BANK OF CANADA
BANQUE DU CANADA

Monetary Policy Report

April 2022

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 of 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 a set of "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 three preferred measures of core inflation are CPI-trim, which excludes CPI components whose rates of change in a given month are the most extreme; CPI-median, which corresponds to the price change located at the 50th percentile (in terms of basket weight) of the distribution of price changes; and CPI-common, which uses a statistical procedure to track common price changes across categories in the CPI basket.

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.

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

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Monetary Policy Report

April 2022

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Contents

Overview

The Canadian economy has strong momentum, and employment is robust. While COVID-19 continues to affect people's health and the economy, high vaccination rates are lessening severe impacts. Household consumption spending is strengthening as most public health containment measures are being lifted, and exports are expected to benefit from solid foreign demand.

The unprovoked Russian invasion of Ukraine is causing enormous human suffering and has introduced significant uncertainty to the outlook for the global economy. The effects of the war are weighing on global activity and have resulted in greater volatility in financial markets. The war has also pushed commodity prices higher and further disrupted supply chains.

As a result, inflation has increased in most economies, including Canada's. Energy and food prices continue to rise, and ongoing supply constraints are interacting with robust demand to put upward pressure on a broadening range of prices.

Key messages

- The outlook for CPI inflation in Canada is higher than previously projected. Inflation is expected to average just below 6% through the first half of 2022 and remain well above the control range through the rest of the year. It should then steadily decline to about 2½% in the second half of 2023 and to the 2% target in 2024. This decline reflects decreases in energy prices, a dissipation of global supply chain constraints and a rebalancing of supply and demand in the Canadian economy.
- Labour market conditions in Canada are tight. Employment and participation rates are near or above their pre-pandemic levels, and the unemployment rate is at a record low. Overall, the Canadian economy is moving into excess demand.
- Canadian economic activity is expected to remain strong. Consumer spending, exports and business investment are projected to grow solidly. This is supported by healthy foreign demand, high commodity prices and the easing of supply disruptions.
- Higher interest rates should moderate spending and gradually reduce excess demand in the Canadian economy.
- Alongside an easing of supply challenges, high immigration levels and a solid recovery in business investment are expected to support strong potential output growth.
- The Bank is paying particular attention to how inflation expectations are evolving. While long-term expectations remain anchored on the target, near-term expectations have risen along with inflation.

Global economy

Russia's unprovoked invasion of Ukraine is taking a tragic human toll. It is also disrupting the global economic recovery just as most economies are emerging from the impact of the Omicron variant of COVID-19. The war has exacerbated global supply shortages by restricting global transportation and imports of products from both Ukraine and Russia. Consequently, the prices of oil, grains and other commodities have risen sharply, and financial volatility has increased.

The global outlook has been downgraded from the January Report (**Box 1**). Revisions are pronounced for oil-importing economies and regions with closer trade ties to Russia and Ukraine, particularly Eastern Europe and, to a lesser extent, the euro area. The US outlook has also been revised down due largely to the anticipated tightening of monetary policy in response to higher-than-expected inflation.

Box 1

Changes to the economic projection since the January Report

Global GDP outlook

Projected growth in global gross domestic product (GDP) in 2022 remains roughly unchanged relative to the January Report. The negative effects of the war in Ukraine are roughly offset by a smaller drag from COVID-19 containment measures in emerging-market economies. Global growth for 2023 has been revised down significantly because the negative consequences of the war are expected to persist through higher commodity prices as well as trade and financial channels. The downward revision to the US outlook also reflects a faster and more pronounced tightening of monetary policy in response to higher-than-expected inflation. Overall, the level of global GDP at the end of 2023 has been revised down by about 1%.

Canadian GDP outlook

GDP growth is revised up by about ¼ percentage point to 4¼% in 2022 and revised down by about ¼ percentage point to 3¼% in 2023. Overall, these revisions leave the level of real GDP roughly unchanged by the end of 2023.

Higher energy prices have led to positive revisions to exports and investment in the oil and gas sector. These revisions are roughly offset by the effect of lower foreign demand on non-commodity exports and the impact from higher interest rates on household spending.

Canadian CPI inflation outlook

Consumer price index (CPI) inflation is anticipated to be substantially higher than projected in January. The outlook for CPI inflation is revised up by 1.1 percentage points to 5.3% in 2022 and by 0.5 percentage points to 2.8% in 2023. These revisions are primarily related to the consequences of the invasion of Ukraine, which has driven up commodity prices and exacerbated supply disruptions.

Global growth is projected to moderate from about 7% in 2021 to 3½% in 2022 and 2½% in 2023 (**Table 1**). This should occur as the bounce back in activity from the acute phase of the pandemic wanes and the Russia–Ukraine conflict weighs on the outlook. The Bank expects global growth to strengthen to 3¼% in 2024 once the war's initial impact on growth subsides.

Inflation continued to rise in the first quarter and remains high in most regions, with strong positive contributions from energy and food prices (**Chart 1**). Robust demand for goods and widespread supply shortages also remain important sources of inflationary pressure globally.

Table 1: Projection for global economic growth

	Share of real global GDP* (%)	Projected growth† (%)			
		2021	2022	2023	2024
United States	16	5.7 (5.6)	2.8 (3.7)	1.9 (2.5)	1.5
Euro area	12	5.3 (5.2)	3.0 (4.0)	2.3 (2.6)	2.6
Japan	4	1.7 (1.7)	2.0 (2.7)	2.5 (1.0)	1.3
China	18	8.1 (8.1)	4.3 (3.8)	4.9 (5.3)	5.0
Oil-importing EMEs‡	33	8.5 (8.1)	4.2 (3.5)	2.2 (3.7)	3.5
Rest of the world§	16	5.0 (4.9)	2.4 (3.3)	1.0 (2.5)	3.0
World	100	7.0 (6.8)	3.5 (3.6)	2.5 (3.4)	3.2

* GDP shares are based on International Monetary Fund (IMF) estimates of the purchasing-power-parity valuation of country GDPs for 2020 from the IMF's October 2021 *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.

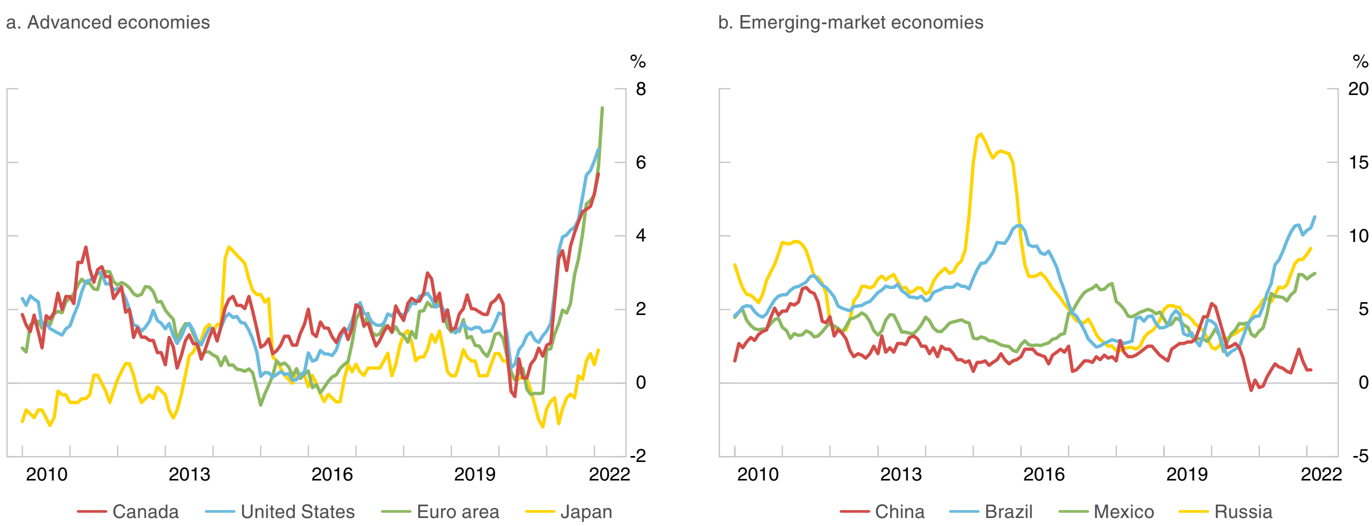
‡ The oil-importing emerging-market economies (EMEs) grouping excludes China. It is composed of large EMEs from Asia, Latin America, the Middle East, emerging Europe and Africa (such as India, Brazil and South Africa) as well as newly industrialized economies (such as South Korea).

§ "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

Chart 1: Inflation has continued to increase in many economies

Year-over-year percentage change, monthly data



Note: The rate of inflation is calculated based on personal consumption expenditures inflation for the United States, the Harmonised Index of Consumer Prices inflation for the euro area and CPI inflation for all other countries.

Sources: Statistics Canada, US Bureau of Economic Analysis, Eurostat, Ministry of Internal Affairs and Communications (Japan), National Bureau of Statistics of China, Instituto Brasileiro de Geografia e Estatística, INEGI (Mexico) and Federal State Statistics Service (Russia) via Haver Analytics

Last observations: euro area, Brazil and Mexico, March 2022; others, February 2022

Sharp increase in commodity prices

Russia and Ukraine are significant exporters of commodities. Market concerns about supply disruptions caused by the war in Ukraine have led to a sharp rise in most commodity prices (**Chart 2**).

Oil prices have been volatile since the January Report. Before Russia's invasion, oil prices were already rising because oil demand was outpacing the growth in supply. The Russian invasion led to sharply higher prices, with the daily price of Brent crude oil peaking at nearly US$130 a barrel in early March. The Brent oil price has since fallen to around US$105 as the scope of sanctions on Russian oil has become clearer and the United States and other countries announced large releases of their strategic petroleum reserves. The recent COVID-19 outbreak in China has also raised concerns about the strength of oil demand.

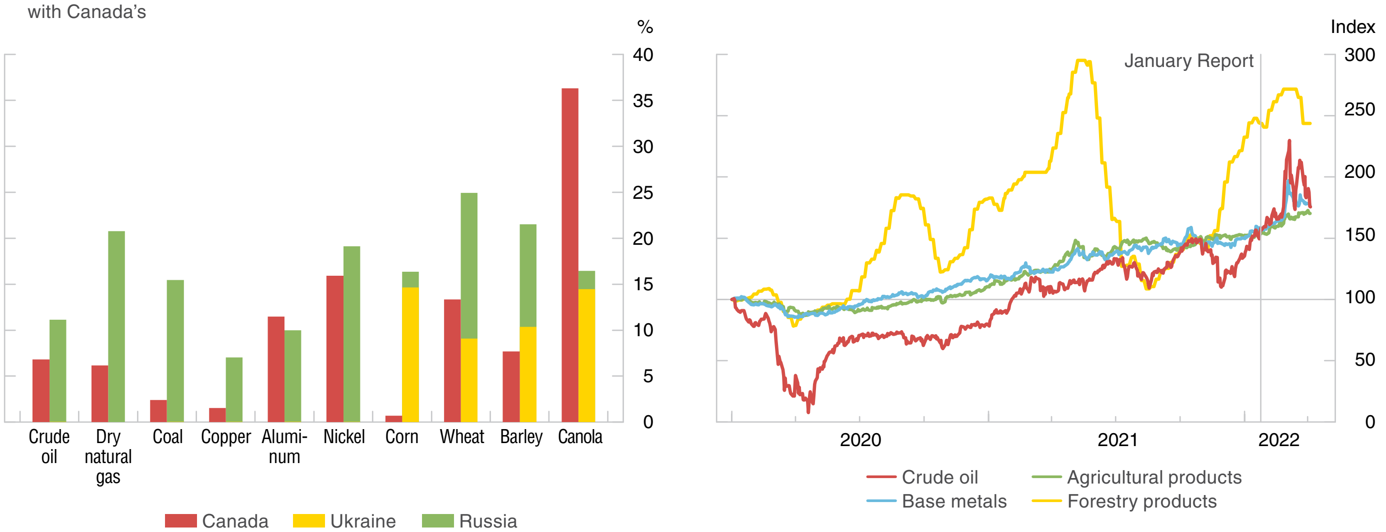
The Bank assumes that the price of Brent crude oil will fall from US$105 per barrel in the second quarter of 2022 to about US$90 at the end of 2024 (**Box 2**). West Texas Intermediate and Western Canadian Select crude oil prices are assumed to follow similar patterns, remaining US$5 and US$15, respectively, below Brent prices. This profile assumes that the war's impact on oil prices diminishes over time and is broadly consistent with market expectations.

