

Calgary



Spring 2021

Calgary and Region Economic Outlook 2021-2026



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Introduction

Preamble

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 from this process are published semi-annually as the Calgary and Region Economic Outlook: one in the spring and one in the fall.

The Outlook presents forecasts for a selected number of economic variables. It provides an analysis of those factors that are considered most likely to have a significant effect on the local economy over the forecast period.

Purpose

We create and publish this outlook to assist The City of Calgary in the financial and physical planning of the City. The forecast enables the municipal Government to take into consideration the current economic conditions and potential economic outlook to plan prudently and responsibly the financial path forward while understanding risks and opportunities.

The Outlook presents a comprehensive economic analysis of Calgary's local economy, which most other economic reports exclude. Unlike most research institutions, which restrict their analyses to the national or provincial economy and a few urban areas within the provinces, this Outlook answers the following key questions:

- What is the overall forecast for the rate of growth of Calgary's local economy?

- What are the drivers of Calgary's local economy?
- How many jobs is the Calgary Economic Region (CER) expected to create?
- What is the forecast for population growth in the City of Calgary and the CER?
- What is the expected consumer price inflation in the Calgary Census Metropolitan Area?
- What are the implications of the forecast, and how will it impact municipal finance?

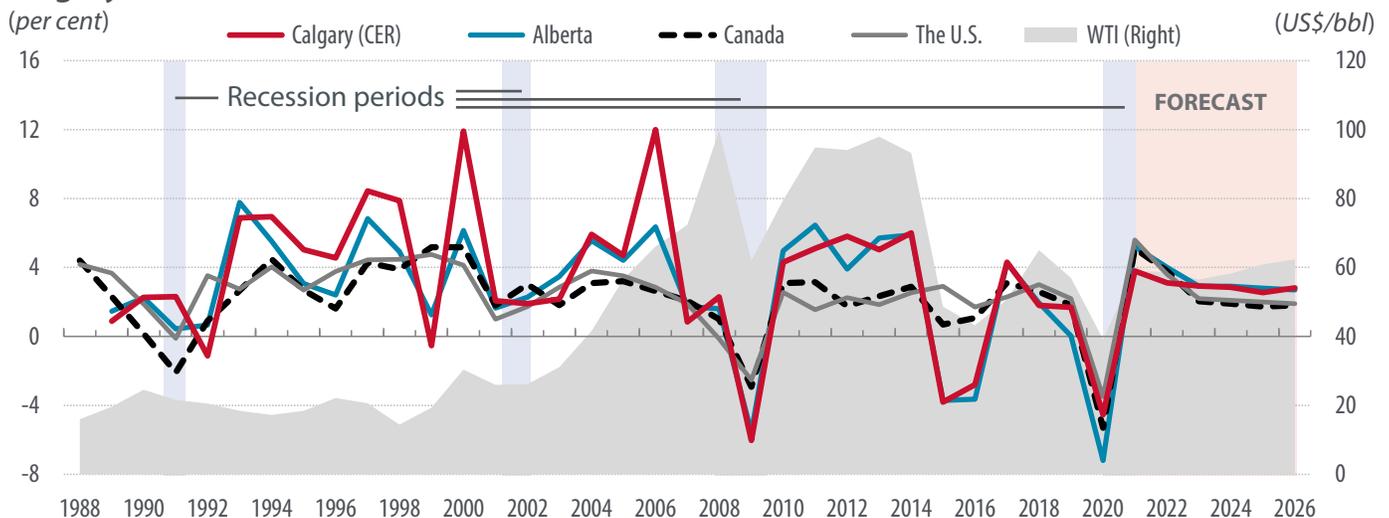
Calgary as a small open economy

Calgary is a small open economy and therefore is affected by changes outside its borders. The growth of Calgary's local economy is driven by its participation in international trade, especially the exports of Alberta's crude oil and other commodities to the outside markets. Compared to their trade partners, Calgary and Alberta are small players and thus price takers. The volatility of crude oil prices in the world market affects Calgary's economic growth and job market condition relative to the rest of Canada.

Our forecast is therefore built on the economic and market conditions outside the CER over the forecast period. The critical external forces are as follows:

1. World economic expansion or contraction throughout the forecast period, and
2. Change of economic growth and job creation in the rest of Canada over the forecast period.

Calgary's Growth Drivers (1988-2020 Actual, 2021-2026 Forecast)





Executive Summary

One year after the outbreak of the COVID-19 pandemic, the world economy is recovering from nationwide lockdowns triggered by public health restrictions. In many countries, the unprecedented fall in overall economic activities in the first half of 2020 was followed by an equally extraordinary rebound in the second half of the year. However, the early economic recoveries were not strong enough to register an annualized positive growth in any major economy except China. The real GDP fell by -3.5 per cent in the U.S. and -5.3 per cent in Canada last year. Considering the additional impact from the crude oil market faced by other parts of Alberta, the Calgary Economic Region (CER) fared better than the province in 2020 with a real GDP contraction of -4.5 per cent compared to Alberta's -7.2 per cent.

CER's total employment fell by -5.3 per cent in 2020, compared to the decline of -5.2 per cent in Canada. While Canada's job losses were evenly distributed in the goods- and services-producing sectors, CER's job losses were concentrated more in the services-producing sector. As goods-producing industries have a higher average GDP per employee, CER's better performance in these industries translated into a better GDP outcome than Canada in 2020.

Last year, the Bank of Canada and the three levels of government in Canada reacted quickly to the economic shocks caused by the COVID-19 pandemic. Their accommodative monetary and fiscal policies have successfully provided liquidity for market and government functioning and bridged the income and revenue gaps for workers and businesses to survive the economic lockdowns.

This year, the focus has shifted to how quickly a country can vaccinate its population as the race is between COVID-19 vaccination and the spread of new variants of the coronavirus. Health experts estimate that the percentage of people

who need to be vaccinated to begin inducing herd immunity against the coronavirus is 70 to 85 per cent. Without herd immunity, easing business and service restrictions will constantly be disrupted by new waves of COVID-19 cases.

Since the U.S. Food and Drug Administration (FDA) issued the first emergency use authorization (EUA) for the Pfizer vaccine on Dec 11, 2020, six COVID-19 vaccines have been approved for emergency or full use by at least one of World Health Organization (WHO) recognized regulatory authorities. The Canadian government acted quickly last year to reach out to vaccine research and development institutes and manufacturers, but the country has struggled to receive enough vaccine supplies this year. Without vaccine manufacturing capacity of its own, Canada has fallen behind other G7 countries in the share of its population fully vaccinated against the COVID-19 virus.

Our spring 2021 outlook assumes that COVID-19 vaccines will be widely administered this summer or fall in Canada. Also, the current COVID-19 vaccines, as indicated by manufacturers, should prove to be effective for the new variants of the coronavirus. Many countries can reach herd immunity as early as the end of 2021 or early 2022, which should benefit Canada and Calgary's economy.

We forecast the real GDP in the CER to grow at 3.8 per cent this year and recover to the pre-pandemic level next year. CER's real GDP growth is estimated to average 2.8 per cent per year, ranging from 2.5 per cent to 3.1 per cent in 2022-2026.

We estimate CER's total employment will not recover to the pre-pandemic level until 2022. With the K-shaped recovery looming in the region, additional supports to the youth and low-income groups are needed more now than ever.

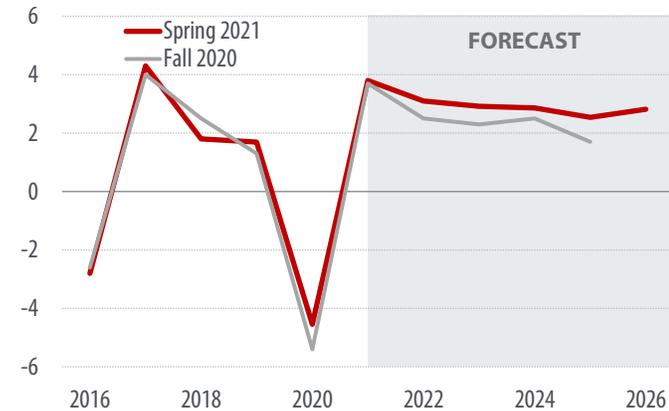
Executive Summary

Forecast Table: Selected Key Indicators

	2020	2021	2022	2023	2024	2025	2026
World: GDP (%)	-3.5	5.5	4.2	3.3	3.6	3.6	3.6
The U.S.: GDP(%)	-3.5	5.6	3.6	2.2	2.1	2.0	1.9
Canada: GDP (%)	-5.3	5.1	3.8	2.0	1.9	1.7	1.8
Alberta: GDP (%)	-7.2	5.2	4.0	2.9	2.9	2.8	2.7
Calgary Economic Region: GDP (%)	-4.5	3.8	3.1	2.9	2.9	2.5	2.8
Calgary Economic Region: Unemployment Rate (%)	11.7	9.7	8.5	8.0	7.3	6.9	6.3
Calgary Census Metropolitan Area: CPI (%)	1.1	2.0	1.9	1.9	2.1	2.2	2.2
City of Calgary: Total Building Permits (\$billion)	3.5	4.2	4.4	4.5	4.5	4.5	4.6
City of Calgary: Downtown Office Vacancy Rate (%)	24.8	25.3	24.0	23.7	24.0	23.1	21.7
City of Calgary: Total Population ('000 persons)	1,306.4	1,323.4	1,339.9	1,357.5	1,375.1	1,392.1	1,408.9
City of Calgary: Housing Starts ('000 units)	7.9	9.7	9.9	10.1	10.3	10.5	10.7

Calgary Economic Region: Real GDP Growth

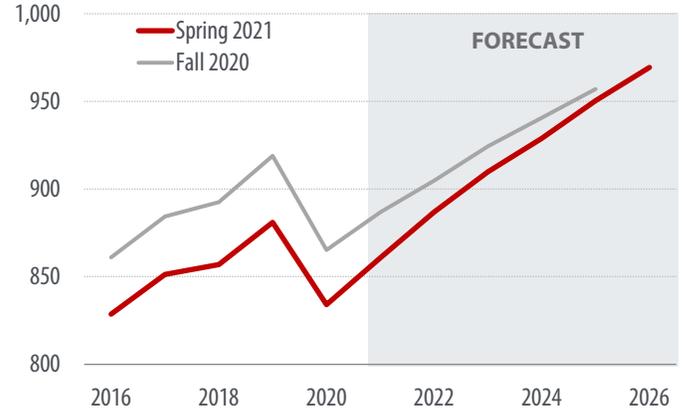
(per cent)



Source: Statistics Canada, Corporate Economics.

Calgary Economic Region: Total Employment

(thousands of persons)

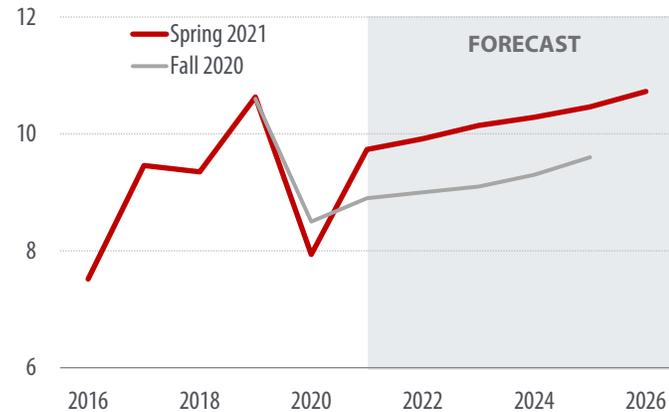


Source: Statistics Canada, Corporate Economics.

*Statistics Canada applied a standard revision to its Labour Force Survey estimates in early 2021. As a result, the historical total employment data are revised down compared to what we reported last fall.

City of Calgary: Housing Starts

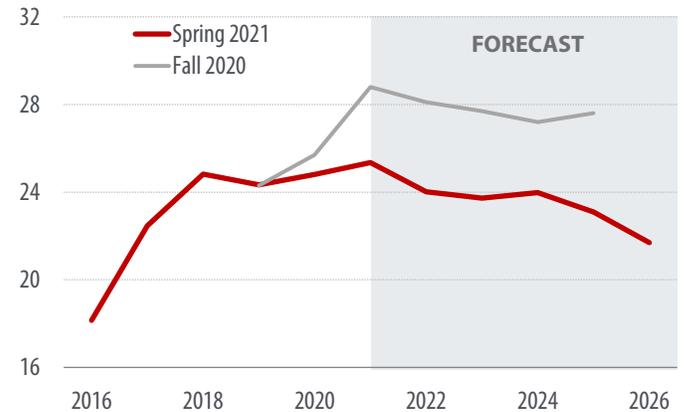
(thousands of units)



Source: CMHC, Corporate Economics.

City of Calgary: Downtown Office Vacancy Rate

(per cent)



Source: Altus InSite, Corporate Economics.

Forecast Implications

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

Economic Indicator	Actual	Forecast	Forecast Implications
	Previous City of Calgary Budget Cycle [2015 to 2018] Average	Current City of Calgary Budget Cycle [2019 to 2022] Average	
Assumptions			
World			
Real Gross Domestic Product Growth (%)	3.5	2.3	A slower global growth will result in slower growth in demand for commodities. Resource based economies would face more challenges than those more diversified economies in creating jobs and income.
The United States			
Real Gross Domestic Product Growth (%)	2.5	2.0	Deceleration in demand growth for Canadian exports in line with a deceleration in growth for Canada's most significant trading partner, the U.S.
Canada			
Real Gross Domestic Product Growth (%)	1.9	1.4	The average rate of economic growth in Canada will be slower in this budget cycle than the previous one.
Prime Business Loan Rate (%)	3.0	2.8	Rates have dipped during the pandemic, but we expect rates to recover by the end of this cycle period post-pandemic. Similar average borrowing costs for The City's suppliers would keep The City's debt financing costs stable this cycle relative to the last one.
Exchange Rate (US\$ for 1C\$)	0.77	0.77	Exchange rate stability would keep the price of imported goods stable limiting the need to hedge.
Alberta			
Real Gross Domestic Product Growth (%)	-0.2	0.5	The Alberta economy would leave the pandemic driven recession behind and eventually move into a phase of modest economic expansion.
Total Employment Growth (%)	0.3	0.2	The pace of job growth would be slower in this cycle as it takes time to recover from the COVID-19 shock.
Unemployment Rate (%)	7.2	9.3	The unemployment rate would be higher with a slower pace of job creation than the growth of labour force.
Housing Starts ('000 Units)	29.4	26.1	Inventory build-up would ease the pace of housing starts to the pace of household formation.
Inflation Rate (%)	1.5	1.6	Inflation rate would be similar this budget cycle as the previous one.
West Texas Intermediate - WTI (US\$/bbl)	52.0	53.5	Dual demand and supply shocks on the crude oil market from COVID-19 and the OPEC + price war in March 2020 caused oil price to plunge. Optimism as economies reopen from the pandemic have caused oil prices to strengthen from November 2020 onwards, causing the average forecasted WTI price to be slightly higher this budget cycle than last one.
Western Canadian Select - WCS (US\$/bbl)	35.4	43.4	The WCS discount to WTI is expected to ease towards the end of the forecast period as additional pipeline capacity is brought online and crude-by-rail is more habitually utilized. As a result, WCS prices are expected to be climb this budget cycle.
Alberta Natural Gas Price - AECO/NIT (\$/GJ)	2.1	2.3	Flat natural gas prices are expected to keep operating costs and franchise fee revenue stable.
Industrial Product Price Index (%)	1.5	1.6	Price growth for finished products would be higher than the previous budget cycle, due to the economic recovery in 2021-22
Raw Materials Price Index (%)	-1.1	1.8	Raw material prices are expected to increase as the global economy rebounds from pandemic related shutdowns
Alberta Average Wage Rate Increase for All Industries (%)	0.0	-0.2	Higher unemployment rate this budget cycle keep the average nominal wage inflation slightly lower this budget cycle than last one.

Forecast Implications

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

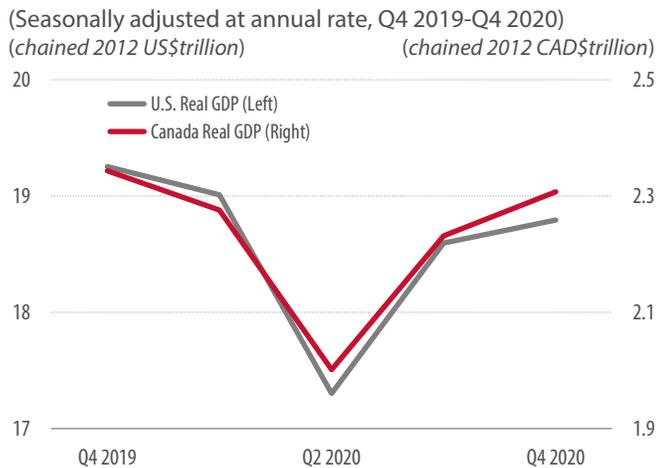
Economic Indicator	Actual	Forecast	Forecast Implications
	Previous City of Calgary Budget Cycle [2015 to 2018] Average	Current City of Calgary Budget Cycle [2019 to 2022] Average	
Forecast			
Calgary Economic Region			
Real Gross Domestic Product Growth (%)	-0.1	1.0	Recession hit Calgary in both budget cycles, with the COVID-19 driven recession deeper but shorter. The pace of growth in Calgary's regional economy is higher this cycle than last one, but still behind the rate of growth for its major trading partners.
Total Employment ('000 persons)	846.4	865.6	Larger employment base brings increased consumer base and demand for housing in the region.
Total Employment Growth (%)	0.6	0.9	Even with the COVID-19 recession in 2020, job growth rate would be higher in the current budget cycle than the previous one.
Unemployment Rate (%)	7.9	9.3	Higher unemployment rate is expected due to job creations lower than labour force increases in the region. Relative high unemployment rate would reduce the pressure of competing for skilled workers, but increase demand for social services.
Calgary Census Metropolitan Area (CMA)			
Housing Starts ('000 units)	11.2	11.2	Housing investments on average are expected to keep the same level this budget cycle as the last one.
Inflation Rate (%)	1.5	1.6	The local inflation rate would keep increases in the cost of living to below the two per cent threshold.
Non-Residential Building Construction Inflation (%)	-0.1	1.2	The rate of escalation for construction costs would be higher the current cycle compared to the last one.
City of Calgary			
<i>Residential Market</i>			
Housing Starts ('000 units)	9.1	9.6	The City's revenues from residential building permits would be stable.
Average Residential MLS Sale Price (% change)	-0.3	0.0	Housing market is shifting towards a seller's market while affordability is high.
Building Permits (city) (\$billion)	5.0	4.3	The City's residential taxable assessment base would grow more slowly.
<i>Non-Residential Market</i>			
Downtown Office Vacancy Rate (%)	18.9	24.6	The downtown office vacancy rate would remain elevated compared to the average for the previous cycle. This can result in sustained municipal property tax shifts.



