

Calgary



Calgary's Economic Performance **2001-2015**

A Statistical Portrait – September 2016



Executive Summary

- Alberta experienced rapid swings in its economic prospects in the past 15 years, from the record growth of 2006-2007 to the slump of 2008-2010, to the following robust recovery and the current economic downturn.
- The resource boom generated higher cash flow which stimulated business investment spending throughout the economy, thus increasing the overall levels of output and employment and population in Alberta.
- Calgary, which is home to the energy industry, benefited significantly from the spin-off effects of the resource boom. Calgary led Canada and Alberta in economic and demographic growth in the last 15 years. Economic and demographic growth resulted in an increase in The City's revenue bases (property tax and non-tax) and also contributed significantly to the national and provincial treasuries shown as fiscal imbalance in the past 15 years.
- On the other hand, Calgary has been materially impacted by the sharp fall in world oil prices as it is the head office location for most of Canada's energy sector. As oil prices expected to rebound moderately in 2017, Calgary should grow at a relatively slower pace over the next few years in response to lower oil prices.

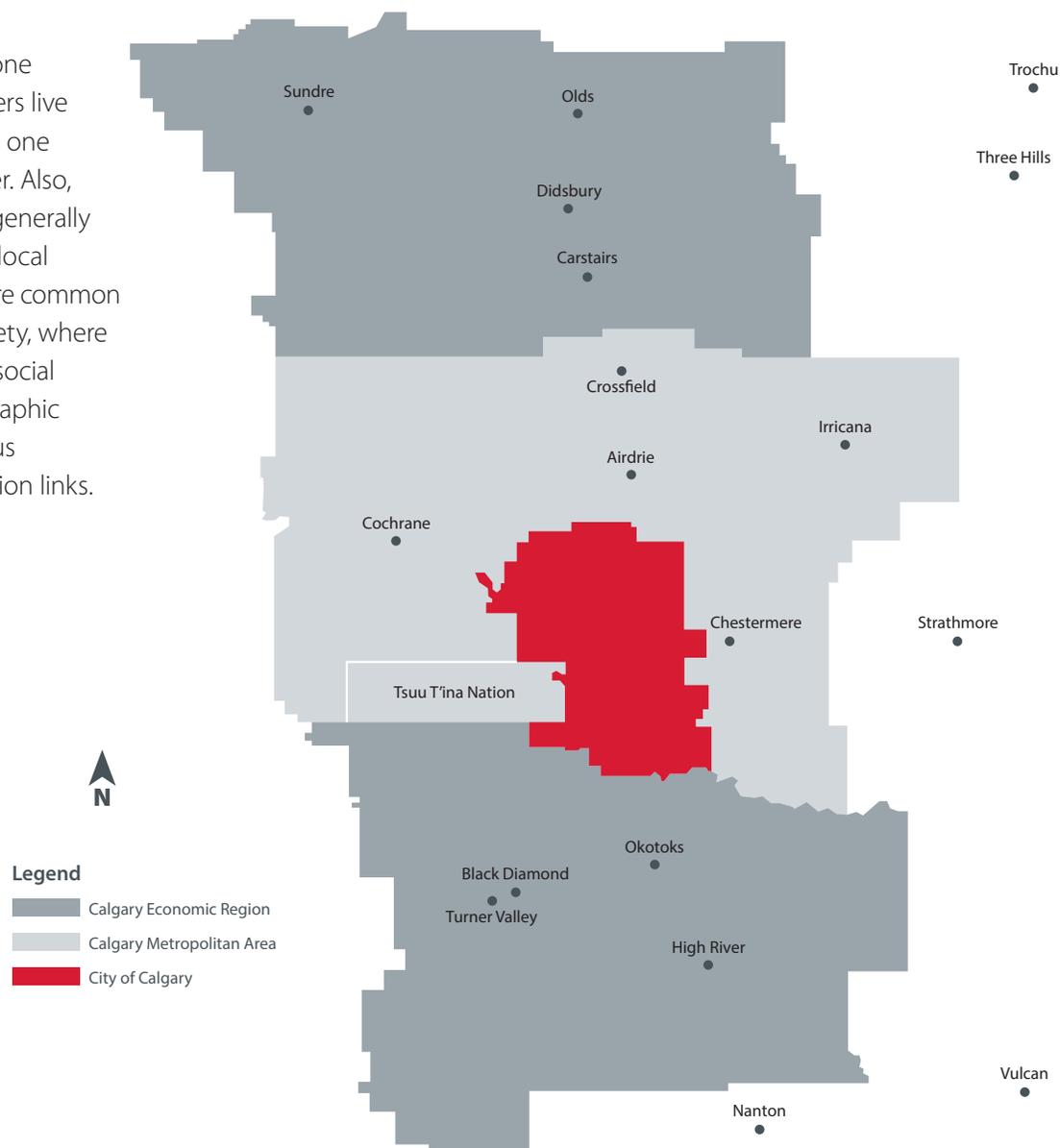
Introduction

The aim of the document is to review Calgary's performance over the 2001-2015 period. This is done by comparing the local economy against those of the province and country. The report attempts to answer the following questions:

- How fast did Calgary grow over the 2001-2015 period?
- How did this growth rate compare to those of the province and country?
- What industries is the region specialized in?
- How has economic growth affected the municipality's property tax revenue base?

Calgary Economic Region

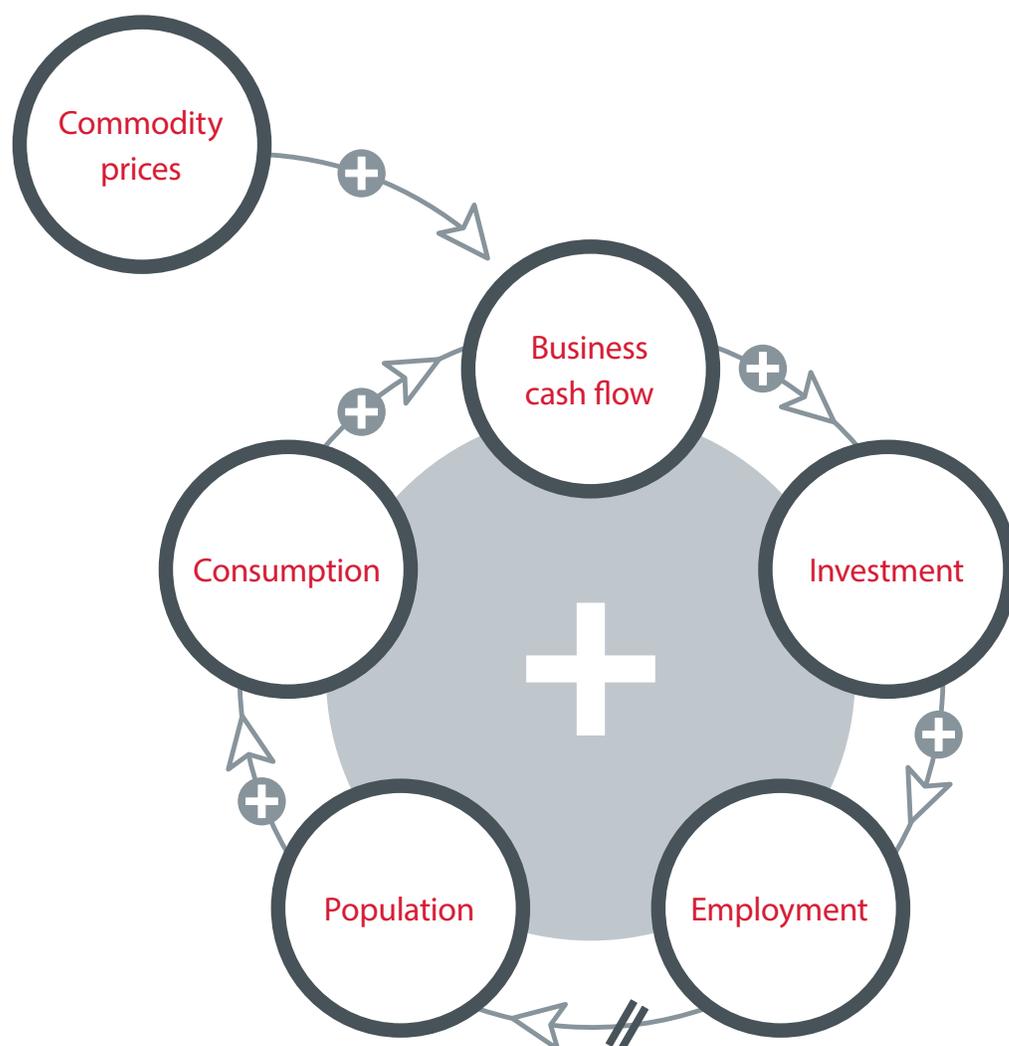
Businesses are often located in one municipality while their customers live in another and individuals live in one municipality and work in another. Also, recreation and sporting events generally cater to a regional rather than a local audience. These arrangements are common characteristics of a modern society, where specialization of economic and social activities is the norm. The geographic area is bound together by various transportation and communication links.



Regional Growth Dynamics

Economic growth in the local economy can be explained by the diagram below. Strong demand for energy from a growing world economy resulted in increased cash flow for businesses and the provincial government. This revenue created the basis for a sharp increase in investment spending which, resulted in increased output and job creation. In turn, higher output levels created a robust demand for labour and drove regional unemployment to relatively low levels. This resulted in increased net migration to the region inducing population growth. Strong population growth along with growing labour income drove house prices and consumer spending higher which further increased business cash flow. Growth resulted in further growth. The chart below serves as template for guiding the discussion of the region's economic performance over the 2001-2015 period. This template serves as a reminder that local economic activity is influenced by the region's ability to export to the world outside its borders.

