BANK OF CANADA
BANQUE DU CANADA

Monetary Policy Report

April 2023

Canada's inflation-control strategy

Inflation targeting and the economy

- The objective of Canada's monetary policy is to promote the economic and financial well-being of Canadians. Canada's experience with inflation targeting since 1991 has shown that the best way that monetary policy can achieve this goal is by maintaining a low and stable inflation environment. Doing so fosters confidence in the value of money and contributes to sustained economic growth, a strong and inclusive labour market and improved living standards.
- In 2021, the Government of Canada and the Bank of Canada renewed the flexible inflation-targeting strategy of the monetary policy framework for a further five-year period, ending December 31, 2026.[1]
- The inflation target was renewed at the 2% midpoint of the 1%–3% control range, with inflation measured as the 12-month rate of change in the consumer price index (CPI).
- The Government and the Bank agreed that the best contribution monetary policy can make to the economic and financial well-being of Canadians is to continue to focus on price stability. The Government and the Bank also agreed that monetary policy should continue to support maximum sustainable employment, recognizing that maximum sustainable employment is not directly measurable and is determined largely by non-monetary factors that can change through time.
- Further, the Government and the Bank agreed that because well-anchored inflation expectations are critical to achieving both price stability and maximum sustainable employment, the primary objective of monetary policy is to maintain low, stable inflation over time.

Inflation targeting is *symmetric* and *flexible*

- Canada's inflation-targeting approach is *symmetric*, which means the Bank is equally concerned about inflation rising above or falling below the 2% target.
- Canada's inflation-targeting approach is also *flexible*. Typically, the Bank seeks to return inflation to target over a horizon of six to eight quarters. However, the most appropriate horizon for returning inflation to target will vary depending on the nature and persistence of the shocks buffeting the economy.
- The 2021 agreement with the Government specifies that the 2% inflation target remains the cornerstone of the framework.
- The agreement further notes that the Bank will continue to use the flexibility of the 1%–3% control range to actively seek the maximum sustainable level of employment, when conditions warrant. The Bank will also continue to leverage the flexibility inherent in the framework to help address the challenges of structurally low interest rates by using a broad set of policy tools. The Bank will use this flexibility only to an extent that is consistent with keeping medium-term inflation expectations well anchored at 2%.

Monetary policy tools

- Because monetary policy actions take time to work their way through the economy and have their full effect on inflation, monetary policy must be forward-looking.
- The Bank normally carries out monetary policy through changes in the target for the overnight rate of interest (the policy rate). The Bank also has a range of monetary policy tools it can use when the policy rate is at very low levels. These tools consist of guidance on the future evolution of the policy rate, large-scale asset purchases (quantitative easing and credit easing), funding for credit measures, and negative policy rates. The potential use and sequencing of these tools would depend on the economic and financial market context.
- All of the Bank's monetary policy tools affect total demand for Canadian goods and services through their influence on market interest rates, domestic asset prices and the exchange rate. The balance between this demand and the economy's production capacity is, over time, the main factor that determines inflation pressures in the economy.

Communications

- Consistent with its commitment to clear, transparent communications, the Bank regularly reports its perspectives on the economy and inflation. Policy decisions are typically announced on eight pre-set days during the year, and full updates to the Bank's outlook are published four times each year in the *Monetary Policy Report*.
- The Bank is committed to explaining when it is using the flexibility of the inflation-targeting strategy.
- Given the uncertainty about the maximum sustainable level of employment, the Bank will consider a broad range of labour market indicators.[2] The Bank will also systematically report to Canadians on how labour market outcomes have factored into its policy decisions.

Monitoring inflation

- In the short run, the prices of certain CPI components can be particularly volatile and can cause sizable fluctuations in CPI inflation.
- In setting monetary policy, the Bank seeks to look through such transitory movements in CPI inflation and focuses on "core" inflation measures that better reflect the underlying trend of inflation. In this sense, these measures act as an operational guide to help the Bank achieve the CPI inflation target. They are not a replacement for CPI inflation.
- The Bank's two preferred measures of core inflation are CPI-trim, which excludes CPI components whose rates of change in a given month are the most extreme, and CPI-median, which corresponds to the price change located at the 50th percentile (in terms of basket weight) of the distribution of price changes.

---

1 For more details, see *Joint Statement of the Government of Canada and the Bank of Canada on the Renewal of the Monetary Policy Framework* (December 13, 2021); *Monetary Policy Framework Renewal—December 2021;* and T. Macklem, "*Our Monetary Policy Framework: Continuity, Clarity and Commitment*" (speech to the Empire Club of Canada, Toronto, December 15, 2021).

2 See, for example, the range of indicators that the Bank is using to track the recovery of the labour market from the effects of the COVID-19 pandemic.

The *Monetary Policy Report* is available on the Bank of Canada's website at bankofcanada.ca.

For further information, contact:

Public Information
Communications Department
Bank of Canada
234 Wellington Street
Ottawa, Ontario K1A 0G9

Telephone: 613-782-8111;
1-800-303-1282 (toll-free in North America)
Email: info@bankofcanada.ca Website: bankofcanada.ca

ISSN 1201-8783 (Print)
ISSN 1490-1234 (Online)

BANK OF CANADA
BANQUE DU CANADA

Monetary Policy Report

April 2023

This is a report of the Governing Council of the Bank of Canada:
Tiff Macklem, Carolyn Rogers, Paul Beaudry, Toni Gravelle, Sharon Kozicki and Nicolas Vincent

Contents

Overview

Global inflation is coming down, but core inflation in major economies is proving to be persistent. Central banks continue to see the need to maintain restrictive monetary policy to achieve their inflation targets.

This restrictive monetary policy and, to a much lesser extent, stress in the banking sector are anticipated to constrain global growth through 2023 and the first half of 2024. Growth is then projected to pick up in 2025 as the effects of policy tightening fade.

In Canada, consumer price index (CPI) inflation is expected to come down quickly to around 3% in the middle of 2023 and then decline more gradually, reaching the 2% target by the end of 2024.

Goods price inflation is easing quickly, reflecting lower energy prices, improved global supply chains and the effects of restrictive monetary policy on sectors sensitive to interest rates. Inflation is then forecast to return the rest of the way to the 2% target more gradually because services price inflation is responding more slowly to the effects of restrictive monetary policy.

Demand in Canada still exceeds supply, and the labour market remains tight. Although the slowing economy and increasing labour supply are helping relieve some of this tightness, the labour market is still above maximum sustainable employment.

Economic growth is expected to be subdued through the remainder of this year, with the economy moving into excess supply in the second half, and then to pick up gradually through 2024.

Strong population growth is supporting aggregate consumption and employment growth. Household spending is being restrained by higher interest rates. At current interest rates, the share of income spent on interest payments will continue to rise as homeowners renew their mortgages. Growth in business investment and exports is also expected to soften, reflecting increased borrowing costs and weaker foreign demand.

With slow growth in Canada for the next several quarters, the Bank of Canada anticipates near-term inflation expectations to decline, services price inflation and wage growth to moderate, and the pricing behaviour of businesses to normalize. As these things happen, domestic price pressures will ease further, returning inflation gradually to the 2% target.

On an annual average basis, growth in gross domestic product (GDP) in Canada is projected to be 1.4% this year and 1.3% in 2024. As the economy adjusts to higher interest rates and inflation returns to the 2% target, GDP growth is projected to pick back up in 2025, reaching 2.5%.

Global economy

Inflation has fallen from its 2022 peak in most regions. However, core measures of inflation and, in particular, services price inflation remain high in many countries. Major central banks continue to communicate the need to maintain restrictive monetary policy to achieve their inflation targets.

Volatility in financial markets increased sharply after the recent banking sector stress in the United States and Europe. Authorities reacted swiftly to limit the effects of this stress on the global financial system. Even so, credit conditions have tightened modestly, and the potential for further stress has increased uncertainty.

Global growth is expected to weaken through the second half of 2023 to the first half of 2024, weighed down by restrictive monetary policy in advanced economies. To a lesser extent, headwinds coming from tighter credit conditions are also anticipated to restrain growth in the United States and Europe. In contrast, the lifting of most COVID-19 restrictions in China is leading to a rebound in activity in 2023 that supports global growth and demand for commodities. Overall, global growth averages about 2.4% over 2023 and 2024. Growth is then projected to pick up to 2.8% in 2025 (**Table 1**).

Table 1: Projection for global economic growth

	Share of real global GDP* (%)	Projected growth† (%)			
		2022	2023	2024	2025
United States	16	2.1 (2.0)	1.3 (0.5)	0.4 (1.1)	1.8
Euro area‡	12	3.5 (3.4)	0.7 (0.2)	0.5 (0.9)	1.5
Japan	4	1.0 (1.2)	0.9 (1.2)	1.2 (1.2)	1.3
China	19	3.0 (3.0)	5.7 (5.4)	4.7 (5.0)	4.2
Oil-importing EMEs§	33	4.4 (5.0)	3.0 (2.2)	2.7 (2.4)	3.6
Rest of the world◊	17	3.3 (3.6)	1.3 (0.3)	1.2 (2.1)	1.7
World	100	3.4 (3.6)	2.6 (1.9)	2.1 (2.4)	2.8

* GDP shares are based on International Monetary Fund (IMF) estimates of the purchasing-power-parity valuation of country GDPs for 2021 from the IMF's October 2022 *World Economic Outlook*. The individual shares may not add up to 100 due to rounding.

† Numbers in parentheses are projections used in the previous Report.

‡ Croatia joined the euro area on January 1, 2023. The current projection and historical data do not include the change in membership.

§ The oil-importing emerging-market economies (EMEs) grouping excludes China. It is composed of large EMEs from Asia, Latin America, the Middle East, Europe and Africa (such as India, Brazil and South Africa) as well as newly industrialized economies (such as South Korea).

◊ "Rest of the world" is a grouping of other economies not included in the first five regions. It is composed of oil-exporting EMEs (such as Russia, Nigeria and Saudi Arabia) and other advanced economies (such as Canada, the United Kingdom and Australia).

Sources: National sources via Haver Analytics and Bank of Canada calculations and projections

Global growth in 2023 has been revised up since the January Report due to stronger economic activity in nearly all regions, despite restrictive monetary policy and the negative impact of tighter credit conditions in the United States and Europe. Growth in 2024 is revised down due to further tightening of monetary policy in advanced economies as well as banking sector stress since the January Report (**Box 1**).

The Bank expects inflation in most advanced economies to decline meaningfully over 2023, mostly due to easing inflation in goods prices. In contrast, services price inflation is projected to stay elevated for longer. Over time, monetary policy tightening is anticipated to reduce demand for services, soften employment and better align growth in labour costs with productivity. By the end of the projection horizon, inflation is forecast to be near central bank targets.

Box 1

Changes to the economic projection since the January Report

Global outlook

The following factors explain changes to the outlook in regions important for the Canadian economy:

- In the United States, the outlook for growth has been revised up in 2023 but down in 2024. Recent economic data have been stronger than anticipated. Robust goods consumption, including motor vehicle sales, and a broad-based pickup in exports support stronger near-term growth. Stress in the US regional banking sector weighs on growth in 2023 and 2024. In addition, the Bank of Canada assumes that US monetary policy will tighten further because inflationary pressures are stronger than projected in the January Report.
- Growth in the euro area has been revised up in 2023 largely because of an improved outlook for its energy supply. Growth has been revised down for 2024 due to greater-than-expected inflationary pressures, pointing to more tightening of monetary policy than previously assumed. Recent banking stress also weighs on growth in 2023 and 2024.