Context

Strong but Uneven Economic Rebounds from the COVID-19 Lockdowns

Real GDP level: U.S. vs. Canada



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

The first wave of the COVID-19 pandemic in early 2020 triggered worldwide public health restrictions, including economic lockdowns in many countries. As non-essential businesses were shut down or scaled back, overall economic activity represented by real gross domestic product (GDP) plummeted globally.

Real GDP in Canada and the U.S. both fell sharply in Q1 and Q2 2020. At the bottom of the contraction, the annualized real GDP (in chained 2012 dollars) in Q2 2020 was CAD\$342 billion lower than the Q4 level of \$2.4 trillion in Canada and US\$1.9 trillion lower than the Q4 2019 level of \$19 trillion in the U.S.

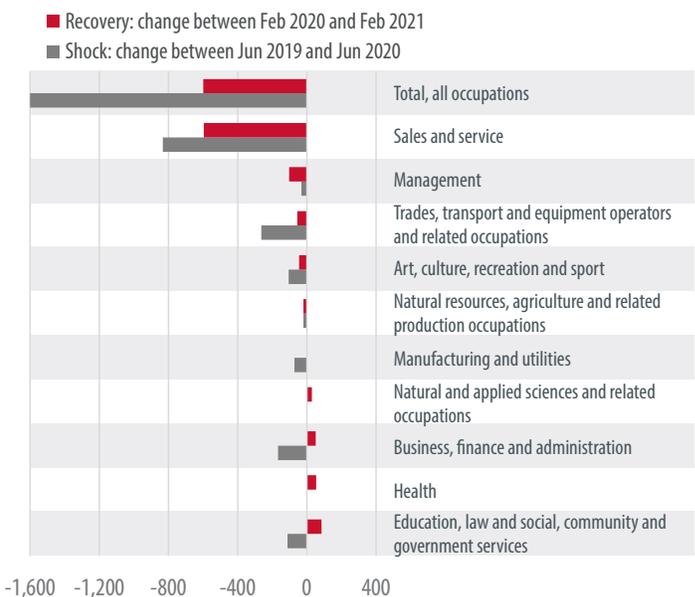
Since the economic reopening from the first COVID-19 lockdowns, Canada and the U.S. experienced unprecedented economic rebounds in the second half of 2020; annualized real GDP in Q3 2020 jumped by CAD\$230 billion in Canada and US\$1.3 trillion in the U.S.

However, the speed of recovery in both countries fell in Q4 2020, affected by the second wave of COVID-19 that triggered another round of lockdowns. Compared to Q4 2019, the level of real GDP was CAD\$36 billion lower in Canada and US\$198 billion lower in the U.S. in Q4 2020.

Recent economic rebounds in many countries have been uneven in different sectors of the economy, causing concerns of a **K-shaped recovery** (see Textbox 1). Economic activities and employment recovered quickly and even grew higher in occupations not constrained by their place of work. In comparison, economic activities and jobs that require close physical proximity to other people (personal services industries like restaurants) have been hit the hardest by social distancing rules and are still recovering.

Employment Change by Occupation in Canada

(Seasonally unadjusted, thousands)



Source: Statistics Canada, Corporate Economics.

Year-over-year in Canada, the total employment in contact-intensive occupations, especially in the sales and service, and trades, transport and equipment operators and related occupations, was down by just over a million jobs in June 2020. Job losses in those occupations accounted for 68 per cent of the 1.6 million job losses in total employment between June 2019 and June 2020.

In February 2021, Canada's total employment was up from the bottom of June 2020 but was still down by 598,000 positions from 18.8 million employed in February 2020. Over the same period, the number of sales and service, trades, transport and equipment operators and related occupations declined by 650,000 positions, from 7.2 million positions in February 2020.

Textbox 1. Canada's K-Shaped Economic Recovery

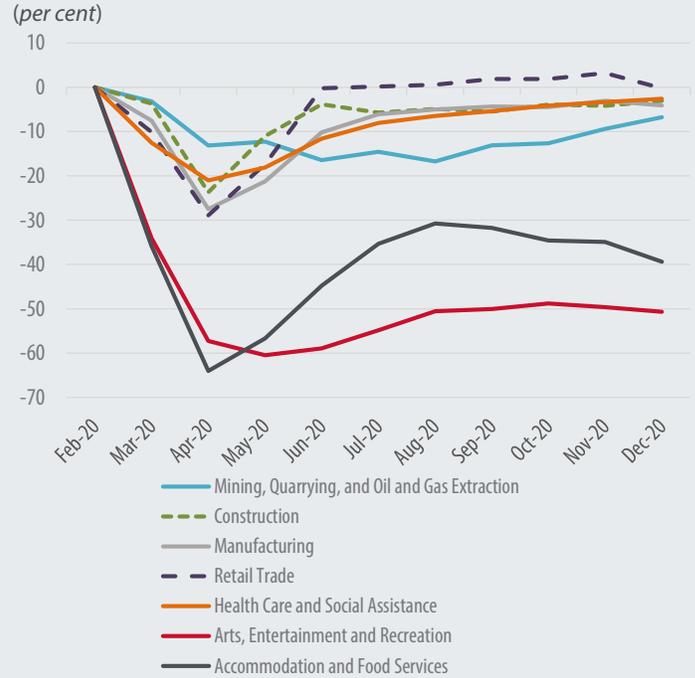
Although the Canadian economy has experienced numerous recessions, the economic downturn resulting from the COVID-19 pandemic and the emerging recovery are unique in many ways compared to past experiences. Public health measures implemented to prevent the spread of the virus directly restricted contact-intensive economic activities, instantly shutting down many sectors of the economy. Unprecedented government support programs followed, and businesses fought to adapt to a new world of physical distancing and uncertainty about the future.

One year after the first wave of the COVID-19 pandemic, with vaccines now being available and distributed, the end of the crisis is in sight. The focus today has shifted to the recovery path for the Canadian economy, which is beginning to resemble what has been described as a “K-shaped recovery.” In this recovery path, one portion of the economy experiences a quick and strong recovery, representing the upper branch of the “K.” The other part of the economy does not fare as well, with prolonged economic challenges representing the lower branch of the “K.” Using monthly data from Statistics Canada, this division in Canada’s economic recovery can be seen by industry, by income, by age, and by gender.

The initial negative economic impact of the COVID-19 pandemic in spring 2020, measured by real GDP, was widespread across industries in Canada. Contact-intensive service industries such as Food and Accommodation as well as Arts, Entertainment and Recreation were particularly impacted, with monthly real GDP falling by as much as 60 per cent from pre-pandemic levels.

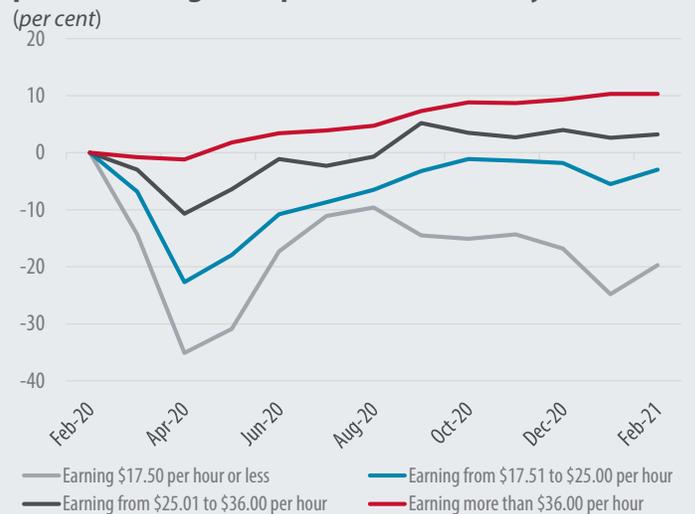
By the end of 2020, most industries were approaching a full recovery in real GDP. Contact-intensive industries, however, continued to struggle, with Food and Accommodation Services remaining at less than 50 per cent of pre-pandemic GDP.

Canada Real GDP by Selected Industries:
per cent change compared with February 2020



Source: Statistics Canada (Table 36-10-0434-01).

Canada Employment by Wage Bracket:
per cent change compared with February 2020



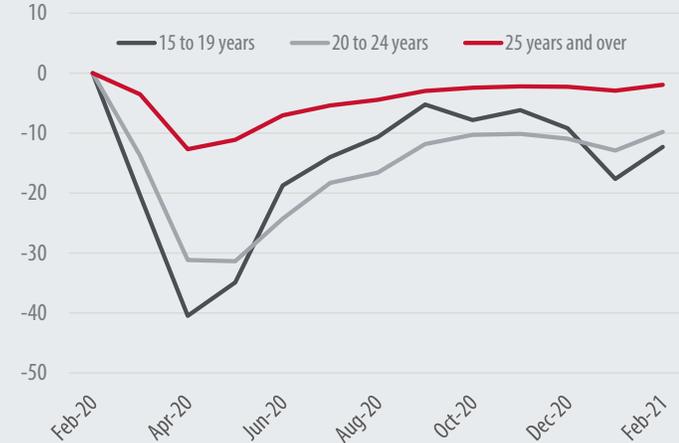
Source: Chart 6 from Statistics Canada Report “Labour Force Survey, February 2021”.

Textbox 1. Canada's K-Shaped Economic Recovery (continued)

The contrasting effects of the pandemic on different industries translate into unequal job opportunities for different workers. Low-wage workers, who are typically most affected in any recession, are highly concentrated in public-facing industries. Accordingly, job losses have been substantial among the lowest-paid workers. More concerning is the fact that even as high-wage jobs have steadily recovered, low-wage jobs remain depressed. In February 2021, the number of employees in Canada earning less than \$17.50 per hour was nearly 20 per cent lower than the number from 12 months earlier.

As is typical for economic downturns, young workers were the most impacted age cohort by the COVID-19 driven recession. While employment among workers aged 25 years and older in February 2021 stood just under 2 per cent lower than the total employment before the pandemic, the number of workers aged 24 years and younger was more than 10 per cent lower compared with 12 months earlier.

Canada Employment by Age:
per cent change compared with February 2020
(per cent)



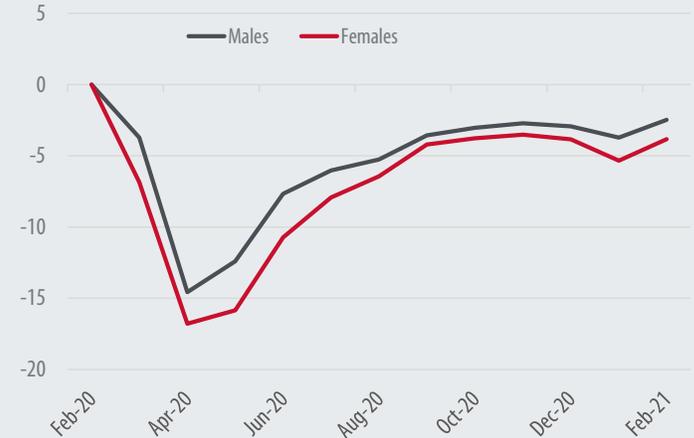
Source: Statistics Canada (Table 14-10-0287-01).

In contrast to previous recessions, this COVID-19 recession had a greater employment impact on women than men. While total employment for men in February 2021 had

dropped by 2.5 per cent from a year earlier, the decline for women stood at 3.8 per cent.

Those groups of people that fared better in 2020 have a promising recovery ahead in 2021. Higher-income earners who had no chance to spend their money on luxuries such as going on vacations during the pandemic will be able to spend their stockpiled funds as businesses reopen throughout 2021. Homeowners have benefitted from the wealth effects of rising house prices and better investment opportunities thanks to lower interest rates.

Canada Employment by Gender:
per cent change compared with February 2020
(per cent)



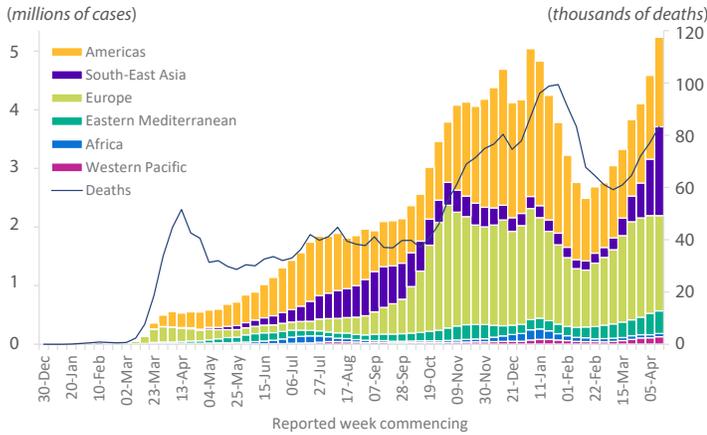
Source: Statistics Canada (Table 14-10-0287-01).

On the other hand, workers who lost income during the pandemic remain dependent on temporary government support programs as jobs in the economy's hardest-hit sectors are slow to recover. As government supports are expected to be withdrawn sometime in 2021, this vulnerable group of society will face a much more challenging year. Although all recessions typically have unequal effects across different groups of people, the recovery from the COVID-19 pandemic is beginning to produce especially profound economic divisions in Canada.

Context

New Variants of the COVID-19 Virus Threaten Economic Recoveries

Number of COVID-19 cases reported weekly by WHO Region, and global deaths, as of April 18, 2021



Source: WHO Weekly COVID-19 Epidemiological Update, April 20, 2021.

One year after the first wave of the COVID-19 pandemic, the second and the third waves of the coronavirus are threatening global economic recovery.

For the week ending April 18, the World Health Organization (WHO) reported more than 5.2 million new COVID-19 cases, increasing by 14 per cent from last week, with over 83,000 new deaths. All regions except the European Region reported increases in cases. As of April 18, the accumulated total of COVID-19 cases was 140.3 million, and COVID-19 related deaths reached 3 million worldwide. The cumulative COVID-19 cases were 1.1 million in Canada and 31.3 million in the U.S. The cumulative deaths from COVID-19 were 23,541 in Canada and 560,858 in the U.S.

During the first wave of the COVID-19 pandemic, the City of Calgary declared its first State of Local Emergency (SOLE). As a result, the city experienced the closing of non-essential businesses and services, schools and universities, and the cancellation of sports events and festivals, including the **Calgary Stampede** that had become the City's annual event nearly a century ago (see Textbox 2).

The public health measures in the city's first lockdown in early 2020 helped control the spread of the coronavirus. With the new cases shrinking to fewer than 10 per day, in June, Calgary ended its first SOLE, and Alberta entered stage 2 of its economic relaunch. By August, masks were mandatory in all indoor public places, workplaces and places of worship. Restaurants, theatres and libraries were allowed to re-open in stage 2, and students returned to in-person school classes in September.

The October Thanksgiving holiday last year marked the starting point of the second wave of COVID-19 pandemic in Alberta and Canada. After weeks of fast-growing new cases and deaths being reported daily, the Alberta Government announced new restrictions in November 2020. All indoor social gatherings were banned, and some non-essential businesses were required to either close temporarily or reduce capacity and limit in-person access.

The City of Calgary declared its second SOLE on Nov 25, 2020, and renewed it on February 23, 2021, scheduled to end on May 24, 2021.

By April 19, Alberta had tested close to 2 million people for the COVID-19 virus. Alberta Health had reported an accumulated total of 173,531 COVID-19 cases, with 68,782 in the Calgary Health Zone. The province's accumulated COVID-19 related deaths reached 2,048, with 619 in the Calgary Health Zone.

As of April, the third wave of COVID-19 cases has emerged throughout Canada, with the proportion of new, more transmissible variants of the virus increasing in newly reported cases. By the end of March, the British Columbia government announced a three-week lockdown, and the Ontario government followed with a six-week province-wide lockdown. Having delayed the relaxation of business and service restrictions from step 2 to 3 in early March, the Alberta government announced a return to step 1 restrictions on April 6.

Context

Textbox 2.

Impacts of COVID-19 on Calgary's Stampede and its Leisure and Hospitality Industry

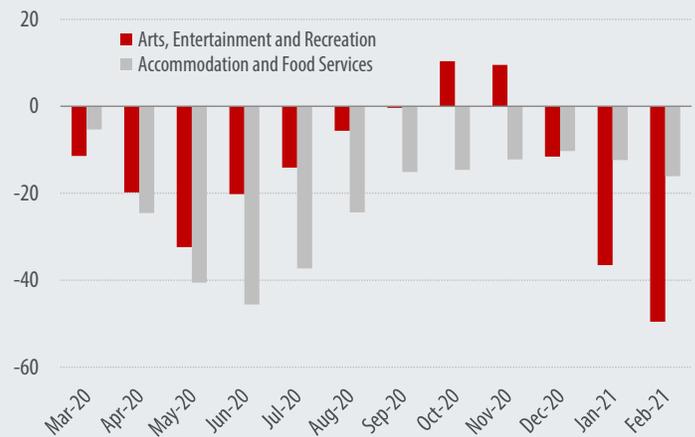
The COVID-19 pandemic has had a devastating impact on Calgary's economy, with some industries hit much harder than others. The most impacted of all has been the leisure and hospitality industry (or Food and Accommodation as well as Arts, Entertainment and Recreation, which includes restaurants, hotels, live events, and recreation). One of the most dramatic examples of the effects of COVID-19 lockdowns on Calgary's leisure and hospitality industry was the cancellation of the 2020 Calgary Stampede. The cancellation was the first time since the event's inception in 1912, with the Stampede occurring annually since 1923. In a typical year, the Calgary Stampede would attract over one million visitors, with many travelling from around the globe. Many local and neighbouring businesses would benefit from the spillover effects of the 10-day Stampede event in July; the Conference Board of Canada¹ estimated the total economic impact in Calgary to be \$227.4 million in 2019. The year-round events hosted at Stampede Park outside of the 10-day Stampede event would contribute an additional \$222.4 million to Calgary's economy.