Uncertainty around the assumed outlook for oil prices is particularly high. Prices could rise further if Russian oil exports are weaker than expected or if global oil production does not increase enough to meet demand. A resolution of the conflict in Ukraine, a rapid increase in global production or a drop in oil consumption could lead to a faster decline in prices.

Chart 2: Commodity prices rose due to fears of supply disruptions from Ukraine and Russia

a. Ukraine's and Russia's shares of global commodity exports compared with Canada's

b. Index: January 3, 2020 = 100, daily data



Note: In panel a, calculations are based on data available from reporting countries. Export shares for non-energy commodities are calculated from nominal (US-dollar) export values from UN Comtrade data. The measure of base metals is for unwrought metal. All series plotted in panel b are components of the Bank of Canada commodity price index. The crude oil index is a weighted average of the benchmarks for West Texas Intermediate, Western Canadian Select and Brent.

Sources: US Energy Information Administration, UN Comtrade Database and Bank of Canada

Last observations: panel a, crude oil, 2018; others, 2019; panel b, April 7, 2022

Box 2

Key inputs to the projection

The Bank of Canada's projection is always conditional on several key assumptions, and changes to these will affect the outlook for the Canadian economy. The Bank regularly reviews these assumptions and how they may impact the economic projection. The key inputs into the Bank's projection are as follows:

- Public health restrictions have been largely removed in many countries. It is assumed that remaining measures will be lifted over the course of 2022 for most of the world. Containment measures in China are expected to loosen more gradually—and even periodically tighten—over 2022.
- In Canada, most public health restrictions have been lifted. Pandemic-related effects on demand—notably consumer caution and reluctance to travel—are assumed to fade over 2022 and 2023.
- As in the January projection, spending on household consumption is assumed to be boosted by an additional $40 billion as individuals draw down a portion of the extra savings accumulated during the pandemic.
- The projection does not incorporate the measures announced in the April 2022 federal budget. Preliminary analysis suggests the budget's impact will be positive but modest relative to the Bank's projection.
- Oil prices are assumed to decrease over the projection horizon from their current elevated levels. The price of Brent stays near its recent average of US$105 per barrel in the second quarter of 2022 before declining to about US$90 by the end of 2024. The prices for West Texas Intermediate (WTI) and Western Canadian Select (WCS) follow similar dynamics, with a constant spread below the price for Brent of US$5 and US$15, respectively. In the January Report, the prices were assumed to be US$80 for Brent, US$75 for WTI and US$65 for WCS.
- By convention, the Bank does not forecast the exchange rate in the *Monetary Policy Report*. As in the January Report, the Canadian dollar is assumed to remain at 79 cents US over the projection horizon, close to its recent average.
- The pandemic is having both temporary and lasting effects on the supply side of the Canadian economy. As in recent reports, the Bank distinguishes between supply and potential output to account for the relatively short-lived nature of some of the decrease in supply caused by pandemic-related factors, such as public health measures and supply disruptions.
    - The Bank's assessment of potential output growth, a longer-term concept, looks through the short-lived effects of pandemic-related factors. Potential output growth (excluding temporary factors) is assumed to average about 2% per year over 2022–24. Details on the Bank's assessment of potential output growth are provided in the **Appendix** on page 28.
    - The projection assumes that short-term factors are reducing the supply of goods and services. For instance, supply disruptions are assumed to reduce supply, with a peak impact of about 2% in both the fourth quarter of 2021 and the first quarter of 2022 and a still-elevated impact of 1¾% in the second quarter. This effect is anticipated to dissipate by mid-2023, two quarters later than assumed in January. Moreover, measures taken to contain the Omicron variant of COVID-19 coupled with elevated worker absences due to the rise in cases are estimated to have decreased supply temporarily in the first quarter of 2022 (see **Chart 13** on page 19).
    - Estimates of overall growth in supply can be obtained by combining the estimates of the temporary effects of these short-term factors with the assessment of potential output. Supply growth is projected to average about 2½% over 2022–24.
- Gross domestic product (GDP) is estimated to have grown at a stronger-than-potential pace in the first quarter of 2022 amid elevated supply disruptions. As a result, the Bank estimates that the output gap—the difference between GDP and supply—was between -0.25% and 0.75% in the first quarter, higher than the estimate of -0.75% to 0.25% for the fourth quarter of 2021.
- The nominal neutral policy interest rate is defined as the real neutral rate plus 2% for inflation. The real neutral rate is defined as 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. In this Report, the Bank has updated its estimated range of the nominal neutral interest rate in conjunction with the annual reassessment of potential output. This range is judged to be 0.25 percentage points higher than assessed in April 2021 (see **Appendix**). For Canada, the projection is based on the assumption that the nominal neutral rate is at the midpoint of the revised range of 2% to 3%.

The Bank's non-energy commodity price index has increased by about 10% since the January Report. The increase in prices of base metals and agricultural commodities mainly reflects the supply disruptions caused by Russia's invasion of Ukraine. While unchanged relative to the January Report, lumber prices remain high because of strong housing demand in North America and continued transportation bottlenecks. Markets expect non-energy commodity prices to remain elevated over the projection horizon because of uncertain supply from Russia and Ukraine as well as strong global demand.

More volatile financial markets

Financial conditions have tightened since the January Report, mainly as a result of higher current and expected interest rates in many regions. Increased uncertainty about the impact of the war in Ukraine has also led to more volatility in the prices of many financial assets. In early March, in response to the invasion of Ukraine, corporate credit spreads widened and most equity price indexes dropped sharply. Credit spreads and equity prices have returned to near pre-war levels in most regions. Canadian equity indexes have outperformed those of other countries due to their high exposure to energy and other commodities. The Canadian dollar has been relatively stable against the US dollar despite rising commodity prices (**Box 2**).

Expectations of higher inflation and tighter monetary policy have pushed up yields of government bonds globally, in particular for short-term bonds. This has narrowed the spread between long- and short-term government bond yields in North America.

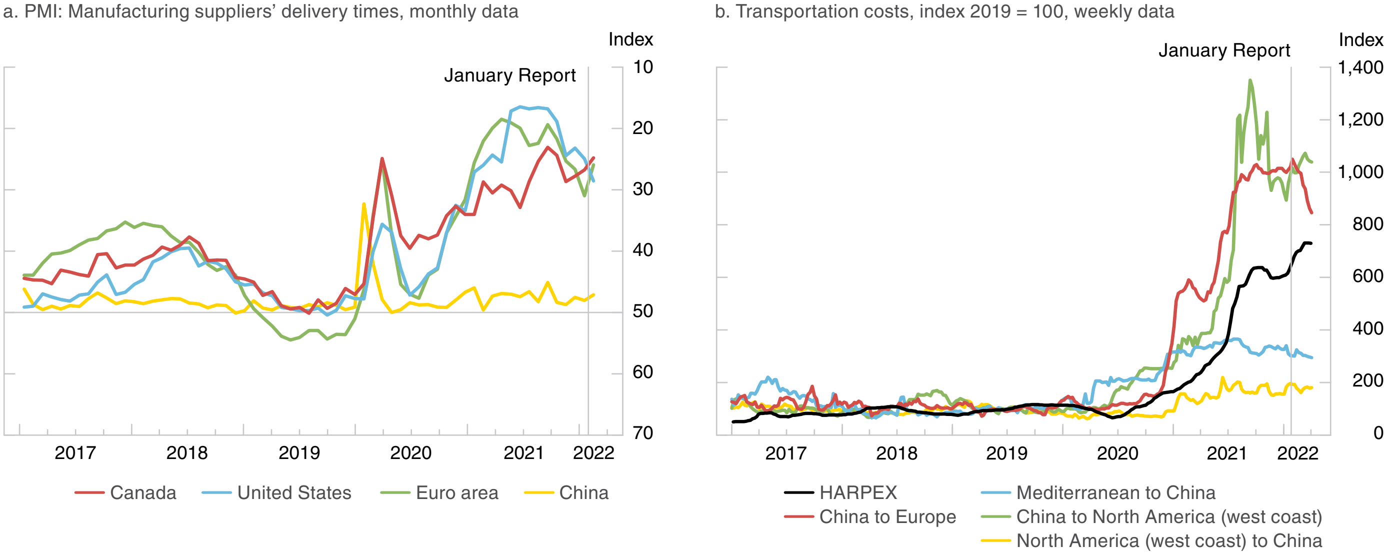
Broad inflationary pressure in the United States

US domestic demand has been growing at a robust pace. Job gains remain strong amid a tight labour market. Nominal wage growth continues to be vigorous, but high inflation is eliminating gains in real compensation.

US gross domestic product (GDP) is forecast to expand by 2¾% in 2022, well above the estimated rate of potential output growth (see the **Appendix** on page 28). Because the United States is a net exporter of petroleum products and has limited trade exposure to Russia and Ukraine, the war should have only a modest negative impact on growth. Consumption is anticipated to rise at a healthy pace, supported by employment growth and some household spending of the savings accumulated during the pandemic. Solid private domestic demand should also drive robust business investment growth. Recent increases in mortgage rates are, however, expected to dampen growth in residential investment. GDP growth is projected to moderate to about 2% in 2023 and 1½% in 2024 as US authorities withdraw fiscal and monetary policy stimulus.

Total and core measures of US personal consumption expenditures (PCE) inflation have continued to increase and are at their highest levels in nearly 40 years. Large increases in energy prices as well as supply constraints amid high demand for goods continue to be important contributors to inflationary pressures. Relative to the January Report, delivery times have shortened modestly, and order backlogs are slowly being cleared (**Chart 3**). However, shipping and input costs remain high. The war is expected to exacerbate pressures on supply chains and put additional upward pressure on inflation in the near term. In the projection, the Bank assumes that supply challenges continue to ease but persist until mid-2023. Inflation is projected to start decreasing in the third quarter but is expected to stay above 2% over the projection horizon as the economy remains in excess demand.

Chart 3: Supply bottlenecks and transportation costs remain high



Note: The Purchasing Managers' Index (PMI) is a diffusion index of business conditions. For suppliers' delivery times, an inverted index is used to show that a reading less than (greater than) 50 indicates an increase (decrease) in delivery times compared with the previous month. All series in panel b are from the Freightos Baltic Index except the HARPEX (Harper Petersen Charter Rates Index). The Freightos Baltic Index provides market ocean freight rates for different trade lanes. The HARPEX reflects the worldwide price development on the charter market for container ships.

Sources: IHS Markit and HARPEX via Haver Analytics and Freightos Baltic Index via Bloomberg Finance L.P.

Last observations: PMI, March 2022; HARPEX, April 1, 2022; Freightos Baltic Index, April 3, 2022

In response to strong inflationary pressures, the Federal Reserve raised the federal funds rate by 25 basis points in March. It also announced that additional increases will be needed and that it will begin reducing its holdings of Treasury and other securities in the near future.

