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A world of difference: Households, the pandemic and monetary policy

Introduction

Thank you, Sylvain, for the kind introduction.

I have many fond memories of my time at the US Federal Reserve Board and the Kansas City Fed. And, as some of you know, I've given talks and attended conferences at the San Francisco Fed several times. I am honoured to deliver the keynote today, and I look forward to being there in person again soon.

Before continuing, I would like to acknowledge that the land I am speaking from is traditional, unceded territory of the Algonquin Anishnaabeg People.

I'd also like to acknowledge the profound suffering caused by Russia's unprovoked invasion of Ukraine and the particularly anxious time this continues to be for those with family and friends in Ukraine. Since the situation remains quite fluid, my Governing Council colleagues and I are following events closely and assessing the ongoing economic and financial impacts.

Like other central banks, the Bank of Canada sets monetary policy for the whole economy. But that doesn't mean our policy affects everyone in the economy the same way. And it doesn't mean our policy has the same impact on the economy overall, regardless of the characteristics and circumstances of the people in it.

So today I'll explain how differences in income, wealth and debt across households matter for the economy, how shocks can have important uneven

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effects across households, and why these things matter for monetary policy. I'll also discuss the uneven impact of the COVID-19 pandemic on households, including how their finances have evolved over the past two years, and the added challenge of high inflation. As well, I'll say a few words about how our recently renewed monetary policy framework addresses household differences.

Before closing, I'll talk about the current stance of monetary policy, because bringing inflation back down to our 2% target will require higher interest rates.

Differences and why they matter

Before I start, I want to be clear about two concepts I'll be talking about that are related but distinct from one another.

The first is **heterogeneity**, which refers to the different characteristics that distinguish people or households, such as age, gender, race, occupation, industry, income and wealth.

The second is **unevenness**, which refers to the fact that when shocks hit the economy, their impacts differ across households—in many cases, for reasons linked to these same characteristics.

With all that in mind, let me begin.

A key way that monetary policy influences economic activity is through its impact on household spending. Traditionally, for central bankers and other researchers, this has implied a focus on consumption, disposable income and other macro data. Some economic models split households into two groups of fixed size. In one group, spending is constrained by income, while in the other group it is not constrained in this way. In other words, people in the second group can make savings-versus-spending decisions with an eye to future needs and wants. Most other distinctions, however, often weren't seen as important for monetary policy.

Research has come a long way over the years. Today's economists are increasingly able to draw on microdata from households and on an ever-expanding arsenal of analytical techniques and models. In doing so, they've found that differences in income, assets and debt across households matter quite a bit for the economy and the health of the financial system. They've also found that these differences evolve over time. And if these things matter for the economy and financial system, they matter for monetary policy too.

Recognizing this, the Bank has done a lot of work to better understand the range of household experiences in the Canadian economy.[1] We've created the Heterogeneity Laboratory, HetLab for short, where economists, data scientists and other researchers work together on projects, much as they would in a science lab. And we've done a lot of thinking about how some of the key differences across households should factor into our policy decisions.

The lessons we've learned from digging into microdata have been vital to the Bank's understanding of a host of issues around the labour market, household

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[1] Bank staff are also working to understand differences among businesses and what they mean for the economy and monetary policy. But the focus of this speech is on households.

spending and debt.[2] Our understanding of these issues informs both the setting of monetary policy and our assessment of household vulnerabilities and risks to the financial system.

How household heterogeneity can amplify shocks

Before I discuss the uneven impacts of the pandemic, let me expand on why household heterogeneity matters, especially when a shock hits the economy.

It's mainly because people are exposed to recessions in different ways and to different degrees—for example, because of the type of job they have or the industry they work in. And differences in how people experience a shock can amplify its effects as well as the impact of fiscal and monetary policy responses.[3]

Low-income workers, for instance, are more likely than high-income workers to lose their jobs in a downturn. Thus, income inequality typically rises in recessions. Low-income workers also tend to consume more of their income, on average. So when a negative shock hits the economy, consumption by low-income people is more likely to fall and to fall proportionately more. The drop in overall demand causes businesses to cut production, which results in more job losses and deepens the downturn. This type of amplification of the initial shock is what we commonly refer to as a multiplier effect.

