibility of Bank of Canada, and make it harder to attain its monetary policy goals. Note that so far, long run inflation expectations have not budged despite huge pandemic bond buying. In fact, Beckworth (2020) documents that since the global financial crisis, countries that engaged in extensive QE have generally experienced lower inflation rates (granted, this raises the problem of endogeneity).

5. The global dimension

Professor Petersen briefly discusses the problem of international coordination of policy. I see this as a significant obstacle. While there is no clear sense in which the Bank of Canada aligns policy rates with the Fed or the European Central Bank, it is questionable whether the Bank could raise its target rate to four per cent while Fed in particular keeps its at two per cent. This would imply a policy rate differential of 200 or more basis points on average. It could risk unleashing carry-trade pressures on Canadian dollar, with important consequences for competitiveness and the export sector. More generally, Helene Rey (2015) has pointed to a high correlation of policy rate changes across advanced economies. If this has been usual practice in the past, what would happen if the Bank of Canada moved away from it?

Finally, it is important to acknowledge that we are in an era of massively heightened uncertainty: the post-pandemic economy, the decline of globalization, the looming threat of climate change, the slow erosion of the world trading system. All these are first-order problems that impact on policy makers and may have important implications for global inflation pressures. In times of uncertainty, most economic models point to the gains from delay. This may be a good maxim for the Bank of Canada to follow.

References

Andrade, P. H. Le Bihan, J. Gali, and Julien Matheron, (2019), "The optimal inflation target and the natural rate of interest", Brookings Institute.

Beckworth, D. (2020) "QE and Core Inflation", Mercatus Centre, George Mason University.

Nakamura, E, Steinsson, J. Sun P. and Villar, D. (2018), " The Elusive Costs of Inflation: Price Dispersion during the U.S. Great Inflation", Quarterly Journal of Economics, 133, 1933-1980.

Rey, H., (2015), "Dilemma not trilemma: The global financial cycle and monetary policy independence", NBER Working Paper No. 21162.

Williamson, S. (2019), "Neo Fisherism and Inflation Control", Canadian Journal of Economics, 52, 882-913.

About the Authors

Luba Petersen

Associate Professor, Department of Economics, Simon Fraser University

Professor Petersen's research focuses on expectations and decision making in macroeconomic environments. She develops procedures for implementing macroeconomies in controlled laboratory experiments to study policy-relevant questions.

Her recent research investigates the ability of monetary policy and central bank communication to stabilize and guide expectations and markets. She is currently studying the determinants of effective communication to the general public as well as financial markets. Another branch of her work explores how people reason through dynamic optimization problems and whether their ability can be improved through effective tools and education.

These projects have been funded by various institutions and programs including the Bank of Canada, the National Science Foundation, the Sury Initative for Global Finance and International Risk Management, SSHRC-SFU Institutional Grants, as well as SSHRC Insight Development and Insight Grants.

Shannon Wells
Director of Impact Investing, MaRS Discovery District

Shannon Wells' career has spanned private, public and non-profit sectors in Canada and internationally. She currently serves as Director of Impact Investing at MaRS Discovery District, North America's largest urban innovation hub. Passionate about living in the interconnectedness of things, Shannon is a speaker and advisor on systems leadership and social impact.

Previously Shannon served as Director of Corporate Strategy at Thomson Reuters in New York and as Senior Manager for North America at the World Economic Forum, where she designed and led Davos delegations and negotiated multisector partnerships across global industries and issues. She began her career in the Government of Canada, serving in strategic policy and planning roles across the Privy Council Office, Department of Finance Canada and Treasury Board Secretariat. Shannon is a graduate of the World Economic Forum Global Leadership Fellows programme, a Recruitment of Policy Leaders Fellow, Action Canada Fellow and proud Newfoundlander.

Michael Devereux
Professor, Vancouver School of Economics, University of British Columbia

Michael Devereux's main area of interest is in International Macroeconomics and International Finance. Currently, his research focuses on the exchange rate determination, the link between exchange rates and prices, and international aspects of monetary and fiscal policy. He has also worked on international financial linkages and their role in the global financial crisis.

MAX BELL SCHOOL
of PUBLIC POLICY

680 Sherbrooke St. West, 6th Floor
Montreal, QC H3A 2M7
www.mcgill.ca/maxbellschool/