Growing headwinds in the euro area

Household and business confidence in the euro area are being hit hard by the increased uncertainty caused by the war in Ukraine, higher energy prices and continuing supply challenges. GDP is nevertheless expected to grow at a faster pace than potential output over the projection horizon as the economy continues to recover from the pandemic.

Both core and total inflation have risen more quickly than anticipated in recent months and are now well above target. Higher energy and food prices explain a significant portion of the recent increase, although inflationary pressure has become more broad-based across goods and services. The recent increase in energy prices and additional supply constraints related to the invasion of Ukraine are expected to push inflation higher in the near term.

Modest growth in China

China's GDP is expected to grow at a modest pace of 4¼% in 2022. Growth is held back in large part by the ongoing correction of its property market and stringent measures to contain a resurgence of COVID-19. Housing markets remain weak, reflecting soft demand and uncertainty about the financial viability of major property developers. High energy prices should also weigh on household and business spending. Chinese stock markets recently reacted sharply to concerns about regulatory changes, financial vulnerabilities and the geopolitical implications of the war in Ukraine. Policy-makers have announced steps to improve confidence and shore up markets.

Growth is projected to recover to about 5% in 2023 and 2024 as the drag on growth from the property sector diminishes. Uncertainty remains high about both the impact of China's "zero-COVID" policy and the fragility of the property sector. Either of these factors could dampen growth by more than expected over the projection horizon.

Weaker growth in emerging-market economies and the rest of the world

Oil-importing emerging-market economies (EMEs) are recovering from the impact of the Omicron variant more quickly than expected. However, the war in Ukraine and high energy prices are expected to severely hamper growth in 2022 and 2023. Within the group, emerging Europe will be most affected because of its proximity to the conflict, its closer trade ties with both Ukraine and Russia and the war's direct impact on Ukraine's economy. In some EMEs, the drag from rising energy prices should be partially offset by increased revenues from exports of non-energy commodities. Higher interest rates in many EMEs in response to increasing inflationary pressures are also weighing on growth prospects.

Growth in the rest of the world group will be held back by the sharp contraction of the Russian economy due to economic sanctions. However, other oil-exporting countries are expected to benefit from increased oil revenues.

Canadian economy

The Canadian economy continues to grow strongly. Growth in the second quarter is being boosted by the removal of public health restrictions, solid foreign demand and higher commodity prices.

Labour markets are tight. Employment growth has been strong, with jobs more than recovering from the effects of the Omicron variant of COVID-19. Labour shortages are widespread across firms, leading to rising wage growth.

A broad set of indicators suggests that slack has been absorbed and the economy is moving into excess demand. Faced with robust demand and supply constraints, firms are raising prices in response to higher input costs. This increases the risk that expectations of elevated inflation could become entrenched.

Overall, economic growth is robust and moderates through the projection horizon. Growth is expected to be 4¼% this year before slowing to a solid pace of 3¼% in 2023. A recovery in services consumption, exports and investment supports growth (**Table 2**). At the same time, alongside the easing of supply constraints, strong investment and population growth are projected to strengthen potential output growth. In response to ongoing inflationary pressures, higher interest rates are expected to moderate growth in domestic demand to better align it with the growth of supply. GDP growth is projected to ease to about 2¼% in 2024.

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

	2021	2022	2023	2024
Consumption	2.8 (2.9)	2.9 (3.3)	2.2 (2.3)	1.4
Housing	1.3 (1.3)	-0.5 (-0.7)	-0.2 (0.0)	0.2
Government	1.3 (1.3)	0.4 (0.4)	0.5 (0.5)	0.3
Business fixed investment	0.2 (0.0)	0.7 (0.7)	0.6 (0.7)	0.7
Subtotal: final domestic demand	5.6 (5.5)	3.5 (3.7)	3.1 (3.5)	2.6
Exports	0.4 (0.4)	1.2 (1.8)	1.4 (0.8)	0.9
Imports	-2.2 (-2.1)	-1.4 (-2.0)	-1.6 (-1.3)	-1.0
Subtotal: net exports	-1.8 (-1.7)	-0.2 (-0.2)	-0.2 (-0.5)	-0.1
Inventories	0.7 (0.8)	0.9 (0.5)	0.3 (0.5)	-0.3
GDP	4.6 (4.6)	4.2 (4.0)	3.2 (3.5)	2.2
Memo items (percentage change):				
Range for potential output, including temporary factors‡	2.1–2.5	1.3–2.3	2.9–3.9	2.3–2.9
Real gross domestic income (GDI)	8.8 (8.8)	5.9 (4.5)	2.2 (2.8)	1.5
CPI inflation	3.4 (3.4)	5.3 (4.2)	2.8 (2.3)	2.1

* Numbers in parentheses are from the projection in the previous Report.
† Numbers may not add to total due to rounding.
‡ See **Appendix** on page 28 for details.
Sources: Statistics Canada and Bank of Canada calculations and projections

The war in Ukraine is affecting the Canadian economy predominantly through higher commodity prices (**Box 3**). Households are feeling this impact through increased prices for gasoline, fuel oil and food.

Consumer price index (CPI) inflation is forecast to average just under 6% in the first half of 2022. Factors driving inflation include sharp increases in energy and food prices as well as supply disruptions and strong demand for goods. As these pressures dissipate and monetary policy accommodation is removed, CPI inflation is anticipated to ease to about 2½% in the second half of 2023 before declining to the 2% target in 2024. In this projection, inflation is both higher and more persistent than in the January Report (**Box 1**).

Box 3

The impact of Russia's invasion of Ukraine on the Canadian economy

In addition to its tragic human toll, the war in Ukraine is negatively affecting economies around the world. However, for commodity exporters, the negative impacts on global growth are offset by the effects of higher commodity prices.

The conflict is affecting Canadian economic activity and inflation through several channels (**Table 3-A**).

Table 3-A: The impacts of Russia's invasion of Ukraine on Canadian growth and inflation

Channels		Real GDP	Inflation
Higher commodity prices	Improved terms of trade	↑	↑
	Increased commodity production	↑	↑
	Direct CPI effects	↓	↑
	Higher production costs	↓	↑
More persistent supply chain disruptions	Higher production costs, lower output	↓	↑
Total effects		-	↑

Impacts from higher commodity prices

For a net commodity exporter such as Canada, rising commodity prices are typically associated with a boost to economic activity and increased inflationary pressures. Higher commodity prices affect the following channels:

- Terms of trade: The prices of Canada's exports should increase. This improvement in the terms of trade means more income flowing into Canada—which can be spent on domestic and imported goods and services.
- Commodity production: Production, exports and investment in commodity-related sectors will rise, supporting Canadian employment and incomes.
- Direct consumer price index (CPI): Some components of the CPI, such as gasoline, natural gas, food and transportation, will face a direct impact.
- Production costs: These costs rise whenever commodities are used as inputs. This is expected to dampen economic activity and contribute to further inflationary pressures.

In the current context, the boost to Canadian economic growth from higher energy prices may be more subdued. The pickup in production and investment in the oil and gas sector is expected to be muted given uncertainty about long-term demand. Moreover, while commodity exporters will benefit from higher prices, the overall impact on global growth is anticipated to be negative. As a result, softer demand for Canada's non-commodity exports is expected to offset some of the anticipated lift from higher commodity prices.

While economic activity will increase less than usual, the impacts on inflation may be larger. The Canadian dollar typically strengthens with rising commodity prices. A stronger dollar would usually dampen inflationary pressures by lowering the domestic price of imported products relative to domestically produced goods and services. Currently, however, the Can$/US$ exchange rate has remained relatively unchanged since the start of the war.

Further stress on global supply chains

The war and the resulting trade restrictions are expected to worsen and prolong some global supply chain disruptions, especially for commodities. While the magnitude of this effect is uncertain, it will weigh on the recovery in global growth, and prices will face additional upward pressure.

(*continued…*)

Box 3 (*continued*)

The course of the war and its implications for economic activity are highly uncertain. As long as commodity prices remain elevated, they will support some increased investment and activity in the resource sector. They will also boost domestic income and aggregate demand. However, these effects are likely to be dampened by softer global growth and more persistent supply chain disruptions.

In addition, other factors could become important depending on how the situation evolves. For example, immigration levels could rise with the movement of refugees from the conflict. Supply reductions and price increases in global energy and commodity markets could also have long-term implications for investment in, and the development of, alternative sources.

Implications for inflation

The implications of the war in Ukraine for inflation in Canada are clear and large. These include the impacts of commodity-linked prices, increased production costs and more pervasive supply chain disruptions. Together these add 0.7 percentage points to CPI inflation in 2022.

Stronger second-quarter growth

Economic growth is expected to pick up to about 6% in the second quarter of 2022 from a solid pace of 3% in the first quarter (**Table 3** and **Chart 4**). The effects of the Omicron variant weighed on economic activity in the first weeks of the year, but these effects were short-lived, and household consumption was resilient. Growth is on track for a strong consumption-led pickup in the second quarter as pandemic restrictions are removed. This is despite supply disruptions and labour shortages continuing to hold back the production and availability of a wide range of goods (**Chart 5**).

Housing market activity remained strong in the first quarter. The pandemic-induced increase in demand for more housing space, along with still-low borrowing rates and high disposable income, has boosted activity. Resales are expected to soften somewhat in the second quarter as borrowing rates rise. Low levels of both builders' inventories and existing homes for sale should support new construction and renovations in the near term.

Table 3: Summary of the quarterly projection for Canada*

	2021		2022			2021	2022	2023	2024
	Q3	Q4	Q1	Q2		Q4	Q4	Q4	Q4
CPI inflation (year-over-year percentage change)	4.1 (4.1)	4.7 (4.7)	5.6 (5.1)	5.8		4.7 (4.7)	4.5 (3.0)	2.4 (2.2)	2.1
Real GDP (year-over-year percentage change)	3.8 (4.0)	3.3 (3.2)	2.8 (2.4)	5.3		3.3 (3.2)	3.8 (4.2)	2.9 (2.7)	1.7
Real GDP (quarter-over-quarter percentage change at annual rates)†	5.5 (5.4)	6.7 (5.8)	3.0 (2.0)	6.0					

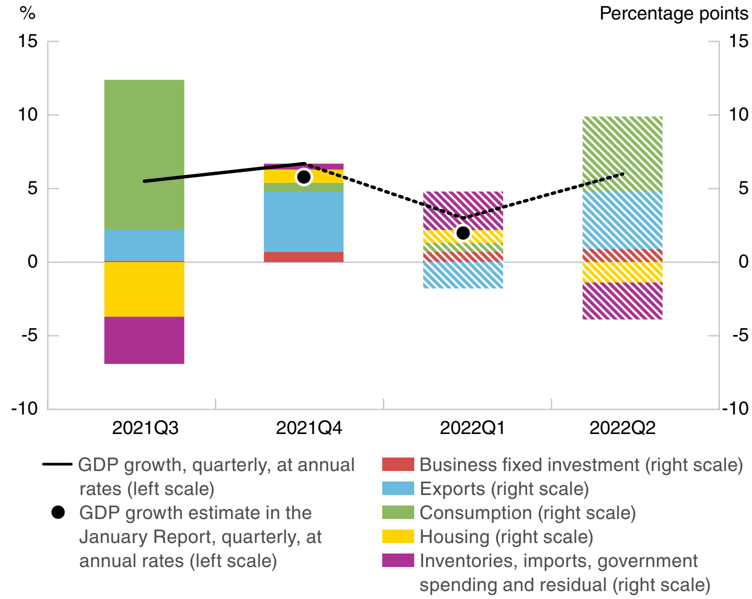
* Details on the key inputs to the base-case projection are provided in **Box 2**. Numbers in parentheses are from the projection in the previous Report.

