Calgary

Calgary and Region Economic Outlook

2019 – 2024

Spring 2019

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Introduction

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Purpose

The City of Calgary tracks economic indicators throughout the year to develop insights about the impacts of external events on the local economy. The results are published publicly semi-annually in the spring and fall as the Economic Outlook.

The primary goal is a presentation of forecasts for a set of economic variables. The choice of variables reflects factors considered likely to have a significant effect on the local economy over the forecast period.

Plan

There are two areas or economies of interest. The first is the local (or City of Calgary) economy. The second is the regional economy (Calgary Economic Region or CER).

The CER is a small open economy that is affected by changes outside its borders. Consequently, external influences from the provincial, national and world economies get transmitted to the local and regional economies. Outside factors judged to have a substantial impact get presented as forecast assumptions.

For example, political instability in the world's oil-producing regions can produce a sharp increase in oil prices, which affects Alberta's energy industry's cash flow and investment in the local economy. The Spring 2019 Economic Outlook relies on assumptions about changes in the world outside of the CER for the forecast (2019 to 2024) period. The key assumptions are as follows:

- Moderate world economic expansion throughout the forecast period, and
- Rates of economic growth and job creation in other Canadian provinces and territories that are similar to the local and provincial levels, for the forecast period.

The actual level of economic activity will be different from the forecast should one or both assumptions change.

Payoff

The Spring 2019 economic outlook has been created to support The City of Calgary in the financial and physical planning of the city.

It describes the economic opportunities and threats that the region faces. As a result, it provides a consistent basis for decision making.

It provides a comprehensive set of estimates on the future conditions for Calgary's local and regional economies. Like the work of alternative forecast providers, it uses theoretical and empirical economic underpinnings. None of the alternatives has both the full set of indicators needed and a focus on the local and regional economies.

Finally, it tackles key recurring questions posed by City of Calgary decision makers:

- What is the overall forecast for the rate of growth in the local economy?
- What are the drivers of the local economy?
- How many jobs will the local economy create?
- What is the forecast for population growth in the city and region?
- What is the expected inflation rate?
- What are the implications especially for municipal finance?

Executive Summary

1. More proceeds from the sale of energy products to support local and regional growth

Energy products and exports are vital to the local, regional, provincial and national economy. Many Canadian energy companies have their headquarters in Calgary. Energy exports from Alberta were more than a third of the provincial Gross Domestic Product (GDP) in 2018. Excluding Alberta's energy trade, the 2018 Canadian merchandise trade balance (exports minus imports) was -$134.0 billion at the end of the year. Alberta's energy trade had a positive balance of $82.3 billion, closing the national trade balance to -$57.7 billion.

A further boost to the trade balance requires higher prices for Western Canadian Select (WCS) crude. For the forecast period, gradual WCS price growth is expected to lift and sustain economic growth. All sectors of the CER should benefit from the improvement in energy product prices and improved sector cash flows. Additional private sector capital spending and job growth should support economic expansion, albeit to a level below full capacity.

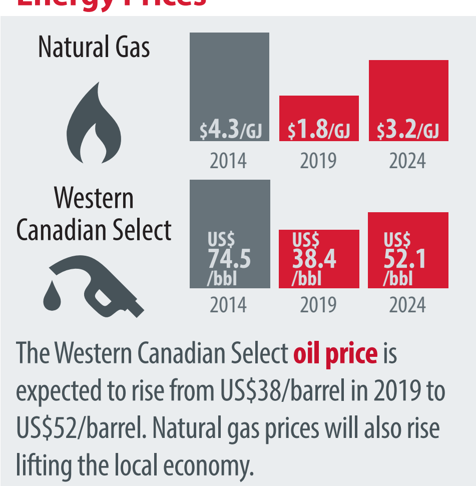
Faster price growth for WCS is expected to lead to a narrowing of the price differential with West Texas Intermediate (WTI) over the forecast period. More U.S. shale production commensurate with WTI price increases would continue to act as a drag on the price of WTI. It would also put an upper limit on WCS prices unless new markets open for WCS crude. WCS prices are expected to rise steadily from US$38/barrel in 2019 to US$52/barrel by 2024.

Low natural gas prices are expected to persist for most of the forecast period. The benchmark Alberta natural gas price at the AECO hub is expected to average $1.75/GJ in 2019 and $2.15/GJ 2020. The 2018 average was $1.52/GJ. The price differential between AECO-C and Henry Hub is forecasted to widen in 2019 and 2020 unless the transportation capacity in Alberta improves. Resolution of some of the transportation carrying capacity by 2024 would get prices to $3.2/GJ.

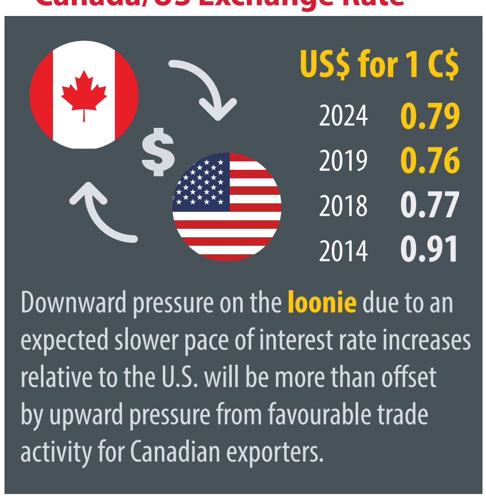
Alberta's previous New Democratic Party (NDP) government mandated a crude oil production curtailment for 2019. The reduction would lower the rate of regional and provincial GDP growth. Both economies are expected to decelerate to growth below 2.0 per cent. Subsequently, the GDP growth rate should improve as the average annual WCS price growth returns to about the 2018 rate for the rest of the forecast horizon. The in-coming United Conservative Party (UCP) government could alter the strategy. The new government's energy strategy is a key risk element for the spring outlook with either upside or downside implications.

Differences in Central Bank overnight lending rates and the price of crude oil could contribute to changes in the Canada/ U.S. exchange rate. The forecast is for the Bank of Canada and the U.S. Federal Reserve to maintain current overnight lending rates throughout 2019. The price of crude oil is more volatile than most other traded goods that represent a significant part of Canadian merchandise trade. The expectation is for slightly higher WTI and WCS oil prices. Consequently, the forecast calls for only a mild appreciation of the Canadian dollar in a range between US$0.76 and US$0.79 per CAD$.

Energy Prices



Canada/US Exchange Rate



GDP Growth Comparison

2. An uplift from regional infrastructure, commercial, retail and tourism/ recreational investment

There are now more than half a million dwellings in Calgary. Beginning in 1986, the historical average annual rate of housing starts relative to the existing housing stock is between 0.9 and 3.6 per cent every year. In 2018, there were 8,866 housing starts in the city of Calgary. The 1.8 per cent result is at the lower end of the traditional pace (median and mean are 2.2 per cent). The forecast for housing starts is an average of about 9,000 units per year for the 2019 to 2024 period. There is ample supply of residential housing stock that is available for sale but unsold. The share of multi-family housing starts relative to total housing starts should increase because the stricter mortgage lending stress test would divert interest away from single-family units.

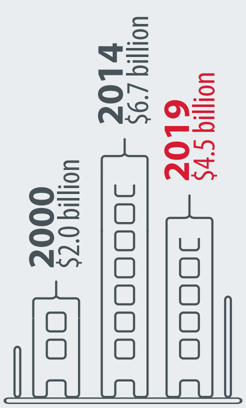
The total residential building investment in the city of Calgary is expected to average between $2.5 and $2.6 billion over the forecast horizon. The entire building construction investment in the city of Calgary is estimated to average about $4.8 billion between 2019 and 2024. The residential investment would exceed non-residential investment. The total value of building permits in the city of Calgary was $4.4 billion in 2018, which is the average expected throughout the forecast horizon.

Residential investment would exceed non-residential partly because new construction of office space is not expected in downtown Calgary. The addition of millions of square feet of office space to downtown Calgary over the last decade is so much that the increase exceeded the total stock of office space in downtown Winnipeg. Because of less favourable conditions for the oil and gas industry, the addition of office space is unaccompanied by demand and has put downward pressure on prices and reduced the prospect of new office investment going forward. It has also lowered property assessment values in the downtown from 2015 to 2019 leading to a $257.6 million shift in the tax responsibility from non-residential properties in downtown Calgary to non-residential properties outside the downtown. In addition, Calgary City Council decided to transfer some responsibility to all residential properties.

Major projects ($5 million or more) that are underway in 2019 for the CER should cost $14.3 billion to complete (15 April 2019 update). Another $19.9 billion in significant investments is expected to commence later in 2019 or by no later than 2021. The total investment is $34.2 billion. The CER should be home to more than half of Alberta investments in four categories – commercial property, retail property, residential property, and tourism or recreational investments. Projects in these four categories are expected to generate $8.9 billion in investment, less than $11.6 billion for infrastructure investments in the CER. More than 50 per cent of proposed significant infrastructure investments in Alberta is expected to occur in the CER. It reflects a medium-term shift to above trend infrastructure investments in the CER.

Financing costs for new investments projects are at the highest level in a decade. It is due to the Bank of Canada (BoC) raising the overnight rate on three occasions in 2018. The forecast is for the BoC to maintain the overnight rate throughout 2019. Consequently, the prime business loan rate should remain at 4.0 per cent for 2019.

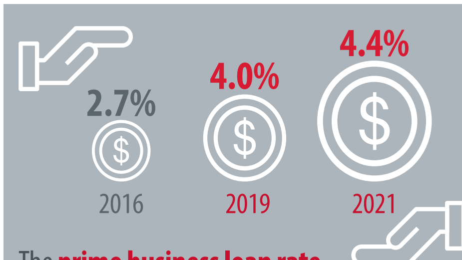
Calgary Building Permits



The forecast for **building permits** in 2019 is $4.5 billion. This estimate is significantly higher than $2.0 billion at the turn of the century but lower than the pre-recession high of $6.7 billion in 2014.

Tax Shift Out of Downtown

Prime Business Loan Rate



The **prime business loan rate** is expected to continue its course toward higher rates through to 2021. The rate increased aggressively in 2018. It should settle at 4.0 per cent for 2019, before increasing to 4.4 per cent by the end of 2021.

3. Inflow of workers to lift labour supply, increase population and expand the production base

Forecasts of higher WCS crude oil prices and levels of investment ordinarily attract job seekers from elsewhere. Because the Alberta unemployment rate is expected to be high relative to the rest of Canada, international net migration is expected to be the leading source of additions to the regional workforce.

Over the 2019 to 2022 period, total net migration to Alberta is projected to be 172,800 persons. It is an increase over the 2015 to 2018 period when net migration totalled 113,800 persons. It is a decrease relative to the 254,500 persons between 2011 and 2014. This midpoint level of net migration relative to the previous eight years reflects the projected state of the economy relative to that period.

Between 2016 and 2018, Calgary experienced an average unemployment rate of 8.4 per cent. The average annual level of net migration to the city of Calgary was 2,000 persons per year. Over the period, net international migration was positive and significant (an average of +14,000 persons per year). It helped to offset the considerable loss from interprovincial and intercity net migration (an average of -12,000 persons per year). Forecast period interprovincial and intercity migration would improve relative to 2016 to 2018 levels.

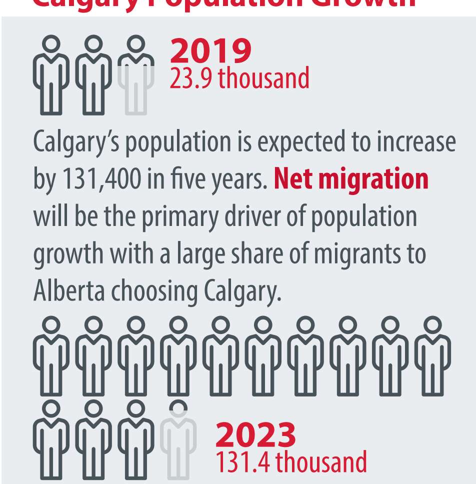
The city of Calgary's population is expected to increase to 1.399 million by 2023 with the addition of an estimated 131,400 persons between 2018 and 2023 or 26,300 annually. Net migration should account for most (61 per cent) of the increase. Natural increase would account for the rest. Annual net migration is expected to average 16,000 persons with natural increase responsible for the balance of 10,300 persons.

Local and regional population growth rates for the 2019 to 2022 period would be similar. The expectation is compound average annual growth rates of 2.0 and 1.9 per cent respectively. Population growth should be slower in the rest of the province at 1.6 per cent. The city of Calgary is expected to remain a more attractive destination for migrants relative to other Alberta jurisdictions.

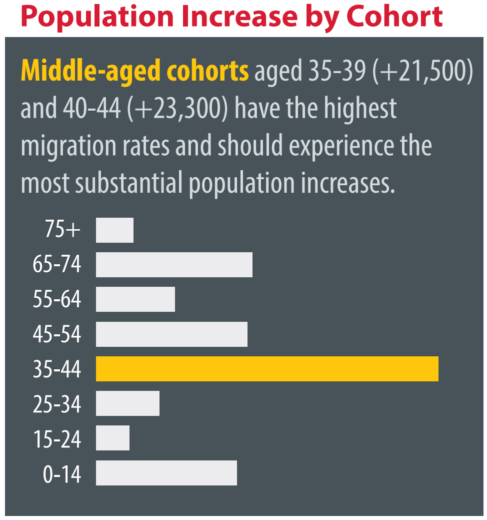
The expectation, by the end of the forecast period, is a shift in the population age structure for Calgary. Calgary's population is expected to increase by +131,400 persons. A third of the increase is forecasted to occur in the 35-39 age group (+21,500) and the 40-44 age group (+23,300). These working-age cohorts correspond with those groups that have high migration rates. Whenever the share of the population that is working and saving increases, there is a boost to economic prosperity. The population shift is expected to have labour supply implications. A growing share of workers in the economy relative to the total population would lead to more production and greater resource availability.

Total employment in the CER is expected to grow by an annual rate of 1.6 per cent in 2019. The regional economy is expected to add 108,500 jobs over the six years from 2018 to 2023. As a result, the unemployment rate is expected to fall to 5.9 per cent in 2024.

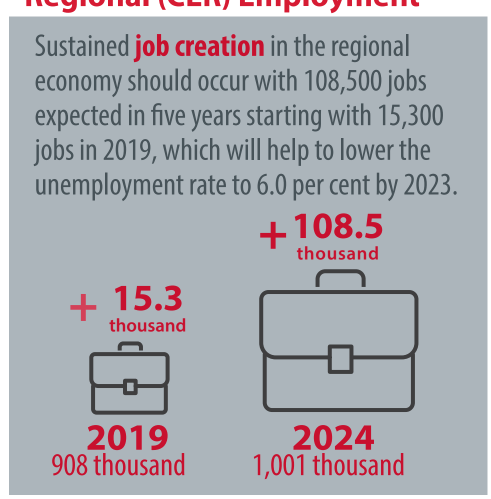
Calgary Population Growth



Population Increase by Cohort



Regional (CER) Employment



4. The cost of living and doing business and greater demand for services to lift municipal operating costs

Increases in the cost of living in Calgary, measured by the consumer price index, are expected to be moderate going forward. After a 2.4 per cent increase in 2018, modest annual price changes for consumer goods consistently below 2.0 per cent should materialize for the rest of the forecast period. Spending on transportation, shelter and food dominate consumer inflation. Four forces are expected to contribute to the forecast path for the consumer price index.

- Transportation costs would increase because oil prices are expected to maintain or exceed current levels during the forecast period.
- Shelter costs should be stable because lower housing and rental costs would offset expected increases to heating costs.
- A relatively stable Canadian dollar relative to the U.S. dollar should keep prices for imported consumer goods and services steady.
- Only minor adjustments to the Bank of Canada 's overnight rate would occur for most of the forecast period because the national economy is expected to operate below its potential level of activity.

Inflationary pressure would be mainly attributable to transportation costs. Using information from 2018, the contribution of transportation costs to annual consumer price inflation was between +1.0 and +1.3 per cent.

