Report on Competitiveness: Alberta 2014

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Advisors to Government

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Message from AEDA – Advisors to Government

The Alberta Economic Development Authority is pleased to present the 2014 Report on Competitiveness.

This edition provides an update of Alberta's current state of competitiveness by comparing its performance in 70 indicators relative to 14 jurisdictions in Canada, the United States, Europe, Asia and Australia.

Alberta continues to perform very well in the benchmarking comparison – the province continues to have a high level of GDP per capita, low unemployment rate, and strong job creation. Gains in Alberta's relative ranking in productivity and innovation are also evident in the report. These improvements have come at a crucial time for the province, as these support sustained prosperity for Alberta during downward cycles in resource prices. Alberta continues to be a leader in tax competitiveness and fiscal policy.

However, the economic landscape is changing as Alberta faces the challenges of a new low oil price environment. The impact of low oil prices on Alberta's economy and competitiveness will depend on how responsive the key players in the economy are to opportunities to innovate, improve productivity and enhance competitiveness. Low oil prices will result in lower growth and higher unemployment in the short to medium term, but the slowdown in the energy sector gives rise to new opportunities for diversification (as human capital and resources are freed up for other sectors) and also leads to a strong incentive to innovate and improve productivity and competitiveness.

The need for government, industry and individual Albertans to work together is ever more important during these challenging times. The good news for Alberta is that it has built a strong and resilient economy over the years. Together, these key players can face the economic challenges and take advantage of the opportunities to build a more innovative, diversified, and competitive Alberta.

Alberta Economic Development Authority
June 2015

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Executive Summary

Introduction and background

During the past 20 years, Alberta's economy has led Canada in average annual economic growth, with strong demand energy products, high energy prices and significant investment in the oil sands having helped the province to achieve this enviable position. However, the downturn in oil prices since mid-2014 has emphasized once again that the Alberta economy continues to be highly sensitive to global energy prices.

Through the fluctuations of economic cycles, over the longer term Alberta has continued to build a highly prosperous economy. However, Alberta cannot afford to rest on its past economic laurels as future prosperity is not assured. Continued joint efforts are required of the Alberta government, Alberta firms and individual Albertans, working together in partnership, to maintain and build future economic competitiveness and sustained prosperity for the province.

The *Alberta Competitiveness Act* of 2010 noted that "competitiveness is core to the Government of Alberta's plan to position Alberta for sustained prosperity to provide a high quality of life for Albertans." This led to the formation of the Alberta Competitiveness Council and the commissioning of the inaugural *Report on Competitiveness: Alberta 2010* to benchmark Alberta's economic performance and economic competitiveness relative to its peers. The follow-up *Report on Competitiveness: Alberta 2013* was released by the Alberta Economic Development Authority, after it assumed the mandate of the former Competitiveness Council.

This report marks the latest edition in the series, benchmarking the current state of Alberta's national and international competitiveness, and building on the results of the first two editions. This report identifies areas of strength, highlights areas where opportunities for improvement may exist, and continues to form a benchmark against which future progress can be measured.

Alberta cannot assume that prosperity is assured. Government and industry must work together to enhance competitiveness.

Competitiveness framework for Alberta

"Talent, science and technology, modern infrastructure and capital are more widely distributed than ever before, and every day other nations get better at turning these building blocks into a competitive advantage around the world."

- A Clarion Call for Competitiveness, US Council on Competitiveness, 2012

For an individual business, competitiveness is generally defined in terms of increasing sales, lowering costs and/or gaining market share. For the provincial economy as a whole, however, competitiveness has a much broader meaning, with greater significance for the future prosperity of all Albertans. At this level, competitiveness means the creation of the right conditions for companies and individuals to grow and thrive, while continuing to protect important social values and ensure responsible stewardship of the environment.

Competitiveness does not represent an objective in its own right. Rather, it is a means to achieving sustained prosperity and a higher standard of living for Albertans.

Competitiveness does not represent an objective in its own right. The ultimate objective for Alberta should be to improve the standard of living of individual Albertans in a sustainable way – competitiveness represents a means to this end. For the purposes of this report, competitiveness is defined as "the condition created when government, industry and Albertans work together to pursue sustained prosperity".

