



BANK OF CANADA
BANQUE DU CANADA

Monetary Policy Report

October 2020



Canada's inflation-control strategy¹

Inflation targeting and the economy

- The Bank's mandate is to conduct monetary policy to promote the economic and financial well-being of Canadians.
- Canada's experience with inflation targeting since 1991 has shown that the best way to foster confidence in the value of money and to contribute to sustained economic growth, employment gains and improved living standards is by keeping inflation low, stable and predictable.
- In 2016, the Government and the Bank of Canada renewed Canada's inflation-control target for a further five-year period, ending December 31, 2021. The target, as measured by the rate of inflation of the consumer price index (CPI), remains at the 2 percent midpoint of the control range of 1 to 3 percent.

Monetary policy tools

- Monetary policy actions take time—usually from six to eight quarters—to work their way through the economy and have their full effect on inflation. For this reason, 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).² The Bank also has a range of other 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 additional 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.

- 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*.

Inflation targeting is symmetric and flexible

- Canada's inflation-targeting approach is *symmetric*, which means that the Bank is equally concerned about inflation rising above or falling below the 2 percent target.
- Canada's inflation-targeting framework is *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.

Monitoring inflation

- In the short run, the prices of certain CPI components can be particularly volatile. These components, as well as changes in indirect taxes such as GST, 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 See *Joint Statement of the Government of Canada and the Bank of Canada on the Renewal of the Inflation-Control Target* (October 24, 2016) and *Renewal of the Inflation-Control Target: Background Information—October 2016*, which are both available on the Bank's website.

² The *Framework for Conducting Monetary Policy at Low Interest Rates*, available on the Bank's website, describes these measures and the principles guiding their use.

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

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Monetary Policy Report

October 2020

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Overview

The Canadian and world economies have rebounded sharply from the severe downturns experienced with the onset of the COVID-19 pandemic. However, the virus continues to spread worldwide, and it is still having significant economic impacts. This is particularly the case in sectors that rely on individuals being physically close to each other, such as hospitality and travel. Looking forward, the course of the pandemic and the steps needed to contain it remain highly uncertain.

Key messages

- Following the sharp bounce back in growth that occurred when containment measures were lifted and the economy reopened, the Canadian economy transitioned to a slower, more protracted recuperation phase of its recovery. The phases of the recovery are proceeding largely as described in the July Report, though the initial rebound was stronger than expected. Furthermore, the near-term slowing in the recuperation phase is likely to be more pronounced as a result of the recent increase of COVID-19 infections.
- There is ongoing and significant slack in the Canadian economy. The gap between the actual output and the potential output of the economy is not expected to close until 2023. The economy is progressing unevenly, with some sectors and workers disproportionately affected by the virus.
- Ongoing slack in the economy is expected to continue to hold inflation down into 2023.

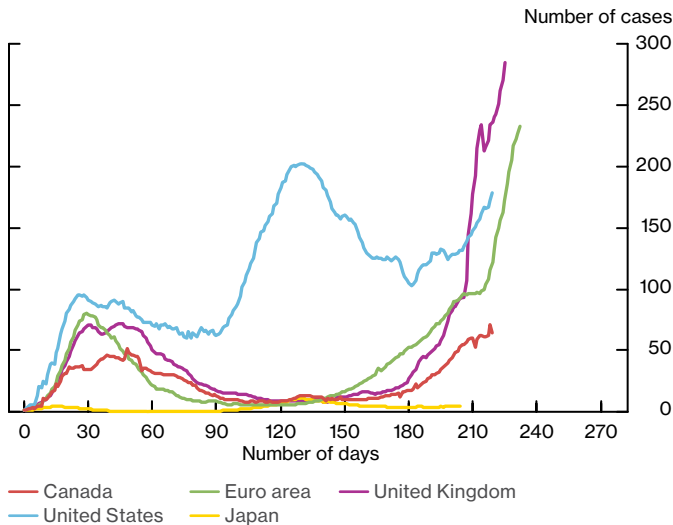
The economic projection is highly conditional on assumptions about COVID-19

The economic recovery remains dependent on the evolution of the pandemic. Despite this ongoing uncertainty, the Bank is returning to its usual practice of providing a projection for economic growth and inflation in this *Monetary Policy Report*. Needless to say, this projection remains highly conditional on the course of the virus and the measures needed to contain it. But, with more than six months since the onset of the pandemic, the Bank has gained a better understanding of how containment measures and support programs affect the Canadian and global economies. This, along with more information on medical developments related to COVID-19, allows the Bank to now make a reasonable set of assumptions to underpin a base-case forecast.

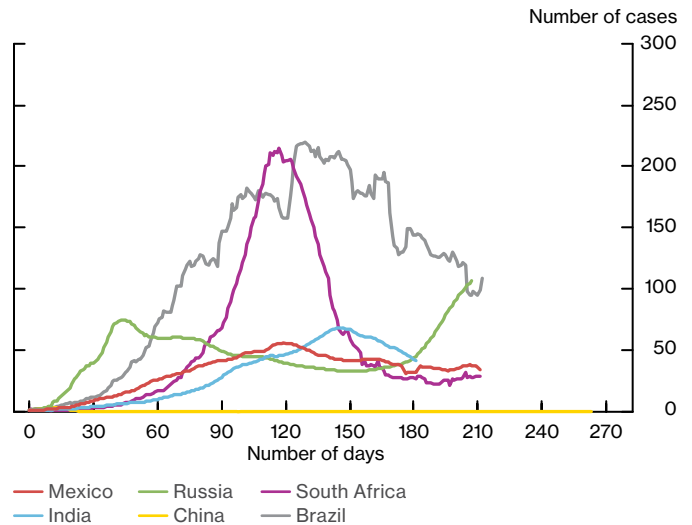
Chart 1: The course of the pandemic remains unpredictable

Daily new cases per million people, 7-day moving average

a. Advanced economies



b. Emerging-market economies



Note: The first occurrence along the bottom axis corresponds to the first day when the number of new cases per million people is greater than one.

Sources: United Nations via Haver Analytics, World Health Organization, Government of Mexico, and Bank of Canada calculations

Last observation: October 21, 2020

Given the continued uncertainty about the evolution of the pandemic (Chart 1), the projection is highly conditional on the following assumptions:

- Extensive lockdown measures, such as the widespread closures imposed early in the pandemic, will not be reintroduced, although more localized and moderate containment measures will ebb and flow.
- Vaccines and effective treatments will be widely available by mid-2022, at which time the direct effects of the pandemic on economic activity will have ended. Precautionary behaviour of households and the effects from the uncertainty surrounding COVID-19 are, however, likely to linger.

The pandemic is also likely to have persistent effects on the preferences and behaviours of consumers and businesses. This could lead to lasting changes to the structure of the economy and could weigh on its potential output. The sizes and timing of such effects are difficult to estimate precisely. Given these considerations, the outlook for Canadian and global economic activity remains unusually uncertain.

Global economy

Global economic growth rebounded as economies reopened over the summer, but, as expected, the surge in activity has since slowed. By the third quarter of 2020, the global economy is estimated to have recovered more than half of its initial loss of 10 percent. The reopening stage was more robust and more uneven across regions than in the central scenario presented in the July Report: advanced economies and China experienced milder contractions and stronger rebounds. In contrast, emerging-market economies (EMEs) have been hit harder, especially those with severe outbreaks, such as India and some Latin American countries.

Changes in commodity prices reflect the partial and uneven recovery in the global economy. Initially, global oil prices rebounded quickly, but they remain roughly unchanged since July and are about one-third lower than their pre-pandemic levels. Meanwhile, non-energy commodity price indexes have more than fully recovered.

Policy plays a key role in the dynamics of the recovery. Income and employment were supported by large fiscal policy measures announced at the onset of the crisis. Now, however, the expiration of fiscal measures will contribute to slowing growth in some economies.

In the Bank's projection, global growth slows in the fourth quarter. Several factors are contributing to weaker growth in many countries, including fading pent-up demand, declining fiscal support and rising numbers of COVID-19 cases. During the prolonged recuperation stage of the recovery, physical distancing measures and uncertainty about the virus are expected to create a persistent drag in most economies through 2022, when the virus is assumed to be under control. Global trade has rebounded quickly, reflecting, in part, the resilience of global value chains (**Box 1**). The recovery in global goods production and trade should help to limit negative trade spillover effects.

Overall, global gross domestic product (GDP) is projected to contract about 4 percent in 2020 before growing by 4½ percent on average in 2021 and 2022 (**Table 1**). Global growth in 2020 is stronger than expected in the July Report. After 2020, it is revised down, reflecting weaker outlooks for EMEs and the downward revision to potential output growth in all regions.

COVID-19 will have lasting effects on the world economy (**Chart 2**). Global potential output is expected to be about 2 percent lower by the end of 2022 compared with its pre-pandemic trend. Factors contributing to this decline include costly reallocations of resources, reduced labour force attachment, and slower growth in investment and productivity (**Appendix 1**). Persistent excess supply in all regions through 2022 keeps inflation pressures subdued.

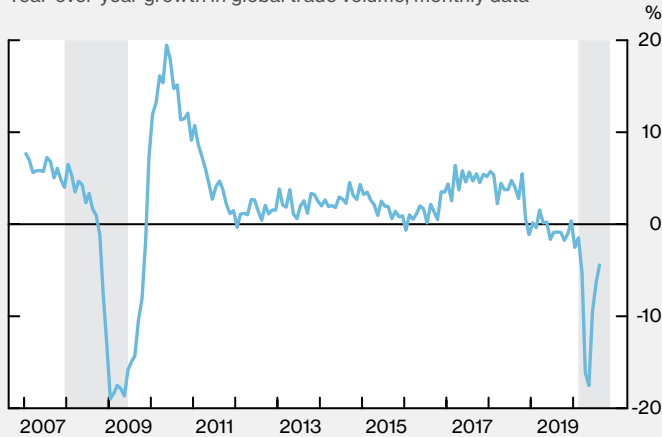
Box 1

Global value chains adapted quickly to the COVID-19 crisis

The resilience of global value chains (GVCs) has contributed to the rebound in global trade and economic activity. The onset of the pandemic brought many challenges: broad factory shutdowns, surging demand for essential supplies, and interrupted transport of components and final goods. GVCs were initially affected by these widespread disruptions

Chart 1-A: Global trade contracted sharply and has since improved

Year-over-year growth in global trade volume, monthly data



Note: Shaded areas indicate US recession dates according to the National Bureau of Economic Research (NBER).

Sources: Netherlands Bureau for Economic Policy
Analysis via Haver Analytics and NBER Last observation: August 2020

but were able to adjust relatively quickly because they are dominated by large firms with a diversity of suppliers and considerable resources dedicated to managing supply chains. For example, with ingenuity and hard work, food supply chains were restructured within weeks and the North American automobile industry resumed production relatively smoothly. Ongoing efforts are required, however, to avoid disruptions to supply chains.¹

Fewer trade spillovers have occurred during the COVID-19 pandemic than during the global financial crisis. Global trade fell sharply in the second quarter but has since partially rebounded (Chart 1-A). An important difference in the current crisis is the higher concentration of economic impacts in the services sector. Sectors with strong links to international trade, such as manufacturing, are less affected.

Over the longer term, the COVID-19 pandemic may reshape GVCs as firms take additional measures to make the supply chains even more resilient. This may include diversifying production locations and suppliers as well as investing more in digitalization. The ongoing elevated uncertainty, however, weighs on investment decisions, including those of GVC firms.

¹ See also Box 1 of the Bank's *Business Outlook Survey—Autumn 2020*, which discusses how Canadian firms are adapting to supply chain challenges in Canada.