In addition, whenever people feel less secure about their prospects, they tend to boost precautionary savings if they can. The drop in demand from that behaviour adds to the multiplier effect.

Fiscal and monetary policy responses can break that chain and cut the length and depth of recessions. Fiscal policy can help stabilize household spending during a downturn through measures, such as employment insurance or wage subsidies, that ensure people still have some cash coming in.[4] This limits the overall drop in demand, making it easier for businesses to retain staff and reducing the severity of the recession. Similarly, by making it less expensive to

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[2] For example, see J. C. MacGee, T. M. Pugh and K. See, "The Heterogeneous Effects of COVID-19 on Canadian Household Consumption, Debt and Savings," *Canadian Journal of Economics* 55, Special Issue: The COVID-19 Pandemic (2022); and O. Bilyk, K. Chow and Y. Xu, "Can the Characteristics of New Mortgages Predict Borrowers' Financial Stress? Insights from the 2014 Oil Price Decline," Bank of Canada Staff Analytical Note No. 2021-22 (September 2021).

[3] For a summary of related research, see F. Alves, C. Bustamante, X. Guo, K. Kartashova, S. Lee, T. M. Pugh, K. See, Y. Terajima and A. Ueberfeldt, "Heterogeneity and Monetary Policy: A Thematic Review," Bank of Canada Staff Discussion Paper No. 2022-2 (February 2022). As well, see S. Acharya and K. Dogra, "Understanding HANK: Insights from a PRANK," *Econometrica* 88, no. 3 (2020): 1113–1158; and S. Acharya, E. Challe and K. Dogra, "Optimal Monetary Policy According to HANK," Bank of Canada Staff Working Paper No. 2021-55 (November 2021). Heterogeneous Agent New-Keynesian (HANK) models explicitly account for different characteristics of households (or firms), such as income and wealth, in various ways. This allows researchers to assess the impact of shocks and policy changes both on the economy as a whole and on different households and firms.

[4] Birinci et al. (2020) find that, during an epidemic, a combination of payroll subsidies to preserve productive jobs and expanded employment insurance is an optimal mix of fiscal policies. See S. Birinci, F. Karahan, Y. Mercan and K. See, "Labour Market Policies During an Epidemic," Bank of Canada Staff Working Paper No. 2020-54 (December 2020).

borrow, monetary policy encourages some households to spend sooner than they would have otherwise.

At the Bank, while we've invested for years in our ability to examine household differences and economic developments at a granular level, this work intensified with the pandemic. And it has paid dividends in helping guide our policy response.

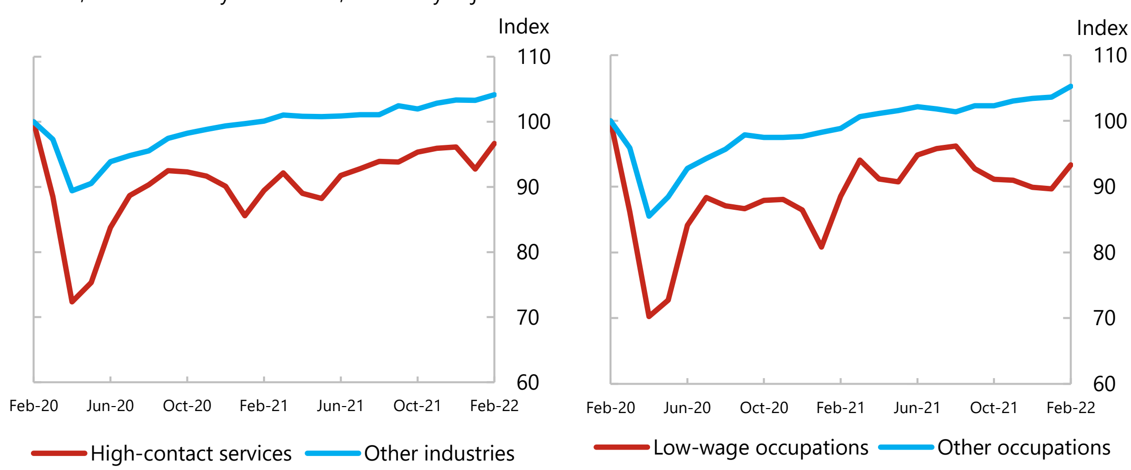
Unevenness and the pandemic

The uneven impact of the pandemic on employment is a familiar story, so I won't go into much detail. Most people who could work from home kept their jobs and saw little or no interruption to their income. Meanwhile, measures to contain the virus hit some services—such as restaurants, accommodation, travel and entertainment—especially hard (**Chart 1**, panel a). Many people in these sectors lost their regular sources of income. The impact was most severe for low-wage workers (**Chart 1**, panel b), especially women and young people, with child care challenges exacerbating the situation for many women.

