C₄SE

City of Calgary Alternate Oil Price Scenarios

March 24, 2016

The Centre for Spatial Economics

*Furthering the Understanding of Demographic and Economic
Change in Canada's Provinces and Sub-Provincial Regions*

Powered by 4Cast Gear

C₄SE

1 Introduction

The City of Calgary is examining the impact of 3 alternative outlooks on the economy. The impacts are largely concerned with alternative assumptions surrounding energy prices, most notably for Calgary, the oil price and the impact on investment and production that it entails. This document will assess the economic impacts of the alternative assumptions for the period 2016 to 2026. These estimates were produced by the Centre for Spatial Economics.

The scenarios will be named low, moderate and high. The scenarios are based around different recovery patterns after the recent collapse in commodity prices, particularly oil. It should be noted that even the high scenario represents a relatively weak outlook compared to what would have been expected before the recent collapse in the oil prices.

The scenarios considered are described as follows:

- **Low Case,** WTI oil will average $US 28/bbl in 2016 rising to $68 by 2025. Rest of world growth will be lower than the moderate case as will other commodity prices. It is assumed that access to credit will be limited, hampering investment.
- **Moderate Case,** WTI oil will average $US 36bbl in 2016 rising to $80 by 2025. It is assumed that there will be a reduction in access to credit, although less so than in the low case.
- **High Case,** WTI oil will average $US 44/bbl in 2016 rising to $90 by 2025. Rest of world growth will be higher than the moderate case along with other commodity prices. It is assumed that firms will have access to desired levels of credit.

2 Assumptions

In order to create 3 alternate scenarios, a set of assumptions was made and entered into the model. The assumptions for all scenarios show relatively weak commodity prices when compared to just a few years ago. The Key commodity price assumptions and the Canada-US exchange rate are shown below. Some of these assumptions are listed in table 2.1 after the charts.
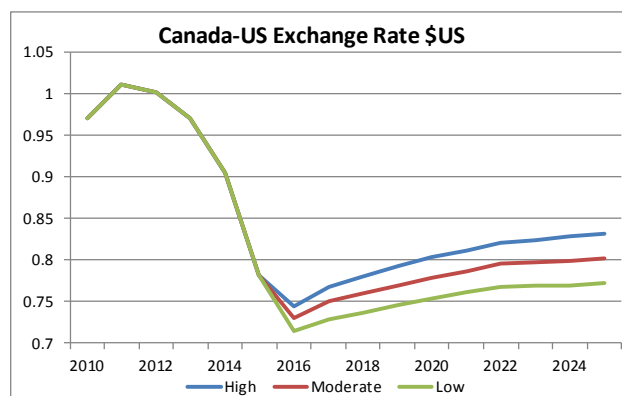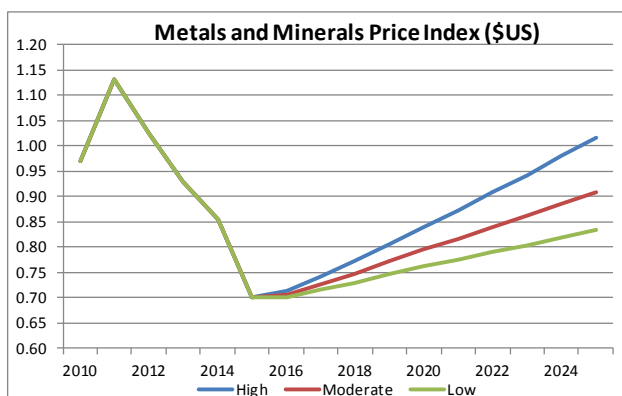
Metals and Minerals Price Index ($US)

Canada-US Exchange Rate $US
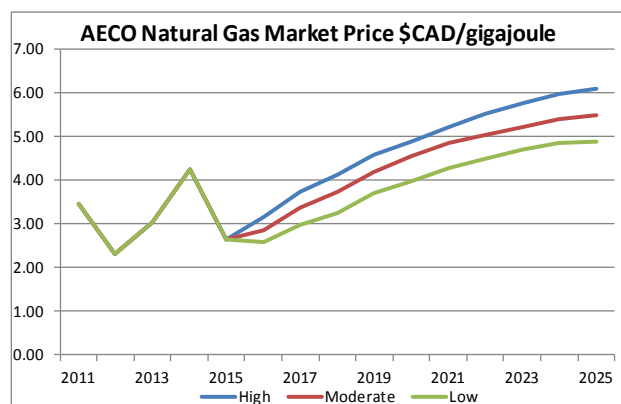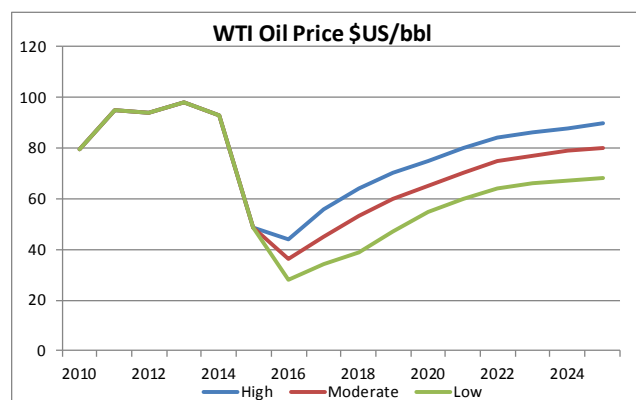
Table 2.1 - Key Assumptions

	2016	2017	2018	2019	2020	2016-20	2021-25
High							
Real GDP Alberta *	307468	313219	319573	327183	335398	320568	354931
% Change	-1.8	1.9	2.0	2.4	2.5	1.4	1.8
Exchange Rate ($US)	0.75	0.77	0.78	0.79	0.80	0.78	0.82
WTI Oil Price $US/BBL	44.0	56.0	64.0	70.0	75.0	61.8	85.6
Moderate							
Real GDP Alberta *	304825	308799	312868	319116	326721	314466	344242
% Change	-2.4	1.3	1.3	2.0	2.4	0.9	1.6
Exchange Rate ($US)	0.73	0.75	0.76	0.77	0.78	0.76	0.80
WTI Oil Price $US/BBL	36.0	45.0	53.0	60.0	65.0	51.8	76.2
Low							
Real GDP Alberta *	302313	304689	306660	312205	319201	309013	334185
% Change	-2.9	0.8	0.6	1.8	2.2	0.5	1.4
Exchange Rate ($US)	0.72	0.73	0.74	0.75	0.75	0.74	0.77
WTI Oil Price $US/BBL	28.0	34.0	39.0	47.0	55.0	40.6	65.0

*Units are in $2007 millions unless otherwise specified.

3 Results

This section presents the performance of the Calgary economy under each set of assumptions for the forecast period 2016-2025. The measures of performance used to examine the impacts include key economic indicators such as GDP, employment, consumer spending, housing starts and business investment. The first case presented will be the moderate case, the alternate scenarios will then be presented. The alternate scenarios will be provided as an independent outlook on the economy with limited discussion on comparison of the differences between the scenarios at the end of the document.

Moderate Case

Under this scenario it is anticipated that oil prices will average $38 in 2016 and will rise gradually thereafter, remaining substantially below the price in 2014 throughout the scenario. The AECO natural gas market price will remain below $3 in 2016 and will rise thereafter, exceeding 2014 levels by 2020. US

GDP growth will increase to 2.6% in 2017 and will decelerate thereafter, averaging 2.4% for the scenario as a whole.

Key Economic Drivers

Under the given assumptions, the performance of the Calgary economy is anticipated to remain relatively weak over the scenario period. In particular, 2016 will be a tough year as the oil and gas industry continues to readjust to the new price outlook, resulting in lower employment and business confidence. The decline in employment will result in lower spending in the economy and lower net in-migration as less people move to the region for work. Weaker consumer confidence will result in lower consumption and reductions in the residential sector. In addition, business confidence and expectations will be reduced. This will have the impact of both lowering desired investment and in addition limiting the availability of credit. Results of the moderate scenario are presented in the table 3.1 below for Calgary's key economic indicators.

Real GDP is anticipated to decline by 2.1% in 2016. The declines are largely caused by large reductions in investment expenditures in both residential and business sectors. Continuing declines in employment, associated with further reductions in the support activities for mining oil & gas industry will exacerbate weakness in the local economy. GDP will begin to recover in 2017 as negative external pressures on the economy end, such as declining energy prices. GDP growth will accelerate over the medium term and average 2.2% a year over the long term.

Table 3.1 – Calgary Key Economic Indicators, Moderate Case

	2016	2017	2018	2019	2020	2016-20	2021-25
Real GDP *	95030	95283	96820	98270	100402	97161	106912
% Change	-2.1	0.3	1.6	1.5	2.2	0.7	2.2
Consumer Expenditures	50868	50743	51183	51597	52369	51352	55774
% Change	-2.7	-0.2	0.9	0.8	1.5	0.1	2.2
Residential Investment	7503	6973	6914	6938	7284	7123	8315
% Change	-14.9	-7.1	-0.8	0.3	5.0	-3.5	4.2
Plant & Equipment Investment	7961	7381	7289	6957	7254	7368	8087
% Change	-7.2	-7.3	-1.2	-4.6	4.3	-3.2	3.4
Government Investment	3873	3755	3573	3592	3672	3693	4181
% Change	2.8	-3.0	-4.8	0.5	2.2	-0.5	4.3
Government Current Expenditures	12695	12857	13027	13318	13648	13109	14875
% Change	1.4	1.3	1.3	2.2	2.5	1.7	2.9
Exports	37776	38768	39695	40566	40986	39558	41937
% Change	0.2	2.6	2.4	2.2	1.0	1.7	0.8
Imports	57640	56299	56070	55867	56977	56570	61311
% Change	-6.0	-2.3	-0.4	-0.4	2.0	-1.4	2.4
Employment (000s)	855.0	856.2	868.5	882.6	900.1	872.5	943.3
% Change	-2.4	0.2	1.4	1.6	2.0	0.6	1.6
Unemployment Rate (%)	8.3	8.2	7.3	6.6	5.9	7.3	5.7
Population (000s)	1568.4	1590.4	1612.0	1636.3	1663.6	1614.1	1755.6
% Change	1.5	1.4	1.4	1.5	1.7	1.5	1.8
Net In-Migration (000s)	7.9	6.9	7.0	10.3	13.8	9.2	19.7
Household Formation (000s)	11.0	10.2	10.0	10.8	11.9	10.8	13.4
Housing Starts (000s)	10.0	10.2	9.6	10.1	11.2	10.2	13.2

*Units are in $2007 millions unless otherwise specified.

C4SE

Plant and Equipment Investment

Plant and equipment investment expenditures are anticipated to decline over the next few years. The declines are caused by a combination of lower output that will reduce the need for additional capital stock and through lower revenues and business confidence. Firms are less likely to invest in lean times as balance sheets become stretched and lower output increases the amount of unused capital. In addition, there is the expectation that credit may become harder to come by as lending institutions become concerned regarding future economic performance expectations, as a result, even if firms are willing to invest they may be unable to finance potential capital projects.

Business investment expenditures will decline by over 7% in both 2016 and 2017. The declines will continue for another couple of years as projects already in the pipeline are completed and firms adjust to new output levels and expectations. Over the long term, investment expenditures begin to increase again as the economy expands and firms increase investment to replace and expand capital stock.

Residential Investment

Increased unemployment and uncertainty will impact residential investment with a double whammy of lower incomes and lower population growth as the region becomes less attractive to migrants. In addition, it is anticipated that new construction complexes will have more difficulty in obtaining credit, resulting in lower starts than otherwise. Housing starts are anticipated to decline to 10,000 units in 2016, substantially below that of household formation. Housing starts will cycle around 10,000 units until 2019. Starts increase thereafter as population growth accelerates and with it household formation. Residential investment will decline by nearly 15% in 2016, less than the decline in housing starts as expenditures on renovations and maintenance will lessen the impact. Residential investment expenditures will decline by an average of 3.5% per year over the medium term, returning to growth of 4.2% per year in the long term.

Consumer Expenditures

Declining employment and income in 2016 will lead to downward pressure on consumer expenditures. In addition, lower business activity will lead to further declines in consumption as businesses buy fewer inputs. Consumer expenditures are anticipated to decline by 2.7% in 2016 and a further 0.2% in 2017. Income and employment growth will begin to accelerate after 2017, resulting in increased consumer expenditures, nonetheless they will remain relatively subdued as households remain restrained after a couple of years of strained budgets. Average consumer expenditure growth will average 2.2% per year over the last 5 years of the forecast.

Population and Migration

Changes in population are driven by a combination of the natural growth rate – births minus deaths – and by net in-migration. The slump in the economy will have little measurable impact on the natural growth rate. It should be noted that the natural growth rate will generally decline over the scenario as the population ages. Migration is driven by a number of factors such as family reunification, desire to move for new surroundings and, most notably, it is driven for economic reasons. The economic reasons

come in the form of employment opportunities, particularly relative opportunities between geographical areas.