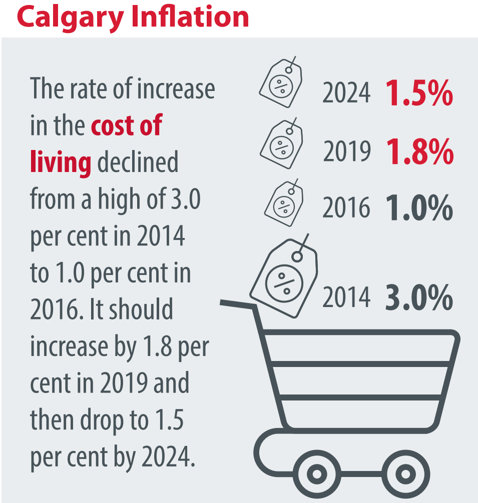
There would be upward pressure on labour costs as wage inflation above 2.0 per cent is expected throughout the forecast period for Alberta. The cost of doing business in 2019 should fall because the producer price index and the raw material price index are both expected to decline. For 2020 and beyond, the industrial product price index and raw material price index should outpace consumer inflation putting cost pressure on businesses.

Four economic forces should keep the non-residential building price inflation rate around the rate of consumer price inflation. Two of the forces would put upward pressure on prices. Higher oil prices should increase transportation costs to get materials to construction sites. Higher domestic interest rates should raise borrowing costs as construction firms look to increase prices to maintain profit margins. Two alternative forces would put downward pressure on prices. A low and relatively stable exchange rate should make material imports cheaper. The high local unemployment rate should moderate CER labour costs.

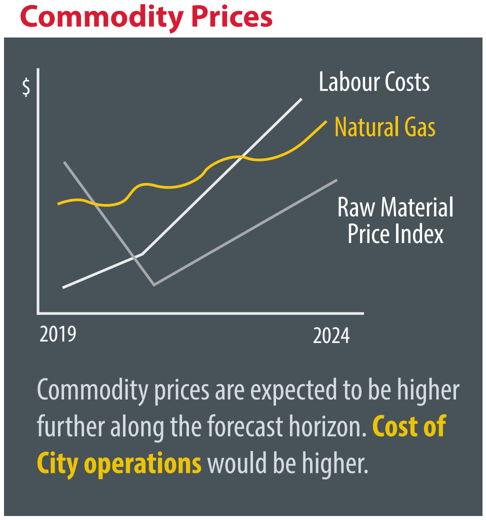
Alignment between non-residential construction inflation and consumer inflation would help to hold the line on the cost of delivering capital infrastructure projects. Nevertheless, the need to accommodate population growth would intensify the demand for capital investment dollars.

The operating cost pressure on Calgary's municipal government would be higher than consumer inflation because of the cost of population growth, raw material price increases, and a higher product price index. It is because the municipal government needs to maintain infrastructure and provide frontline services that keep up with population growth. In 2019, the costs of some of these goods and services would go up and others down.

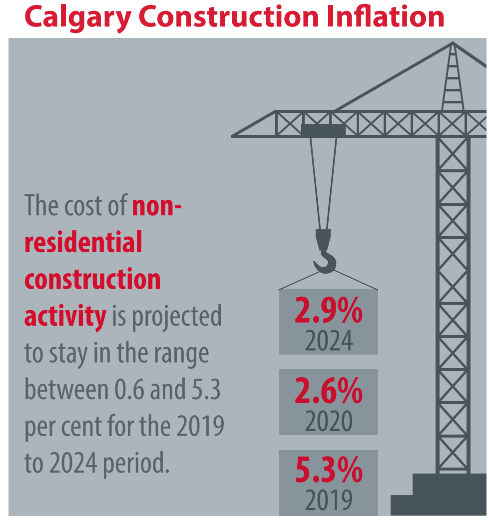
Calgary Inflation



Commodity Prices



Calgary Construction Inflation



Executive Summary

Forecast Averages: Previous (2015 to 2018) vis-à-vis Current (2019 to 2022) Budget Cycle

Variable	Previous City of Calgary Budget Cycle [2015 to 2018] Average	Current City of Calgary Budget Cycle [2019 to 2022] Average	Forecast Implications
Assumptions			
World			
Real Gross Domestic Product Growth (%)	3.5	3.3	A larger economic and population base would increase the demand for commodities and place upward pressure on commodity prices. It will have a positive impact on Canadian terms of trade as Canada produces several commodities.
The United States			
Real Gross Domestic Product Growth (%)	2.4	1.9	Deceleration in demand growth for Canadian exports in line with a deceleration in growth for Canada's most significant trading partner.
Canada			
Real Gross Domestic Product Growth (%)	1.8	1.8	The average rate of economic growth in Canada would remain unchanged.
Prime Business Loan Rate (%)	3.0	4.3	Higher borrowing costs for The City's suppliers would increase The City's purchase costs, and should also affect variable rate mortgages for Calgarians.
Exchange Rate (US$ for 1C$)	0.8	0.8	Exchange rate stability would keep the price of imported goods stable limiting the need to hedge.
Alberta			
Real Gross Domestic Product Growth (%)	-0.1	2.0	The Alberta economy would leave the recession behind and move into a phase of economic expansion growing steadily.
Total Employment Growth (%)	0.7	1.4	The pace of job growth would improve as the expansion in gross domestic product takes hold.
Unemployment Rate (%)	7.1	6.3	The unemployment rate would improve as the economy recovers.
Housing Starts ('000 Units)	29.4	27.9	Inventory build-up would ease the pace of housing starts to the pace of household formation.
CPI-Inflation Rate (%)	1.6	2.0	Inflation rate would increase as the economy expands.
West Texas Intermediate - WTI (US$/bbl)	52.0	61.5	Better price stability but moderately higher crude oil prices would increase prices for petroleum-based commodities, transportation costs and inflation.
Western Canadian Select - WCS (US$/bbl)	35.4	45.0	WCS Oil price would increase as oil price curtailment puts a hold on supply and transportation constraints ease gradually despite limited pipeline capacity.
Alberta Natural Gas Price - AECO/NIT ($/GJ)	2.1	2.2	The impact on The City of Calgary would be mixed. Slightly higher prices will put upward pressure on operating costs and at the same time put upward pressure on franchise fee revenue.
Industrial Product Price Index (%)	1.5	1.4	Price growth for finished products would be similar to the previous next budget cycle.
Raw Materials Price Index (%)	-1.1	-1.5	Raw material prices would remain weak in this new phase of increased protectionism.
Alberta Average Wage Rate Increase for All Industries (%)	-2.3	2.6	Job growth would lower the unemployment rate. Competition for talent should emerge and lead to moderate rates of wage inflation.

Executive Summary

Forecast Averages: Previous (2015 to 2018) vis-à-vis Current (2019 to 2022) Budget Cycle

Variable	Previous City of Calgary Budget Cycle [2015 to 2018] Average	Current City of Calgary Budget Cycle [2019 to 2022] Average	Forecast Implications
Forecast			
Calgary Economic Region			
Real Gross Domestic Product Growth (%)	0.3	1.9	The pace of growth in the regional economy would be similar to the Alberta and national economies.
Total Employment ('000 persons)	878.5	935.4	Job growth would increase demand and prices for non-residential space lifting The City's property tax base.
Total Employment Growth (%)	1.0	1.9	Non-residential construction activity would intensify, especially for infrastructure, as proposed 2019-2020 investments commence.
Unemployment Rate (%)	7.9	7.1	A lower unemployment rate would increase the competition for skilled workers and increase cost pressure on The City.
Calgary Census Metropolitan Area (CMA)			
CPI-Inflation Rate (%)	1.5	1.6	The local inflation rate would keep increases in the cost of living to below the 2 per cent threshold.
Non-Residential Building Price Inflation (%)	-0.1	2.4	The rate of escalation for construction costs would be much higher for the current cycle.
City of Calgary			
Demography			
Total Population ('000 Persons) *at the end of the cycle*	1,244.8	1,331.5	Demand for municipal services would be higher, and the residential property tax base should increase.
Total Population Growth (%)	1.5	2.0	The pace of population growth would be faster than the previous cycle as the local economy enters an expansion phase.
Net Migration ('000 Persons)	7.8	16.1	Positive net migration would exceed natural increase as the primary source of population growth. Most migrants would come from international sources.
Household Formation ('000 Units)	8.4	10.0	The rate of household formation would increase with a faster average pace of population growth.
Real Estate			
Residential Market			
Housing Starts ('000 units)	9.0	8.8	The City's revenues from residential building permits would be slightly lower; assuming all things are equal.
Building Permits ($billion) (city)	-0.3	1.9	Household wealth would grow at a faster pace.
Average Residential MLS Sale Price (% change)	5.0	4.3	City revenues from building permits would be lower. Revenue from non-residential activity should decrease substantially relative to the past cycle.
Non-Residential Market			
Downtown Office Vacancy Rate (%)	18.2	20.2	The downtown office vacancy rate would remain close to the average for the previous cycle.

Numbers may not add up due to rounding.

Executive Summary

Forecast Risks

Risks arising from activities in the Rest of World:

Worsening global outlook, outstanding trade tensions, and an unratified trade agreement

1 There are three significant external risks – lower world GDP growth, an uncertain outcome for U.S. and China trade negotiations, and Brexit. Should materially relevant surprises turn up for these risk factors, they will get transmitted to Calgary through consumer price inflation and demand for exported goods.

2 Trade tensions led to a deceleration in global goods trade for 2018. Any additional movement toward protectionism, reduction in consumer and business confidence in the EU and growth deceleration in China would adversely impact small open economies like Calgary and Canada.

3 The leaders of the U.S., Canada and Mexico signed the United States-Mexico-Canada Agreement (USMCA) in 2018. For ratification, it needs the approval of each country's legislature. Delays or requests for additional amendments would create trade uncertainty with two significant trading partners for Canada.

Risks from potential changes in Alberta provincial government policies:

The possible shift in strategy for Alberta crude, carbon levy uncertainty, and revisiting the Alberta minimum wage

7 Alberta oil production outpaces crude oil pipeline capacity by a large margin. Alberta's previous NDP government mandated a crude oil production curtailment for 2019. It curbed the rapid decline in WCS prices. The in-coming UCP government could alter the strategy for the oil and gas industry.

8 The in-coming Alberta UCP government plans to eliminate the provincial carbon levy. The federal government has indicated a federal carbon levy backstop. Redirection of resources from provincial coffers to federal coffers would alter the distribution of economic activity and GDP.

9 The in-coming Alberta UCP government plans to roll back the minimum wage increases introduced by the previous Alberta NDP government. It added costs to restaurants retail and housekeeping services. The forecast does not incorporate any changes to the Alberta minimum wage.

Risks arising from factors that balance needs across Canada:

Policy-led pressures on housing investment, a relatively strong loonie, and job market impact of baby boomer exits

4 The federal mortgage stress test has diverted interest away from single-family to multi-family units. Any increases to the interest rate because of the Bank of Canada's efforts to prevent overheating could dampen the ability of households to invest in housing with implications for housing starts.

5 Demand for Alberta crude is relatively inelastic due to limited market access. A stronger loonie creates an incentive to cut prices and maintain sales that will reduce profit margins and deter investment. A weaker loonie encourages investment with more profits and spurs growth.

6 Job growth is expected to exceed labour force growth because of the exit of baby boomers from the workplace. The forecast assumes no changes to labour productivity, which may or may not materialize because of the knowledge and skills gap created.

Risks from local and regional private and public-sector influences:

Downtown office investment, a unidirectional revision to investment intentions, and transition to services-producing jobs

10 The forecast assumes no new supply of office space in downtown Calgary through to 2024. It also does not reflect any conversions of existing office space into other uses that would require additional investment dollars. Changes of use would alter investment and local economic activity.

11 Non-residential investment drives local economic activity and encourages residential investment. The forecast uses investment intentions communicated to Alberta Economic Development and Trade. Changes in the value of investments are expected to offset themselves. Substantial changes in any direction would alter forecast results.

12 The concentration of job opportunities in the services-producing sector has implications for labour market volatility as goods-producing sector job seekers move out and services-producing sector job-seekers move in. Potential short-term skills shortages from this transition will affect the local economy.

The Local City of Calgary Economy

The Pattern of Economic Growth in Calgary

The level of economic activity is vital for determining whether prosperous or challenging economic times lie ahead. It provides a basis for local public policy responses. Public investments in public works projects take centre stage as a platform for rejuvenating economic prosperity.

The level of investment in the local economy is the building block that greases the wheels and gets economic activity going. Non-residential building and other investments do not just deliver specific goods and services. They also encourage complementary goods and services, often as production inputs. As well, additional residential investments become necessary for individuals that offer labour hours and receive jobs in return. The higher the level of investment, the more attractive the local economy becomes for migrants that seek jobs and businesses that see an adequate market for their goods and services.

Building and Other Investments in Calgary

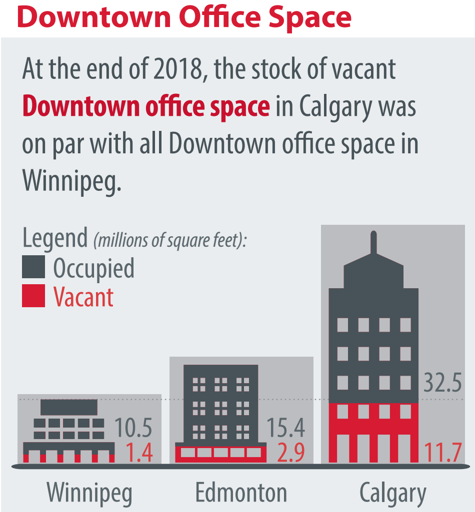
Non-Residential Activity – Significant Public Investment to complement Private Investment

The addition of millions of square feet of office space to downtown Calgary over the last decade is so much that it is on par with the stock of office space in downtown Winnipeg. Calgary is less than twice as large. Because of less favourable conditions for the oil and gas industry, the addition of office space is unaccompanied by demand. It has put downward pressure on prices and reduced the prospect of new office investment going forward.

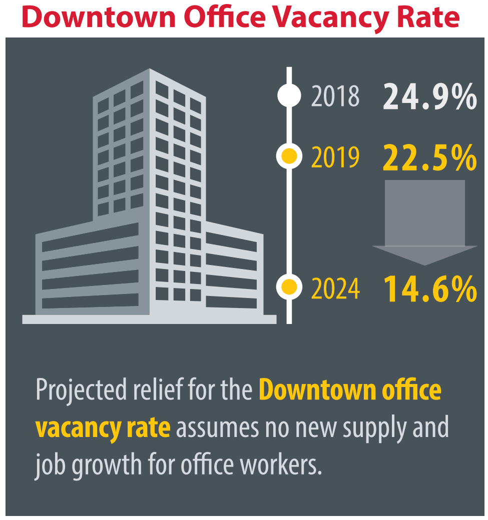
More downtown office space is occupied today than at any time in Calgary's history. However, an oversupply situation has emerged with 61 per cent of Calgary's office inventory now in downtown Calgary. As a result, future investments in the downtown Calgary office market is expected to be soft for the next decade. Calgary's downtown office vacancy rate should abate slowly as job growth picks up. Job growth should support the absorption of office space, and the vacancy rate would decline from 25 to 15 per cent by the end of the forecast horizon.

The 2019 level of non-residential building construction investment is estimated to be like 2018. The sustained lower level is due to reduced energy sector investments. Public sector investments would fill the void and is expected to cover some of the slack later in the forecast horizon. The City of Calgary and the Government of Alberta plan to make significant infrastructure investments including the Green Line LRT (light-rail transit), the Calgary Cancer Centre, the Southwest Ring Road, and Crowchild Trail upgrades.