Most of the \$450 million in economic benefits generated from Calgary's Stampede Park have been lost by the cancellations due to COVID-19 public health restrictions. While the 2021 Calgary Stampede is scheduled to take place July 9-18, it is yet unclear how public health restrictions will affect the size and format of the event.

The fate of the Calgary Stampede is representative of Calgary's entire leisure and hospitality industry in 2020. In 2019, this industry enjoyed a healthy flow of tourism to Calgary, with 7.4 million visits to the city. Much of Stampede Park's \$450 million in economic benefits can be attributed to spending by these tourists, who injected a total of \$2.5 billion into Calgary's economy in 2019, according to Tourism Calgary². When the COVID-19 pandemic arose in 2020, tourism activity collapsed. Statistics Canada reports that the total number of international tourists entering Alberta from Q2-Q4 2020 declined by 97 per cent compared to the same time in 2019.

CER Employment in Leisure and Hospitality Industries (year-over-year change)

(per cent)



Source: Statistics Canada.

Leisure and hospitality businesses in Calgary also faced public health restrictions that limited their ability to serve local customers. Statistics Canada's monthly employment data for the leisure and hospitality industries of Arts, Entertainment and Recreation, and Accommodation and Food Services in the CER illustrates the challenges faced by these industries. The industries' combined employment declined by 39 per cent in June 2020 compared to June 2019. While the sector's employment partially recovered in summer and fall 2020 as restrictions eased, the return of restrictions as COVID-19 re-surfged at the end of 2020 sent the combined leisure and hospitality industry back on a downward trajectory, reaching a year-over-year employment decline of 25 per cent in February 2021.

Even as Calgary's economy is recovering, the leisure and hospitality industries have a difficult path ahead. With international tourism likely to remain minimal this year and public health restrictions of some degree expected to remain in place, the leisure and hospitality industry may be largely left out of the economic recovery in 2021.

1 Conference Board of Canada report commissioned by the Calgary Stampede in 2019 in advance of the BMO Centre expansion.

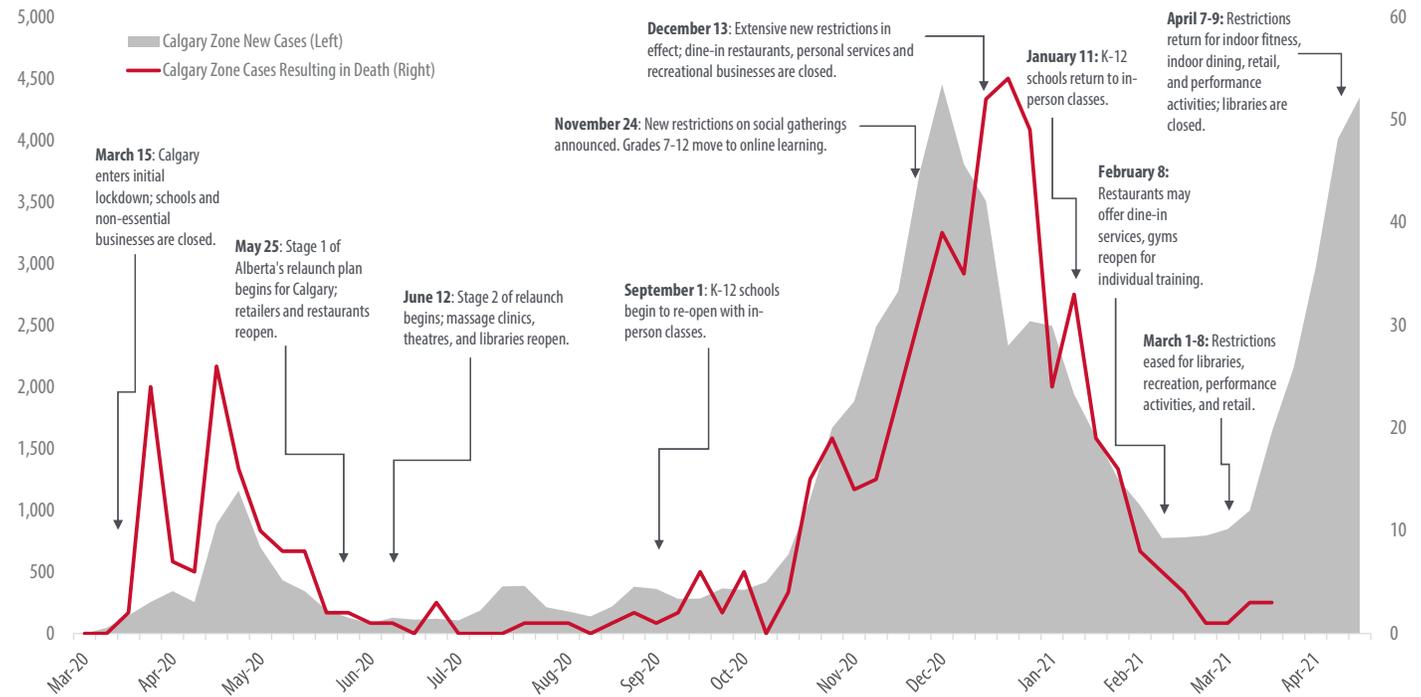
2 Tourism Calgary Annual Report 2019

Context

Calgary Zone New COVID-19 Cases and Deaths

(as of April 18, 2021)

(Weekly New Cases)

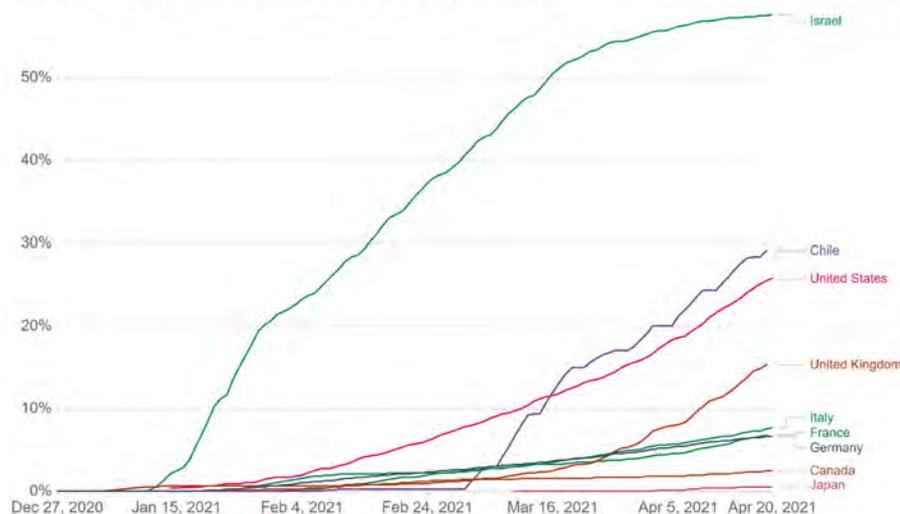


Source: COVID-19 Alberta statistics | alberta.ca, Corporate Economics.

Herd Immunity Through Vaccination against the COVID-19 Virus, the First Step for a Sustainable Recovery

Share of the population fully vaccinated against COVID-19

Share of the total population that have received all doses prescribed by the vaccination protocol. This data is only available for countries which report the breakdown of doses administered by first and second doses.



Source: Official data collated by Our World in Data, as of April 20, 2021.

According to the World Health Organization (WHO), “Herd immunity, also known as ‘population immunity,’ is the indirect protection from an infectious disease that happens when a population is immune either through vaccination or through a previous infection.”

Herd immunity is attained once a high enough proportion of a population becomes immune. As allowing diseases to spread through any segment of the population would result in unnecessary cases and deaths, the WHO supports achieving ‘herd immunity’ through vaccination.

In the absence of COVID-19 vaccines, most countries have chosen to apply public health measures, including economic lockdowns, to protect their citizens and health systems. The public health restrictions, especially the economic lockdowns in 2020, caused the world economy an unprecedented recession, which is why

Context

all countries with R&D ability had been racing to develop a vaccine against the COVID-19 virus.

Since the U.S. Food and Drug Administration (FDA) issued the first emergency use authorization (EUA) for the Pfizer vaccine on Dec 11, 2020, six COVID-19 vaccines have been approved for emergency or full use by at least one of WHO-recognized regulatory authorities. It is currently unknown the threshold of herd immunity against the COVID-19 through vaccination or the percentage of people who need to be vaccinated to begin inducing herd immunity. But experts generally agree that somewhere between 70 to 85 per cent of the population must be vaccinated to reach herd immunity against the coronavirus.

As the speed of vaccinating their populations against the COVID-19 lays the foundation for a sustainable economic recovery, governments worldwide are racing to get enough supply of approved COVID-19 vaccines and distribute and administer them as quickly as possible.

Among all countries, Israel has so far conducted the fastest campaign to vaccinate its population against the coronavirus. By Apr 19, 2021, at 57.6 per cent, Israel achieved the highest share of its population fully vaccinated³, followed by Chile at 29.2 per cent and the U.S. at 25.5 per cent. Among major countries, Israel also had the highest percentage of people who received at least one dose of the COVID-19 vaccine at 61.9 per cent, followed by the United Kingdom at 48.7 per cent, Chile at 40.7 per cent and the U.S. at 39.6 per cent.

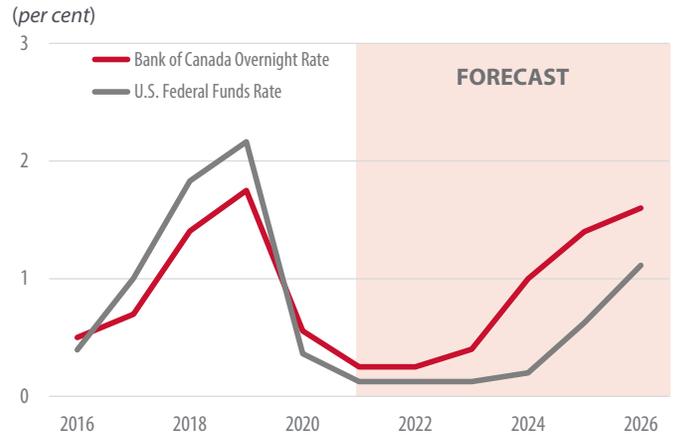
While our southern neighbour is speeding up its administration of COVID-19 vaccination, Canada has struggled to receive enough vaccine supplies. Without vaccine manufacturing capacity of its own, Canada has fallen behind other G7 countries in the share of its population fully vaccinated against the COVID-19 virus. As of Apr 19, 2021, only 2.5 per cent of Canadians had been fully vaccinated, and only 24.7 per cent of Canadians had received at least one dose of the COVID-19 vaccines.

Without herd immunity, easing business and service restrictions will be disrupted by new waves of COVID-19 cases. As the more contagious and detrimental variants of the coronavirus are spreading quickly worldwide, the path of economic recovery is increasingly dependent on a country's COVID-19 vaccination ability.

³ A fully vaccinated person is someone who has received all doses (one or two) prescribed by the vaccination protocol, depending on the type of COVID-19 vaccine.

Accommodative Monetary and Fiscal Policies Continued

Canada vs. U.S. Central Bank Policy Rates



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

Since the economic lockdowns in March 2020, both the Bank of Canada (BoC) and the three levels of governments in Canada have acted rapidly with strong measures to support the financial system and mitigate the economic damage caused by the COVID-19 pandemic.

BoC's measures included drastically lowering its target for the overnight rate to 0.25 per cent and providing a quantitative easing (QE) program with a large amount of purchasing of Canada Mortgage Bonds, banker's acceptances, commercial paper, and government debt. These actions provided additional market liquidity and eased problems in market functioning. In its April 21, 2021 announcement, the BoC reiterated that it was committed to continuing with the QE program and holding the overnight rate at the effective lower bound of the target range at 0.25 per cent until some time in the second half of 2022.

The Government of Canada reacted swiftly to the pandemic shock in March and April 2020, with relief measures totalling \$260 billion. These measures, which included the Canada Emergency Response Benefit (CERB) and Canada Emergency Wage Subsidy (CEWS), were intended as temporary measures to support households and businesses during the pandemic.

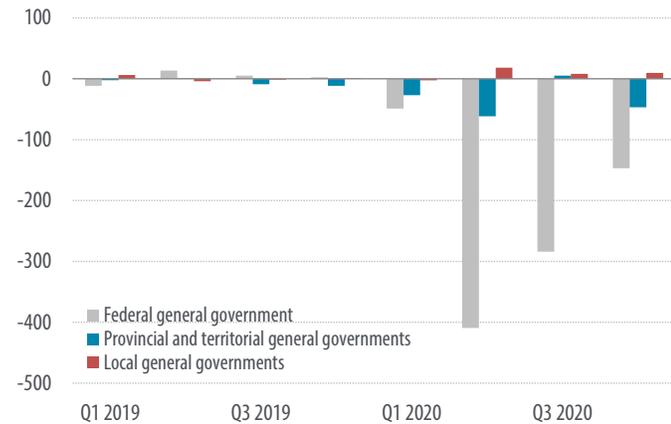
Governments at the provincial and municipal levels across Canada also offered specific relief programs for their residents and businesses affected by the COVID-19 pandemic.

Assumptions and Risks

The result of the unprecedented fiscal policy responses to the COVID-19 disruptions was record-breaking government deficits. The federal government’s budgetary position changed drastically from a net-lending position of \$2 billion in Q4 2019 to a net-borrowing position of \$409 billion in Q2 2020. Over the same short period, the provincial governments of Canada also saw their fiscal positions deteriorate.

The local governments in Canada, generally not allowed to have operating deficits, had to fund some relief efforts through staff reductions and cost-cutting elsewhere.

Government Net Lending/Borrowing Positions in Canada (Q1 2019 - Q4 2020)
(billions of dollars)



Source: Statistics Canada, Corporate Economics.

Assumptions and Risks

Forecast Assumptions

Successful COVID-19 vaccine developments have lowered the uncertainty around the path forward to a sustainable economic recovery in the world. As a result, we resume our base-case-only forecast in this Spring Outlook, rather than the scenarios presented in the 2020 Outlooks.

Our key assumption behind this economic outlook is that COVID-19 vaccines will be widely administered this summer or fall. Many countries including Canada can reach herd immunity as early as the end of 2021 or early 2022. Also, the current COVID-19 vaccines will prove to be effective for the new variants of the coronavirus.

The Bank of Canada can keep its core interest rate low without risking high inflation rates in Canada until the end of 2022. Fiscal policy actions taken by the three levels of the Canadian government are sufficient to help COVID-19 af-

ected individuals and businesses post-pandemic until the growth is sustainable. There are no structural damages to Calgary’s economy from the COVID-19 pandemic.

Forecast Risks

There are upside and downside risks to our outlook for the base-case scenario, with the risks seemingly balanced as of April 2021.

The upside risks will mainly come from Canada’s largest trading partner, the U.S. Economic conditions in the U.S. have a significant impact on export-based industries in Calgary. Following the \$1.9 trillion stimulus package approved in March 2021, the Biden administration proposed a \$2.3 trillion infrastructure plan for the next eight years. If approved in July, this stimulus package would have spillover effects to Canada, raising our economic outlook for Calgary. As part of the \$2.3 trillion plan, corporate tax increases in the U.S. would also make Canada relatively more attractive for investment, benefiting Calgary’s economy in the next few years.

The downside risks stem from the new variants of the COVID-19 virus. The third wave of COVID-19 infections has emerged throughout the world and Canada. The new, more transmissible variants of the coronavirus are increasing in dominance in the new waves, with potential mutations of the virus resistant to current vaccines. A slow start to Canada’s immunization program means that vaccinations are not enough to keep up with rising new cases across the country, which could cause more extensive public health-related economic restrictions. All of these could throw the economic recovery off track and result in a lower than expected outlook for Calgary.

Forecast

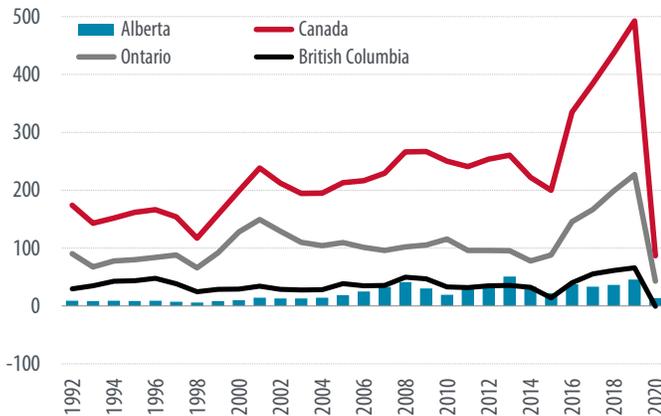
City of Calgary

Population Growth: Recent Net-migration Trends

Population growth is driven by three sources of changes: 1) natural increase, 2) international migration, and 3) inter-provincial and intra-provincial migrations. Our fall 2020 economic outlook predicted the City of Calgary’s total population to reach 1,323,400 in 2021, up by 1.3 per cent from the estimate of 1,306,400 for 2020. Since 2016, net-international migration has been the biggest source of population growth for the City of Calgary.

Net International Migration Trends in Selected Canadian Provinces (1992-2020)

(thousands of persons)



Source: Statistics Canada, Corporate Economics.

The new estimate of natural increase for 2021 is not yet available from Alberta Health Services, but recent migration estimates from Statistics Canada revealed the latest population growth trend in Calgary.

The net-international migration in Calgary follows the trend in Alberta that is represented by the estimates of the five components of international migration. Since Q2 2020, affected by the closing of Canadian borders to foreign travellers to stop the spread of the COVID-19 virus, inflows of international migrations (immigrants, returning emigrants, and net non-permanent residents) to Canada suddenly slowed as new documentation requirements increased the paperwork needed to immigrate. Although the outflows of international migration (emigrants and net temporary emigration) were also affected, the net result was the number of total net-international migrations declined dramatically in all provinces in Canada.