Table 1: Projection for global economic growth

	Share of real global GDP* (percent)	Projected growth† (percent)			
		2019	2020	2021	2022
United States	16	2.2 (2.3)	-3.6 (-8.1)	3.1 (3.4)	3.4 (4.3)
Euro area	12	1.3 (1.2)	-8.0 (-9.3)	4.9 (4.2)	2.4 (3.6)
Japan	4	0.7 (0.7)	-5.7 (-6.1)	3.7 (3.8)	1.9 (2.6)
China	17	6.2 (6.1)	1.6 (-0.3)	8.2 (8.8)	5.5 (6.3)
Oil-importing EMEs‡	34	3.0 (3.1)	-5.6 (-4.8)	5.3 (5.8)	6.0 (6.1)
Rest of the world§	17	1.3 (1.3)	-5.0 (-6.9)	1.0 (2.2)	2.5 (6.1)
World	100	2.8 (2.9)	-4.0 (-5.2)	4.8 (5.2)	4.3 (5.4)

* GDP shares are based on International Monetary Fund (IMF) estimates of the purchasing-power-parity valuation of country GDPs for 2019 from the IMF's October 2020 *World Economic Outlook*.

† Numbers in parentheses are for the central scenario used in the previous Report.

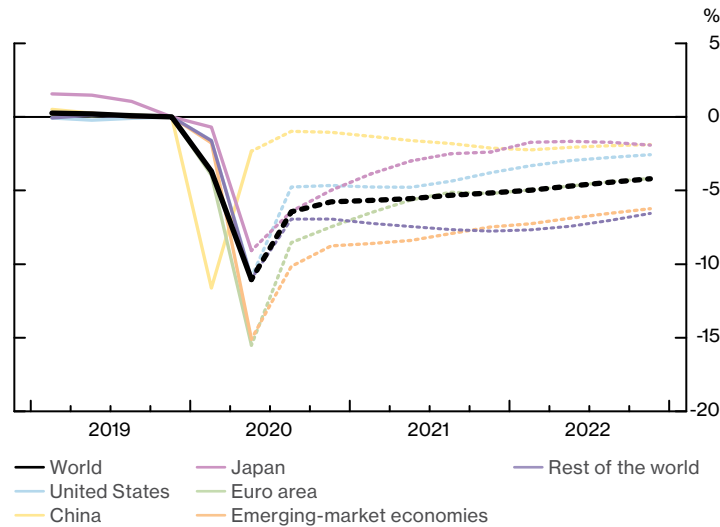
‡ The oil-importing emerging-market economies (EMEs) grouping excludes China. It is composed of large EMEs from Asia, Latin America, the Middle East and Africa (such as India, Brazil and South Africa), as well as newly industrialized economies (such as South Korea).

§ "Rest of the world" is a grouping of all 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 2: Output is expected to remain below pre-pandemic levels

Deviation of real GDP from January Report forecast, quarterly data



Note: The January projection for real GDP is extended by one year to 2022 with the estimate for 2021 potential output growth used in the January Report. To allow for comparison despite revisions to historical data, GDP projections for the current base-case scenario and for the January Report have been indexed to the same level as in the fourth quarter of 2019.

Sources: National sources and Bank of Canada calculations and projections

Financial conditions remain supportive of growth

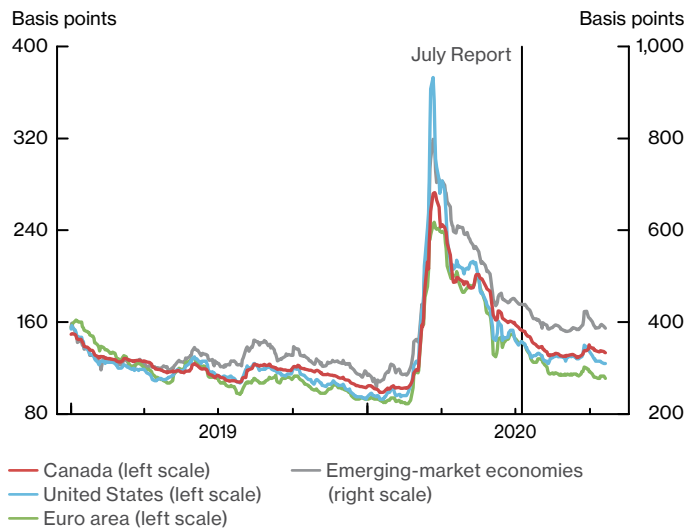
Global financial market conditions remain highly accommodative, as central banks keep policy rates low and use other tools to provide additional stimulus. The US Federal Reserve recently adopted a new flexible average inflation targeting framework and restated its accommodative stance. Yields for sovereign bonds are near record lows, with most sovereign bonds issued by advanced economies trading below 1 percent. Yield curves for North American sovereign bonds have steepened slightly, with long-short spreads reaching their early-2018 levels. Yields remain anchored at the short end by central bank policy rate targets and forward guidance. Meanwhile, long-term yields have risen, reflecting that investors' sentiment has improved and inflation expectations are slightly higher. Market-based expectations for US inflation have increased since July and are mostly back to pre-crisis levels.

Financing conditions have improved somewhat for non-financial corporations and EMEs since July. Corporate spreads have declined further, and North American corporate bond issuance has been strong, although it has recently slowed. Emerging-market bond spreads are also lower than in July, and capital flows are returning to some emerging markets. North American equity indexes are up from their mid-July levels, although performance varies considerably across sectors, reflecting the unevenness of the recovery.

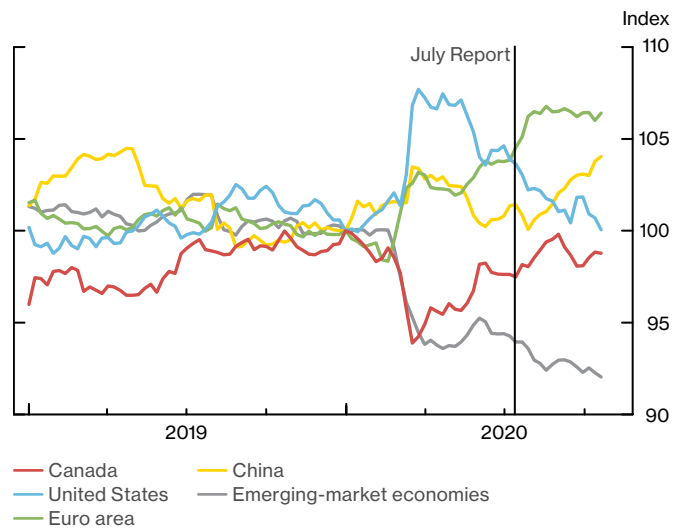
The Canadian dollar has strengthened further against the US dollar since July amid increased global appetite for risk. Despite oil prices remaining well below their pre-pandemic levels, the Canadian dollar has returned to the level it was at in late 2019 and early 2020. The US dollar has depreciated since July, partly reflecting further declines in real interest rates in the United States relative to other countries (Chart 3). Because the economies of emerging markets have generally been more negatively affected by the pandemic, their currencies, as a group, continue to weaken relative to those of their trading partners. By contrast, the euro has strengthened since July.

Chart 3: Financial conditions are stabilizing

a. Corporate credit spreads, daily data



b. Nominal effective exchange rate indexes, weekly data
Index: January 4, 2020 = 100



Note: The spreads for the United States and emerging-market economies (EMEs) are the option-adjusted spreads between bonds denominated in US dollars and US Treasuries. The spreads of 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 EMEs, which include a number of high-yield bonds. Corporate credit spreads of EMEs include only bonds issued in US dollars. The exchange rate index for EMEs is an aggregate of data from 24 countries in percent of global GDP by purchasing-power-parity weight.

Sources: J.P. Morgan via Haver Analytics, Bloomberg Finance L.P. and Bank of Canada calculations

Last observation: October 23, 2020

The US economy rebounded quickly but is now slowing

US employment and economic activity rebounded quickly after May and by more than expected in the July Report. In June, consumption of goods surpassed its pre-pandemic levels, with strong demand for home improvement items and motor vehicles. Residential construction has also picked up strongly. In contrast, services consumption has only partially recovered, and industrial production remains below pre-pandemic levels in many sectors (**Chart 4**).

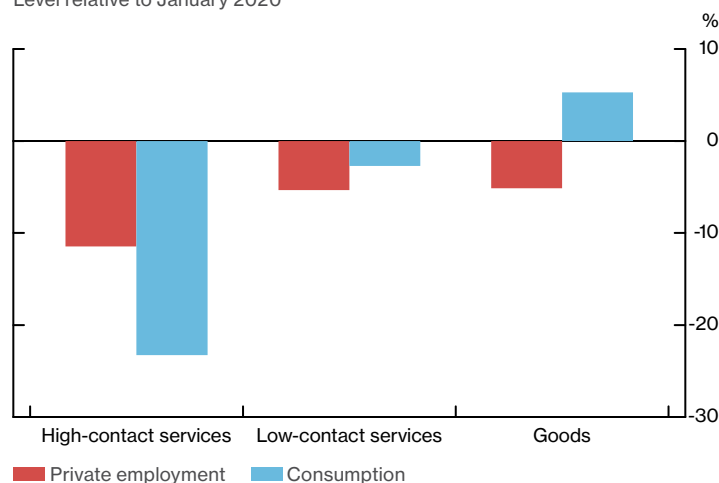
US fiscal policy has provided important support in 2020. The Bank estimates that fiscal stimulus offset about half of the negative economic effects of the pandemic by the third quarter. US monetary policy has been highly accommodative, and markets expect this to continue over the medium term, consistent with the Federal Reserve’s recent guidance.

Incoming data show gains in employment and economic activity have eased since July, as the initial surge of demand subsided. US growth is anticipated to slow markedly in the fourth quarter as rising numbers of COVID-19 cases are prompting renewed caution and some fiscal support measures are set to expire. The Bank’s projection assumes no additional fiscal measures will be implemented.¹ Consumption growth is therefore expected to be particularly weak in the autumn and winter, with elevated rates of new infections requiring continued physical distancing. Beginning in mid-2021,

¹ Additional fiscal stimulus is an upside risk to the outlook. Bank analysis assumes a total multiplier effect from US fiscal policy of 0.8. Relative to the July Report, the multiplier effects are slightly higher, based on recent research. See R. Chetty, J. N. Friedman, N. Hendren, M. Stepner and The Opportunity Insights Team, “How Did COVID-19 and Stabilization Policies Affect Spending and Employment? A New Real-Time Economic Tracker Based on Private Sector Data,” National Bureau of Economic Research Working Paper No. 27341 (June 2020); and O. Coibion, Y. Gorodnichenko and M. Weber, “Labor Markets During the COVID-19 Crisis: A Preliminary View,” National Bureau of Economic Research Working Paper No. 27017 (April 2020).

Chart 4: US recovery is uneven across sectors

Level relative to January 2020



Note: “High-contact services” refers notably to transportation, food and accommodation, recreation and personal care. “Low-contact services” refers to other service-producing sectors.

Sources: US Bureau of Labor Statistics and Bureau of Economic Analysis via Haver Analytics, and Bank of Canada calculations

Last observations: consumption, August 2020; private employment, September 2020

consumption growth should gradually pick up because the need for these measures will likely ease, although consumers are anticipated to remain apprehensive throughout the projection horizon. The weak consumption outlook and elevated uncertainty slow investment growth. The pandemic is also expected to negatively affect US potential output growth (**Appendix 1**).

Inflation is anticipated to remain below 2 percent through 2022 due to persistent excess supply. In recent months, core inflation has been pushed up by transitory factors, including higher prices for motor vehicles and parts as well as financial services.