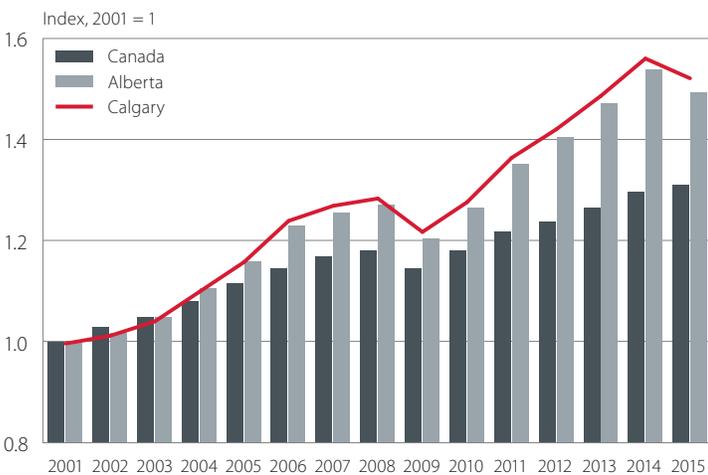
Chart 1
Regional Growth Dynamics Flow Chart



Real GDP Growth

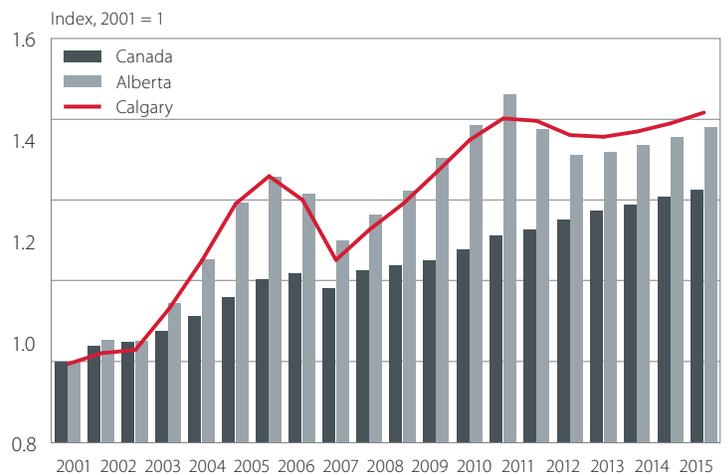
- Gross domestic product (GDP) is the broadest measure of economic activity. It represents the sum of all goods and services that is produced by an economy over a given time.
- The Canadian economy expanded by 31 per cent over the 2001-2015 period. In this period, Alberta grew by 49 per cent and the Calgary Economic Region (CER) by 52 per cent.
- The consumer sector is the largest sector in the Canadian economy representing roughly 60 per cent of GDP. Calgary's consumption/GDP ratio was similar to the national average.
- Retail sales, adjusted for inflation, grew by 33 per cent in Canada between 2001 and 2015, while Alberta and Calgary grew by 58 and 60 per cent respectively. Consumer spending was therefore a major contributor to Calgary's economic performance.

Chart 2.1
Canada, Alberta and Calgary CER: Real GDP Growth



Source: Conference Board of Canada; Corporate Economics

Chart 2.2
Canada, Alberta and Calgary CER: Real Retail Sales

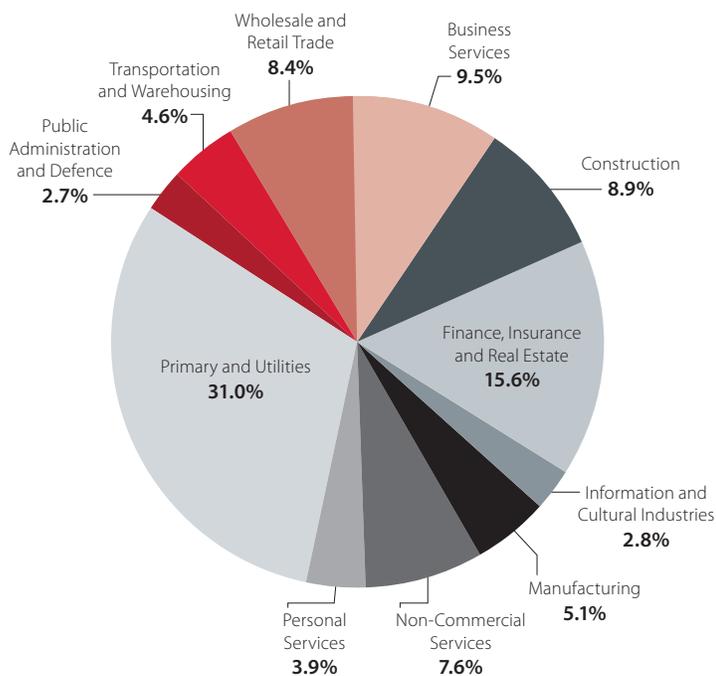


Source: Conference Board of Canada; Corporate Economics

Real GDP Growth: Contributions to GDP

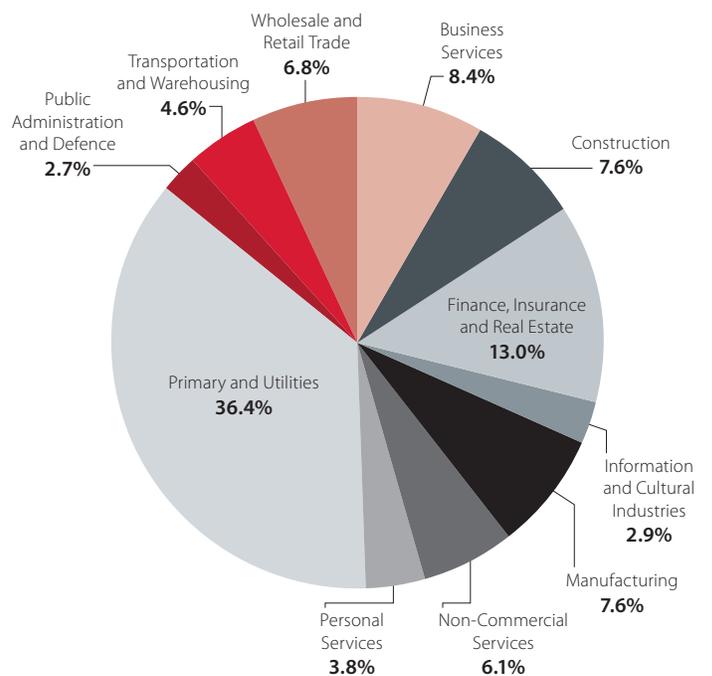
- During 2001 and 2015, the Real GDP (2007\$) for Calgary Economic Region grew by 52 per cent, from \$76 billion in 2001 to \$116 billion by 2015¹.
- The contribution to total GDP by industry has also been changing during the past 15 years.
- Primary and utilities industry share of GDP dropped from 36.4 per cent in 2001 to 31 per cent in 2015.
- Some other industries have experienced increases in GDP shares from 2001 to 2015 including Finance, Insurance and Real Estate; Business Services; Wholesale and Retail Trade; and Non-commercial Services.

Chart 3.1
Calgary CER Real GDP by Industry in 2015:
GDP for All Industries at \$116 Billion of Chained
2007 Dollars (Inflation Adjusted)



Source: Conference Board of Canada; Statistics Canada

Chart 3.2
Calgary CER Real GDP by Industry in 2001:
GDP for All Industries at \$76 Billion of Chained
2007 Dollars (Inflation Adjusted)



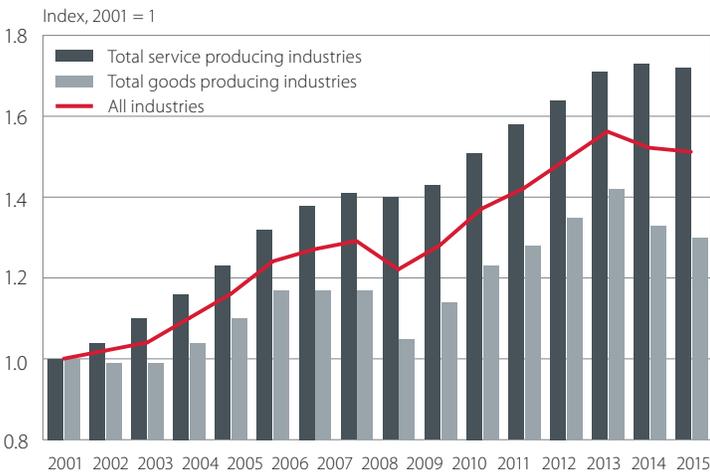
Source: Conference Board of Canada; Statistics Canada

¹ of chained 2007 dollars

Real GDP Growth: by Industry

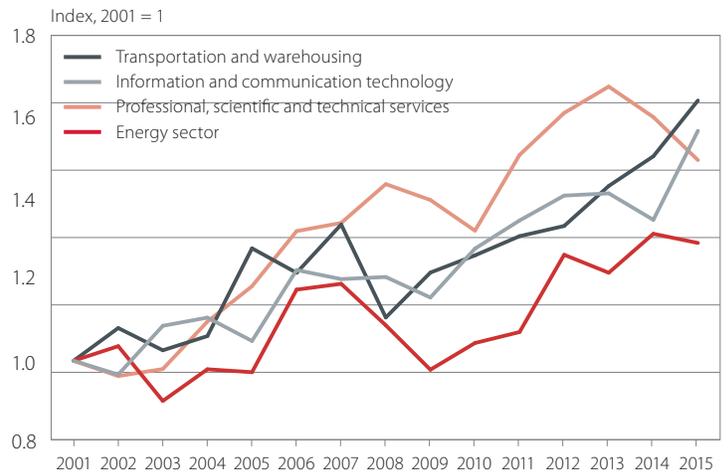
- The service producing industries had grown faster than the goods producing industries in Calgary. From 2001 to 2015, the service producing industries grew by 73 per cent, in comparison to the good producing industries by 33 per cent.
- Calgary's economy has been slowly and consistently diversifying during the past 15 years.
- Some industries grew faster than the energy sector which contributed to the economic diversification in Calgary, including Professional, Scientific, and Technical Services; Transportation and Warehousing; and Information and Communication Technology.

