

Canada and US Long-Run Economic Outlook: 2017–22

This note presents Scotiabank Economics' long term economic forecast, a new quarterly publication, covering the US and Canadian economies over the next five years. This outlook is informed by the Scotiabank Global Macroeconomic Model, which is briefly described in box 1 on page 5.

- In the long run the Canadian real GDP is expected to grow at 1.6% (1.8% for the US), reflecting relatively weak productivity and modest labour input growth.
- By 2020 the Bank of Canada is expected to gradually raise the overnight rate towards 2.5%, which helps dissipate building inflationary pressures and allows inflation to sustainably reach the 2.0% target.
- Slowing growth beyond 2018 and the uncertainty around the outlook means that there is an increased risk of low growth or recession (i.e. two quarters of negative growth) in 2019–22.

CANADIAN AND US ECONOMIES IN THE NEAR TERM

Over 2017–18 we expect the Canadian and US economies to continue expanding in tandem, surpassing their respective potential output growth rates.

- Potential output is the maximum amount the economy can produce over the long run and is consistent with inflation being at the central bank target. Potential output is a function of supply-side variables, such as trend labour productivity and trend labour input.
- In the US, potential output is assumed to grow 1.8% to 1.9% per year, consistent with the median long-run forecast of the members of the Federal Open Market Committee (FOMC).
- In Canada, potential output is expected to grow 1.6% per year, broadly consistent with the Bank of Canada's estimate, reflecting relatively weak productivity and modest labour input growth.

Both the US and Canadian economies are expected to be in excess demand in 2018, with the output gap positive in both economies (see charts 1 and 2). As a consequence, unemployment rates fall below their long-run levels (see table 1 for the details of the macroeconomic scenario).

- In the US, strong consumption and business investment are expected to power the economy towards 2.2% and 2.4% growth in 2017 and 2018, respectively.
- In Canada, the torrid growth of 3.1% expected for 2017 is coming on the back of strong consumption and business investment, as well as exports in the first half of 2017. As consumption growth retreats to a more sustainable pace in 2018, overall real GDP growth is expected to moderate to 2.2%.

CONTACTS

René Lalonde
 416.862.3174
 Scotiabank Economics
rene.lalonde@scotiabank.com

Nikita Perevalov
 416.866.4205
 Scotiabank Economics
nikita.perevalov@scotiabank.com

Chart 1: As the output closes, inflation in Canada returns to target

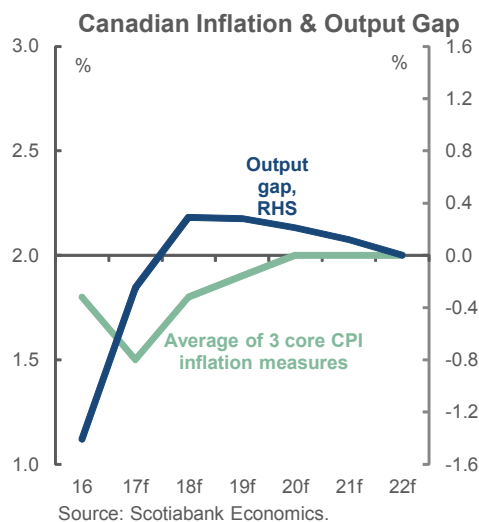
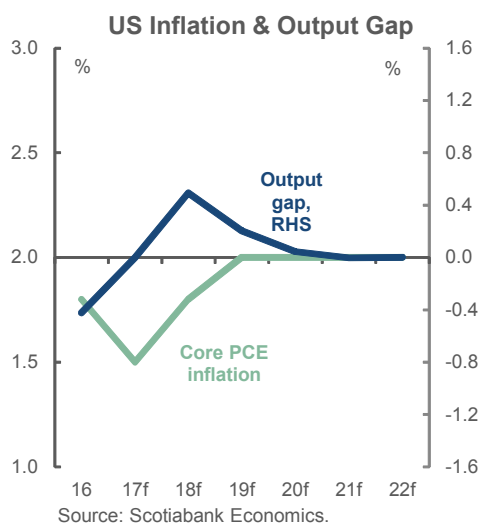


Chart 2: US excess demand expands as growth outstrips potential with inflation returning to target



LONG-TERM ECONOMIC FORECAST

Beyond 2018, growth is expected to slow in the US and Canada, as the Federal Reserve and the Bank of Canada gradually normalize their policy rates (see chart 3) to quell modest but rising inflationary pressures, long-term bond yields rise to more historically normal levels, and, in Canada, the boost from Federal government stimulus measures fades. The long-term bond yields are expected to rise in part due to the gradual unwinding of the Fed's balance sheet.