† Over the projection horizon, 2022Q1 and 2022Q2 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

Chart 4: Growth is expected to pick up strongly in the second quarter

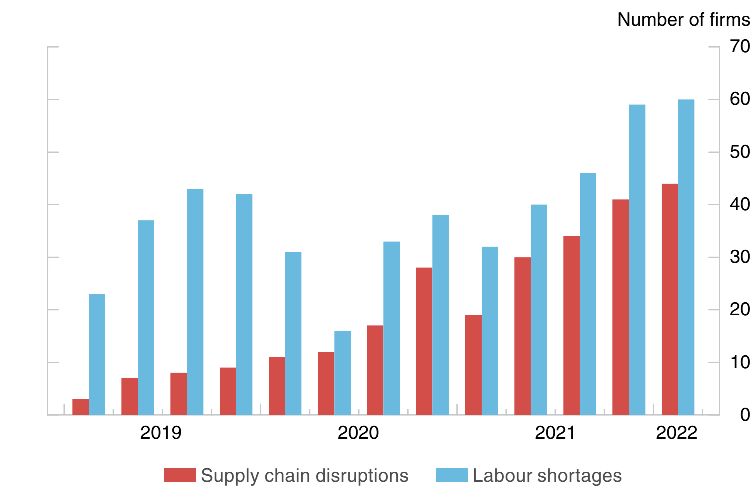
Contribution to real GDP growth, quarterly data



Sources: Statistics Canada and Bank of Canada calculations and estimates Last data plotted: 2022Q2

Chart 5: Supply disruptions and labour shortages continue to weigh on production

Number of firms reporting bottlenecks, Business Outlook Survey, quarterly data

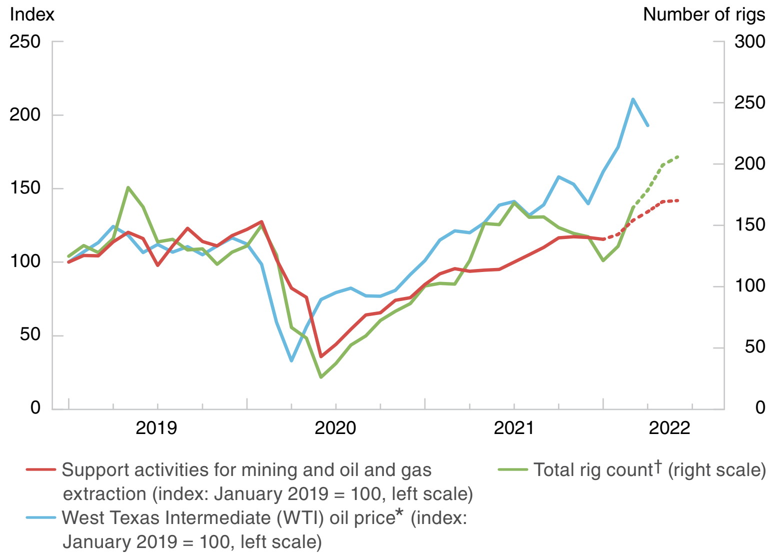


Note: The Business Outlook Survey (BOS) samples about 100 firms. Firms were asked the question, "What would be the most important obstacles or bottlenecks to being able to meet an unexpected increase in demand?" Mentions of a fully utilized labour force and an inability to find suitable new labour at the current wages are counted as labour shortages. Mentions of raw material constraints, transportation difficulties and logistics bottlenecks are counted as supply chain disruptions.

Source: Bank of Canada Last observation: 2022Q1

Chart 6: Oil production is increasing with higher prices

Monthly data



* The price for WTI in April 2022 is the average between April 1 and 8.

† The total rig count has been seasonally adjusted by the Bank of Canada.

Sources: Baker Hughes, NYMEX via Bloomberg Finance L.P., Statistics Canada and Bank of Canada calculations and estimates

Last observations: WTI oil price, April 2022
Last data plotted: total rig count and support activities for mining and oil and gas extraction, June 2022

Exports and business investment are expected to grow strongly in the second quarter as they continue to recover toward pre-pandemic levels. Higher energy prices are boosting growth in energy exports and investment (**Chart 6**). Outside the energy sector, solid foreign demand and a rebound in exports of motor vehicles are supporting exports.

Tight labour markets

Employment bounced back sharply in recent months. Overall measures of labour market health are strong when compared with a wide range of benchmarks.[1] For instance, employment and total hours worked have surpassed pre-pandemic levels (**Chart 7**). Moreover, many of the groups hit hardest by the pandemic have seen robust recoveries, notably young women.

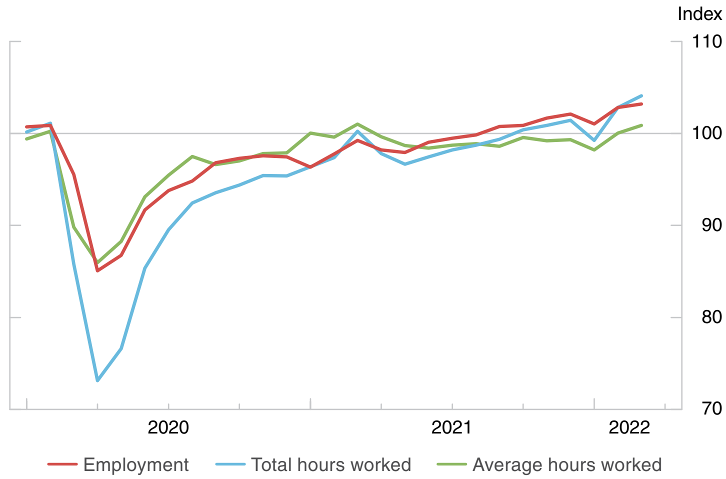
In the Bank of Canada's Business Outlook Survey (BOS) for the first quarter of 2022, indicators of labour shortages remain elevated. Most firms experiencing labour shortages expect them to persist until at least 2023. While roughly two-thirds of respondents plan to increase the size of their workforce to meet strong demand, many cited difficulty finding workers.

Wage growth has risen to near pre-pandemic levels (**Chart 8**). Wage growth is expected to increase further alongside elevated job vacancies, workers' increased willingness to switch jobs and a record-low unemployment rate. The strengthening in wages is consistent with the latest BOS, where firms report having difficulty attracting and retaining staff.

1 For additional details, please see E. Ens, C. Luu, K. G. See and S. L. Wee, "Benchmarks for Assessing Labour Market Health," Bank of Canada Staff Analytical Note No. 2022-2 (April 2022).

Chart 7: Employment and hours worked are above pre-pandemic levels

Index: 2019 average = 100, monthly data

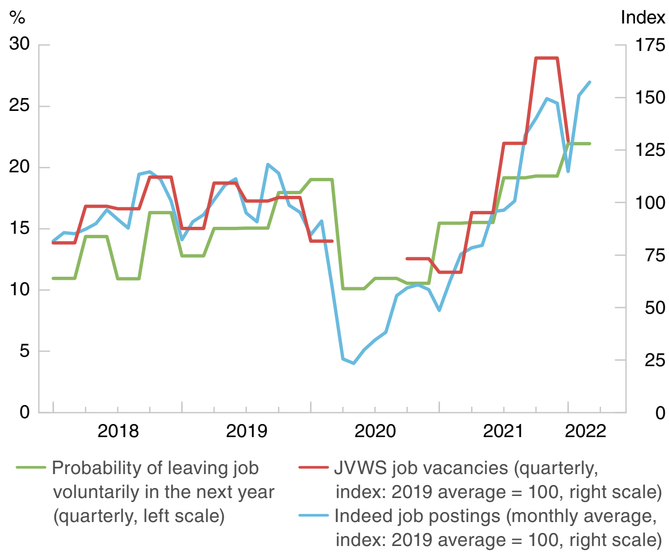


Sources: Statistics Canada and Bank of Canada calculations

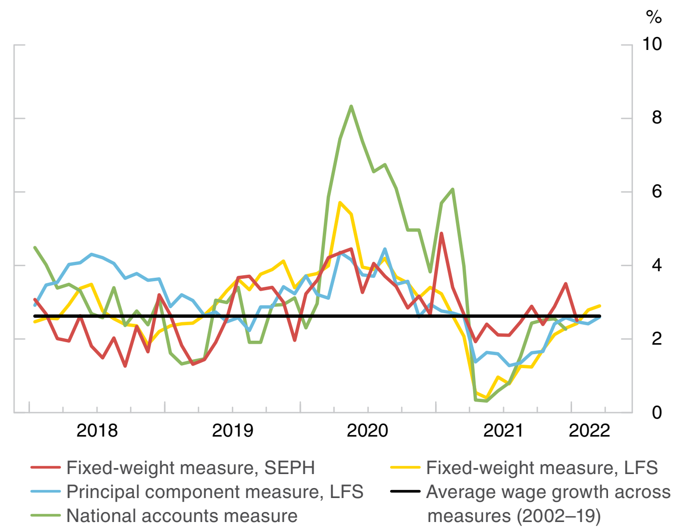
Last observation: March 2022

Chart 8: A tight labour market is leading to rising wage growth

a. Responses to the CSCE;* ratios of JVWS job vacancies and Indeed online job postings to unemployment, not seasonally adjusted



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



* Respondents to the Canadian Survey of Consumer Expectations (CSCE) were asked, "What do you think is the percent chance that you will leave your job voluntarily during the next 12 months?" The chart presents the median response.

Note: JVWS is the Job Vacancy and Wage Survey; LFS is the Labour Force Survey; SEPH is the Survey of Employment, Payrolls and Hours. Quarterly JVWS job vacancies data have been extended to January 2022 based on Statistics Canada's monthly estimate. Due to data limitations at the onset of the pandemic, JVWS job vacancies data are unavailable for the middle quarters of 2020. The LFS fixed-weight measure is constructed using 2019 employment weights for wages based on employees' job status (full or part time), job permanency (permanent or temporary), industry of employment, and occupation, while the LFS principal component measure is based on the estimated common trend of annual growth among these series. The national accounts wage measure is constructed as total wages and salaries at a monthly frequency from the Canadian System of Macroeconomic Accounts divided by total hours worked from SEPH.

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

Last observations: CSCE, 2022Q1; JVWS and SEPH, January 2022; Indeed and LFS, March 2022; national accounts wage measure, December 2021

Canadian economy moving into excess demand

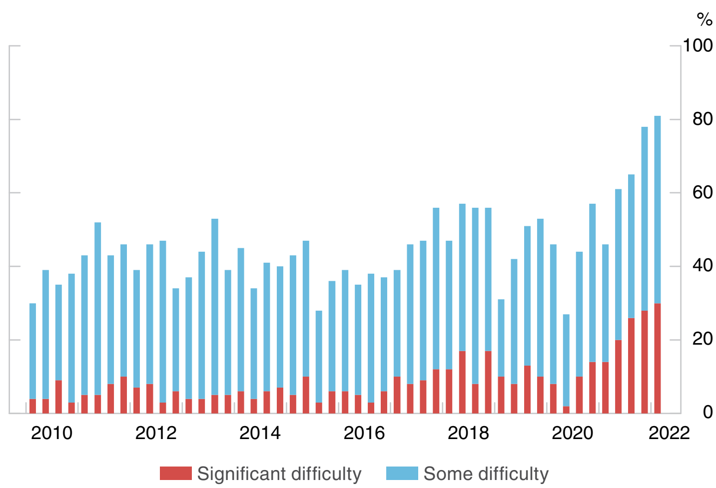
A broad set of measures suggests that economic slack has been absorbed and that the economy is starting to operate beyond its productive capacity.