A resurgence of COVID-19 is dampening the recovery in the euro area

The euro area economy contracted most among the major economies, with output in the second quarter falling to 15 percent below its pre-pandemic level. Policy support has preserved jobs effectively despite large declines in activity and hours worked. Indicators of production and sentiment in the euro area suggest that growth in the third quarter rebounded by somewhat more than expected in the July Report. However, the recent resurgence in COVID-19 infections has required some renewed containment measures, slowing near-term growth.

Looking beyond the near term, the recovery is expected to be prolonged, reflecting a persistent need for physical distancing measures. This is somewhat offset by policy support, although fiscal support has been moderate so far and the scope for further monetary policy action may be limited.² The pandemic is also expected to reduce labour input and total factor productivity growth, slowing potential and actual output growth in the euro area.

² European Union leaders agreed in July to provide coordinated fiscal stimulus under the Recovery and Resilience Facility. This agreement marks an important development; however, details available so far suggest it will have a relatively modest impact through 2022.

China's output has returned to pre-pandemic levels

With the spread of the virus under control there, China's economic recovery has been faster than that of other major economies and than that expected in July. China's GDP returned to its pre-pandemic level in the second quarter. Investment in infrastructure and real estate has been especially robust, partly due to policy support and strong credit growth. Exports have also increased rapidly in recent months. Chinese exporters have benefited from an earlier reopening than other economies and from strong foreign demand for medical equipment, office items for remote work and high-tech products. Retail sales have lagged the recovery in production, although recent data suggest consumption and demand for services are gaining momentum.

China's recovery is expected to broaden further as consumption, private sector investment and foreign demand continue to strengthen. Fiscal stimulus is offsetting a significant share of the drag on growth from physical distancing. As elsewhere, the pandemic's effects are expected to reduce China's potential output, especially productivity and investment growth.

Many emerging-market economies continue to struggle

Many EMEs have been hit hard by the virus. India and many Latin American countries face particularly severe and ongoing outbreaks that are constraining activity, especially in the services sector. In East Asia, although the virus is relatively well controlled, recent data suggest that caution is keeping economic activity somewhat subdued.

The recovery in most EMEs is projected to be slower than in China and advanced economies. The capacity of many EMEs to shift to remote work is limited. Financial vulnerabilities and constraints on their ability to provide fiscal policy support are also expected to dampen the recovery in EMEs. Physical distancing effects and lower potential output result in downward revisions to the outlook from the July Report for oil-importing EMEs. These factors weigh on economies in the rest-of-the-world block as well, with low oil prices also reducing estimates of their potential output.

Recovery of commodity prices is uneven

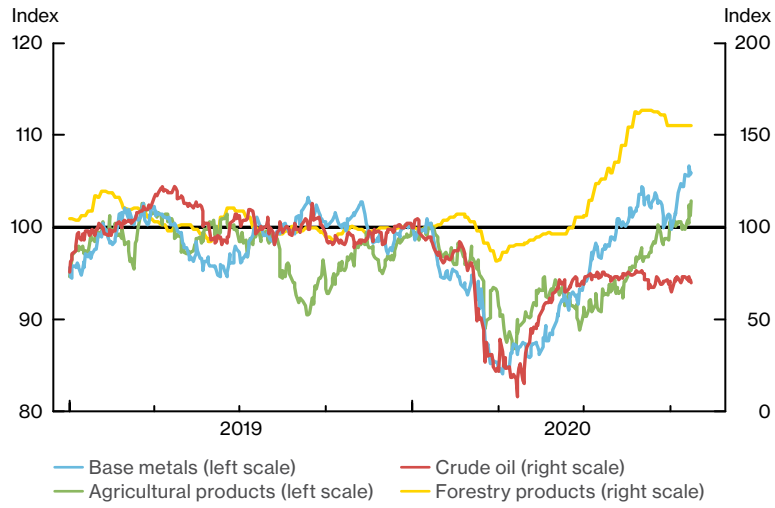
Oil prices have been steady in recent weeks as the global recovery slows and oil supply gradually increases. Global oil prices remain about one-third lower than their pre-pandemic levels (**Chart 5**). Reductions in air travel and ground transportation as well as high oil inventories are contributing to persistently low oil prices.

As in the July Report, the Bank assumes that Brent and West Texas Intermediate prices will remain close to US\$40 per barrel and Western Canadian Select will stay around US\$30 per barrel (**Box 2**). Risks around this assumption are tilted modestly to the upside over the medium term because oil prices may rise further as the global economy recovers.

Indexes for non-energy commodity prices are now exceeding their pre-pandemic levels. The recovery in global manufacturing and China's infrastructure investment growth have bolstered prices for base metals. Forestry product prices surged over the summer because earlier cuts to production left inventories low while US housing demand strengthened. Increased supply and slowing demand growth have since helped stabilize lumber prices.

Chart 5: Oil price recovery has stalled

Index: January 1, 2020 = 100, daily data



Note: All series plotted 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.

Source: Bank of Canada

Last observation: October 23, 2020

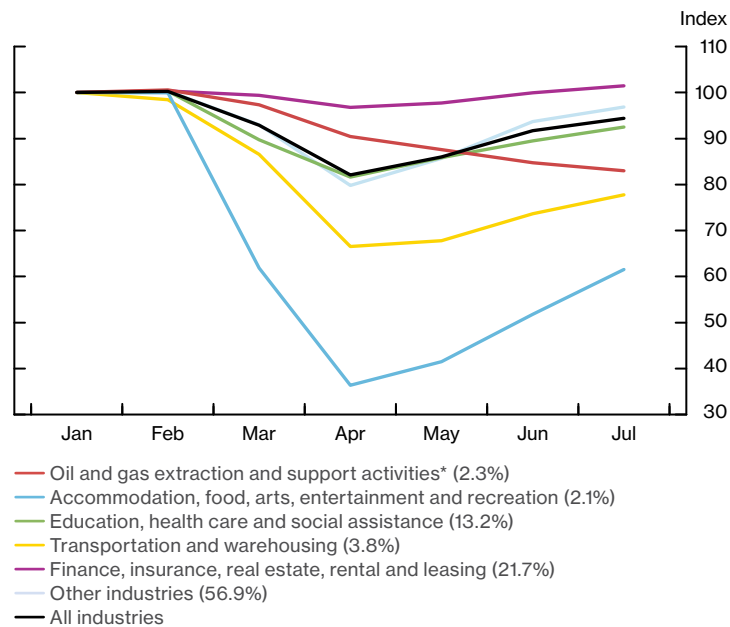
Canadian economy

The Canadian economy has now entered the recuperation phase of the recovery. As anticipated, rapid economic growth from easing containment measures over the summer has transitioned to a more moderate pace. The recent reintroduction of some containment measures in response to rising numbers of COVID-19 cases is expected to have a negative impact on economic activity in the near term.

The economic effects of the pandemic have been highly uneven. Some activity has been relatively unaffected, or even boosted, by the virus and containment measures. In other cases, businesses were partially or fully shut down but have been able to reopen, with activity returning close to pre-pandemic levels. In contrast, businesses in sectors that require close physical contact continue to be disproportionately affected (**Chart 6**). The effects have been similarly uneven across households.

Chart 6: Hardest-hit sectors continue to struggle

Real GDP by industry, selected industries, index: January 2020 = 100, monthly data



Note: The numbers in parentheses represent the estimated nominal shares of total GDP by industry.

* Support activities include those for mining industries.

Sources: Statistics Canada and Bank of Canada calculations

Last observation: July 2020

Box 2

Key inputs to the projection

The Bank of Canada's projection is always conditional on several key assumptions, and changes to them will affect the outlook for the Canadian economy. In addition to the assumptions about the evolution of the COVID-19 pandemic and public health measures described in the Overview section, the key inputs into the Bank's projection are as follows:

- Oil prices are assumed to remain near recent levels. The per-barrel prices in US dollars are assumed to be \$40 for Brent and West Texas Intermediate and \$30 for Western Canadian Select, about the same as assumed in the July Report.
- By convention, the Bank does not forecast the exchange rate in the *Monetary Policy Report*. The Canadian dollar is assumed to remain at 76 cents US over the projection horizon, close to its recent average and somewhat above the 74 cents US assumed in the July Report.
- The pandemic and related containment measures have persistent and temporary negative effects on the Canadian economy.¹
 - The Bank's assessment of the growth of potential output, a longer-term concept, looks through the short-lived impacts of containment measures. The Bank estimates that over 2020–23, persistent scarring effects of the pandemic on the labour force, investment and the structure of the economy will lower potential output growth considerably, relative to previous assessments (Appendix 1 on page 29). The midpoints of the latest estimated ranges for potential output growth average about 1 percent per year over 2020–23. These estimates are subject to greater uncertainty than usual.
- Containment measures implemented by governments are having important short-term effects on the supply of goods and services. In particular, supply fell sharply earlier this year when some firms were forced to temporarily suspend or curtail operations. The effect on supply is expected to largely dissipate over 2021.
- Estimates of supply can be obtained by combining the estimates of the temporary effects of the containment measures with the estimates of potential output. The Bank estimates that the output gap—the difference between supply and GDP—was roughly -3 to -4 percent in the third quarter.
- The neutral nominal policy rate is defined as the real rate consistent with output remaining sustainably at its potential and with inflation at target, on an ongoing basis, plus 2 percent for inflation. It is a medium- to long-term equilibrium concept. In this Report, the Bank has updated its estimated range of the neutral interest rate (see Appendix 2 on page 33). The projection is based on the assumption that the neutral rate is at the midpoint of this range of 1.75 to 2.75 percent.

¹ As in the July Report, the Bank makes the distinction between supply and potential output in the near term to account for the relatively short-lived nature of some of the contraction in supply.

Recognizing the ongoing challenges—particularly the severe impacts on low-income households—governments have extended and modified income support programs since the July Report. Meanwhile, monetary policy continues to keep borrowing costs low for Canadian businesses and households (**Box 3** on page 24).

The economic recovery is projected to be prolonged, underpinned by policy support but largely influenced by the evolution of the virus, ongoing uncertainty and structural changes to the economy. These changes could result in longer-term shifts of workers and capital across different regions and sectors of the economy. This adjustment process weighs on the Bank's estimates of potential growth.

After declining by about 5 ½ percent in 2020, the economy is expected to expand by almost 4 percent on average in 2021 and 2022 (**Table 2**). Two factors will likely lead to quarterly patterns of growth that are unusually choppy: localized outbreaks and containment measures, and varied rates of recovery across industries.

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

	2019	2020	2021	2022
Consumption	1.0	-3.9	2.4	2.3
Housing	0.0	0.1	0.6	0.0
Government	0.4	0.0	1.3	0.2
Business fixed investment	0.0	-1.2	0.1	0.7
<i>Subtotal: final domestic demand</i>	1.3	-5.0	4.4	3.2
Exports	0.4	-3.0	1.3	1.5
Imports	-0.2	3.5	-2.4	-1.4
<i>Subtotal: net exports</i>	0.2	0.5	-1.1	0.1
Inventories	0.1	-1.2	0.9	0.4
GDP	1.7 (1.7)	-5.7 (-7.8)	4.2 (5.1)	3.7 (3.7)
Memo items (percentage change)				
Range for potential output	1.5–2.1 (1.5–2.1)	0.1–1.3 (1.3–2.1)	0.2–1.6 (1.2–2.4)	0.3–1.9 (1.3–2.5)
Real gross domestic income (GDI)	1.6	-6.3	4.6	3.6
CPI inflation	1.9 (1.9)	0.6 (0.6)	1.0 (1.2)	1.7 (1.7)

* Numbers in parentheses are from the central scenario in the previous Report in the cases of GDP and CPI inflation and from the April 2019 *Monetary Policy Report* in the case of potential output ranges.