Alberta's economic prosperity can be best defined in terms of standard of living – the total economic income that is available for public spending on essential social services, individual consumption or saving and business re-investment. Therefore, prosperity implies generating more income and a higher standard of living for Albertans, but in a way that can be maintained for future generations.

There are two main avenues for pursuing a higher standard of living. The first option is to work harder, something Albertans have long demonstrated their willingness and ability to do; but this approach has obvious limits. The other option is to work smarter, to generate more income per hour worked by being innovative and raising productivity. The ability to improve productivity knows no limit, provided that a competitive economy exists to help foster innovation.

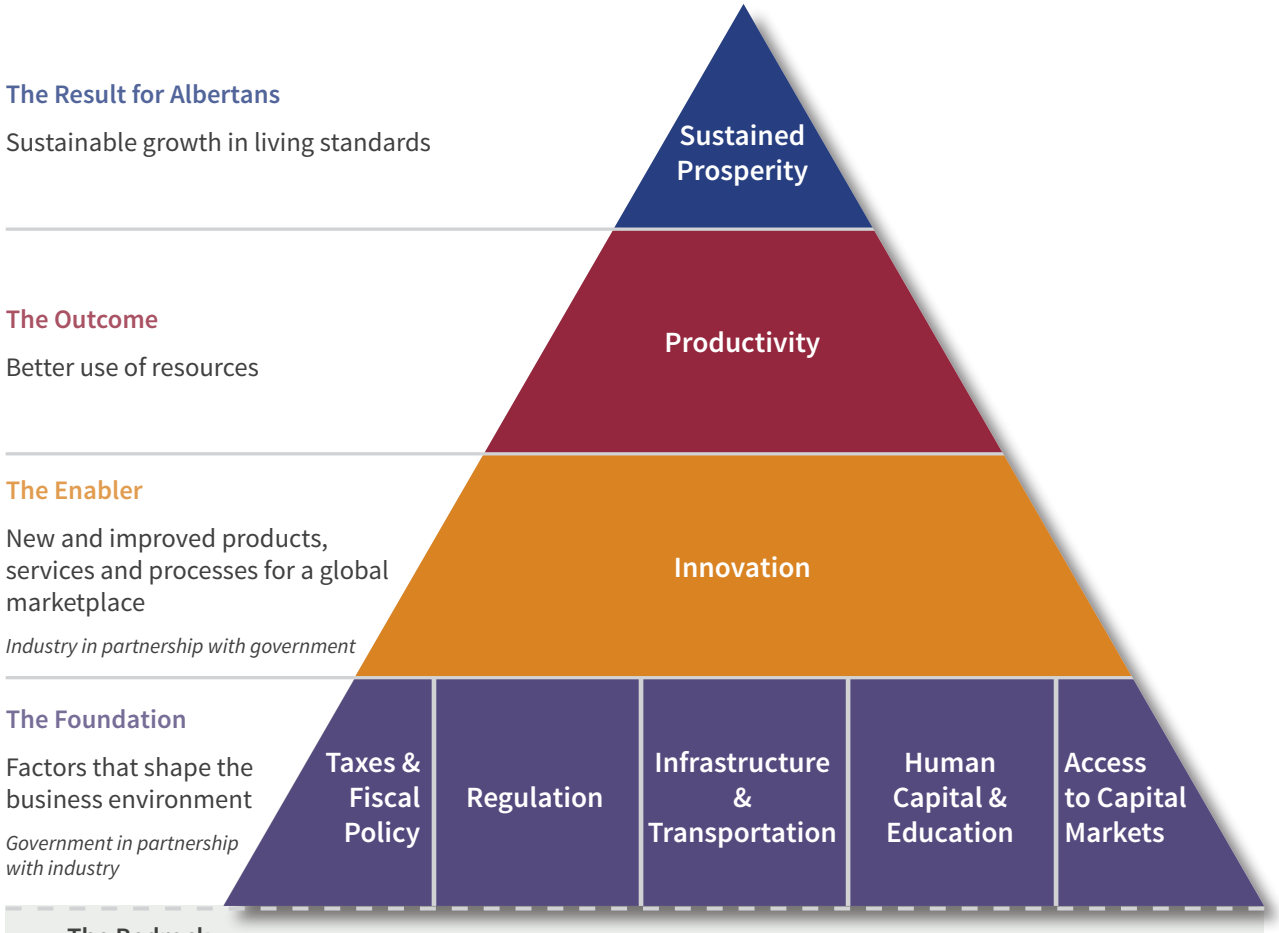
The better route to sustained prosperity is to work smarter – be innovative, raise productivity, produce more value while maintaining the same level of effort.