Overall, global growth has been revised up by 0.7 percentage points in 2023 but has been revised down slightly in 2024. Growth in foreign demand for Canadian exports, however, has been revised down over the projection horizon, reflecting weaker growth in sectors important for Canadian exports.

Canadian outlook

- The level of potential output over the projection horizon has been revised down by about 0.3% since the January Report, largely because of weaker business investment. Details on the Bank's assessment of potential output growth are provided in the **Appendix** (page 25).
- Job gains have been stronger than expected. This reflects both unexpected strength in labour demand and increases in labour supply. The latter is due to robust population growth and increases in the labour force participation rate.
- Growth in gross domestic product (GDP) in the fourth quarter of 2022 came in flat and below expectations. The weaker outcome was due mostly to a normalization in inventory investment that had been expected to occur over the first half of 2023.
- GDP growth has been revised up in 2023 and down in 2024. **Table 2** and **Table 3** provide the revisions to the forecast.
  - Growth in consumption spending is temporarily boosted in 2023 by stronger-than-expected employment and population growth and by the new temporary transfers announced in government budgets.
  - New fiscal measures announced in recent federal and provincial budgets—adding about $25 billion per year over the next three years—also support GDP.
  - Export growth surged unexpectedly in the first quarter of 2023, led by the supply chain improvements in the auto sector and the shipping of the abundant 2022 agricultural harvest. This strength is temporary, and export growth has been revised down thereafter due to negative revisions to demand for Canadian exports from the United States.
  - Inventory investment is expected to be less of a drag on growth throughout 2023.
- The outlook for consumer price index inflation is broadly unchanged over 2023 and 2024.

Persistent inflation

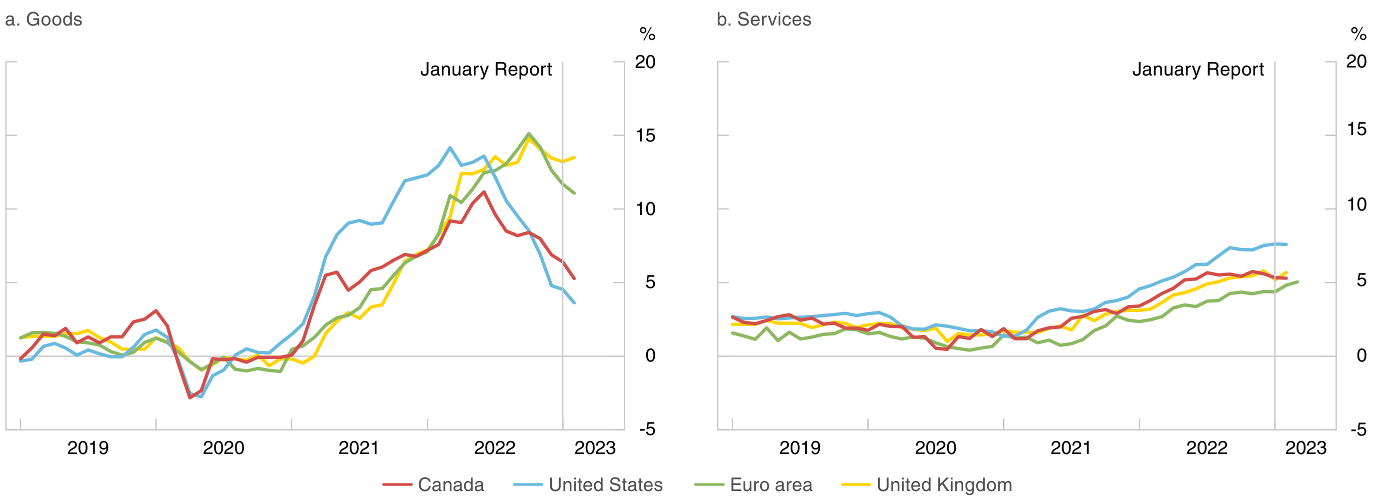
Goods price inflation is declining in most advanced economies (**Chart 1**). This reflects improvements in supply chains and lower energy prices.[1] Demand for goods is also slowing due to past increases in interest rates and a shift in spending patterns back toward high-contact services. These dynamics are expected to continue, with falling goods price inflation accounting for most of the anticipated decline in inflation across advanced economies in 2023.

Services price inflation, however, continues to be elevated and is projected to decline more slowly. Demand for services is strong, and labour markets in the United States and the euro area remain tight. Results from a survey by the Federal Reserve Bank of Richmond indicate that firms in the United States expect services price inflation to be around 4% over the near term.

By the end of this year, inflation is projected to remain well above central bank targets. Further declines in inflation will largely depend on how quickly growth in services prices slows.

Chart 1: In most advanced economies, goods price inflation is declining, while services price inflation is levelling off

Year-over-year percentage change, monthly data



Note: The inflation rate is based on the Harmonised Index of Consumer Prices for the euro area and the consumer price index for all other countries. Inflation for both goods and services includes food and energy prices.

Sources: Statistics Canada, Eurostat and the Organisation for Economic Co-Operation and Development via Haver Analytics and Bank of Canada calculations

Last observations: panel b, euro area, March 2023; others, February 2023

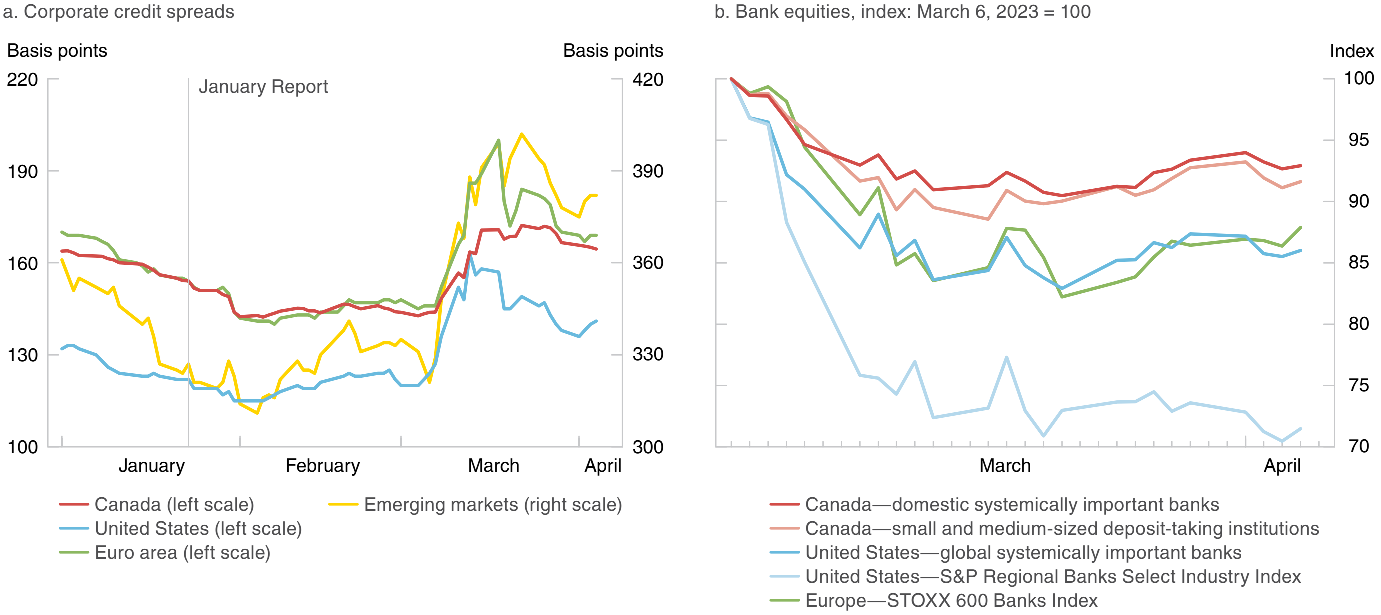
Tighter credit conditions

Credit conditions have tightened in some regions since the January Report (**Chart 2**). In early March, deposit runs at Silicon Valley Bank and Signature Bank led the US Federal Deposit Insurance Corporation to take control of both banks and offer extraordinary support to their depositors. Soon after, Credit Suisse came under severe market stress, and the Swiss authorities responded by facilitating a takeover by UBS.

1 For example, the Federal Reserve Bank of New York's Global Supply Chain Pressure Index is now below its historical average after having been significantly elevated for the past two years.

Chart 2: Credit spreads have widened, and bank stocks have fallen—particularly those of US regional banks

Daily data



Note: The spreads for the United States and emerging markets are the option-adjusted spreads between US-dollar-denominated bonds and US Treasury securities. Spreads for Canada and the euro area are relative to Canadian and German sovereign yields, respectively. All corporate yields are based on investment-grade bonds, except for those of emerging markets that include a number of high-yield bonds. "Canada—domestic systemically important banks" is the unweighted average of the equity prices of the following six banks: Bank of Montreal, Bank of Nova Scotia, Canadian Imperial Bank of Commerce, National Bank of Canada, Royal Bank of Canada and Toronto-Dominion Bank. "Canada—small and medium-sized deposit-taking institutions" is the unweighted average of the equity prices of the following three banks: EQB Inc., Canadian Western Bank and Laurentian Bank of Canada. "United States—global systemically important banks" is the unweighted average of the equity prices of the following eight banks: Bank of America Corporation, Citigroup Inc, Goldman Sachs Group Inc, JPMorgan Chase & Co., Morgan Stanley, State Street Corporation, The Bank of New York Mellon Corporation and Wells Fargo & Company.

Sources: Bloomberg Finance L.P. and Bank of Canada calculations

Last observation: April 6, 2023

In the past, prolonged episodes of stress in the banking sector have typically led to decreased credit issuance in the primary market and wider credit spreads for financial institutions. This made bank funding more expensive, which caused banks to tighten lending conditions.

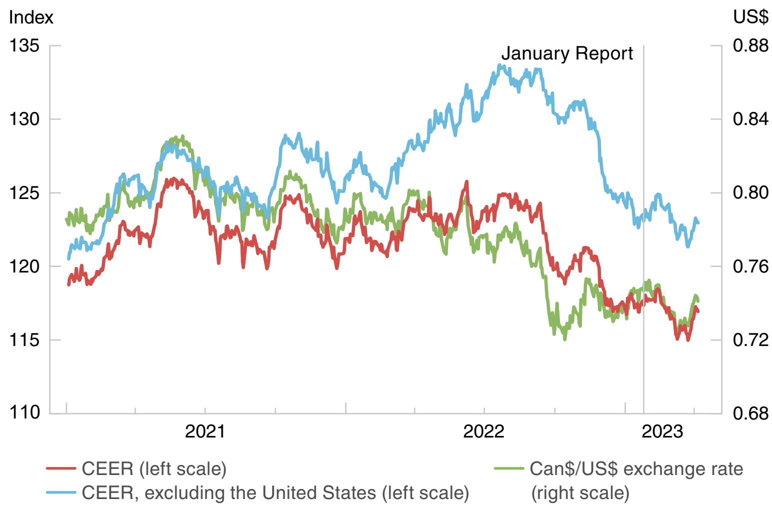
Recently, funding costs for US banks have increased, and concerns exist that conditions could deteriorate further. Consequently, some pullback in lending is expected, particularly at US regional banks, which play an important role in lending to small businesses.