Chart 1: The pandemic had a greater impact on employment in high-contact services and low-wage occupations

a. Number of employees in high-contact services and other industries, index: February 2020 = 100, seasonally adjusted

b. Number of employees by occupation and median wage, index: February 2020 = 100, seasonally adjusted



Note: Low-wage occupations (2-digit NOCS) are those whose median wages in 2019 were less than $16.03 per hour (two-thirds of the 2019 annual median wage of $24.04 per hour).

Sources: Statistics Canada and Bank of Canada calculations

Last observation: February 2022

The extreme size and unevenness of the effects, and high uncertainty about how long they might persist, led to strong policy responses. I won't go into much detail here either, but, in Canada, as in the United States and other major economies, the responses were both rapid and intentionally massive.

In Canada, the federal government introduced a range of emergency support measures for households and businesses.

Monetary policy also played a critical role. The Bank lowered its policy interest rate to the effective lower bound of 0.25%, and we said we'd keep it there until slack in the economy was fully absorbed. For the first time, we also undertook quantitative easing—we purchased large quantities of Government of Canada bonds to put further downward pressure on borrowing costs for households and businesses.

As well, recognizing the importance of household heterogeneity and the uneven impacts of the pandemic, we expanded the set of labour market indicators that we look at. This allows us to track outcomes for different demographic and income groups, giving us a more complete picture of the economy.[5] In fact, the labour market has recovered from the effects caused by the pandemic. The uneven impacts have also largely unwound. For example, the pandemic-induced gaps between employment outcomes for women and youth and other groups have dissipated.

I should point out that no effort to track the progress of different groups of workers or households will ever capture everyone's circumstances.

Even with all the policy support, the pandemic has been challenging for many households, and some still face hardship. Fiscal benefits for affected individuals were of a fixed amount. They more than replaced lost wage income for some low-income households, but fell short for others with higher incomes. Plus, income support doesn't replace the experience gained while employed or the long-term benefits of staying in the workforce. Also, loan deferrals during the pandemic were helpful and have expired without a rise in delinquencies.[6] But those deferrals didn't reduce debt. They just delayed service payments.

The pandemic's impact on households

All that being said, despite the impact of the pandemic on employment, several factors have cushioned the impact on household balance sheets.

A big one was fiscal transfers, which contributed to a large buildup of household savings. Also contributing to this was lower consumer spending largely due to pandemic containment measures and the uncertainty and caution that continue to weigh on many. A lot of the savings are still in personal bank accounts (**Chart 2**). Bank deposits have grown by an average of around $12,000 per household compared with pre-pandemic trends.