- In the US, growth slows to 1.7% in 2019 on the back of slowing consumption and business investment growth. With excess demand eliminated in 2020, output expands at 1.8% over 2021–22, in line with potential output. Core inflation, measured by the core Personal Consumption Expenditures (PCE) price index, picks up gradually to the Fed's 2% target by the end of 2019 and remains at that level for the rest of the projection.
- With the US economy's aggregate supply and demand in equilibrium, and the rate of inflation at the target over 2020–22, the Federal Reserve keeps the Fed Funds target rate at 2.5% over that period.

Chart 3: US and Canadian policy rates gradually normalizing

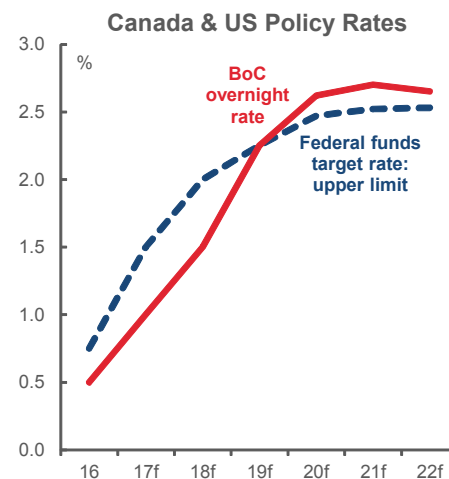


Table 1

Long-Run Forecast for the United States and Canada							
	2016	2017	2018	2019	2020	2021	2022
United States							
GDP growth, annual average, %	1.5	2.2	2.4	1.7	1.7	1.8	1.8
Core PCE inflation, annual average, %	1.8	1.5	1.8	2.0	2.0	2.0	2.0
Federal funds target rate: upper limit, % eop	0.75	1.50	2.00	2.25	2.47	2.52	2.53
10-year nominal government bond yield, % eop	2.45	2.40	2.70	3.00	3.30	3.48	3.62
Unemployment rate, annual average, %	4.9	4.4	4.1	4.1	4.2	4.3	4.3
Canada							
GDP growth, annual average, %	1.5	3.1	2.2	1.5	1.5	1.5	1.5
Average of 3 core CPI inflation measures, annual average, %	1.8	1.5	1.8	1.9	2.0	2.0	2.0
BoC's overnight rate, % eop	0.50	1.00	1.50	2.25	2.62	2.70	2.65
10-year nominal government bond yield, % eop	1.72	2.10	2.45	2.80	3.22	3.44	3.58
Unemployment rate, annual average, %	7.0	6.4	6.2	6.2	6.3	6.3	6.3
USDCAD, eop	1.33	1.28	1.25	1.25	1.22	1.22	1.23
WTI, annual average, US\$	43	50	52	56	62	66	65

Note: More details on the 2017–19 outlook can be found in [Scotiabank's Forecast Tables, November 3, 2017](#).

- In Canada, multiple factors are responsible for a downshift in growth to 1.5% in 2019:
 - the rising policy rate and long-term yields, restraining consumption and residential investment;
 - the fading contribution from the Federal stimulus; and
 - the weakening growth in the US.
- During 2020–22, growth in Canada is expected to average 1.5%, slightly below the growth of potential GDP (i.e. 1.6%) as the excess demand dissipates gradually over that period:
 - Mostly because of the persistent excess demand, inflation gradually rises to reach the inflation target of 2.0% in 2020 and stays at this level for the rest of the forecasting horizon;
 - To achieve stable inflation at the 2.0% target, the Bank of Canada's overnight rate overshoots slightly above the equilibrium interest rate of 2.5%; and
 - The Canadian dollar settles around 1.22–1.23 per US dollar, in line with WTI oil price stabilizing in the 62–66 US\$ range.

UNCERTAINTY AROUND OUR BASE CASE SCENARIO

Given their very nature, long-run forecasts are subject to significant uncertainty, of which we can distinguish two types.

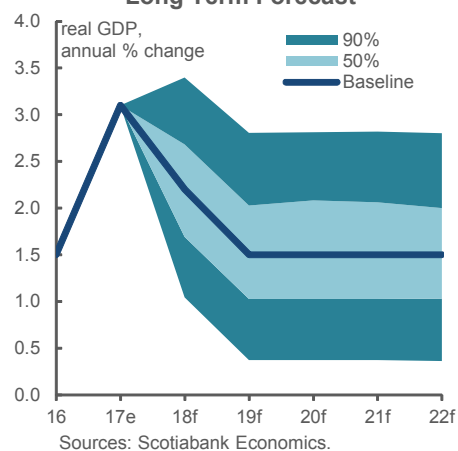
Common Idiosyncratic Shocks

First, from quarter to quarter the economy will experience shocks to demand and supply, both positive and negative, that could have a temporary impact on the Canadian economy. In this note we summarize this type of uncertainty by constructing confidence bands around our forecast for Canada using typical shocks observed over history (chart 4).