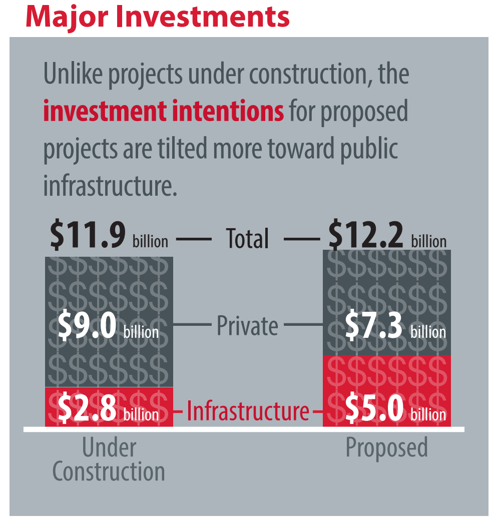
Downtown Office Space



Downtown Office Vacancy Rate



Major Investments



Forecast

Non-Residential Building Price Inflation – Impact on City Costs

Non-residential building price inflation captures the value of all materials, labour, equipment, overhead and profit to construct a new building. Any push to get building construction projects going faster risks inserting cost-push inflation into the local economy in the near term. Cost-push inflation would occur mostly through increases in material and labour costs.

Four economic forces should keep the non-residential building price inflation rate around the rate of consumer price inflation. Two of the forces would put upward pressure on prices. Higher oil prices should increase transportation costs to get materials to construction sites. Higher domestic interest rates should raise borrowing costs as construction firms look to raise prices to maintain profit margins. Two alternative forces would put downward pressure on prices. A low and relatively stable exchange rate should make material imports cheaper. The high local unemployment rate should moderate labour costs.

Residential Activity – Building Investment and Expansion of the Residential Tax Base

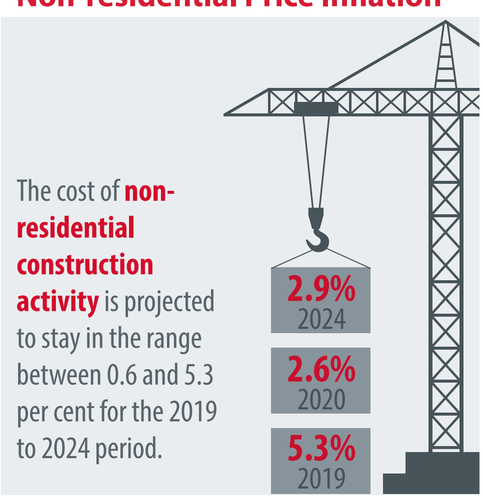
Whenever non-residential investment activity rises, stalls or falls, residential investment activity responds similarly. Slow job growth would limit residential real estate performance. Higher borrowing costs and the mortgage lending stress test would reduce consumer debt carrying capacity and ability to purchase homes.

There are now more than half a million dwellings in Calgary. Beginning in 1986, the historical average annual rate of housing starts relative to the existing housing stock is between 0.9 and 3.5 per cent every year. In 2018, there were 8,866 housing starts in the city of Calgary. The 1.7 per cent result is at the lower end of the traditional pace (mean of 2.2 per cent). The forecast for housing starts is an average of about 9,000 units for the 2019-2023 period. The slower pace is a downward revision from the Fall 2018 forecast and is due in large part to the current elevated level of housing inventory. The share of multi-family housing starts relative to total housing starts should increase because the stricter mortgage lending stress test would divert interest away from single-family units.

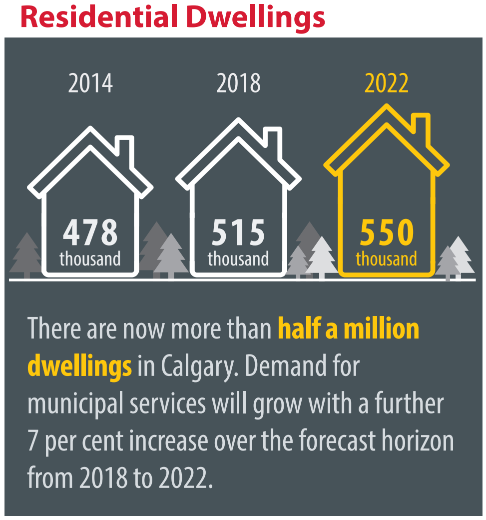
Residential house price growth was negative for two straight years. Stagnant incomes and a high unemployment rate contributed. House price appreciation is expected to resume for the forecast period. Fewer housing starts and slow price appreciation would limit the growth of the residential tax base.

The total residential building investment in the city of Calgary is expected to average $2.6 billion over the forecast horizon. Residential investment would slightly exceed non-residential investment. The total value of building permits in the city of Calgary was $4.4 billion in 2018, which is the average expected throughout the forecast horizon.

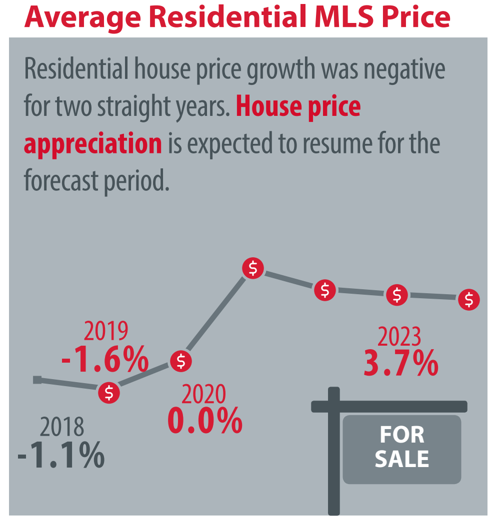
Non-residential Price Inflation



Residential Dwellings



Average Residential MLS Price



Forecast

Population and Labour Supply

Local Population Growth to Continue at a Steady Pace

The 2018 municipal census put Calgary's population at 1.267 million. The annual rate of population increase was 21,007 persons or 1.7 per cent — the fastest pace of growth since the 2015-16 recession. Net migration (+11,588) accounted for 55 per cent of population growth. Natural increase, the difference between births and deaths, added 9,419 persons.

Calgary's population is expected to increase to 1.399 million by 2023 with the addition of an estimated 131,400 persons between 2018 and 2023 or 26,300 annually. Net migration would account for most (61 per cent) of the increase. Annual net migration is expected to average 15,800 persons with natural increase responsible for the balance of 10,300 persons.

Net Migration to be the Leading Source of Local Population Growth

Between 2016 and 2018, Calgary had an average unemployment rate of 8.4 per cent. The average annual level of net migration to the city of Calgary was 2,000 persons per year. Over this period, net international migration was positive and significant (an average of +14,000 persons per year). It helped to offset the considerable loss from interprovincial and intercity net migration (an average of -12,000 persons per year). Forecast period interprovincial and intercity migration should improve relative to 2016 to 2018 levels. As the Alberta unemployment rate remains high relative to the rest of Canada, international net migration is expected to be the leading source of city population growth.

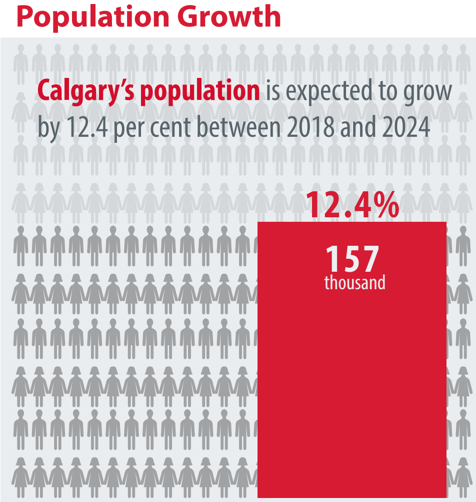
The Shifting Age Structure to Impact City Services to the Local Population

Local and regional population growth rates for the 2019 to 2022 period are projected to be similar. The expectation is compound average annual growth rates of 2.0 and 1.9 per cent respectively. Population growth should be slower in the rest of the province at 1.6 per cent. The city of Calgary would be a more attractive destination for migrants relative to the rest of Alberta.

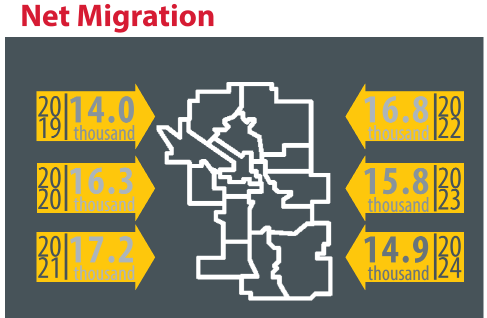
The expectation, by the end of the forecast period, is a shift in the population age structure for Calgary. Calgary's population is expected to increase by +131,400 persons. A lot of the increase is forecasted to occur in the 35-39 age group (+21,500) and the 40-44 age group (+23,300). These working-age cohorts correspond with those groups that have high migration rates. Whenever the share of the population that is working and saving increases, there is a boost to economic prosperity.

For the average Canadian, consumption is fully funded by labour income from ages 27 through to 58. Those below 27 years and above 58 years often produce less than they consume. The population shift would have labour supply impacts. A growing share of workers in the economy relative to the total population would lead to more production and greater resource availability.

Population Growth

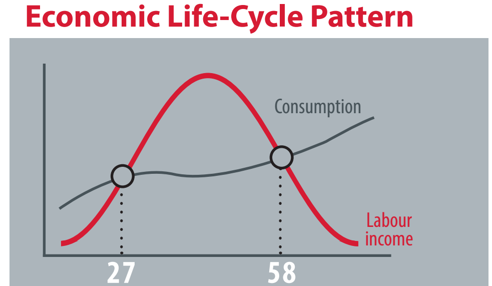


Net Migration



Annual **net international migration** of +14,000 persons per year is the platform for sustained population increases.

Economic Life-Cycle Pattern



Source: National Transfer Accounts

For the average Canadian, consumption is fully funded by labour income from **ages 27 through to 58**. More Calgarians in the cohort would lead to more production and greater resource availability in the economy.

Forecast

Economy-induced reduction in the Downtown Tax Base and the Impact on Municipal Taxes

Municipal Taxes, Property Assessments, and the Economy

Municipal property taxes are the most significant component of municipal revenue. For 2018, municipal property taxes of $1.8 billion was 46 per cent of municipal revenue ($3.9 billion). Consequently, annual property tax assessments, that inform the distribution or split of the property tax responsibility across residential and non-residential taxpayers is an essential municipal function.

Local economic conditions dictate the size and growth rate of the residential and non-residential tax base. Rapid population and business growth increase demand for services. It also increases investment in new properties so that the tax responsibility gets spread over more units. If investment expansion exceeds property tax increases to accommodate new growth, the responsibility on individual residential and non-residential units would even decline.

Concentrated Impact on Downtown Office Market

Calgary experienced a recession in 2015 and 2016. A decline in oil prices prompted it. WTI prices were US$93 per barrel in 2014. The price fell by 43 per cent to US$43 per barrel in 2016. Significant job losses occurred, including for office workers. The downtown office market holds 61 per cent of Calgary's office market inventory and certainly felt the impact.

The traditional real estate market response to a recession is a slowdown in investment in new units. It occurred for residential units with a 46 per cent decline in housing starts from 13,800 units in 2014 to 7,500 units in 2016. Downtown office property investment bucked the trend.

Delayed Investment Response to the State of Economy

Investment decisions for new office buildings take several years to implement. Additions for 2014 to 2019 reflect economic conditions between 2008 and 2013. Investors recalled and responded to chronic shortages between 2004 and 2007. Low vacancy raised rents and sale values for downtown office buildings, pushing up taxable assessed values. For a decade, more of the non-residential tax responsibility got directed toward downtown office units.

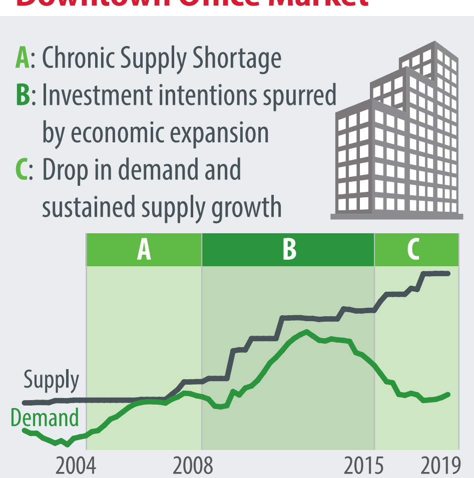
With the 2015 to 2016 downturn, the reverse occurred. More of the non-residential tax responsibility got directed away from downtown office units. The share of the total taxable assessed value in Calgary picked up for residential and non-residential properties outside downtown. Office investments overshot to the downside (2004 to 2007) and now to the upside (2014 to 2019) in response to a changing local economy. Long project completion periods mean it takes time for the market to rebalance.

Impact on Municipal Taxes and Short-Term Solutions

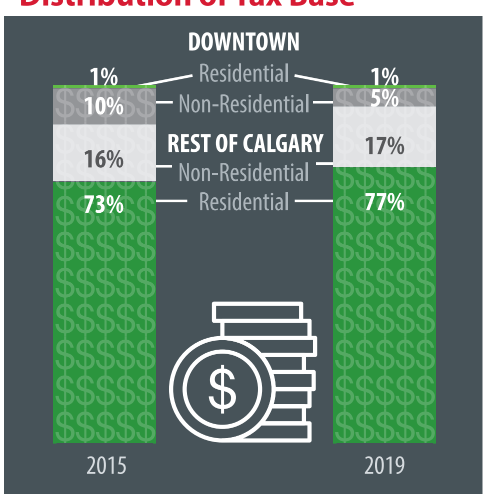
The steep and rapid market value decline for a small number of high-valued downtown office buildings was about $14 billion from 2015 to 2019. It has led to a material decrease in non-residential property taxes paid by these property owners.

The risk of business failures by shifting all the $257.6 million tax responsibility to non-residential properties outside of the downtown led Calgary municipal authorities to shift part of the responsibility to residential properties. Also, a review of a small business grant is underway to lend further support to the local business community.

Downtown Office Market



Distribution of Tax Base



Tax Shift Out of Downtown

Forecast

Forecast: The Broader Regional Economy (Calgary Economic Region)

The Pace of Economic Output Growth

The Calgary Economic Region experienced a great deal of volatility during the 2015-2018 business plan and budget cycle. After two years of economic decline, two years of economic progress followed. The 2015-2018 average annual rate of growth of GDP was 0.3 per cent. The fact that the period average was positive suggests that the level of economic output recorded in 2014 was recovered by 2018. The pace of the recent expansion correlates with price increases for the WCS crude oil benchmark. Annual average WCS price growth decelerated from 27 to 5 per cent from 2017 to 2018.

Crude oil trade, with inherent significant price volatility, represents 12-15 per cent of global trade. The economic fortune of the CER remains connected to the crude oil market. In 2018, Canada was the world's fifth largest producer of crude oil by volume with more than 5 per cent of world production (including lease condensate). A 7 per cent annual increase in production volume was responsible. Most of that production was generated in Alberta by corporations headquartered in Calgary.

In 2019, the expectation is a lower rate of GDP growth primarily because of Alberta's oil production curtailment. Subsequently, the GDP growth rate should improve with WCS price growth.

Unlike Canada's other major economic regions with a population greater than a million people, the CER has had two and not one recession in the last decade. The additional business cycle would lead to a lower level of GDP in 2019 and for the forecast horizon. In addition to expenditure and structural balanced budget rules in the Municipal Government Act, other responses are needed to reduce fiscal vulnerability.