Credit risk spreads also widened sharply in mid-March. This tightening was partially offset by a fall in long-term government bond yields. More recently, financial markets have largely stabilized, and many indicators of financial conditions have improved.

The Can$/US$ exchange rate is broadly unchanged since the January Report (**Chart 3** and **Box 2**).

Chart 3: The value of the Canadian dollar is broadly unchanged against the US dollar

Canadian exchange rates, daily data



Note: CEER is the Canadian Effective Exchange Rate index—a weighted average of bilateral exchange rates for the Canadian dollar against the currencies of Canada's major trading partners.

Sources: Bloomberg Finance L.P. and Bank of Canada calculations

Last observation: April 6, 2023

Box 2

Key inputs to the projection

The Bank of Canada's projection is conditional on several key inputs and assumptions about their future path. The Bank regularly reviews these assumptions and adjusts the economic projection accordingly. The key inputs to the Bank's projection are as follows:

- Oil prices have been volatile recently, reflecting heightened stress in the global financial system and production cuts announced by some large oil producers. Over the projection horizon, the per-barrel prices for oil in US dollars are assumed to be $85 for Brent and $80 for West Texas Intermediate, both unchanged from the January Report. The per-barrel price of Western Canadian Select is assumed to be $65, which is $5 higher than in the January Report.
- Prices for non-energy commodities are expected to remain around current levels over the projection horizon.
- By convention, the Bank does not forecast the exchange rate in the *Monetary Policy Report*. The Canadian dollar is assumed to remain at 74 cents US over the projection horizon, close to its recent average and unchanged from the assumption in the January Report.
- Potential output growth in Canada is expected to increase from 1.4% in 2022 to about 2% over the projection horizon. Details about the Bank's outlook for potential output growth are provided in the **Appendix** (page 25).
- Real gross domestic product (GDP) is estimated to have grown at about the same pace as potential output in the first quarter of 2023. As a result, the Bank estimates that the output gap is between 0.25% and 1.25% in the first quarter, unchanged from the estimate for the fourth quarter of 2022.[1]
- The projection incorporates information from all provincial and federal budgets available at the time of writing.
- The nominal neutral interest rate in Canada is estimated to be in the range of 2% to 3%.[2] The economic projection assumes that the neutral rate is at the midpoint of this range. Details about the Bank's annual assessment are provided in the **Appendix**.

1 The output gap for the fourth quarter of 2022, estimated to be between 0.50% and 1.50% in the January Report, has been revised down and is now estimated to be between 0.25% and 1.25%. This is due mainly to weaker-than-expected GDP in that quarter (**Box 1** and **Table 3**).

2 The nominal neutral policy interest rate is defined as the real neutral rate plus 2% for inflation. The real neutral rate is the rate consistent with both output remaining sustainably at its potential and inflation remaining at target, on an ongoing basis. It is a medium- to long-term equilibrium concept. For more details, see J. Champagne, C. Hajzler, D. Matveev, H. Melinchuk, A. Poulin-Moore, K. Ozhan, Y. Park and T. Taskin, "Potential output and neutral rate in Canada: 2023 assessment," Bank of Canada Staff Analytical Note (forthcoming); and S. Ahmed, A. Avshalumov, T. Chaar, E. Ekanayake, H. Lao, L. Poirier, J. Rolland-Mills, P. Selcuk, A. Toktamyssov and L. Xiang, "Assessing global potential output growth and the US neutral rate: April 2023," Bank of Canada Staff Analytical Note (forthcoming).

Slow US growth and demand for Canadian exports

Economic growth in the United States has been stronger than expected in the January Report. However, US growth is projected to slow sharply in the second quarter of 2023 and to stall through the first quarter of 2024. Weak growth over this period is largely due to the tightening in both monetary policy and, to a lesser extent, credit conditions.

Over the projection horizon, components of US activity important for Canadian exports are anticipated to grow more slowly than US GDP for the following reasons:

- US consumers are expected to moderate their spending on goods to a greater extent than on services. This reflects two factors. First, after surging early in the pandemic, the share of household income spent on goods is projected to decline. Second, increases in interest rates will have a larger effect on the consumption of goods than of services. These developments disproportionately affect US demand for Canadian products because non-commodity exports from Canada are geared more toward goods than services.
- US firms are anticipated to significantly reduce investment spending on equipment—a key determinant of Canadian exports.

Soft activity in the euro area

Russia's invasion of Ukraine continues to greatly affect the euro area economy. Disruptions to energy supplies have dampened production in the manufacturing sector. Elevated inflation is eroding purchasing power and weighing on household demand.

Warmer-than-normal weather this winter and new supplies of non-Russian natural gas improved the outlook for the supply of energy in Europe, and this has boosted consumer and business confidence. Unemployment is also low across the euro area.

Nevertheless, rising interest rates are expected to reduce demand and ease inflation toward the European Central Bank's target over the projection horizon. Economic growth is forecast to remain below potential until the second half of 2024 and then pick up.

Strong growth in China

Growth in economic activity in China is anticipated to be robust in the first half of 2023. Domestic demand has been strengthening since the lifting of most COVID-19 restrictions, with services such as air travel showing signs of a strong recovery. While residential investment has picked up recently, past overbuilding and past regulatory tightening are still expected to constrain activity in the property sector. Fiscal and monetary policy remain accommodative.

The pace of economic growth is projected to slow in the second half of 2023 as the effects of reopening the economy dissipate. An ongoing decline in the working-age population weighs on economic activity in 2024 and 2025.

Volatile oil prices

After recent volatility, global oil prices have returned to the levels observed at the time of the January Report (**Chart 4**). Stress in the banking sector caused a sharp fall in oil prices in early March. Later improvements in financial conditions partly offset this decline. Prices have rebounded further after several members of the Organization of the Petroleum Exporting Countries (OPEC) and some non-OPEC oil producers announced plans to cut production.

Consequently, the Bank's assumption for global oil prices is the same as in the January Report. The price for Brent oil is assumed to be US$85 per barrel, while the price for West Texas Intermediate (WTI) is assumed to be US$80.

Since the January Report, the discount on Western Canadian Select (WCS) over WTI has declined to around US$15 per barrel. WCS prices have risen because seasonal maintenance has slowed production in Canada. At the same time, US refinery outages have eased, and releases of oil from the US Strategic Petroleum Reserve have largely concluded.

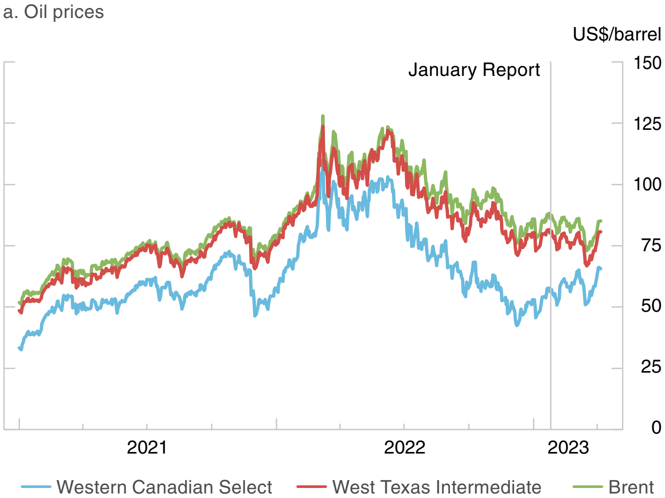
Prices for natural gas have dropped further in both North America and Europe in response to the mild winter. Concerns about shortages of natural gas in Europe have eased, and Europe is now expected to enter next winter with an adequate level of reserves.

The Bank's non-energy commodity price index is modestly lower than in the January Report. Prices for base metals have fallen because demand from the Chinese construction sector did not strengthen as much as markets had anticipated. Lumber prices have also declined, reflecting a further weakening in US housing activity. Agricultural prices remain largely unchanged.

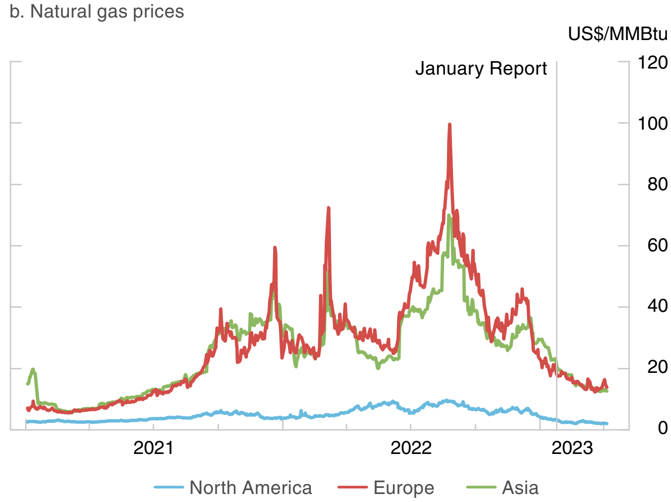
Chart 4: Since the January Report, oil prices are roughly unchanged, while natural gas prices have eased further

Daily data

a. Oil prices



b. Natural gas prices



Note: European natural gas prices are converted from euros per megawatt hour to US dollars per metric million British thermal units (MMBtu). Prices in North America are based on the Henry Hub benchmark, European prices are based on the Dutch Title Transfer Facility gas benchmark, and Asian prices are based on the Japan–Korea Marker for liquefied natural gas.

Sources: NYMEX, Intercontinental Exchange, Kalibrate Canada Inc. and *Financial Times* via Haver Analytics and Bank of Canada calculations

Last observation: April 6, 2023

Canadian economy

CPI inflation in Canada remains too high but continues to decline from recent peaks because of falling energy prices and smaller price increases for other goods. As expected at the time of the January Report, inflation declined in February, reaching 5.2%.

Ongoing excess demand in the economy and a still-tight labour market continue to exert upward pressure on domestic prices.

Economic growth is anticipated to slow from 3.4% in 2022 to 1.4% in 2023 and 1.3% in 2024 (**Table 2**). After a bounceback in the first quarter of 2023, quarterly growth is expected to be weak through the rest of the year. It then picks up gradually through 2024. Restrictive monetary policy continues to weigh on household spending and business investment, and weak foreign demand restrains export growth.

At the same time, strong population growth is boosting aggregate consumption spending as well as adding to labour supply. Economic growth picks up in 2025, reaching 2.5% as foreign demand strengthens and the effects of past monetary policy tightening fade.

Table 2: Contributions to average annual real GDP growth
Percentage points*†

	2022	2023	2024	2025
Consumption	2.6 (2.7)	1.1 (0.7)	0.5 (0.9)	1.2
Housing	-1.1 (-1.0)	-0.8 (-0.7)	0.4 (0.3)	0.4
Government	0.5 (0.3)	0.6 (0.4)	0.5 (0.4)	0.5
Business fixed investment	0.7 (0.9)	0.1 (0.2)	0.0 (0.1)	0.5
Subtotal: final domestic demand	2.6 (2.9)	1.0 (0.6)	1.4 (1.7)	2.6
Exports	0.9 (0.9)	1.4 (1.0)	0.3 (1.0)	1.0
Imports	-2.3 (-2.4)	0.2 (0.4)	-0.5 (-0.7)	-0.8
Inventories	2.2 (2.3)	-1.2 (-1.0)	0.1 (-0.2)	-0.3
GDP	3.4 (3.6)	1.4 (1.0)	1.3 (1.8)	2.5
Memo items (percentage change):				
Range for potential output	0.5–2.0 (0.5–2.0)	1.4–3.2 (1.4–3.3)	1.0–3.2 (1.4–3.5)	1.2–2.8
Real gross domestic income	5.1 (5.3)	-0.2 (-1.5)	0.5 (1.2)	1.9
CPI inflation	6.8 (6.8)	3.5 (3.6)	2.3 (2.3)	2.1

* Numbers in parentheses are from the projection in the previous Report.