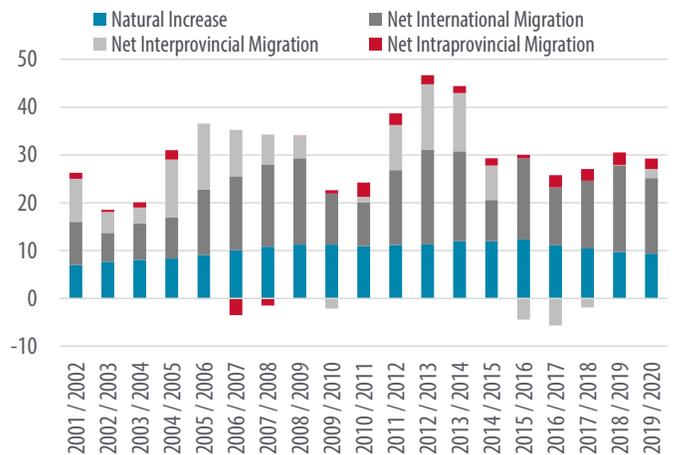
In 2019, immigrants accounted for 80 per cent of the total inflows of international migration to Alberta, compared to the average of 60 per cent in Canada. In provinces like Ontario and British Columbia, large numbers of international students have become the second-largest source of international migrations. The net non-permanent residents accounted for 32-34 per cent of the total inflows of those provinces’ international migrations, much higher than the 11 per cent in Alberta.

Impacted by the COVID-19 induced border closures, the net-international migration in Alberta went from 45,542 in 2019 to 13,697 in 2020, Ontario went from 227,135 to 42,962, and British Columbia went from 65,961 to -599.

Coming out of the COVID-19 pandemic later this year or early 2022, the reopening of Canadian borders should see a rebound in the net inflow of international migration to Calgary.

Components of Population Change in Calgary CMA (2001/2002-2019/2020)

(thousands of persons)



Source: Statistics Canada, Corporate Economics.

Inter-provincial and intra-provincial migrations are the third important components of Calgary’s population growth. The net results of those migrations are closely related to the relative labour market conditions between Calgary and other urban centres.

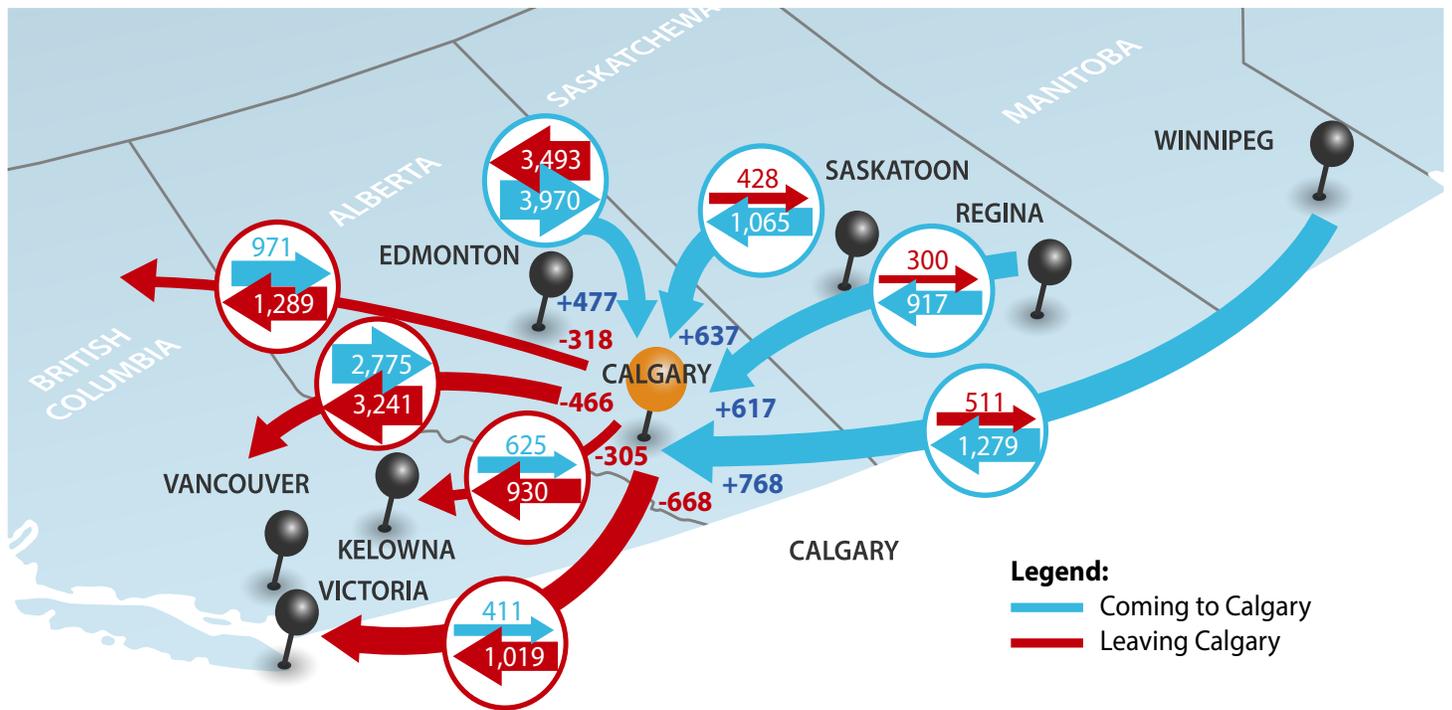
Since the oil price-driven recession in 2015-16, Calgary’s relatively high unemployment rate caused three years of net-outflows of inter-provincial migration from the Calgary Census Metropolitan Area (CMA) to big urban centers outside Alberta. The situation started to improve in 2019, and Calgary’s net-inter-provincial migration turned positive (+1,931) in 2020.

Forecast

The net intra-provincial migration in Calgary CMA has been positive for the past decade, supported by relatively better opportunities in Calgary than the rest of the province even during/after the 2015-16 recession. We expect the trend will continue in the forecast period, with an average of thousands of net in-migrations coming to Calgary from the rest of Alberta every year.

The latest Statistics Canada estimates show that in 2018/2019, the main origins of net-inflow of migrations to Calgary were Winnipeg, Saskatoon, Regina, and Edmonton, where job seekers came for better job opportunities. The primary destinations of net-out migration from Calgary were Victoria, Vancouver, and the rest of British Columbia, buoyed by lower unemployment rates since 2015 for job-seekers and warmer weather for retirees.

Net-inflow or Net-outflow of Interprovincial and Intraprovincial Migrations to Calgary (from July 1, 2018 to June 30, 2019)



Inflow and Outflow of Interprovincial and Intraprovincial Migrations to Calgary

	Coming to Calgary			Leaving Calgary			Net-in migration		
	2016 / 2017	2017 / 2018	2018 / 2019	2016 / 2017	2017 / 2018	2018 / 2019	2016 / 2017	2017 / 2018	2018 / 2019
Winnipeg (CMA), Manitoba	935	1,137	1,279	572	478	511	363	659	768
Saskatoon (CMA), Saskatchewan	776	912	1,065	552	418	428	224	494	637
Regina (CMA), Saskatchewan	564	836	917	368	328	300	196	508	617
Edmonton (CMA), Alberta	4,288	4,171	3,970	3,982	3,737	3,493	306	434	477
Kelowna (CMA), British Columbia	586	619	625	978	1,041	930	-392	-422	-305
Area outside census metropolitan areas and census agglomerations, British Columbia	986	914	971	1,458	1,362	1,289	-472	-448	-318
Vancouver (CMA), British Columbia	2,295	2,722	2,775	3,852	3,533	3,241	-1557	-811	-466
Victoria (CMA), British Columbia	524	488	441	1,123	1,100	1,109	-599	-612	-668

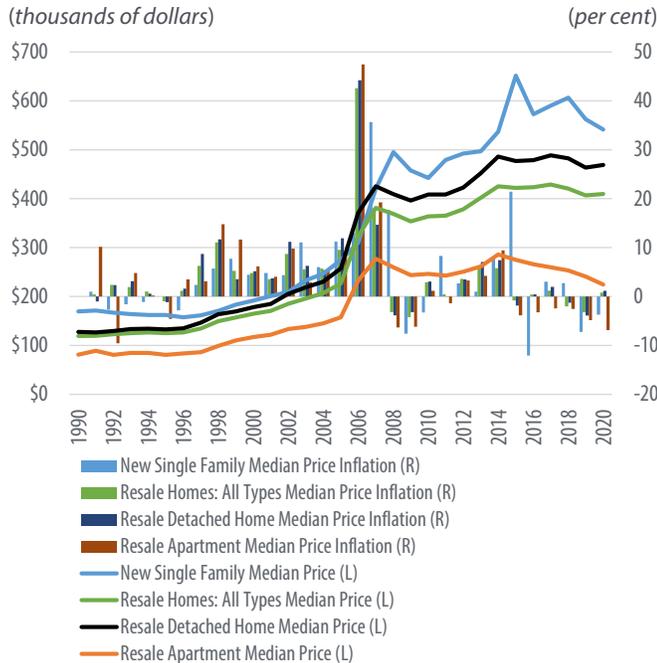
Source: Statistics Canada, Corporate Economics.

Forecast

Residential Real Estate Market

Price signals: New vs. Resale Home Prices

City of Calgary Housing Prices and Inflation: New Home and Resale Markets (1990-2020)



Source: CMHC, CREB, Corporate Economics.

Calgary’s real estate market has been under pressure for several years since the oil price-driven recession in 2015-16. Housing prices in the city declined from the peak for both new homes and resale houses, shifting from a seller’s market to a buyer’s market over the past few years.

In 2020, the median price for all resale homes appreciated by 0.8 per cent from the previous year, driven by the price appreciation of 1.2 per cent in detached home sales. Meanwhile, the median price for apartments dropped by another 6.9 per cent.

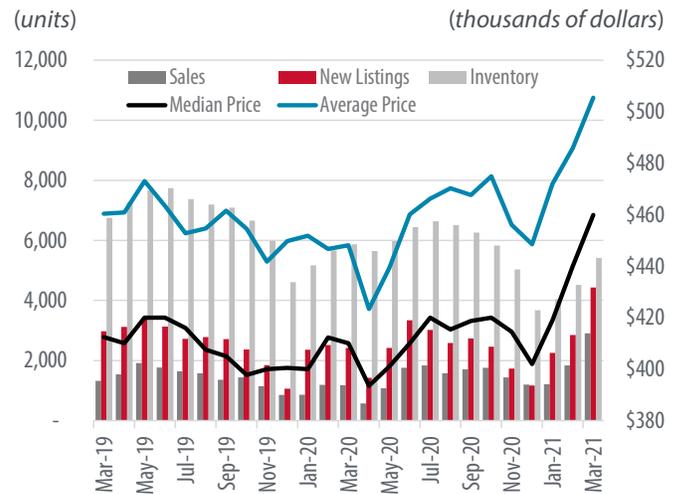
Last year, the median price for new single-family homes declined by 3.7 per cent, compared to the 7.3 per cent depreciation in 2019.

Calgary’s resale housing prices peaked in 2014, with the median price of \$425,267 for all resale homes, \$485,800 for detached houses, and \$285,960 for apartment units. From 2014 to 2020, the median price for all resale homes fell by 4 per cent or \$15,483. Over the same time, the price dropped more in apartment resales, lower by 22 per cent or \$61,830 from the peak of 2014.

The median price for new single-family houses in the city of Calgary peaked at \$651,458 in 2015. In 2020, it dropped to \$541,250, by a total of \$110,208 or 17 per cent from the level seen in 2015.

Resale Market Activities

City of Calgary Resale Market Activity and Prices (March 2019 - March 2021)



Source: CREB, Corporate Economics.

Resale home prices in Calgary dipped slightly in the last three months of 2020, affected by the renewed lockdowns triggered by the second wave of the COVID-19 pandemic. However, beginning in January 2021, real estate market activity sharply increased. Price appreciations accelerated in all types of resale homes. Year to date median price inflation in March was 8 per cent for all types of dwellings, while it was 9 per cent for the detached housing and 1 per cent for apartment units.

The pent-up demand from 2020, historically low interest rates, high household savings and improving consumer confidence helped by the access to COVID-19 vaccines, and further relaxation of health-related restrictions should contribute to increased home sales in Calgary in 2021. The downside pressure from the third wave restraining real estate market activities is expected to be more than offset by the upward pressures in the market

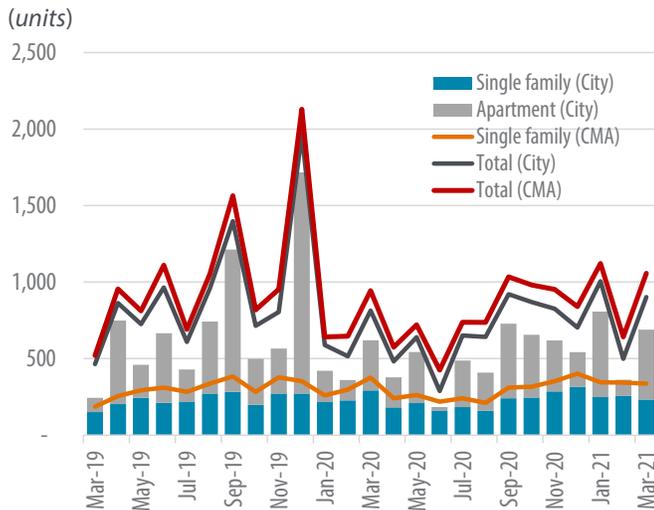
We estimate the average resale home price in Calgary to appreciate by 2.5 per cent in 2021 and 2.1 per cent in 2022. On average, we expect the price to increase by 3.6 per cent per year between 2022 and 2026.

Forecast

New Home Market Activities

The number of total housing starts in the city of Calgary fell to 7,939 units in 2020 from 10,632 in 2019, driven by the significant decline of 2,144 units in apartment housing starts. Continuous price depreciation in the apartment resale market signalled some oversupply issues, which slowed the pace of apartment construction.

Housing Starts: City of Calgary vs. Calgary CMA (March 2019 - March 2021)



Source: CMHC, Corporate Economics.

The number of single-family housing starts in the city of Calgary edged up slightly from 2,685 in 2019 to 2,716 in 2020. Lower interest rates and changing needs for home spaces to accommodate remote working arrangements have contributed to the higher than expected demand for single-family homes last year.

We expect the number of total housing starts in the city of Calgary to rebound to 9,700 units in 2021 and 9,900 units in 2022, averaging 10,300 units a year in 2022-2026.

In the Calgary CMA, we estimate housing starts to increase to 11,700 units in 2021 and 12,100 units in 2022, averaging 12,800 units per year in the forecast period.

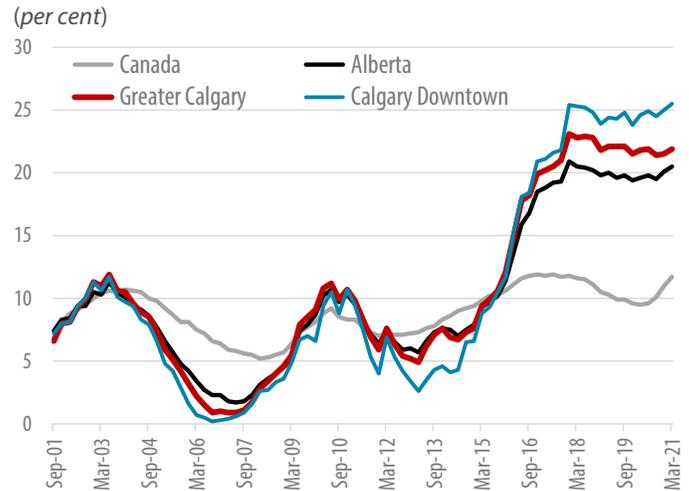
Non-residential Real Estate Market

Downtown Office Vacancies

Calgary's office market has always been more volatile than the rest of Canada due to the close correlation between its economy and the commodity cycles, especially crude oil market business cycles. In the past two decades, Calgary's downtown office vacancy rate reached as low as 0.2 per cent in 2006 and as high as 25.4 per cent in 2017. Over the same

period, office vacancy rates were much more stable in other parts of Canada, ranging from 5.2 per cent to 11.9 per cent.

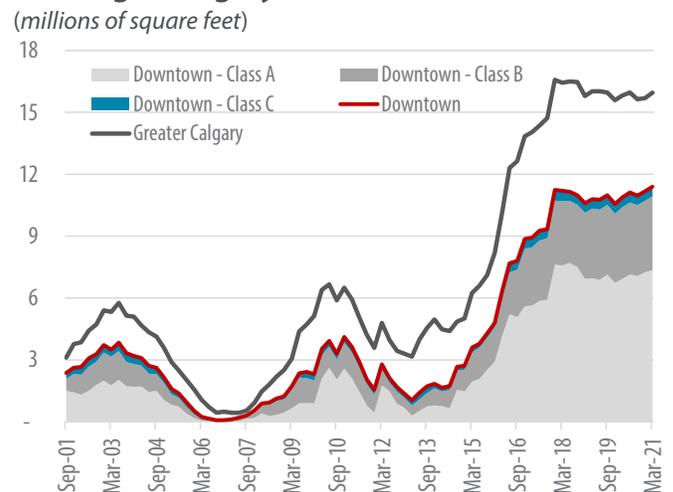
Office Market Total Vacant Rate: Calgary vs. Alberta and Canada (Q3 2001 - Q1 2021)



Source: Altus InSite, Corporate Economics.

The super-low vacancy rates in 2006 and 2013 attracted a large amount of new construction in Calgary's downtown, and the result was an oversupply of office buildings.

Office Market Total Vacant Space by Class of Building in Calgary (Q3 2001 - Q1 2021)



Source: Altus InSite, Corporate Economics.

As of Q1 2021, there were 16 million square feet of vacant office spaces in the Greater Calgary market, with 71 per cent or 11.4 million square feet in downtown. Among those vacancies in downtown, 64 per cent or 7.3 million square feet were class A buildings, 32 per cent or 3.6 million square feet



Forecast

were class B buildings, and only 4 per cent or 0.5 million square feet were class C buildings.

Assuming no structural changes in the local economy and no policy changes from The City, we predict that Calgary's

downtown office vacancy rate will stay elevated in the next 15-20 years (see Textbox 3) without new buildings being built. We estimate the downtown office vacancy rate to be 25.3 per cent in 2021, 24 per cent in 2022, declining to 21.7 per cent by 2026.