† Numbers may not add to total because of rounding.

Inflation is expected to remain below the lower end of the Bank's inflation-control target range of 1 to 3 percent until early 2021, largely due to the effects of low energy prices. Subsequently, inflation is anticipated to be within the target range, but economic slack will continue to put downward pressure on inflation throughout the projection period.

The reopening phase was strong but uneven

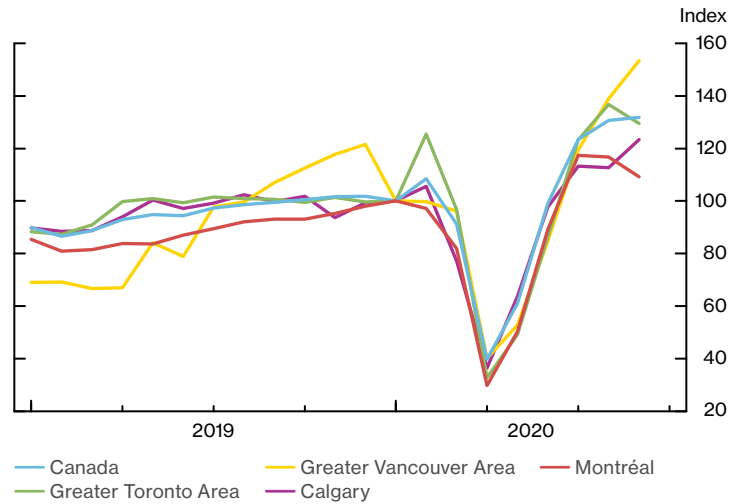
Growth is estimated to have rebounded strongly in the third quarter, reversing about two-thirds of the decline observed in the first half of the year (**Table 3**). A sizable bounce back in activity resulted from a rebound in foreign demand, the release of pent-up demand for housing and some durable goods, and robust policy support.

Housing activity recovered sharply in the third quarter, supported by historically low financing costs, resilient incomes for higher-earning households, and extra sales and construction that made up for delayed spring activity (**Chart 7**). By September, cumulative resales are estimated to have compensated for the activity that was missed during the normally busy spring market. Housing activity may also be benefiting from changes in preferences. In particular, more than one-quarter of respondents to the Canadian Survey of Consumer Expectations in the third quarter of 2020 reported they would like to move to a larger or single-family home because of the pandemic.

The strength of the housing market recovery, combined with a tight resale market, has led to rapid growth of house prices in some markets. In contrast to the appreciation of house values observed in Toronto and Vancouver in 2016, price growth has been strongest in markets with moderate loan-to-income ratios, such as Ottawa, Montréal and Halifax.

Chart 7: Home resales have rebounded strongly

Multiple Listing Service residential sales, index: January 2020 = 100, monthly data

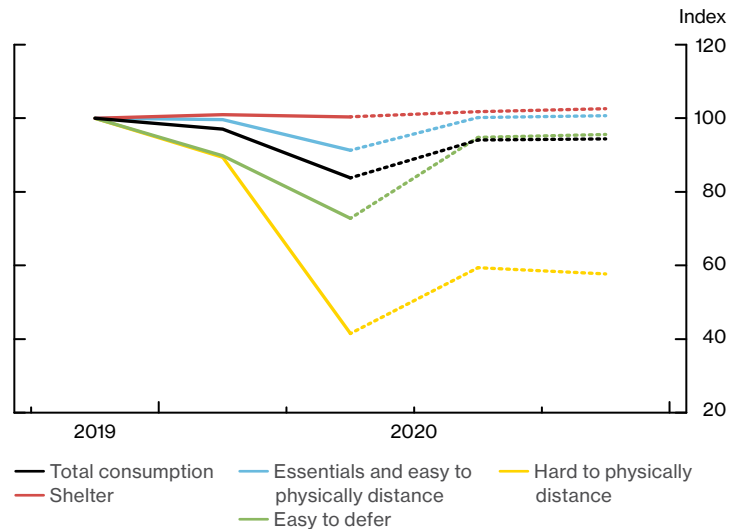


Sources: Canadian Real Estate Association and Bank of Canada calculations

Last observation: September 2020

Chart 8: Consumption patterns have shifted

Nominal and seasonally adjusted consumption, index: 2019Q4 = 100, quarterly data



Note: "Essentials and easy to physically distance" includes spending on categories such as groceries, alcohol, clothing, footwear and medical products as well as health, education, communication, insurance and financial services. "Hard to physically distance" includes spending on categories such as food and beverages in bars and restaurants, accommodation, recreational, cultural and transportation services as well as travel expenditures by Canadians abroad. "Shelter" includes spending on categories related to the ownership, rental or maintenance of a dwelling. "Easy to defer" includes spending on categories such as vehicles, appliances, furnishings and jewelry.

Sources: Statistics Canada and Bank of Canada estimates and calculations Last data plotted: 2020Q4

Households have been adapting to an environment with physical distancing measures. Consumers are spending less on services that involve higher risks of infection, such as travel, personal care services and recreation. At the same time, they are spending relatively more on goods such as groceries and electronics (**Chart 8**). As a result, sales of most goods are estimated to have recovered in the third quarter to near pre-pandemic levels.

Table 3: Summary of the projection for Canada
 Year-over-year percentage change*

	2020				2019	2020	2021	2022
	Q1	Q2	Q3	Q4	Q4	Q4	Q4	Q4
CPI inflation	1.8 (1.8)	0.0 (-0.1)	0.2 (0.4)	0.2	2.1 (2.1)	0.2 (0.4)	1.3 (1.3)	1.8 (1.8)
Real GDP	-0.9 (-0.9)	-13.0 (-14.6)	-4.4 (-8.8)	-4.3	1.5 (1.5)	-4.3 (-6.8)	3.8 (4.9)	3.0 (3.2)
Quarter-over-quarter percentage change†	-2.1 (-2.1)	-11.5 (-13.1)	10.2 (7.1)	0.2				

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

† At annual rates, quarter-over-quarter percentage changes are -8.2 for 2020Q1, -38.7 for 2020Q2, 47.5 for 2020Q3 and 1.0 for 2020Q4. In the July Report, the figures were -8.2 for 2020Q1, -43.0 for 2020Q2 and 31.3 for 2020Q3. For longer horizons, fourth-quarter-over-fourth-quarter percentage changes are presented.

Saving and spending patterns have diverged across households. Some lower-income workers who lost their jobs are receiving support payments that exceed their pre-pandemic income levels, permitting them to increase their savings. For other laid-off workers, support payments fall well short of pre-pandemic incomes. Meanwhile, higher-income households have been less affected by job losses but have curtailed their typical spending, mainly on services that require a greater degree of in-person interaction. The overall savings rate has risen significantly.

Investment and exports have not had as strong a recovery as household spending. Both have rebounded from their lows in the second quarter but remain subdued, with significant weakness in some sectors. Some non-commodity exports, such as motor vehicles and parts as well as consumer goods, have recovered quickly. In contrast, exports of industrial machinery and equipment and other capital goods have lagged. Energy exports remain weak amid low oil prices, soft demand and ongoing structural challenges in the industry.

The Bank estimates that economic growth will be very modest in the fourth quarter (**Table 3**). The immediate boost to growth from the reopening of businesses and pent-up demand is seen as having largely occurred over the summer. In addition, the reintroduction of some containment measures in several provinces and the adverse effects on confidence stemming from the recent rise in the number of cases of COVID-19 are expected to further dampen fourth-quarter growth.

In summary, the rebound in activity occurred sooner and growth was stronger than expected in the July Report. The upward revision to estimated growth in the third quarter was driven by housing, consumption and exports. This revision is larger than the downward revision in the fourth quarter, so the estimated level of real activity at the end of the year is around 3 percent higher than in the central scenario of the July Report.

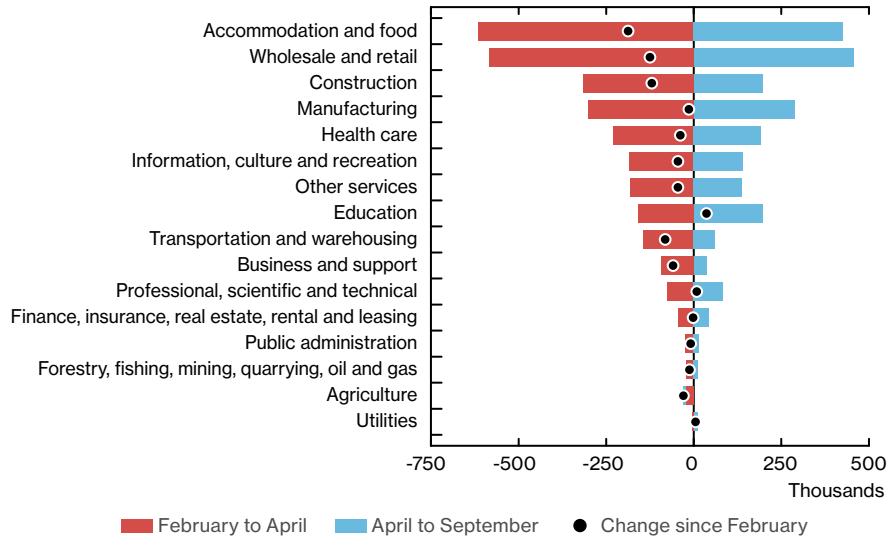
Substantial excess capacity remains

Labour markets have improved significantly since the economy reopened. However, about 720,000 people were still out of work in September because of pandemic-related job losses—substantially more than the peak level of job losses during the 2008–09 recession. Employment continued its strong recovery through the third quarter, although the pace of job gains is expected to slow considerably in the coming months as growth wanes.

The impact of the COVID-19 crisis continues to be highly uneven across firms and workers. Recovery in the hardest-hit sectors— including accommodation and food services, recreation, and travel— continues to lag. Workers in these sectors continue to face elevated levels of unemployment (Chart 9). Overall, payments under the Canada Emergency Response Benefit program have offset income losses for those in the lowest income quartile (Chart 10). Youth and low-wage workers continue to be disproportionately affected, while

Chart 9: Employment recovery continues to lag in hardest-hit sectors

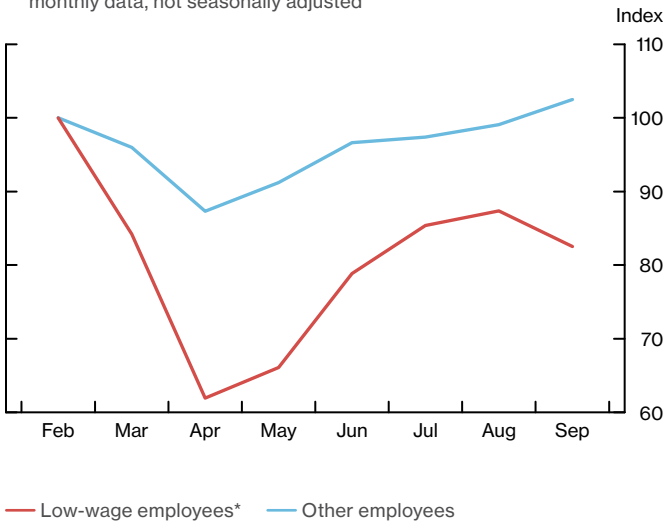
Change in employment from February to September 2020, monthly data, seasonally adjusted



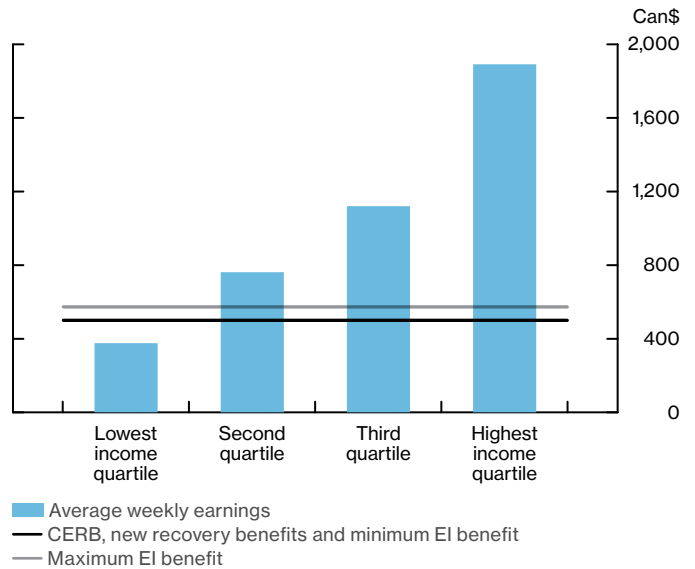
Sources: Statistics Canada and Bank of Canada calculations Last observation: September 2020

Chart 10: Low-wage workers have been most affected, though government programs are providing significant support

a. Employment by wage level, index: February 2020 = 100, monthly data, not seasonally adjusted



b. Average weekly earnings in 2019 by income quartile†



Note: All data are for employees only and exclude those who are self-employed. Seasonal factors may have contributed to the decline in employment of low-wage employees observed in September. CERB is the Canada Emergency Response Benefit; EI is Employment Insurance.