Therefore, innovation-driven improvements in productivity are the only long term means to support sustained prosperity. These relationships are illustrated in the Competitiveness Pyramid.

The base of the Competitiveness Pyramid identifies a range of factors that affect economic competitiveness and the fostering of innovation. These factors, defined as the foundation, include taxes and fiscal policy, regulation, infrastructure and transportation, human capital and education, and access to capital markets. It is through these elements that government can work to develop a more competitive business environment, to encourage innovation and productivity. Finally, the Pyramid is built on a bedrock of factors that uniquely define Alberta – natural characteristics that do not change (natural resources and location) and human characteristics that only change slowly in response to social or cultural change (e.g. demography and social values).

The Competitiveness Pyramid represents the framework used in this report to assess Alberta's competitive performance.

The Competitiveness Pyramid



Competitiveness benchmarking

With the bedrock under the Competitiveness Pyramid being effectively fixed, this report assesses Alberta's competitiveness by examining the foundation, innovation, productivity, and sustained prosperity. Results for Alberta are benchmarked against a group of national and international peers.

Capital and labour mobility mean that Alberta's competitors are no longer all local – global comparisons are essential.

A total of 14 jurisdictions have been chosen for comparison with Alberta:

- **Canada** – British Columbia, Saskatchewan, Manitoba, Ontario and Quebec.
- **United States** – Colorado, Idaho, Louisiana, North Dakota, Texas and Washington State.
- **International** – Norway, the Republic of Korea (South Korea) and within Australia, the state of Queensland.

In this report, three new jurisdictions have been added to the benchmark comparisons (Louisiana, North Dakota and Korea). Given recent economic performance, these jurisdictions represent stronger and more relevant comparators for Alberta than the three jurisdictions they replaced in the prior editions of this series (Minnesota, Oregon and Finland).

All 14 jurisdictions were selected on the basis of their relatively strong economic performance in recent years, as well as their size, location, structural similarities with Alberta and/or particular strengths in aspects of competitiveness to which Alberta aspires.

This report strives to provide complete comparisons for all jurisdictions and measures. However, for some measures, comparable data are not available for all locales, resulting in fewer jurisdictions (and/or national results) being compared.

A total of 70 individual benchmarking measures are examined in this report. The measures were selected based on three criteria – relevance for Alberta and its economy, the reliability of available data and the ability to compare other jurisdictions.

Alberta's performance

Alberta's performance in the benchmarking comparisons is generally very positive, a result that is consistent with the long-term strength and dynamic nature of the Albertan economy. Alberta's relative performance for each component of the Competitiveness Pyramid is summarized in the table on this page.

These comparisons represent a current snapshot, based on available data up to, and including, 2014. The downturn in oil prices in late 2014/early 2015 is negatively impacting Alberta's economy and will affect many economic measures going forward. While oil revenues have already declined, the broader implications for Alberta's economy will depend on the vast matrix of indirect impacts – potential declines in various oil-related activities, but with offsetting opportunities to improve productivity and to capitalize on business opportunities opening up in other sectors. This issue is discussed further on pages 11-12. The final implications of this economic shift for Alberta's competitiveness will be revealed in future editions of this report.

Competitiveness benchmarking summary for Alberta

	# measures compared	Rating	Change from 2013
Sustained Prosperity	10		→
Productivity	14		↑
Innovation	13		↑
The Foundation:			
Taxes & Fiscal Policy	5		↑
Regulation	4		↓
Infrastructure & Transportation	6		↓
Human Capital & Education	13		→
Access to Capital Markets	5		→

Legend for ratings[1]

- *Excellent (top quintile)*
- *Good (second quintile)*
- *Average (middle quintile)*
- *Weak (lower quintile)*
- *Poor (bottom quintile)*

1 The ratings of Excellent, Good, Average, Weak, and Poor take into account both Alberta's ranking among the jurisdictions compared, and Alberta's measured value relative to other jurisdictions.