† Numbers may not add to total due to rounding.

Sources: Statistics Canada and Bank of Canada calculations and projections

The Bank still expects CPI inflation to come down to around 3% in the middle of 2023. Goods price inflation is falling due to past declines in gasoline prices, improvements in global supply chains and moderating effects of high interest rates on global demand. In contrast, shelter price inflation is still high. Inflation in the prices of many other services also remains elevated. This reflects the strength in the demand for services as households catch up on what they missed during the pandemic as well as ongoing tightness in the labour market.

CPI inflation returns to the 2% target at the end of 2024. As high interest rates slow demand and supply grows, the economy moves into modest excess supply in the second half of 2023. Pressures in domestic product and labour markets begin to ease. Price and wage growth moderates, while productivity growth picks up. Services price inflation gradually eases as it responds more slowly to the effects of restrictive monetary policy.

High but declining inflation

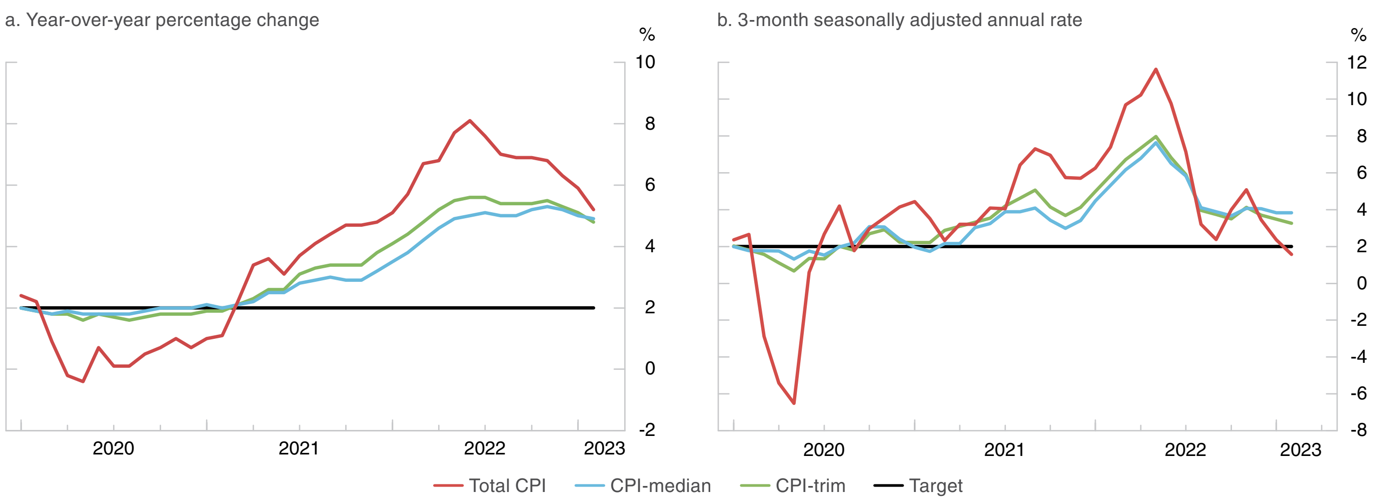
CPI inflation is declining largely as expected, reaching 5.2% in February (**Chart 5**, panel a). The most important contribution to the decline has been the fall in energy prices.[2] Inflation for prices of goods excluding food and energy has also come down modestly. In contrast, inflation for food purchased from stores remains elevated, staying just above 10%. Historical experience suggests that the recent easing of cost pressures in production and distribution will lead to declines in food price inflation over the coming months (**Chart 6**).

Three-month CPI inflation has fallen to about 1.6% (**Chart 5**, panel b). This suggests that headline inflation will continue to drop in the near term.

Core inflation has eased slightly, to just below 5%. With measures of three-month core inflation around 3.5%, core inflation is expected to decline in the coming months.

Chart 5: Year-over-year inflation remains high, and 3-month inflation has continued to decline

Measures of total and core inflation, monthly data



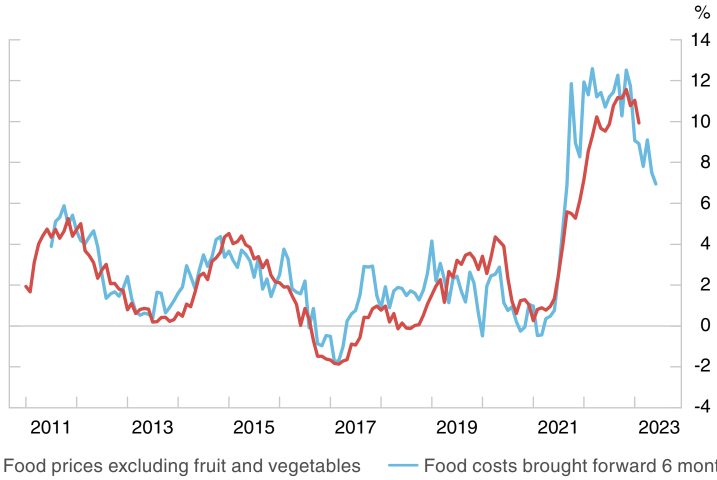
Sources: Statistics Canada and Bank of Canada calculations

Last observation: February 2023

2 For a description of the global and domestic forces that drove inflation to 40-year highs, see C. Rogers, "Understanding the reasons for high inflation" (speech delivered to the Manitoba Chambers of Commerce, Winnipeg, Manitoba, March 9, 2023).

Chart 6: Easing pressures on input costs suggest food price inflation could decline further

Year-over-year percentage change, monthly data



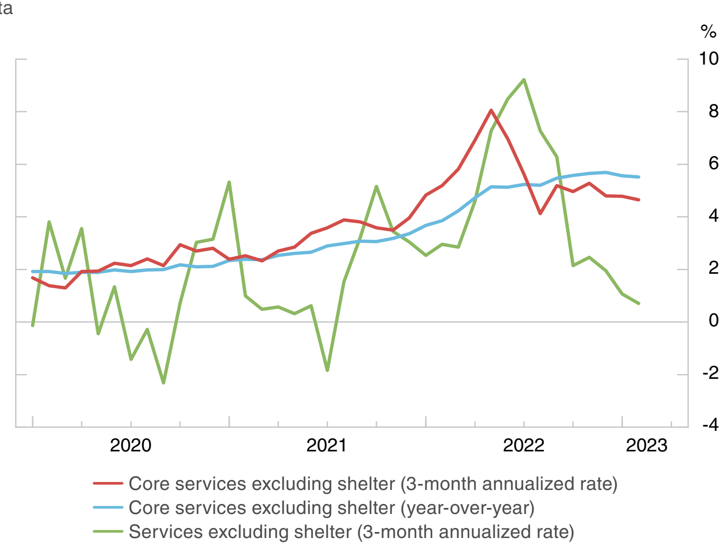
Note: Food costs are estimated as a weighted average of the costs incurred as part of the food supply chain, including imports, production, transportation and labour.

Sources: Statistics Canada, HARPEX and Baltic Dry Index via Haver Analytics, Bank of Canada and Bank of Canada calculations

Last observation: February 2023

Chart 7: Inflation remains elevated in core services excluding shelter

Monthly data



Note: Core services excluding shelter isolates the components of non-shelter services that contribute to CPI-trim each month.

Sources: Statistics Canada and Bank of Canada calculations

Last observation: February 2023

Nonetheless, core inflation remains well above CPI inflation on a three-month basis. Much of the additional strength comes from inflation in core services excluding shelter, which has been more persistent in recent months than inflation in overall services excluding shelter (**Chart 7**).[3] For CPI inflation to return sustainably to the 2% target, core inflation will need to come down further.

3 Core services excluding shelter isolates the components of non-shelter services that contribute to CPI-trim each month. A large portion of the difference between core services excluding shelter and services excluding shelter can be explained by the exclusion of falling prices in child care services.

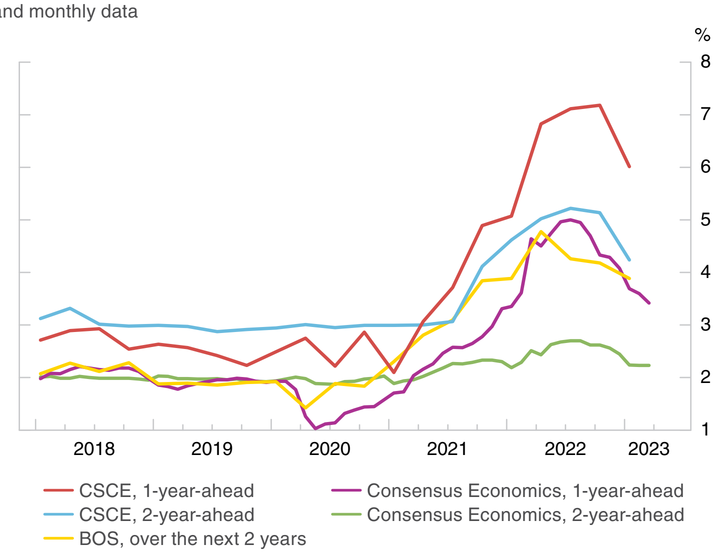
Elevated but declining inflation expectations

Inflation expectations of firms, consumers and professional forecasters have edged down according to recent surveys (**Chart 8**). Moreover, results from the Business Outlook Survey (BOS) for the first quarter of 2023 indicate that views about inflation have continued to decline. Fewer respondents expect inflation over the next two years to be in the 5% to 6% range and more expect it to be in the 2% to 3% range when compared with the previous surveys (**Chart 9**).

Nevertheless, most respondents to business and consumer surveys still think that CPI inflation will be higher than the Bank's inflation forecast over the next two years. For instance, expectations of BOS respondents remain centred around the 3% to 4% range. Long-term inflation expectations remain consistent with the 2% target.

Chart 8: Short-term inflation expectations have declined but remain elevated

Quarterly and monthly data



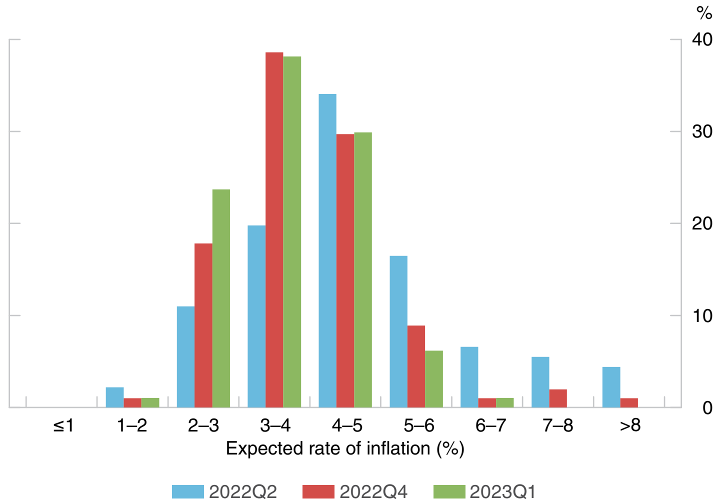
Note: CSCE is the Canadian Survey of Consumer Expectations; BOS is the Business Outlook Survey. Consensus Economics' forecasts for the next year (based on monthly data) and the next 2 years (monthly and quarterly data releases combined) are transformed into fixed-horizon forecasts by weighted average of fixed-date forecasts. "1-year-ahead" refers to inflation expectations over the next 12 months. "2-year-ahead" refers to inflation expectations for the period 13 to 24 months from now.