Calgary has experienced positive net inflows of migrants over the last 20 years. Immigration has been rising but as a rule, exhibits a relatively steady pattern of migration. Swings in total net in-migration are caused by rapid changes in the levels of net inter-regional migration flows, these include persons from outside of the province as well as those from other areas of Alberta. Net inter-regional migration peaked in recent history in 2013 at 17,456 persons. Numbers have declined recently but still remain high at 12,651 persons in 2015. Declining employment will hit inter provincial migration substantially in 2016 as persons move out of the region, often back to their place of origin be it in the outlying regions of Alberta or alternatively in their province of origin. This will result in net inter-regional migration turning negative, nonetheless total net in-migration will remain positive due to the positive net international migration.

As a result of the lower migration, population growth will slow to 1.5% in 2016 from 2.3% in 2015 and over 3% for the preceding two years. This growth is still relatively strong when compared to other provinces, however, it will place a drag on many economic indicators such as residential investment, and consumer expenditures.
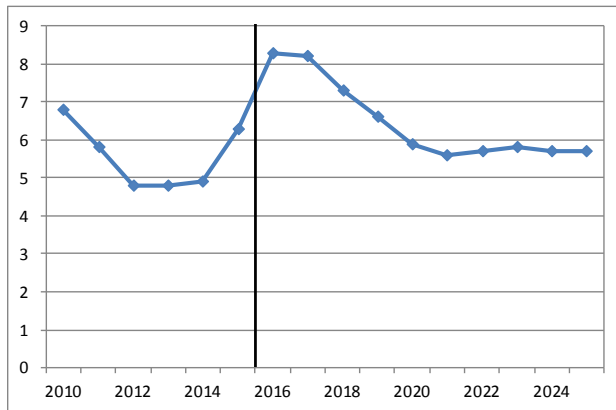
Labour Market

Employment is measured on the basis of Statistics Canada's Labour Force Survey's definition, which includes both full and part-time workers. Employment held up surprisingly well in 2015 and is anticipated to experience declines in 2016 as the external economic environment remains weak. The largest declines are in the other primary sector as the oil & gas industry, particularly support activities for mining and oil & gas, lays off workers. Support activities employment is particularly hard hit as firms lower investment. Employment growth will remain weak in 2017 and will accelerate thereafter, nonetheless employment growth will remain below that of the last few years due to the fact that commodity prices will remain below that of recent years.
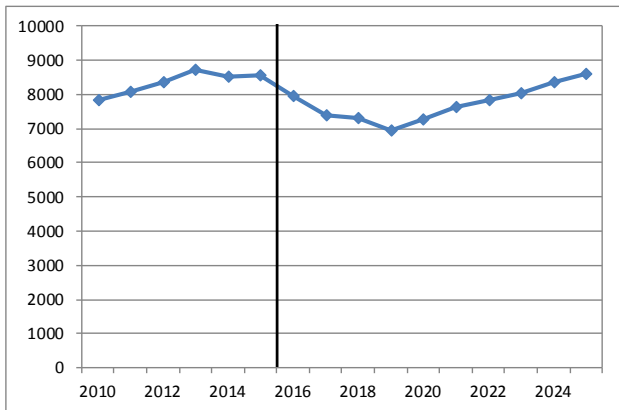
The participation rate will decline in 2016 as discouraged workers leave the labour force due to the lack of new employment opportunities. The labour force will decrease only slightly in 2016 as population growth largely offsets the declining participation rate. As a result, the unemployment rate will increase substantially in 2016 to 8.3% from 6.3% in 2015.

The unemployment rate will take some time to return to more normal levels, substantially longer than that occurred after the 2009 global recession. The slower recovery is due to the fact that the oil price declined more substantially in 2015 and is anticipated to take longer to return to previous levels. The unemployment rate should dip below 6% by 2020, however it will have a tough time moving much closer to 5%. Part of the reason for this is due to the relatively weak growth that occurs due to the fact that the oil sands producers are anticipated to lower investment over the next few years, this will result in slower production growth towards the end of the forecast, due to the long lead times in constructing non-conventional oil producing facilities.
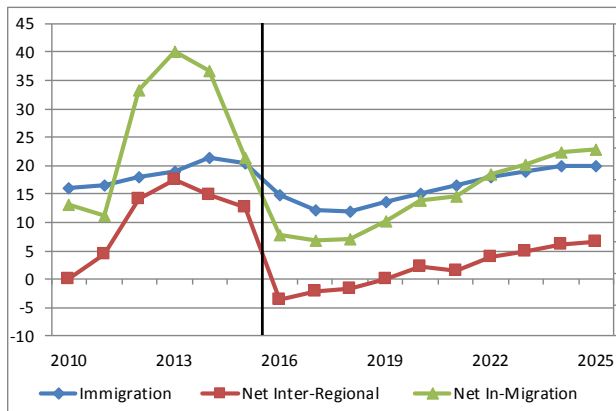
C4SE

C2016-0472 ACTION PLAN MID-CYCLE ADJUSTMENTS_ATT3.PDF
ISC: UNRESTRICTED
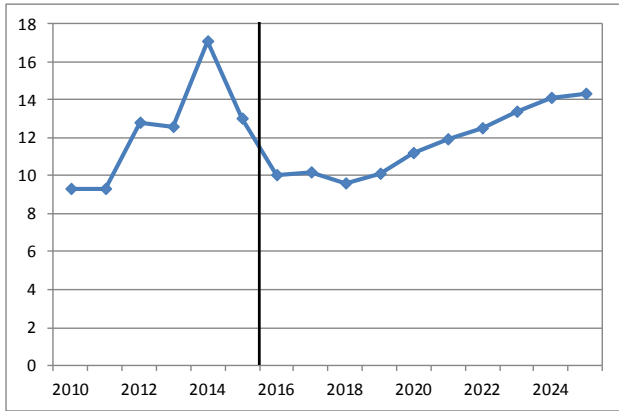Page 6 of 53

Unemployment Rate (%)

Plant & Equipment Investment ($2007 Millions)

Net In-Migration (000s)

Housing Starts (000s)

Low Case

This scenario is anticipated to be a worse case scenario. Under this scenario it is anticipated that oil prices will average $28 in 2016 and will rise gradually thereafter, remaining substantially below the price assumed under the moderate case. The AECO natural gas market price will dip further in 2016 and will rise thereafter, remaining below the moderate case for the whole scenario. US GDP growth is assumed to be 2.4% in 2017 and will decelerate thereafter, averaging 2.1% for the scenario as a whole.

Key Economic Drivers

Under the given assumptions, the performance of the Calgary economy is anticipated to weaken substantially in 2016, the economy will contract further in 2017 and remain extremely weak over the medium term. It is anticipated that credit rationing will intensify as lending institutions exhibit more caution, resulting in substantially lower investment in the economy in 2016. Employment will be hit with significant declines as firms layoff workers, particularly in the oil and gas and support activities sector. The significant declines in employment will result in wages and income declining over the short term.

Weaker employment prospects and lower income will impact consumer confidence. The housing market will weaken, this will lower household wealth as prices decline, cumulating in lower consumption. Results of the moderate scenario are presented in table 3.2 below for key economic indicators.

Real GDP is anticipated to decline by nearly 4% in 2016. The largest driver of the decline in output is the declining business investment that occurs with the increased uncertainty and rationed credit. The economy will decline by a further 0.8% in 2017 as further declines in residential investment and consumption impact the outlook. As commodity prices begin to recover and firms begin to rehire workers, the economy will return to growth. Nonetheless growth will be subdued until 2020.

Table 3.2 – Calgary Key Economic Indicators, Low Case

	2016	2017	2018	2019	2020	2016-20	2021-25
Real GDP *	93200	92449	92816	93580	95434	93496	102228
% Change	-3.9	-0.8	0.4	0.8	2.0	-0.3	2.2
Consumer Expenditures	50523	49743	49530	49388	49744	49786	53002
% Change	-3.4	-1.5	-0.4	-0.3	0.7	-1.0	2.2
Residential Investment	7317	6399	5996	5860	6222	6359	7801
% Change	-17.0	-12.5	-6.3	-2.3	6.2	-6.4	6.6
Plant & Equipment Investment	6779	6325	6114	5769	6080	6213	7298
% Change	-20.8	-6.7	-3.3	-5.6	5.4	-6.2	5.0
Government Investment	3859	3718	3506	3495	3546	3625	4066
% Change	2.5	-3.7	-5.7	-0.3	1.5	-1.1	4.6
Government Current Expenditures	12660	12767	12874	13106	13390	12960	14569
% Change	1.2	0.9	0.8	1.8	2.2	1.4	2.9
Exports	37349	38129	38840	39537	39803	38732	39562
% Change	-0.9	2.1	1.9	1.8	0.7	1.1	-0.3
Imports	55946	53818	52635	51841	52620	53372	57358
% Change	-8.7	-3.8	-2.2	-1.5	1.5	-2.9	2.6
Employment (000s)	842.4	836.8	841.8	852.5	868.9	848.5	915.9
% Change	-3.8	-0.7	0.6	1.3	1.9	-0.1	1.7
Unemployment Rate (%)	9.1	9.1	8.3	7.4	6.5	8.1	5.7
Population (000s)	1564.0	1579.1	1592.7	1609.5	1631.0	1595.3	1716.9
% Change	1.2	1.0	0.9	1.1	1.3	1.1	1.8
Net In-Migration (000s)	3.6	0.1	-0.7	3.3	8.6	3.0	18.6
Household Formation (000s)	9.5	7.7	7.2	8.2	9.8	8.5	12.7
Housing Starts (000s)	9.2	8.2	7.0	7.4	8.8	8.1	12.4

*Units are in $2007 millions unless otherwise specified.

Plant and Equipment Investment

Plant and equipment investment expenditures are anticipated to decline substantially in 2016 and will continue with this downward trend over the next few years. The large declines are caused by an anticipation that firms will have extreme difficulty in obtaining credit as lenders react to the uncertainty and weakness in the economy. In addition, firms will be more cautious to invest as lower economic growth lowers the need for additional production capacity and capital stock.

Business investment expenditures will decline by over 20% in 2016 and a further 6.7% in 2017. The weaker performance of the economy will also tighten firms balance sheets and lower future growth expectations, resulting in further declines in investment until 2020. As commodity prices and the

economy begin to improve, firms will once again begin to increase investment to replace and expand their capital stock. Growth will be relatively rapid as businesses catch up with deferred investment.

Residential investment

Increased unemployment and uncertainty will impact residential investment with a twofold blow of lower incomes and lower population growth as the region becomes less attractive to migrants. In the low scenario it is anticipated that starts will fall to 9,200 units in 2016. Weakness in the housing market will result in further declines in 2017 and 2018 as people leave Calgary in search of better employment opportunities elsewhere. Housing starts will begin to recover in 2019, however they will remain bellow 2015 level throughout the medium term.

Residential investment will be a major drag on the economy in the short run, as it moves in line with falling housing starts and decreasing incomes. Investment will decline by 17% in 2016 and a further 12.5% in 2017. Investment is anticipated to decline until 2020, and will decline an average 6.4% a year for the medium term as a whole. In the long term, as incomes and starts rise, residential investment will increase by an average 6.6% a year. Nonetheless, total residential investment will remain below that of 2015 throughout the forecast.

Consumer Expenditures

Declining employment and income in 2016 and 2017 and a further decline in income in 2018 will lead to pressure on consumer expenditures. Consumer expenditures are anticipated to decline by 3.4% in 2016, 1.5% in 2017, with further declines in 2018 and 2019. The additional years of declines come as households deal with a combination of lower incomes and wealth that results from reduced employment, wage growth and lower housing values. Consumer expenditures will recover in the long run as income and employment recovers.

Population and Migration

In the low scenario, it is anticipated that the unemployment rate will jump to over 9% and will remain high over the medium term. As a result, there will be large numbers of persons leaving the region to seek better fortunes in the other provinces, or alternatively move to live with relatives elsewhere whilst they seek to gain employment. It is anticipated that net international migration will remain positive, however, the increased out flows from inter-regional migration will result in total net in-migration turning negative in 2018.

As a result of the lower migration, population growth will slow to 1.2% in 2016. Population growth will fall below 1% in 2018, the first time this happened in the available dataset. The lower population growth will place a drag on many economic indicators such as residential investment, and consumer expenditures. As the labour market improves, net inter-regional migration will turn positive again, boosting the economy.

Labour Market

Employment is measured on the basis of Statistics Canada's Labour Force Survey's definition, which includes both full and part-time workers. Employment held up surprisingly well in 2015 and is anticipated to experience significant declines in 2016 under the low scenario. The largest declines are in

the other primary sector as the oil & gas sector, particularly the support activities for mining oil & gas lays off workers. Support activities employment is particularly hard hit as firms lower investment in future fields. Employment will decline further in 2017 as a further contraction in investment results in lower construction employment, and reductions in consumer expenditures weaken employment in the retail trade sector. Employment will grow again in 2018 as weakness in productivity offsets weak GDP growth.