* Low-wage employees are those who earn less than \$16.03 per hour (two-thirds of the 2019 annual median wage of \$24.04 per hour).

† Income quartiles are calculated based on average hourly earnings at one's main job and usual weekly hours worked at all jobs for 2019.

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

Last observation: September 2020

unevenness across other groups has diminished in recent months. However, the breadth and intensity of re-imposed containment measures, including impacts on schools and the availability of child care, could lead to setbacks. Long breaks in employment have the potential for longer-term impacts on the income prospects of vulnerable groups.

In the autumn 2020 Business Outlook Survey (BOS), a majority of firms reported that labour and capacity pressures remained subdued, consistent with other indicators of material excess capacity. Some firms, however, noted shortages for specific types of labour or disruptions to the supply chain for particular goods as a result of the pandemic. Firms surveyed in the BOS indicated that they expect price and wage pressures to remain muted over the coming year.

Overall, the large gap between supply and demand that opened with the onset of the pandemic is estimated to have significantly narrowed in the third quarter, as the economy rebounded. Nonetheless, considerable economic slack remains. The Bank estimates that the output gap was between -3 and -4 percent in the third quarter of 2020.

CPI inflation is weak amid divergent price pressures

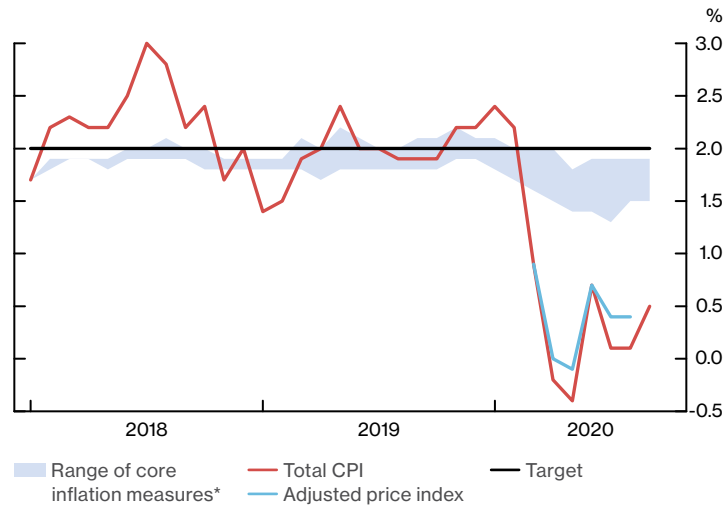
At 0.5 percent in September, consumer price index (CPI) inflation remains well below the Bank's target range, as anticipated in the July Report. Prices for CPI components that fell sharply because of weak demand early in the pandemic, including gasoline and travel accommodations, remain low compared with their levels from a year ago. Meanwhile, prices for products that saw a surge in demand early in the pandemic have started easing (for example, household cleaning and paper products). As a result, overall price pressures remain subdued. An adjusted price index, which accounts for the dramatic changes in the consumption patterns of Canadians since the start of the pandemic, is increasing at a rate that is only slightly higher than CPI inflation ([Chart 11](#)).³

Measures of core inflation have been below 2 percent, consistent with an economy where demand has fallen by more than supply, implying economic slack. Core inflation measures, which are designed to capture broad inflationary pressures, have declined by less than CPI inflation. The low rate of CPI inflation is being driven by large declines in prices for a small number of items that together have significant weight in the CPI basket.

³ The construction of the adjusted price index is described in the July Report. It captures changes in spending patterns of Canadians since the start of the pandemic. For more details, see K. Huynh, H. Lao, P. Sabourin and A. Welte, "[What Do High-Frequency Expenditure Network Data Reveal About Spending and Inflation During COVID-19?](#)" Bank of Canada Staff Analytical Note No. 2020-20 (September 2020).

Chart 11: CPI inflation remains near zero and core inflation measures below target

Year-over-year percentage change, monthly data



Note: The Bank of Canada and Statistics Canada recently developed an adjusted price index, which updates weights based on high-frequency expenditure data.

* The measures are CPI-common, CPI-median and CPI-trim.

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

Last observations: CPI, September 2020; adjusted price index, August 2020

Potential output growth is revised down sharply

In this Report, the Bank provides its reassessment of potential output growth. The outlook for potential output is considerably weaker than in the April 2019 Report (**Box 2** and **Appendix 1**). Factors related to the pandemic explain most of the revisions. Containment measures also have temporary effects on supply—lowering the growth of supply relative to potential in 2020 and boosting it in 2021.

Even without the temporary effects from containment measures, potential output growth is estimated to be lower than in the April 2019 Report. The downward revision reflects long-lasting effects from the pandemic. Slower capital accumulation is expected to weigh on trend labour productivity growth for years to come. In addition, some laid-off workers may exit the labour market if they are unable to find new jobs, putting downward pressure on trend labour input growth. As a result, potential output growth is estimated to average 1.2 percent over 2022 and 2023, much lower than the estimated average growth of 1.8 percent over 2010–18.

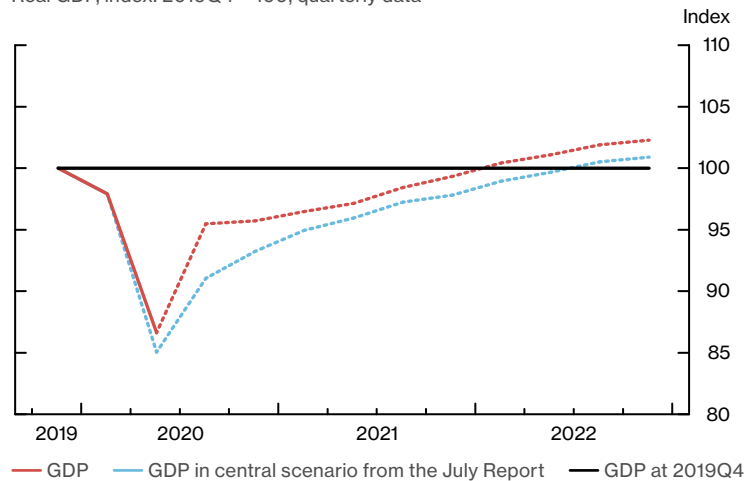
As usual, the Bank’s assessment of potential output is subject to considerable uncertainty, and estimates are presented as a range (**Table 2**). The degree of uncertainty has been magnified by the pandemic.

The recuperation phase sets in

Growth is expected to average close to 4 percent over 2021 and 2022 as the economy recuperates (**Chart 12**). This implies that GDP does not return to its pre-pandemic level until the start of 2022, and the output gap is not closed until considerably later. The recovery is expected to continue to be uneven: activity in some sectors remains largely unaffected by the pandemic or containment measures, while other sectors struggle and face a prolonged

Chart 12: GDP is projected to recover gradually

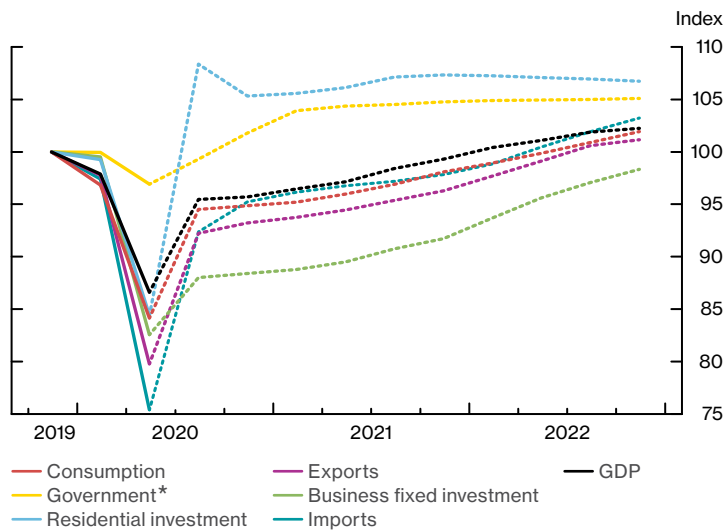
Real GDP, index: 2019Q4 = 100, quarterly data



Sources: Statistics Canada and Bank of Canada calculations and projections

Chart 13: The recovery is expected to remain uneven

Index: 2019Q4 = 100, real quarterly data



* Government includes government consumption and gross fixed capital formation.

Sources: Statistics Canada and Bank of Canada calculations and projections

recovery. For these sectors, uncertainty and its drag on growth are expected to persist but steadily diminish over time. The recovery will remain uneven and only partial until the pandemic is over (**Chart 13**).

The Bank anticipates that fiscal policy will continue to provide important support to the economy throughout the recovery. In light of recent federal and provincial announcements, the projection incorporates additional fiscal support relative to the July Report. The new fiscal measures, including broadened eligibility for employment insurance and new benefit programs, have strengthened the outlook for disposable income. The impact of fiscal stimulus on GDP is strongest in 2020 and early 2021. In contrast, there are longer lags in the monetary transmission mechanism, so the impacts of the monetary policy actions that have been taken are expected to continue to build.

Household spending leads the recovery

The overall outlook for consumption and housing is being driven by employment and disposable income, pandemic-induced changes in behaviour, and uncertainty. In addition, low interest rates are expected to support spending, especially on residential investment and durable goods, such as motor vehicles.

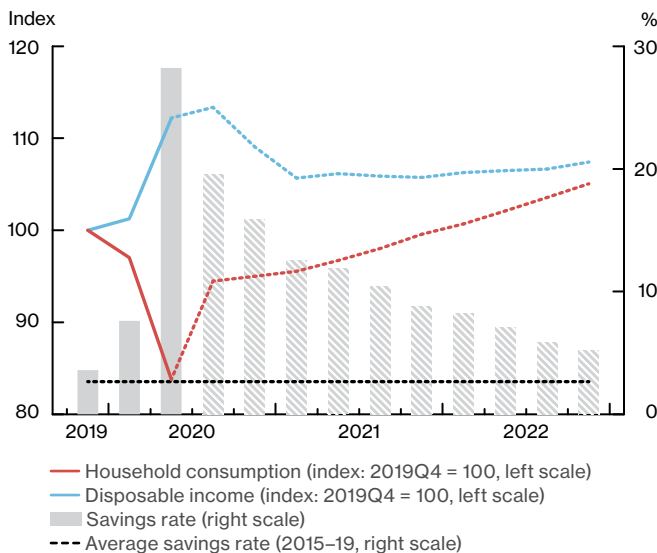
Consumption and housing demand, as well as potential output, are supported over the projection horizon by resumed immigration. The pace of arrivals in Canada is expected to return to pre-pandemic levels in 2021. However, the assumption for the future path of the total population has been revised lower as a result of the pandemic.