Sources: Consensus Economics, Bank of Canada and Bank of Canada calculations

Last observations: Consensus Economics, March 2023; BOS and CSCE, 2023Q1

Chart 9: Firms' inflation expectations have continued to shift down

Share of firms responding to the Business Outlook Survey (BOS) with inflation expectations over the next two years in each range, quarterly data



Note: The estimates are based on firms' responses to the BOS question, "Over the next two years, what do you expect the annual rate of inflation to be, based on the consumer price index?" Buckets exclude the lower bound and include the upper bound.

Sources: Bank of Canada and Bank of Canada calculations

Last observation: 2023Q1

Economy still in excess demand

The pace of economic activity in Canada has slowed since mid-2022, but demand still exceeds supply. Overall, the estimate of the output gap—the difference between GDP and potential output—is between 0.25% and 1.25% in the first quarter of 2023.

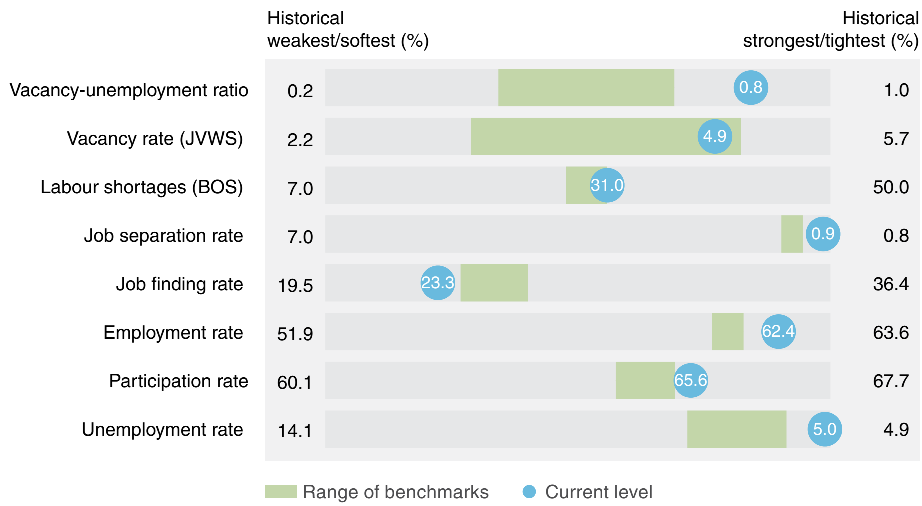
The labour market remains tight, and a broad range of indicators suggest that it is still above maximum sustainable employment (**Chart 10**). Employment gains reported in Statistics Canada's Labour Force Survey have been stronger than expected, with more than 205,000 net new jobs created in the first three months of 2023.

The steady increase in labour input indicates that strong labour demand has continued, but labour supply has also greatly expanded. As noted in the January Report, increases in child care subsidies and more flexible work arrangements have contributed to rising labour force participation rates among women. Moreover, strong inflows of permanent and non-permanent residents have led to a large increase in the labour force (**Chart 11**). In particular, businesses have considerably broadened their use of the Temporary Foreign Worker Program.

Tightening monetary policy is moderating the demand for labour in industries where demand is the most sensitive to interest rates (**Chart 12**). Respondents to the BOS note that it has become easier to find the workers they need. Firms attribute this to less competition for labour and improved labour supply.

Chart 10: The labour market is still tight

Selected labour market measures compared with their historical strongest/tightest and historical weakest/softest



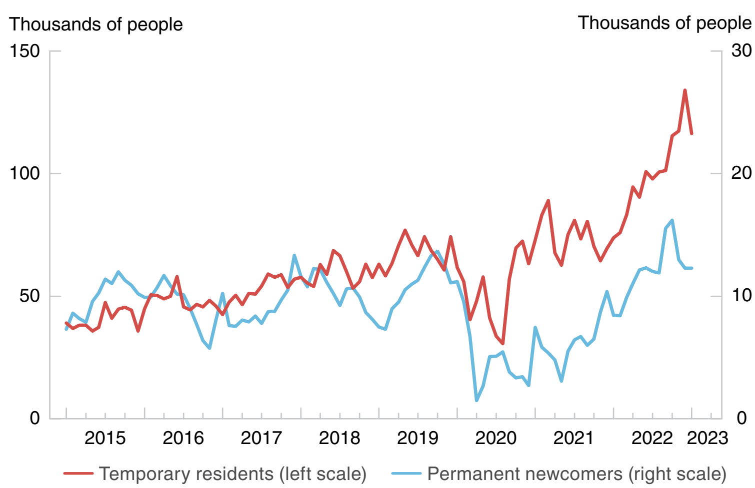
Note: BOS is the Business Outlook Survey, JVWS is the Job Vacancy and Wage Survey, and LFS is the Labour Force Survey. The vacancy-unemployment ratio is based on data from the JVWS and LFS and is expressed as a ratio and not in percent. Data for all other series are from the LFS unless otherwise noted. For details on the benchmarks included, see E. Ens, C. Luu and K. See, "Benchmarks for assessing labour market health: 2023 update," Bank of Canada Staff Analytical Note (forthcoming).

Sources: Statistics Canada, Bank of Canada and Bank of Canada calculations

Last observations: BOS, 2023Q1; JVWS, January 2023; LFS, March 2023

Chart 11: Inflows of newcomers to Canada have picked up substantially

Seasonally adjusted, monthly data



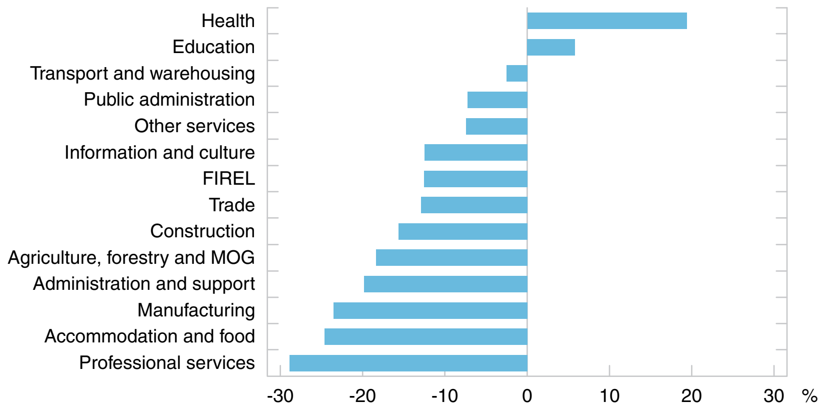
Note: Temporary residents include those in the Temporary Foreign Worker Program and the International Mobility Program as well as study permit holders. Permanent newcomers include economic-class permanent residents who did not transition from a temporary resident permit.

Sources: Immigration, Refugees and Citizenship Canada and Bank of Canada calculations

Last observation: January 2023

Chart 12: **Job vacancies have declined in the private sector**

Percent change in JVWS job vacancies between May 2022 and January 2023, seasonally adjusted

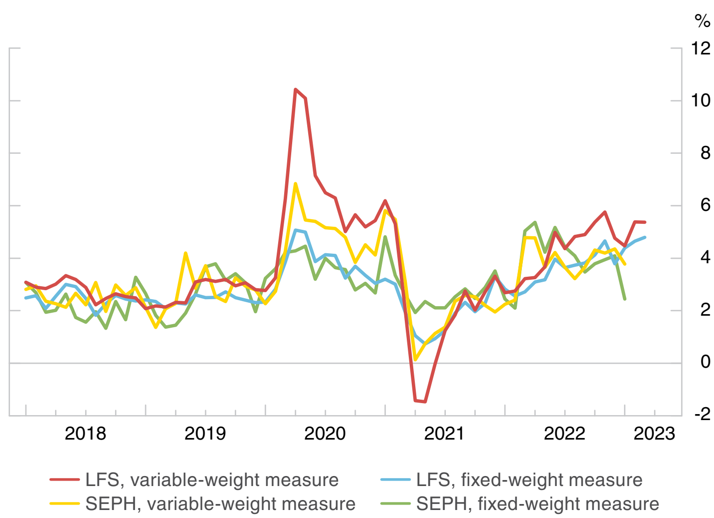


Note: JVWS is the Job Vacancy and Wage Survey. FIREL stands for finance, insurance, real estate and leasing; MOG stands for mining and oil and gas.

Sources: Statistics Canada and Bank of Canada calculations Last observation: January 2023

Chart 13: **Most measures of wage growth remain around 4% to 5%**

Wage growth measures, year-over-year percentage change, monthly data



Note: LFS is the Labour Force Survey; SEPH is the Survey of Employment, Payrolls and Hours. The LFS fixed-weight measure is constructed using 2019 employment weights.

Sources: Statistics Canada and Bank of Canada calculations

Last observations: SEPH, January 2023; LFS, March 2023

Most wage growth measures remain around the 4% to 5% range, with increases broadly based across sectors (**Chart 13**). In recent business surveys, firms expect the pace of wage growth to slow over the coming year, although the size of their planned wage increases is still above the historical average. Unless a surprisingly strong pickup in productivity growth occurs, sustained 4% to 5% wage growth is not consistent with achieving the 2% inflation target.

Businesses continue to report capacity constraints, including some labour shortages and supply chain challenges, which weigh on production and sales. Nevertheless, firms are reporting an easing in capacity pressures from exceptionally high levels last year.

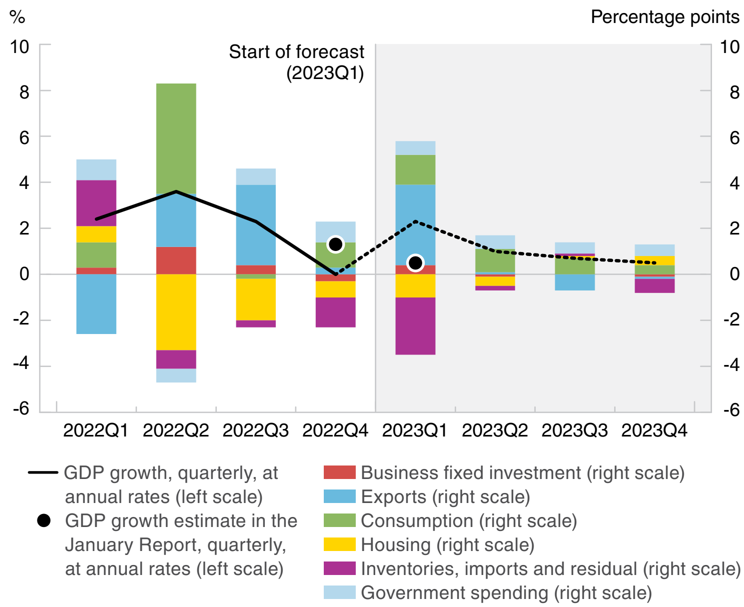
Modest demand growth amid rising supply

After a weaker-than-expected fourth quarter in 2022, real GDP is estimated to have picked up to 2.3% in the first quarter of 2023. For the rest of the year, growth is forecast to be weak, averaging less than 1% (**Chart 14** and **Table 3**).