The participation rate will decline substantially in 2016 and 2017 as discouraged workers leave the labour force due to the lack of new employment opportunities. The labour force will decline by nearly 1% in 2016 and will decline further in 2017 and 2018 as weak population growth fails to offset the reduction in the participation rate. As a result, the unemployment rate will jump to over 9% in 2016 and 2017. The unemployment rate will take some time to return to more normal levels, and will remain higher than the moderate case until 2021.
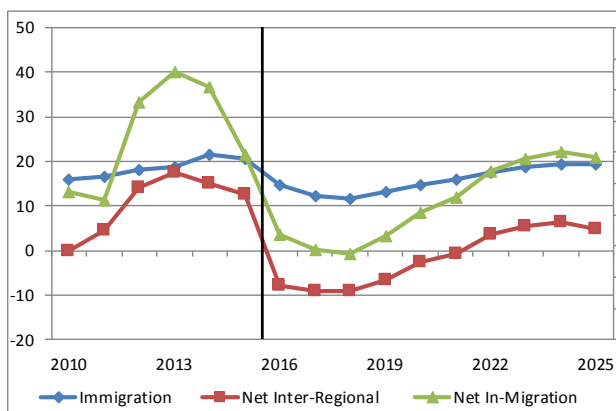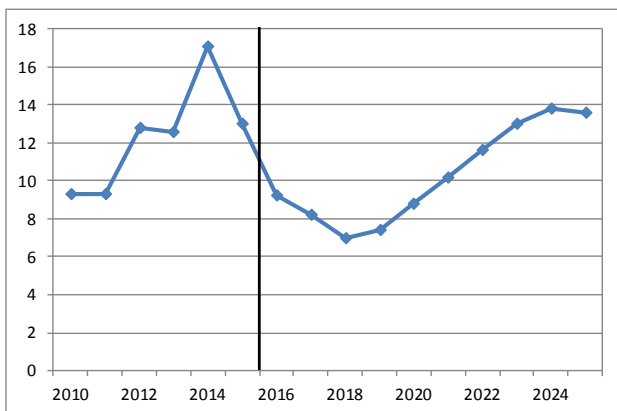
Unemployment Rate (%)
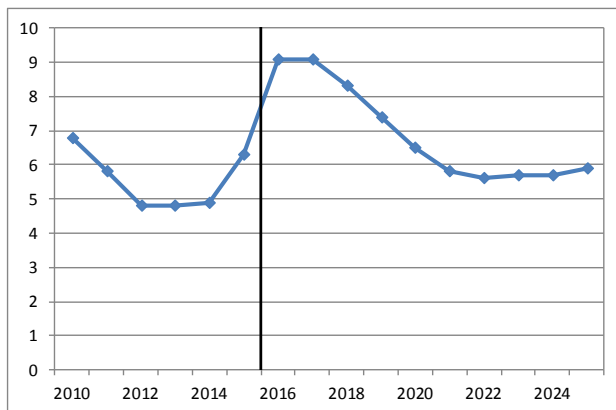
Plant & Equipment Investment ($2007 Millions)
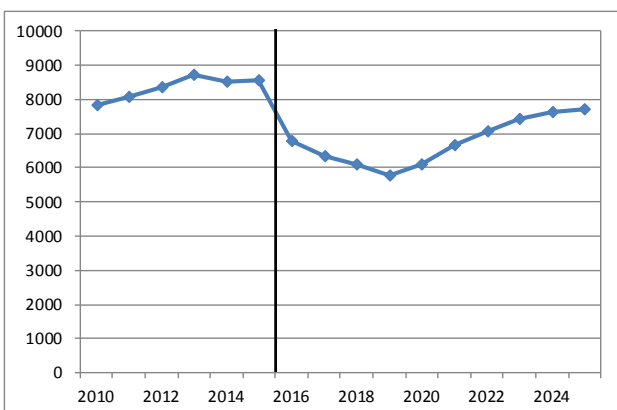
Net In-Migration (000s)

Housing Starts (000s)

High Case

This scenario is anticipated to be a best case scenario. Under this scenario it is anticipated that oil prices will average $44 in 2016 and will recover relatively rapidly in the first half of the scenario. The AECO natural gas market price will increase slightly in 2016 and will continue its upward trend thereafter, remaining above the moderate case for the whole scenario. US GDP growth is assumed to be 2.8% in 2017 and will decelerate thereafter, averaging 2.5% for the scenario as a whole.

Key Economic Drivers

Under the given assumptions the performance of the Calgary economy is anticipated to decline slightly in 2016, the economy will bounce back in 2017 and grow at a healthy rate over the remainder of the medium term. It is anticipated that firms will be able to obtain credit that is required, enabling small increases in investment over the early part of the forecast. Employment will decline in 2016, largely due to declines in both the construction and oil & gas sector. Employment will recover in 2017 and grow at a good clip thereafter. The housing market will weaken, however it should remain in better shape than what occurred during the 2009 recession. Results of the high scenario are presented in table 3.3 below for key economic indicators.

Real GDP is anticipated to decline by nearly 0.5% in 2016. Falling employment will lower incomes and weigh on consumer confidence, as a result both consumer expenditures and residential investment will decline in 2016 contributing to the decline in overall GDP. The relatively quicker recovery in the oil price will result in increased expenditures by oil and gas firms in 2017, directly boosting support activities for oil & gas mining, which are largely based in Calgary. As a result, GDP will grow by 1.6% in 2017 and will accelerate in 2018. Growth will remain strong over the medium term and will ease in the long term. The slow down in the long term is a result of investment decisions made today that will impact future production levels in the oil sands.

Table 3.3– Calgary Key Economic Indicators, High Case

	2016	2017	2018	2019	2020	2016-20	2021-25
Real GDP *	96673	98242	101112	103590	106524	101228	113794
% Change	-0.5	1.6	2.9	2.5	2.8	1.9	2.1
Consumer Expenditures	51176	51697	52866	53968	55343	53010	59694
% Change	-2.1	1.0	2.3	2.1	2.5	1.2	2.4
Residential Investment	7669	7518	7847	8100	8519	7931	9243
% Change	-13.0	-2.0	4.4	3.2	5.2	-0.4	2.3
Plant & Equipment Investment	9115	8773	8853	8687	9159	8917	9966
% Change	6.0	-3.8	0.9	-1.9	5.4	1.3	2.3
Government Investment	3884	3790	3639	3692	3807	3762	4341
% Change	3.1	-2.4	-4.0	1.5	3.1	0.3	4.2
Government Current Expenditures	12725	12944	13179	13538	13930	13263	15278
% Change	1.7	1.7	1.8	2.7	2.9	2.2	3.1
Exports	38016	39237	40397	41469	42247	40273	44278
% Change	0.8	3.2	3.0	2.7	1.9	2.3	1.6
Imports	59219	58988	59858	60555	62427	60210	67421
% Change	-3.5	-0.4	1.5	1.2	3.1	0.4	2.3
Employment (000s)	866.1	876.0	896.2	915.9	937.4	898.3	982.2
% Change	-1.1	1.1	2.3	2.2	2.3	1.4	1.5
Unemployment Rate (%)	7.6	7.3	6.3	5.7	5.2	6.4	5.5
Population (000s)	1572.3	1601.2	1631.2	1664.1	1699.2	1633.6	1806.3
% Change	1.8	1.8	1.9	2.0	2.1	1.9	2.0
Net In-Migration (000s)	11.8	13.8	15.1	18.3	20.9	16.0	22.7
Household Formation (000s)	12.4	12.7	13.0	13.9	14.7	13.3	14.9
Housing Starts (000s)	10.7	12.1	12.2	13.1	14.0	12.4	14.9

*Units are in $2007 millions unless otherwise specified.

Plant and Equipment Investment

Plant and equipment investment expenditures are anticipated to average 1.3% growth per year between 2016 and 2020. The low growth is a result of declines that occur at the start of the period. Business investment expenditures will accelerate over the early part of the long term, as firms begin to expand production capacity and replace aging capital stock. On average growth will average 2.3% a year for the last 5 years of the scenario.

Residential investment

Under the high case scenario there will still be increased unemployment and lower real income growth. However, the impacts will be lower than under the other scenarios, resulting in housing starts falling to 10,700 units in 2016. As a result of the relative rapid recovery in the economy, housing starts will bounce back in 2017 and will continue to increase over the majority of the scenario period, peaking at 15,300 units in 2024.

Residential investment will be a significant drag on the economy in 2016 and into 2017. Investment will decline by 13% in 2016 and a further 2% in 2017. Investment is anticipated to recover from 2018 on, as both housing starts and real incomes increase.

Consumer Expenditures

Declining employment and income in 2016 will lead to pressure on consumer expenditures. Consumer expenditures are anticipated to decline by 2.1% in 2016, with growth of just 1% in 2017. Consumer expenditures will increase thereafter as income increases.

Population and Migration

In the high scenario it is anticipated that the unemployment rate will jump to 7.6% in 2016 and will begin to recover thereafter. Under this scenario net in-migration will decrease, however it will remain much higher than in the other scenarios due to the better employment prospects. Net in-migration will fall to 11,806 persons in 2016 and will rise thereafter.

As a result of the lower migration, population growth will slow to 1.8% in 2016. With the recovery in net in-migration increasing over the medium term, population growth will increase, moving above 2% by 2019.

Labour Market

Employment is measured on the basis of Statistics Canada's Labour Force Survey's definition, which includes both full and part-time workers. Employment held up surprisingly well in 2015 and is anticipated to experience declines in 2016 that will roughly offset the gains of 2015. The largest declines are in the construction industry and the other primary sector as the oil & gas sector, particularly the support activities for mining oil & gas, lay off workers. Support activities employment is particularly hard hit as firms lower investment in future fields. Employment will return to growth in 2017 as the bounce back in oil prices boosts investment and, consequently, employment in the oil and gas sector.

The participation rate will decline by 80 basis points in 2016 as discouraged workers leave the labour force due to the lack of new employment opportunities. The participation rate will continue on a downward trend over the outlook period, largely due to the aging workforce as the older age groups have lower participation rates. The labour force will grow by 0.2% in 2016 as population growth offsets the declines in the participation rate. The unemployment rate will increase to 7.6% in 2016 and will decline to 5% by 2020. In the long run, it will pick up as employment growth fails to keep pace with that of the labour force.

Unemployment Rate (%)	Plant & Equipment Investment ($2007 Millions)

Net In-Migration (000s)
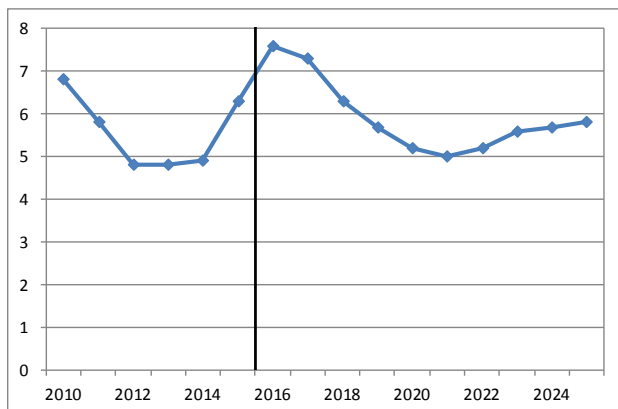
Housing Starts (000s)
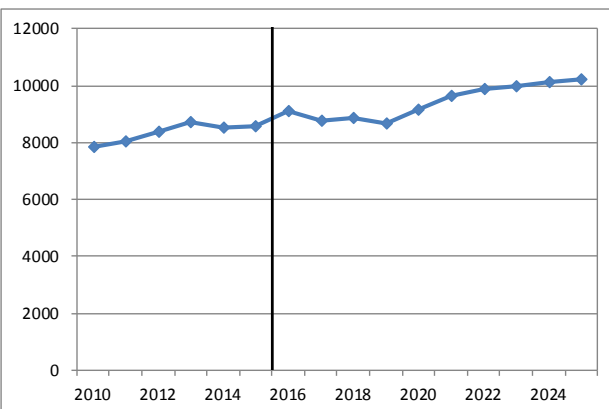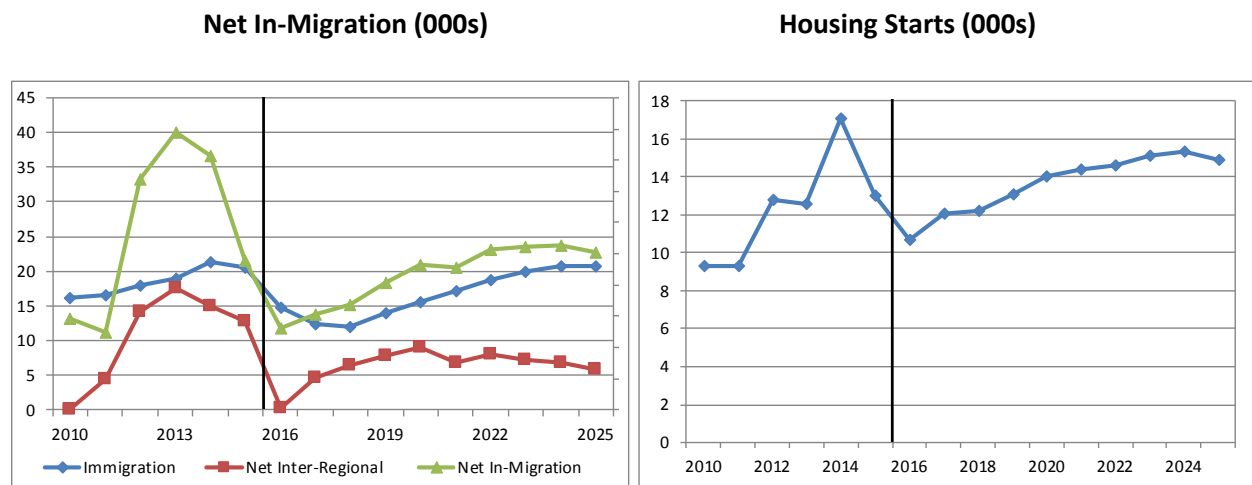
Summary of Scenarios

The 3 alternate scenarios contain significant differences in assumptions and consequently provide 3 very different paths for the Calgary economy. The largest impacts to households between the different scenarios are felt through differing employment outlooks and consequently unemployment. As employment prospects decrease and the unemployment rate increases, workers will leave the region in search of better opportunities elsewhere, resulting in significant differences in net-in migration levels to the region.