Chart 4.1
Calgary CER: Real GDP Growth for Goods and Service Producing Industries



Source: Conference Board of Canada; Statistics Canada

Chart 4.2
Calgary CER: Real GDP Growth by Industries

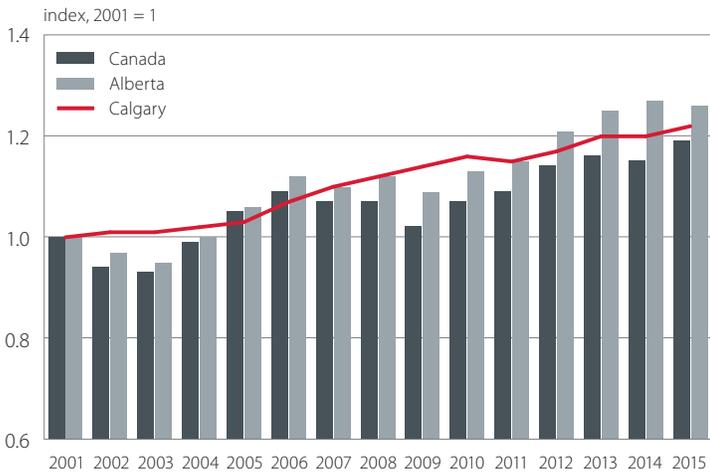


Source: Conference Board of Canada; Statistics Canada

Real Personal Disposable Income

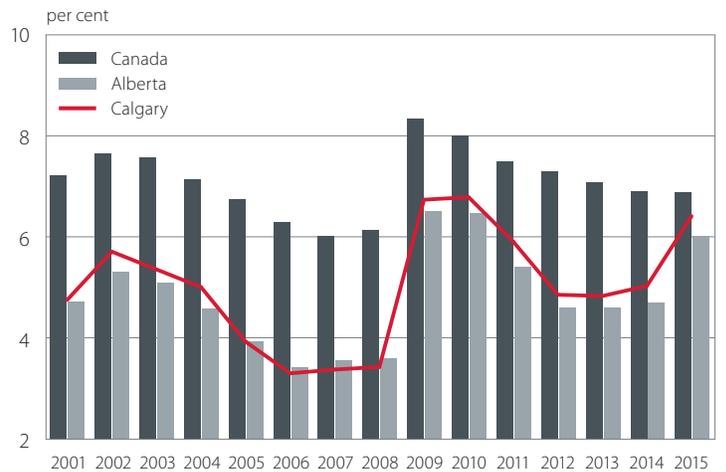
- Calgary's real personal disposable income per capita was higher than Canada's. This is explained by the difference in the industry mix between Calgary and the rest of Canada. Calgary had a higher proportion of jobs in industries that enjoyed larger productivity (output/employee) ratios than the rest of Canada. Other primary and utilities are examples of sectors that are concentrated in Calgary and have higher output/employment ratios.
- Calgary has highest concentration of head offices in Canada and consequently, has a large number of professionals who provide support to those offices. Also, those professions tend to have a high educational and training requirement and therefore, compensation in Calgary is influenced by the city's head office presence.
- Calgary has enjoyed a relatively lower rate of unemployment compared to Canada over the 2001-2015 period. This has resulted in wages growing at a faster rate than the rest of Canada and contributing to Calgary having a higher income level than the rest of Canada.

Chart 5.1
Canada, Alberta and Calgary CER:
Real Disposable Income per capita



Source: Conference Board of Canada; Corporate Economics

Chart 5.2
Canada, Alberta and Calgary CER:
Unemployment Rates

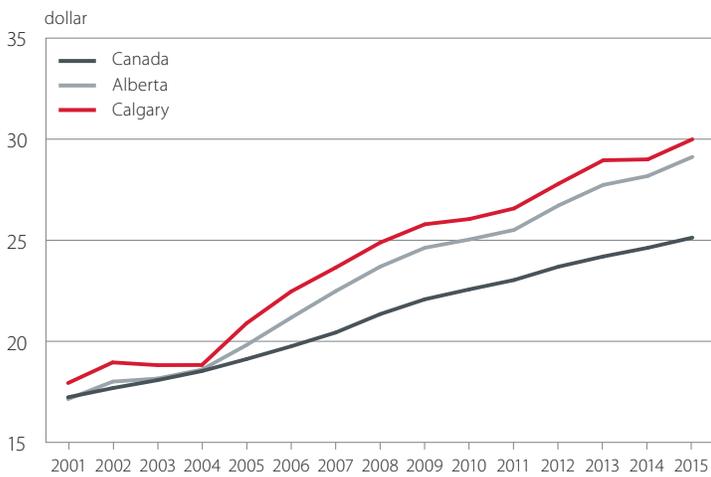


Source: Conference Board of Canada; Corporate Economics

Wage

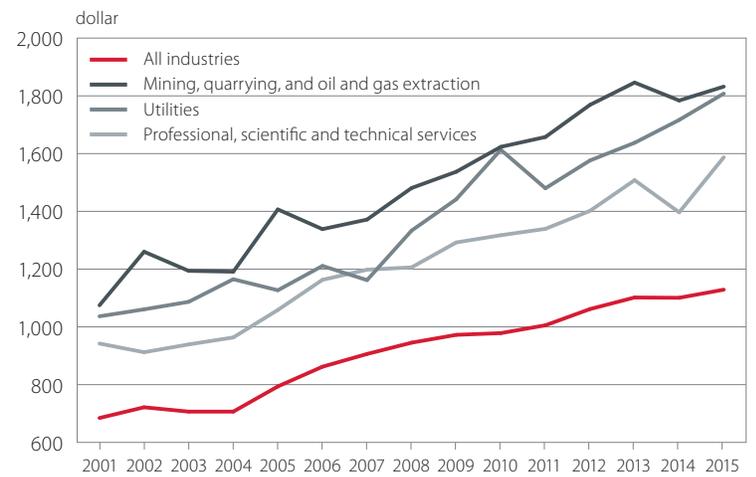
- During 2001-2015, Calgary's wage rates were always higher than that of Alberta and Canada, attracting migration from other provinces and countries moving into the city.
- Some industries offered higher wages, including the mining, quarrying, oil and gas extraction industry, utilities, and the professional, scientific and technical services.

Chart 6.1
Canada, Alberta and Calgary CMA:
Average Hourly Wage Rates



Source: Conference Board of Canada; Statistics Canada

Chart 6.2
Calgary CMA:
Average Weekly Wage Rates by Industry



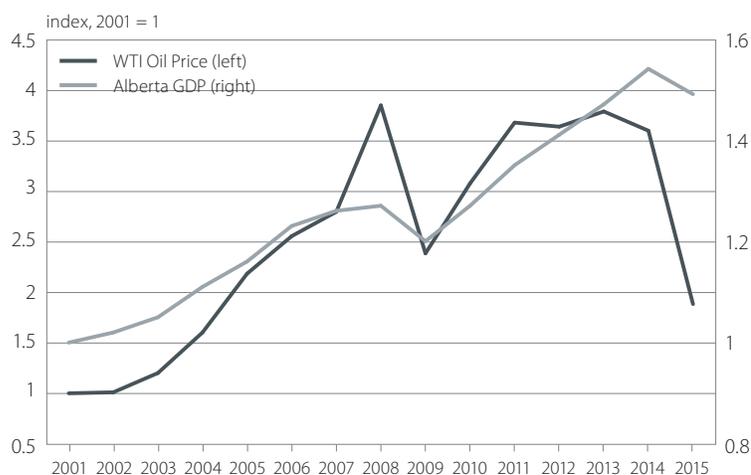
Source: Conference Board of Canada; Statistics Canada



Investment Activity

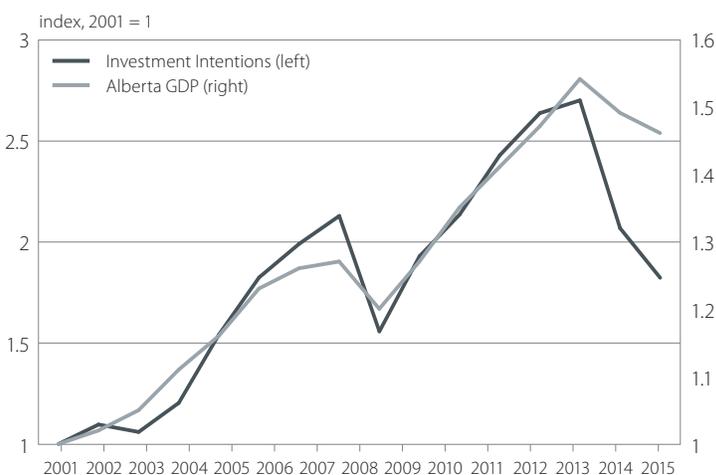
- In the 2001-2015 period, world commodity prices fluctuated in response to economic cycles and changing demand in the emerging and advanced economies. Between 2001 and 2014, the price for West Texas Intermediate (WTI) oil climbed from \$25.9 (US per barrel) to \$93.0 (US per barrel). However, WTI dropped to \$48.7 (US per barrel) in 2015, in response to an increase in the supply/ demand balance in the oil market. Adjusted for inflation, oil prices grew by 88 per cent over the review period.
- Investment intentions in Alberta adjusted for inflation rose by 106 per cent between 2001 and 2015. Investment intentions rose in response to higher commodity prices and strong demand for additional residential and non-residential space.
- In this period, Alberta's provincial GDP rose 46 per cent, from \$199.4 billion in 2001 to \$298.0 billion by 2015 (at 2007 price level). Investment spending was an important contribution to the GDP growth.
- Price fluctuation resulted in corresponding fluctuation in revenues and capital spending, which caused economic activity to fluctuate.