Increases in interest rates in Canada are weighing on growth in domestic demand. At the same time, high interest rates—and, to a lesser degree, US regional bank stress—are limiting demand for Canadian exports.

Chart 14: Growth is expected to be modest in 2023

Contribution to real GDP growth, quarterly data



Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

Table 3: Summary of the quarterly projection for Canada*

	2022		2023		2022	2023	2024	2025
	Q3	Q4	Q1	Q2	Q4	Q4	Q4	Q4
CPI inflation (year-over-year percentage change)	7.2 (7.2)	6.7 (6.7)	5.2 (5.4)	3.3	6.7 (6.7)	2.5 (2.6)	2.1 (2.0)	2.0
Real GDP (year-over-year percentage change)	3.8 (3.9)	2.1 (2.5)	2.0 (2.0)	1.4	2.1 (2.5)	1.1 (0.5)	1.9 (2.4)	2.6
Real GDP (quarter-over-quarter percentage change at annual rates)†	2.3 (2.9)	0.0 (1.3)	2.3 (0.5)	1.0				

* Details on the key inputs to the base-case projection are provided in **Box 2**. Numbers in parentheses are from the projection in the previous Report.

† Over the projection horizon, 2023Q1 and 2023Q2 are the only quarters for which some information about real GDP growth was available at the time the projection was conducted. For longer horizons, fourth-quarter-over-fourth-quarter percentage changes are presented. They show the Bank's projected growth rates of CPI and real GDP within a given year. As a result, they can differ from the growth rates of annual averages shown in **Table 2**.

Sources: Statistics Canada and Bank of Canada calculations and projections

In contrast, strong population growth supports household spending. Increases in population from immigration and temporary residents are a source of both supply and demand. This means that the economy may be able to grow at a somewhat faster pace than previously expected without generating additional inflationary pressures.

Overall, with demand growth falling below potential output growth, the economy moves into modest excess supply in the second half of 2023.

In 2024, GDP growth is projected to pick up gradually, reaching 2.5% in 2025 as foreign demand strengthens and the effects of high interest rates on growth fade (**Table 2**).

Potential output growth is assumed to average about 2% over the projection horizon, reflecting solid growth in trend labour input and a rebound in trend labour productivity (**Appendix**, page 25). The labour force expands robustly due to strong immigration and an influx of temporary residents. This more than offsets the drag from an aging population.

Fiscal measures adding to the growth of domestic demand

Growth in overall government spending was robust in the second half of 2022, averaging 3.5% when adjusted for inflation. Recent provincial and federal budgets suggest that government spending will moderate to around 2.5% in the first half of 2023 and then slow to near the pace of potential growth. Over the projection horizon, government spending will contribute steadily to GDP growth, with the biggest contribution coming from provincial spending.

Government transfers are also expected to remain elevated in the near term, supporting household spending. In particular, the $2.5 billion temporary extension to the goods and services tax credit provides targeted support to low-income households to offset the impact of high inflation on their budgets. In addition, tax cuts in some provinces will boost disposable income throughout the projection horizon. For instance, provincial tax reductions in Quebec for the two lowest income brackets will provide about $1.7 billion annually to Quebec households starting in 2023.

Roughly $25 billion per year in additional fiscal measures is added to the projection compared with the January Report.

Slow growth in household spending

Consumer spending is anticipated to be subdued beginning in the second half of 2023 and into 2024 as the effects of the tightening in monetary policy work their way through the economy. Household spending is affected through several channels.

The first channel is the impact on debt-servicing costs. This is a key channel given the high level of household debt. The effective interest rate on household debt is estimated to have risen to 5.5% in the first quarter of 2023. Interest payments rose to $133 billion on an annual basis in the fourth quarter of 2022, 45% higher than one year earlier. The share of income spent on interest payments will continue to rise as homeowners renew their mortgages (**Box 3**).

Box 3

Impact of higher mortgage rates on household budgets

One way monetary policy affects inflation is through its impact on household borrowing.

When interest rates rise, higher debt-servicing costs leave many households with less money for other spending. This slows overall demand growth—which, in turn, relieves price pressures and helps bring down inflation.

Household debt comes in many forms, including mortgages, home equity lines of credit, unsecured lines of credit and loans for motor vehicles. In 2022, mortgages made up more than half of households' total debt-service payments.

When interest rates rise or fall, interest payments on variable-rate mortgages respond quickly.[1] In contrast, interest payments on fixed-rate mortgages respond much more slowly because they adjust to prevailing rates only when households take out a new mortgage or renew an existing one.

Changes in borrowing behaviour

To mitigate an increase in their interest costs, borrowers may take several courses of action. Those with enough resources could pay off some of their outstanding mortgage balance or make payments on their principal more quickly. Financially constrained households, however, may scale back on voluntary repayments of principal or extend the amortization period of their mortgage when they renew.

Borrowers can also shift their mortgage term preference. Recently, as short-term interest rates have increased, new borrowers have shifted away from variable- and five-year fixed-rate mortgages toward fixed-rate mortgages

Chart 3-A: More households are choosing short-term fixed-rate mortgages

Percentage of new mortgage lending of a given term, quarterly data

Sources: Office of the Superintendent of Financial Institutions and Bank of Canada calculations

Last observation: 2022Q4

with terms between one and four years (**Chart 3-A**). This suggests that many borrowers are assuming that mortgage rates will be lower in a few years.

Substantial increases in borrowing costs

Since the first quarter of 2022, the effective interest rates on variable-rate mortgages have increased by about 4½ percentage points, and those on fixed-rate mortgages by about ½ a percentage point.[2] By the beginning of 2023, the effective interest rate on all outstanding mortgages had increased by about 1¾ percentage points.

(continued…)

1 Although their interest costs can vary over time, most variable-rate mortgages feature fixed payments for the term of the loan. When interest rates increase, a larger share of the borrower's payment is typically assigned automatically to interest costs rather than principal repayment, leaving the total amount paid unchanged. This is similar to extending the amount of time needed to repay the mortgage and leaves the borrower with a higher overall borrowing cost.

2 The effective interest rate is the average rate of interest paid on all outstanding loans. The rate adjusts particularly slowly for long-term loans with fixed rates of interest because most outstanding loans are not renewed or originated in a given period. Moreover, borrowers' choices about which loans to pursue influence the dynamics of effective interest rates.

Box 3 (*continued*)

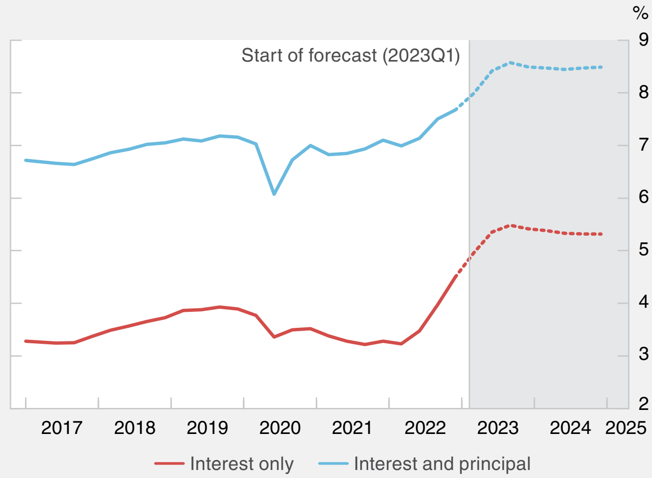
For illustrative purposes only, Bank staff constructed a scenario to demonstrate the potential impact on households' debt-service costs. In the scenario, the policy interest rate is assumed to follow the expected path for the overnight interest rate derived from financial markets on April 4.[3] As a result, the effective interest rate on variable-rate mortgages peaks in the first half 2023. Meanwhile, the effective interest rate on fixed-rate mortgages rises through 2024 as mortgages with low interest rates reach the end of their term and are replaced by new (or renewed) mortgages with higher rates.

The rising interest rates will impact mortgage holders. In order to get a sense of how important rising mortgage interest rates are for the Canadian economy, it is useful to compare mortgage interest payments to aggregate disposable income. In the scenario, the interest portion of household mortgage payments plateaus at about 5.5% of disposable income in the third quarter of 2023 (**Chart 3-B**). This would be the highest level observed since the late 1990s. The portion of aggregate household income available for discretionary spending is about 2 percentage points lower than at the time of the first rate hike in early 2022. Borrowers may be able to mitigate some of these increased costs; however, their budgets will continue to feel the strain of these costs over the coming quarters.

3 At the end of market trading on April 4, 2023, financial markets were pricing in a decline of about 60 basis points in the overnight rate by the end of the year and a further 100-basis-point decline by the end of 2024.

Chart 3-B: Mortgage costs are expected to rise

Percent of disposable income before payment of interest, quarterly data



Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

Last data plotted: 2024Q4

The second channel is that elevated interest rates are raising the cost of financing purchases of big-ticket items. Most respondents to the Canadian Survey of Consumer Expectations (CSCE) for the first quarter of 2023 indicated that, in response, they expect to postpone major purchases and cut back spending more generally. As the effects of high interest rates continue to work their way through the economy, spending on services will also be affected. For instance, some CSCE respondents expect to reduce their discretionary spending—such as on travel and restaurant meals—over the next 12 months compared with the previous 12 months.

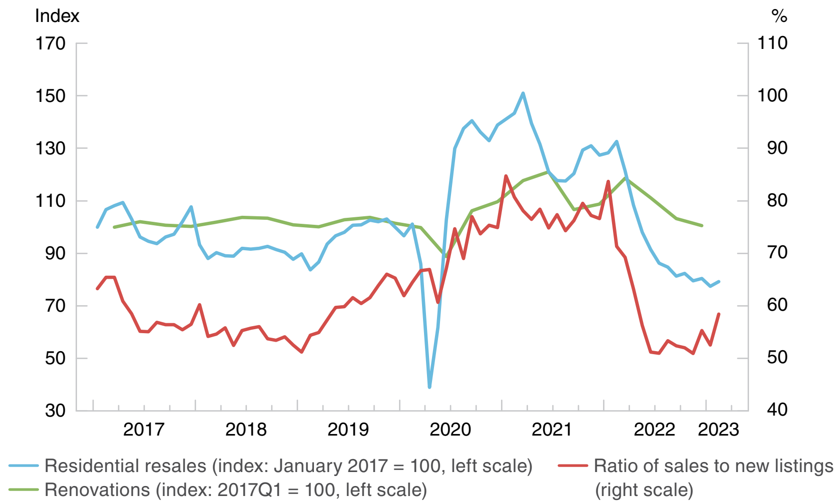
Lastly, low consumer confidence and reduced wealth are also expected to restrain household spending this year.

In contrast, government transfers will continue to support household spending. Strong population growth, though slower than in recent quarters, will provide a significant boost to aggregate consumption spending throughout the projection.