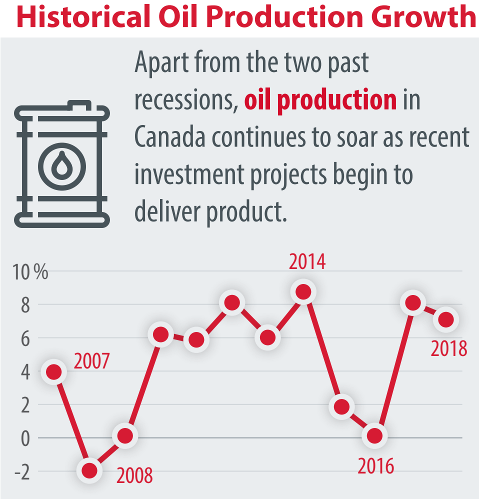
Contribution to CER Economic Expansion

More Private and Public Infrastructure Investments

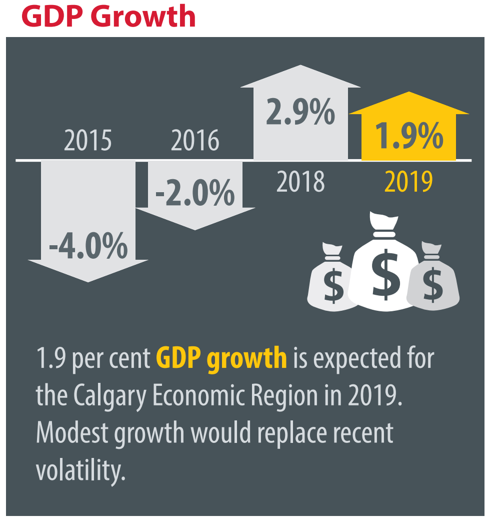
Major investments ($5.0 million or more) that are underway in 2019 for the CER across eleven sectors should cost $14.3 billion to complete (15 April 2019 update). Another $19.9 billion in major investments is expected to commence later in 2019 or by no later than 2021. The total is $34.2 billion. The CER would be home to more than half of Alberta investments in four categories – commercial property, retail property, residential property, and tourism or recreational investments. Projects (underway in 2019 or to commence by no later than 2021) in these four categories are expected to generate $8.9 billion in investment, less than $11.6 billion for infrastructure investments in the CER.

Investment activity in Alberta is also expected to strengthen over the 2019 to 2022 period. For Alberta, there are 666 major projects – 332 are already underway, and 334 should commence by 2021. Projects that are

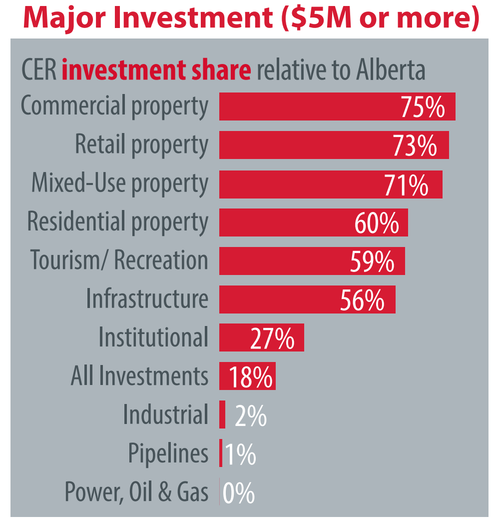
Historical Oil Production Growth



GDP Growth



Major Investment ($5M or more)



underway would require an investment of $55.2 billion. Projects that are scheduled to begin later in 2019 or by no later than 2021 should need another $131.1 billion investment.

Projects of oil and gas firms that would lead to forty-two per cent of the $131.1 billion value for Alberta should begin between 2019 and 2020. It compares with 20 per cent of $55.2 billion in projects underway. Future investment in oil sands extraction is expected to be at least $42.9 billion. The mining of shallow deposits (within 75 meters of the ground surface) should be at least $25.0 billion, while in situ extraction of deep-lying deposits is estimated at $17.9 billion. Planned investment in upgraders ($10.85 billion) and natural gas facilities ($2.0 billion) would elevate oil and gas investment to $55.7 billion.

More Jobs in the Services-Producing Sector

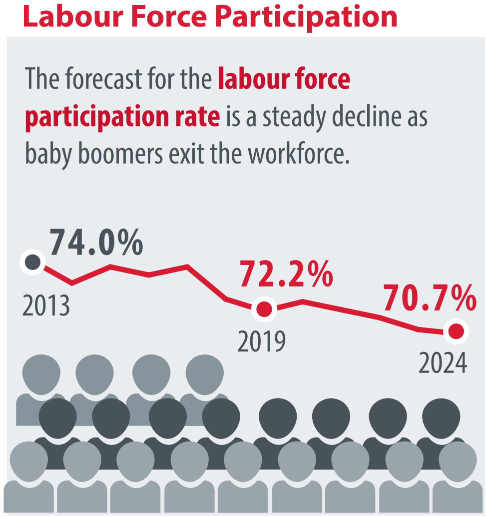
The CER labour force was 965,400 persons in 2018. The forecast average growth rate is 1.6 per cent. The labour force should hit one million people by the end of 2020 or beginning of 2021. The working age population is expected to increase at a faster average rate of 1.9 per cent. The pace of growth of the working population reflects the age profile of migrants to the CER. Healthy population growth should drive consumption and add to economic vibrancy. Faster working-age population growth relative to labour force growth would lead to a decline in the labour force participation rate. The labour force participation rate is expected to decline from 73 to 71 per cent by the end of the forecast horizon.

The pace of job creation in the CER slowed in 2018. It was down to 8,000 persons from 23,000 persons in 2017. Over the 2015 to 2018 period, most of the employment increase (+16,400) was from the services-producing sector (+19,800). Trade (+5,500), educational services (+4,800), and professional, scientific and technical services (+4,000) industries dominated. At the same time, the goods-producing sector suffered job losses (-3,500). The mining, quarrying and oil and gas industry was hard hit (-6,100).

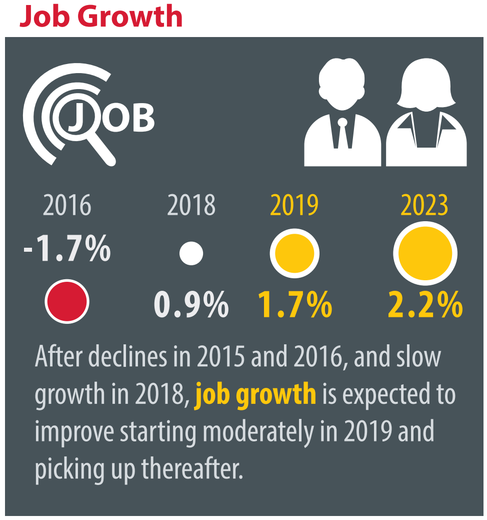
The average annual pace of services-producing sector job growth through to 2023 should average 2.4 per cent. It would offset a much slower average annual pace of goods-producing sector job growth of 0.4 per cent. By 2024, the regional economy should still have fewer goods-producing sector jobs than the peak a decade earlier. The services-producing sector jobs have been resilient to economic volatility. The services-producing sector is expected to add 100,000 new jobs over the six years from 2018 to 2024. Employment growth is expected to average 1.9 per cent through to 2024.

The unemployment rate is expected to decline. It is because the average growth rate of jobs (+1.9 per cent) should exceed the average growth rate of the labour force (+1.6 per cent). The CER unemployment rate should fall from 7.6 per cent in 2018 to about 6.0 per cent by 2024. The forecast assumes economic and employment growth would be only slightly more robust elsewhere in Canada than it would be in Alberta.

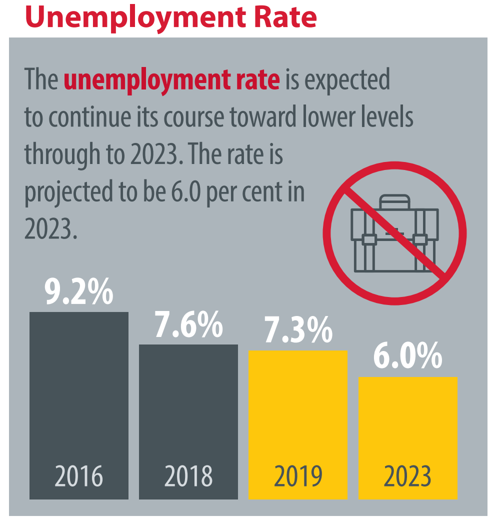
Labour Force Participation



Job Growth



Unemployment Rate



Forecast

Overview of the Economic Implications of Recreational Cannabis Legalization

Legalization of Recreational Use

Legalization of recreational cannabis came into effect in Canada last fall. There were three stated aims:

- Limit the illegal cannabis market;
- Provide a safer environment for its purchase and use; and
- Attempt to keep drugs out of the hands of minors.

Licensed Retail Providers

Alberta Gaming, Liquor and Cannabis (AGLC) issues licenses for Alberta providers. The AGLC has already issued 75 Alberta licenses. Calgary, with 24 licensed providers, is the city with the most number of provincially licensed retail providers in Canada. Edmonton has the second highest number of licensees with 11. Apart from 10 licensees in Winnipeg and seven licensees in St. John's, other cities have three or fewer licensees.

Producer and Consumer Prices

For 2018, producer prices in Alberta were at the lowest level in 35 years. The 2018 average producer price per gram was $5.57 per gram. At $7.23 per gram, retail prices are similarly at a 35 year low. Despite declining prices, Alberta prices remain higher than the national average.

Cannabis Consumption Rates

Consumption estimates reflect both medical and recreational uses. For 2018, one out of every six Albertans were consumers. The rate of consumption in Alberta was slightly higher than the Canadian average. Ontario and Quebec had the lowest consumption rates pulling the Canadian average down. The highest rate of consumption was in the province of Nova Scotia. The 2018 average rate of consumption is close to rates projected before legalization.

Size of Retail Economy

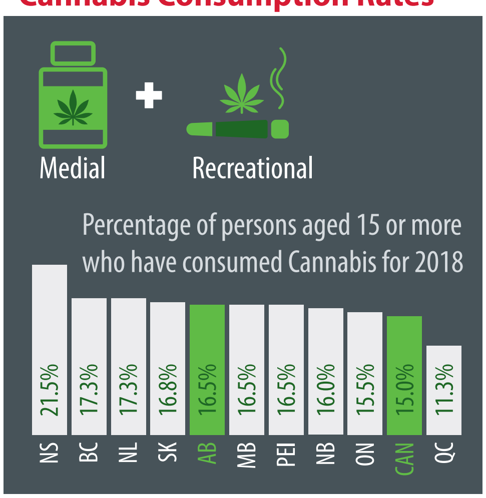
Following legalization, monthly (seasonally unadjusted) retail cannabis sales in Calgary have been between $2.0 and $4.9 million. It would put the annual local market size at $24-59 million. For Alberta, monthly sales have been $5.7-14.2 million. The provincial market size would be $68-171 million so that Calgary represents about a third of the provincial market. For Canada, monthly sales have been $41.4-57.3 million. The Canadian market size would be $498-688 million.

Broader Socio-Economic Impact

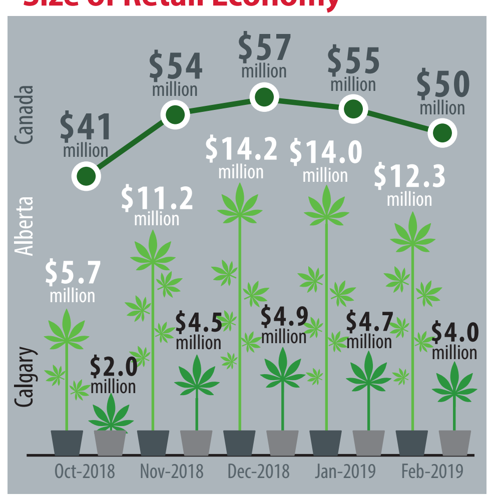
Legalization of recreational cannabis led to revisions in national economic accounts. The North American Industry Classification System (NAICS) was revised. Similarly, the North American Product Classification System(NAPCS) got updated. In 2018, the Canadian medical cannabis industry generated $1.6 billion in GDP. GDP for non-medical cannabis was $4.0 billion. For both, employee compensation was $395 million. Industry gross operating surplus was $1.2 billion. The severity crime index for cannabis possession, trafficking, production or distribution in Canada, Alberta and Calgary also declined.

Producer and Consumer Prices

Cannabis Consumption Rates



Size of Retail Economy



Forecast: Commodity and Consumer Prices – Local and Regional Economic Impact

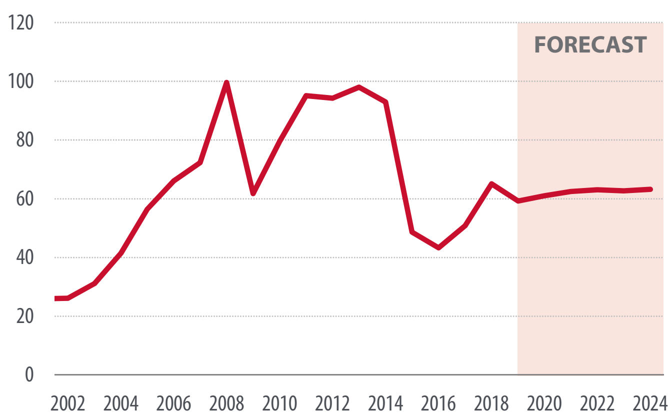
Commodity Prices

Energy Commodities

Crude Oil: WTI crude oil prices averaged US$65.1/barrel in 2018. It supported Alberta crude production growth both from oil sands projects and from conventional activities. Overall production in Alberta reached a record high by the end of 2018. The supply glut, temporary U.S. refinery shutdowns, and bottlenecks in transporting crude to U.S. and non-U.S. markets combined to push down prices for Alberta heavy crude. It caused unprecedented discounts with WCS cheaper than WTI by as much as US$50/bbl at one point. Subsequent production curtailment by the provincial government helped to narrow the WCS to WTI price differential.

Looking ahead, a surge in U.S. shale production whenever WTI price increases would continue to act as a drag on the price of WTI. A more conciliatory tone in U.S. and China trade negotiations has eased some concerns about global energy demand, but the deceleration of GDP growth in Europe and Asia creates downside price risk. For 2019, WTI should average at US$59.2/bbl, and slightly increase to US$61.1/bbl in 2020.

WTI Crude Oil Price Forecast
(US$/bbl)

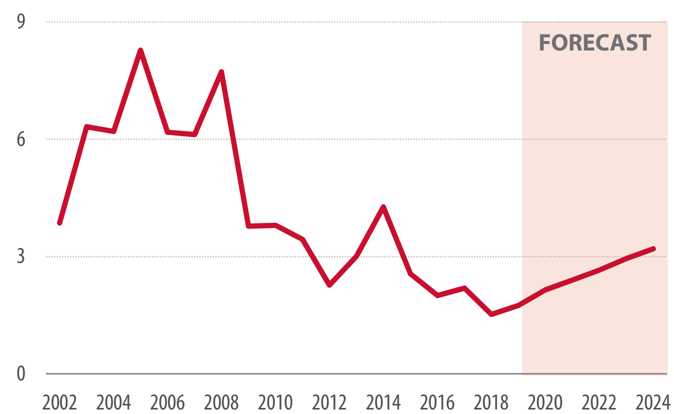


Source: U.S. Energy Information Administration, Bloomberg, Consensus Economics, Corporate Economics.

Alberta producers continue to have energy market access issues. The constraint is expected to be very limiting in 2019, before decreasing in the first quarter of 2020 when Enbridge's Line 3 replacement is supposed to be fully operational. The relief provided by rail transportation in 2019 would be limited. The assumption is for incomplete resolution of market access issues over the forecast period, which would constrain the growth of Alberta's energy sector.

Natural Gas: Although natural gas prices in the United States have climbed since late 2018 due to low storage and increased demand, Alberta natural gas prices have remained flat and continue to trail below the Henry Hub benchmark (see glossary for a definition). Frigid weather in early 2019 should boost the demand for heating with natural gas for the beginning of this year. However, this temporary lift would be more than offset by the downward pressures on the demand from the oil production curtailment. Traditionally, about 40 per cent of Alberta natural gas gets consumed by oil sands extraction. As oil sands projects scale down drilling operations to implement production cuts, short-term natural gas demand should stay contained in the province.

AECO-C Natural Gas Price
(C$/GJ)



Source: GLJ Publications, Corporate Economics.