The summary results from the benchmarking comparison reveal an improvement in Alberta's relative ratings for both productivity and innovation. These improvements have come at a crucial time for the province, as these are the levels of the Competitiveness Pyramid that can help to support sustained prosperity for Alberta during downward cycles in resource prices. Alberta's transition through the current "low oil" environment should be somewhat eased by these key improvements, as compared to what would have otherwise occurred.

A similar table detailing Alberta's results for each of the 70 individual benchmarking measures can be found at the end of this executive summary, on page 6. Among the 70 measures examined, Alberta achieves a rating of "Excellent" (top quintile) for 25 measures, "Good" (second quintile) for 19 measures, "Average" (middle quintile) for 10 measures, "Weak" (lower quintile) for 13 measures, and "Poor" (bottom quintile) for 3 measures.

Comparing these figures to the previous edition of this report, Alberta's direction of movement is positive. The number of "Good" measures has declined by one, but "Excellent" has gained one. The "Average" and "Weak" categories have gained three measures each, but this is offset by a large drop in "Poor" ratings from nine measures to only three.

While these statistical results are important as a benchmark against which future performance can be assessed, equally as important is the ability to identify areas of relative strength and areas where Alberta lags behind its competitors:

- **Sustained prosperity** – To achieve sustained prosperity, economic, social and environmental considerations must be balanced. Alberta has achieved a high level of gross domestic product (GDP) per capita, strong growth in personal income, relatively low levels of unemployment (current and long-term), and strong job creation (through 2014). In addition, issues with housing affordability appear to have stabilized in recent years. However, Alberta has seen a decline in the composite Index of Economic Well-being (which encompasses social and environmental considerations), with rising income inequality and lower economic security. Growth of real GDP per capita – after eliminating changes in energy prices – has also been relatively weak, with years of reaping higher resource revenues masking low growth in real economic output.

Alberta's real productivity growth has improved in recent years and should help buffer recent economic events.

- **Productivity** – Alberta's level of productivity – GDP per hour worked – is relatively strong. Even after excluding the effect of higher (historic) resource prices, Alberta's real productivity growth has improved in recent years, providing a necessary boost that should help in the current resource down cycle.

  Among Alberta's major sectors, mining, oil and gas, construction and business services all show good or excellent results both for productivity levels and growth rates. For Alberta's construction sector, this represents a significant improvement on past results. While Alberta's manufacturing sector continues to have a high level of productivity, in recent years productivity growth in that sector has been poor. The agricultural sector has also struggled with productivity growth in recent years, despite having a good level of labour productivity.

- **Innovation** – Albertans have demonstrated a strong aptitude for entrepreneurship and for employment in natural and applied sciences. Alberta has also witnessed a large number of high growth firms in recent years. Business investments in innovative equipment and industrial funding of university research and development (R&D) are also relatively strong in Alberta. Business R&D spending has been improving, but is still below average relative to Alberta's peers, while total R&D spending continues to represent Alberta's weakest point within innovation.

- **Taxes and fiscal policy** – Low tax burdens for both individuals and corporations cause Alberta to achieve its best result in this category, rating as "Excellent". However, some of the improvement for Alberta is relative based on changes in other jurisdictions, including an increase in top personal tax rates in the US.

- **Regulation** – Good regulation is about more than just the number of regulations on the books. The quality of regulations and the regulatory development process are major areas of focus for Alberta. Among the limited measures of regulation compared in this report, Alberta's results are average. Reductions in the time and cost of starting a new business in other jurisdictions have negatively impacted Alberta's relative result in the current analysis, even though both Calgary and Edmonton showed some improvement of their own in this regard.