The changing migration between the scenarios results in significant differences in demand for housing and for other goods and services. The low case experiences significant reduction in housing starts that is sustained for several years. In the moderate case, housing starts decline from recent highs. Nonetheless, they remain more resilient than in the 2009 recession. In the high case, housing starts dip in 2016 but rebound rapidly as the economy faces a much quicker recovery.

A major difference between the scenarios is the assumption about availability of credit and business confidence. Under the high scenario it is assumed that credit is freely available, however lower growth expectations will impact investment decisions resulting in stagnant investment in the earlier part of the scenario. In the moderate case it is assumed that there will be some restriction in credit availability. This will result in declines in business investment over the beginning of the forecast. In the low scenario, it is assumed that there is significant reduction in credit availability as lenders react to the uncertainty in the local market. This will result in large declines in investment in 2016 with further declines anticipated over the next couple of years.

The Charts below show differences in the scenarios for a variety of indicators.

Unemployment Rate (%)
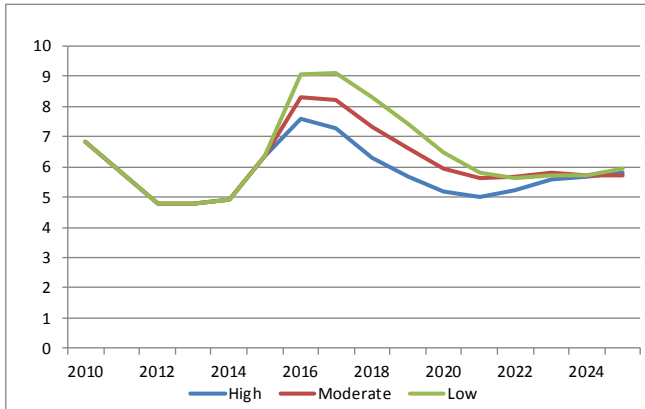
Plant & Equipment Investment ($2007 Millions)
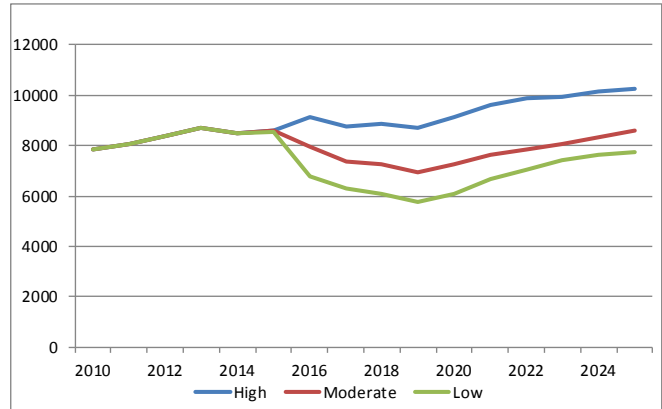
Net In-Migration (000s)
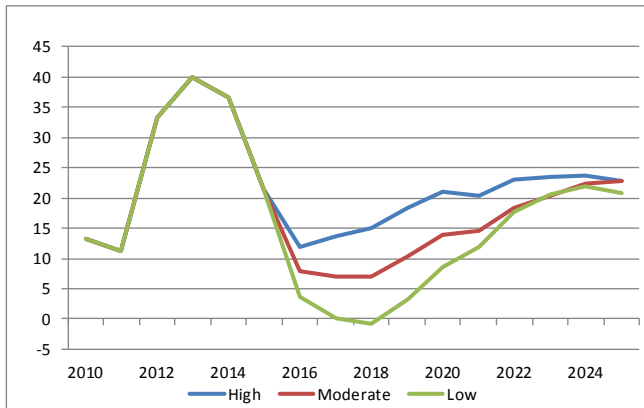
Housing Starts (000s)
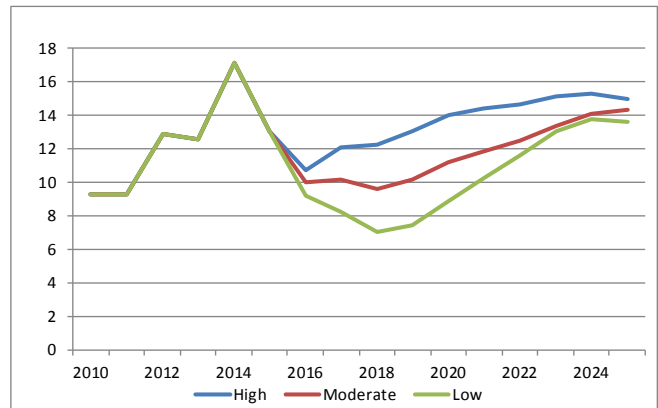
4 Appendix - Methodology

The approach adopted to estimate the economic impacts of 3 alternative world outlooks is to first construct a set of economic projections for the economy for the moderate case. This case is deemed to be the most likely scenario and allows a base line of projections to compare to the alternate results. Two alternate scenarios are then created. The first is the low case, this assumes that oil prices will fall to a lower level in 2016 and remain lower over the entire projection period. In addition, it is assumed that some firms will have difficulty obtaining credit to invest due to uncertainty in the economy and that rest of the world growth will be slightly lower. The second case is the high case, this assumes that oil prices will rebound from the lows of early 2016 and that they will rise gradually over the forecast period.

In order to create projections for each scenario both the C$_4$SE Alberta Provincial Model and the C$_4$SE Regional Calgary Model were used. The models use a similar approach and the following discussion on model methodology can be assumed to apply to both sets of models.

Alberta Macroeconomic Model

The projections are prepared using the C$_4$SE macroeconomic model of the Alberta economy. This model is used by the C$_4$SE and its clients to produce projections and conduct impact studies. The model is a multi-sector macroeconomic model. Its structure and properties are derived from neo-classical economic theory. A description of the nature of these models can be found in almost all advanced economic theory textbooks.

The model is calibrated to Alberta economic, demographic, and fiscal data obtained from Statistics Canada. The economic data employ a 2007 base year. The input-output coefficients used in the model are derived from the input-output tables published by Statistics Canada.

While the model involves the simultaneous decisions of various actors, its basic workings can be seen from the figure shown below.

Short Term Operation

The main outside forces driving the economy are the influences of the rest of the world and economic policies. These two sets of influences shape the views of local decision makers including the decision to undertake major projects. Real GDP growth, inflation, and interest rates in the rest of the world drive Alberta economic growth through their influence on exports, domestic inflation, and the cost and availability of credit. Economic policies such as government tax rates and expenditures also impact domestic growth.

Once real output for each industry is determined, employment for all industries is set through the productivity of labour. Employment combined with wages, other income, and consumer prices then determines private consumption. Employment when compared with labour force then drives net in-migration, which in turn sets population growth.

Population growth combined with personal income then determines private consumption. Population also impacts government consumption, as a change in population leads to a change in the demand for government services. Both government consumption and investment are affected.

The increase in real output combined with changes in consumption then changes private investment decisions. The changes in consumption and investment decisions, in turn, lead to changes in capacity utilization rates and output. This type of cycle continues until the one-year solution of the model is obtained.

Workings of the Model

```
                    ┌─────────────────────┐
                    │ Production Capacity  │◄──────────┐
                    └──────────┬──────────┘            │
                               ▼                       │
                    ┌─────────────────────┐    ┌───────────────────┐
                    │   Utilization Rate  │◄─  │   Rest of World   │
                    └──────────┬──────────┘    └─────────┬─────────┘
                               ▼                          ▼
   ┌──────────┐      ┌─────────────────────┐    ┌───────────────────┐
   │          │◄─────│        GDP          │    │  Economic Policies │
   │          │      └──────────┬──────────┘    └─────────┬─────────┘
   ▼                            ▼                          ▼
┌────────────────┐   ┌─────────────────────┐    ┌───────────────────┐
│  Productivity  │   │     Investment      │    │     Projects      │
└───────┬────────┘   └─────────────────────┘    └───────────────────┘
        ▼                      
┌────────────────┐   ┌─────────────────────┐
│   Employment   │──►│     Consumption     │
└───────┬────────┘   └─────────────────────┘
        ▼                      ▲
┌────────────────┐   ┌─────────────────────┐
│ Net In-Migration│──►│     Population      │
└────────────────┘   └─────────────────────┘
```
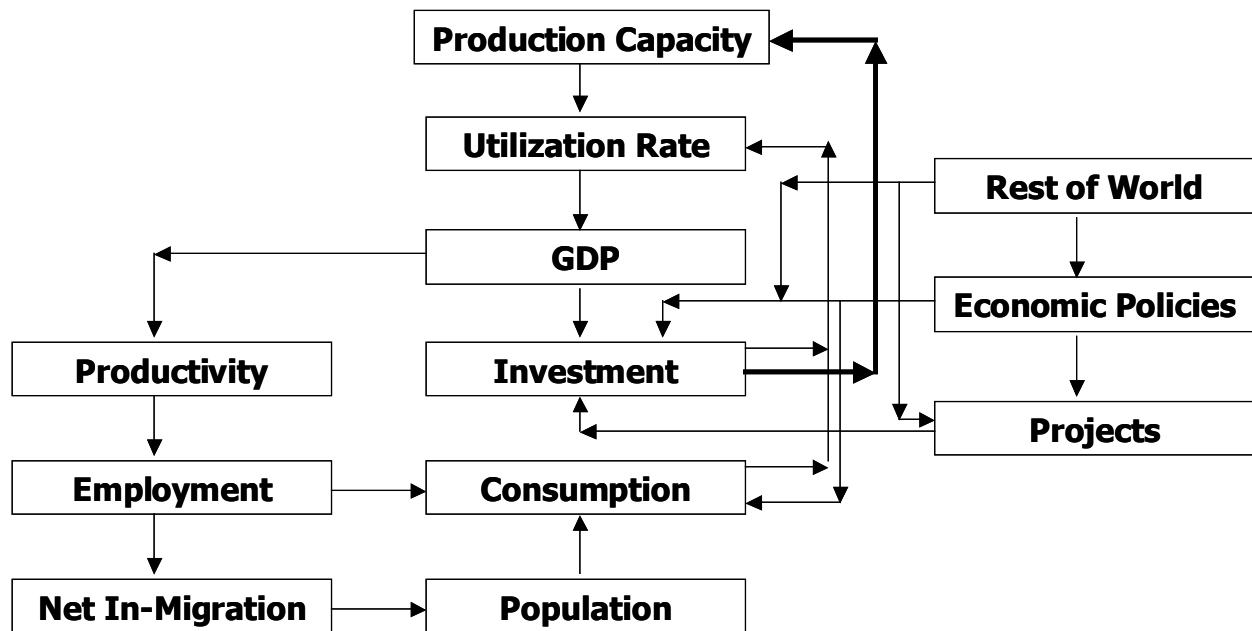
Long Term Operation

In the long term, the key determinants of changes in overall economic activity in the model are growth in fixed investment expenditures and productivity growth. The rate of productivity growth is determined by changes in technology and modifications to the way in which business is conducted. Productivity is an exogenous variable – set outside of the model.