Chart 7.1
WTI Oil Price and Alberta GDP
(adjusted for inflation)



Source: Conference Board of Canada; Corporate Economics

Chart 7.2
Alberta: Investment Intentions GDP
(adjusted for inflation)

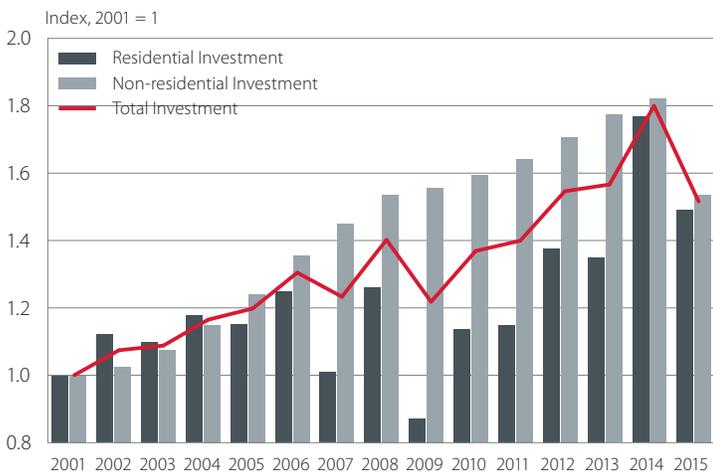


Source: Statistics Canada; Conference Board of Canada; Corporate Economics

Investment by Sector and Industry

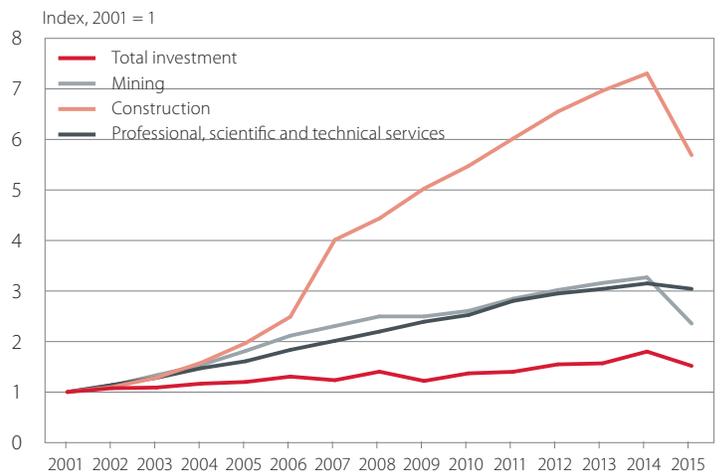
- Residential investment indicates the expenditures on residential structures and residential equipments, while non-residential investment indicates the expenditures by businesses on capital such as commercial real estate, equipment, and machinery.
- Capital investment was the largest contributor to Calgary's economic growth between 2001 and 2015.
- However, low energy prices resulted in declining investment in 2015 and it is expected to remain a drag on economic growth in 2016 as energy investment continues to decline.

Chart 8.1
Calgary CER: Investment by Sector



Source: Statistics Canada; Centre for Spatial Economics

Chart 8.2
Calgary CER: Investment by Industry

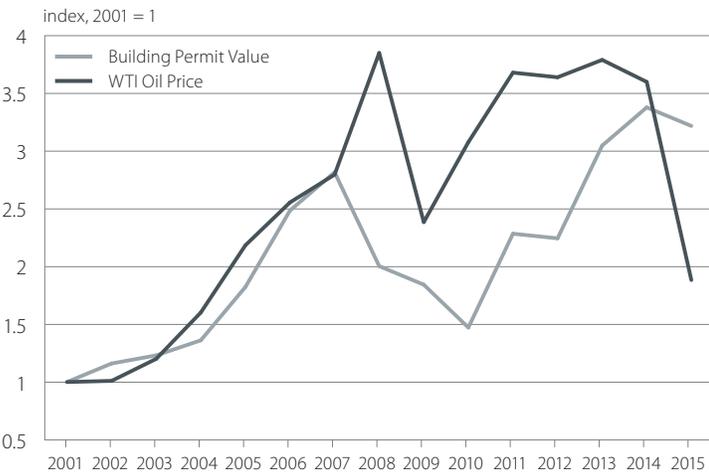


Source: Statistics Canada; Centre for Spatial Economics

Building Permit Values and West Texas Intermediate Oil Price

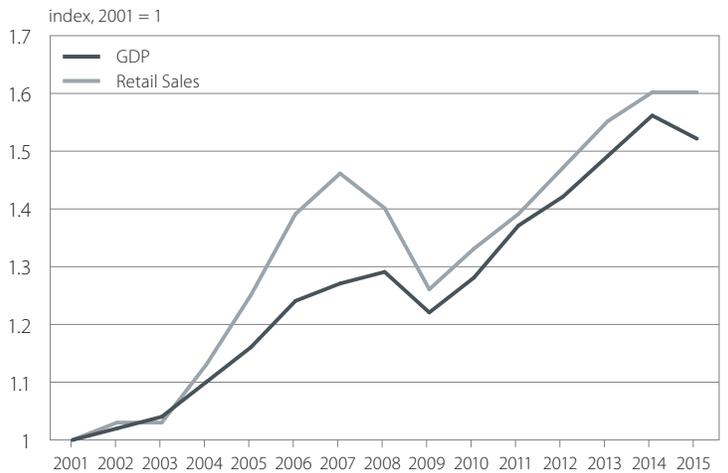
- High oil prices drove investment spending in northern Alberta creating a number of spin-off effects in Calgary and throughout Alberta. Increased labour incomes drove consumer spending and thus further increased the overall rate of economic growth.
- The resource boom was quite visible in Alberta's cities before the economic recession, where high oil prices were accompanied by sharp increases in investment intentions. For example, the City of Calgary's total building permit values rose by 221 per cent while oil prices adjusted for inflation rose by 88 per cent from 2001 to 2015.
- The growth in building permit values moderated in 2015 in response to slower growth in the demand for residential and non-residential space and higher vacancy rates in various sectors of the real estate market.

Chart 9.1
Building Permit Value and WTI Oil Price



Source: The City of Calgary; Conference Board of Canada; Corporate Economics

Chart 9.2
Calgary: Retail Sales and GDP (adjusted for inflation)



Source: Conference Board of Canada; Corporate Economics

Calgary Economic Region Location Quotients: 2015

The table below compares the employment by industry distribution in the Calgary Economic Region against that for Canada as a whole. The results of the comparisons are summarized in column four, which is labelled location quotients. The results are tabulated by dividing the percentage of employment in a given industry in Calgary by the equivalent distribution in Canada as a whole. A result that is greater than one implies that the local economy has a greater concentration of employment in that industry than Canada as a whole. The analysis shows that Calgary is specialized in industries such as oil and gas extraction, construction, air transportation, and architectural, engineering and design services.

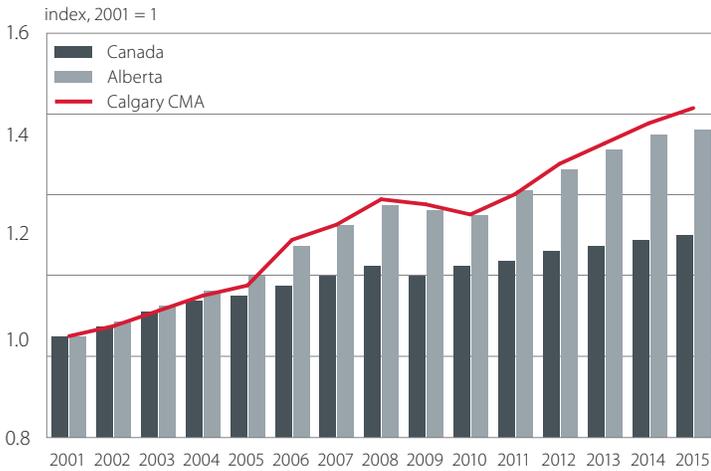
Description	2015 % Dist CER	2015 % Dist Canada	Location Quotient
All Industries	1.00	1.00	1.00
Agriculture	0.02	0.02	0.96
Forestry, Fishing, Mining, Oil and Gas	0.06	0.02	3.18
Mining and Oil and Gas Extraction	0.06	0.02	3.84
Utilities	0.01	0.01	1.35
Construction	0.10	0.08	1.28
Manufacturing	0.06	0.10	0.64
Trade	0.14	0.15	0.93
Wholesale Trade	0.04	0.04	0.95
Retail Trade	0.11	0.12	0.93
Transportation and Warehousing	0.06	0.05	1.09
Air Transportation	0.01	0.00	2.53
Truck Transportation	0.01	0.02	0.68
Finance, Insurance, Real Estate and Leasing	0.07	0.06	1.08
Professional, Scientific and Technical Services	0.11	0.08	1.43
Legal Services	0.01	0.01	1.08
Architectural, Engineering and Design Services	0.04	0.02	2.21
Computer System Design Services	0.02	0.02	1.18
Management, Scientific and Technical Services	0.02	0.01	1.52
Other Professional Services	0.02	0.02	0.97
Business, Building and Other Support Services	0.04	0.04	1.03
Educational Services	0.06	0.07	0.79
Health Care and Social Assistance	0.09	0.13	0.73
Information, Culture and Recreation	0.04	0.04	1.03
Accommodation and Food Services	0.06	0.07	0.84
Other Services	0.05	0.04	1.17
Public Administration	0.03	0.05	0.67