Textbox 3. Outlook Scenarios for Calgary's Downtown Office Market

Altus InSite currently pegs the Calgary downtown office vacancy rate at about 24.8 per cent. There is almost 2.5 million square feet available for lease in the sublet market, in addition to almost 8.5 million square feet available for headlease occupancy. Our model indicates two significant structural issues:

1. Occupancy in the Calgary downtown market is about 3 million square feet below where it should be, given the underlying market fundamentals. It appears that were it not for jobs moving from Calgary to other places that are building pipelines like Houston, Russia and Norway, Calgary's downtown office vacancy rate would be around 18 percent today.
2. Calgary currently has a significant excess supply of downtown office space, and at the current pace of job creation in Calgary, excess supply will remain for an extended period. Calgary has seen this situation before. In the late 1970s, Calgary experienced significant increases in office supply, but the National Energy Program (NEP), which started in 1980 and was amended in 1981, saw that construction stop "on a dime." During the twenty-year construction stall following the NEP, Calgary experienced only one major tower development in the downtown market.

Aside from what can be considered normal supply and demand balance issues in the city, Calgary, like other cities with large office space inventory, is currently negatively impacted by the COVID-19 pandemic. During the peak of the pandemic in 2020, approximately 40 per cent of office workers in Calgary were working from home. At the time of writing, about 13.5 million square feet of leased office space in downtown Calgary has been idle for just over a year, representing 30 percent of the downtown office market. If those workers do not return to Calgary's downtown core, the vacancy rate could easily approach 60 percent in the city's downtown office market.

Some researchers have estimated that about 25 per cent of the workforce will continue to work from home, for at least several days a week if not 'full time', going into 2022. If one in four of the people who worked remotely during the pandemic continue to do so on a more permanent basis, the vacancy rate in Calgary's downtown core can be expected to creep up to the 35 per cent range by 2024.

On the other hand, "hoteling space" (where people sit at what can be described better as benches than at desks, and the chair and computer they use likely vary from day to day) is currently in very low demand in the office market. Office workers today, and for the foreseeable future, will need increased health and safety measures, including cleaner office air and not being seated in close proximity to each other. Buildings that accommodate those demands will be able to charge a premium. If "hoteling space" and the office cubicle were to disappear from downtown Calgary, we estimate the vacancy rate in Calgary's downtown office market would plummet to about 12 percent, assuming no one continues to work from home when the pandemic is over.

On April 26, 2021, Calgary City Council approved *Calgary's Greater Downtown Plan*, which sets out a future vision and strategic moves to support the reinvention of Calgary's Greater Downtown. Calgary City Council also approved a \$200 million initial investment, which includes incentives for office to residential conversion, redevelopment, or adaptive use.

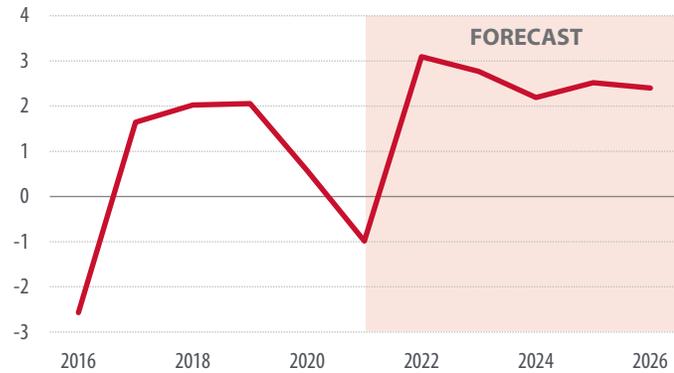
The book-ends on Calgary's downtown office market are known. On the high end, the vacancy rate could be 60 per cent if everyone currently working from home continues to do so while offices include "hoteling space" and cubicles. On the low end, 12 per cent if the pandemic is over and everyone returns downtown and gets an office. As it is too soon to predict how the future will change, our current forecast model assumes "business as usual" and indicates a prolonged period of vacancy rates well above the standard equilibrium for this market (about 10 percent) for the next 15 to 20 years.

Forecast

Non-residential Building Price Inflation

Calgary CMA: Non-residential Building Construction Inflation

(per cent)



Source: Statistics Canada, Corporate Economics.

Costs to build non-residential structures in Calgary stagnated in 2020. Builders were able to pass on cost increases (mainly in labour) in 2017-2019 as the market would support it with a long list of institutional projects in process. Today those projects are winding down and new non-residential construction is at reduced levels compared to prior years.

Increased unemployment among commercial construction workers in 2021 would result in decreased overall labour costs to build this year. In 2021 and beyond, we expect inflationary pressures for raw materials sourced outside Calgary would filter into Calgary as suppliers see increased demand in other markets.

Building Permits

The total value of building permits in the city of Calgary fell from \$5.2 billion in 2019 to \$3.5 billion in 2020. The decline of \$1.8 billion total value was evenly split between the residential and non-residential markets. On the residential side, the value of residential building permits was down to \$2.3 billion from \$3.1 billion in 2019, primarily due to the \$577 million lower building permit value for new apartments. On the non-residential side, although institutional building permits kept up with the level seen in 2019, building permits for new commercial and industrial buildings fell by half a billion dollars.

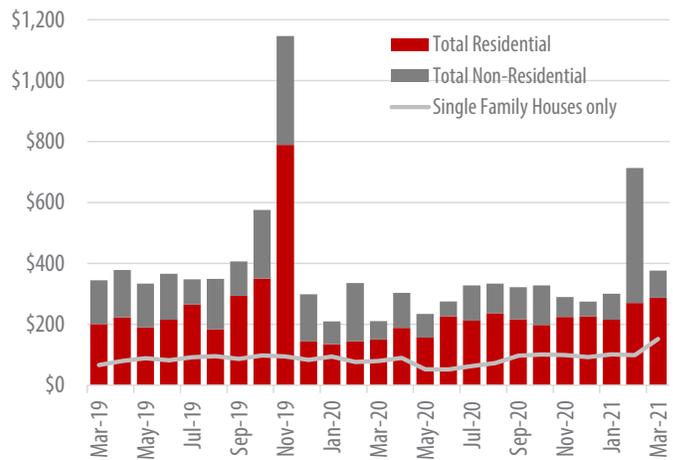
The last time the total building permit value was this low was 2010, right after the global financial crisis caused by sub-prime lending in the U.S. Since 2010, residential invest-

ment has been more critical in Calgary's total investment portfolio. Over the past ten years, the share of residential to total building permit value in the city increased steadily from 58 per cent to 67 per cent.

City of Calgary: Building Permit Value by Type

(March 2019 - March 2021)

(millions of dollars)



Source: The City of Calgary, Corporate Economics.

We expect the pent-up demand for new homes will drive residential investment further in 2021. In Q1 2021, the total value of residential building permits increased by 71 per cent from the same period last year. The historically low interest rates and expected employment and real wage growth in the city of Calgary should push up residential investment to meet the housing demand from a growing population.

We forecast the total value of building permits to bounce back to \$4.2 billion in 2021, with a subtotal of \$2.6 billion in the residential market and \$1.6 billion in the non-residential market. Starting from 2022, higher investment intention in the non-residential sector should push up the total value of building permits to \$4.6 by the end of the forecast period.

Calgary Economic Region (CER)

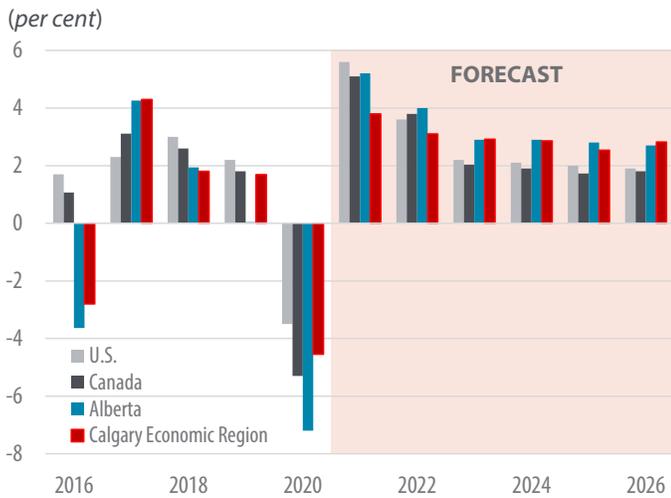
Real GDP Growth in the CER

Real GDP in the Calgary Economic Region (CER) is estimated to have contracted by 4.5 per cent in 2020, impacted by the first wave of the COVID-19 pandemic and the collapse of crude oil prices early last year. Consumer spending, which accounted for 66 per cent of the total GDP, had sharply declined due to the public health-related measures, including restrictions on leisure and hospitality business-

Forecast

es. Investment in the CER was also hit hard because of the province-wide lockdowns, captured in the lower total building permit values in both residential and non-residential sectors.

Real GDP growth: CER vs. its Major Trading Partners



Source: Federal Reserve Bank of St. Louis, The Conference Board of Canada, Corporate Economics.

The fall of real GDP last year was more profound in the CER than in the U.S., but less so than in Canada and Alberta. The U.S. economy led the growth in the past few years, fueled by a favourable taxation/investment environment and a robust labour market. Canada followed the growth path of the U.S. and benefited from its close trade relationship with the country as usual.

The CER, coming out of the previous oil price-driven recession in 2015-16, started at a relatively low GDP level at the beginning of 2020, and thus fell less deep than Canada in last year's recession. Compared to Alberta, the CER was less impacted by the plummeting investments in the oil and gas industry in early 2020.

With the increasing coverage of COVID-19 vaccines, a full reopening of the economy in Canada is in sight. Pent-up demand in consumption is expected to be unleashed later this year, fueled by the forced savings from last year. However, the CER's rebound in real GDP growth will be less extreme than in Canada and Alberta over the next two years, as the CER had a smaller contraction in 2020.

We forecast the real GDP in the CER to grow at 3.8 per cent this year and recover to the pre-pandemic level next year.

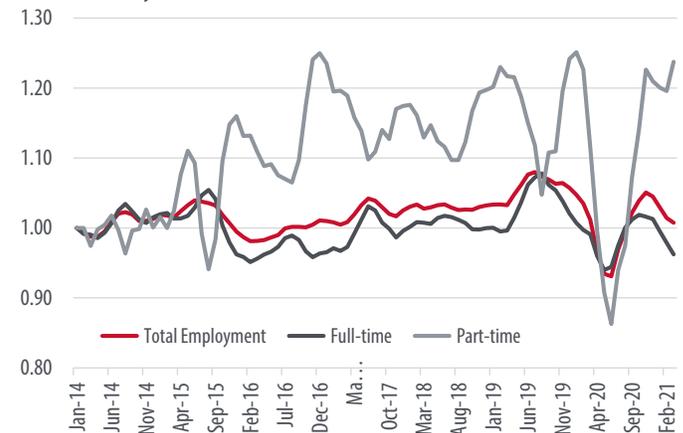
CER's real GDP growth is estimated to average 2.8 per cent per year, ranging from 2.5 per cent to 3.1 per cent in 2022-2026.

CER's Labour Market

Since 2014, multiple challenges faced by the Calgary Economic Region have negatively impacted its labour market. As the region's total employment grew slower than the labour force, the CER has endured a persistently high unemployment rate relative to the rest of Canada. When things were getting better at the beginning of 2020, the dual shocks of the COVID-19 pandemic and the oil price collapse once again hit CER's labour market hard.

Calgary Economic Region Employment

(January 2014 - March 2021)
(index, January 2014=1.00)



Source: Statistics Canada, Corporate Economics.

From 2014 to 2020, the total employment in the CER increased only slightly by 1 per cent, with full-time employment falling by 1 per cent and part-time jobs increasing by 11 per cent. Part-time jobs pay less than full-time and often with limited or no benefits, which would negatively affect consumer confidence, saving rate and spending.

Youth aged 15 to 24 have also faced greater challenges in Calgary's weak labour market in the past few years, particularly during the COVID-19 pandemic in 2020. At the worst moment of labour market disruptions last June, CER's average unemployment rate was 15 per cent for all age groups, but 48 per cent for the youth aged 15 to 19, and 28.6 per cent for those 20 to 24 years old.

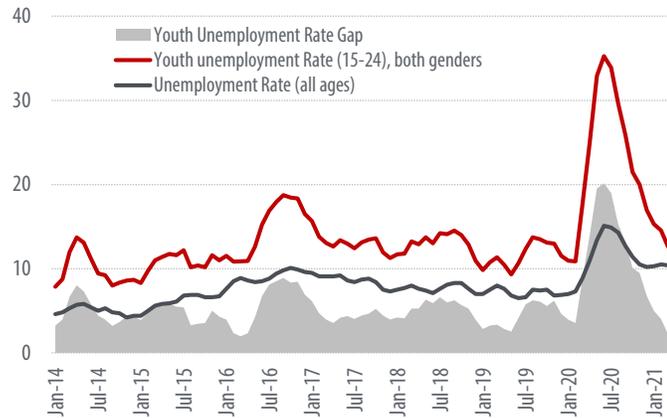
We forecast the total employment in the CER will not recover to the pre-pandemic level until 2022. With the K-shaped recovery shaping up in the region, additional supports to

Forecast

the youth and low-income groups are more needed now than ever.

Youth Unemployment in the Calgary Economic Region (January 2014 - March 2021)

(per cent)



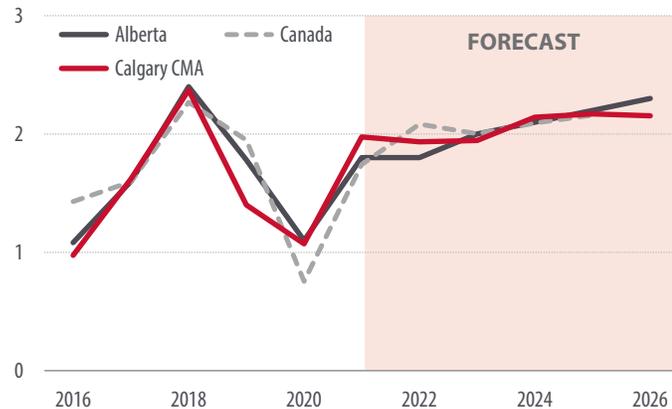
Source: Statistics Canada, Corporate Economics.

Price Inflation Rates

Consumer Price Index (CPI) Inflation

CPI Inflation: Calgary CMA vs. Alberta and Canada

(per cent)



Source: Statistics Canada, The Conference Board of Canada, Corporate Economics.

The consumer price index (CPI) in the Calgary Metropolitan Area (CMA) increased by 1.12 per cent in 2020, the same as the inflation in Alberta but higher than the 0.74 per cent in Canada.

Last year's inflation in the Calgary CMA was partly due to the 1.2 per cent shelter price increases. In Alberta and Canada, the shelter price inflation was higher at 1.3 per cent and

1.7 per cent, respectively. Higher inflation in shelter did not translate to higher all-items inflation in Canada, as the consumer prices in goods fell more than in Alberta.

In 2021, we forecast CPI inflation in Calgary to be 2 per cent, higher than the expected 1.8 per cent in Alberta and 1.7 per cent in Canada. Lower inflation rates in items other than shelter in Canada would offset some of the higher inflation rates in shelter, contributing to the slightly lower inflation rate in Canada than in Calgary and Alberta.

In 2022, hot Canadian real estate markets outside Alberta should push up all-item consumer price inflation, contributing to higher inflation rates in Canada than in Calgary and Alberta.

From 2023 to 2026, CPI inflation in Calgary is expected to average around the Bank of Canada's target rate of 2 per cent.

Construction Commodity Price Inflation

Iron and Steel

Iron and Steel Price Inflation

(per cent)



Source: Statistics Canada, Corporate Economics.

It seems the era of U.S. iron and aluminum tariffs is now behind us. However, with the U.S. economy set to rebound from the pandemic this year, there is now a risk of market players taking advantage of a price difference between two or more markets for iron. More specifically, a demand surge in the U.S. in 2021 will increase U.S. prices while Chinese prices are stable, which creates an increased risk that some importers will try to pass Chinese steel through Canada to take advantage of differential prices. This is the situation that resulted in iron tariffs originally. There will have to be increased vigilance to keep Canadian exporters from pass-

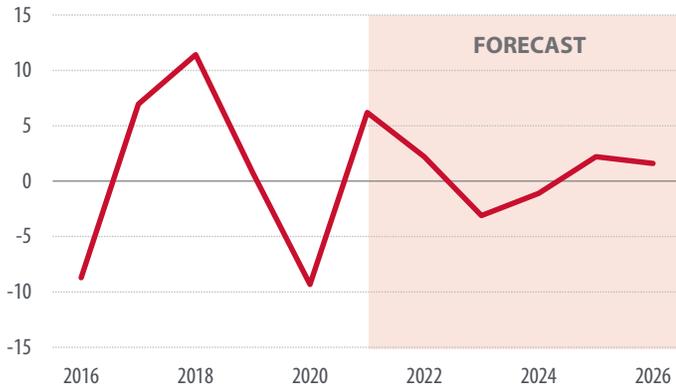
Forecast

ing Chinese steel to the U.S. through Canada, or tariffs will return.

We anticipate a spike in manufacturing and construction activity as the U.S. economy roars back quickly. All industries are trying to restock shelves right now and this is leading to bottlenecks in shipping availability. Iron shortages will be short-lived in the U.S., but Canada faces a more prolonged economic recovery and higher iron prices for the next two years.

Aluminum products

Aluminum Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

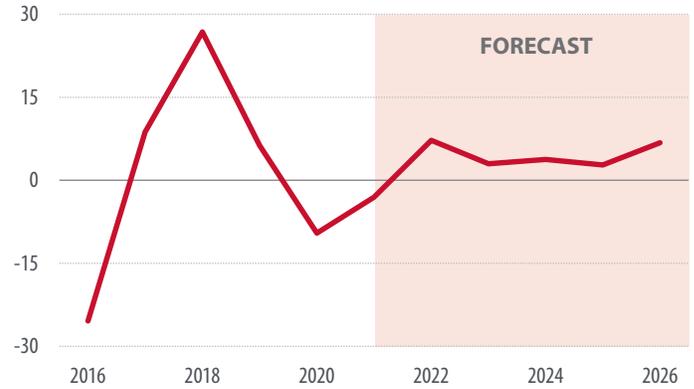
Like iron, industrial use of aluminum is expected to increase this year, while shipping delays cause short-term price spikes. Unlike iron, international production of aluminum has increased during the pandemic, which is expected to moderate prices. In the short term, shipping charges are high as North America re-stocks shelves, making importing raw materials (such as bauxite) more expensive. This will be short-lived, and our long-term outlook for aluminum prices is prolonged stability.