Consumption growth is anticipated to remain around 4 percent over the projection horizon. Over this period, two factors weighing on consumption should gradually become less important. The first is physical distancing, which restricts spending on services such as travel, hospitality and personal care. The second is uncertainty, which is increasing precautionary savings (Chart 14). These factors contributed to an unusually large jump in the savings rate in 2020. As the effects of these factors diminish, household spending should increase.

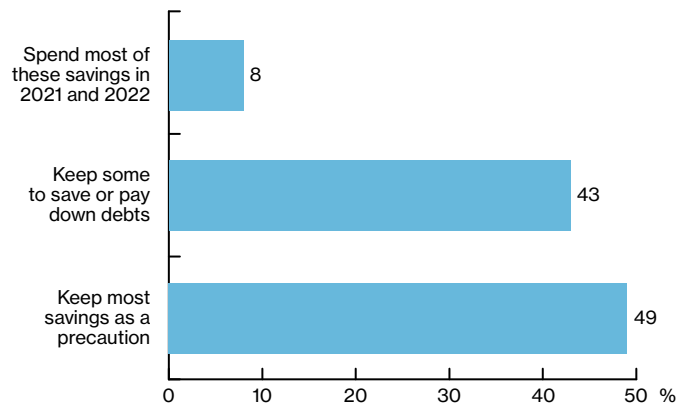
Overall, the outlook for residential investment reflects the implications of pandemic-related shifts in housing preferences, lower population and decreased borrowing costs. As pent-up demand recedes, home resales are expected to moderate in 2021 from record levels in the second half of 2020. Renovations should remain resilient over the projection horizon, with people spending more time at home.

Chart 14: Household savings are expected to remain elevated

a. Nominal quarterly data



b. Share of respondents, percent*



* Percentage of respondents answering the Canadian Survey of Consumer Expectations (CSCE) question, "What are you planning to do with your extra savings?" See the [2020Q3 CSCE](#) for more details.

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

Last observation: CSCE, 2020Q3

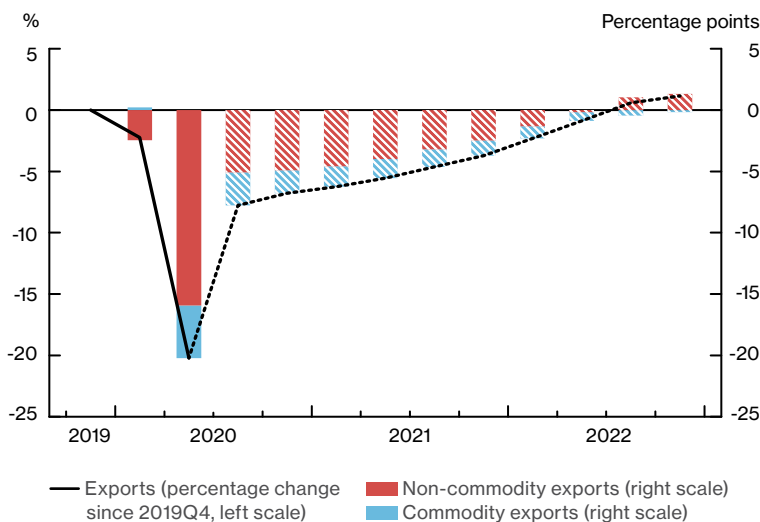
Exports recover slowly

Exports return to pre-pandemic levels by mid-2022 in the projection, underpinned by a gradual improvement in foreign demand (**Chart 15**). Low energy prices restrain growth of energy exports, and travel exports will continue to be subdued until international tourism resumes.

The recovery in imports is also expected to be gradual. Imports of machinery and equipment are anticipated to be weak as uncertainty hampers investment by Canadian firms. At the same time, imports of consumer goods are expected to recover along with consumer demand. Imports of services should begin to recover when borders gradually reopen.

Chart 15: Exports have rebounded, but the pace of recovery is expected to be more gradual

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

The recovery in business investment will be protracted

Business investment is expected to increase gradually, in line with soft domestic and foreign demand. Uncertainty is expected to remain a significant drag on firms' investment decisions. In particular, firms face considerable uncertainty about the long-term nature of some of the changes in business practices and in household preferences and behaviours resulting from the pandemic. Some shifts may persist, while others could revert relatively quickly once conditions begin to normalize. For example, the planned return of workers to centralized offices remains unclear, which creates significant uncertainty for firms' investments in buildings and facilities.

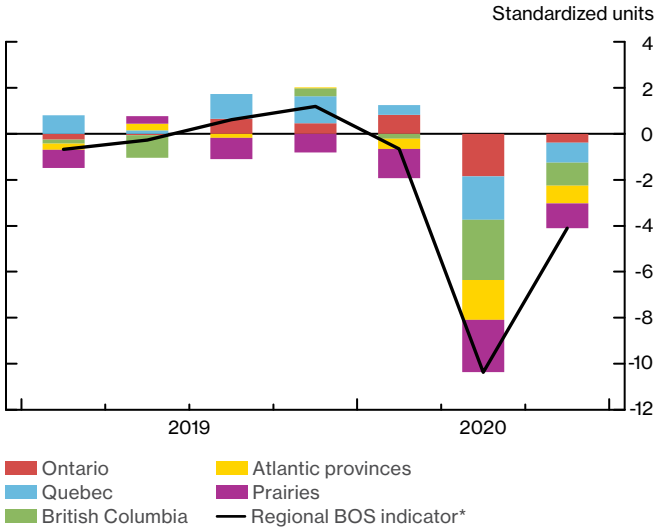
Investment outside the oil and gas sector is held back by subdued business sentiment. As a result, investment does not surpass its pre-pandemic level until mid-2022 (**Chart 16**).

Investment in the oil and gas sector is even more challenged because of low oil prices and difficult financing conditions, and it is not expected to return to pre-pandemic levels over the projection horizon. As a result, capital expenditure plans and oil production in Canada remain significantly below 2019 levels throughout the projection horizon. Following a roughly 30 percent

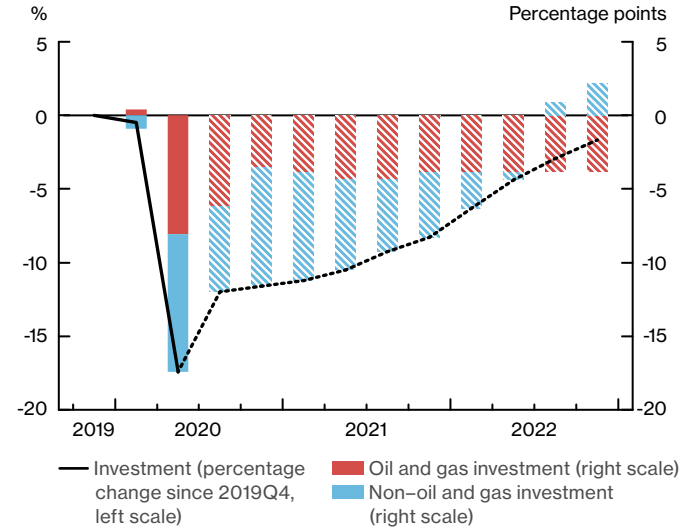
Chart 16: Business sentiment has improved, but uncertainty continues to weigh on investment intentions

Quarterly data

a. Regional BOS indicator and regional contributions



b. Contribution to the deviation of real total business investment from the 2019Q4 level, in percentage points



* This indicator may differ from the overall Business Outlook Survey (BOS) indicator because the common variations are extracted from more variables. These variables are more volatile because they are based on responses from smaller samples of firms. See the [Autumn 2020 BOS](#) for more details.

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

Last observation: BOS, 2020Q3

contraction in 2020, oil and gas investment is projected to grow by just over 2 percent in 2021–22. While risks to the oil price assumption are skewed to the upside, modestly higher prices are unlikely to lead to a significant increase in investment.

Inventory investment is expected to contribute positively to growth over the projection horizon as firms rebuild depleted stocks.

Economic slack weighs on inflation

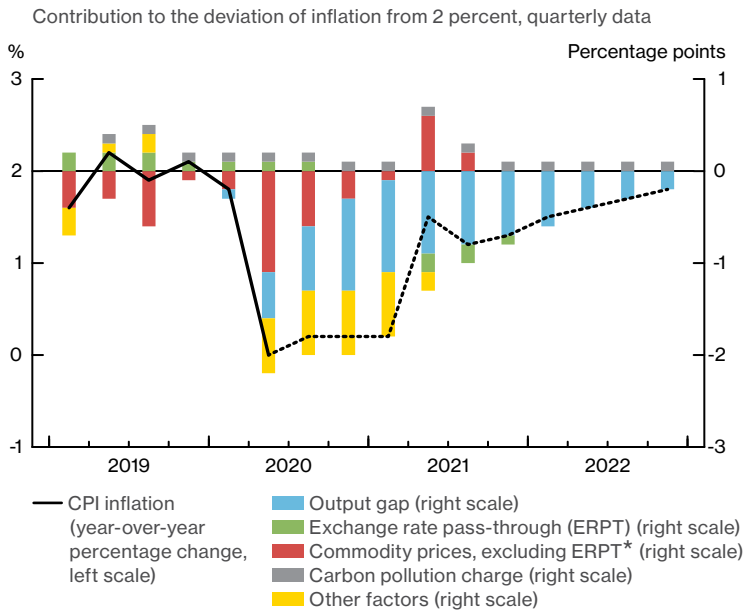
In the projection, the path for CPI inflation over the next year largely reflects the dynamics of energy prices and the gradual narrowing of excess capacity. The dramatic decline in gasoline prices in March and April will hold inflation down until early 2021. After that, CPI inflation is expected to pick up. Nevertheless, looking through quarter-to-quarter volatility, CPI inflation is expected to be below target in 2021 and 2022 as a result of ongoing slack (**Chart 17**). For example, about one-quarter of the jobs lost during the containment have yet to return. With some sectors unable to reopen completely until the virus has passed, excess supply is expected to exert downward pressure on inflation over the entire projection horizon.

Other factors could lead to movements in inflation. Higher operating costs from physical distancing measures, such as increased sanitation procedures or additional staff, could be a source of upward price pressures (for example, the “COVID-19 fees” seen in some hair salons).

Medium- and long-term inflation expectations remain well anchored at the 2 percent target. Most firms responding to the autumn 2020 Business Outlook Survey anticipate that inflation will remain within the Bank’s inflation-control target range of 1 to 3 percent over the next two years. Expectations for inflation two years from now remain relatively stable and close to levels

observed before the pandemic. Most respondents to the Canadian Survey of Consumer Expectations in the third quarter of 2020 anticipate that inflation will be within that range or just above it over the next two years.⁴ The September 2020 Consensus Economics forecast for Canadian CPI inflation is 0.7 percent in 2020 and 1.7 percent in 2021. Responses to a quarterly question on long-term inflation expectations show an average of 2.0 percent through 2030.

Chart 17: Inflation to rise gradually as economic slack is absorbed



Note: Numbers may not add to total because of rounding.

* This also includes the effect on inflation of the divergence from the typical relationship between gasoline and crude oil prices.

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

⁴ For more details, see the [Canadian Survey of Consumer Expectations](#) and the [Business Outlook Survey](#).