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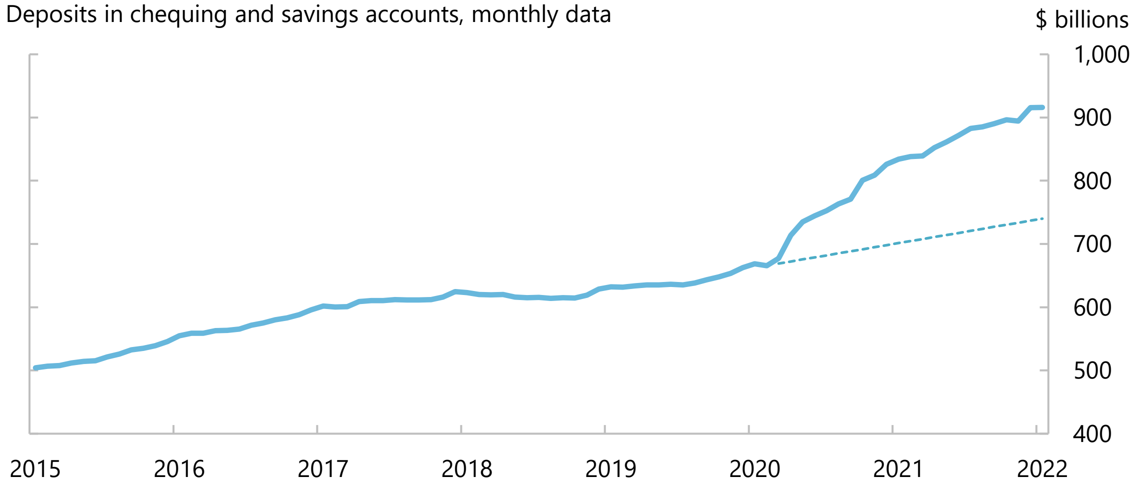
[5] For a discussion of the uneven impacts of the pandemic and the Bank's approach to assessing labour market conditions, see L. L. Schembri, "Labour Market Uncertainties and Monetary Policy" (speech delivered virtually to the Canadian Association for Business Economics, Toronto, Ontario, November 16, 2021).

[6] See G. Vallée, "Monitoring Payment Deferrals During the COVID-19 Pandemic—Update, July 2021," Bank of Canada (September 24, 2021).

Chart 2: A significant amount of savings are still in personal bank accounts

Deposits in chequing and savings accounts, monthly data

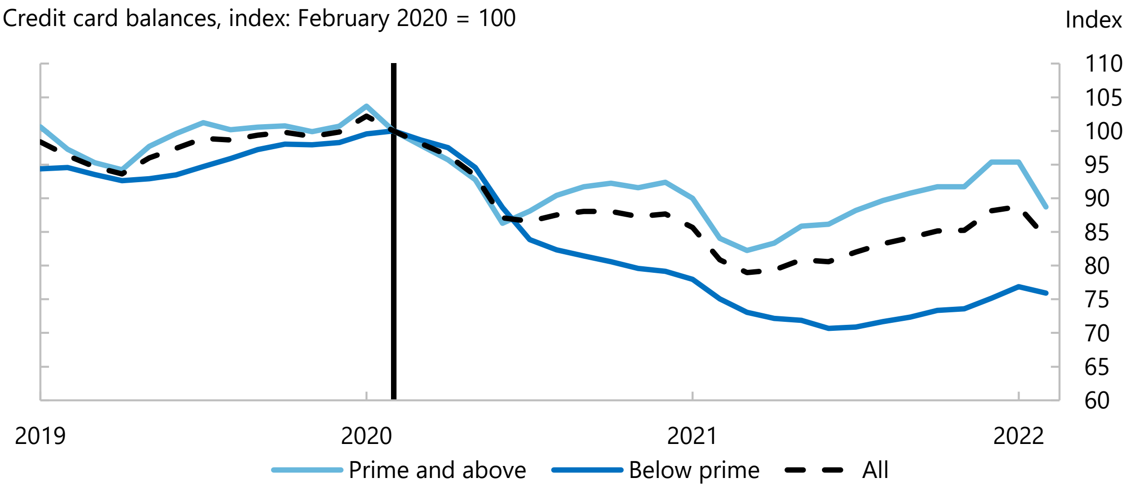


Note: This chart illustrates the increase in personal deposit holdings at Canadian banks relative to a pre-pandemic trend, which is calculated using the average year-over-year growth in deposits from 2015 to 2019.
Source: Bank of Canada calculations
Last observation: January 2022

Another important factor helping balance sheets was that many households in Canada took the opportunity to pay down high-interest debt, such as credit card balances. In fact, the declines were largest for people with low credit scores (**Chart 3**), who tend to be younger and have lower incomes.

Chart 3: Credit card balances have declined, especially for consumers with low credit scores

Credit card balances, index: February 2020 = 100



Note: "Prime and above" consumers have credit scores greater than or equal to 700. "Below prime" consumers have credit scores below 700. To protect the privacy of Canadians, TransUnion did not provide any personal information to the Bank. The TransUnion dataset was anonymized, meaning it does not include information that identifies individuals, such as names, social insurance numbers or addresses.
Sources: TransUnion and Bank of Canada calculations
Last observation: January 2022

The number of households borrowing against their homes has also declined, which suggests many are resisting taking on more debt to fund purchases. The decline is unusual for a period of rapid gains in house prices like what we’ve seen over the pandemic. Some households have also opted to pay down their mortgages faster.