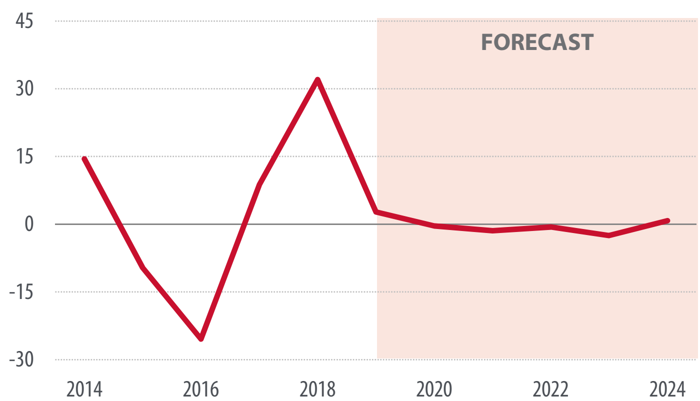
Given the current environment, low natural gas prices are expected to persist for most of the forecast period. The benchmark Alberta natural gas price at the AECO hub is expected to average at $1.75/GJ in 2019 and $2.15/GJ 2020. The price differential between AECO-C and Henry Hub is also forecasted to widen in 2019 and

2020 unless the transportation capacity in Alberta improves. Resolution of some of the transportation carrying capacity by 2023 would get prices to $3.0/GJ.

Asphalt: Asphalt prices are significantly affected by exchange rates because of trade in inputs. Interest rates, oil prices and the market demand and supply balance play a less significant role. In 2018, the higher than expected exchange rate resulted in slightly higher prices (in Canadian dollars) for asphalt than indicated in the Fall 2018 forecast.

The outlook for exchange rates is stability, which would translate to stable asphalt prices over the forecast horizon. The market demand and supply balance should also remain unchanged. The two primary risks to the forecast are changes to the expected path of interest rates and oil prices. As discussed later, the Bank of Canada is not expected to move interest rates. As discussed earlier oil prices are expected to grow slowly. Future changes to any of these drivers would impact asphalt prices going forward.

Asphalt Price Inflation
(per cent)

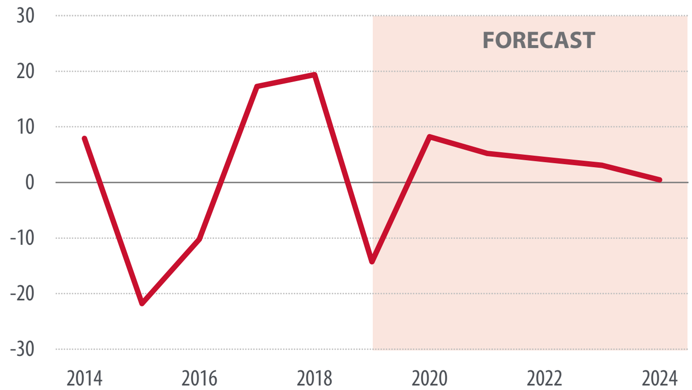


Source: Statistics Canada, Corporate Economics.

Diesel: Gasoline and diesel markets are not international and are somewhat de-linked from oil prices. Calgarians certainly know it after paying over $1 per litre for gasoline for much of last year, while WCS prices slid significantly.

Pre-tax prices for diesel should remain stable given a similar outlook for WTI oil prices and the exchange rate. Changes to taxes on diesel, specifically the carbon tax, is expected to affect retail prices. Federally, the carbon tax is expected to increase by 5.34 cents/litre every year with a final increase of 26.7 cents/litre in 2022. Consequently, the forecast is for the retail price of diesel to average 107 cents/litre in 2019, before rising to 134.2 cents/litre by 2022

Diesel Oil Price Inflation
(per cent)

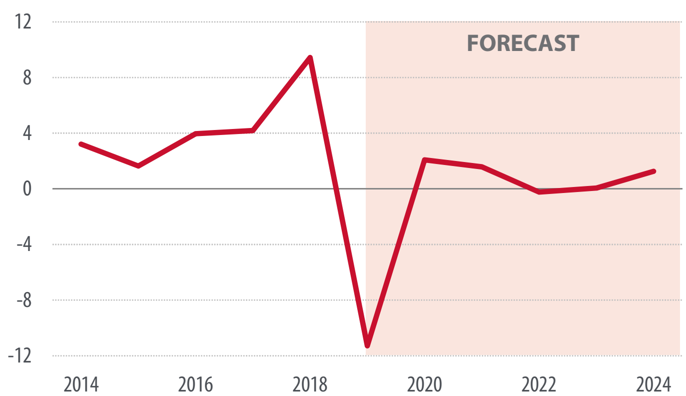


Source: Statistics Canada, Corporate Economics.

Raw Materials

Wood: A 26 per cent price spike for softwood lumber in 2018 was the result of increased demand for lumber due to advancing markets in the U.S. as well as Toronto and Vancouver.

Wood Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

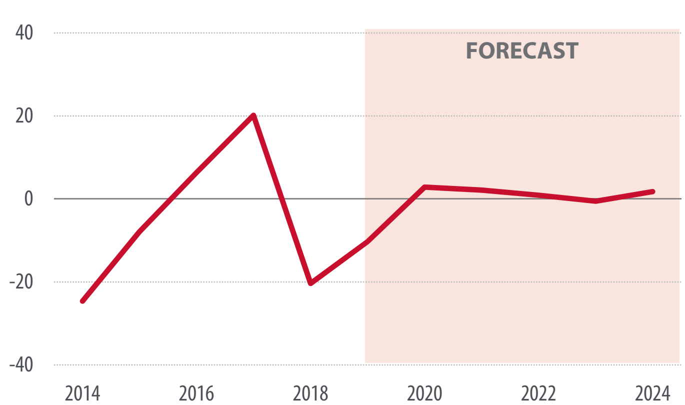
Forecast

Increases in U.S. domestic softwood production, as well as moves by the Bank of Canada to quell real estate markets in Toronto and Vancouver, have dampened price pressure in the Canadian market. Canadian softwood prices should adjust to the new reality for most of the forecast horizon. Also, negotiations of a new softwood lumber agreement are pending. The United States-Mexico-Canada Agreement (USMCA) was signed in November 2018, but there is no schedule for commencing negotiations after the old agreement expired in 2016. The outcome of the negotiations for a new softwood lumber agreement could alter the outlook.

Rubber: Globally, about two-thirds of rubber gets used for the manufacture of automotive tires. As a result, oil prices, extreme weather events, the general global economy and global supply patterns, changes in the use of personal vehicles, international trade in oil and natural gas, and the value of the Canadian dollar all impact the price of rubber in Canada.

China has an essential role in the global market for natural rubber. At 5.3 million metric tonnes, it accounted for 43 per cent of global imports and 40 per cent of global consumption in 2017. In 2018, U.S. import duty on tires from China and a reduction of tire exports to the E.U. led to weaker demand from China. As well, favourable weather in Thailand and Vietnam, responsible for about 43 per cent of global exports, lifted supply.

Rubber Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

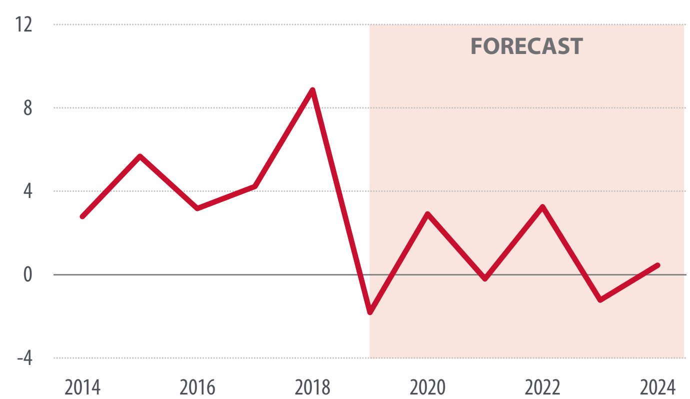
The forecast is for a drop in 2019 as global rubber markets respond to reduced demand from China. There may be future consequences for the demand from China because buyers of Chinese tire exports typically enter into long term contracts with providers. The assumption that this has occurred with producers in other countries limits the expected impact of the U.S. removing the 10 per cent tariff.

Metals and Minerals

Steel: Production of Canadian steel was down slightly to 13.1 million metric tonnes in 2018, from 13.6 million metric tonnes in 2017. It is congruent with recently announced manufacturing plant closures in Ontario.

Steel prices are up marginally in Canada, mainly because of increased surveillance by Canadian officials against foreign dumping into the Canadian marketplace. Chinese imports are under closer scrutiny, just like imports from other countries like South Korea, Vietnam, Ukraine, Brazil and many others. Recent determinations of dumping in Canada, and the imposition of countervailing duties, have lifted the price of steel in Canada.

Iron and Steel Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

With limited export opportunities and increased domestic supply, steel prices would experience a further reduction next year. Consequently, steel producers should respond to disincentives and reduce output. The expectation for the latter part of the forecast horizon

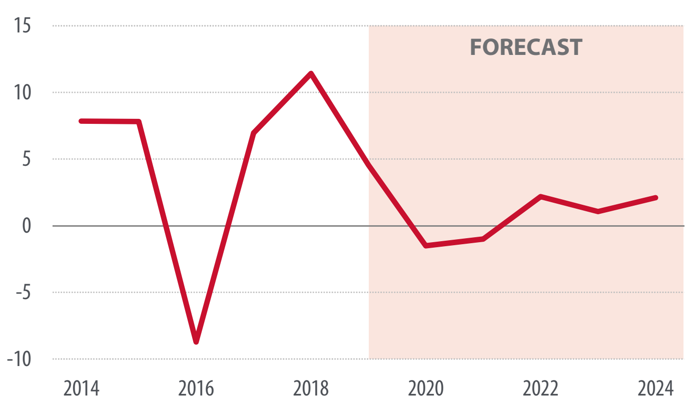
is for mild price appreciation like the pace of overall inflation.

Aluminum: Like steel, aluminum is a new target of U.S. tariffs. The blame for U.S. plant closures fell squarely on allegations of dumping by China into the U.S. market. U.S. production of refined aluminum fell from 4.6 million metric tonnes in 1980, when the U.S. was a net exporter, to 0.7 million metric tonnes in 2017. Measures to ensure that other countries don't dump into the U.S. by landing first in Canada are supporting Canadian aluminum prices.

The U.S. currently does not produce enough to meet its own domestic needs. U.S. production of refined aluminum was 4.9 million metric tonnes less than consumption in 2017. Canada is the world's third largest producer of refined aluminum, which has created scope to export to the U.S. market. Despite recent tariffs on Canadian aluminum, it remains cheap and quick to deliver to U.S. plants.

The outlook for Canadian aluminum is for some price increases this year followed by subdued increases congruent with normal inflation as the aluminum industry adjusts to the new tariff regime.

Aluminum Price Inflation
(per cent)

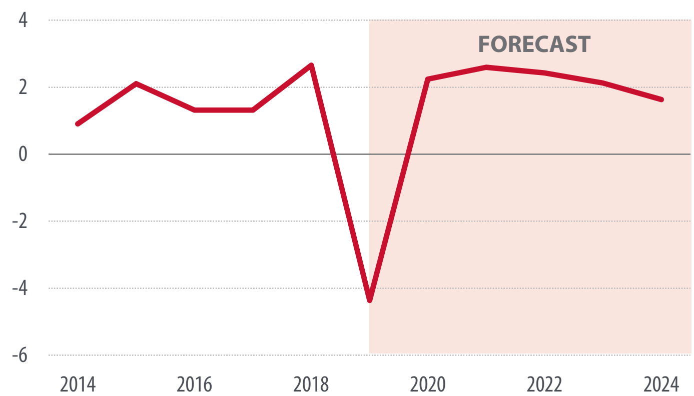


Source: Statistics Canada, Corporate Economics.

Automotive Parts: The waning of the Ontario manufacturing sector accelerated during the 2007-2008 financial crisis. The industry subsequently stagnated. With another plant closure in 2019, the industry faces the possibility of a long slow decline.

The international market for automotive parts made in Canada remains robust. Traditionally, a Canadian dollar valued lower than the U.S. dollar would enhance the Ontario manufacturing sector. The current outlook for exchange rates is stability at today's low rates for the Canadian dollar. Benefits offered by the exchange rate would offset the costs from the long-term outlook for electricity prices in Ontario. Together, they are expected to result in only gradual price increases over the forecast horizon.

Vehicle Parts Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

Prices for Consumer Goods

Consumer Price Inflation in the Calgary Economic Region

The increase in transportation costs was the most significant source of inflation in 2018. Food and shelter costs were next in line. Commodity prices have strengthened and have also been a factor in making finished products more expensive. After a 2.4 per cent increase in 2018, moderate annual price changes for consumer goods consistently below 2.0 per cent should materialize for the rest of the forecast period.

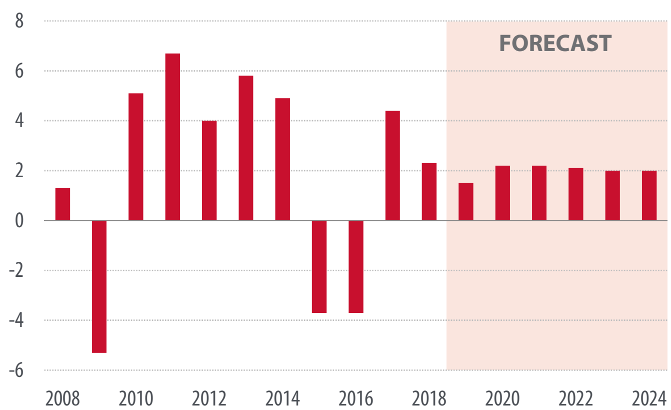
Assumptions

Assumptions: Economic Conditions in Alberta

Alberta Economic Growth

Crude transportation constraints, increased Alberta crude oil output, and U.S. refinery shutdowns put downward price pressure on Alberta crude oil in 2018. In response, the Government of Alberta mandated a production curtailment to begin in 2019. The production cutback is expected to impact the 2019 GDP growth rate negatively. Alberta's economy is expected to slow to 1.5 per cent in 2019 from 2.3 per cent in 2018, before picking up strength in 2020.

Gross Domestic Product Growth Rate
(per cent)



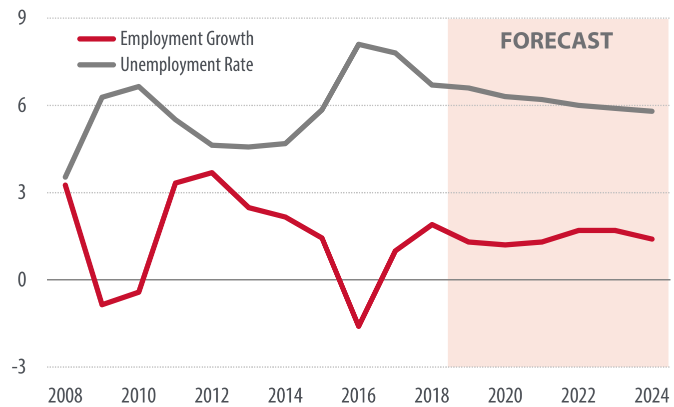
Source: Statistics Canada, Center for Spatial Economics, Conference Board of Canada, Corporate Economics.

The Alberta Labour Market and Population Growth

Alberta's labour market continues to improve. The province gained over 42,000 jobs in 2018, led by full-time private sector positions. As a result, the unemployment rate dropped to 6.7 per cent in 2018 from a peak of 8.1 per cent in 2016. There was a 26 per cent decline in employment insurance beneficiaries from 2017 to 2018.

The employment growth rate was 1.9 per cent in 2018, higher than most provinces and the 1.3 per cent national average. Job gains and losses were uneven across industries. The manufacturing and utilities industries witnessed 8.2 and 10.3 per cent job increases in 2018 respectively. Wholesale trade and agriculture industries lost 8.2 and 5.7 per cent of their jobs. In 2019, job growth is expected to slow down to 1.3 per cent, due to lower oil and gas industry investment intentions and weakness in the construction industry.

Labour Market
(per cent)



Source: Statistics Canada, Corporate Economics.

Constant labour market improvement would lower the unemployment rate to under 6 per cent by the end of the forecast period. The decline in the labour force participation rate would contribute as more baby boomers retire. Alberta's population would continue to increase. After a 1.6 per cent population growth rate in 2019, a 1.7 per cent average should materialize for the rest of the forecast period. Labour force growth through population increase would not fully offset baby boomer exits. Real wage growth should accompany the lower unemployment rate with competition for talent.