Sources: Statistics Canada; Corporate Economics

Labour Market

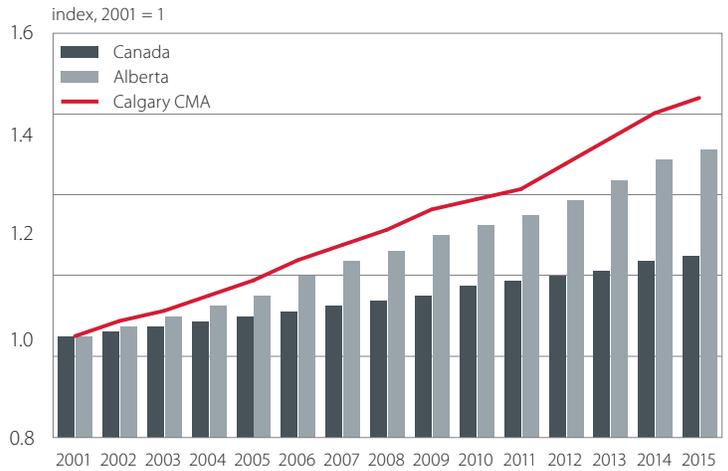
- Total employment in Calgary grew by 45 per cent between 2001 and 2015. In this period, Alberta's and Canada's employment grew by 41 and 20 per cent respectively. Strong investment spending and output growth in Alberta and Calgary contributed to an equally strong demand for labour, pushing the unemployment rate to relatively low levels.
- Low unemployment rates in Calgary and Alberta served as a major attractor for job seekers from the rest of Canada. Consequently, Calgary's and Alberta's population growth rates exceeded the national population growth rate.
- Net migration was the major source of population growth in the Calgary CMA accounting for about two-thirds of total population growth in the 2001-2015 period.
- The current recession resulted in weak labour market, which should translate into employment decrease and slower population growth in 2016.

Chart 10.1
Total Employment



Source: Conference Board of Canada; Corporate Economics

Chart 10.2
Population

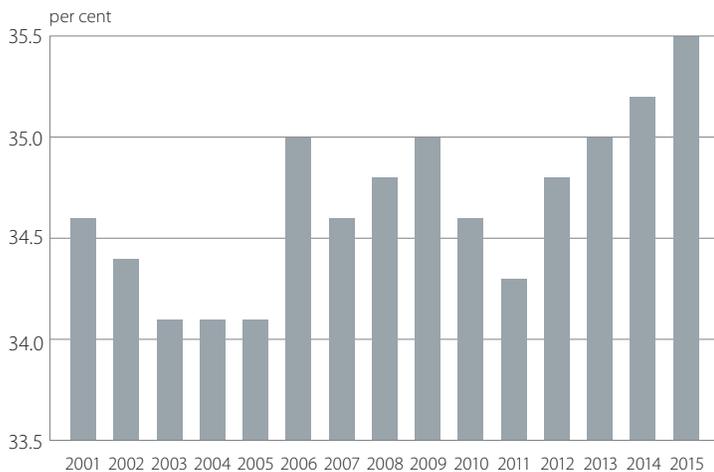


Source: Conference Board of Canada; Corporate Economics

Calgary's Share of Alberta's Employment

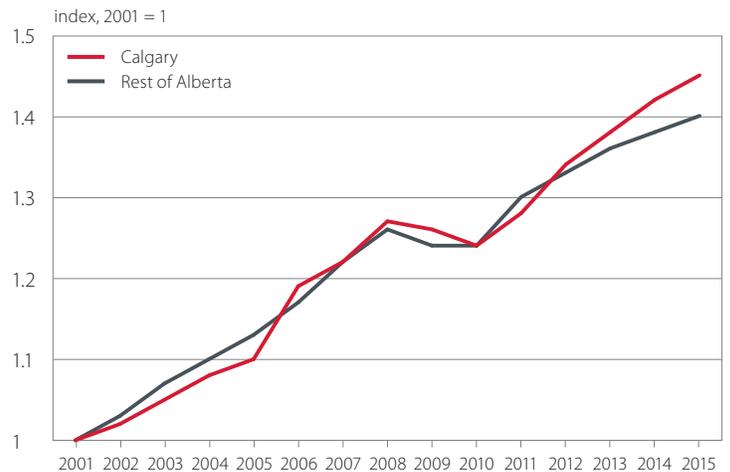
- In 2001, the Calgary Economic Region's employed labour force was estimated at 563,390 persons and by 2015 it increased to 815,990. Employment therefore grew by 45 per cent over the review period or annually by 3.0 per cent. In this period, total provincial employment increased by 673,730 or by 41 per cent.
- In 2001, the Calgary Census Metropolitan Area was home to 34.6 per cent of the province's employed labour force, increasing to 35.5 per cent by 2015. This occurred because Calgary's employment growth rate exceeded that of the rest of the province.
- Employment in the rest of Alberta grew by 40 per cent between 2001 and 2015 while employment in Calgary increased by 45 per cent.
- Because Calgary was able to outpace the rest of Alberta in job creation, the local economy was able to increase its share of total provincial employment and grew in relative importance as an employment centre.

Chart 11.1
Calgary's Share of Alberta's Employment



Source: Statistics Canada; Conference Board of Canada; Corporate Economics

Chart 11.2
Calgary vs. Rest of Alberta: Employment Growth



Source: Statistics Canada; Conference Board of Canada; Corporate Economics

Calgary CER: Employment by Industry

- In this period, the Calgary Economic Region accounted for 41 per cent of all new jobs created in the province. This is a good performance, given that the region has close to one third of the province's population.
- The largest numbers of the jobs created in the 2001-2015 period were in health care and social assistance (53,700), construction (37,900), retail trade (27,300), and mining and oil and gas extraction (24,700). The industries experiencing the lowest levels of job increase were manufacturing (-5,700), legal services (-4,000) and agriculture (500).

Industry	2001 ('000 Persons)	2015 ('000 Persons)	Difference 2015-2001 ('000 Persons)
All Industries	598.6	877.5	278.9
Agriculture	4.5	5.1	0.5
Forestry, Fishing, Mining, Oil and Gas	35.2	60.5	25.3
Mining and Oil and Gas Extraction	35.2	59.9	24.7
Utilities	5.1	9.1	4.0
Construction	46.6	84.4	37.9
Manufacturing	54.6	48.9	-5.7
Trade	87.3	123.4	36.2
Wholesale Trade	23.7	32.6	8.9
Retail Trade	63.5	90.8	27.3
Transportation and Warehousing	40.2	60.3	20.1
Air Transportation	5.6	9.1	3.5
Truck Transportation	9.9	16.4	6.4
Finance, Insurance, Real Estate and Leasing	33.4	45.0	11.6
Professional, Scientific and Technical Services	72.8	91.6	18.9
Legal Services	9.9	6.0	-4.0
Architectural, Engineering and Design Services	24.1	40.9	16.8
Computer System Design Services	14.7	15.6	0.9
Management, Scientific and Technical Services	10.1	12.9	2.8
Other Professional Services	14.1	16.3	2.3
Business, Building and Other Support Services	20.6	33.5	12.9
Educational Services	31.7	47.7	16.0
Health Care and Social Assistance	49.4	103.1	53.7
Information, Culture and Recreation:	33.4	37.0	3.6
Accommodation and Food Services	39.3	60.1	20.9
Other Services	26.4	40.6	14.2
Public Administration	17.3	26.1	8.8

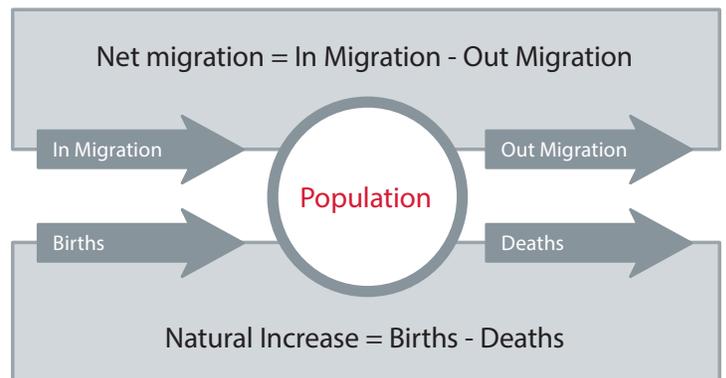
Source: Statistics Canada; Corporate Economics.

Population Change

Labour Market Conditions Drive Net Migration

- Population growth over time is determined by in migration, out migration, births and deaths. The difference between in migration and out migration is referred to as net migration and that between births and deaths as natural increase.
- Net migration, particularly net inter-provincial migration, tends to be sensitive to economic conditions. Good job prospects act as a major draw to the region for individuals seeking employment. Net migration therefore tends to be volatile as it fluctuates with changes in the economy. Natural increase is generally influenced by the size and age composition of the population and therefore tends to be relatively more stable than net migration over time.