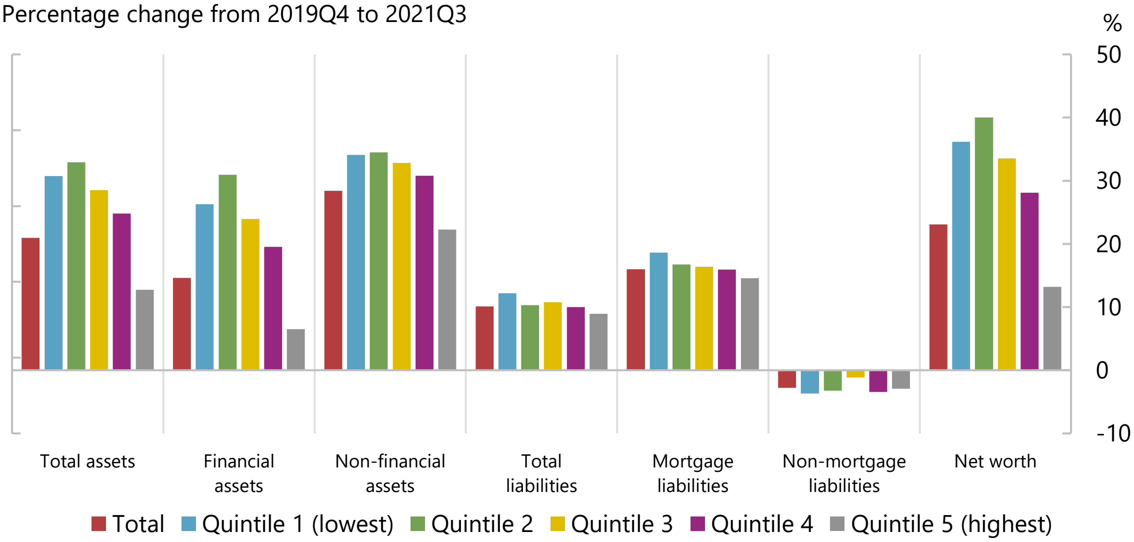
Early in the pandemic, higher savings and lower mortgage rates made it easier for some people to buy homes. These new homeowners and existing ones then watched the value of their homes soar as a surge in demand outpaced supply. By spring 2021, prices had risen sharply enough to make issues around housing affordability a prominent national concern, and that's still the case. Even with mortgage rates lower than before the pandemic, it has been particularly hard for many first-time homebuyers to get into the market.

Another important development affecting household balance sheets was the substantial rise in many stock markets during 2020 and 2021.

Overall, despite the large and uneven shock that hit them two years ago, households across five groups sorted by income appear on average to be in healthier financial positions than before the pandemic (**Chart 4**).[7]

Chart 4: Household balance sheets have improved across income quintiles

Percentage change from 2019Q4 to 2021Q3



Sources: Statistics Canada and Bank of Canada calculations

Last observation: 2021Q3

Indeed, the share of Canadians falling behind on consumer debt payments is close to its historic low, and credit scores have generally risen (**Chart 5**). Also, fewer households are living paycheque to paycheque.[8]