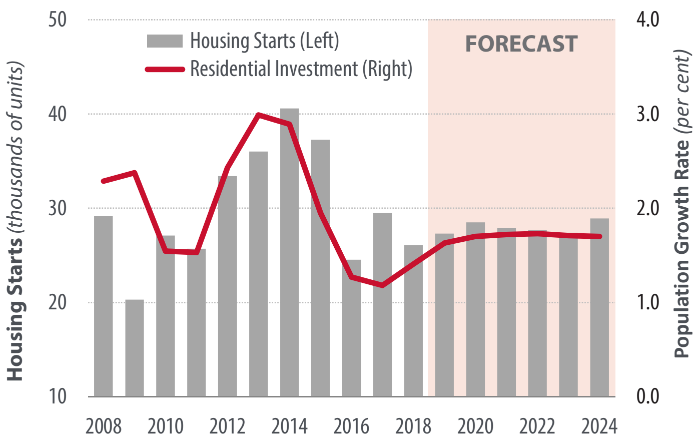
The Growth in Residential and Non-Residential Business Investment

There is ample stock of residential housing stock that is available but unused. Resale activity slowed down significantly in 2018, which led to price softening. As a result, housing starts slowed markedly across most regions in the province, from 29,500 units in 2017 to 26,100 units in 2018.

In 2019, housing starts are expected to be around 27,300 units due to weakness in the residential sector

and Fort McMurray reconstruction coming to an end. Lower prices should draw more demand to the resale market from the new-home market. Steady population growth should help ease some of the over-supply in the housing market. However, higher interest rates and stricter federal mortgage policy would put downward pressures on housing demand.

Housing Starts and Population Growth



Source: Statistics Canada, Alberta Treasury Board and Finance, Stokes Economics, Corporate Economics.

Non-residential business investment is expected to be moderate with oil and gas investment remaining flat. Capital expenditure plans for the oil and gas industry would wait for more certainty on pipeline construction and global oil market developments. Investment growth should occur outside the oil and gas industry but is expected to be limited. Capacity expansions in the petrochemical sector and the province's transition to more natural gas power generation should contribute to non-residential investment growth.

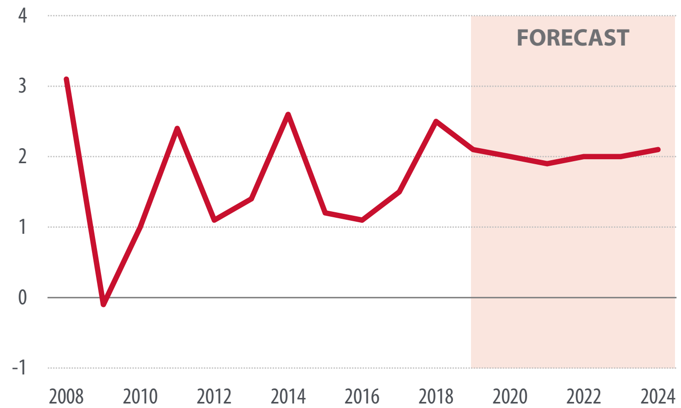
Alberta Consumer Price Index (CPI) Inflation

Alberta consumer price inflation increased by 2.5 per cent in 2018 mostly driven by higher transportation costs. Albertan drivers paid 18.7 per cent more for gasoline last year compared to the previous year. Shelter costs, the other category with substantial weight in the consumer goods basket, had a modest 2.3 per cent increase. Also, the price for recreational cannabis got incorporated in October 2018 alongside alcohol and tobacco for the first time, and the category recorded a 3.3 per cent increase.

Three one-time influences should dissipate going forward so that consumer price inflation would be steady at about 2.0 per cent for the forecast period. First, higher mortgage lending rates reflected in shelter costs should stabilize as the BoC halts rate increases. Second, the rollout of minimum wage increases that added costs to restaurants, retail, and housekeeping services got completed in 2018. Third, the effect of the introduction of the price of recreational cannabis would expire in 2019.

Consumer Price Inflation

(per cent)



Source: Statistics Canada, Corporate Economics.

Alberta Electricity Market Design: A Capacity Market or an Energy-Only Market

Two Markets to Replace One Market

The outgoing Alberta NDP government announced, in November 2016, that the Alberta electricity market would transition away from the current "Energy-Only" market to a new "Capacity Market" by 2021. A Capacity Market is essentially two separate markets where electricity generators compete:

- to sell their produced energy;
- for payments to keep generation capacity available to produce electricity in a future period.

Electricity ratepayers pay for the commodity cost of the electricity they consume. They also make additional capacity payments to the generators for making generation available on demand.

Capacity Market Policy Objectives

The Government of Alberta stated that the Capacity Market was intended to:

- protect consumers from volatile price swings;
- ensure Albertans continue to have a stable, reliable electricity supply;
- provide the price stability and revenue certainty needed to attract private investment;
- support Alberta's transition from coal generation to renewable energy.

In 2018, the Alberta Electric System Operator (AESO) submitted provisional capacity market rules to the Alberta Utilities Commission (AUC). In 2019, a hearing to examine the proposed Capacity Market rules commenced on April 22 and should conclude in June.

The Outcome of Past Electricity Market Design Reforms

There are three major components in the design of commodity markets that affect market output.

1. The description of the product to be transacted.
2. Rules for participation including eligibility and performance.
3. The clarity with which the price signal matches supply to demand for the desired product. In other words, a price determination mechanism.

A crucial design component is the price determination mechanism. In its review of Alberta's Energy-Only electricity market, the AESO confirmed good performance following electricity market deregulation. The findings are in an October 3, 2016 report titled *Alberta's Wholesale Electricity Market Transition Recommendation*. The AESO highlighted the following market outcomes:

- Met growing demand in one of North America's fastest growing jurisdictions;
- Maintained reliability through an adequate supply of electricity;
- Incentivized generation development and investment in a wide range of technologies without incurring public debt;
- Provided reasonable electricity prices through a fair, efficient and openly competitive market.

The Unique and Evolving Alberta Electricity Market

Electricity markets are complex, and each jurisdiction is unique. From 2008 to 2017, Alberta recorded the highest monthly average load factor of any North American jurisdiction. It is a measure of the average hourly load for the month divided by peak hour in the month. The load factor is also relatively consistent for all months of the year.

Installed generation capacity in Alberta increased from just over 9,000MW in 1999 to 16,700MW in 2018. An 85 per cent increase in 20 years. Most of the growth was in gas-based generation and renewables such as wind and solar. Despite 635MW in net additions, coal-based generation declined from 62.5 per cent of 1999 capacity to 37.5 per cent of 2018 capacity.

Capacity additions and replacements in the Alberta market over the past twenty years are estimated to have exceeded $13 billion of invested capital. The capital invested in electricity generation in the past twenty years is estimated to have cost a reasonable average of $10/MWh for Alberta ratepayers. Alberta does not appear to have had a problem attracting new investment to move to lower carbon emissions, to promote industrial development, and to add renewable sources at a competitive cost.

The Emerging Market Design Uncertainty

In its election platform, the incoming Alberta UCP government committed to consultations to determine whether to maintain an Energy-Only market or to create a Capacity Market. There is a further commitment to report back to Albertans within 90 days of the April 16 election.

The experience with Capacity Markets in other jurisdictions is mixed. A review of other jurisdictions indicates that ratepayers are better off with smaller capacity payments. Often, generators are incentivized to encourage increases to capacity payments received. Regulators play a crucial role in achieving balanced and objective outcomes. In some jurisdictions, they face pressures from rent-seeking behavior by generators.

Assumptions

Assumptions: Economic Conditions in Canada

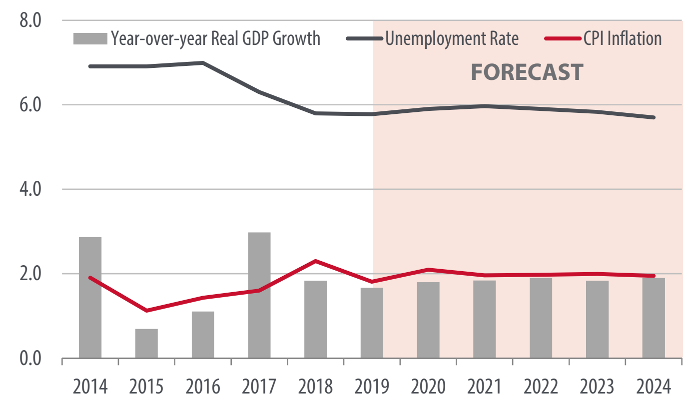
The Pace of Job Creation and Canadian Economic Growth

In 2018, Canadian economic growth slowed from the high of 2017 when it recorded the fastest growth among G7 countries. Real GDP decelerated from 3.0 to 1.8 per cent. The Canadian economy still has a negative output gap, actual GDP is less than potential, because of slack in the oil-producing regions. The annual rate of job growth also slowed from 336,000 to 241,000 jobs. The silver lining is that the unemployment rate declined to the lowest level in more than 40 years at 5.8 per cent. The low unemployment rate dampens the need to explore stimulative fiscal policy at the national level.

Going forward, higher borrowing costs and tighter mortgage rules would constrain consumer spending and residential investment. The annual rate of GDP growth is forecasted to remain below 2.0 per cent through to the end of the forecast period. The pace of job growth is expected to be even slower. The exit of baby boomers from the labour market should keep Canada's unemployment rate low at around 5.8 to 6.0 per cent.

Real GDP Growth, Unemployment Rate, and Consumer Price Inflation

(per cent)



Source: Statistics Canada, Corporate Economics.

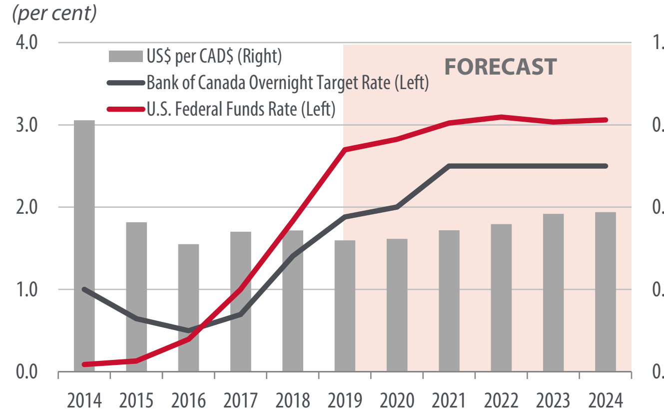
Monetary Policy and Implications for the Prime Business Lending Rate

Last year, wage inflation picked up because the national labour market was in good shape. Wage inflation got transmitted to consumer price inflation, which stood at 2.3 per cent in 2018. The Bank of Canada (BoC) raised the overnight rate on three occasions in 2018 to limit price growth. It led to an increase in the average annual prime business lending rate from 2.9 to 3.6 per cent.

For 2019, consumer price inflation is expected to fall to 1.8 per cent. The forecast is for the BoC to maintain the overnight rate throughout 2019. Consequently, the prime lending rate should remain at 3.95 per cent. Recently, the BoC referenced increased economic risks due to an uncertain external economic environment. The BOC explicitly identified three significant risks – lower world GDP, an uncertain outcome for U.S. and China trade negotiations, and Brexit. In the absence of surprises from these risk factors, consumer price inflation is forecast to be around 2 per cent between 2020 and 2024.

US$/CAD$ Exchange Rate vs. Central Bank Policy Interest Rates

(per cent)



Source: Statistics Canada, Bank of Canada, Corporate Economics.

Trade to drive the Evolution of U.S. and Canada Exchange Rate

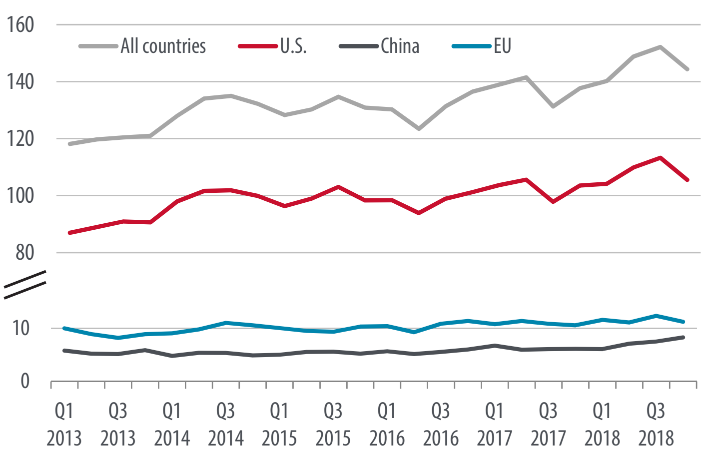
The energy sector was responsible for $1 out of every $5 of merchandise exports to the U.S. in 2017, more than any other sector. There is a strong link between

the volatility in the price of crude oil and the USD/CAD exchange rate. It is because of relative price stability for most of the other traded goods. From 2013 to 2015, there was a rapid depreciation of the loonie from US$0.97 to US$0.78 per CAD$. It coincided with the period just before and right after the sharp fall in crude oil prices. Because the expectation is for slightly higher WTI oil prices, the forecast calls for only a mild appreciation of the Canadian dollar. The expected range for the forecast period is between US$0.76 and US$0.79 per CAD$. Exchange rate stability would support trade, as trading partners benefit from increased price certainty.

Canada is a small open economy. Merchandise exports to all countries increased by 22 per cent from $118 billion in Q1 2013 to $144 billion in Q4 2018. Of the $144 billion, the U.S., E.U., and China received 73 per cent, 8 per cent, and 6 per cent of the merchandise exports respectively. Beyond merchandise goods, exports of all goods and services to other countries accounted for 32 per cent of GDP in 2018. Looking ahead, new trade deals like the USMCA and Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) would impact the Canadian economy. The USMCA is expected to have the most impact because of strong U.S. and Canada trade links. Its influence on the exchange rate would be less than the influence of fluctuations in world prices for commodities.

Merchandise Exports to All Countries and by Principle Trading Partners

(Q1 2013 - Q4 2018, $billion balance of payment)



Source: Statistics Canada, Corporate Economics.

Assumptions: The United States Economy

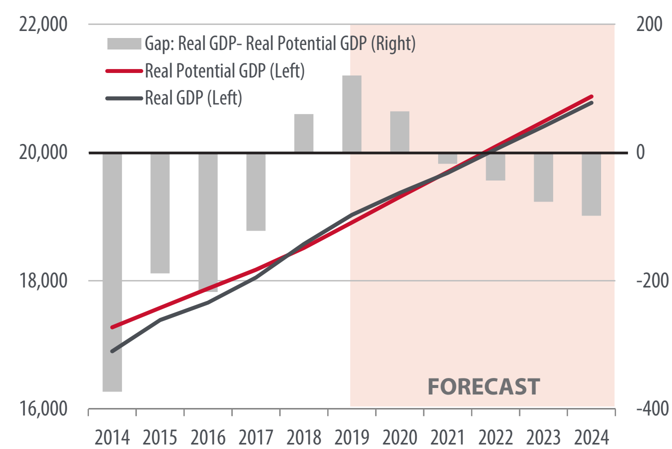
U.S. Fiscal Policy and the Path for Real GDP Growth

U.S. real GDP growth accelerated to 2.9 per cent in 2018, from 2.3 per cent in 2017. Federal government fiscal stimulus was a significant contributor to the robust 2018 growth rate. There were two categories of stimulus – additional government spending and corporate tax cuts that lifted business investment.

Consequently, the U.S. economy is estimated to have started running above the maximum sustainable level of output (potential real GDP) beginning in Q2 2018. Today's positive output gap, when actual real GDP exceeds potential, suggests that the economy is outperforming.

Real GDP vs. Real Potential GDP

(billions of chained 2012 US$)



Source: Federal Reserve Bank of St. Louis, Corporate Economics.