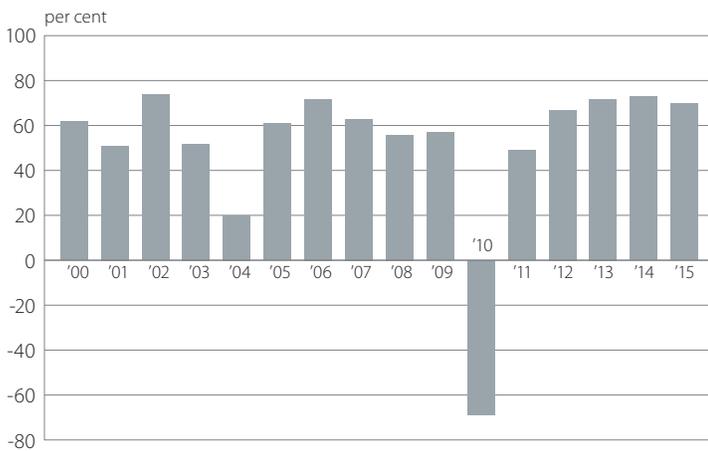
Chart 12
Regional Growth Dynamics Flow Chart



Net Migration's Share of Population Growth

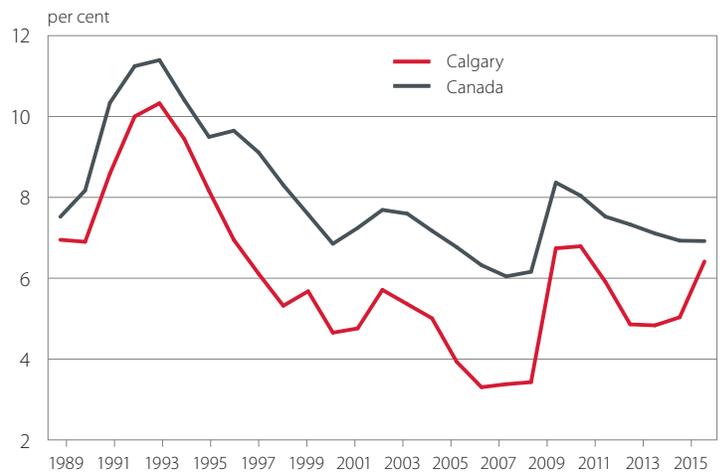
- Net migration is influenced by economic and social conditions in the sending and receiving areas. Conditions that cause individuals to migrate out of the area are generally referred to as the push factors, while conditions that cause people to come to an area are referred to as the pull factors.
- Over the review period, net migration was the major source of population growth in the city of Calgary. A strong labour market created an increasing demand for workers and therefore drew job seekers from the rest of Canada to Calgary.

Chart 13.1
Calgary: Net Migration's Share of Population Growth



Source: The City of Calgary; Corporate Economics

Chart 13.2
Canada vs Calgary: Unemployment Rates



Source: Statistics Canada; Corporate Economics

Net Migration and Relative Unemployment Rate

- The unemployment rate in Calgary and Canada could be used as proxies to represent the pull factors in Calgary and the push factors in Canada respectively. The data in the chart on the preceding page shows the unemployment rate in Calgary was consistently below that for Canada for the period 1991 – 2015. From the job seekers’ perspective, Calgary offered a better chance of finding employment than elsewhere.
- The data analysis shows that there is a negative correlation between net migration and the relative unemployment rate. When the unemployment rate in Calgary is high relative to Canada as a whole, net migration in Calgary tends to be lower than when the Calgary unemployment rate is low.
- The migrants who came to Calgary were generally young and of the childbearing age. This contributed both directly and indirectly to current and future population and economic growth.

Chart 14.1
City of Calgary: Population Growth Components

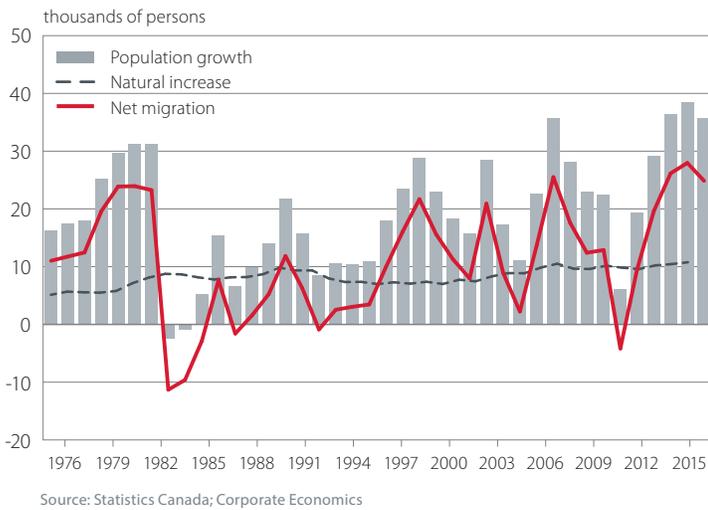
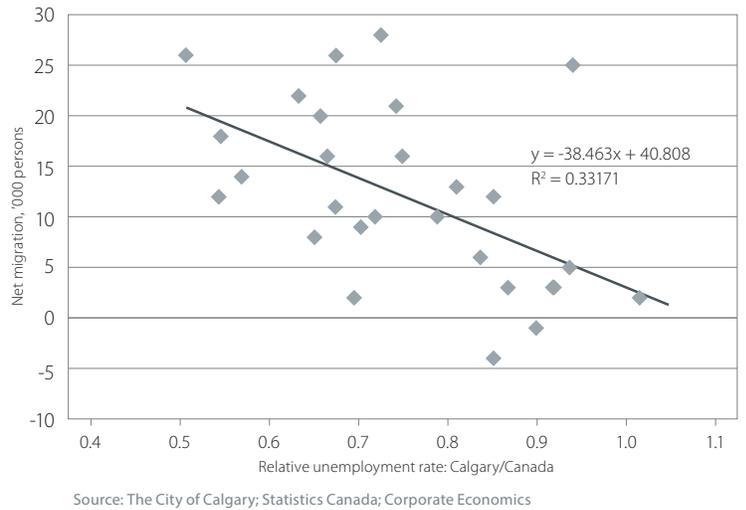


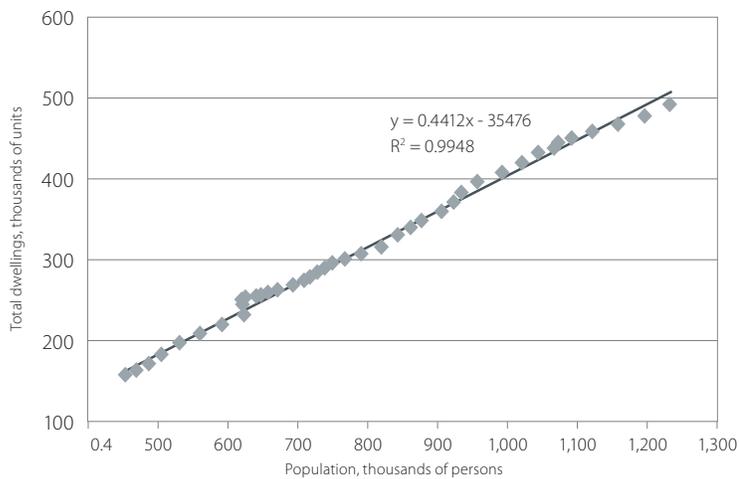
Chart 14.2
Net Migration and Relative Unemployment (1987-2015)



Total Dwellings

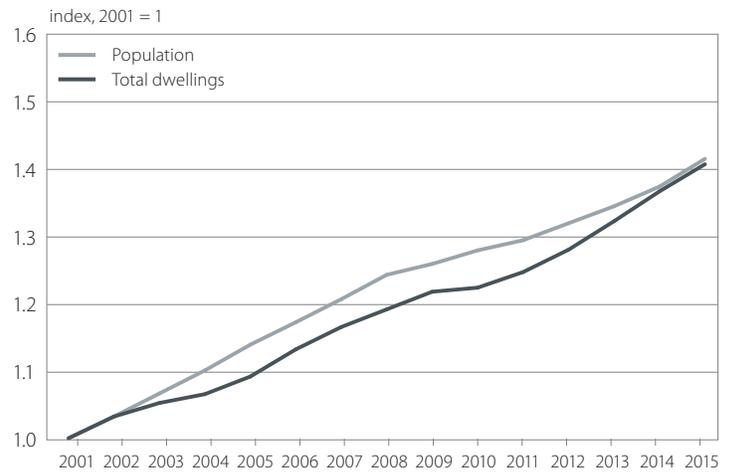
- Between 2001 and 2015, the city of Calgary's population increased by roughly 40 per cent. In this period, the dwelling stock grew by 41 per cent, in line with population growth.
- In this period, the number of occupied dwellings increased to 480,097 in 2015, up from 339,516 in 2001. This resulted in the number of unoccupied dwellings growing from 9,385 units in 2001 to 12,526 units in 2015, with some fluctuation.
- The average household size fluctuated around 2.45 over the 2001-2015 period; rising and falling with the unemployment rate. Unemployed individuals tend to abandon their homes, move in with friends and relatives during periods of high unemployment and move out, to form their own households, during periods of low unemployment.