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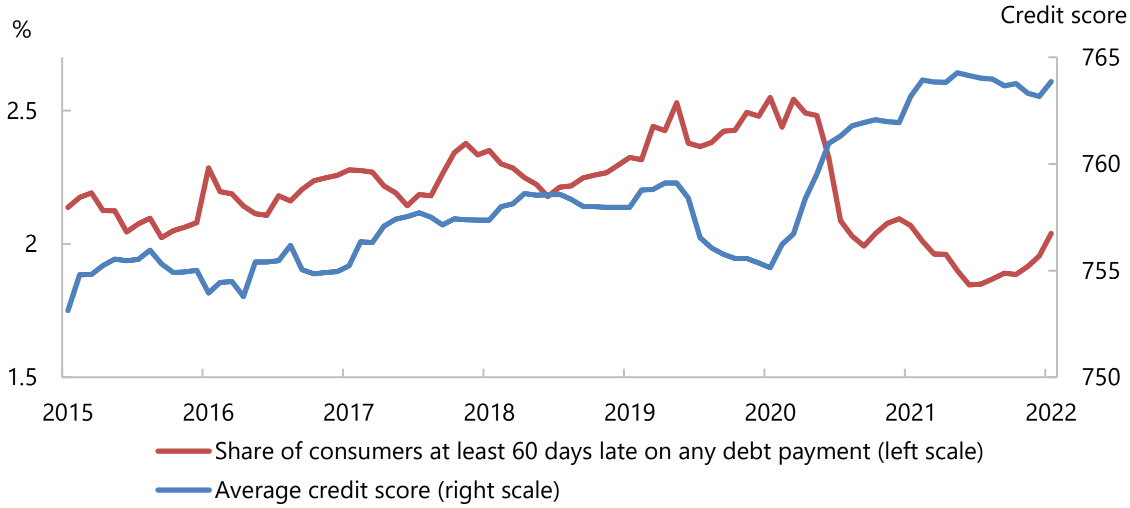
[7] While these data from Statistics Canada's [Distribution of Household Economic Accounts] rely partly on assumptions and data taken from previous reference periods, our own simulations produce broadly similar results.

[8] Bank staff used a prototype for an updated version of the Household Risk Assessment Model (HRAM) to calculate the share of "hand-to-mouth" households—those with liquid wealth below their biweekly income—through 2019 and then to simulate it forward using insight from higher-frequency data sources. Staff found that the share drifted lower in the decade before the pandemic, fell sharply in 2020 and then rose slightly from that lower level in 2021. For details on HRAM, see B. Peterson and T. Roberts, "[Household Risk Assessment Model]," Bank of Canada Technical Report No. 106 (September 2016).

Chart 5: Credit scores have increased, while fewer consumers are falling behind on debt payments



Note: To protect the privacy of Canadians, TransUnion did not provide any personal information to the Bank. The TransUnion dataset was anonymized, meaning it does not include information that identifies individuals, such as names, social insurance numbers or addresses.
Sources: TransUnion and Bank of Canada calculations
Last observation: January 2022

Regardless, the pandemic and the related, lingering uncertainty, combined with the challenge of high inflation and Russia's invasion of Ukraine, are causing many people to feel anxious.

Implications for monetary policy

The Bank has been clear that higher interest rates are needed to bring inflation sustainably back to the 2% target.

Let me discuss a few factors particular to households that will be relevant as we proceed with this phase of tightening monetary policy.

One is that while rising interest rates will have an immediate impact on new homebuyers, they'll have a more gradual impact across existing homeowners. This is because rate increases pass through only gradually to the pool of existing homeowners.

Almost three-quarters of mortgage holders in Canada have fixed rates. Most of them are on five-year terms so, in a typical year, only about 20% have to renew. And people renewing over the next couple of years will likely get rates that are similar to what they're paying now. This is because increases to our policy rate about five years ago were offset by decreases in 2020 after the pandemic struck. As well, most variable-rate mortgages have fixed payments.

In addition, as I noted earlier, a lot of households paid down principal during the pandemic. When rates fell, households on variable-rate mortgages with fixed payments paid down extra principal. Meanwhile, some with fixed-rate mortgages pre-paid by setting higher regular payments or through lump sums. As a result, many households have more financial flexibility now.