The base case forecast is for the output gap to remain positive until 2021. It is consistent with expectations of the U.S. Congressional Budget Office (CBO). The implication is more labour market tightening over the forecast horizon. U.S. real GDP growth is forecast to be 2.5 per cent in 2019. The high growth rate is attributable to both federal government fiscal stimulus and accommodative monetary policy. As fiscal and monetary stimulus fade, real GDP growth is expected

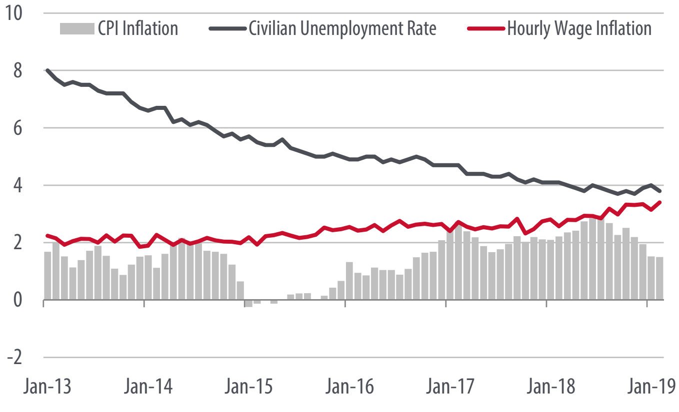
to decelerate to between 1.6 and 1.8 per cent for 2020 to 2024.

Upward Price Pressures and the Role for Monetary Policy

The civilian unemployment rate declined steadily from 8.0 per cent in January 2013 to 3.8 per cent in February 2019. Over the same period, the annual growth rate for average hourly earnings for all private sector employees increased from 2.1 to 3.4 per cent. The tighter labour market has transmitted to an acceleration in wage inflation. Consumer price inflation, on the other hand, is below the 2.0 per cent target for the U.S. Fed.

The expectation is that the U.S Fed would continue to time adjustments to the overnight rate right. There is support for this position. The healthy labour market and rapid real wage rate growth have boosted the real spending power of U.S. households, but CPI inflation has remained in check. Strong consumer fundamentals should support consumption growth and housing investment over the forecast period.

Civilian Unemployment Rate vs. Consumer Price and Wage Inflation
(Jan 2013 - Feb 2019, *per cent*)



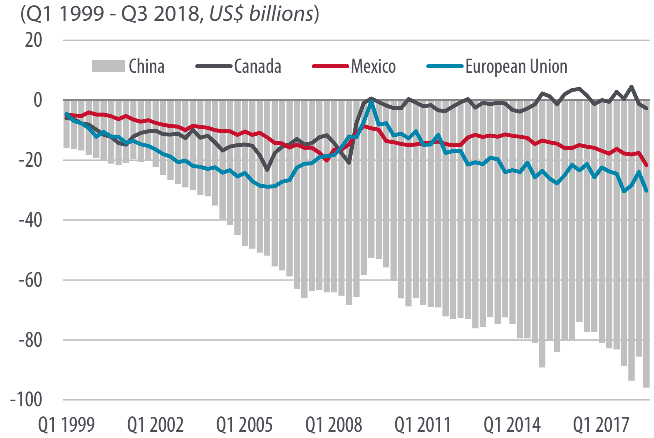
Source: Federal Reserve Bank of St. Louis, Corporate Economics.

Implications arising from changes to U.S. Trade Policy

Sustained negative trade balances with some trade partners led to a trade policy review by the new U.S. government. China, the E.U. and Mexico are the three countries or regions for which U.S. trade deficits are most significant. The trade deficit with China increased 500 per cent from US$16 billion in Q1 1999 to US$96 billion in Q3 2018. Trade with Canada has not come under the spotlight. It is mostly because the trade balance moved from a US$23 billion deficit in Q4 2005 to a US$4 billion surplus in Q1 2018. Nevertheless, Canada was affected by trade uncertainty that emerged from the policy position that the North American Free Trade Agreement (NAFTA) was responsible for rising trade deficits with Mexico.

The replacement of NAFTA with the United States-Mexico-Canada Agreement (USMCA) should improve trade certainty going forward. It provides scope to adjust forecasts to reflect more considerable investments from the U.S. and elsewhere into Canada. Apart from investment flows, the drag on growth from disruptions to the North American supply chain has eased. An outstanding risk to the forecast is that the pause to tariff hikes agreed to by China and the United States at the December 2018 G20 meeting gets reversed.

International Trade Balance on Goods and Services, by Selected Countries and Regions
(Q1 1999 - Q3 2018, *US$ billions*)



Source: Bureau of Economic Analysis, U.S. Department of Commerce, Corporate Economics

Assumptions

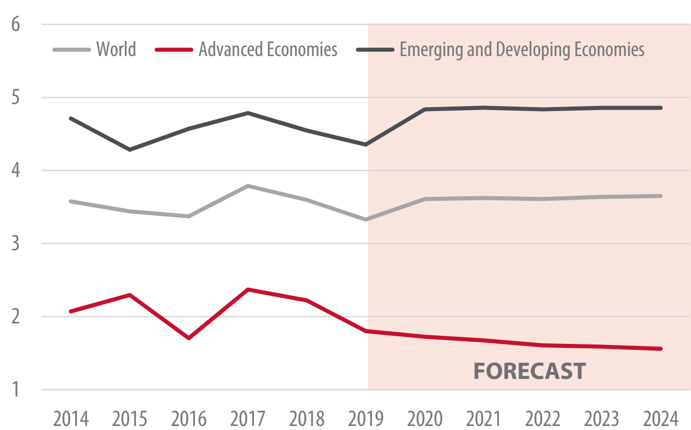
Assumptions: The World Economy

The Pace and Distribution of Real GDP Growth across World Economies

The Fall 2018 forecast was for world gross domestic product to grow at 3.9 per cent in 2018 and 2019. Global economic growth in 2018 was lower at 3.6 per cent with emerging and developing markets leading the charge. The trade tensions between the United States and China had two outcomes. First, heightened anxiety in the global financial markets. Second, reduced trade between the United States and major trading partners due to the tariffs imposed on Aluminum and Steel.

The global growth outlook for 2019 is revised downward to 3.3 per cent. China's decelerating economy, trade tensions, reduced consumer and business confidence in the E.U. and an uneasy geopolitical climate have contributed. In most developed markets, households and governments have high debt to income ratios. Inflation targeting and the management of debt carrying capacities for households and governments would be the main challenges for Central Banks. Between 2020 and 2023, economic growth in advanced economies is expected to average 1.6 per cent. The pace of growth is projected to be uneven with an average of 4.3 per cent for developing countries.

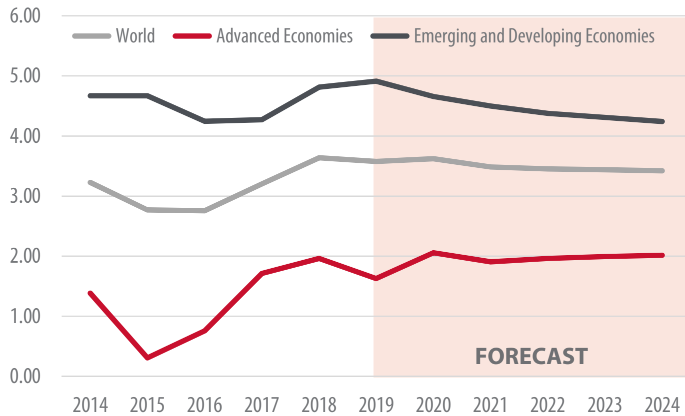
Gross Domestic Product Growth
(per cent)



Source: International Monetary Fund, Corporate Economics.

Over the last ten years, world inflation averaged 3.5 per cent. Advanced economies averaged 1.4 per cent, while it was 5.2 per cent for emerging markets and developing economies. For the next five years, inflation is expected to be higher for advanced economies with an average of 2.0 per cent. Inflation in emerging markets and developing economies should decelerate to 4.3 per cent.

Inflation Rates
(per cent)



Source: International Monetary Fund, Corporate Economics.

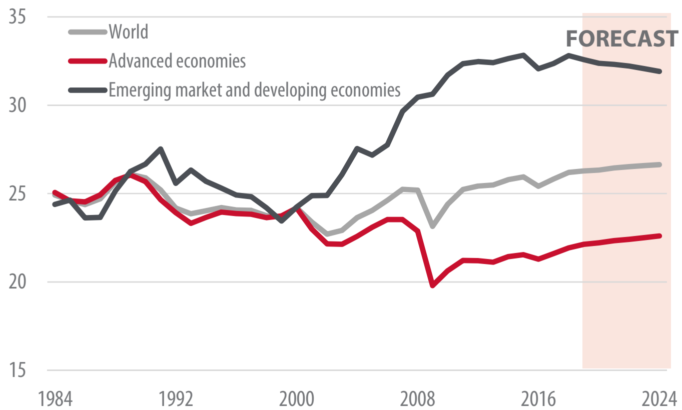
Investment and Capital Build-Up to Support Global Growth

The investment share of GDP is a significant driver of economic growth and is expected to increase over the forecast period. The investment share of GDP is now expected to average 32.7 per cent and 22.7 per cent for emerging and developing economies and advanced economies respectively. These are adjustments to the Fall 2018 estimates of 33.0 and 22.0 per cent respectively. The difference in investment shares of GDP explains most of the faster pace growth in emerging and developing economies vis-à-vis advanced economies.

Investment relies on a buildup of savings. The resource gap is the difference between savings and investments. Over the forecast horizon, the resource gap for advanced economies would be positive, indicating funding sufficiency using their financial resources. The resource gap for emerging and developing economies should be negative. To bridge the gap, emerging and

developing economies would have to increase gross national savings or rely on investment flows from advanced economies to meet the shortfall.

Investment as percent of of Real GDP
(per cent)



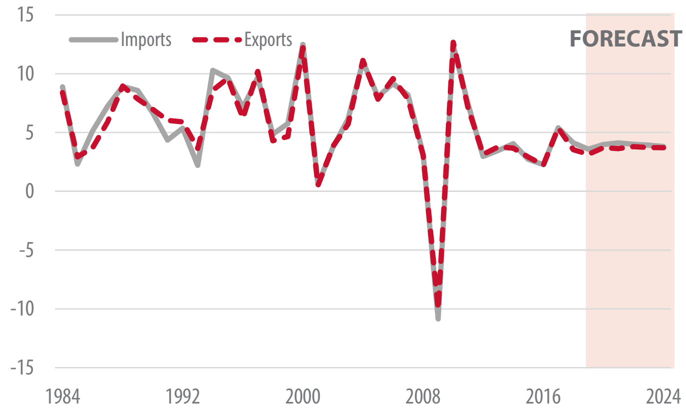
Source: International Monetary Fund, Corporate Economics.

Improved Trade Certainty and Effects on Global Growth

Trade tensions in major economies led to a deceleration in global goods trade for 2018. New tariffs that came into force at the beginning of 2018 affected about 2.5 per cent of global goods trade. It affected 12 per cent and 6.5 per cent of U.S. and China goods imports respectively. The pause to tariff hikes agreed to by China and the United States at the December 2018 G20 meeting has reduced trade policy uncertainty going forward.

The magnitude of trade with the rest of the world was 44 per cent of Alberta GDP in 2018. Although Calgary-specific data is unavailable, the Alberta statistic is a good proxy for the extent of openness or exposure of the Calgary economy to events outside its borders. For the forecast period, the three leading trading partners are expected to continue to be the United States, China, and Mexico in that order. The introduction of the USMCA should improve trade certainty. As a result, the real export of goods and services is expected to grow much faster than the pace of GDP growth.

World Trade Growth
(per cent)



Source: International Monetary Fund, Corporate Economics.

Tables

Table 1 - Selected Economic Indicators

Rest of the World, United States, Canada, Alberta, Calgary Economic Region (CER) & Calgary Census Metropolitan Area (CMA)

FORECAST COMPLETED: April 2019						BASE FORECAST					
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
ASSUMPTIONS											
World											
Real Gross Domestic Product Growth (%)	3.6	3.5	3.3	3.7	3.6	3.3	3.6	3.6	3.6	3.6	3.6
The United States											
Real Gross Domestic Product Growth (%)	2.6	2.9	1.5	2.3	2.9	2.5	1.8	1.6	1.9	1.8	1.8
Canada											
Real Gross Domestic Product Growth (%)	2.6	0.8	1.4	3.0	1.8	1.7	1.8	1.8	1.9	1.8	1.9
Prime Business Loan Rate (%)	3.0	2.8	2.7	2.9	3.6	4.0	4.1	4.4	4.7	4.8	4.9
Exchange Rate (US$ for 1C$)	0.91	0.78	0.76	0.77	0.77	0.76	0.76	0.77	0.78	0.79	0.79
Alberta											
Real Gross Domestic Product Growth (%)	4.9	-3.7	-3.7	4.9	2.3	1.5	2.2	2.2	2.1	2.0	2.0
Total Employment Growth (%)	2.2	1.4	-1.6	1.0	1.9	1.3	1.2	1.3	1.7	1.7	1.4
Unemployment Rate (%)	4.7	5.9	8.1	7.8	6.7	6.6	6.3	6.2	6.0	5.9	5.8
Housing Starts ('000 Units)	40.6	37.3	24.5	29.5	26.1	27.3	28.5	27.9	27.7	27.4	28.9
CPI - Inflation Rate (%)	2.6	1.2	1.1	1.6	2.5	2.1	2.0	1.9	2.0	2.0	2.1
Crude Oil Price - WTI (US$/bbl)	93.2	48.7	43.3	50.8	65.1	59.2	61.1	62.5	63.1	62.7	63.2
Western Canadian Select - WCS (US$/bbl)	74.5	35.1	29.5	37.6	39.6	38.4	43.9	46.8	50.9	51.8	52.1
Alberta Natural Gas Price - AECO/NIT ($/GJ)	4.3	2.6	2.0	2.3	1.5	1.8	2.2	2.4	2.7	3.0	3.2
Industrial Product Price Index (%)	2.5	-0.8	-0.2	3.1	3.9	-0.4	2.2	2.0	1.9	1.8	1.8
Raw Materials Price Index (%)	1.6	-19.9	-4.6	10.9	9.2	-11.5	1.5	1.6	2.5	2.4	2.4
Alberta Average Wage Rate Increase for All Industries (%)	4.6	-3.0	-9.4	1.5	1.5	2.1	2.7	2.7	2.7	2.7	2.7
FORECAST											
Calgary Economic Region (CER)											
Real Gross Domestic Product Growth (%)*	6.3	-4.0	-2.0	4.4	2.9	1.9	1.7	2.1	2.0	2.5	2.2
Total Employment ('000 persons)**	857.2	876.1	861.0	884.3	892.5	907.8	928.2	944.9	960.7	982.3	1,001.0
Total Employment Growth (%)**	2.3	2.2	-1.7	2.7	0.9	1.7	2.2	1.8	1.7	2.2	1.9
Unemployment Rate (%)**	4.9	6.3	9.2	8.4	7.6	7.3	7.2	6.9	6.8	6.0	5.9
Calgary Census Metropolitan Area (CMA)											
CPI - Inflation Rate (%)	3.0	1.2	1.0	1.6	2.4	1.8	1.2	1.7	1.6	1.8	1.5
Non-Residential Building Price Inflation (%)	1.3	-0.6	-2.6	0.9	1.9	5.3	2.6	0.6	1.2	1.4	2.9

Numbers may not add up due to rounding.