Asphalt

Asphalt prices closely follow the price of oil but are also dependent upon inventories. Oil prices are rising but remain subdued. This is placing some upward pressure on asphalt prices. However, asphalt's primary uses are for roofing materials and road work. With reduced road traffic in 2020, there was a reduced need for asphalt for road maintenance, and while people worked from home and while businesses struggled, roofing repairs were more likely to be done than replacements. The net result was a significant buildup of stockpiles over 2020 that will take some time to use up. We

anticipate stable prices this year before there is some upward pressure next year.

Asphalt Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

Wood

Wood Price Inflation
(per cent)



Source: Statistics Canada, Corporate Economics.

Wood prices spiked recently. This was the result of a sudden increase in building activity in the U.S. which is trying to meet the pent-up demand for dwellings that has built up during the pandemic. Both sides of the border have also seen increased demand for wood for home renovation projects during the pandemic, which has depleted supplies.

British Columbia mills which were idled only a couple of years ago are being brought back on line to meet demand. Shortages are not expected to last long and it is hoped that when the market stabilizes around the third quarter of 2021, these revived British Columbia mills can survive and won't have to close again.

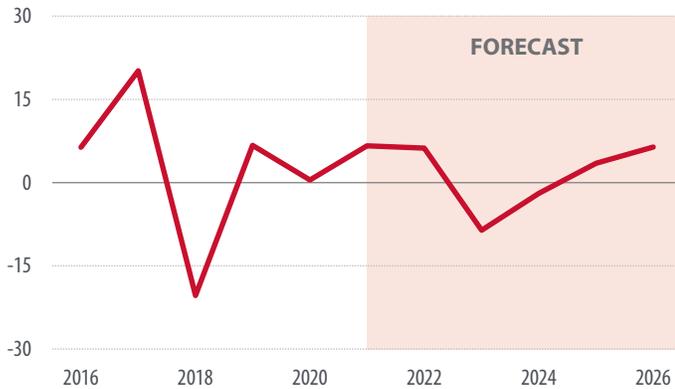
Forecast

Operational Commodity Price Inflation

Rubber

Rubber Price Inflation

(per cent)



Source: Statistics Canada, Corporate Economics.

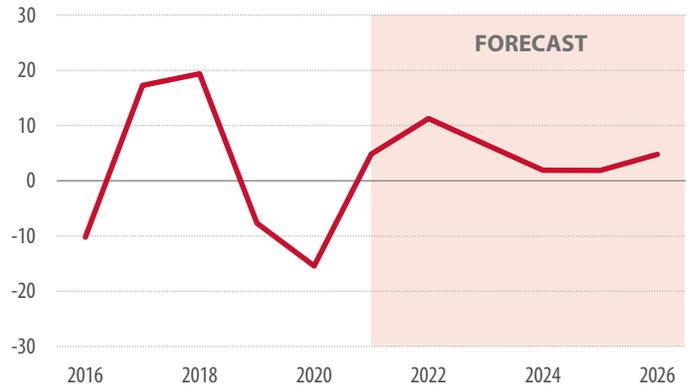
Natural rubber faces significant survival issues due to climate change, blights, diseases and low prices. There is ongoing research into alternatives for rubber sap, including the sap of a type of dandelion. Replacements are viable technologies that have been employed in the past, but which require significant up-scaling to bring to industrial production levels. Meanwhile, low oil prices have enabled significant increases in artificial rubber production, which has provided a ceiling for rubber prices. As oil prices rise, the profitability of natural rubber production will increase, which may entice more sustainable farming involving natural rubber alternatives. On balance, supplies seem stable while demand is slowly recovering from reduced tire usage during pandemic lockdowns.

Diesel Oil

Diesel prices have been contained during 2020. As a result of increased supply during a time when global demand was off due to lockdowns, the era of low oil prices is coming to an end. Still, 2021 will see only modest increases in oil demand. The full impact of vaccines on the pandemic, and the subsequent return to more normal diesel demand, are not likely to return to Canada until late 2021 or 2022. We anticipate some price increases in 2021 and a larger increase in 2022, though the increase in 2022 will be more from increased carbon taxes than as a result of increased diesel demand. Longer-term, the only significant price increases we anticipate will be from increasing carbon taxes.

Diesel Oil Price Inflation

(per cent)

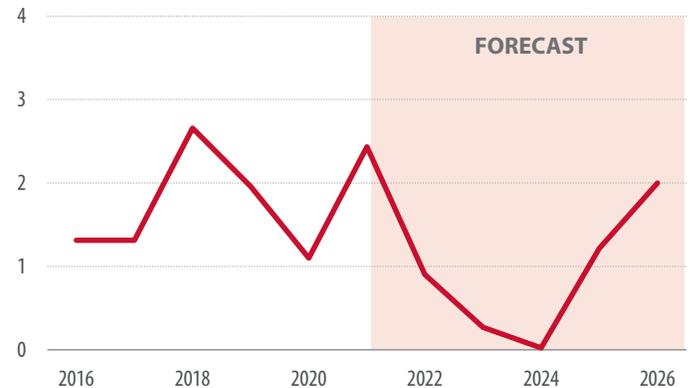


Source: Statistics Canada, Corporate Economics.

Automotive Parts

Vehicle Parts Price Inflation

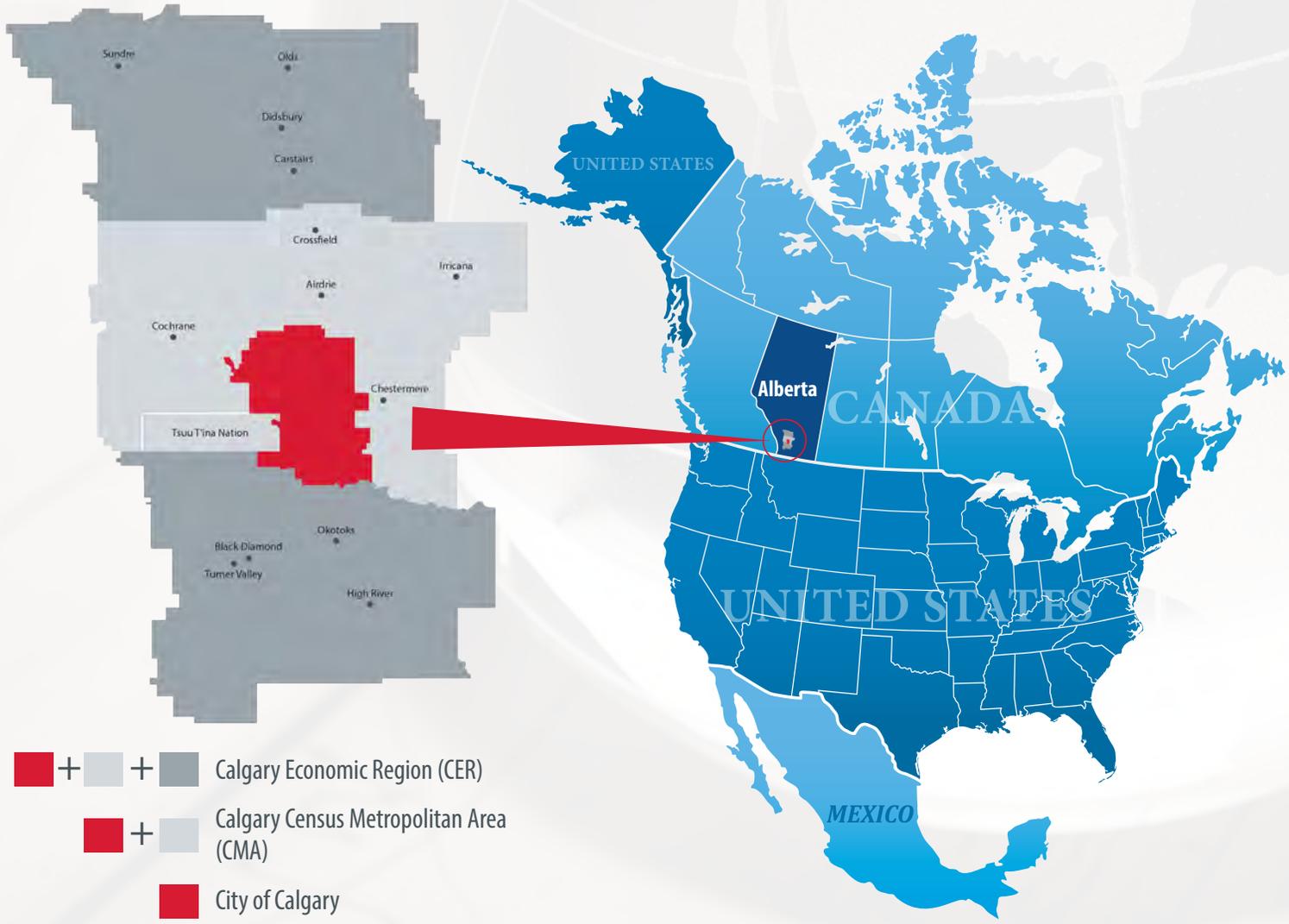
(per cent)



Source: Statistics Canada, Corporate Economics.

During the pandemic, people reduced usage of their vehicles, slowing demand in parts industries. Demand appears to be deferred into 2021 and beyond. We anticipate some increased demand for vehicles in the immediate future as people are more hesitant to take public transit in the post-pandemic world. The increased demand will be hard to satisfy as people's increased use of consumer electronics, including gaming systems, has caused global shortages of microchips that are also used in vehicles. The resulting increased demand for parts will be delayed beyond the end of the pandemic. As a result, we anticipate an average low inflation in vehicle parts for the forecast horizon.

Calgary Economic Region Map



Economic and Market Conditions Outside Calgary

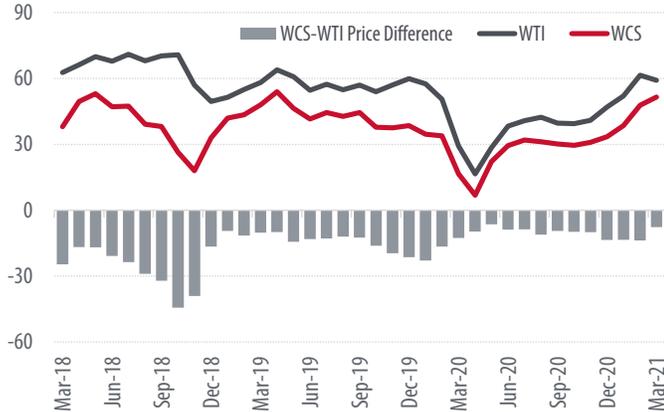
Energy Market

World Crude Oil Market

WTI and WCS Crude Oil Price

(March 2018 - March 2021)

(US\$/bbl)



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

Year-to-date in March 2021, West Texas Intermediate (WTI) crude oil prices have averaged US\$57.9/bbl, well up from the same period average of US\$39.2/bbl last year. Following the dramatic collapse of WTI prices from US\$50.5/bbl in February 2020 to US\$16.6/bbl in April 2020, oil prices have largely stabilized since May 2020.

In March 2021, with oil demand recovering as global economies begin to emerge from the COVID-19 crisis, Saudi Arabia announced the extension of its voluntary production cuts into April. This unexpected supply curtailment from OPEC has given further upside price support to WTI.

Western Canadian Select (WCS) prices have followed a similar trajectory as WTI. The super-low oil prices in 2020 drastically reduced operating revenues for Alberta's oil companies, which hampered capital investments in the sector and served as a catalyst for industry consolidation as firms sought efficiencies.

The revocation of the Keystone XL permit by President Biden in January 2021 is a setback for Alberta's future oil export capacity. However, the progress on other major expansion projects (Trans Mountain expansion and Line 3) and recent crude-by-rail developments are promising. WCS typically trades at a discount to WTI due to added transportation costs and quality differences.

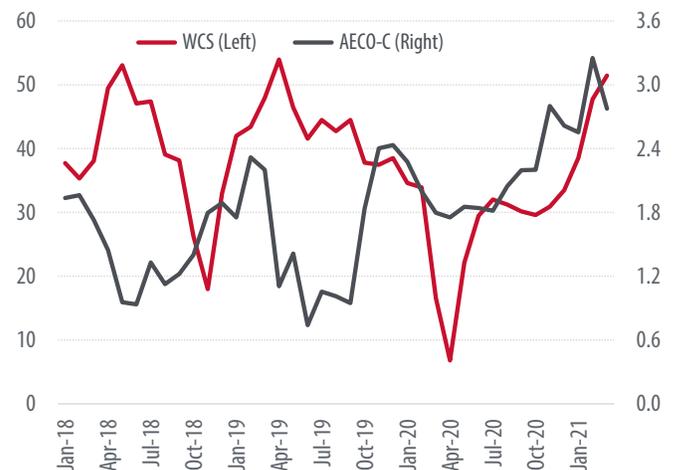
North American Natural Gas Market

AECO-C Natural Gas Price vs. WCS Oil Price

(January 2018 - March 2021)

(US\$/bbl)

(C\$/GJ)



Source: Bloomberg, Intercontinental Exchange Inc, Corporate Economics.

North American natural gas prices exhibited some strength in 2020 even as demand fell. The oil price collapse in spring 2020 resulted in the shut-in of oil wells and reduced the associated natural gas production, tightening the balance of supply and demand.

The relative price strength continued into 2021, with colder-than-normal temperatures throughout much of the continent and extreme weather events in February that curtailed production in North America.

Domestically, natural gas-fired net-to-grid electricity generation in Alberta surpassed coal-fired electricity generation for the first time in 2020. Gas-fired generation in Alberta is expected to continue to be the dominant form of electricity generation for the foreseeable future, given its reliability and the scheduled phase-out of coal-fired electricity generation in Alberta by 2023.

These are positive developments for Alberta's natural gas producers, as AECO-C prices had remained low for years due to oversupply and weak demand.

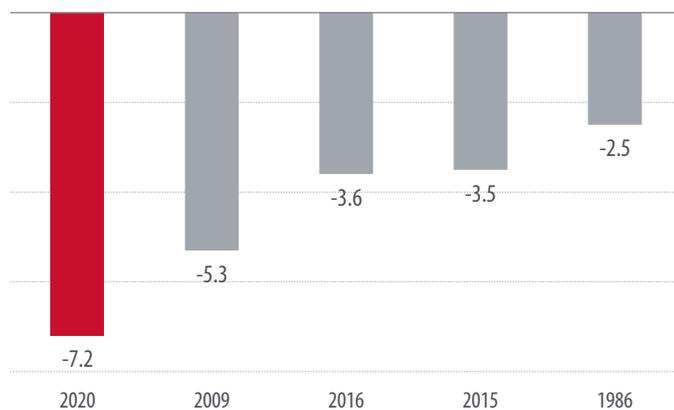
Economic and Market Conditions Outside Calgary

Alberta

Real GDP Growth in Alberta

Real GDP in Alberta is estimated⁴ to have declined by an astonishing 7.2 per cent in 2020. Having recorded the second-lowest provincial real GDP growth at zero⁵ in Canada in 2019, Alberta entered 2020 with some optimism from strengthening oil prices. However, when COVID-19 hit in March, public health orders forced the shutdown of a large portion of the provincial economy. Compounding the unforeseen economic shock was a catastrophic tumble in oil prices. The dual shocks conspired to cause Alberta to be Canada's worst economic performer in 2020.

Alberta Real GDP: Five Worst Years since 1973 (per cent)



Source: Statistics Canada, Corporate Economics.

The estimated historic collapse in Alberta GDP for 2020 is the largest on record for the province dating back to 1973. The real GDP contraction in 2020 far exceeded previous economic declines in 2009 following the global financial crisis and the 2015-2016 recessions driven by the collapse of oil prices in late 2014.

On February 25, the Alberta government tabled Budget 2021. The province is forecasting a budget deficit of over \$20 billion for the 2020-21 fiscal year. With a targeted deficit of \$8 billion for the 2023-24 fiscal year in this budget,

⁴ Although national GDP figures for the previous year are typically confirmed by Statistics Canada in the first quarter, provincial GDP figures for the previous year are typically not confirmed until the midway point of the following year. The Alberta Real GDP figure for 2020 will be confirmed in time for the publication of the Fall 2021 Calgary and Region Economic Outlook.

⁵ Only Saskatchewan, at -0.9 per cent, recorded lower real GDP growth in 2019.

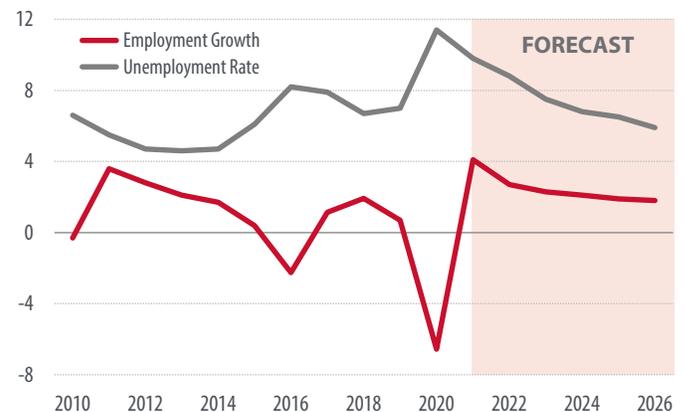
the Alberta Government is no longer projecting a return to balanced budgets by 2023.

Assuming public health measures successful and herd immunity attainable later this year, the provincial economy's gradual reopening could see Alberta's real GDP growth rebound by 5.2 per cent in 2021. The growth is expected to be robust at 4 per cent next year, accompanied by a return to pre-pandemic output level.

Alberta's Labour Market

For the second year in a row, Alberta had the worst employment growth in Canadian provinces in 2020. Alberta's total employment shrank by 6.6 per cent, far worse than the nationwide average of -5.2 per cent. At 11.4 per cent, Alberta's unemployment rate in 2020 was the second highest in Canada, only behind the 14.1 per cent in Newfoundland and Labrador.

Alberta: Labour Market (per cent)



Source: Statistics Canada, Corporate Economics.