Box 3

The evolution of the Bank of Canada's balance sheet

The Bank of Canada responded quickly in the initial stages of the pandemic by:

- lowering its policy interest rate to its effective lower bound of 25 basis points, and
- introducing several liquidity facilities and asset purchase programs to restore market functioning.

As a result, the Bank's balance sheet expanded rapidly, reflecting predominantly the growth of holdings of term repos and bankers' acceptances (BAs). This occurred as other major central banks dramatically increased their balance sheets at the onset of the pandemic, though the Bank of Canada's increase was somewhat more pronounced (Chart 3-A, left panel). Total Bank holdings, however, remain much lower than those for most other central banks of advanced economies.

Financial market conditions improved with the Bank's actions, and market participants are no longer making much use of the facilities and programs for liquidity purposes. As a result, the Bank has discontinued some of these facilities and

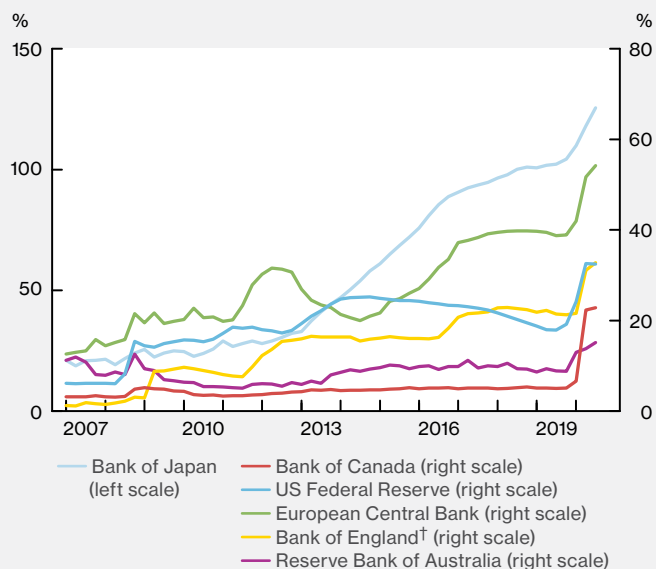
programs and scaled back others.¹ This, and the maturing of \$41 billion of BAs and term repos, has contributed to stabilizing the size of the balance sheet since July (Chart 3-B, left panel).

It is also worth noting that the maturity structure of the Bank's holdings of domestic federal government debt is considerably shorter than that of some other central banks, including the US Federal Reserve (Chart 3-A, right panel).² This different maturity profile partly reflects the fact that the Bank of Canada introduced its first quantitative easing (QE) program during the COVID-19 pandemic, whereas many other central banks have implemented QE programs to provide monetary stimulus at various points since the global

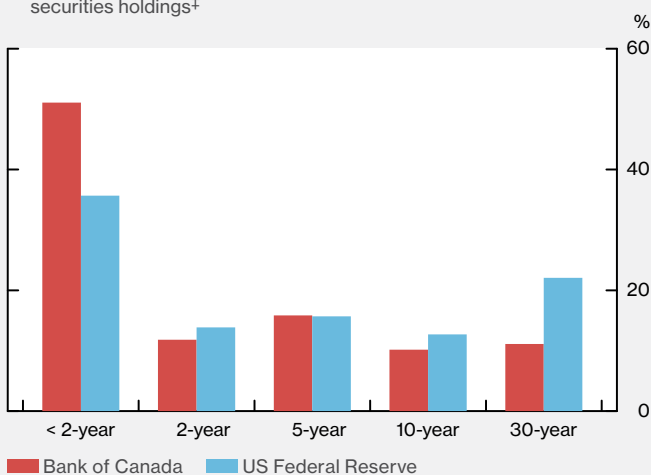
- 1 On October 15, 2020, the Bank announced that the Bankers' Acceptance Purchase Facility (BAPF) and the Canada Mortgage Bond Purchase Program (CMBP) would be discontinued, with the last operations scheduled to take place before the end of October. The Bank also announced that it would reduce the frequency of term repo operations and narrow the list of eligible securities.
- 2 In Chart 3-A, US Federal Reserve holdings exclude agency mortgage-backed securities. If they were included, the maturity structure of the US Federal Reserve would be even longer.

Chart 3-A: The Bank of Canada's purchases were aggressive, but holdings are skewed to shorter maturities

a. Central bank total assets as a percentage of GDP, quarterly data*



b. Government securities by maturity as a percentage of total government securities holdings‡



* For the first three quarters of 2020, total assets as a percentage of GDP are calculated using GDP in the fourth quarter of 2019.

† The Bank of England's reserve balances, as published in their Weekly Report, are used to calculate this percentage. This report typically discloses over 90% of the Bank of England's balance sheet by value.

‡ Bank of Canada government securities include Government of Canada treasury bills and bonds. US Federal Reserve government securities include US treasury bills, notes, bonds and Federal Agency securities. Agency mortgage-backed securities are not included, and the maturity distribution would be considerably longer if they were to be included. The maturity categories correspond to the following maturity windows: "< 2-year" is 1.9 years or less, "2-year" is 2–3 years, "5-year" is 4–6 years, "10-year" is 7–11 years and "30-year" is 12 years or more.

Sources: Bank of Canada, US Federal Reserve, Bloomberg Finance L.P., national sources via Haver Analytics and Bank of Canada calculations

Last observations: central bank total assets, 2020Q3; government securities, October 21, 2020

Box 3 (continued)

financial crisis. The Bank of Canada therefore had a smaller balance sheet than other central banks at the beginning of the pandemic. Because the initial focus of the Government Bond Purchase Program (GBPP) was on restoring market functioning, more purchases were allocated to bonds with shorter maturities where issuance was largest. This contributed to the shorter-maturity distribution of Bank of Canada holdings.

With the economy reopening in the summer and market functioning much improved, the Bank shifted the primary focus of its GBPP to providing monetary stimulus. As of mid-October, the Bank held about 34 percent of outstanding Government of Canada (GoC) bonds. The maturity structure of the balance sheet has lengthened somewhat as a result of the ongoing purchases of bonds and the maturing of shorter-term holdings (Chart 3-B, right panel).

For monetary stimulus purposes, both the size of QE purchases and the maturity composition of purchases can have a meaningful impact on compressing yields. The

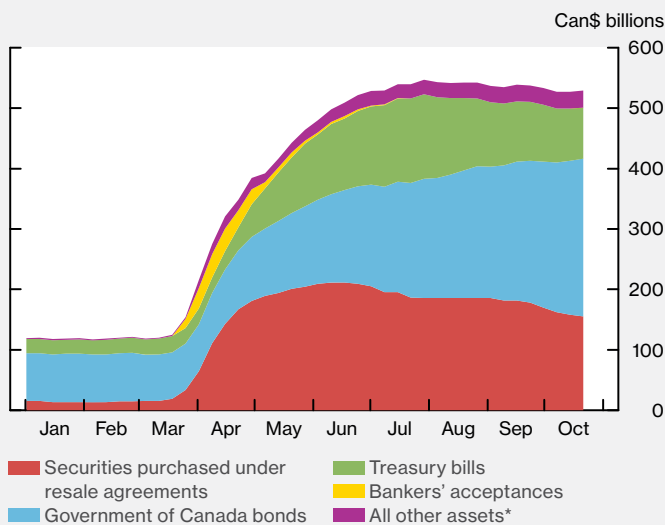
maturity composition of the GBPP has been roughly consistent with the maturity distribution of outstanding GoC bonds. This implies that these purchases have been concentrated in the shorter-term maturities. About half of purchases have been bonds with terms to maturity of less than three years.

QE purchases of longer-maturity bonds provide more monetary stimulus than purchases of shorter-maturity debt. Purchases of longer-maturity bonds have a greater impact, dollar-for-dollar spent, by removing more term risk from markets and putting downward pressure on term premiums.³ Lower term premiums imply lower GoC bond yields, all other things equal. This lowers the borrowing costs that matter most to households and businesses. In particular, fixed-rate household and corporate borrowing tends to be most closely linked to 3- to 15-year GoC bond yields, although some corporations and utilities borrow at longer maturities.

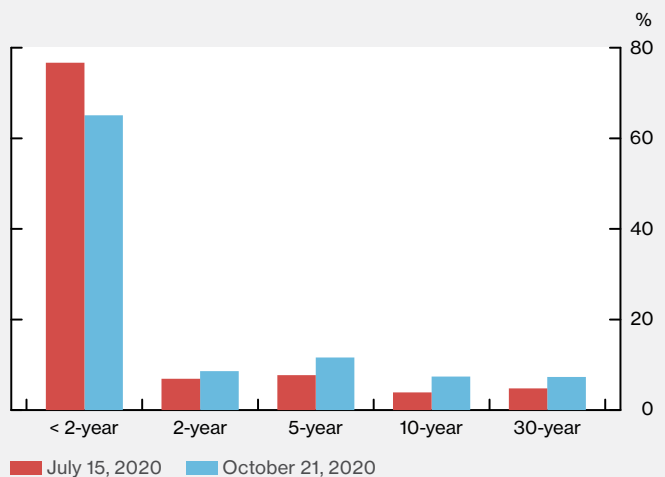
³ Term premiums are premiums that borrowers pay to lock in interest rates for longer terms. They compensate lenders for the risk of loss in value if market interest rates were to rise before the debt matures.

Chart 3-B: The Bank of Canada's balance sheet size has stabilized, while its composition has shifted

a. Bank of Canada total assets, weekly data



b. Maturity distribution of Bank of Canada assets as a percentage of total assets[†]



* "All other assets" includes provincial treasury bills and bonds, corporate bonds and commercial paper. A full list of assets can be found on the Bank of Canada's [website](#).

† The majority of assets that have matured since the July Report (July 15) have been term repos and treasury bills. The maturity categories correspond to the following maturity windows: "< 2-year" is 1.9 years or less, "2-year" is 2–3 years, "5-year" is 4–6 years, "10-year" is 7–11 years and "30-year" is 12 years or more.

Source: Bank of Canada

Last observation: October 21, 2020

Risks to the inflation outlook

The uncertainty around the projection remains extraordinarily high, given that the projection is conditional on the evolution and size of the economic impacts of the pandemic. The outlook could be significantly different if COVID-19 infection rates and containment measures are more or less favourable than assumed in this Report. The economic outlook would be stronger if the pandemic were to end before mid-2022. This would be the case if, for example, effective vaccines were to become widely available earlier than expected. The drag on economic growth from physical distancing and reduced confidence would dissipate more rapidly, boosting household spending and business investment. Long-term scarring effects on investment and labour would also be smaller.

In contrast, the pandemic and related economic impacts could be more severe than anticipated. In the projection, COVID-19 outbreaks are assumed to be reasonably well managed through local and targeted containment measures. There is a serious risk, however, that broader or more intensive restrictions could be required.

There is also considerable uncertainty about the long-term impacts of the pandemic. The more serious the pandemic, the larger the associated restructuring and reallocation of resources.

Even if the course of the pandemic proceeds as assumed in the base-case projection, the Bank sees a number of upside and downside risks to the outlook for inflation. The risks to the economic outlook and inflation are viewed as roughly balanced. Downside risks pose a greater concern because inflation is currently low and the policy rate is at the effective lower bound. Some of the more important risks are listed below.

(i) Additional fiscal stimulus in the United States (↑)

US growth could be materially stronger than in the base-case projection. Authorities may reach an agreement to enact substantial additional fiscal stimulus measures. Stronger growth in the United States would provide further support to Canadian export growth and investment activity.