Growth in consumption is expected to pick up gradually over 2024 as the drag from monetary policy wanes and wealth recovers. The savings rate is anticipated to remain above its pre-pandemic average because of elevated interest rates and precautionary savings.

Chart 15: Housing activity remains weak

Seasonally adjusted, monthly and quarterly data



Sources: Statistics Canada, Canadian Real Estate Association and Bank of Canada calculations

Last observations: residential resales and ratio of sales to new listings, February 2023; renovations, 2022Q4

Housing activity has been weak (**Chart 15**). The Bank expects that it will stabilize around the middle of the year. Growth in residential investment is anticipated to resume in the second half of 2023. Strong demand from immigration should support housing activity over the projection horizon.

Moderate export growth

After surging early in 2023, exports are expected to stall over the rest of the year, reflecting the weakness in foreign demand (**Chart 16**). Export growth is anticipated to pick up over 2024. The outlook for exports reflects differing trajectories for non-commodity and commodity exports.

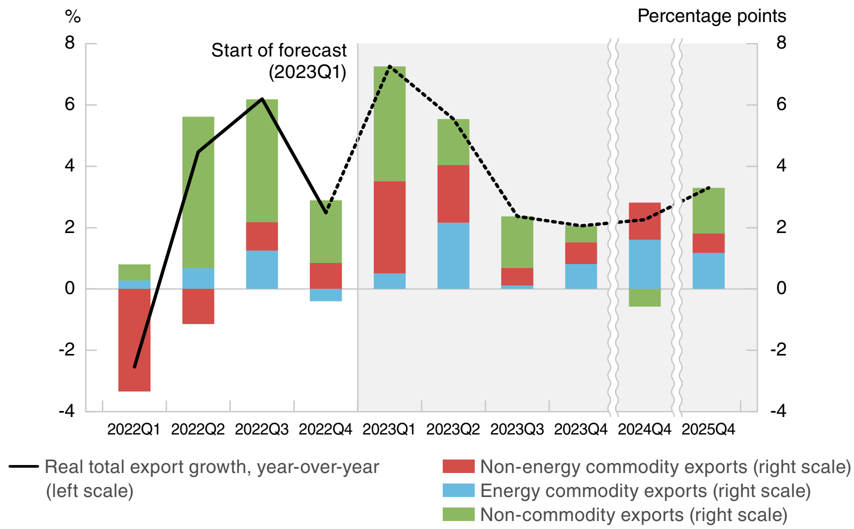
Non-commodity exports are projected to decline through 2024. This reflects waning foreign demand and fewer exports of motor vehicles as manufacturing facilities retool their plants to produce electric vehicles. The ongoing recovery in international travel and other services exports partially offsets these factors. Non-commodity exports are forecast to pick up over 2025.

In contrast, commodity exports are expected to be strong over the projection. Growth in energy exports should stay robust in the near term due to elevated oil prices. The completion of the Trans Mountain Expansion project in 2024 also supports this growth. For non-energy commodity exports, growth is boosted in the near term due to improved global supply chains. However, it slows later in the projection because of anticipated weak foreign demand.

Import growth and domestic demand growth are both forecast to slow by the middle of 2024, but import growth picks up later as the economy strengthens.

Chart 16: Export growth is expected to slow in 2023 and gradually pick up over 2024 and 2025

Contribution to real total export growth, quarterly data



Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

Soft business investment

Business investment is expected to stall through mid-2024, dampened by slow demand growth and rising financing costs (**Chart 17**). Growth is also moderated by the completion of large infrastructure projects for energy transportation in mid-2023. Business investment is projected to strengthen over 2024 and 2025.

Slowing demand and high financing costs dampen the outlook for business investment outside the oil and gas sector. According to results from business surveys, many firms have already reduced, or plan to reduce, their capital expenditures. They often mention elevated borrowing costs and tight credit conditions—as well as the negative implications of these for economic activity—as key reasons for this decision.

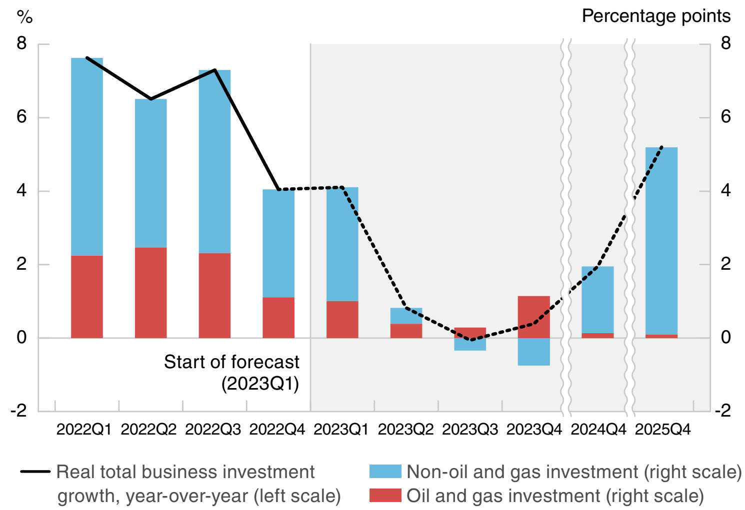
Business investment outside the oil and gas sector is anticipated to pick up in 2024, led by the diminishing impact of high interest rates and improving demand conditions. Strengthening business investment supports potential output over the projection horizon through its effect on capital accumulation.

In the oil and gas sector, investment growth is projected to slow significantly as the transition to a low-carbon economy weakens prospects for oil demand over the long term. Uncertainty about the expansion of energy transportation capacity beyond ongoing projects also weighs on firms' investment intentions in that sector.

After a period of volatility, inventory investment is expected to stabilize somewhat and contribute little to growth over the projection horizon. However, the ratio of inventory to sales remains elevated because firms are keeping higher inventory levels in part to manage supply chain risk.

Chart 17: Business investment growth is expected to stall

Contribution to real total business investment growth, quarterly data



Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

CPI inflation at 3% in mid-2023 and at target at the end of 2024

CPI inflation is forecast to decline quickly to about 3% in the middle of 2023, largely due to falling gasoline prices and weakening inflation in goods excluding food and energy (**Chart 18**). The latter results from slow growth in global demand, improvements in the performance of supply chains and a decline in the costs of some materials. At the same time, inflation in shelter prices is expected to remain high. Inflation in the prices of many other services is also projected to stay elevated, partly reflecting the delayed pickup in demand for these services compared with demand for goods.

Respondents to the BOS continue to report they expect pressures on their input and output prices will be less intense in the future than they were in the previous 12 months. They anticipate a slower pace of price growth due to lower commodity prices, improved supply chains and softer demand conditions. Businesses also expect the size and pace of price changes to decline, which suggests that their price-setting behaviour is starting to shift closer to their pre-pandemic practices.[4]

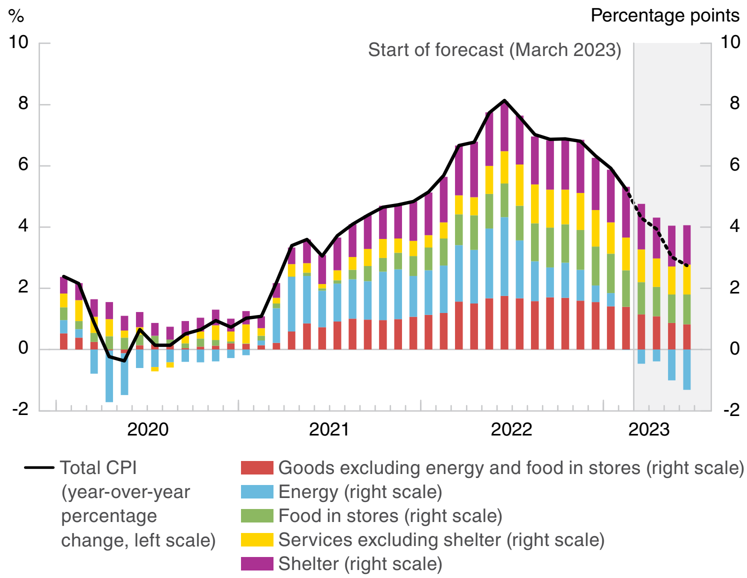
Inflation is subsequently projected to decline slowly from 3% to reach 2% at the end of 2024 (**Chart 19**). This more gradual decline in CPI inflation reflects the slower response in services prices to tighter monetary conditions. The Canadian economy is projected to move into modest excess supply only in the second half of 2023. As pressures in domestic product and labour markets ease, wage and price growth moderate while productivity growth picks up. Short-term inflation expectations are also projected to decline steadily. As a result, inflation in services prices slows gradually.

The inflation outlook is subject to considerable uncertainty (see **Risks to the inflation outlook**).

4 R. Asghar, J. Fudurich and J. Voll, "Firms' inflation expectations and price-setting behaviour in Canada: Evidence from a business survey," Bank of Canada Staff Analytical Note 2023-3 (February 2023).

Chart 18: CPI inflation is expected to decline to 3% in the middle of 2023

Contribution to CPI inflation, monthly data

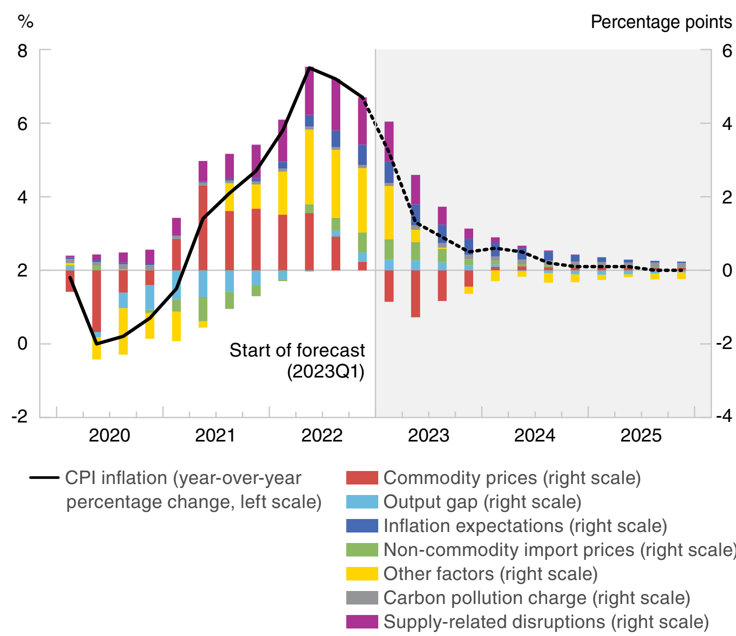


Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

Last data plotted: June 2023

Chart 19: CPI inflation is forecast to return to target at the end of 2024

Contribution to the deviation of year-over-year inflation from 2%, quarterly data



Note: Other factors could be due to underestimated demand pressures, such as from large imbalances in the housing market, or to previously unobserved factors, such as greater pass-through from oil or import prices. Non-commodity import prices include the impact of the Can$/US$ exchange rate. Numbers may not add to total due to rounding.

Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

Risks to the inflation outlook

Risks to the inflation outlook have evolved since the January Report, but many of the risks identified in past reports remain important. Although the Bank views these risks as roughly balanced, the upside risks are of greater concern because inflation is still too high.