Real fixed investment expenditures are the other main driving factor behind economic growth in the model – shown by the thicker arrows in the figure. These expenditures are determined for each industry and then summed to obtain total investment expenditures. Such expenditures determine the rate of change in the capital stock, which determines the amount of output growth in the country.

Investment in industries that are primarily export oriented is set based on views regarding growth in the rest of the world and economic policies affecting the cost of investment and profitability. In industries that serve the latter sectors and the population of the country, investment is determined by the expected amount of capital that will be needed to achieve a target level of output. The latter target is determined by growth in demand for the particular industry's product, which depends on the growth in the other industries in the domestic economy and domestic demand, along with capital costs.

Estimating Economic Impacts

The first projection is called the "moderate case" projection. It is the reference projection against which other projections that adopt different assumptions can be compared. The moderate case projection is created by making assumptions about the future performance of the key inputs to the Alberta macroeconomic model. Such assumptions include the economic performance of Alberta's major trading partners, commodity prices, and government policy.

Making changes to the assumptions included in the moderate case projection creates the projections for the alternate scenarios.

The key assumptions for the each of the Scenarios include such things as the:

- WTI Oil price;
- Other commodity prices;
- Trading partner growth;
- Exchange Rate;
- Availability of credit and associated investment.

With the assumptions created, they are entered into the model and the model is run for each scenario to create new economic projections for the economy. The results for key economic and fiscal variables in the two projections are then examined and compared to see what impact the differing assumptions has had on them.

"Lower"-Case Scenario

After industry feedback it was felt that there is a need to present a new alternate extremely low case. This scenario makes the assumption that the recovery in commodity prices takes longer to take effect, however they are anticipated to move towards the low case by 2026. In the extremely low case the WTI oil price measured in $US will average $27 in 2016 and $29 in 2017. The price spread between the extremely low and the low case will widen to a maximum of $US 8 in 2020 when the prices are $47 and $55 for each case respectively. Over the latter half of the forecast it is anticipated that the oil price will rebound, a result of lower investment around the world that occurs with the current lower price, resulting in lower future supply, raising pressure on prices.

In addition to the weaker oil price it is assumed that there will be further weakness in a range of commodities. The result is that prices will remain relatively flat in 2017 and 2018. Commodity prices are anticipated to begin the recovery process in 2019. The weakness in commodity prices will cause further weakness in the $CAD in 2017 and 2018, the recovery in the $CAD will begin in 2019, in line with the beginning of the recovery of the commodity prices. Under the new scenario it is assumed that there is no further credit rationing, none the less investment will be lower in the new scenario as firms react to the new lower output that occurs in the economy.
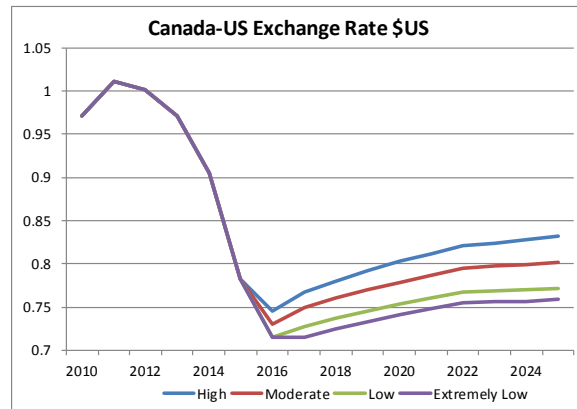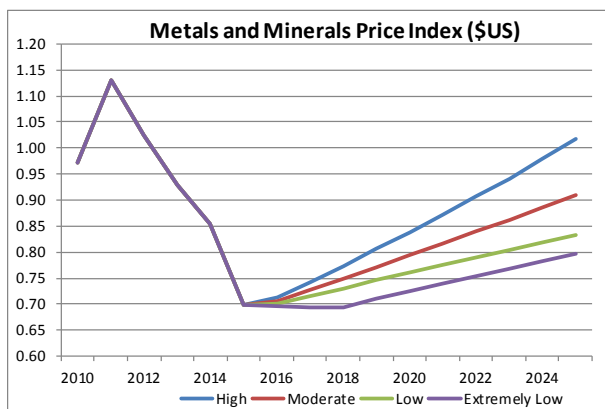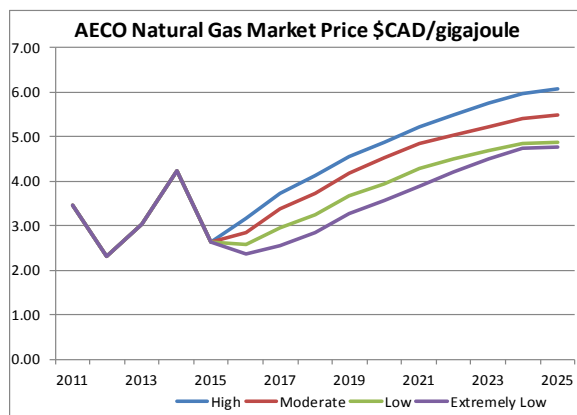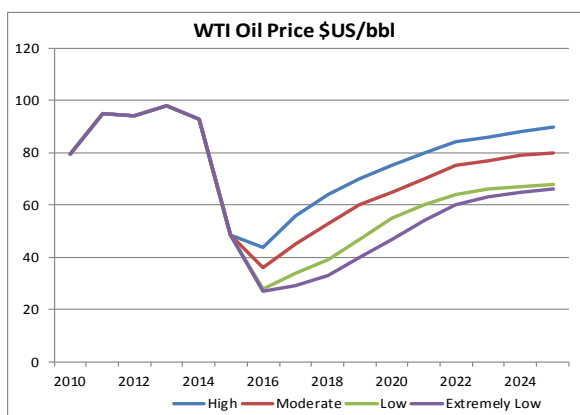
The slower recovery that occurs in the new extremely low scenario, will have significant impacts on the Calgary economy. The unemployment rate will continue to rise in 2017 as the lack of a recovery causes lower employment in the oil & gas industry. Oil & gas employment growth is anticipated to remain pretty much flat in 2018 and 2019 as the recovery in prices remains slow, and the recent sudden drops in prices make firms less likely to begin raising investment.

The biggest impact in the new low scenario is anticipated to come in the form of lower population and residential investment. The higher unemployment rates will force additional people to leave the region as they seek better opportunities elsewhere. The loss of high paying jobs and lower demand for housing will result in steep declines in housing starts that are anticipated to last over the medium term. The outlook for starts is much worse than that occurred in the 2009 downturn, however it should be noted that they remain above the lows of the mid 80's.

Housing Starts (000s)

Migration (000s)

Legend: Immigration (blue diamond), Net Inter-Regional (red square), Net In-Migration (green triangle)
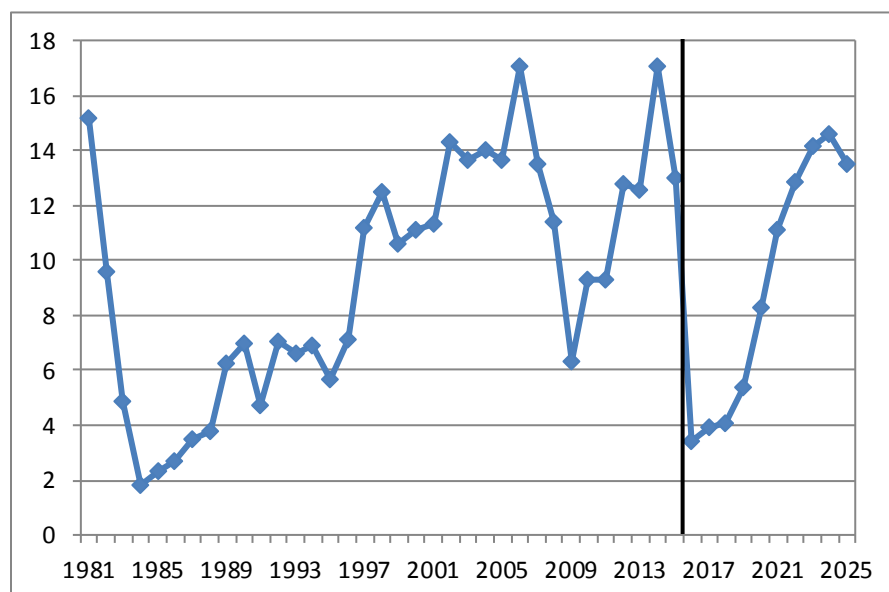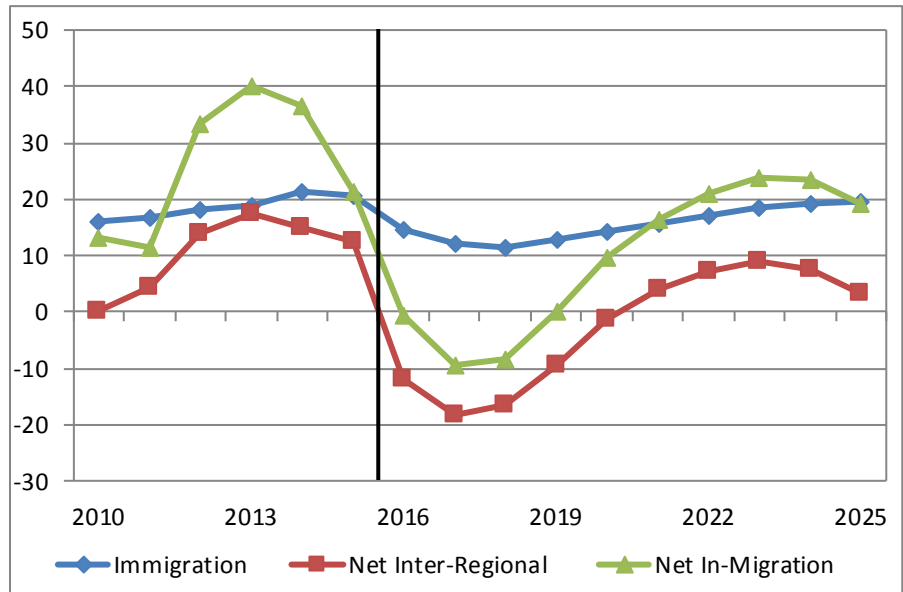
Calgary Region Economic Outlook: Alternative Oil Price Scenarios

Robin Somerville
Director
The Centre for Spatial Economics

Calgary, AB
April 4-7, 2016

Furthering the Understanding of Demographic and Economic Change in Canada's Provinces and Sub-Provincial Regions

©2016 The Centre for Spatial Economics

C4SE

The Centre for Spatial Economics

❖ **C$_4$SE**: mission to further the understanding of demographic and economic change in Canada's provinces and sub-provincial regions

❖ **Provincial & Regional Economic Modeling Systems**: used to produce forecasts semi-annually of economic and demographic activity by province/region for subscription clients and to support custom research on a wide variety of topics for public and private sector clients

© 2016 The Centre for Spatial Economics

Study Purpose & Summary

❖ **City of Calgary: To understand the impact of the decline in commodity prices on the Alberta and regional economy**

❖ **Uncertainty: Three scenarios were developed to examine the economic impact of different commodity price forecasts: oil, natural gas, metals and minerals and their impact on the exchange rate**

❖ **Results & Recommendations:**

  o **Short-term decline in the regional economy equivalent to the 2009 recession**

  o **Calgary will continue to grow in the medium and long-term**

  o **Seize the opportunity to contain costs now and to plan for long-term growth**

©2016 The Centre for Spatial Economics

C$_4$SE Methodology and Scenarios

❖ **Provincial Economic Modeling System: Provides annual, dynamic impacts by sector and province for Canada**

❖ **Alberta Regional Economic Modeling System: Provides annual, dynamic impacts by sector and region for Alberta – including Calgary Economic Region**

❖ **3 Scenarios:**

○ High (pr=25%) – WTI oil price averages US$56/bbl in 2017; higher rest of world economic growth; firms experience enhanced access to credit

○ Moderate (pr=50%) – WTI oil price averages US$45/bbl in 2017; rest of world economic growth and credit conditions between the high and low scenarios

○ Low (pr=25%) – WTI oil price averages US$34/bbl in 2017; lower rest of world economic growth; firms experience limited access to credit

Impact of Alternative Oil Price Scenarios on Alberta

© 2016 The Centre for Spatial Economics

C⁴SE

Price of Oil: West Texas Intermediate

WTI Oil Price ($US BBL)

Δ ~$20

Δ ~$60

Legend:
— Jan-16
---- Jan-15
— Jan-14
---- High
— Moderate
---- Low

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

© 2016 The Centre for Spatial Economics

CAD Exchange Rate

Canada-US Exchange Rate ($US)

Δ ~$0.20

Δ ~$0.06

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

—— Jan-16   —— Jan-15   —— Jan-14   ----- High   —— Moderate   —— Low

© 2016 The Centre for Spatial Economics

Non-residential Business Investment

Alberta Plant and Equipment Investment ($2007 Billions)