Canadian firms are increasingly facing capacity pressures amid a tight labour market and pervasive supply chain challenges. Roughly 8 out of 10 respondents to the BOS said they would have difficulty meeting an unexpected increase in demand—a new survey high (**Chart 9**). More firms intend to pass cost increases related to supply chain disruptions and rising wages into their output prices. Core measures of inflation have all risen materially above 2%.

Taking these respective demand and supply pressures into account, the Bank estimates that the output gap has risen to between -0.25% and 0.75% for the first quarter of 2022, up from the estimate of -0.75% to 0.25% for the last quarter of 2021 (**Box 2**). With robust growth expected in the second quarter, the economy is moving into excess demand.

Chart 9: Reports of capacity pressures are at record levels in the Business Outlook Survey

Percentage of respondents,* quarterly data



* Percentage of respondents to the Business Outlook Survey reporting some or significant difficulty meeting an unexpected increase in demand or sales. See the *Business Outlook Survey—First Quarter of 2022* for more details.

Source: Bank of Canada Last observation: 2022Q1

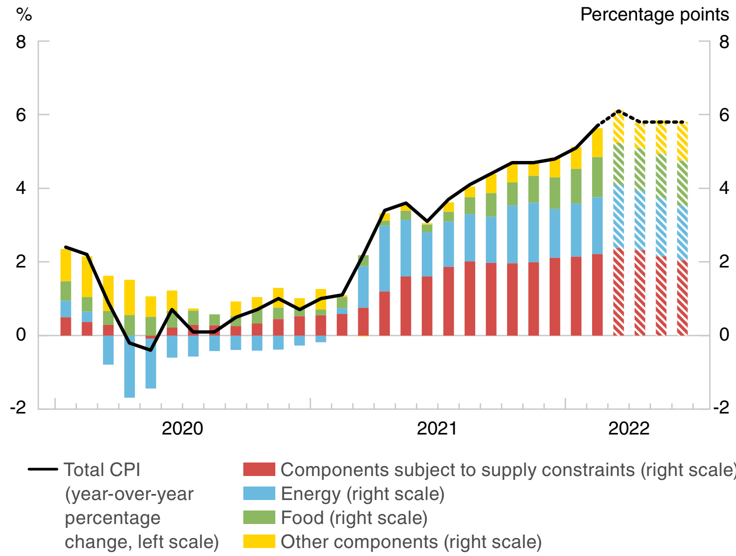
CPI inflation at multi-decade high

Elevated energy and food prices are expected to push CPI inflation to just under 6% in the first half of 2022 (**Chart 10**). Russia's invasion of Ukraine has driven up commodity prices. In Canada, households are feeling this through higher prices for gasoline and fuel oil. The impacts on the cost of wheat, corn and soybeans will also boost food prices in coming quarters, compounding the effects of last year's drought and supply bottlenecks.

Pervasive supply constraints, together with strong global and domestic demand, are also contributing to the rise in prices of a wide range of goods and services (**Box 4**). As a result, price pressures are broadening, with about two-thirds of CPI components growing above 3% (**Chart 11**).

Chart 10: Food and energy prices and supply constraints are pushing up inflation

Contribution to CPI inflation, in percentage points, monthly data



Note: "Components subject to supply constraints" includes motor vehicles, durable and semi-durable goods, alcohol purchased in stores, and home repair and replacement costs.

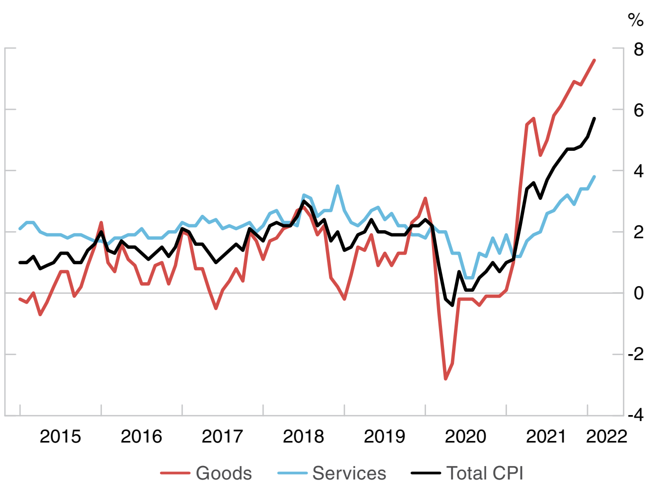
Sources: Statistics Canada and Bank of Canada calculations and estimates

Last data plotted: June 2022

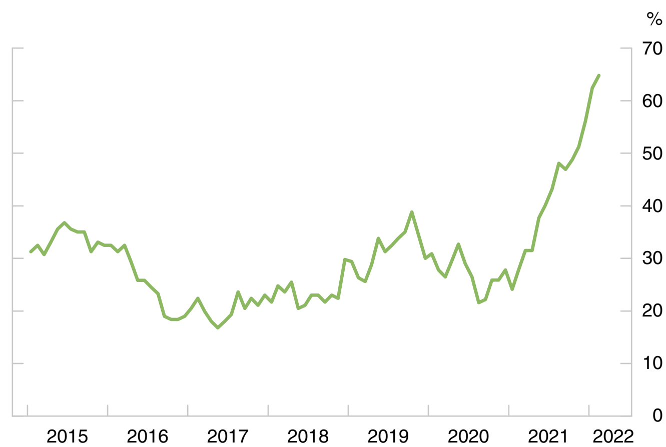
Chart 11: Price pressures are broadening

Monthly data

a. CPI inflation of goods and services, year-over-year percentage change



b. Share of CPI components growing above 3% on a year-over-year basis



Sources: Statistics Canada and Bank of Canada calculations

Last observation: February 2022

Box 4

Domestic and global determinants of inflation in Canada

Consumer price index (CPI) inflation hit a three-decade high in February 2022, reaching 5.7% on a year-over-year basis. The run-up in inflation reflects global factors, such as strong demand and supply chain disruptions, as well as domestic factors. Understanding the impacts of these factors can help better assess how long inflationary pressures will remain elevated and how to adjust the response in Canadian monetary policy.

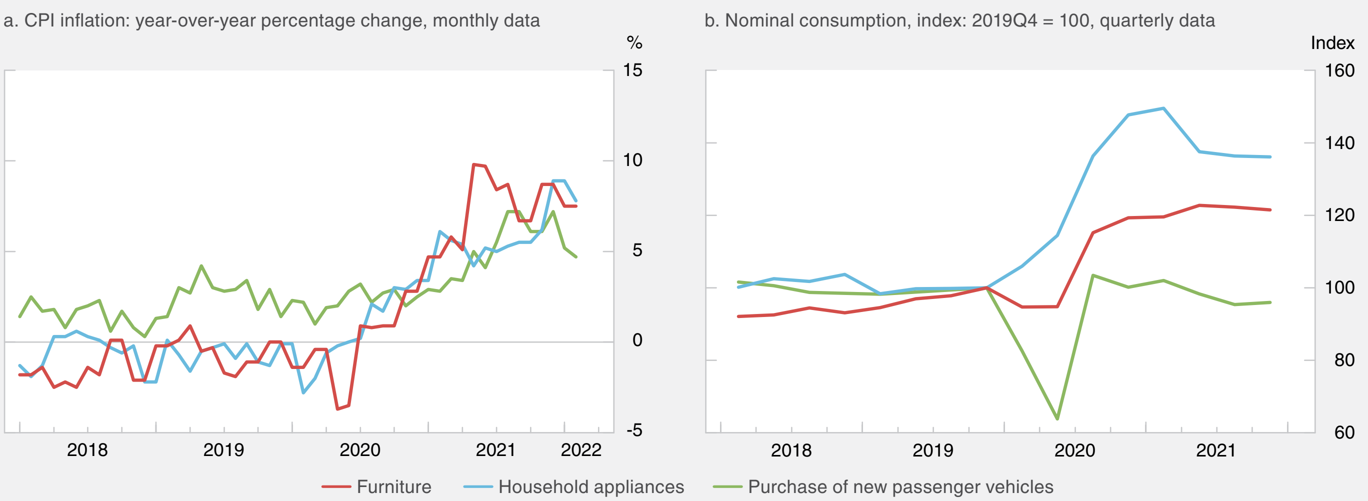
Goods inflation hit 7.6% in February, twice as high as services inflation. Oil prices are set in global markets, and the pass-through to the price of gasoline in Canada is typically rapid and high. Domestic food prices are also affected because they are linked to global agricultural prices as well as domestic crop conditions and local supply constraints. Energy and food price inflation are at 24% and 7.4%, respectively; together, they are contributing roughly 2.5 percentage points to CPI inflation.

Durable goods prices have also been rising quickly (**Chart 4-A**). Shortages of semiconductor chips are leading to lower production of and higher prices for motor vehicles—a clear global supply shock. In other durable goods markets, strong global demand is playing an important role, compounded by supply challenges. Two examples are furniture and household appliances, which together make up nearly 3% of the CPI. Prices for these goods have been rising quickly alongside sales.

In contrast, domestic factors are the key driver for services prices. Although inflation of these prices is running well below that of goods prices, it has also picked up. The strongest gains have been seen in homeowners' replacement costs, which are rising at a pace close to 13% (**Chart 4-B**). While the inputs for construction, such as lumber and copper, reflect global factors, housing is also influenced by domestic demand and supply conditions. These include demand factors, such as population growth, historically low borrowing rates and an increased preference for more housing space. They also include supply constraints, such as labour shortages and, in some cases, limited availability of land for development. The strength in housing price inflation is also finding its way into rent inflation, which has risen to over 4%.

(*continued…*)

Chart 4-A: Durable goods prices and spending reflect supply constraints interacting with high demand



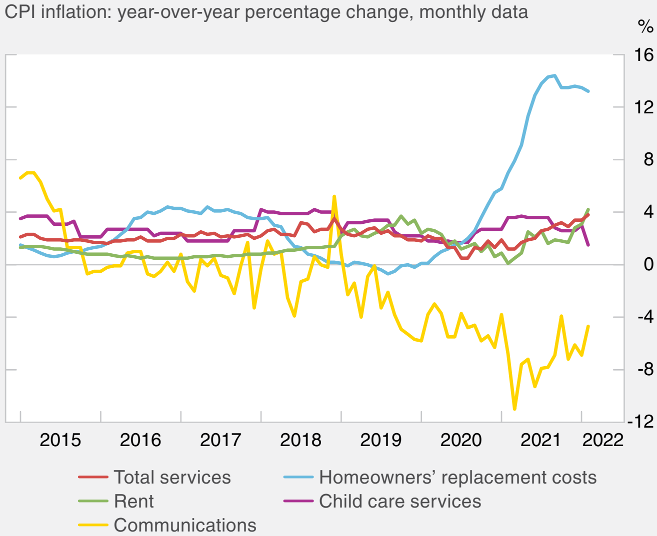
Sources: Statistics Canada and Bank of Canada calculations

Last observations: CPI inflation, February 2022; consumption, 2021Q4

Box 4 (*continued*)

Chart 4-B: Services inflation has picked up and continues to be driven by strong gains in homeowners' replacement costs

CPI inflation: year-over-year percentage change, monthly data



Sources: Statistics Canada and Bank of Canada calculations

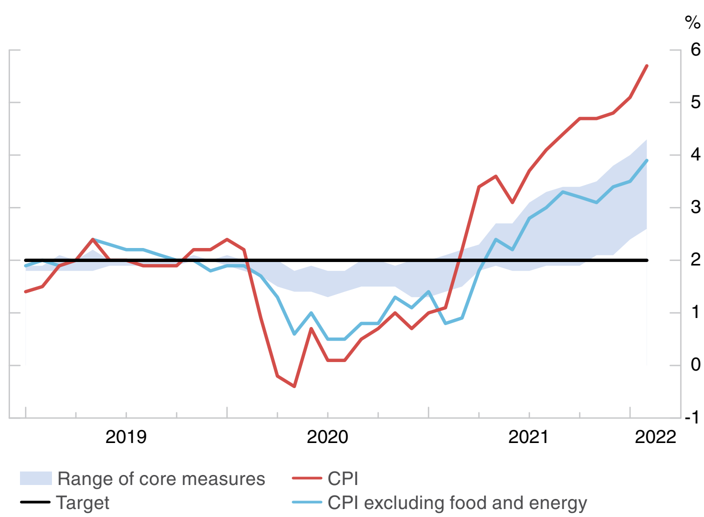
Last observation: February 2022

Other services prices, however, are rising at a slower pace. For example, child care and personal care services are growing at less than 2% and 3%, respectively, because price developments in these categories primarily reflect pressures on domestic wages. Moreover, some categories, such as communications, have seen prices fall despite higher real spending because of ongoing digitalization.