Chart 15.1
City of Calgary: Total Dwellings and Population



Source: The City of Calgary; Corporate Economics

Chart 15.2
Dwellings and Population

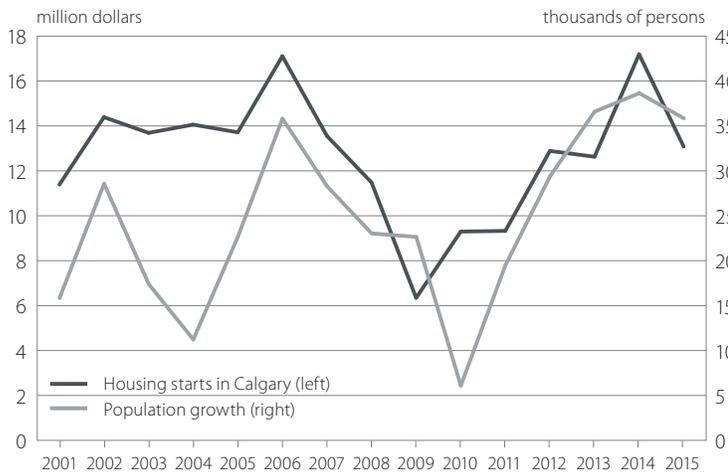


Source: Statistics Canada; The City of Calgary; Corporate Economics

Residential Housing Starts

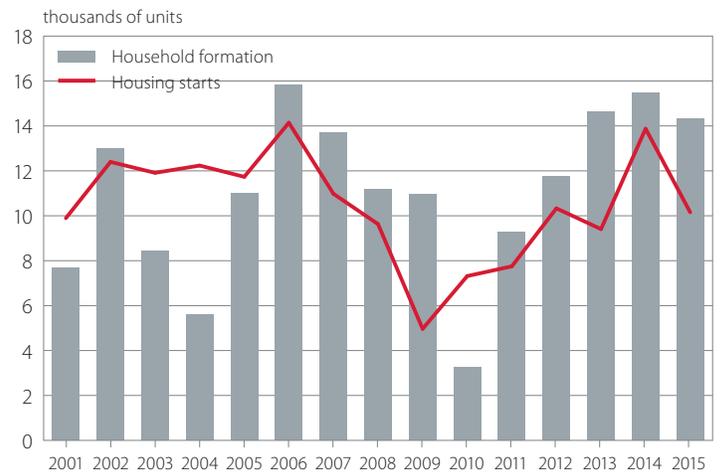
- Residential housing starts in Calgary were driven by population growth and the demand generated correspondingly.
- Housing construction exceeded household formation for the early 2000's mostly. After 2006, housing construction lagged household formation, with the exception being 2009. Construction in 2006 – 2015 was supported by strong population growth.

Chart 16.1
Calgary:
Housing Starts and Population Growth



Source: Statistics Canada; Conference Board of Canada

Chart 16.2
City of Calgary:
Household Formation and Housing Starts



Source: Statistics Canada; City of Calgary.



Population Growth and MLS Prices

- The analysis of the population and housing relationship charted on the previous page shows a strong correlation between the city's population size and the housing stock. Population increase created a growing need for shelter resulting in an increase in the supply of housing units.
- The growth in consumer spending is generally influenced by the growth in income and wealth. The family home represents a significant portion of the average household's balance sheet and consequently the growth in house prices contributed to the growth in consumer spending. The average resale price, adjusted for inflation, of a house in Calgary increased by 78 per cent between 2001 to 2015. In this period, real consumer expenditure grew by 60 per cent.

Chart 17.1
Calgary:
Retail Sales and MLS Prices (adjusted for inflation)

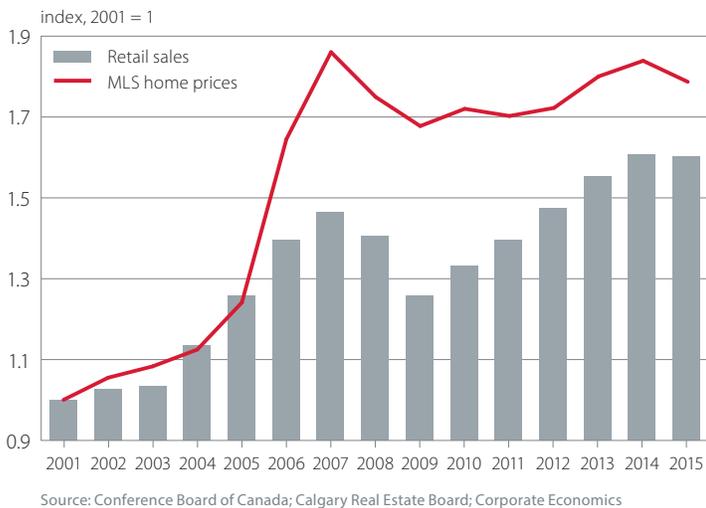


Chart 17.2
City of Calgary:
Population Growth and MLS Prices



Total Office Space

- The growth in total employment created an increase in the demand for non-residential space. The chart above shows a positive correlation between total employment and the total office space in the city of Calgary. Higher employment levels were accompanied by higher levels of office space.
- For example, total employment in the Calgary Economic Region increased by 278,900 between 2001 and 2015, and employment in the service producing sector grew by 216,700. In this period, total office space inventory grew by 19 million square feet.

Chart 18.1
Calgary Economic Region:
Total Office Space

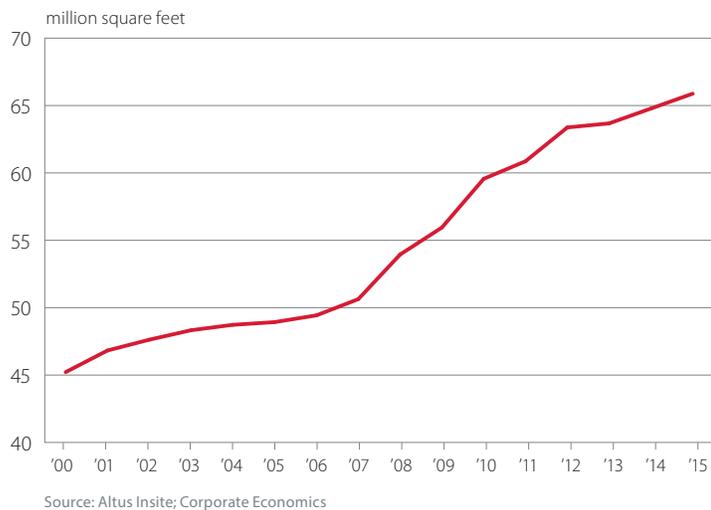
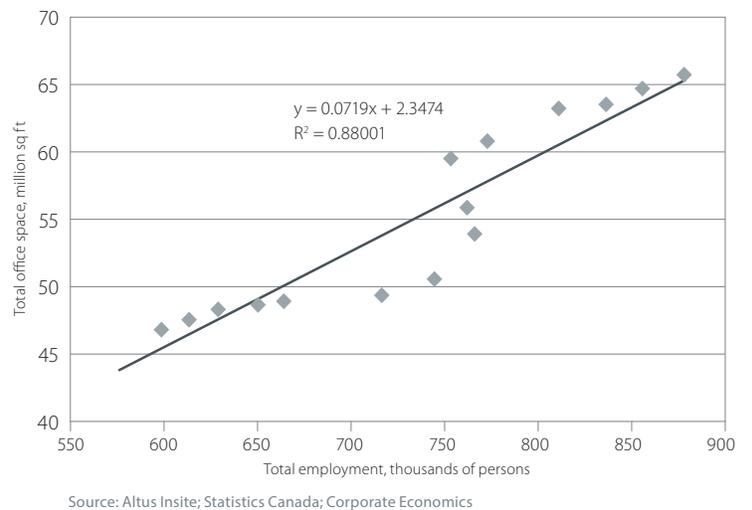


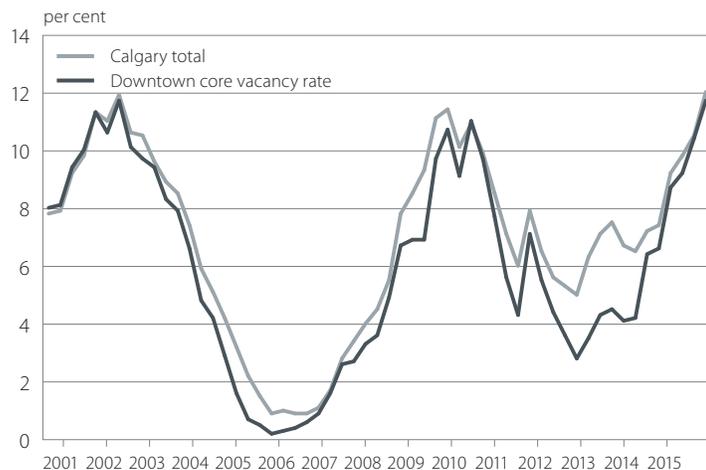
Chart 18.2
Calgary Economic Region:
Office Space and Total Employment



Calgary Office Market Vacancy Rate

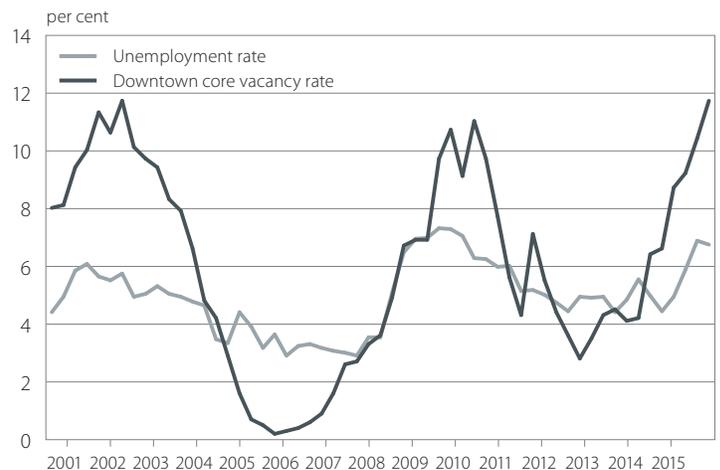
- Calgary's office market has shown high cyclical behaviour in the past 15 years. The vacancy rates for Calgary total office market and downtown core were below 2 per cent at the peak of the economic boom in 2006, and inched above 10 per cent in the 2009-10 recession. In this current economic downturn, Calgary's office market witnessed a sharp increase in vacancy rates again.
- Demand for office space continued to decline in 2015 with companies looking for ways to control costs by layoffs and reducing rental costs. This trend is anticipated to continue into 2016.
- The next two years will see several new buildings that are currently under construction being completed. The corresponding increase in supply will contribute to increased vacancies in Calgary's office market.