One year after the pandemic hit Canada in February 2020, Alberta has lost more than 88,000 jobs. The hardest beaten industries include Accommodation and Food Services (-35.6 per cent), Information, Culture, and Recreation (-23.3 per cent), Manufacturing (-9.4 per cent), and Professional, Scientific and Technical Services (-4.3 per cent). Alberta's situation last year for the latter two industries was in sharp contrast with the rest of Canada, where on average the total employment increased in Manufacturing (+0.7 per cent) and Professional, Scientific and Technical Services (+4.2 per cent).

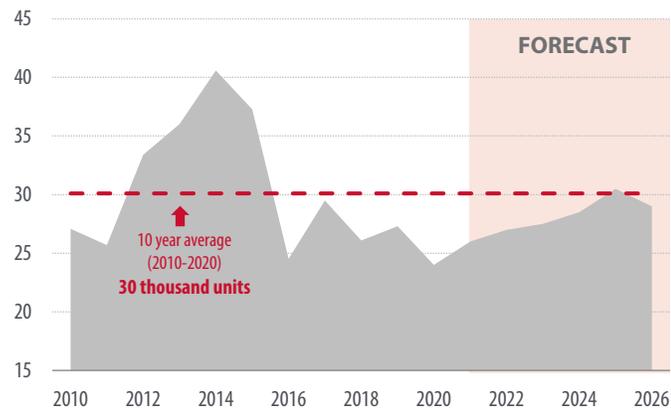
In 2021, the total employment in Alberta is expected to grow by 4.1 per cent. Regional factors, such as industry con-

Economic and Market Conditions Outside Calgary

solidation through mergers and acquisitions in the energy sector and continued sluggishness in business investment, are expected to hamper job growth in the province. With the economy re-opening from COVID-19 lockdowns, Alberta's total employment is expected to reach pre-pandemic levels by 2023.

Alberta: Housing Starts

(thousands of units)



Source: CMHC, Corporate Economics.

The number of total housing starts in Alberta reached 24,023 units in 2020, fueled by population growth and rock-bottom mortgage rates. However, it was still a year-over-year decline of 12.1 per cent, compared to a Canada-wide increase of 4.4 per cent. While Canada's housing starts in 2020 were its highest since 2017, Alberta recorded the lowest level of housing starts in 2020 since 2009. This contrast highlights some of the unique economic challenges faced by Alberta in 2020.

Non-residential business investment is expected to post a modest increase in 2021 with the economy reopening and business confidence increasing. The province's oil and gas extraction sector has accounted for a majority of total capital spending over the past decade; however, its share of contribution is expected to decline in the near future.

Canada

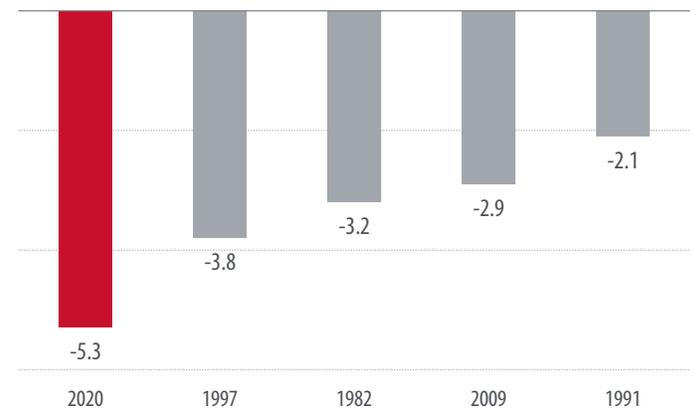
Real GDP Growth in Canada

In the aftermath of the widespread business disruptions and shutdowns caused by the COVID-19 pandemic, Canada's real GDP dropped by 5.3 per cent, far surpassing its historical economic contractions in 1997 and 2009.

Despite a second wave of the pandemic that started in late 2020, the Canadian economy demonstrated resiliency in managing the pandemic impacts. Starting from January, the COVID-19 vaccine rollout in all provinces is expected to boost consumer and business confidence and drive economic activity throughout 2021 and 2022.

Canada Real GDP: Five Worst Years since 1961

(per cent)



Source: Statistics Canada, World Bank, Corporate Economics.

Canada's real GDP is estimated to grow at an abnormally high rate of 5.1 per cent in 2021, supported by the strong growth in the U.S. It will then slow down to 3.8 per cent in 2022, trending to around 1.7 per cent to 2 per cent in 2023-2026.

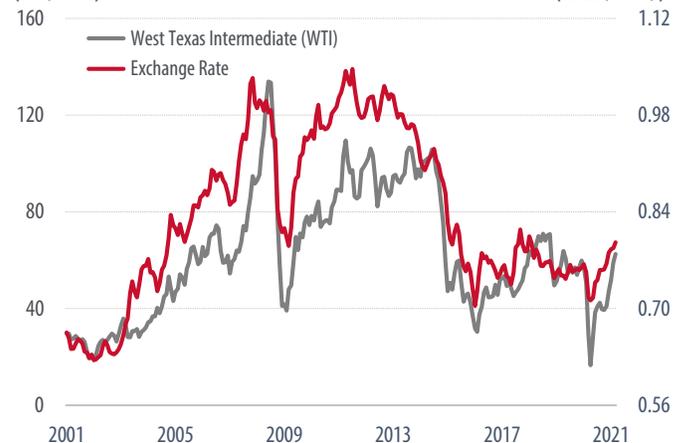
A Stronger Canadian Dollar

Crude Oil Prices and Exchange Rate

(January 2001 - March 2021)

(US\$/bbl)

(CAD\$/US\$)



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

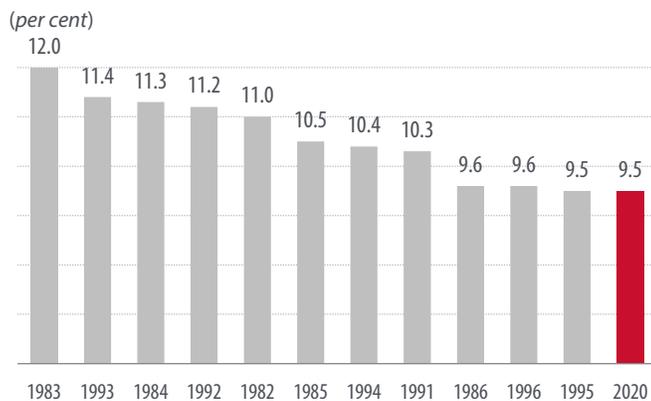
Economic and Market Conditions Outside Calgary

The Canadian dollar has steadily appreciated against the U.S. dollar over the past few months. Following “safe haven” flows into the U.S. dollar in the spring of 2020, the global currency market has reversed course as strength in global equities lessened the demand for the U.S. dollar.

Also, recovering crude oil prices and Canada’s stronger federal fiscal position relative to other G7 countries has increased demand for the Canadian dollar. The Canada/U.S. exchange rate is expected to be higher in the next few years, rising from 0.75 to 0.80 US\$ per Canadian dollar.

The Canadian Labour Market

Canada: Highest Annual Unemployment Rates since 1976



Source: Statistics Canada, Corporate Economics.

Buoyed by record low unemployment rates in 2018 and 2019, the Canadian labour market came into 2020 exhibiting notable potency. This strength came to an abrupt halt in March 2020, when economic lockdowns induced by the COVID-19 pandemic hit Canada’s labour market. Canada’s unemployment rate in 2020 jumped to 9.5 per cent, well up from 5.7 per cent in 2019 and was the highest on record since 1996.

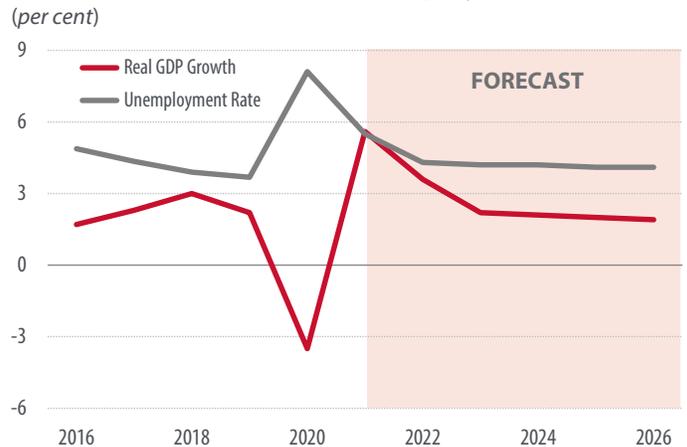
As Canada emerges from pandemic-related shutdowns, not all industries have been evenly affected. By February 2021, the number of people employed in Accommodation and Food Services was more than a quarter lower than 12 months earlier. In contrast, industries such as Educational Services, and Professional Scientific, and Technical Services have recovered all lost jobs and created more, fully absorbing the COVID-19 employment shock.

While Canada’s economic activity is expected to return to its pre-pandemic level this year, its unemployment rate is not expected to recover until 2022 or 2023.

The U.S.

Economic Recovery in the U.S.

U.S. Real GDP Growth and Unemployment Rate



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

Following ten years of real GDP growth, the United States experienced an unprecedented recession in 2020. As the onset of the COVID-19 pandemic triggered global shutdowns, real GDP in the U.S. contracted by 3.5 per cent in 2020, the most significant annual decline in U.S. economic activity since 1946.

Hidden behind the annual growth statistics for the U.S. is the remarkable speed of the contraction and subsequent recovery. Following an annualized decline of 5 per cent in Q1 2020, real GDP plummeted at an annualized 31.4 per cent in Q2 2020 as the pandemic took hold on the country. In Q3 2020, however, real GDP recovered by an astonishing 33.4 per cent at an annualized rate, supported by government relief programs and the relaxation of COVID-19 lockdowns. This rapid start to the U.S. recovery followed by an annualized 4.1 per cent increase in Q4 caused the total impact on GDP growth in 2020 to be much less severe than the 6 per cent contraction predicted in our Fall 2020 Outlook.

With the pace of COVID-19 vaccinations accelerating in the U.S., reaching 2 million doses per day by March 2021, a strong sense of optimism prevails regarding the U.S. economic recovery. Real GDP in the U.S. is expected to grow by 5.6 per cent in 2021, representing the largest annual increase since 1984.

The U.S. labour market is expected to see a similar recovery, with the unemployment rate improving from 8.1 per cent in 2020 to 5.5 per cent in 2021. Contributing to this posi-

Economic and Market Conditions Outside Calgary

tive economic outlook in the United States for 2021 are additional stimulus spending by the federal government and highly accommodative monetary policy measures.

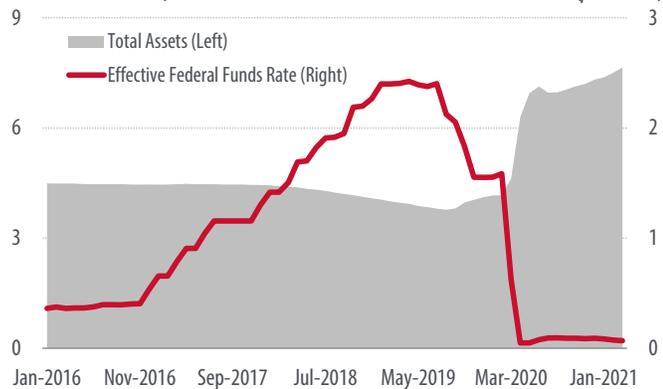
Fiscal and Monetary Measures in the U.S.

U.S. Monetary Policy Actions: Effective Federal Funds Rate and Total Assets of the Federal Reserve

(January 2016 - March 2021)

(trillions of dollars)

(per cent)



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

The U.S. federal government signed into law a \$1.9 trillion relief package in March 2021, continuing its unprecedented stimulus spending since the beginning of the pandemic last year.

The significant government spending as the U.S. economy reopens has begun to cause concerns about rising inflation rates. But the Federal Reserve System of the U.S. (the Fed) is not expected to respond quickly by raising its policy interest rate in the near term. The Federal Funds rate is forecasted to remain at zero to 0.25 per cent until as late as 2023, as the Fed acts according to August 2020 revisions in its Longer-Run Goals and Monetary Policy Strategy. The revised strategy allows the Fed to be more flexible in the near to medium-term to reach its long-term inflation target of 2 per cent. The Fed is also continuing to bolster financial markets through its asset purchase program and is not expected to slow the pace of it until at least late 2021.

Implications of the Biden Administration for Canada

On January 20, 2021, Joe Biden was sworn in as President of the United States following his 2020 election victory. President Biden immediately implemented several policy shifts, including the revocation of the permit for the \$8 billion

Keystone XL oil pipeline that would transport Alberta oil south to U.S. refineries, a significant blow to the Alberta oil industry.

More changes are expected under the new U.S. federal government, many of which will have implications for Canada.

In terms of international trade, President Biden has signalled that he would increase cooperation with U.S. allies and move to more open trade policies. However, shortly after the inauguration, President Biden announced a “Buy American” plan that would strengthen policies restricting U.S. government spending to U.S. firms.

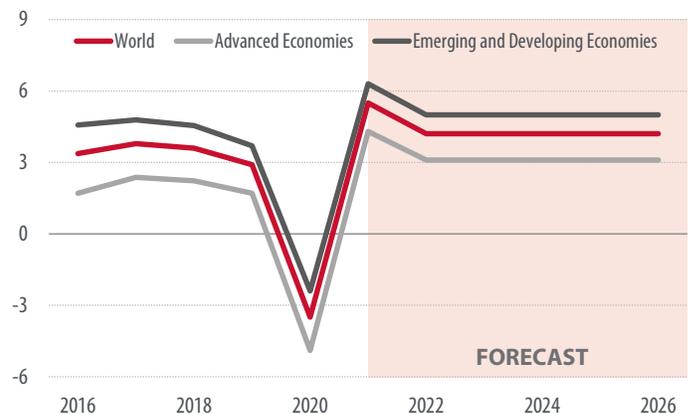
Other policy changes may be more beneficial to the Canadian economy. The new U.S. federal government is expected to raise corporate taxes, which would increase Canada’s relative tax competitiveness and thus increase investment in Canada. Strengthened climate change policies in the U.S. may also prove to benefit Canada’s oil and gas industry as it faces weaker competition from American producers.

World

Real GDP Growth

World: Real GDP Growth Rates

(per cent)



Source: International Monetary Fund, Corporate Economics.

The COVID-19 pandemic hit the world hard last year. Real GDP in the world turned from a growth of 2.9 per cent in 2019 to a contraction of 3.5 per cent. Advanced economies were hit harder, with economic contraction reaching 4.9 per cent compared to the -2.4 per cent for the emerging markets and developing economies.

Post-pandemic recovery is underway as different vaccines are being distributed worldwide. The global economic

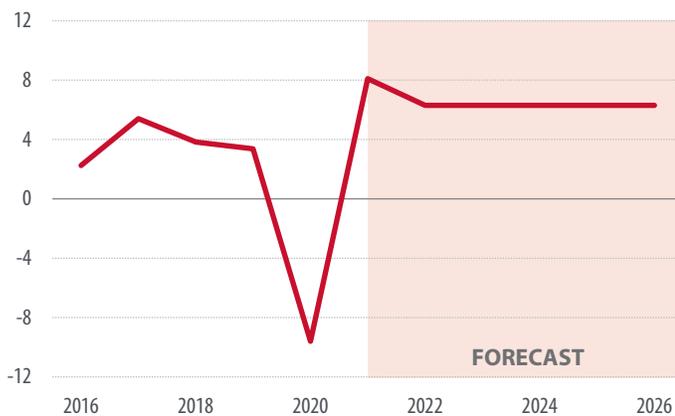
Economic and Market Conditions Outside Calgary

growth is expected to bounce back to 5.5 per cent in 2021 and 4.2 per cent in 2022. The emerging markets and developing economies are expected to grow faster than the advanced economies in the forecast period.

Trade Volume

World: Trade Growth

(per cent)



Source: International Monetary Fund, Corporate Economics.

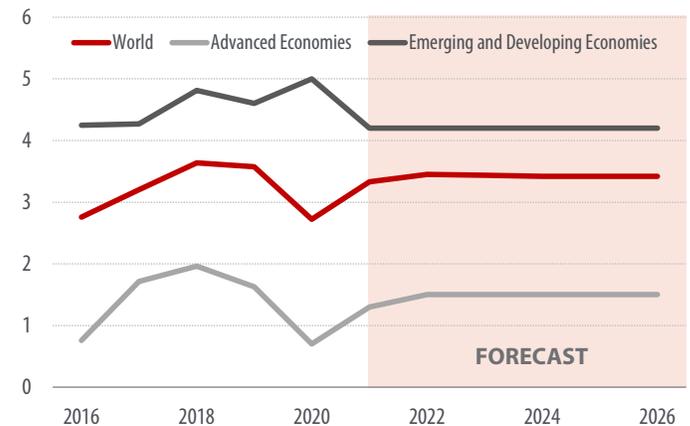
The world trade volume grew at an annual average of 1 per cent for five years before the COVID-19 pandemic. It plummeted by 9.6 per cent in 2020 due to the reduced trade activities constrained by the public health measures from COVID-19.

Global trade volume is forecasted to recover in 2021 by 8.1 per cent and rise by 6.3 per cent in 2022, with more expansion in the emerging markets and developing economies.

CPI Inflation

World: Inflation Rates

(per cent)



Source: International Monetary Fund, Corporate Economics.

The global consumer price index increased by 2.7 per cent in 2020, a level lower than the five-year average of 3.1 per cent. Last year, the spread of coronavirus and the public health measures restrained consumer spending. Post-pandemic, pent-up demand should put upward pressure on prices.

The global inflation rate is forecasted to be 3.3 per cent in 2021. It is expected to be 0.7 per cent in the advanced economies, lower than the 5 per cent in the emerging markets and developing economies.