Δ ~$20

Δ ~$9

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Jan-16 — Jan-15 ---- Jan-14 — High ---- Moderate — Low ---

© 2016 The Centre for Spatial Economics

Real Gross Domestic Product

Alberta Real GDP ($2007 Billions)

Δ -14% or ~$55

Δ ±3%

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Jan-16 ——— Jan-15 ----- Jan-14 ——— High ----- Moderate ——— Low -----

© 2016 The Centre for Spatial Economics

Employment

Alberta Employment (000s)

Δ ~225,000

Δ ~50,000

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

—— Jan-16   ---- Jan-15   —— Jan-14   ---- High   —— Moderate   -- - Low

© 2016 The Centre for Spatial Economics

Net In-Migration

Alberta Net In-Migration (000s)

Δ ~50,000

Δ ~13,000

Legend:
- Jan-16 (black solid)
- Jan-15 (black dashed)
- Jan-14 (grey solid)
- High (red dashed)
- Moderate (red solid)
- Low (red dash-dot)

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

120 100 80 60 40 20 0 -20

© 2016 The Centre for Spatial Economics

Population

Alberta Population (000s)

Δ ~400,000

Δ ~80,000

Jan-16 — Jan-15 - - - - Jan-14 — High - - - - Moderate — Low

© 2016 The Centre for Spatial Economics

Impact of Alternative Oil Price Scenarios on Calgary Economic Region

Calgary Economic Region
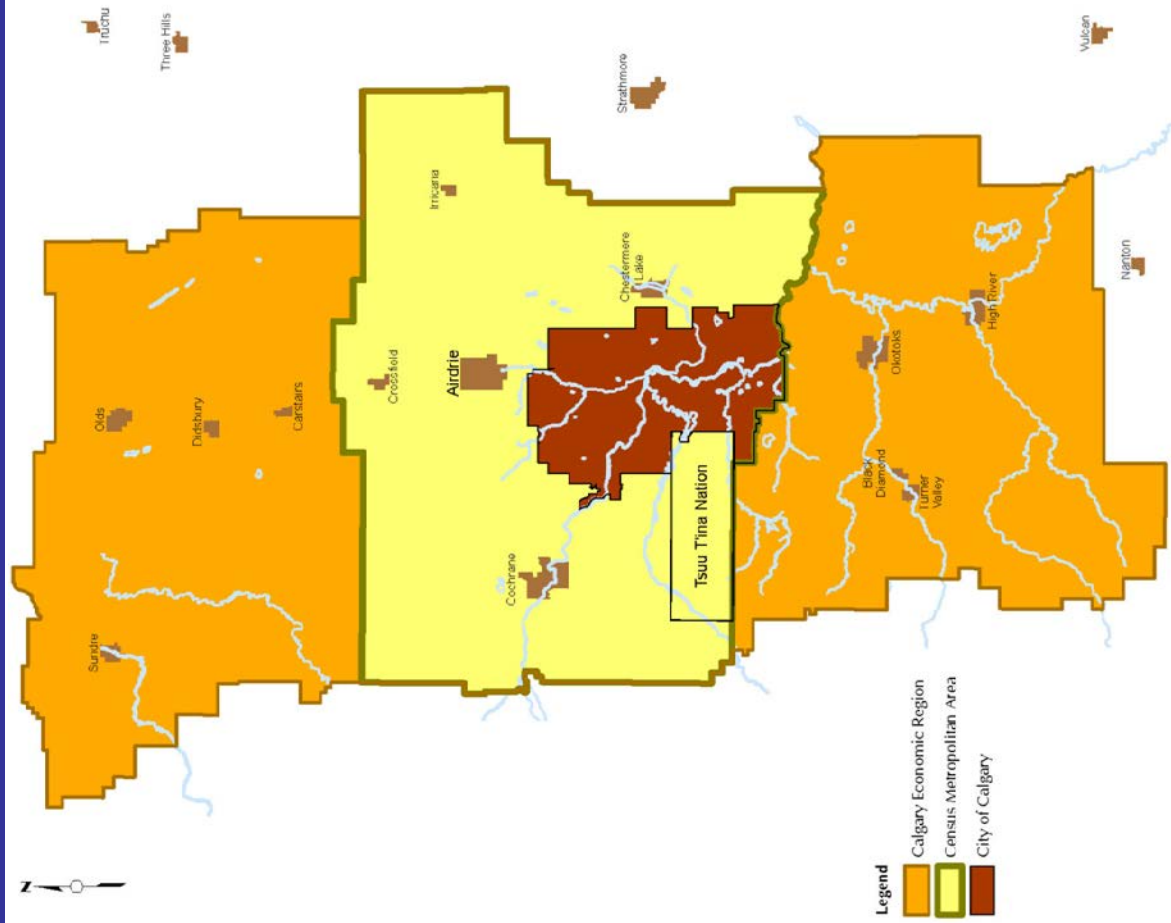
Economic Region: City of Calgary lies in the heart of the region which includes communities surrounding the City

City of Calgary was 84% of the region's population in 2011

© 2016 The Centre for Spatial Economics

Non-residential Business Investment

Plant and Equipment Investment ($2007 Billions)

Legend: – – – High —— Moderate – – Low

Δ ~$3

© 2016 The Centre for Spatial Economics
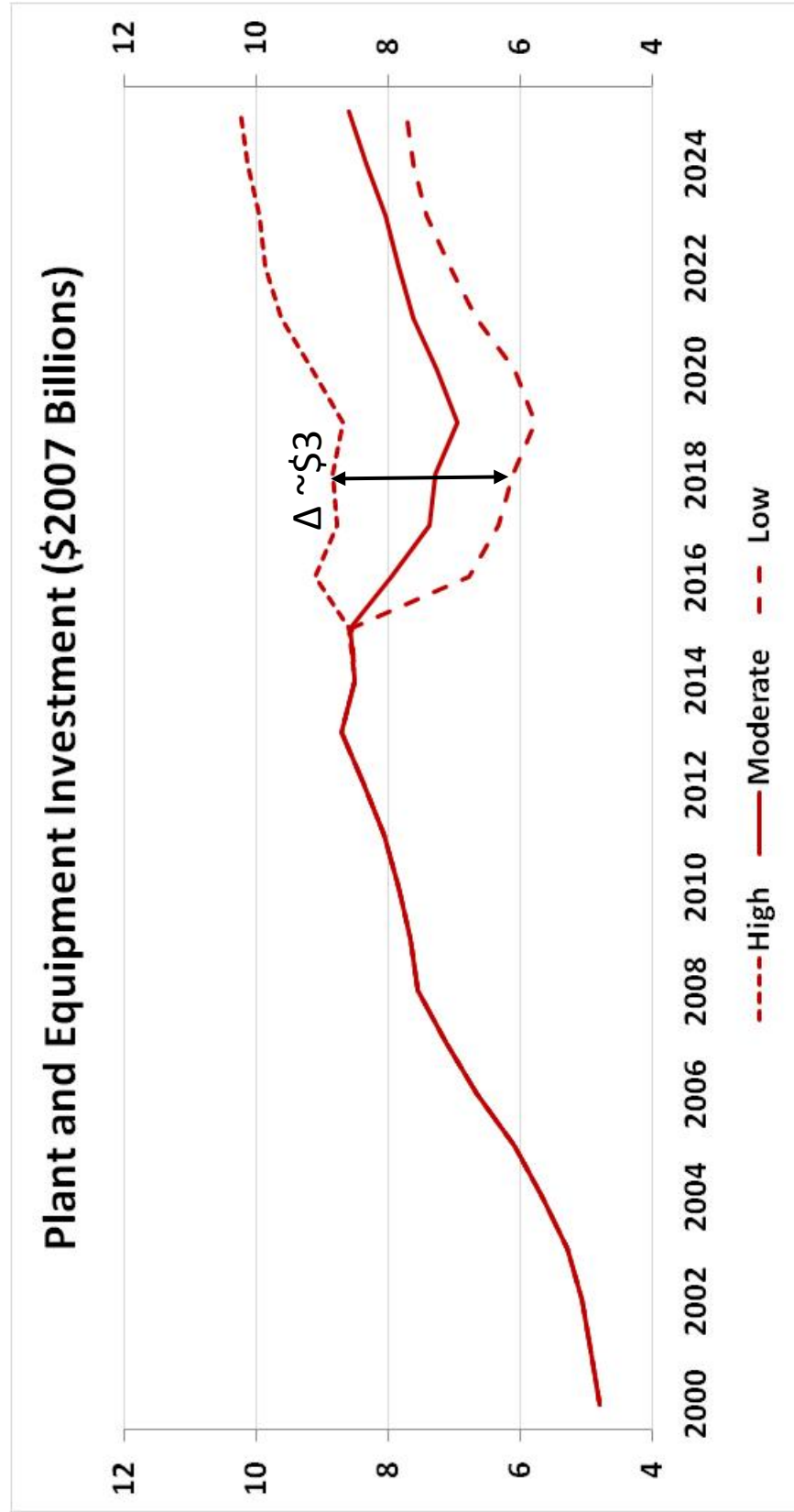
Real Gross Regional Product

Real GDP ($2007 Billions)

High ---- Moderate —— Low – –

© 2016 The Centre for Spatial Economics

Net In-Migration

Net In-Migration (000s)

2013-2018
-40,700

2009-2011
-14,700

Δ ~16,000

- - - - High   —— Moderate   – – Low

© 2016 The Centre for Spatial Economics

Population

© 2016 The Centre for Spatial Economics

Labour Force

Labour Force (000s)

Δ ~68,500

Δ ~67,500

2015-2018
-17,400

2009-2010
-5,100

- - - - High ——— Moderate – – – Low

© 2016 The Centre for Spatial Economics

Unemployment Rate

© 2016 The Centre for Spatial Economics

Employment

Employment (000s)

Δ ~65,700

2015-2017
-39,300

Δ +67,300

2008-2010
-15,300

- - - - High   ——— Moderate   – – Low

1100 1000 900 800 700 600 500

2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024

© 2016 The Centre for Spatial Economics

Change in Employment by Sector

Change in Employment 2015-2025 (000's)

Legend: ■ Low ☐ Moderate ■ High

Sectors (top to bottom):
- Government Services
- Other Services
- Health & Welfare Services
- Education Services
- Accom. & Food Services
- Professional, Scientific and Mng't
- Finance, Insurance & Real Estate
- Trade
- Transportation/Warehousing
- Utilities
- Construction
- Manufacturing
- Other Primary
- Agriculture
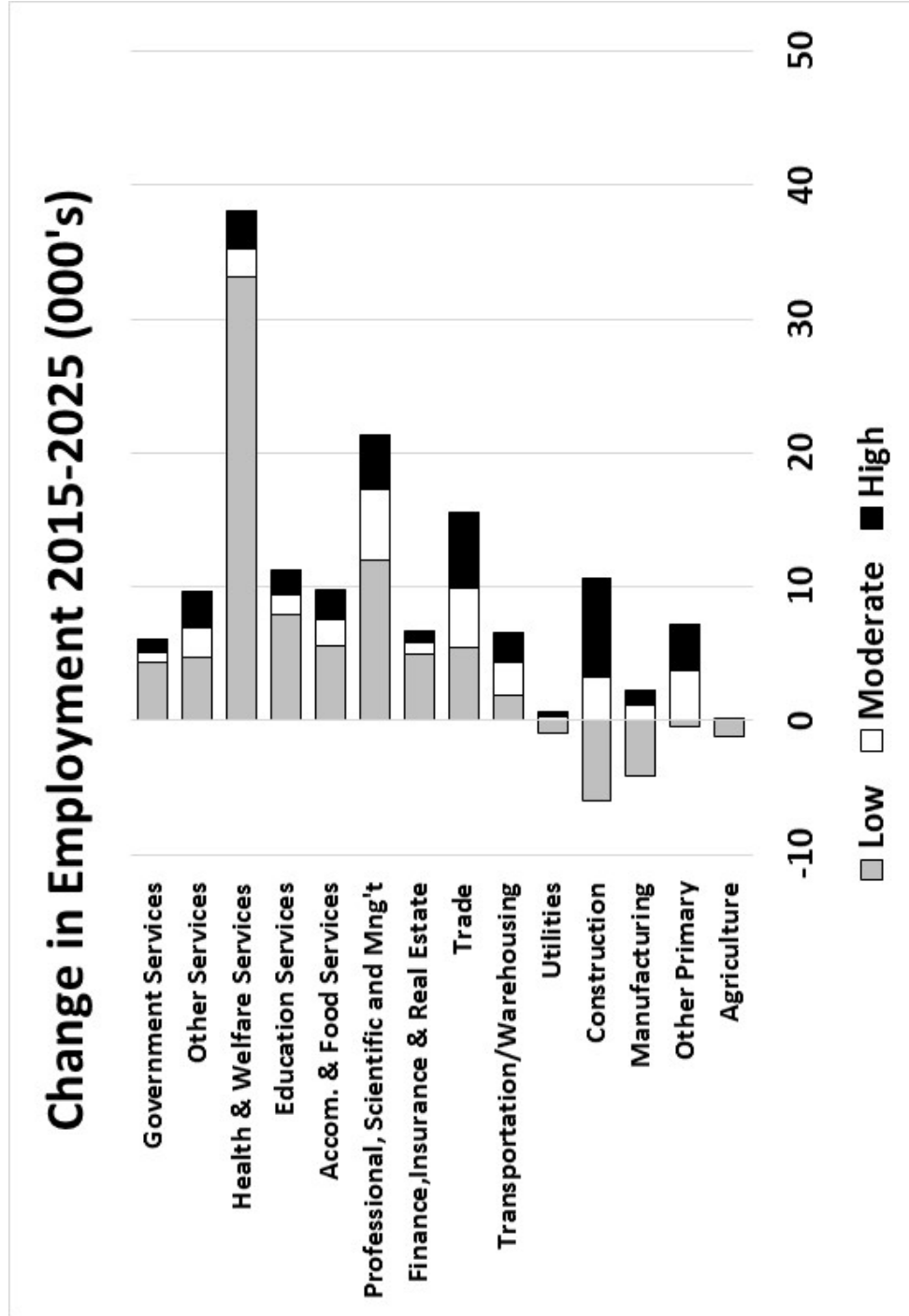
Average Annual Labour Income