Overall, the pickup in inflation has been concentrated in traded goods prices. This reflects both global and domestic conditions. Domestically driven price pressures have emerged in services prices. We see this in homeowners' replacement costs, rents and other services as the economy is moving into excess demand.

Chart 12: Inflation measures have continued to rise

Year-over-year percentage change, monthly data



Sources: Statistics Canada and Bank of Canada calculations

Last observation: February 2022

Measures of core inflation continue to rise alongside widening inflationary pressures, with CPI-trim, CPI-median and CPI-common at 4.3%, 3.5% and 2.6%, respectively (**Chart 12**). The increases reflect more widespread price pressures and are consistent with an economy that is moving into excess demand.

Strong economic growth and easing inflation

Growth is projected to be 4¼% in 2022, easing to a still-solid pace of 3¼% in 2023, supported by robust domestic demand and exports. The tight labour market and improved terms of trade are expected to boost aggregate income and wealth. In turn, high income and a drawdown of some pandemic-related savings will drive domestic spending. In addition, an increase in potential output will further support growth in domestic income and demand.

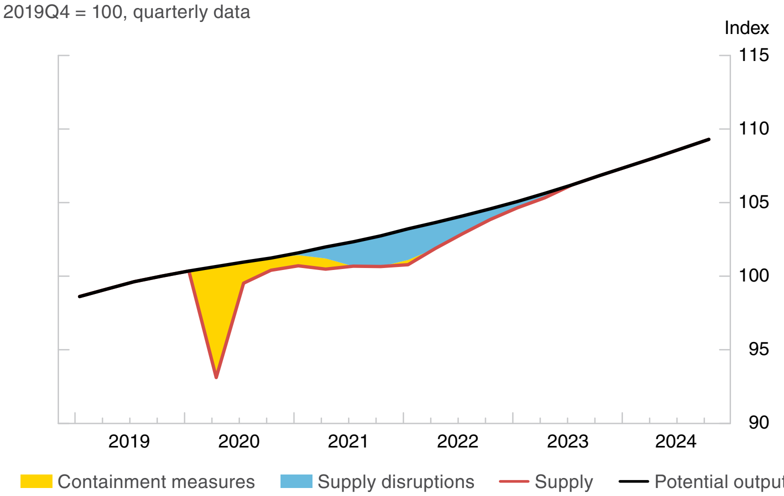
Pandemic-related restrictions and supply disruptions have weighed on output. With employment growing faster than output, productivity growth has been weak. However, public health restrictions have now been largely removed, and supply disruptions are expected to dissipate gradually by mid-2023 (**Chart 13**). As caution around the pandemic fades and supply shortages ease, GDP is expected to grow faster than employment, and output per worker to rise.

Together with robust business investment and higher immigration, this rise in labour productivity growth is projected to boost supply growth from about 1¾% this year to roughly 3¼% in 2023 (see **Appendix** on page 28). This will provide room for solid economic growth with declining inflation.

Higher interest rates in Canada and the normalization of monetary policy globally are expected to moderate domestic demand growth. GDP and supply growth will both ease to about 2¼% and 2½%, respectively, in 2024.

Chart 13: Supply disruptions are expected to dissipate gradually by mid-2023

Index: 2019Q4 = 100, quarterly data



Note: “Supply disruptions” includes the short-term effects on supply of supply chain disruptions and labour market mismatch. “Containment measures” also includes the effects on supply of worker absences due to COVID-19. “Supply” is potential output including temporary factors. See **Box 2** for details.

Source: Bank of Canada calculations, estimates and projections

Expansion led by strong consumption growth

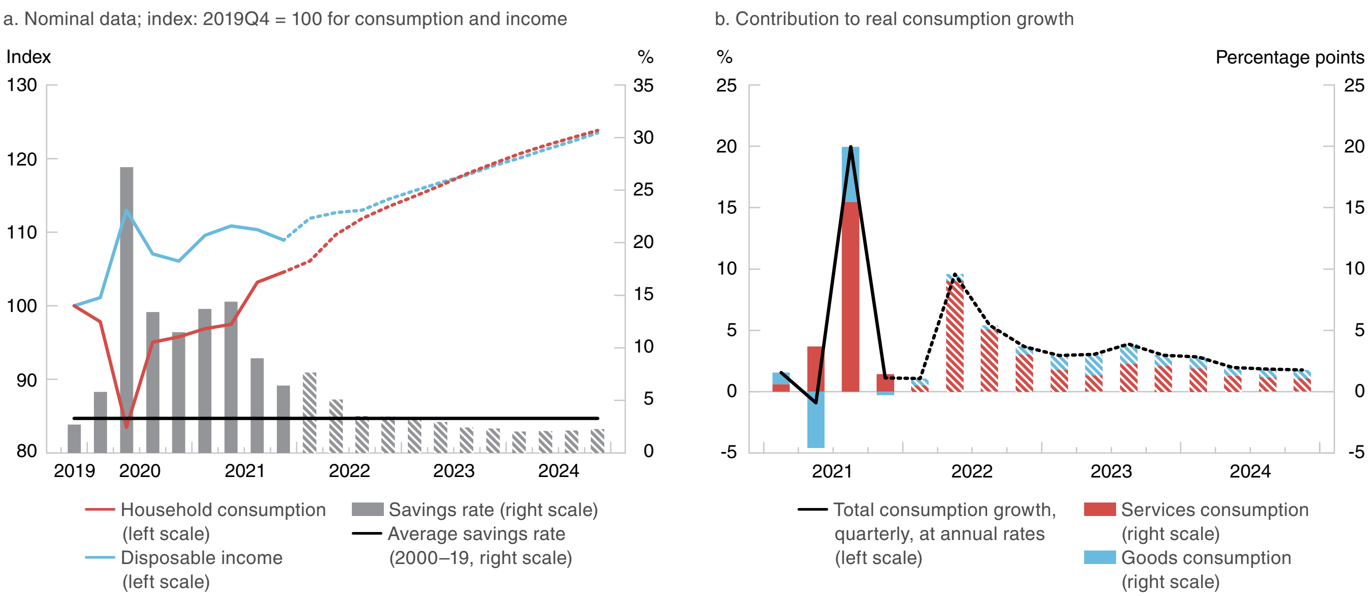
Job gains and the spending of some of the savings accumulated during the pandemic will support consumption growth (**Chart 14**). Moreover, the lifting of public health restrictions should lead to a continued rebound in spending on hard-to-distance services in the second half of 2022. Consumption of these services will grow at a slower but still-solid pace thereafter, as pandemic-induced caution fades.

In contrast, overall goods consumption is forecast to grow at a more moderate pace. As a result, the balance of consumption between goods and services will return toward pre-pandemic levels over the projection horizon. While consumption growth for most goods will moderate, spending on motor vehicles should pick up as supply challenges in the auto sector are resolved.

Housing activity is projected to ease from its current level but remain elevated, supported by population growth. Resales are expected to soften as borrowing rates rise and the pandemic-induced demand for more housing space wanes. Meanwhile, the unwinding of supply chain bottlenecks should support new construction as sourcing building materials becomes easier. This growth in housing supply, combined with slowing demand, should help rebalance housing markets over time and help moderate house price growth.

Chart 14: Consumption growth is forecast to be strong

Quarterly data



Sources: Statistics Canada and Bank of Canada calculations and projections

Robust export growth

Export growth is expected to be strong in 2022 and 2023, boosted by elevated commodity prices and solid foreign demand coupled with easing supply constraints (**Chart 15**). Later in the projection, exports are anticipated to continue to grow but at a slower pace.

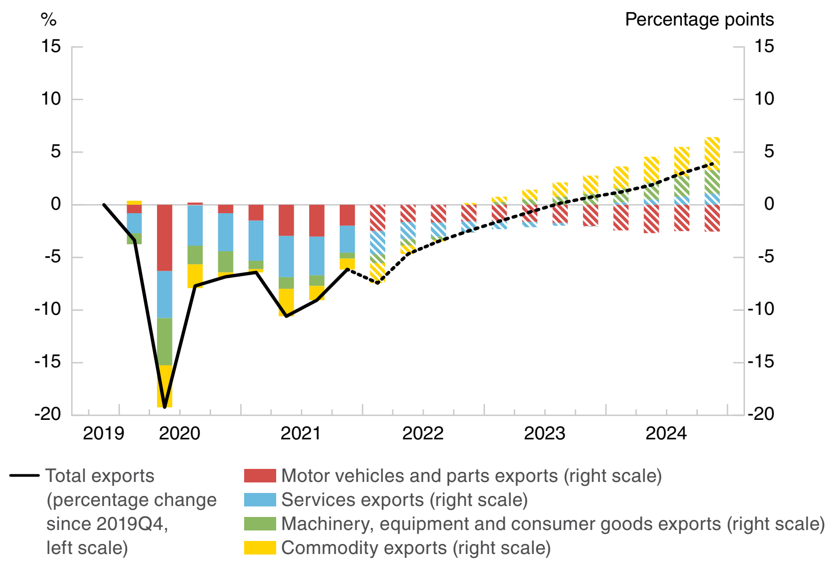
Energy exports are projected to grow strongly because of high prices and increased transportation capacity. Canadian producers are expected to make full use of existing production and transportation capacity to boost energy exports in 2022. Expansions in crude-by-rail and pipeline capacity, including the scheduled completion of the Trans Mountain Expansion project, will support growth later in the projection horizon.

Non-energy goods exports should grow solidly, supported by the gradual dissipation of global supply disruptions. However, exports of motor vehicles are expected to remain flat after the second quarter of 2022, reflecting supply issues, before declining later in the projection due to restructuring in the sector. Services exports and imports are anticipated to strengthen as travel recovers, but the recovery is expected to take time given the slow return of international tourism.

Goods imports will be supported by strong domestic demand as well as the willingness of firms to invest and rebuild inventories as supply chain issues ease.