- For each year, 2018 to 2022, we draw a sequence of 4-quarter shocks typically observed in the Scotiabank Global model. Assuming the economy evolves as in the baseline forecast prior to that year, we simulate the model in the presence of these shocks and record the 5th, 25th, 75th, and 95th percentiles for annual real GDP growth.
- The relatively wide 90% range of outcomes, spanning from 0.3%–0.4% to around 2.8% after 2018, is not uncommon in the literature (see for example *IMF WEO*, October 2017 for a world GDP growth fan chart). It also highlights an important feature of our forecast: beyond 2018 there is a higher probability of weak or negative growth, given the expected slowdown in GDP growth in the baseline over that period. Therefore, while there is still a significant chance of growth close to 3%, there is also an increased risk of recession beyond 2018.

Chart 4: Significant uncertainty weighs on the outlook

Uncertainty Bands Around Canadian Long Term Forecast



Uncertainty About Assumptions

The second type of uncertainty is about assumptions underlying the projection, such as the growth of potential output, the neutral rate of interest, the long-run anchors for commodity prices and others. This type of uncertainty is likely to have significant long-term impact on the real economy. We highlight two risks of this type:

- On the upside, Canada's labour productivity in 2016Q3–17Q1 has been relatively strong. If this strength were to continue, trend labour productivity could be higher than we have assumed, raising the long-run growth rate of the Canadian economy.
- On the downside, increased trade protectionism can disrupt North American supply chains, leading to slower productivity growth in Canada and the US going forward.

CONCLUSIONS

In this note we presented our long-term outlook for the US and Canadian economies.

- In the near term, both economies are expected to build excess demand as GDP continues to grow faster than potential output in both countries. In line with that, inflation is expected to strengthen, which requires monetary authorities to continue on the path of gradually raising interest rates.
- On the back of higher policy rates, beyond 2018 real GDP growth in the US and Canada cools, allowing inflation rates to reach their 2.0% targets.
- Slowing growth beyond 2018 and the uncertainty around the outlook means that there is an increased risk of low growth or recession (i.e. two quarters of negative growth) in 2019–22.

Box 1: Scotiabank Global Macroeconomic Model (SGMM)

The Scotiabank Economics *Forecast Tables* published on November 3rd and the long-term outlook discussed in this note are informed by SGMM, a recently-developed estimated general equilibrium model of the Canadian, US and other economies (including Europe and emerging markets), similar to, but less detailed than, the semi-structural models at the Bank of Canada, such as MUSE (Gosselin and Lalonde 2005) and LENS (Gervais and Gosselin, 2014). SGMM helps Scotiabank economics develop an internally consistent outlook for the Canadian and US economies simultaneously taking into account the following key macroeconomic channels:

- the positive impact of a strengthening economy on consumer price inflation, with excess demand (supply) implying inflation above (below) the target;
- the reaction of monetary authorities, the Bank of Canada (BoC) and the Federal Reserve, who raise their policy rates in the face of rising inflationary pressures and dwindling economic slack;
- the cooling impact of higher interest rates on the macro-economy, including the direct impact of interest rates on domestic demand, and the impact of higher interest rates on the Canadian dollar, which has a slowing effect on net trade; and
- international spillovers from US growth to Canada.

Hence, to return inflation sustainably to the target, the monetary authorities need to engineer a sustainable balance between supply and demand (the output gap) using their policy rates in the face of external shocks.

Below we provide more details on the structure of the model and the drivers of key variables in the Canadian economy block of SGMM:

- The model environment features forward-looking behaviour, with agents attempting to optimally set the level of their decision variables, such as real GDP, policy rates and others, in the face of adjustment costs conditional on the expected evolution of the economy and the policy actions of central banks.
- Real GDP is driven by short-term and long-term interest rates, oil prices, disposable income, financial and housing wealth, the exchange rate, and foreign real GDP growth.
- The augmented Phillips curve equation relates the slack in the economy (the output gap), the exchange rate, the unit labour cost and the price of oil, to core inflation.
- A forward-looking monetary policy rule determines the response of the BoC's overnight rate to the evolution of the output gap and a three-quarter-ahead forecast of inflation, the latter relative to the BoC's target.
- The 10-year government bond yield is a function of the expected path for the BoC's overnight rate, and the term premium. The latter is strongly affected by the evolution of the term premium in the US 10-year government bond yield; the latter a function of the US Federal Reserve balance sheet and the holdings of US Treasury bonds by Chinese authorities.
- The Canada-US bilateral exchange rate is a function of the price of oil, the differential of GDP growth in the two countries, the 10-year interest rate differential and a US factor capturing the multilateral adjustment of the US dollar.
- Other variables included in the model are the real price of oil, the real disposable income, the unemployment rate, financial and housing wealth, and other. The endogenous global supply of oil and demand for oil determine the evolution of the oil price in the model.