Forecast Tables

Glossary

Who We Are

Forecast 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: March 2021

	2016	2017	2018	2019	2020	FORECAST					
	2021	2022	2023	2024	2025	2026					

ASSUMPTIONS

World

Real Gross Domestic Product Growth (%)	3.3	3.7	3.6	2.9	-3.5	5.5	4.2	3.3	3.6	3.6	3.6
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The United States

Real Gross Domestic Product Growth (%)	1.7	2.3	3.0	2.2	-3.5	5.6	3.6	2.2	2.1	2.0	1.9
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Canada

Real Gross Domestic Product Growth (%)	1.1	3.1	2.6	1.8	-5.3	5.1	3.8	2.0	1.9	1.7	1.8
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Prime Business Loan Rate (%)	2.7	2.9	3.6	4.0	2.8	2.3	2.3	2.4	2.9	3.5	3.8
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Exchange Rate (US\$ for 1C\$)	0.76	0.77	0.77	0.75	0.75	0.79	0.78	0.78	0.79	0.80	0.80
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Alberta

Real Gross Domestic Product Growth (%)	-3.6	4.3	1.9	0.0	-7.2	5.2	4.0	2.9	2.9	2.8	2.7
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Total Employment Growth (%)	-2.3	1.1	1.9	0.7	-6.6	4.1	2.7	2.3	2.1	1.9	1.8
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Unemployment Rate (%)	8.2	7.9	6.7	7.0	11.4	9.8	8.8	7.5	6.8	6.5	5.9
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Housing Starts ('000 Units)	24.5	29.5	26.1	27.3	24.0	26.0	27.0	27.5	28.5	30.5	29.0
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Inflation Rate - CPI (%)	1.1	1.6	2.4	1.8	1.1	1.8	1.8	2.0	2.1	2.2	2.3
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Crude Oil Price - WTI (US\$/bbl)	43.3	50.8	65.1	57.0	39.2	59.0	58.7	56.5	58.2	60.9	62.4
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Western Canadian Select - WCS (US\$/bbl)	29.5	37.6	39.6	44.3	35.6	46.7	47.0	45.8	48.1	50.5	51.8
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Alberta Natural Gas Price - AECO/NIT (\$/GJ)	2.0	2.3	1.5	1.6	2.2	2.7	2.7	2.6	2.6	2.7	2.7
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Industrial Product Price Index (%)	-0.2	3.1	3.9	-0.1	-0.5	5.7	1.1	1.7	1.9	1.7	1.7
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Raw Materials Price Index (%)	-4.6	11.0	9.2	-2.5	-8.1	14.9	2.7	1.5	1.8	1.5	1.5
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Alberta Average Wage Rate Increase for All Industries (%)	-2.4	1.0	1.7	1.4	0.0	-1.3	-0.9	2.2	3.1	3.6	3.5
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FORECAST

Calgary Economic Region (CER)

Real Gross Domestic Product Growth (%)*	-2.8	4.3	1.8	1.7	-4.5	3.8	3.1	2.9	2.9	2.5	2.8
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Total Employment ('000 persons)**	828.6	851.2	856.9	881.0	834.0	860.7	886.9	909.9	928.8	950.4	969.4
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Total Employment Growth (%)**	-2.4	2.7	0.7	2.8	-5.3	3.2	3.0	2.6	2.1	2.3	2.0
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Unemployment Rate (%)**	9.2	8.5	7.6	7.2	11.7	9.7	8.5	8.0	7.3	6.9	6.3
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Calgary Census Metropolitan Area (CMA)

Housing Starts ('000 units)	9.2	11.5	11.0	11.9	9.2	11.7	12.1	12.5	12.8	13.1	13.5
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Inflation Rate - CPI (%)	1.0	1.6	2.4	1.4	1.1	2.0	1.9	1.9	2.1	2.2	2.2
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Non-Residential Building Construction Inflation (%)	-2.6	1.6	2.0	2.1	0.6	-1.0	3.1	2.8	2.2	2.5	2.4
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Numbers may not add up due to rounding.

* Source: Stokes Economics, Corporate Economics

** Total population, census divisions and census metropolitan areas, 2001 Census boundaries

Forecast Tables

Table 2 - Selected Real Estate Indicators for City of Calgary

City of Calgary

FORECAST COMPLETED: March 2021						FORECAST					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Residential Market											
Housing Starts ('000 units)	7.5	9.5	9.4	10.6	7.9	9.7	9.9	10.1	10.3	10.5	10.7
Calgary Average Residential MLS Sale Price (%)*	2.4	0.5	-1.1	-3.9	-0.6	2.5	2.1	2.7	3.4	4.3	5.3
Total Building Permits (\$billions)	4.6	4.6	4.6	5.2	3.5	4.2	4.4	4.5	4.5	4.5	4.6
Non-Residential Market											
Downtown Office Vacancy Rate (%)**	18.1	22.5	24.8	24.3	24.8	25.3	24.0	23.7	24.0	23.1	21.7

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: March 2021						FORECAST					
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
CONSTRUCTION COMMODITIES											
Iron and steel products	3.2	4.2	8.7	4.3	-0.8	3.5	4.1	-1.5	2.1	1.8	2.6
Aluminum products	-8.7	7.0	11.4	0.8	-9.3	6.2	2.2	-3.1	-1.1	2.2	1.6
Wood	4.0	4.2	9.6	-2.9	-4.5	7.4	1.4	0.6	-0.6	0.7	0.7
Asphalt*	-25.4	8.7	26.8	6.3	-9.5	-3.0	7.2	3.0	3.8	2.7	6.8
OPERATIONAL COMMODITIES											
Rubber	6.4	20.1	-20.3	6.7	0.5	6.7	6.2	-8.6	-2.0	3.5	6.4
Diesel oil	-10.2	17.3	19.4	-7.7	-15.4	4.8	11.3	6.6	1.9	1.9	4.8
Vehicle parts	1.3	1.3	2.7	2.0	1.1	2.4	0.9	0.3	0.0	1.2	2.0

Numbers may not add up due to rounding.

* Based on Ontario Ministry of Transportation Asphalt Price Index

Forecast Tables

Table 4 - City of Calgary Population Projection

City of Calgary (thousands of persons)

FORECAST COMPLETED: September 2020					Estimate	FORECAST						
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Total Population (as April)	1,235.20	1,246.30	1,267.30	1,285.7	1,306.4	1,323.4	1,339.9	1,357.5	1,375.1	1,392.1	1,408.9	
Total Population Growth Rate (April - March)	0.35	0.9	1.69	1.5	1.6	1.3	1.3	1.3	1.3	1.2	1.2	
Total Net Migration (April - March)	-6.5	1.1	11.7	9.6	12.3	8.6	9.0	9.9	10.2	9.8	9.9	
Total Births (April - March)	16.6	16.3	15.9	15.3	15.6	15.6	15.6	15.6	15.6	15.5	15.5	
Total Deaths (April - March)	5.9	6.2	6.6	6.5	7.2	7.4	7.2	7.4	7.6	7.8	8.0	
Total Natural Increase (April - March)	10.7	10.1	9.3	8.8	8.4	8.3	8.4	8.2	8.0	7.7	7.5	
Total Households (as April)	463.7	471.2	482.7	489.1	496.9	502.1	511.0	518.7	526.6	534.4	541.8	
Total Household Formation (April - March)	1.2	7.5	11.6	6.3	7.8	5.2	8.9	7.7	7.9	7.8	7.4	
Population by Cohort	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
0-4	78.6	78.7	79.2	79.7	79.6	79.3	78.6	78.2	77.3	77.4	77.3	
5-9	77.0	79.1	80.2	80.0	79.5	78.9	79.0	79.2	79.7	79.4	79.1	
10-14	67.4	69.2	71.9	74.6	77.1	79.1	80.6	81.0	80.8	80.0	79.5	
15-19	68.2	68.7	69.6	70.9	70.9	71.3	72.1	74.1	76.3	78.6	80.7	
20-24	79.1	77.5	77.0	78.2	78.6	78.4	78.1	77.7	77.7	77.6	78.1	
25-29	104.3	102.5	100.1	98.1	96.8	94.0	92.3	91.9	92.0	92.3	92.4	
30-34	114.0	114.3	114.0	113.0	113.6	114.1	113.3	112.2	111.1	109.5	107.0	
35-39	102.8	104.6	107.8	110.8	115.6	118.6	121.3	122.9	123.3	123.5	124.3	
40-44	95.3	95.3	96.6	98.2	101.8	105.2	109.0	113.5	118.2	122.5	125.8	
45-49	86.6	87.7	90.1	91.3	93.3	95.1	96.5	98.5	101.2	104.5	108.0	
50-54	88.2	86.4	85.2	83.9	84.1	85.0	87.3	90.1	92.0	93.7	95.5	
55-59	81.0	81.6	82.6	83.2	83.5	83.2	82.3	81.2	80.4	80.4	81.3	
60-64	62.1	65.0	69.1	72.1	74.2	75.7	76.7	76.9	77.3	77.4	77.0	
65-69	46.0	48.2	50.2	52.5	55.3	58.4	61.5	64.7	67.3	69.2	70.5	
70-74	29.7	31.4	34.7	37.8	40.2	42.8	45.1	46.3	48.0	50.5	53.4	
75-79	21.7	22.2	23.5	24.9	25.8	27.0	28.2	30.5	32.8	34.9	37.2	
80-84	16.7	16.9	17.4	17.6	17.9	18.1	18.4	19.0	19.8	20.6	21.5	
85-89	10.8	11.1	11.6	11.8	11.9	11.9	11.9	12.0	12.0	12.2	12.3	
90-99	5.5	5.9	6.3	6.8	6.9	7.1	7.2	7.3	7.5	7.5	7.6	
100+	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Total	1,235.2	1,246.3	1,267.3	1,285.7	1,306.4	1,323.4	1,339.9	1,357.5	1,375.1	1,392.1	1,408.9	
Youth (12-18)	80.1	81.5	83.4	85.1	86.8	89.5	92.0	94.4	96.1	97.2	97.8	
Primary School Age 6-17	168.7	173.3	177.7	180.7	183.2	185.4	187.4	189.5	191.1	192.8	192.9	
Working Age 15-65	881.5	883.4	892.2	899.7	912.2	920.5	929.1	938.9	949.6	959.9	970.3	
Seniors 65+	130.6	136	143.9	151.6	158.4	165.6	172.6	180.2	187.7	195.3	202.8	
Super Seniors 85+	16.5	17.2	18.1	18.9	19.1	19.3	19.5	19.7	19.8	20.1	20.2	
Female Super Seniors 85+	10.6	11.0	11.5	12.0	12.1	12.1	12.2	12.3	12.4	12.6	12.7	

Numbers may not add up due to rounding.

Forecast Tables

Table 5 - Calgary Economic Region (CER) Population Projection

Calgary Economic Region (CER) (thousands of persons)

FORECAST COMPLETED: September 2020		Estimate	FORECAST					
	2019	2020	2021	2022	2023	2024	2025	2026
Total Population (as April)	1,585.9	1,616.4	1,637.3	1,654.4	1,676.2	1,701.4	1,722.0	1,738.5
Total Population Growth Rate (April - March)	1.8	1.9	1.3	1.0	1.3	1.5	1.2	1.0
Total Net Migration (April - March)	18.8	17.4	10.8	11.8	16.2	16.1	12.2	12.0
Total Births (April - March)	18.6	18.4	18.2	18.1	18.1	18.0	17.9	17.9
Total Deaths (April - March)	9.4	10.1	10.0	10.4	10.8	11.1	11.5	11.9
Total Natural Increase (April - March)	9.2	8.3	8.2	7.7	7.3	6.9	6.4	5.9
Total Households (as April)	609.9	621.7	629.7	636.3	644.7	654.4	662.3	668.7
Total Household Formation (April - March)	10.5	11.7	8.0	6.6	8.4	9.7	7.9	6.3
Population by Cohort	2019	2020	2021	2022	2023	2024	2025	2026
0-4	98.5	98.1	97.3	95.7	94.5	92.8	92.3	91.7
5-9	100.7	99.9	99.0	99.0	99.1	99.6	98.9	98.1
10-14	95.2	99.1	102.0	103.6	104.2	104.2	103.1	102.0
15-19	89.8	91.1	92.3	93.8	97.0	100.8	104.2	106.9
20-24	95.3	97.0	97.5	97.4	97.8	99.3	100.1	100.8
25-29	116.1	114.4	110.7	108.0	107.5	108.5	109.3	109.4
30-34	133.8	134.0	133.6	131.3	129.1	127.6	124.8	121.0
35-39	133.6	138.0	140.4	141.8	142.4	142.1	141.4	140.9
40-44	120.1	124.0	127.3	130.7	134.7	139.2	142.9	145.2
45-49	112.2	114.6	116.7	118.2	120.2	123.1	126.5	129.7
50-54	103.7	103.7	104.8	107.5	110.7	113.1	115.0	117.1
55-59	104.1	105.6	105.7	104.8	103.7	102.8	102.6	103.6
60-64	91.1	94.5	97.0	99.1	100.3	101.7	102.9	103.0
65-69	67.1	71.0	75.2	79.4	83.9	87.7	90.6	93.0
70-74	48.7	52.2	55.6	58.8	60.5	63.0	66.5	70.3
75-79	31.5	33.3	35.1	37.0	40.5	43.7	46.7	49.6
80-84	21.6	22.3	22.9	23.5	24.6	26.1	27.4	28.9
85-89	14.3	14.6	14.8	14.9	15.2	15.3	15.7	16.1
90-99	8.0	8.7	9.2	9.5	9.9	10.4	10.6	10.7
100+	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Total	1,585.9	1,616.4	1,637.3	1,654.4	1,676.2	1,701.4	1,722.0	1,738.5

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, (Republic of) Korea, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovenia, Spain, Sweden, Switzerland, Taiwan, 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.

Apartment - Within the context of this report and Calgary's Civic Census, an apartment is a structure originally designed and built to contain at least three dwelling units on three or more levels. The dwelling units share outside entrances. Apartments include rental units and those that are owner-occupied.

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.

Class A office building - Class A is the highest quality classification for an office building. These buildings have an attractive design, are made with high quality building materials, are typically quite new, and have a prime location. They are also expected to have high-quality professional management. Building size and tenant mix may also affect classification.

Class B office building - Class B buildings are a step down from Class A in terms of design, materials, age, and location, but are still good quality and are functionally up to date.

Class C office building - Class C is the lowest class of office building. These buildings are typically older and smaller than higher class buildings. They may be functionally obsolete or poorly located and could benefit from renovation.

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, and 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.

Contact-intensive - According to the U.S. Department of Labor, a contact-intensive industry is one where the job requires the worker to perform job tasks in close physical proximity to other people. Examples of contact-intensive occupations include barbers, physical therapists, personal care aides, nurses, flight attendants, grade school teachers, and food/beverage servers.

Detached housing - Independent structures that are typically built on land that exceeds the footprint of the building on each of its sides.

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.



Glossary

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 and developing economies - This group of countries include developing economies that are low- and middle-income countries, and emerging economies that are in transition from developing economies to developed countries. Some of the largest countries in the world like China, India, Brazil and Russia are emerging economies.

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.

Great recession (2008-2009) - The Great Recession was a widespread period of economic decline during the late 2000s where most of the world's economies, particularly those of North America, Europe and Japan, fell into a recession. For Canada and the United States, the recession was most acute in 2008 and 2009. Both countries experienced multiple quarters of consecutive negative GDP growth. In response to the Great Recession, many governments around the world introduced multi-billion dollars economic stimulus plans and engaged in numerous interest rate cuts.

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.

Headlease - A headlease is a lease agreement between a landlord and primary tenant, as opposed to an agreement between a tenant and subtenant.

Herd immunity - Herd immunity, also known as "population immunity", is the indirect protection from an infectious disease that happens when a population is immune either through vaccination or immunity developed through previous infection.

Household formation - The number of new households that will be formed over the long term. Based on projections of population by age cohort and age-specific headship rates, household formation is the underlying driver of long-term demand for new housing and thus new home construction.

Housing markets - Consists of two markets: new house and resale 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 resale market.

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.

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

IMF - The International Monetary Fund (IMF) is an organization created in 1945, governed by and accountable to the 189 countries that make up its near-global membership. The IMF's primary purpose is to ensure the stability of the international monetary system—the system of exchange rates and international payments that enables countries (and their citizens) to transact with each other.

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.

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

Inter-provincial migration - Net inter-provincial migration refers to the total number of moves between a given province or territory and the rest of Canada that result in a change in the usual place of residence. It is calculated as the difference between inter-provincial in-migrants and out-migrants.



Glossary

Intra-provincial migration - Net intra-provincial migration refers to the total number of moves between a given local region and the rest of the province that result in a change in the usual place of residence. It is calculated as the difference between intra-provincial in-migrants and out-migrants.

K-shaped recovery - A K-shaped recovery occurs after a recession when certain parts of the economy resumes growth while others lag behind indefinitely.

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.

Median price - The median price is the middle point that divides all transactions into two equal parts: 50 per cent of transactions occur at a price that is lower than the median price and the other 50 per cent occur at a price that is higher. The median price is a preferred measure of central tendency than the average price, as it is not adversely influenced by extreme values.

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.

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.

Natural increase - Natural increase is the variation in the population size over a given period as a result of the difference between the numbers of births and deaths.

Net-international migration - Net international migration basically refers to the total number of moves between Canada and abroad that result in a change in the usual place of residence. It is calculated by adding immigrants, returning emigrants and net non-permanent residents, then subtracting emigrants and net temporary emigration.

Net-interprovincial migration - Net interprovincial migration represents the difference between in-migrants and out-migrants for a given province or territory involving a change in the usual place of residence.

OPEC - The Organization of Petroleum Exporting Countries (OPEC) is an organization of 13 oil producing countries (Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, the United Arab Emirates, and Venezuela) that seeks to actively manage oil production in its member countries by setting production targets. OPEC member countries typically produce 40 to 50 per cent of the world's crude oil, and Saudi Arabia is OPEC's largest producer. OPEC is described by most market observers as a cartel whose actions, particularly those by Saudi Arabia, serve as a major influence on global oil production and price.

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.

Unemployment Rate - In Canada, the unemployment rate measures unemployment and is expressed as a percentage of the total labour force, which is the total number of people who are 15 years of age and over who are either employed or unemployed.

Vaccination - Vaccination is a simple, safe, and effective way of protecting people against harmful diseases, before they come into contact with those diseases. It uses the human body's natural defenses to build resistance to specific infections and makes an individual's immune system stronger.

Vaccine - Vaccines train an individual's immune system to create antibodies, just as the immune system does when it's exposed to a disease. However, because vaccines contain only killed or weakened forms of germs like viruses or bacteria, they do not cause the disease or put you at risk of its complications.

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.

Working age population - Describes persons aged 15 to 64.

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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