Chart 15: Solid foreign demand and elevated commodity prices should support the recovery in exports

Contribution to the deviation of real total exports from the 2019Q4 level, in percentage points, quarterly data



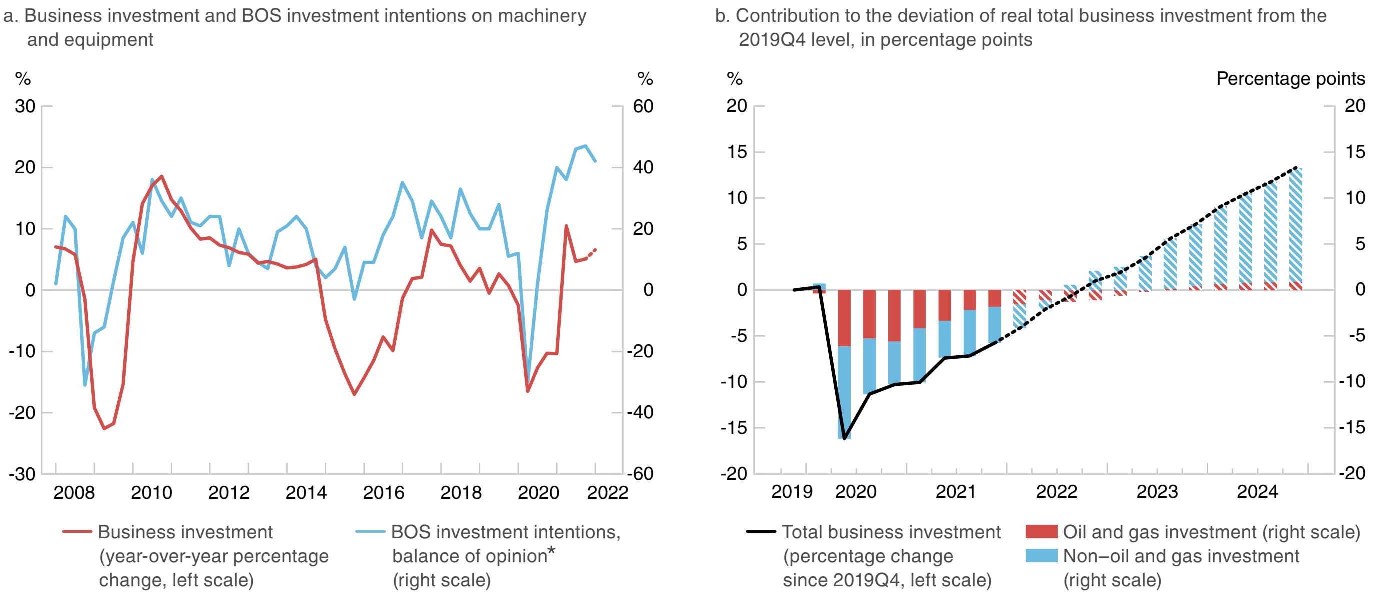
Sources: Statistics Canada and Bank of Canada calculations and projections

Stronger business investment after pandemic lows

Business investment is expected to grow strongly (**Chart 16**). Investment growth in the oil and gas sector is anticipated to be robust as a result of high energy prices. Heightened global concerns over secure energy supplies should also benefit Canadian producers. However, investment will be restrained by labour shortages and ongoing uncertainty about long-term demand and the transition to a low-carbon economy.

Chart 16: Business investment is expected to grow strongly

Quarterly data



* Percentage of respondents to the Business Outlook Survey (BOS) that expect higher investment spending on machinery and equipment over the next 12 months minus the percentage that expect lower investment spending.

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

Last observation: BOS, 2022Q1
Last data plotted in panel a: business investment, 2022Q1

Outside the oil and gas sector, investment will be supported by robust demand, the gradual easing of supply constraints and improved business confidence. The outlook is consistent with the results of the BOS, as most businesses said they intend to increase their spending on machinery and equipment. This level of investment intentions was a near-record high for the survey. More firms also reported plans to invest in digital technologies and automation to improve productivity given tight labour markets and rising input costs.

Inventory investment is projected to contribute to growth in 2022 and 2023 as businesses, notably retailers, restock following pandemic shortages.

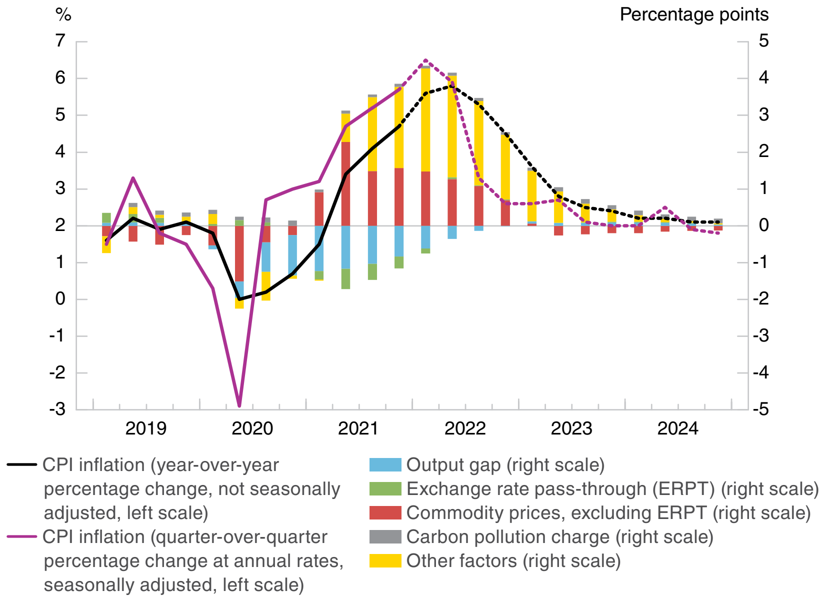
CPI inflation to decline from second-quarter peak

Inflation is expected to ease over the projection horizon as the effects of high energy prices and supply disruptions fade and monetary policy tightening moderates demand (**Chart 17**).

With oil prices assumed to decline after the second quarter of 2022, the boost from higher gasoline prices should fade quickly in coming quarters. Upward pressure from supply challenges is also expected to dissipate over 2023. This is consistent with the assumption that the prices for goods affected by supply challenges will not experience price reversals. This anticipated easing in inflationary pressures can be seen in the dynamic of annualized quarter-over-quarter inflation rates, which fall from around 6% in the second quarter of 2022 to about 2½% in the fourth quarter. Year-over-year inflation is anticipated to decrease from about 5¾% in the second quarter of 2022 to about 2½% in the second half of 2023. Inflation is then expected to decline to the 2% target in 2024.

Chart 17: CPI inflation to ease as the effects of supply disruptions and high energy prices fade and monetary stimulus is reduced

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



Note: "Other factors" includes, in particular, the impacts of various supply-related disruptions on inflation, such as the effects of semiconductor shortages on motor vehicle prices, of shipping bottlenecks on goods prices, and of unfavourable weather conditions on food prices. Numbers may not add to total due to rounding.

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

Rising short-term and stable long-term inflation expectations

Inflation has been above 3% since the second quarter of 2021. When combined with the outlook, this suggests that inflation is expected to be above the top end of the inflation control range for two years. There is a concern that high and persistent inflation can affect long-term inflation expectations. This matters because inflation expectations are an important factor behind future inflation.

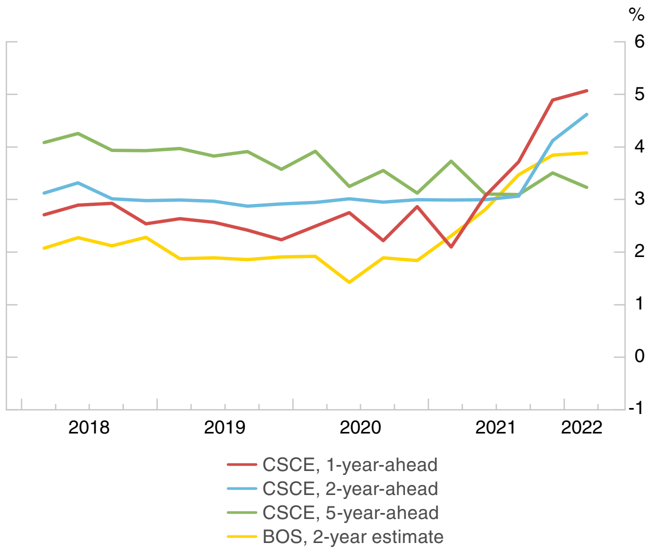
The inflation expectations of consumers have increased at the one-year horizon (**Chart 18**). Evidence about the evolution of inflation expectations at the two-year horizon is mixed. Inflation expectations of professional forecasters remain relatively stable, but those of consumers and businesses have increased significantly. Most respondents to both the BOS and the Canadian Survey of Consumer Expectations for the first quarter of 2022 anticipate inflation will be well above 3% on average over the next two years.

Current high inflation has not, however, resulted in increases in survey-based expectations at longer horizons. Most respondents to the BOS anticipate inflation will be close to the 2% target in three years because of improvements in supply chains and the Bank's interest rate actions. Inflation expectations also remain relatively stable at the five-year horizon for both consumers and professional forecasters.[2]

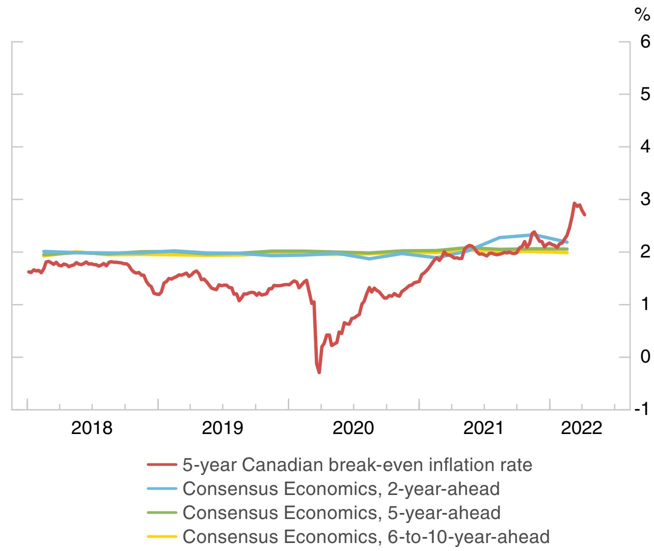
2 It is common in household surveys of inflation that the absolute level is higher than the inflation target. As such, it is the directional change that matters most. For instance, see C. D. Carroll, "Macroeconomic Expectations of Households and Professional Forecasters." *Quarterly Journal of Economics* 118, no. 1 (2003): 269–298.

Chart 18: Short-term inflation expectations are rising, while longer-term expectations are more stable

a. Inflation expectations, Canadian Survey of Consumer Expectations (CSCE) and Business Outlook Survey (BOS)



b. Canadian break-even inflation rate (weekly average of daily data) and Consensus Economics inflation expectations (quarterly data)



Note: The BOS 2-year estimate is 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?" Firms can select from pre-determined ranges and provide a point estimate. In cases where a firm selects a range only: if the range is closed, a midpoint is used; if the range is open-ended, the average expectation of other firms in that range is used. The 5-year Canadian break-even inflation rate is the difference between the yields of a nominal bond and a real return bond of the same maturity, both issued by the Government of Canada. Break-even inflation rates provide a signal about the expected path of inflation as perceived by market participants, but they are also affected by fluctuations in inflation risk and liquidity premiums. Consensus Economics provides inflation forecasts for the next 5 years followed by an inflation forecast for the next 6 to 10 years. These forecasts are transformed into fixed-horizon forecasts (2-year, 5-year) by weighted average.

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

Last observations: Consensus Economics, January 2022; BOS and CSCE, 2022Q1; break-even inflation rate, April 8, 2022

The five-year break-even inflation rate (BEIR) has increased to near 3%. At this level, the five-year BEIR is consistent with a rise in inflation over the near term followed by a decline toward the 2% target. In this respect, the five-year BEIR is indicative that longer-term inflation expectations are consistent with the Bank's projection for inflation.

Evolution of the Bank of Canada's balance sheet

Since November 2021, the Bank has been in the reinvestment phase. This means that the Bank has been purchasing Government of Canada (GoC) bonds solely to replace maturing bonds. This requires approximately $4 billion to $5 billion in purchases every month, across both the primary and secondary markets.

Ending the reinvestment phase and initiating quantitative tightening means that the Bank will stop purchasing GoC bonds. Maturing bonds will not be replaced when they roll off the balance sheet. As a result, the Bank's balance sheet will shrink over time, with roughly 40% of the Bank's GoC bond holdings maturing within the next two years.