The structure of the US and Europe is similar to that of Canada, while the specifications for countries in the rest of the world are less detailed.

Gosselin, Marc-Andre and Rene Lalonde, 2005, "MUSE: The Bank of Canada's new projection model of the U.S. economy", *Bank of Canada Technical Report 96*.

Gervais, Olivier, and Marc-Andre Gosselin, 2014, "Analyzing and Forecasting the Canadian Economy through the LENS Model", *Bank of Canada Technical Report No. 102*.

Scotiabank Economics, [Forecast Tables, November 3, 2017](#).

This report has been prepared by Scotiabank Economics as a resource for the clients of Scotiabank. Opinions, estimates and projections contained herein are our own as of the date hereof and are subject to change without notice. The information and opinions contained herein have been compiled or arrived at from sources believed reliable but no representation or warranty, express or implied, is made as to their accuracy or completeness. Neither Scotiabank nor any of its officers, directors, partners, employees or affiliates accepts any liability whatsoever for any direct or consequential loss arising from any use of this report or its contents.

These reports are provided to you for informational purposes only. This report is not, and is not constructed as, an offer to sell or solicitation of any offer to buy any financial instrument, nor shall this report be construed as an opinion as to whether you should enter into any swap or trading strategy involving a swap or any other transaction. The information contained in this report is not intended to be, and does not constitute, a recommendation of a swap or trading strategy involving a swap within the meaning of U.S. Commodity Futures Trading Commission Regulation 23.434 and Appendix A thereto. This material is not intended to be individually tailored to your needs or characteristics and should not be viewed as a “call to action” or suggestion that you enter into a swap or trading strategy involving a swap or any other transaction. Scotiabank may engage in transactions in a manner inconsistent with the views discussed this report and may have positions, or be in the process of acquiring or disposing of positions, referred to in this report.

Scotiabank, its affiliates and any of their respective officers, directors and employees may from time to time take positions in currencies, act as managers, co-managers or underwriters of a public offering or act as principals or agents, deal in, own or act as market makers or advisors, brokers or commercial and/or investment bankers in relation to securities or related derivatives. As a result of these actions, Scotiabank may receive remuneration. All Scotiabank products and services are subject to the terms of applicable agreements and local regulations. Officers, directors and employees of Scotiabank and its affiliates may serve as directors of corporations.

Any securities discussed in this report may not be suitable for all investors. Scotiabank recommends that investors independently evaluate any issuer and security discussed in this report, and consult with any advisors they deem necessary prior to making any investment.

This report and all information, opinions and conclusions contained in it are protected by copyright. This information may not be reproduced without the prior express written consent of Scotiabank.

™ Trademark of The Bank of Nova Scotia. Used under license, where applicable.

Scotiabank, together with “Global Banking and Markets”, is a marketing name for the global corporate and investment banking and capital markets businesses of The Bank of Nova Scotia and certain of its affiliates in the countries where they operate, including, Scotiabanc Inc.; Citadel Hill Advisors L.L.C.; The Bank of Nova Scotia Trust Company of New York; Scotiabank Europe plc; Scotiabank (Ireland) Limited; Scotiabank Inverlat S.A., Institución de Banca Múltiple, Scotia Inverlat Casa de Bolsa S.A. de C.V., Scotia Inverlat Derivados S.A. de C.V. – all members of the Scotiabank group and authorized users of the Scotiabank mark. The Bank of Nova Scotia is incorporated in Canada with limited liability and is authorised and regulated by the Office of the Superintendent of Financial Institutions Canada. The Bank of Nova Scotia is authorised by the UK Prudential Regulation Authority and is subject to regulation by the UK Financial Conduct Authority and limited regulation by the UK Prudential Regulation Authority. Details about the extent of The Bank of Nova Scotia's regulation by the UK Prudential Regulation Authority are available from us on request. Scotiabank Europe plc is authorised by the UK Prudential Regulation Authority and regulated by the UK Financial Conduct Authority and the UK Prudential Regulation Authority.

Scotiabank Inverlat, S.A., Scotia Inverlat Casa de Bolsa, S.A. de C.V., and Scotia Derivados, S.A. de C.V., are each authorized and regulated by the Mexican financial authorities.

Not all products and services are offered in all jurisdictions. Services described are available in jurisdictions where permitted by law.