Chart 19.1
Calgary:
Office Market Vacancy Rate



Source: Altus Insite; Statistics Canada; Corporate Economics

Chart 19.2
Calgary:
Downtown Office Vacancy Rate and Unemployment

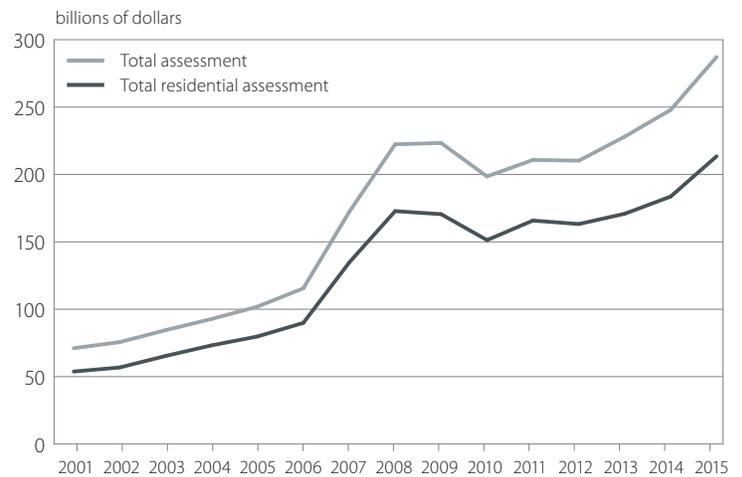


Source: Altus Insite; Statistics Canada; Corporate Economics

Assessment Values

- The economy and the stock of building space formed a causal loop over time. For example, increased economic growth resulted in population and employment growth which created a need for space. The construction activity that ensued resulted in higher levels of economic activity and this induced further construction activity which added to the stock of building space.
- In this period, economic growth created excess demand for space which resulted in price inflation and this caused the price for space to grow over time.
- The combination of growth in building space and growth in the price for this space caused the market value for property to increase over time.

Chart 20
City of Calgary: Assessment Values



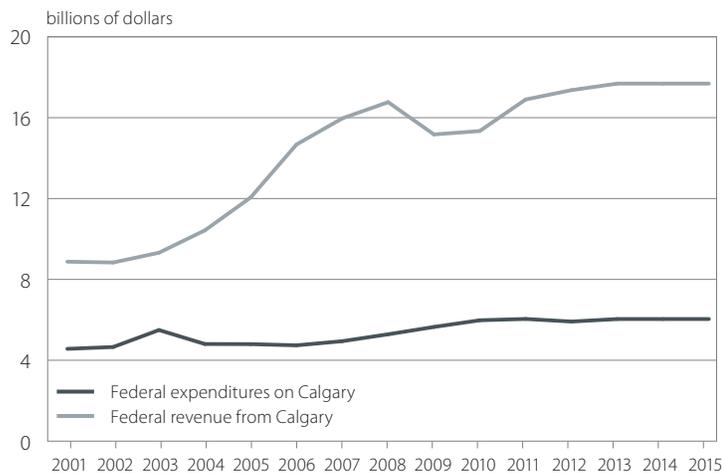
Source: The City of Calgary (Annual Reports); Corporate Economics



Fiscal Imbalance

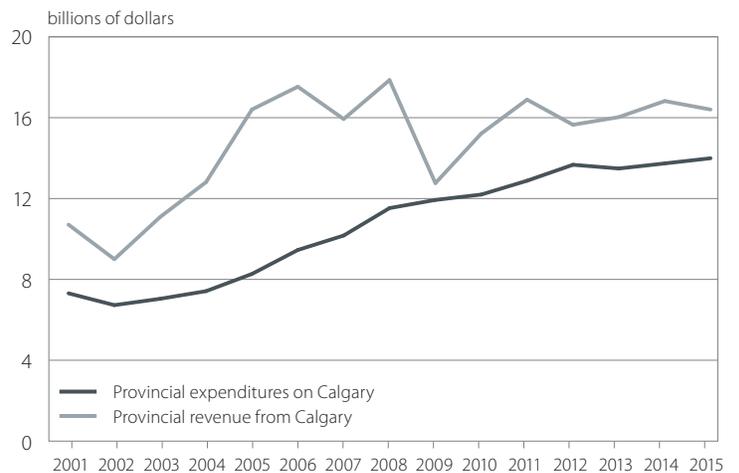
- Calgary has been making positive contributions to the federal and provincial governments. The revenues collected by the higher orders of governments from Calgary significantly outweighed the expenditures spent on Calgarians for the past 15 years.
- Over contribution to higher orders of governments resulted in insufficient infrastructure funding in Calgary and increasing pressures on the municipal finance.
- The federal and provincial government should provide more support to Calgary's economy especially during the economic downturn, given its significant contribution in the past one and half decade.

Chart 21.1
Federal Revenue from and Expenditures on Calgarians



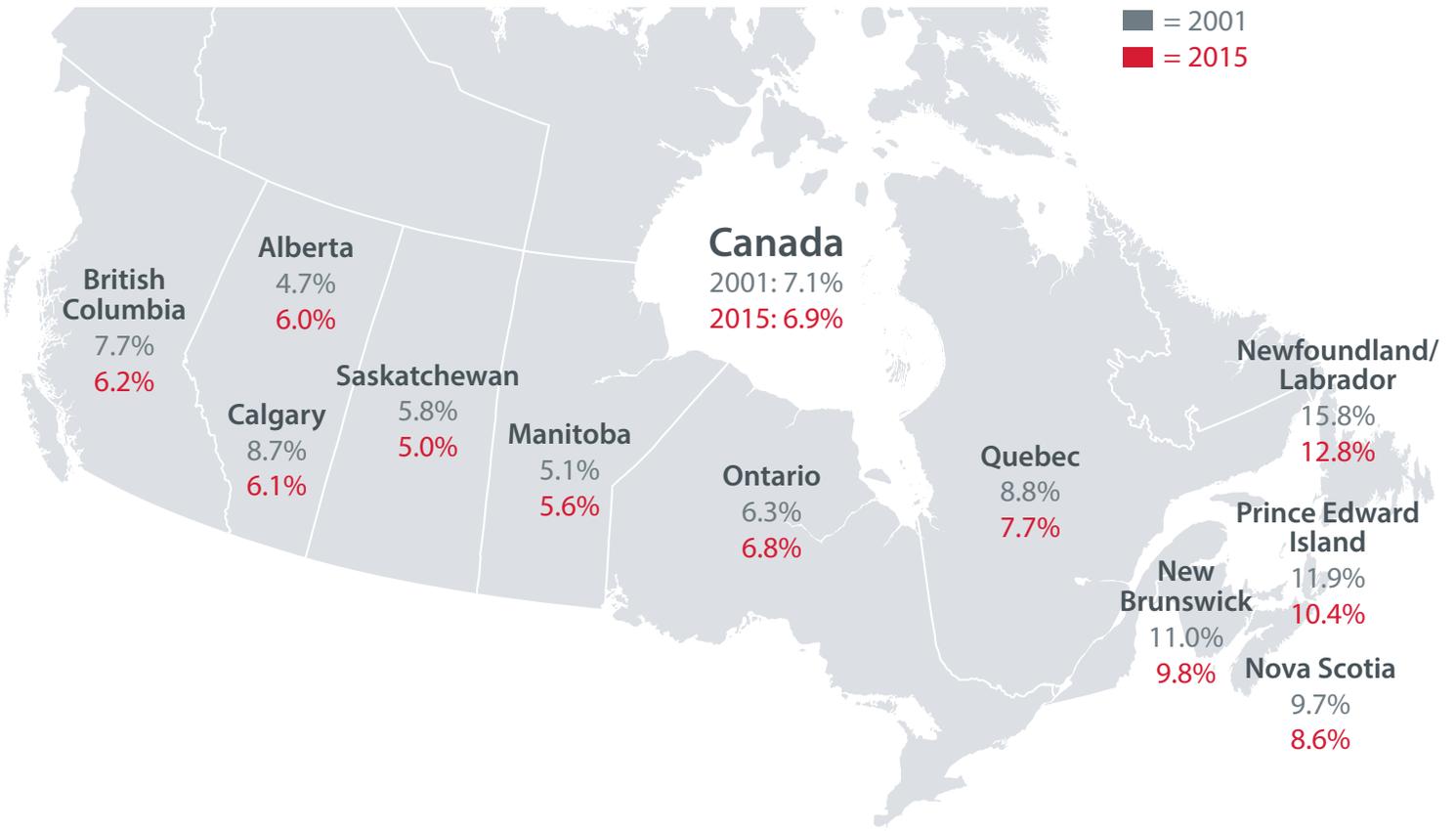
Source: Statistics Canada; Conference Board of Canada; The City of Calgary.

Chart 21.2
Provincial Revenue from and Expenditures on Calgarians



Source: Statistics Canada; Conference Board of Canada; The City of Calgary.

Unemployment Rates across Canada, 2001 vs. 2015



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 allow 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 developed reliable methods of forecasting and analysis. For more information, please contact:

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