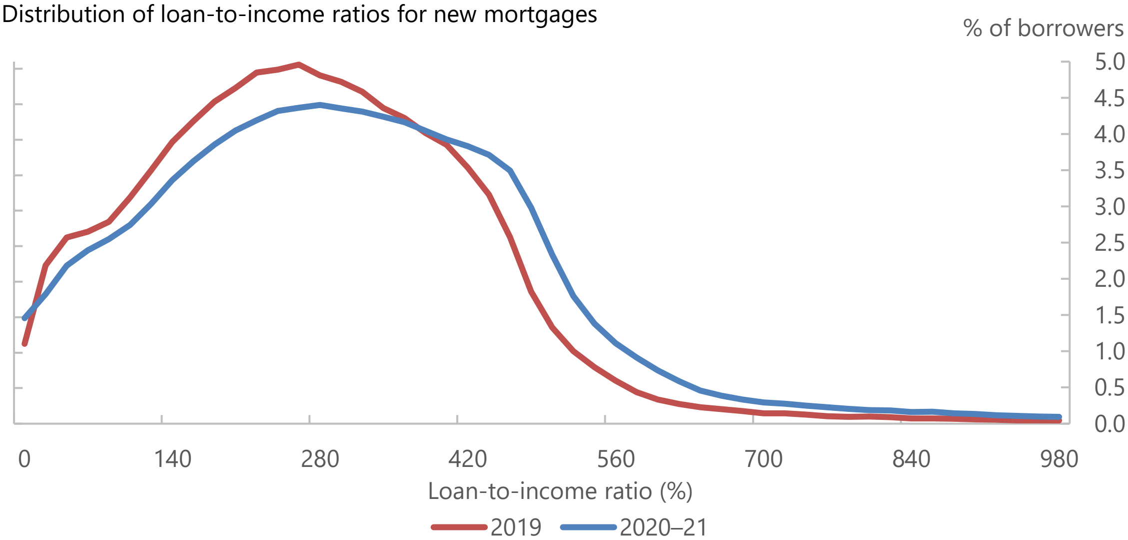
Some developments have been worrisome.

While household indebtedness initially improved earlier in the pandemic, it has since risen above pre-pandemic levels and its elevated level remains an important domestic vulnerability.

High indebtedness could amplify the impact of rising interest rates, and it could also worsen the impact of a future shock. For example, the rapid rise in house prices during the pandemic has led to an increasing share of households taking out new mortgages that are large relative to their incomes (**Chart 6**). And a growing share of these mortgages have variable rates.

Chart 6: Loan-to-income ratios for new mortgages have increased

Distribution of loan-to-income ratios for new mortgages



Sources: Department of Finance Canada and regulatory filings of Canadian banks

Last observation: 2021Q4

Moreover, the households that have taken out mortgages with high loan-to-income ratios probably aren't the ones who still have a lot of cash in their bank accounts. Some of these borrowers may be expecting their future income to rise. But it's also possible that rising mortgage rates would weigh on their spending.[9] And if enough of them were to slow their spending materially, it could affect the whole economy, such as by slowing growth or increasing unemployment. A drop in house prices could worsen these effects.

Adding it all up, though, we see that households on average appear to be in better financial shape now than at the start of our 2017–18 tightening cycle. And as we proceed with policy tightening, our rich data capabilities will continue to

[9] The risk of households falling behind on mortgage payments as rates rise is mitigated in Canada by a stress test that gauges whether new mortgage borrowers could service their debt at higher interest rates. However, depending on their circumstances, some households may need to cut back on other spending to keep servicing their debt at higher rates.

pay dividends.[10] That's because they give us a more refined lens into how households are responding to our monetary policy.[11]

The Bank's renewed monetary policy framework

Let me now tell you about how the recent renewal of the Bank's monetary policy framework addresses heterogeneity and unevenness.

Our agreement with the Government of Canada is renewed every five years.[12] This process is highly valuable to us—just as the Federal Reserve's own renewal process is to you—particularly because our process gives us an opportunity to consult widely.[13]

Unlike the Fed, which has a dual inflation and employment mandate, the Bank has a primary objective of low and stable inflation. This is reaffirmed in our latest agreement from last December. The renewed agreement also articulates more clearly the role that the labour market plays in our framework. In particular, it emphasizes that low, stable inflation and maximum sustainable employment go hand in hand. And it recognizes that when the benefits of growth and opportunity are shared more evenly, they lead to more prosperity overall. In practice, it commits us to monitoring a broad set of labour market indicators and to explaining to Canadians how labour market outcomes factor into our policy decisions.

Tracking a range of labour data is important because it's hard to know when maximum employment has been reached, in part because our estimates of it are highly uncertain. And when inflation is below our 2% target—unlike today—we want to avoid tightening prematurely so that we can achieve maximum employment and get inflation sustainably back to target.