- **Infrastructure and transportation** – Alberta continues to show strong results for public spending on infrastructure, as well as for the overall net stock value (quantity and quality) of public infrastructure. Alberta fares moderately well for the service provided by its airports, with a modest gain recorded, and broadband internet penetration in Alberta households continues to rise. However, Alberta's overall rating on this category drops to "Good" this year due to the addition of a new measure of broadband internet speeds, for which Alberta (and other Canadian provinces except Ontario) rates relatively poorly. Like regulation, infrastructure represents an important topic, but one that can be challenging to measure – even more so now as Statistics Canada is no longer reporting comparable nationwide data on detailed local government expenditures.
- **Human capital and education** – Alberta continues to benefit from a balanced education system with good or excellent results for most measures related to both academic and vocational (non-degree) training. Strong gains in lifelong learning stand out favourably in the current results. Despite these good results, concerns identified for Alberta include a decline in scores for high school skills, a decline in apprenticeship completions, and a drop in non-degree post-secondary education without a corresponding gain in ranking for university degree completion. For human capital, net migration continues to be strong (to 2014) as does Alberta's employment rate. While Alberta still rates favourably (relative to its peers) for age dynamics in its workforce, it has recently passed a tipping point where the onset of workforce aging is becoming a more urgent problem.
- **Access to capital markets** – This section of the comparison required a major refresh of the measures used in the current report, with the replacement of three of the five previous measures for which data are no longer available. Most concerning here is that Statistics Canada has stopped tracking foreign investment – a vital issue for the Alberta economy.

  Even with these changes, Alberta's overall result for this section remains unchanged, at "Average". The substantial presence of corporate head offices in Alberta represents a strong aspect in Alberta's favour. (While not the subject of a specific measure, the presence of the TSX Venture Exchange headquarters in Calgary provides very strong capabilities to raise public equity for venture-stage resource firms.) Meanwhile, Alberta's results for SME financing are moderate and Alberta continues to fare below average on access to venture capital, with a trend towards fewer, larger venture capital deals – a factor which may inhibit the growth of innovative new high tech businesses.

Action to improve weaknesses should be designed so as not to detract from existing strengths.

This summary identifies measures where Alberta performs very well, but also those where Alberta trails many of the comparator jurisdictions. Whether or not these represent areas for improvement is a strategic issue presenting an opportunity to consider policy changes and action plans.

In some instances, taking action in areas of relative weakness may be the preferred course of action. In other instances, working to remedy such issues may detract from an existing comparative advantage, or overall competitiveness may be better served by deploying resources to further strengthen existing advantages.

A call to action

Prosperity, productivity, innovation, and competitiveness are interlinked in the modern global economy. Competitiveness paves the way for innovation, which is required to improve productivity. In turn, improving productivity is the only long term solution to achieving and maintaining sustained prosperity – irrespective of resource price cycles.

To boost competitiveness, improve innovation, grow productivity, and sustain prosperity, action is required by both government and industry, working in partnership. The Alberta Economic Development Authority acts as an advisor to government, drawing on senior-level industry expertise to make policy recommendations to government to strengthen and diversify Alberta's economy. This report identifies possible areas of focus for these policy recommendations, after due consideration of other competitiveness and diversification initiatives already being pursued by Alberta firms and the province.

This represents important work and the stakes are high – as the future prosperity of Alberta and Albertans will be determined by the actions of today.

Competitiveness benchmarking results for Alberta

Measure	Alberta's Rank[1] & Rating[2]	Change from 2013
Sustained Prosperity		
GDP per capita	2 /15	→
Growth in real GDP per capita	7 /15	→
Personal income per capita, after tax	7 /15	↓
Growth in real personal disposable income	3 /15	↑
Housing affordability	8 /14	→
Unemployment rate, five-year average	1 /15	→
Unemployment rate, latest year	4 /15	↑
Employment growth	3 /15	→
Index of Economic Well-being	2 / 9	↓
Human Development Index	4 /10	↓
Productivity		
GDP per hour worked	7 /15	→
Growth in real GDP per hour	8 /15	↑
GDP per hour worked, agriculture	2 / 6	↓
GDP per hour worked, mining, oil and gas	2 / 6	↓
GDP per hour worked, manufacturing	2 / 6	↓
GDP per hour worked, construction	1 / 6	↑
GDP per hour worked, business services	1 / 6	→
Growth in real GDP per hour, agriculture	4 / 7	↓
Growth in real GDP per hour, mining oil and gas	2 / 8	→
Growth in real GDP per hour, manufacturing	13 /14	→
Growth in real GDP per hour, construction	3 /14	↑
Growth in real GDP per hour, business services	3 /13	↑
Non-resource exports per capita	9 /15	→
Growth in non-resource exports per capita	10 /15	→
Innovation		
Total R&D expenditures	12 /15	→
Growth in total R&D expenditures	7 /15	↓
Business R&D expenditures	11 /15	↑
University patents received	9 /13	→
Industrial share of research funding	1 /13	↑
Start-ups licensing university technology	7 /12	→
Investment in machinery and equipment	3 /10	↑
Investment in ICT equipment and software	2 / 7	↑
Employment in natural and applied sciences	1 / 6	→
Multifactor productivity growth	5 / 6	→
Total early-stage entrepreneurial activity	1 /10	*new*
New business start-ups	2 /12	↓
High growth firms	1 / 6	↑