Main upside risk: Persistent services price inflation

Canadian services price inflation remains high, and its persistence is the main upside risk over the projection. Unit labour cost growth in the services sector may be higher and more persistent than projected, which could occur if the labour market remains tight or if productivity growth remains weak. Elevated services price inflation could also last longer if elevated near-term inflation expectations prove to be more persistent than projected.

Some additional risks identified in the January Report are also still relevant. If the recovery in China is stronger than expected or new developments restrict the global supply of oil, energy prices could increase sharply, pushing CPI inflation up. In addition, while global supply chain pressures have eased, geopolitical tensions still pose an upside risk to inflation because of their potential to trigger new spikes in the prices of internationally traded goods.

Main downside risk: Severe global slowdown

As noted in previous reports, a severe global slowdown is the key downside risk to inflation. Financial and banking sector vulnerabilities—including high levels of household and corporate debt and balance sheet mismatches in the banking sector—could amplify the impacts of slowing global growth as monetary policy tightens in advanced economies.

The limited tightening in financial conditions due to the recent banking sector stress has been embedded into the base case. However, if global banking stresses intensify further, global credit conditions could tighten significantly. If this risk materializes, a more severe global slowdown and sharply lower commodity prices could follow. The Canadian economy would be affected through tighter financial and credit conditions, weaker foreign demand, lower terms of trade, and declines in business and consumer confidence. Rising unemployment could also interact with high household debt and housing vulnerabilities, amplifying the economic downturn in Canada.

Appendix: Potential output and the nominal neutral rate of interest

Potential output growth in Canada is expected to rebound to about 2% in 2023 and remain there throughout the projection horizon (**Table A-1**). The Bank's estimate of potential output growth in Canada has been revised down compared with the estimate in the April 2022 Report.[5]

The estimated range for the Canadian nominal neutral rate of interest is 2% to 3%—unchanged since the April 2022 Report.[6]

Table A-1: Projection for potential output growth

	Projected growth* (percent)					
	2021	2022	2023	2024	2025	2026
Canada	2.3 (2.3)	1.4 (1.7)	2.3 (3.3)	2.1 (2.5)	2.1 (2.3)	2.2
World	2.6 (2.7)	2.5 (2.9)	2.7 (2.9)	2.8 (2.9)	2.8	2.8
United States	1.2 (1.3)	1.7 (1.6)	1.8 (1.7)	1.8 (1.8)	1.8	1.7
Euro area†	1.2 (1.2)	0.8 (1.4)	1.3 (1.3)	1.2 (1.1)	1.1	1.1
Japan	0.6 (0.6)	0.6 (0.7)	0.6 (0.8)	0.7 (0.8)	0.8	0.7
China	5.2 (5.5)	4.8 (5.2)	4.7 (5.1)	4.5 (4.9)	4.3	4.2
Oil-importing EMEs‡	3.0 (3.1)	3.3 (3.4)	3.5 (3.7)	3.7 (3.7)	3.7	3.9
Rest of the world§	1.6 (1.7)	0.7 (1.9)	1.3 (1.8)	1.7 (1.8)	1.7	1.8

* Estimates from the April 2022 assessment appear in parentheses.

† Croatia joined the euro area on January 1, 2023. The current projection and historical data do not include the change in membership.

‡ The oil-importing emerging-market economies (EMEs) grouping excludes China. It is composed of large EMEs from Asia, Latin America, the Middle East, Europe and Africa (such as India, Brazil and South Africa) as well as newly industrialized economies (such as South Korea).

§ "Rest of the world" is a grouping of other economies not included in the first five regions. It is composed of oil-exporting EMEs (such as Russia, Nigeria and Saudi Arabia) and other advanced economies (such as Canada, the United Kingdom and Australia).

Source: Bank of Canada calculations and projections

5 These revisions include the effects of developments throughout 2022, many of which were already incorporated in the October 2022 and January 2023 projections. For example, the impact of supply chain disruptions on potential output was revised in the October Report, and these estimates are largely unchanged since January.

6 For more details, see J. Champagne, C. Hajzler, D. Matveev, H. Melinchuk, A. Poulin-Moore, K. Ozhan, Y. Park and T. Taskin, "Potential output and neutral rate in Canada: 2023 assessment," Bank of Canada Staff Analytical Note (forthcoming); and S. Ahmed, A. Avshalumov, T. Chaar, E. Ekanayake, H. Lao, L. Poirier, J. Rolland-Mills, P. Selcuk, A. Toktamyssov and L. Xiang, "Assessing global potential output growth and the US neutral rate: April 2023," Bank of Canada Staff Analytical Note (forthcoming).

Strengthening potential output growth

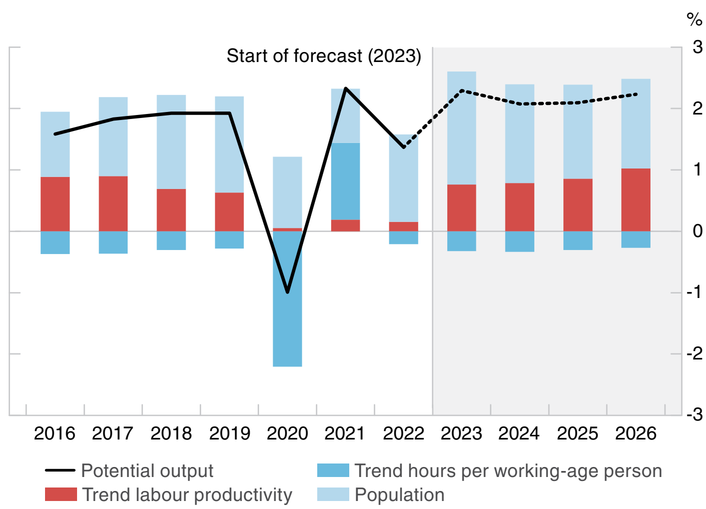
In Canada, growth of potential output is expected to increase from 1.4% in 2022 to 2.3% in 2023 and to stabilize around 2% on average over 2023–26 (**Chart A-1**). The weakness in potential output growth in 2022 results from global supply chain disruptions.

Over the projection horizon, growth of trend labour input contributes 1.3 percentage points per year to potential output growth. Its strength comes from an increasing contribution of immigration to growth in the working-age population. Additional strength in the near term comes from a surge in non-permanent residents. A decline in trend hours worked per person provides a partial offset to trend labour input. This decline results in part from the impact of population aging on labour force participation rates. Growth of trend labour productivity adds an additional 0.9 percentage points to potential output growth per year over the projection horizon.

Compared with the April 2022 estimate, potential output growth is revised down by 1 percentage point in 2023 and by 0.3 percentage points on average in 2024 and 2025 (**Table A-2**). The negative revisions reflect weaker business investment and a greater-than-expected impact from global supply disruptions. In particular, firms are reconfiguring their supply chains to make them more resilient. An upward revision to projected immigration partially offsets these downward revisions.

Considerable uncertainty surrounds the estimate of potential output. Most of the components of potential output cannot be directly observed and, as a result, are challenging to forecast. This uncertainty is reflected in a range constructed around midpoint estimates. The outlook for potential output is subject to both upside and downside risks. Uncertainty about the outlook for immigration, the persistence of supply chain issues and emerging threats to global trade integration are elevated, which could affect potential output growth.

Chart A-1: Potential growth is expected to pick up as supply disruptions no longer weigh on productivity growth
Annual data



Sources: Statistics Canada and Bank of Canada calculations, estimates and projections

Table A-2: Comparison of Canadian potential output estimates relative to April 2022
Annual rates (%)

	Annual growth	Trend labour input growth	Trend labour productivity growth	Range for growth	Revisions to the level (percent)
2022	1.4 (1.7)	1.2	0.2	0.5–2.0	-0.9
2023	2.3 (3.3)	1.5	0.8	1.4–3.2	-1.9
2024	2.1 (2.5)	1.3	0.8	1.0–3.2	-2.2
2025	2.1 (2.3)	1.2	0.9	1.2–2.8	-2.5
2026	2.2	1.2	1.0	1.4–3.0	-

Notes: Estimates from the April 2022 assessment appear in parentheses. The COVID-19 pandemic has had both temporary and lasting effects on the supply side of the economy. The April 2022 Report distinguished between supply and potential output to account for the episodic nature of some decreases in supply caused by factors related to the pandemic, such as public health measures and supply chain disruptions. The elevated uncertainty about how long these factors will persist now makes this distinction artificially precise. The impact of these factors on potential output has been included in estimates of trend total factor productivity and trend labour input since the October 2022 Report. The range for potential output growth represents the methodological range implied by the risk scenarios presented in J. Champagne et al. (forthcoming).

Modest pickup in global potential output growth

Projected growth of global potential output is expected to rise from 2.5% in 2022 to 2.8% in 2026 (**Table A-1**). Russia's invasion of Ukraine reduced the growth of global potential output in 2022, particularly through its effects on the euro area and the countries of Central and Eastern Europe. Potential output growth in these regions is expected to gradually return to pre-invasion rates over the projection horizon. Slowing potential output growth in China partially offsets the impact on growth dynamics for global potential output, as growth in labour productivity slows and the working-age population declines. In the United States, potential output growth remains stable at around 1.8%.

Overall, the Bank is projecting a lower level of global potential output growth than estimated in the April 2022 Report. Growth is 0.4 percentage points weaker in 2022 and 0.2 percentage points weaker in 2023. The downward revisions are because of larger-than-expected effects of the war on the euro area and nearby economies and weaker productivity growth in China.

Unchanged neutral rate of interest

The Bank estimates that the nominal neutral rate of interest in Canada currently lies within a range of 2% to 3%—unchanged from the April 2022 assessment. The midpoint estimate consists of a 2% inflation target and a 0.5% real neutral rate.[7]

Because Canada is a small open economy, its real neutral rate of interest is influenced by global economic conditions. The Bank uses an estimate of the real neutral rate for the United States as a proxy for these. The US real neutral rate is estimated at 0.5%. The estimate is largely determined by the Bank's view on US potential output growth and other factors that govern the US savings and investment balance.[8] This estimate is unchanged from the April 2022 Report.[9]

7 For more details, see Champagne et al. (forthcoming).

8 The Bank's estimate for the nominal US neutral rate currently lies within a range of 2% to 3%. The 2% US inflation target accounts for 2 percentage points of this range.

9 For more details on these and other factors affecting the US neutral rate, see J. Bootsma, T. J. Carter, X. S. Chen, C. Hajzler and A. Toktamyssov, "2020 US Neutral Rate Assessment," Bank of Canada Staff Discussion Paper No. 2020-12 (December 2020). For more details on our most recent assessment, see Ahmed et al. (forthcoming).

In addition to the global real neutral rate, domestic factors can affect the estimate of the Canadian real neutral rate. These factors include demographic trends, potential output growth and the level of public debt.[10] However, the changes in these factors since the April 2022 Report have not affected the estimate for Canada.

Like potential output, the real neutral rate is unobservable and can be inferred only by considering the evolution of its observed factors. Considerable uncertainty surrounds the midpoint estimate. This reflects the uncertainty around the factors that determine the real neutral rate, such as potential output and the balance between global savings and investment.

10 For an analysis of the factors behind the Canadian neutral rate since 1980, see M. Kuncl and D. Matveev, "The Canadian Neutral Rate of Interest through the Lens of an Overlapping-Generations Model," Bank of Canada Staff Discussion Paper No. 2023-5 (February 2023).