The longer-run level of settlement balances will be higher than it was before the pandemic. This reflects a variety of factors, including a shift in investor preferences toward safe and liquid assets, changes to the payment system in Canada and regulatory requirements that encourage greater use of central bank deposits.

Risks to the inflation outlook

The disruptions related to the COVID-19 pandemic have diminished, but Russia's unprovoked invasion of Ukraine has introduced a major new source of uncertainty. Global trade is being disrupted, confidence is declining, and financial markets have been volatile. Moreover, the tragic situation in Ukraine has ignited fears of wider escalation and risks to global economic integration.

A quick end to the war would be positive for global growth and would reduce inflationary pressures. In contrast, a prolonged or worsening conflict would lower confidence, add further stress to supply chains and boost inflation.

Regarding COVID-19, greater population-wide immunity has led to the removal of public health restrictions and the reopening of economies in most jurisdictions around the world. While the likelihood of another severe downturn has diminished, the virus continues to circulate and mutate. Even without a resurgence of cases, reopening an economy remains complex, and pervasive supply constraints have yet to be unwound.

Some of the risks identified in previous reports have been partially incorporated into the projection. For example, the base-case scenario includes more persistent supply-side disruptions and an upward revision to residential investment.

Outside of the pandemic and the war in Ukraine, the Bank sees several upside and downside risks to the outlook for inflation. The Bank views these risks as roughly balanced. Nonetheless, the upside risks are of greater concern because inflation is very high. Until inflation moves significantly lower, there is an elevated risk that Canadians will start to believe that it will stay high over the long term. Higher inflation expectations could in turn lead to more pervasive increases in labour costs and inflationary pressures and could become embedded in ongoing inflation.

Drawing from a larger set of risks, the Bank presents here a selection of those identified as most important for the projected path of inflation.

(i) More persistent supply bottlenecks and cost pressures (↑)

Disruptions such as the spread of COVID-19 variants could further affect manufacturing and shipping activities, causing persistent shortages of goods and labour. In particular, some countries that have had relatively low infection rates to date, such as China, could be subject to more frequent and widespread lockdowns. A drawn-out war in Ukraine could also create additional supply bottlenecks or worsen existing ones even further. Over time, repeated disruptions to business operations may lead firms to adjust their supply chains in ways that could increase costs. More persistent labour shortages could also result in wages rising much faster than productivity growth. Taken together, these effects would lead to greater and longer-lasting inflationary pressures.

(ii) Reversal of growth in goods prices (↓)

The base-case scenario assumes that the sharp increase in the level of prices of durables seen since the pandemic began will persist. However, as supply chain bottlenecks dissipate, these prices could decline. Moreover, oil prices and transportation costs could decrease more sharply, or goods consumption could slow faster than projected. If this occurred, inflation would be lower than projected.

(iii) Stronger household spending in Canada (↑)

The projection continues to include some degree of caution around consumption. However, further reductions in pandemic-related uncertainty could boost confidence by more than expected. Consequently, households could spend more of their accumulated savings. Consumption and residential investment would then be stronger than projected and would contribute to greater inflationary pressures.

(iv) Sharp deterioration of global financial conditions (↓)

Global indebtedness levels, equity valuations and inflationary pressures are all high. These, combined with reduced policy support, could result in a pullback in risk appetite and a sharp tightening of global financial conditions. This would constrain access to credit for vulnerable EMEs or other highly indebted borrowers. In addition, China’s efforts to address vulnerabilities and engineer a soft landing in the property sector could weigh on financial markets more than expected. These shocks could have negative spillover effects on the global economy and would be transmitted to the Canadian economy through a sharp tightening of financial conditions, weaker exports, lower commodity prices and a deterioration in the terms of trade.

Appendix: Potential output and the neutral rate of interest

Potential output in Canada and globally is expected to strengthen over the projection horizon (**Table A-1**). Relative to the April 2021 *Monetary Policy Report*, the Bank of Canada's estimate of potential output growth in Canada has been revised down for 2021 and revised up for 2022 to 2024.

The estimated range for the Canadian nominal neutral rate of interest has been revised up by 25 basis points compared with the April 2021 assessment. This reflects a combination of a higher global neutral rate and a stronger outlook for potential output.[3]

Table A-1: Projection for potential output growth

	Projected growth* (%)				
	2020	2021	2022	2023	2024
Canada					
Excluding temporary effects of the pandemic	1.5 (1.4)	1.3 (1.5)	1.7 (1.3)	2.0 (2.0)	2.3 (2.2)
Including temporary effects of the pandemic	-1.0 (-1.1)	2.3 (3.7)	1.7 (1.6)	3.3 (2.0)	2.5 (2.2)
World	2.4 (2.3)	2.7 (2.7)	2.9 (3.0)	2.9 (3.0)	2.9
United States	1.2 (1.2)	1.3 (1.3)	1.6 (1.8)	1.7 (1.8)	1.8
Euro area	1.0 (0.9)	1.2 (1.1)	1.4 (1.2)	1.3 (1.1)	1.1
Japan	0.5 (0.5)	0.6 (0.6)	0.7 (0.7)	0.8 (0.7)	0.8
China	5.5 (5.5)	5.5 (5.5)	5.2 (5.4)	5.1 (5.4)	4.9
Oil-importing EMEs†	2.6 (2.5)	3.1 (3.2)	3.4 (3.8)	3.7 (3.8)	3.7
Rest of the world‡	1.4 (1.3)	1.7 (1.5)	1.9 (1.8)	1.8 (1.9)	1.8

* Estimates from the April 2021 assessment appear in parentheses.

† The oil-importing emerging-market economies (EMEs) grouping excludes China. It is composed of large EMEs from Asia, Latin America, the Middle East, emerging 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

3 For more details, see G. Faucher, C. Hajzler, M. Kuncl, D. Matveev, Y. Park and T. Taskin, "Potential Output and the Neutral Rate in Canada: 2022 Reassessment," Bank of Canada Staff Analytical Note No. 2022-3 (April 2022) and K. Boutilier, T. Carter, X. S. Chen, E. Ekanayake, L. Poirier, P. Shannon, A. Uppal and L. Xiang, "Assessing Global Potential Output Growth and the US Neutral Rate: April 2022," Bank of Canada Staff Analytical Note No. 2022-4 (April 2022).

Modest increase in global potential output growth

Global potential output growth is expected to continue recovering from the pandemic, rising from 2.7% in 2021 to 2.9% over the following three years (**Table A-1**). The recovery is observed in all regions except China, where potential output growth should continue moderating, largely reflecting population aging and slower capital accumulation. In the United States, potential output growth is expected to rise from 1.3% in 2021 to 1.8% in 2024. This increase is mainly due to easing immigration restrictions and accelerating trend labour productivity growth as impacts from the pandemic fade and firms invest in new and digital technologies.

Compared with the April 2021 assessment, global potential output growth is marginally lower over the projection horizon. This reflects downward revisions to potential output for China, the United States and emerging-market economies. These downward revisions are partially offset by upward revisions for other regions.

Canadian potential output growth to strengthen

In Canada, the growth of potential output, including the effects of temporary factors, is expected to decline from 2.3% in 2021 to 1.7% in 2022 because of lingering supply chain issues.[4] It is then projected to increase to 2.7% on average over 2023 to 2025. The resolution of supply disruptions explains much of this anticipated pickup, alongside stronger population growth due to higher immigration levels.

Relative to the April 2021 assessment, potential output growth (including temporary factors) is revised down by 1.4 percentage points in 2021, but is revised up by an average of 0.6 percentage points over 2022 to 2024 (**Table A-2**).

Table A-2: Comparison of Canadian potential output estimates relative to April 2021
Annual rates (%)

	Including temporary factors			Excluding temporary factors		
	Annual growth	Range for growth	Revisions to the level (%)	Annual growth	Trend labour input growth	Trend labour productivity growth
2021	2.3 (3.7)	2.1–2.5	-1.2	1.3 (1.5)	0.5 (0.4)	0.8 (1.1)
2022	1.7 (1.6)	1.3–2.3	-1.1	1.7 (1.3)	1.2 (0.7)	0.5 (0.7)
2023	3.3 (2.0)	2.9–3.9	0.2	2.0 (2.0)	1.1 (0.7)	0.9 (1.3)
2024	2.5 (2.2)	2.3–2.9	0.5	2.3 (2.2)	1.2 (0.7)	1.1 (1.4)
2025	2.3	2.1–2.6	-	2.3	1.1	1.2

Note: Estimates of potential output growth excluding temporary factors remove the impacts of supply chain disruptions, labour market mismatch and containment effects. Estimates from the April 2021 assessment appear in parentheses. Numbers may not sum due to rounding. The range for potential output growth represents the methodological range implied by the risk scenarios presented in G. Faucher, C. Hajzler, M. Kuncl, D. Matveev, Y. Park and T. Taskin, "Potential Output and Neutral Rate in Canada: 2022 Reassessment," Bank of Canada Staff Analytical Note No. 2022-3 (April 2022).

Source: Bank of Canada

4 In this Report, the Bank also uses the term "supply" when referring to potential output including the effects of temporary factors. For more details, see **Box 2**.

The downward revision in 2021 largely reflects pressures from global supply chain disruptions that emerged over the year and that are expected to remain elevated in the first half of 2022 before gradually easing. The faster-than-anticipated labour market recovery and lower expected impact of the pandemic on labour market scarring contribute to upward revisions in trend labour input from 2022 to 2024.

Potential output is highly uncertain because some of its components are unobservable and difficult to forecast. To reflect this uncertainty, a range is constructed around midpoint estimates. The outlook for potential output is subject to both upside and downside risks. In particular, Russia's invasion of Ukraine could have a larger-than-anticipated impact on global supply chains, weighing on potential output growth even more.

International travel and quarantine restrictions that are still in place in many countries could continue to present challenges for Canada in reaching its immigration targets, posing a downside risk to growth in trend labour input. In contrast, refugees from Ukraine, who to date are concentrated throughout Europe, could migrate to Canada in greater numbers than currently expected, which may strengthen potential output.

Higher neutral rate of interest

The Bank estimates that the nominal neutral rate in Canada currently lies in a range of 2% to 3%, 25 basis points higher than in the April 2021 assessment.[5] This upward shift reflects a combination of the revised US neutral rate (described below) and key domestic factors, including stronger growth of trend labour input and trend output over the long term.[6]

The small open nature of the Canadian economy implies that its neutral rate is linked with the global neutral rate, which the Bank proxies using an estimate of the US neutral rate. The Bank's estimate for the nominal US neutral rate currently lies within a range of 2% to 3%, 25 basis points higher than in the April 2021 assessment.[7] This is largely because the medium-term impact of the COVID-19 recession on US income inequality is now projected to be smaller than that estimated in April 2021.

5 Unlike the potential output assessment, the Bank's neutral rate assessment is conducted only on a forward-looking basis. It therefore aims to estimate the level of the neutral rate consistent with Bank staff's current medium- to long-term outlook rather than with a complete historical path.

6 For more details, see G. Faucher, C. Hajzler, M. Kuncl, D. Matveev, Y. Park and T. Taskin, "Potential Output and the Neutral Rate in Canada: 2022 Reassessment," Bank of Canada Staff Analytical Note No. 2022-3 (April 2022).

7 For more details, see K. Boutilier, T. Carter, X. S. Chen, E. Ekanayake, L. Poirier, P. Shannon, A. Uppal and L. Xiang, "Assessing Global Potential Output Growth and the US Neutral Rate: April 2022," Bank of Canada Staff Analytical Note No. 2022-4 (April 2022).