Research has shown us that when accounting for heterogeneity, the gains and losses from tightening policy too early versus too late aren't balanced.[14] The people who tend to bear the brunt of recessions also tend to take longer to benefit from recoveries. Tightening too early doesn't only risk delaying their return to work as the economy recovers. It also risks depressing their participation in the labour force for long after and, as a result, entrenching long-lasting inequality.

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[10] The Bank is not only able to gather more microdata now, it has also hired more people who specialize in their use. That means the Bank has built more than new capabilities—it has also refreshed and transformed its institutional knowledge.

[11] Many different paths for monetary policy would lead to similar outcomes for inflation. But some may lead to better outcomes in other ways. A risk management approach can assist in choosing from the alternatives. For more on risk management in monetary policy, see S. S. Poloz, "Monetary Policy in Unknowable Times" (Eric J. Hanson Memorial Lecture University of Alberta, Edmonton, Alberta, May 25, 2020).

[12] For details, see Bank of Canada, *Monetary Policy Framework Renewal—December 2021*.

[13] Bank of Canada, "Toward 2021: Consultations with Canadians."

[14] See S. Acharya, J. Bengui, K. Dogra and S. L. Wee, "Slow Recoveries and Unemployment Traps: Monetary Policy in a Time of Hysteresis," *Economic Journal* (forthcoming).

The Fed recognized this risk during its tightening cycle from 2015 to 2018 by taking a cautious approach that promoted a more inclusive labour market recovery. Feedback from Fed Listens events in 2019 reinforced the importance of sustaining the economic expansion. Many people who had had trouble finding work eventually benefited from the strong job market.

For today, I'd just like to reinforce that our renewed agreement commits us to using a wide variety of data to assess what's going on in the economy. And I'll remind you that the current context is one of high inflation.

The Bank's policy stance

Let me say a few words now about our policy stance.

With slack in the economy absorbed, we raised our policy rate to 0.5% in early March and said we expect it will need to rise further. We also said that we will be considering when to begin to allow the Bank's holdings of Government of Canada bonds to shrink—a process known as quantitative tightening, or QT.

We were clear that the timing and pace of further increases in the policy rate, and the start of QT, will be guided by the Bank's ongoing assessment of the economy and its commitment to achieving the 2% inflation target.

I expect the pace and magnitude of interest rate increases and the start of QT to be active parts of our deliberations at our next decision in April. The reasons are straightforward: inflation in Canada is too high, labour markets are tight and there is considerable momentum in demand. With everyday items such as gas and groceries facing some of the fastest price gains, all households are affected by high inflation. But my colleagues and I are mindful that this is especially painful for those with low incomes, because they tend to spend a greater share of their earnings on such items. The impact could really add up: for a household that spends $2,000 each month, an increase in total inflation of 3 to 4 percentage points could add $60 to $80 in monthly expenses, or $720 to $960 a year.

The invasion of Ukraine is adding to inflationary pressures around the world and in Canada. This is primarily because it has caused global prices for oil and other commodities to surge. The result is inflation in the near term that is expected to be higher than we projected in January, when we published our latest projections. A key concern for us is the broadening of price pressures—around two-thirds of the components in the consumer price index are now exhibiting inflation above 3%. Persistently elevated inflation increases the risk that longer-run inflation expectations could drift upward.

So, while we will watch developments with respect to households closely as we proceed, it's important to be clear that returning inflation to the 2% target is our primary focus and unwavering commitment. We have taken action and will continue to do so to return inflation to target, and we are prepared to act forcefully.

Conclusion

To conclude, let me recap the main messages I want to leave with you.

The pandemic had large and uneven effects on employment. That made it all the more urgent to understand how differences among households affect economic outcomes, the health of the financial system and the transmission of monetary policy.

We have been intensifying our efforts, using new ways to collect and analyze data, digging into the experiences of a wide range of households and businesses as well as examining national figures. These tools have shown their worth in tracking economic developments through the pandemic.

Now, employment has recovered and labour market conditions are increasingly tight. And although household debt is still elevated, policy supports and increased savings have helped bolster households' financial positions across income groups.

Our current primary concern is high inflation. The Bank will use its monetary policy tools to return inflation to the 2% target and to keep inflation expectations well anchored. We will be closely monitoring the data and communicating clearly to Canadians every step of the way. Thank you.