Labour Income ($000s)

Δ ~$8,000

Δ +$6,700

2015-2018
-$2,000

2008-2009
-$3,200

- - - High   —— Moderate   - - Low

© 2016 The Centre for Spatial Economics

Number of Households

Households (000s)

Δ ~35,000
Δ +100,000

High --- Moderate --- Low

2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024

800 700 600 500 400 300
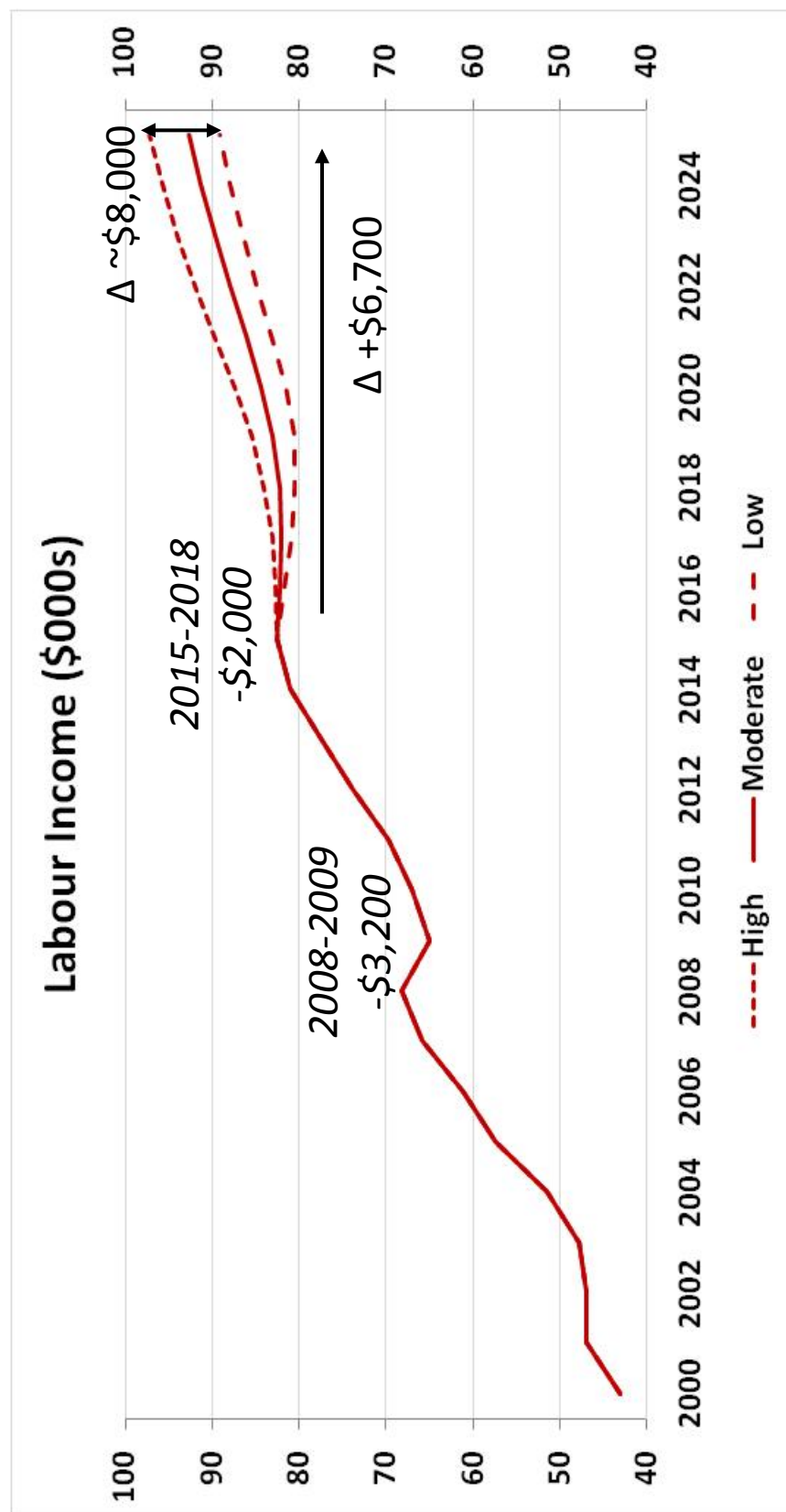
© 2016 The Centre for Spatial Economics
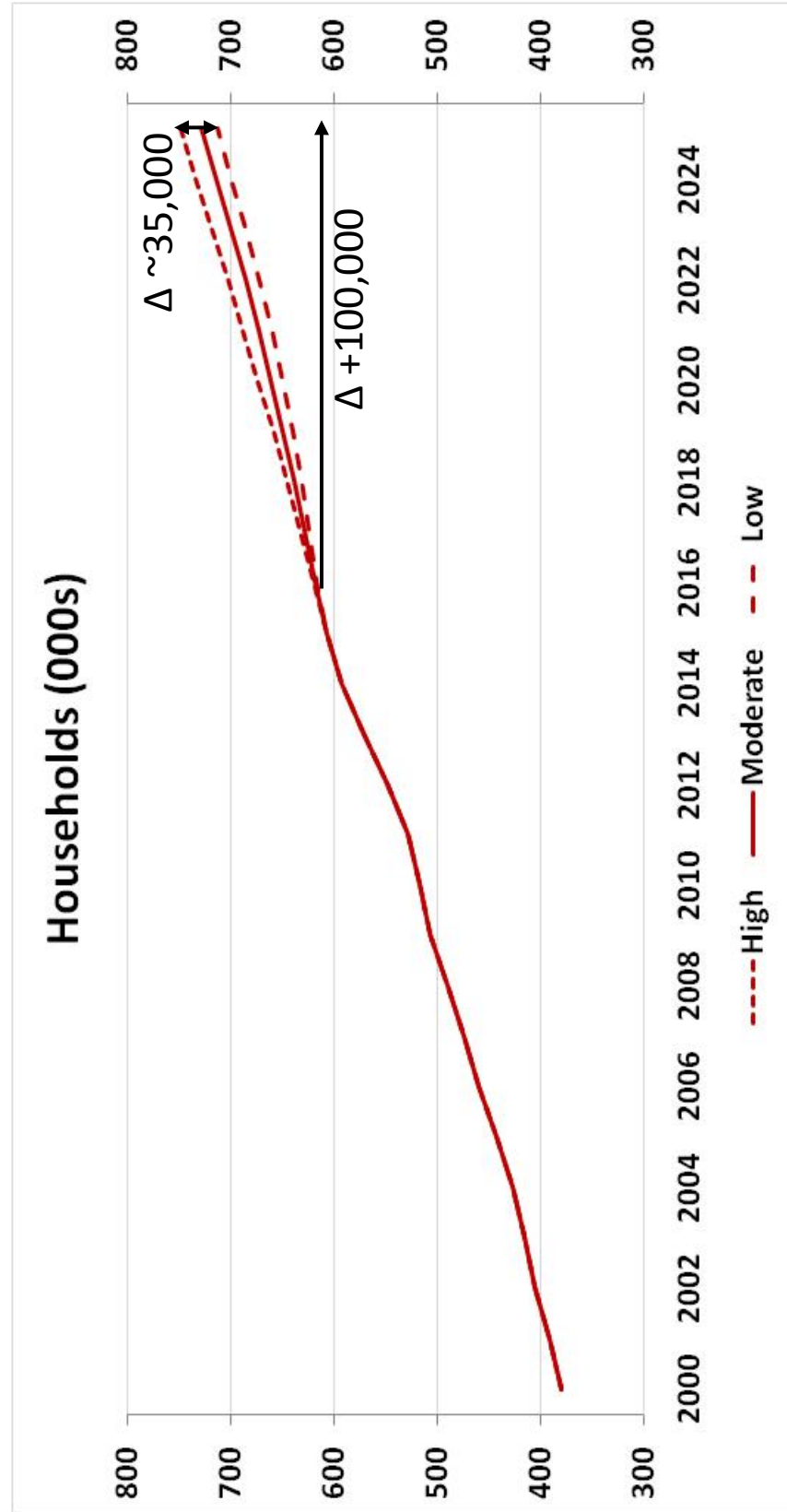
Number of Housing Starts

Housing Starts (000s)

2006-2009
-10,700

2014-2018
-10,200

Δ ~5,000

Legend:
- - - - - High
——— Moderate
– – – Low

© 2016 The Centre for Spatial Economics
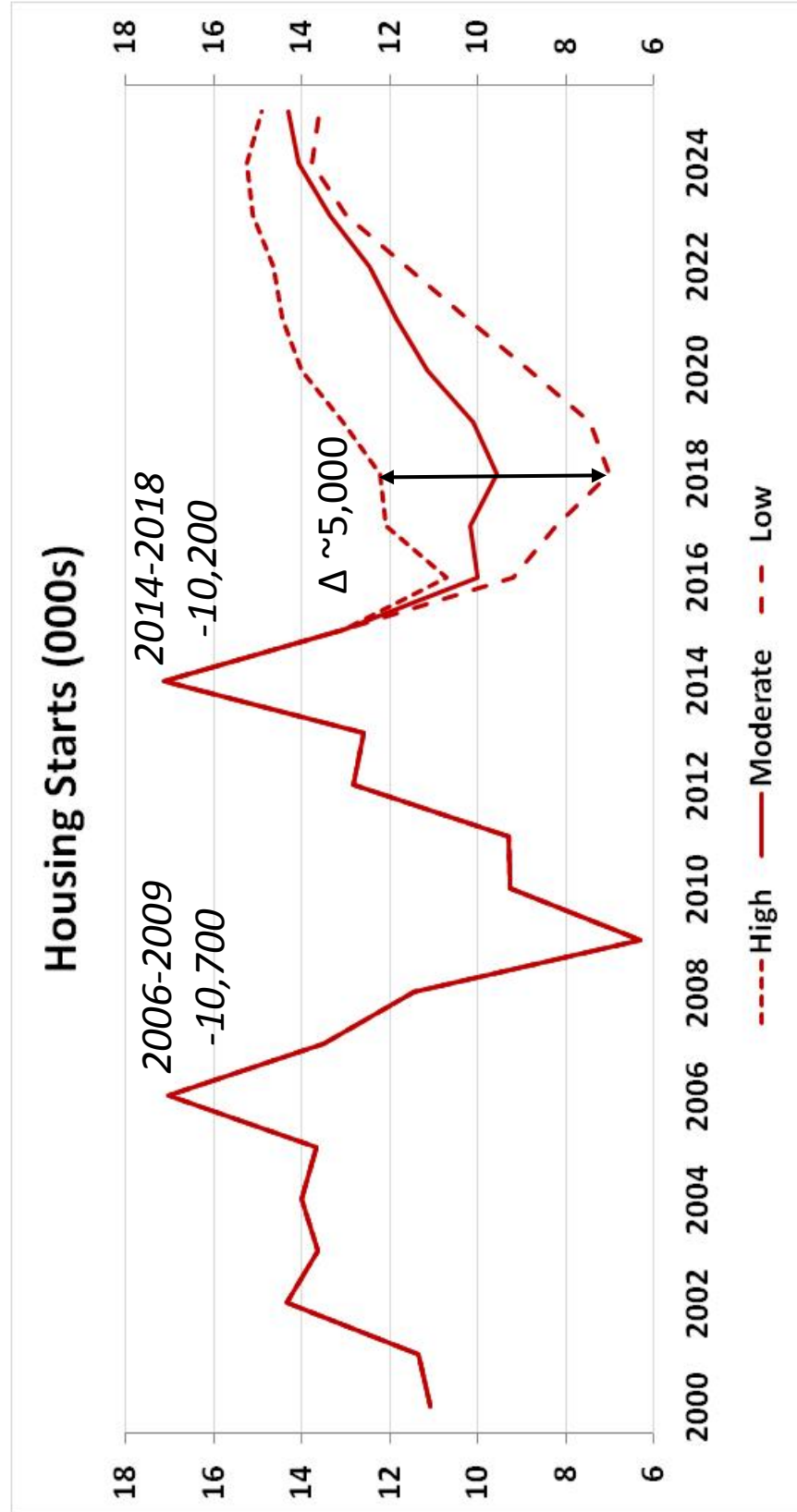
Consumer Price Inflation