(ii) Stronger household spending in Canada (↑)

Household savings have increased dramatically since the pandemic began. This has reflected more limited opportunities to spend, particularly for higher-income households, as well as increased precautionary savings. If more of these savings are spent, consumption and residential investment could be stronger than anticipated in the projection, and the savings rate could decline more quickly than

expected. For example, households could become less cautious about their spending or more confident about economic conditions, even in the absence of a vaccine or effective treatment.

(iii) Sharp tightening of global financial conditions (↓)

Important financial vulnerabilities remain in many countries due to elevated debt levels and the high degree of economic uncertainty. Worsening pandemic conditions and economic setbacks could lead to increased risk premiums and sharply tighter financial conditions. This could be particularly severe for EMEs and have broader spillovers.

(iv) Rising household and corporate financial stress (↓)

In Canada, slower growth and tighter financial conditions, combined with high levels of household and corporate indebtedness, could lead to rising numbers of insolvencies and bankruptcies. This, in turn, could lead to losses in the financial system, a tightening in credit conditions and a reduction in bank lending. This would create a new headwind to growth.

Appendix 1: Potential output

The Bank’s estimates of potential output growth in Canada and globally have been revised down significantly relative to the estimates presented in the April 2019 Report (Table A1-1 and Table A1-2). The COVID-19 pandemic has lowered potential output growth by affecting its underlying determinants. Canada has seen sharp reductions in labour market participation, disruptions to immigration and decreases in capital accumulation. This appendix focuses on the scarring effects of the pandemic that are likely to persist:

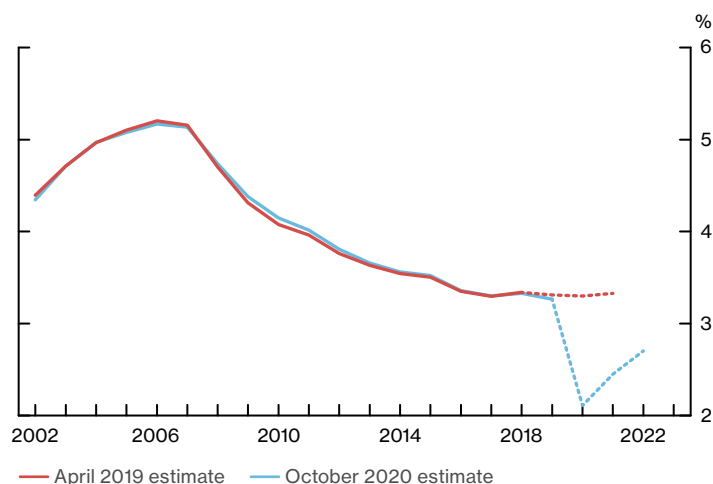
- weaker business investment, and
- reduced labour force participation.

Potential output is weaker around the world

Global potential output growth is estimated to have decreased sharply since the onset of the pandemic, from 3.3 percent in 2019 to just over 2 percent in 2020 (Chart A1-1 and Table A1-1).⁵ This reflects declines in trend labour productivity growth in all regions and sharp falls in trend labour input growth in advanced economies. The negative effects of the COVID-19 crisis add to the ongoing headwinds from population aging, trade tensions and structurally low productivity growth.

Chart A1-1: Global potential output growth is revised down due to COVID-19

Year-over-year percentage change, annual data



Source: Bank of Canada calculations and projections

⁵ For further details, see X. S. Chen, A. Jaffery, G. Nolin, K. Salhab, P. Shannon and S. Sarker, “Assessing Global Potential Output Growth: October 2020,” Bank of Canada Staff Discussion Paper (forthcoming).

Table A1-1: Projection for potential output growth

	Projected growth* (percent)			
	2019	2020	2021	2022
Canada				
Excluding temporary effects of the pandemic	1.8 (1.8)	0.7 (1.7)	0.9 (1.8)	1.1 (1.9)
Including temporary effects of the pandemic	1.8 (1.8)	-1.7 (1.7)	3.0 (1.8)	1.5 (1.9)
World	3.3 (3.3)	2.1 (3.3)	2.4 (3.3)	2.7
United States	1.8 (1.9)	1.1 (1.9)	1.1 (1.8)	1.5
Euro area	1.4 (1.5)	0.8 (1.4)	1.0 (1.3)	1.1
Japan	0.9 (0.8)	0.4 (0.8)	0.6 (0.7)	0.6
China	6.1 (6.1)	5.1 (6.0)	5.3 (5.9)	5.3
Oil-importing EMEs [†]	4.1 (4.2)	2.3 (4.3)	2.9 (4.4)	3.4
Rest of the world [‡]	1.8 (1.9)	0.9 (2.0)	1.3 (2.1)	1.5

* Numbers in parentheses are projections used in the April 2019 *Monetary Policy Report*. The numbers in parentheses for Canada are identical in the lines that include and exclude the temporary effects of the pandemic since these effects were not included in the April 2019 Report.

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

Global potential output growth is expected to rebound to 2.4 percent in 2021 and 2.7 percent in 2022. This growth will be driven by a gradual recovery in productivity growth in all regions and improved labour force dynamics in advanced economies. Relative to the Bank’s April 2019 estimates, global potential output growth has been revised down by 1.2 and 0.9 percentage points in 2020 and 2021, respectively. These revisions reflect primarily the negative effects of COVID-19.

In the United States, potential output growth fell from 1.8 percent in 2019 to 1.1 percent in 2020. This is due largely to a steep decline in trend labour input growth because the pandemic has reduced trend labour force participation and immigration. Trend labour productivity has also slowed because of work disruptions, reduced firm entry and a weaker trajectory for business investment. US potential growth is expected to remain weak in 2021 and to partially recover to 1.5 percent in 2022 as immigration flows regain some momentum, less-productive firms exit and more-productive firms expand.

In EMEs, the largest source of decline in potential output growth is the pandemic’s negative effects on capital deepening and on the trend in total factor productivity growth. Potential output growth in economies in the rest-of-the-world block has been revised down in response to similar adverse impacts of the pandemic as well as low oil prices, which hurt oil exporters.

Weakness in investment and the labour market weighs on Canadian potential

The outlook for potential output in Canada is also much weaker because of the pandemic. Considering only the permanent effects on the economy, the Bank now expects potential output growth to be 0.8 percentage points lower on average over 2020 and through 2023, compared with the 2020 to 2022 average from the April 2019 assessment (Table A1-2). The

Table A1-2: Projected growth rate of potential output

Year-over-year percentage change**

	Potential output	Trend labour input	Trend labour productivity	Potential output range
2019	1.8 (1.8)	1.2 (1.1)	0.6 (0.7)	1.5–2.1
2020	0.7 (1.7)	1.1 (0.8)	-0.3 (0.9)	0.1–1.3
2021	0.9 (1.8)	0.7 (0.8)	0.1 (1.0)	0.2–1.6
2022	1.1 (1.9)	0.7 (0.8)	0.5 (1.1)	0.3–1.9
2023	1.2	0.6	0.6	0.2–2.2

* Numbers in parentheses are from the April 2019 *Monetary Policy Report*.

† Numbers may not add to total due to rounding.

level of potential output is expected to be about 3 percent lower by the end of 2022 relative to the Bank's April 2019 assessment.⁶ The pandemic also has temporary effects on supply. Incorporating these effects would reduce estimates of potential growth in 2020 and increase them in 2021 (Table A1-1).

The biggest source of negative revision is a weaker outlook for business investment. Potential skills mismatch and the need to reallocate resources across sectors are also expected to play a role. In contrast, even though the pandemic has reduced immigration, strong inflows of non-permanent residents since 2015 have increased the population profile overall. This, in turn, boosts estimated potential output.⁷

Considering only the permanent effects of the pandemic, the Bank expects potential output to grow on average by about 1 percent over 2020 and through 2023 (Table A1-2). Both trend labour input and trend labour productivity growth are expected to slow relative to their 2010–18 average. Slower capital accumulation explains the reduced growth of trend labour productivity. The main factors weighing on trend labour input growth are the scarring effects from the pandemic and the secular decline in the employment rate associated with an aging population.

Potential output is normally difficult to estimate precisely because its components are unobserved and hard to forecast. The uncertainty this time is even higher given the unknown course of the pandemic and its large economic effects. To help capture uncertainty, the Bank provides a range constructed around midpoint estimates, which are subject to both upside and downside risks. The most important risks are related to the evolution of the COVID-19 pandemic:

- If the pandemic were to end much sooner than expected, business investment could rebound sharply as demand picks up and the economy returns to normal more quickly. Moreover, most of the persistent drag on trend labour input and trend total factor productivity from the pandemic would disappear.
- In contrast, if the number of COVID-19 cases were to increase sharply in the coming quarters and parts of the economy returned to lockdown, potential output growth could be even weaker. In that case, population inflows could be even more restricted and business investment could remain more subdued for an extended period.

⁶ For more details, see D. Brouillette, J. Champagne and J. Mc Donald-Guimond, "Potential Output in Canada: 2020 Reassessment," Bank of Canada Staff Analytical Note No. 2020-25 (October 2020).

⁷ These revisions were embedded in the January 2020 Report.

Appendix 2: Neutral rate of interest

The nominal neutral policy rate is the sum of two components:

- the real rate needed to maintain economic output at its potential level and inflation at target after the effects of all cyclical shocks to the economy have dissipated, and
- 2 percent to account for the rate of inflation at target.

The Bank estimates that the nominal neutral rate in Canada currently lies in a range of 1.75 to 2.75 percent, 50 basis points lower than in the April 2019 update. The assessment was reached using a suite of four distinct but complementary approaches used in previous assessments. This update includes special emphasis on how the approaches capture the impacts of the COVID-19 pandemic.⁸ Results are summarized in **Table A2-1**.

Table A2-1: Summary of nominal neutral policy rate estimates for Canada

Approach	2020 estimates (percent)	2019 estimates (percent)
Pure interest rate parity condition	1.75–2.75	2.25–3.25
Risk-augmented neoclassical growth model	1.75–2.75	2.25–3.25
Reduced-form model	2.0–2.5	2.25–3.0
Overlapping generations model	2.25–3.0	2.5–3.25
Overall assessment	1.75–2.75	2.25–3.25

A combination of domestic and global factors accounts for the decline in the nominal neutral rate. Domestic factors include a higher perceived level of macroeconomic risk (which boosts savings) and a significant decline in the projected rate of potential output growth.⁹

Because Canada is a small open economy, its neutral rate is also closely linked to global factors. The Bank continues to use an estimate of the US neutral rate as a proxy for the global rate. The Bank currently estimates that the US nominal neutral rate lies in a range of 1.75 to 2.75 percent—50 basis points lower than in the April 2019 update. The downward revision reflects the assessment that upward pressure from greater government debt issuance is

⁸ For more details on the approaches used to estimate the neutral rate for Canada, see D. Matveev, J. Mc Donald-Guimond and R. Sekkel, “[The Neutral Rate in Canada: 2020 Update](#),” Bank of Canada Staff Analytical Note No. 2020-24 (October 2020).

⁹ For more details, see D. Brouillette, J. Champagne and J. Mc Donald-Guimond, “[Potential Output in Canada: 2020 Reassessment](#),” Bank of Canada Staff Analytical Note No. 2020-25 (October 2020).

being more than offset by the combined negative effects of weaker potential growth, higher inequality and stronger demand for safe assets denominated in US dollars.¹⁰

As in previous assessments of the neutral rate, the ranges for both the Canadian and the global rates are methodological—constructed by aggregating the most likely ranges derived from different approaches. While these ranges capture the sensitivity of the estimates to different values for key parameters and other inputs, they do not capture all sources of uncertainty. Given that the pandemic is still unfolding, this year’s estimates for the neutral rate are more likely than usual to face revisions as more is learned about the medium- and longer-term economic impacts of COVID-19.

¹⁰ For more details, 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 (forthcoming).