* Source: Stokes Economics, Corporate Economics
** Total population, census divisions and census metropolitan areas, 2001 Census boundaries

Table 2 - Selected Indicators for City of Calgary

City of Calgary

						BASE FORECAST					
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
DEMOGRAPHY (FORECAST COMPLETED: September 2018)											
Total Population ('000 Persons)	1,195	1,231	1,235	1,246	1,267	1,291	1,318	1,345	1,372	1,399	1,424
Total Population Growth (%)	3.3	3.0	0.3	0.9	1.7	1.9	2.0	2.1	2.0	1.9	1.8
Net Migration ('000 Persons)	28.0	24.9	-6.5	1.0	11.6	14.0	16.3	17.2	16.8	15.8	14.9
Household Formation ('000 Units)	14.5	13.4	1.2	7.5	11.6	9.1	10.0	10.5	10.4	10.1	9.7
REAL ESTATE (FORECAST COMPLETED: April 2019)											
Residential Market											
Housing Starts	13.8	10.1	7.5	9.5	8.9	8.9	8.8	8.8	8.8	9.0	9.3
Calgary Average Residential MLS sale price (%)*	5.5	-2.9	2.5	0.5	-1.1	-1.6	0.0	5.1	4.0	3.7	3.5
Total Building Permits ($billions)	6.7	6.3	4.7	4.6	4.4	4.5	4.2	4.2	4.3	4.6	4.7
Non-Residential Market											
Downtown Office Vacancy Rate (%)**	5.4	10.1	18.2	22.5	24.9	22.5	20.8	19.4	18.0	16.2	14.6

Numbers may not add up due to rounding. *Source: CREB, Corporate Economics. ** Source: Altus InSite

Table 3 - Selected Commodity Prices

City of Calgary

FORECAST COMPLETED: April 2019						BASE FORECAST					
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
CONSTRUCTION COMMODITIES											
Iron and steel products	2.8	5.7	3.2	4.2	8.9	-1.8	2.9	-0.2	3.3	-1.2	0.4
Aluminum products	7.9	7.8	-8.7	7.0	11.4	4.5	-1.5	-1.0	2.2	1.1	2.1
Wood	3.2	1.6	4.0	4.2	9.4	-11.3	2.1	1.6	-0.2	0.1	1.3
Asphalt*	14.5	-9.6	-25.4	8.7	32.0	2.7	-0.4	-1.4	-0.6	-2.5	0.8
OPERATIONAL COMMODITIES											
Rubber	-24.6	-7.9	6.4	20.1	-20.3	-10.3	2.8	2.1	0.9	-0.5	1.7
Diesel oil	7.9	-21.8	-10.2	17.3	19.4	-14.3	8.2	5.2	4.1	3.1	0.5
Vehicle parts	0.9	2.1	1.3	1.3	2.7	-4.4	2.2	2.6	2.4	2.1	1.6

Numbers may not add up due to rounding.
NOTE: MLS prices represent significant market differences. Apartment/Condo prices expected to decrease while house prices remain resilient.
* Based on Ontario Ministry of Transportation Asphalt Price Index

Table 4 - City of Calgary Population Projection

City of Calgary *(thousands of persons)*

FORECAST COMPLETED: September 2018		BASE FORECAST						
	2018	2019	2020	2021	2022	2023	2024	2025
Total Population (as April)	1,267.3	1,291.2	1,317.5	1,345.0	1,372.3	1,398.7	1,424.3	1,449.3
Total Population Growth Rate (April - March)	1.7	1.9	2.0	2.1	2.0	1.9	1.8	1.8
Total Net Migration (April - March)	11.6	14.0	16.3	17.2	16.8	15.8	14.9	14.4
Total Births (April - March)	16.6	17.0	17.3	17.7	18.1	18.4	18.6	18.7
Total Deaths (April - March)	7.2	7.1	7.3	7.4	7.6	7.7	7.9	8.1
Total Natural Increase (April - March)	9.4	9.9	10.1	10.3	10.5	10.6	10.7	10.6
Total Households (as April)	482.7	491.8	501.9	512.3	522.7	532.8	542.5	552.0
Total Household Formation (April - March)	11.6	9.1	10.0	10.5	10.4	10.1	9.7	9.5

Population by Cohort	2018	2019	2020	2021	2022	2023	2024	2025
0-4	87.9	87.6	87.3	87.3	87.5	87.9	89.5	90.9
5-9	79.5	81.4	82.7	84.0	85.6	87.4	87.1	86.8
10-14	69.9	72.1	74.8	77.2	79.2	80.4	82.3	83.6
15-19	68.6	68.2	68.6	69.5	70.8	72.5	74.8	77.3
20-24	79.5	79.3	79.6	80.1	80.3	80.0	79.4	79.4
25-29	102.0	102.4	103.3	103.5	102.8	102.7	102.5	102.2
30-34	116.0	117.6	118.8	120.3	122.3	123.6	124.5	124.9
35-39	111.7	116.5	122.1	127.2	131.0	133.1	134.9	135.7
40-44	100.6	103.5	107.5	112.5	117.9	123.9	129.0	134.2
45-49	88.1	92.0	95.4	98.5	102.2	105.7	108.8	112.7
50-54	87.4	86.5	86.0	86.1	87.2	89.6	93.5	96.8
55-59	78.3	79.1	80.0	81.2	81.8	82.2	81.4	81.0
60-64	63.2	66.0	67.7	68.8	69.4	69.6	70.3	71.4
65-69	48.7	49.5	50.9	52.8	55.1	57.3	59.8	61.5
70-74	31.6	34.3	36.8	39.0	41.2	43.4	44.1	45.4
75-79	22.1	22.6	23.5	24.2	25.1	26.3	28.7	30.9
80-84	16.2	16.2	16.1	16.3	16.5	16.8	17.2	17.9
85-89	10.7	10.7	10.6	10.4	10.3	10.2	10.2	10.2
90-99	5.4	5.5	5.6	5.8	5.9	6.0	6.0	6.0
100+	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total	**1,267.3**	**1,291.2**	**1,317.5**	**1,345.0**	**1,372.3**	**1,398.7**	**1,424.3**	**1,449.3**

Youth (12-18)	81.4	82.6	84.3	86.7	89.8	92.6	94.9	96.5
Primary School Age 6-17	174.0	176.9	181.0	185.6	190.2	194.4	198.4	200.9
Working Age 15-65	895.3	911.1	929.0	947.7	965.8	982.8	999.1	1,015.8
Seniors 65+	134.8	139.0	143.7	148.7	154.3	160.2	166.2	172.2
Super Seniors 85+	16.3	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Female Super Seniors 85+	10.3	10.4	10.4	10.3	10.3	10.3	10.3	10.3

Numbers may not add up due to rounding.

Table 5 - Calgary Economic Region (CER) Population Projection

Calgary Economic Region (CER) *(thousands of persons)*

FORECAST COMPLETED: September 2018		BASE FORECAST						
	2018 (estimate)	2019	2020	2021	2022	2023	2024	2025
Total Population (as April)	1,560.6	1,599.9	1,635.0	1,662.7	1,695.2	1,731.2	1,761.1	1,785.0
Total Population Growth Rate (April - March)	2.0	2.5	2.2	1.7	2.0	2.1	1.7	1.4
Total Net Migration (April - March)	-	20.7	29.6	25.4	18.1	23.3	27	21.3
Total Births (April - March)	-	19.1	19.4	19.8	20.1	20.2	20.4	20.7
Total Deaths (April - March)	-	9.1	9.6	10.1	10.6	11	11.5	12
Total Natural Increase (April - March)	-	10	9.8	9.7	9.5	9.2	8.9	8.7
Total Households (as April)	600.2	615.4	628.9	639.5	652	665.8	677.4	686.5
Total Household Formation (April - March)	11.8	15.1	13.5	10.6	12.5	13.8	11.5	9.2

Population by Cohort	2018 (estimate)	2019	2020	2021	2022	2023	2024	2025
0-4	97.7	98.6	99.4	100	100.5	101.9	103.1	103.8
5-9	100.9	99.9	98.9	98.3	98.4	99.2	99.8	100.6
10-14	93.6	98.2	102.1	104.5	106.4	106.3	105	103.5
15-19	88.4	90.4	92.7	95	98.3	102.6	106.7	109.7
20-24	95.2	98	100.2	101.2	102.9	104	105.1	105.9
25-29	116.4	117.5	117.1	114.7	114.9	117.2	118.5	118.8
30-34	131.7	133.2	134.2	134.7	135	135.6	135.4	133.5
35-39	127.2	133.2	138.2	141.3	143.3	145.6	146.1	145.9
40-44	116.8	119.9	123.6	127.1	131.5	136.8	142	146.2
45-49	111.6	114.3	116.3	118.4	120.2	122.4	124.9	128.1
50-54	106.9	106.2	106.3	107.4	110.5	113.7	116.1	117.8
55-59	104.5	106.2	107.7	108.1	107.5	106.4	105.6	105.5
60-64	87.7	92	95.4	98.3	100.7	102.2	103.7	105.1
65-69	64.2	67.1	70.8	75.2	79.6	84.6	88.6	91.8
70-74	44.4	48.4	52	55.4	58.8	60.5	63	66.4
75-79	29.5	31.2	32.7	34.4	36.6	40.3	43.7	46.7
80-84	21.4	21.8	22.4	22.9	23.8	24.8	26.1	27.2
85-89	14.1	14.4	14.7	14.8	15	15.3	15.5	15.8
90-99	8.1	9.1	9.9	10.4	11	11.4	11.6	11.7
100+	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8
Total	**1,560.6**	**1,599.9**	**1,635.0**	**1,662.7**	**1,695.2**	**1,731.2**	**1,761.1**	**1,785.0**

Numbers may not add up due to rounding.

Glossary

Advanced economies

- Currently composed of 31 developed countries: Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovenia, Spain, Sweden, Switzerland, Taiwan Province of China, United Kingdom and the United States.

AECO C

- Is the central natural gas spot market price for Alberta, measured in Canadian dollar per gigajoule. Joule is the international measure of energy. One gigajoule corresponds to one billion joules.

Aggregate demand

- The sum of consumer, government and business spending and net exports.

Baby-Boomer Generation (BBG)

- Those born between January 1st 1946 and December 31st 1964.

Calgary Economic Region (CER)

- Is an Alberta economic region that covers the city of Calgary and its surrounding twenty cities, towns, villages, and Indian reserves including: Beiseker (Village), Black Diamond (Town), Carstairs (Town),Chestermere (City), Cochrane (Town), Cremona (Village), Crossfield (Town), Didsbury (Town), Eden Valley 216 (Indian reserve), Foothills No. 31 (Municipal district), High River (Town), Irricana (Town), Longview (Village), Mountain View County (Municipal district), Okotoks (Town), Olds (Town), Rocky View County (Municipal district), Sundre (Town), Tsuu T'ina Nation 145 (Sarcee 145) (Indian reserve), Turner Valley (Town).

Census metropolitan area (CMA)

- Urban Census metropolitan area (CMA) is an area consisting of one or more neighbouring municipalities situated around a major urban core. A CMA must have a total population of at least 100,000 of which 50,000 or more live in the urban core.

Commodities

- Commodities are tangible goods that can be bought and sold in spot or futures markets. Commodities are goods that are usually produced and/or sold by many different companies. A commodity is uniform in quality between companies that produce/sell it in the sense that we cannot tell the difference between one firm's product and another. Examples of commodities include oil, electricity, metals, cement and agricultural products, such as wheat, corn, rice.

Consumer price index (CPI)

- The Consumer Price Index (CPI) is an indicator of the consumer prices encountered by consumers. It is obtained by calculating, on a monthly basis, the cost of a fixed "basket" of goods purchased by a typical consumer during a given month. The basket contains products from various categories, including shelter, food, entertainment, fuel and transportation. Since the contents of the basket remain constant in terms of quantity and quality, the changes in the index reflect price changes. The CPI is a widely used indicator of inflation (or deflation) and indicates the changing purchasing power of money in Canada.

Core inflation rate

- Rate of inflation in the Consumer Price Index excluding food and energy.

Economic region

- An economic region (ER) is a grouping of complete census divisions (CDs) created as a standard geographic unit for analysis of regional economic activity.

Economy

- The term economy refers to the institutional structures, rules and arrangements by which people and society choose to employ scarce productive resources that have alternative uses in order to

produce various goods over time and to distribute them for consumption, now and in the future, among various people and groups in society. In a free market economy like Canada's the laws of supply and demand determine what, how and where goods and services should be produced, who should consume them and when. A "strong' or "healthy" economy is usually one that is growing at a good pace.

Emerging economies

- This is a reference to countries that, due to growth performance, are considered in transition between developing and developed countries. The most important emerging economies are Brazil, China, India and Russia, sometimes referred to as BRIC.

Employment rate

- The number of employed persons expressed as a percentage of the working age population.

Fiscal policy

- Also called budgetary policy, the overall program for directing government spending and taxation for the purpose of keeping the actual Gross Domestic Product (GDP) close to the potential full employment GDP, but without overreaching that potential and causing inflation.

Goods-producing sector

- Includes agriculture, forestry, fishing, mining, oil and gas extraction, utilities (electric, gas and power), construction and manufacturing.

Gross domestic product (GDP)

- GDP is a measure of the value of all goods and services produced by the economy. Unlike Gross National Product (GNP), GDP only includes the values of goods and services earned by a region or nation within its boundaries.

Home market value

- An indicator to compare houses across the country. This indicator is based on an 1,800 sq. ft., seven-room, three-bedroom, two-bath home in a suburban community where middle income Canadian families of four reside.

Housing markets

- Consists of two markets: new house and re-sale markets referred to as MLS (Multiple Listing Service). Each is described by different parameters and followed closely by different statistical bodies: the Planning and Building Department with The City of Calgary and Statistics Canada for new houses, and The Canadian Real Estate Association for the re-sale market.

Housing units

- A general term that refers to single-family houses, townhouses, mobile homes and/or condominiums.

Housing starts

- A housing start is defined as the beginning of construction work on a building, usually when the concrete has been poured for the whole of the footing around the structure, or an equivalent stage where a basement will not be part of the structure.

MLS

- The Multiple Listing Service, or MLS, is a local or regional service that compiles available real estate for sale submitted by member brokers and agents, along with detailed information that brokers and agents can access online.

Index

- An economic tool that allows for data comparison over time. An index number is used to indicate change in magnitude (cost or price) as compared with the magnitude at some specified time.

Glossary

Inflation rate

- A measure of the percentage change in the Consumer Price Index for a specific period of time.

In-migrants

- Persons currently living within a census metropolitan area (CMA), that five years earlier lived elsewhere in Canada or abroad.

Labour force

- The working age population (aged 15+) who are actively involved in the labour market, which includes those employed and unemployed people. It does not include people who are at their working age but not working or looking for work.

Labour force participation rate

- Is the ratio of the labour force to working age population.

Migrants

- Persons who lived in a different census subdivision (CSD) than the one they lived in five years earlier (internal migrants) or who lived outside Canada (external migrants or immigrants).

Monetary policy

- Refers to government measures undertaken to affect financial markets and credit conditions with the ultimate objective of influencing the overall behaviour of the economy. Monetary policy is usually the responsibility of the central banks, such as the Bank of Canada.

Non-accelerating inflation rate of unemployment (NAIRU)

- Is the rate of unemployment consistent with an economy that is growing at its long-term potential so there is no upward or downward pressure on inflation. It changes over time primarily because of demographic shifts and technological advancements.

Tariff

- A tariff is a tax imposed on imported goods and services from foreign countries.

Recession

- A period in which the economy experiences two consecutive quarters of gross domestic product decreases. During this temporary period there is a decline in industrial production and trade.

United States-Mexico-Canada Agreement (USMCA)

- Is the new trade deal reached among the U.S., Mexico, and Canada on September 30th, 2018, after more than a year of the renegotiations of the North American Free Trade Agreement (NAFTA) started in August,2017.

WCS

- Western Canadian Select (WCS) is the benchmark for emerging heavy, high TAN (acidic) crudes, one of many petroleum products from the Western Canadian Sedimentary Basin oil sands.

WTI

- West Texas Intermediate (WTI) crude oil is the underlying commodity of the New York Mercantile Exchange's oil futures contracts. Light, sweet crude oil is commonly referred to as "oil" in the Western world.

Who We Are

Corporate Economics provides services in four areas: forecasting, information provision, policy analysis and consulting. We also monitor the current economic trends which allows us to develop unique insights on how external events are impacting the local economy and the Municipal government. We are experienced at researching different economic topics and have developed reliable methods of forecasting and analysis.

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Sources:
Statistics Canada, CMHC, CREA, CREB, Bank of Canada, Conference Board of Canada, GLJ Energy Publications, The City of Calgary, Stokes Economics, U.S. Federal Reserve Bank of St. Louis (FRED), U.S. Energy Information Administration (EIA), International Money Fund (World Economy Outlook), and others.