Consumer Price Deflator (%)

2007-2009
-3.2%

2014-2016
-2.3%

Δ ±0.3%

- - - - High —— Moderate - - Low

© 2016 The Centre for Spatial Economics
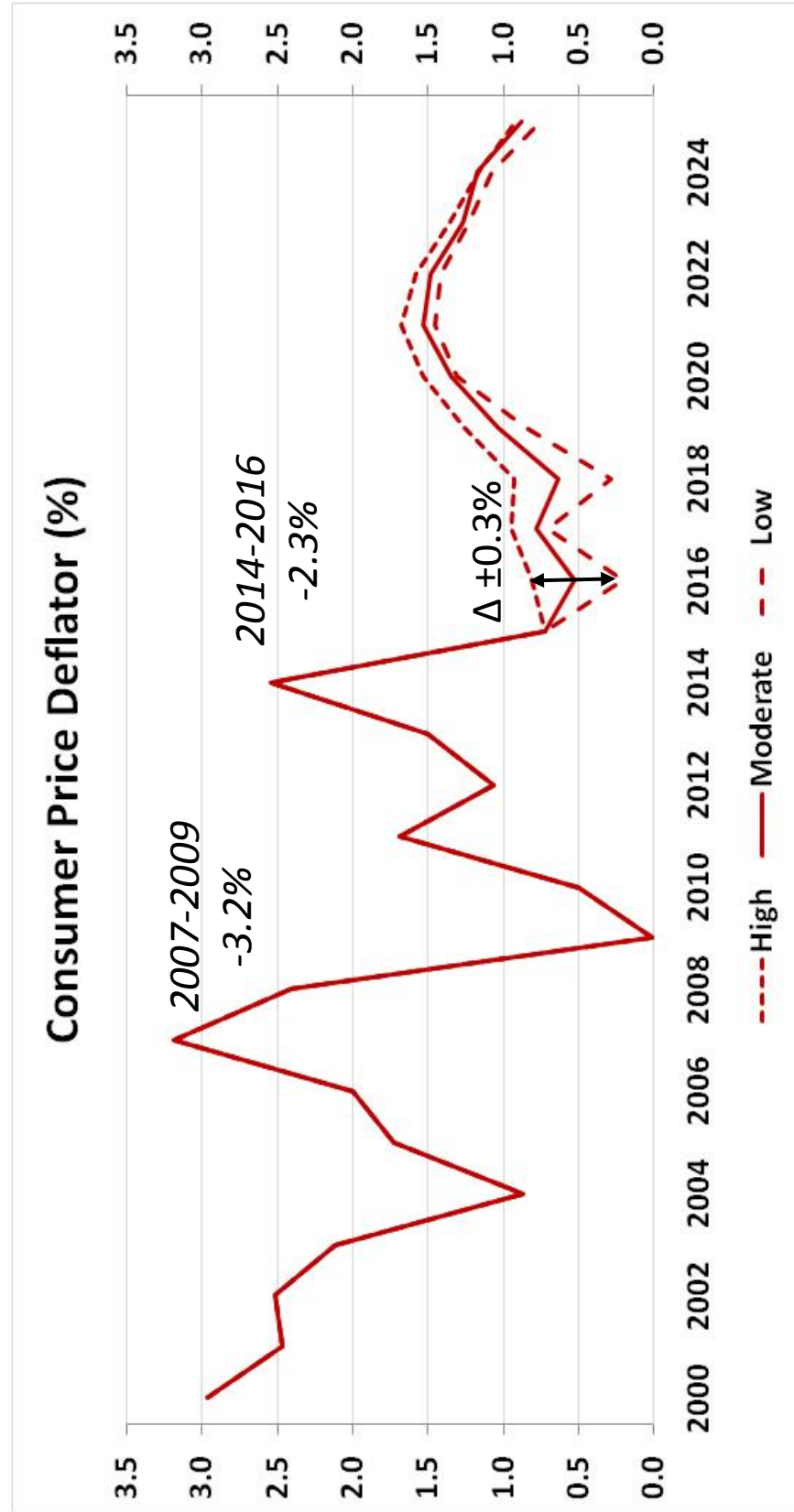
Summary Observations

❖ Short-term outlook for Calgary region could be as severe as the 2009 recession with the unemployment rate up to 9%, net in-migration of 0, and housing starts down to 7,000

❖ Long-term outlook remains positive with an increase in population of between 235,000 and 335,000; employment 67,000 to 133,000; and households 100,000 to 135,000

❖ Low inflation and weak labour markets provide an opportunity to contain the cost of regional services

❖ Now is the time to plan for long-term growth

© 2016 The Centre for Spatial Economics

The Centre for Spatial Economics

Furthering the Understanding of Demographic and Economic Change in Canada's Provinces and Sub-Provincial Regions

© 2016 The Centre for Spatial Economics

for more information please contact:

Robin Somerville

Director

The Centre for Spatial Economics

336 Bronte Street South, Unit 221

Milton, ON

Canada L9T 7W6

phone: 905-337-3855

e-mail: rsomerville@c4se.com

web: www.c4se.com

Key External Drivers

	2016	2017	2018	2019	2020	2021-25
High						
Real GDP Alberta *	307467.9	313218.7	319573.0	327183.3	335398.1	354931.2
% Change	-1.8	1.9	2.0	2.4	2.5	1.8
CAD $	0.75	0.77	0.78	0.79	0.80	0.82
WTI Oil Price	44.0	56.0	64.0	70.0	75.0	85.6
Moderate						
Real GDP Alberta *	304825.4	308798.8	312868.5	319115.8	326720.7	344242.3
% Change	-2.4	1.3	1.3	2.0	2.4	1.6
CAD $	0.73	0.75	0.76	0.77	0.78	0.80
WTI Oil Price	36.0	45.0	53.0	60.0	65.0	76.2
Low						
Real GDP Alberta *	302312.9	304688.9	306659.6	312204.6	319201.5	334184.8
% Change	-2.9	0.8	0.6	1.8	2.2	1.4
CAD $	0.72	0.73	0.74	0.75	0.75	0.77
WTI Oil Price	28.0	34.0	39.0	47.0	55.0	65.0

*Units are in $2007 millions unless otherwise specified.

© 2016 The Centre for Spatial Economics

Low Scenario

	2016	2017	2018	2019	2020	2021-25
Real GDP *	93199.6	92448.9	92816.3	93580.0	95433.6	102228.0
% Change	-3.9	-0.8	0.4	0.8	2.0	2.2
Consumer Expenditures	50523.3	49743.2	49529.7	49387.5	49744.2	53002.1
% Change	-3.4	-1.5	-0.4	-0.3	0.7	2.2
Residential Investment	7316.9	6399.0	5995.8	5859.9	6221.9	7800.6
% Change	-17.0	-12.5	-6.3	-2.3	6.2	6.6
Plant & Equipment Investment	6779.2	6324.7	6113.5	5769.4	6080.2	7297.7
% Change	-20.8	-6.7	-3.3	-5.6	5.4	5.0
Government Investment	3859.4	3717.6	3506.1	3494.5	3545.7	4065.9
% Change	2.5	-3.7	-5.7	-0.3	1.5	4.6
Government Current Expenditures	12659.6	12767.4	12874.4	13106.2	13390.0	14569.5
% Change	1.2	0.9	0.8	1.8	2.2	2.9
Exports	37349.3	38129.3	38839.9	39536.6	39803.0	39562.4
% Change	-0.9	2.1	1.9	1.8	0.7	-0.3
Imports	55946.2	53817.8	52635.2	51840.9	52620.2	57358.3
% Change	-8.7	-3.8	-2.2	-1.5	1.5	2.6
Employment (000s)	842.4	836.8	841.8	852.5	868.9	915.9
% Change	-3.8	-0.7	0.6	1.3	1.9	1.7
Unemployment Rate (%)	9.1	9.1	8.3	7.4	6.5	5.7
Net In-Migration (000s)	3.6	0.1	-0.7	3.3	8.6	18.6
Household Formation (000s)	9.5	7.7	7.2	8.2	9.8	12.7
Housing Starts (000s)	9.2	8.2	7.0	7.4	8.8	12.4

*Units are in $2007 millions unless otherwise specified.

©2016 The Centre for Spatial Economics

C4SE

Moderate Scenario

	2016	2017	2018	2019	2020	2021-25
Real GDP *	95030.2	95283.4	96819.9	98269.5	100402.3	106911.5
% Change	-2.1	0.3	1.6	1.5	2.2	2.2
Consumer Expenditures	50868.1	50743.2	51183.0	51596.8	52368.9	55774.3
% Change	-2.7	-0.2	0.9	0.8	1.5	2.2
Residential Investment	7503.4	6972.7	6914.3	6938.2	7284.1	8314.8
% Change	-14.9	-7.1	-0.8	0.3	5.0	4.2
Plant & Equipment Investment	7961.1	7380.8	7289.2	6956.6	7254.1	8087.5
% Change	-7.2	-7.3	-1.2	-4.6	4.3	3.4
Government Investment	3872.6	3754.5	3572.9	3592.2	3671.8	4181.0
% Change	2.8	-3.0	-4.8	0.5	2.2	4.3
Government Current Expenditures	12694.5	12857.4	13026.9	13317.7	13647.6	14874.8
% Change	1.4	1.3	1.3	2.2	2.5	2.9
Exports	37776.4	38767.8	39694.8	40566.0	40985.8	41937.0
% Change	0.2	2.6	2.4	2.2	1.0	0.8
Imports	57639.7	56299.2	56069.5	55867.1	56976.8	61311.4
% Change	-6.0	-2.3	-0.4	-0.4	2.0	2.4
Employment (000s)	855.0	856.2	868.5	882.6	900.1	943.3
% Change	-2.4	0.2	1.4	1.6	2.0	1.6
Unemployment Rate (%)	8.3	8.2	7.3	6.6	5.9	5.7
Net In-Migration (000s)	7.9	6.9	7.0	10.3	13.8	19.7
Household Formation (000s)	11.0	10.2	10.0	10.8	11.9	13.4
Housing Starts (000s)	10.0	10.2	9.6	10.1	11.2	13.2

*Units are in $2007 millions unless otherwise specified.

©2016 The Centre for Spatial Economics

High Scenario

	2016	2017	2018	2019	2020	2021-25
Real GDP *	96673.2	98242.1	101111.8	103589.6	106523.6	113793.7
% Change	-0.5	1.6	2.9	2.5	2.8	2.1
Consumer Expenditures	51175.9	51697.0	52865.5	53968.0	55342.5	59694.4
% Change	-2.1	1.0	2.3	2.1	2.5	2.4
Residential Investment	7668.9	7517.7	7846.6	8100.3	8519.3	9243.2
% Change	-13.0	-2.0	4.4	3.2	5.2	2.3
Plant & Equipment Investment	9115.2	8773.1	8852.5	8687.3	9158.9	9965.5
% Change	6.0	-3.8	0.9	-1.9	5.4	2.3
Government Investment	3884.2	3789.5	3638.8	3692.1	3806.7	4341.1
% Change	3.1	-2.4	-4.0	1.5	3.1	4.2
Government Current Expenditures	12725.2	12943.6	13179.4	13537.7	13929.6	15277.6
% Change	1.7	1.7	1.8	2.7	2.9	3.1
Exports	38016.4	39237.1	40397.3	41468.5	42247.2	44277.6
% Change	0.8	3.2	3.0	2.7	1.9	1.6
Imports	59219.2	58988.4	59857.9	60555.3	62426.9	67420.9
% Change	-3.5	-0.4	1.5	1.2	3.1	2.3
Employment (000s)	866.1	876.0	896.2	915.9	937.4	982.2
% Change	-1.1	1.1	2.3	2.2	2.3	1.5
Unemployment Rate (%)	7.6	7.3	6.3	5.7	5.2	5.5
Net In-Migration (000s)	11.8	13.8	15.1	18.3	20.9	22.7
Household Formation (000s)	12.4	12.7	13.0	13.9	14.7	14.9
Housing Starts (000s)	10.7	12.1	12.2	13.1	14.0	14.9

*Units are in $2007 millions unless otherwise specified.

©2016 The Centre for Spatial Economics