1 *The number of jurisdictions compared for each measured varies due to availability of data.*
2 *The ratings take into account both Alberta's ranking and Alberta's measured value relative to other jurisdictions.*

Measure	Alberta's Rank[1] & Rating[2]	Change from 2013
Taxes & Fiscal Policy		
Marginal effective tax rate on investment	2 /10	→
Business total tax index	1 /13	*new*
Top personal income tax rate	1 /15	→
Total tax burden	6 /15	→
Government net financial assets	3 /14	↓
Regulation		
Time required to start a new business	8 /10	↓
Cost of procedures to start a new business	7 /10	→
Property transfer costs	6 /15	→
Total business cost index	5 /13	→
Infrastructure & Transportation		
Government investment in infrastructure	2 /10	↓
Net stock of public infrastructure assets	1 / 6	*new*
Government spending on roads, bridges and transit	1 / 6	→
Airport passengers per capita	5 /15	→
Households with broadband internet	4 /15	↓
Broadband internet speed	9 /15	*new*
Human Capital & Education		
High school math, reading and science skills	3 /10	↓
High school completion rate	7 /15	→
Post-secondary education other than degrees	2 /12	→
Bachelor degree completion rate	11 /15	→
Graduate student rate	12 /15	→
International graduate students	5 /15	↑
Apprenticeship completion rate	1 / 6	→
Ongoing formal or informal education	1 /10	↑
Employment rate	2 /15	→
Change in employment rate	9 /15	↓
Net migration rate	2 /15	↑
Share of labour force aged 55+	2 /15	→
Share of labour force aged <25	5 /15	→
Access to Capital Markets		
SME authorization of requested credit	3 / 6	*new*
SME financing as an obstacle to business growth	3 / 6	*new*
Venture capital investment	10 /15	↑
Number of venture capital deals	12 /15	→
Head office employment	1 / 6	*new*

Legend for ratings[2]

- *Excellent (top quintile)*
- *Good (second quintile)*
- *Average (middle quintile)*
- *Weak (lower quintile)*
- *Poor (bottom quintile)*

Introduction

"Competitiveness is defined as the set of institutions, policies and factors that determine the level of productivity of a country [or region]."
– World Economic Forum, The Global Competitiveness Report, 2014-2015

"Competitiveness is not about a low-cost labour force, the largest share of exports or even the fastest economic growth. It is about creating the conditions under which companies and citizens can be the most productive so that wages and return on investment can support an attractive standard of living."
– Competitiveness Index: Where America Stands, US Council on Competitiveness, 2007

Background

Albertans, and the Alberta economy, have long been subject to the ups and downs of the global economy. The downturn in oil prices in late 2014 and early 2015 have re-emphasized this fact, once again. However, despite the fluctuations of economic cycles, over the longer term Alberta has continued to build a highly prosperous economy, through the joint efforts of the Alberta government, Alberta firms and individual Albertans, working together in partnership. However, this does not mean that future prosperity is assured.

Alberta has been able to build itself a highly prosperous economy; however, this does not mean that future prosperity is assured.

To achieve sustained prosperity in the long term, steps must be taken and plans must be made now, to build a highly competitive economy that can withstand the effects of external economic forces.

The inaugural *Report on Competitiveness: Alberta 2010* was developed and released by the Alberta Competitiveness Council in order to benchmark Alberta's economic performance and economic competitiveness relative to its peers. The follow-up *Report on Competitiveness: Alberta 2013* was developed and released by the Alberta Economic Development Authority, after it assumed the mandate of the former Competitiveness Council.

This report marks the latest edition in the series, benchmarking the current state of Alberta's national and international competitiveness, and building on the results of the first two editions. This report compares Alberta's performance based on a collection of 70 competitiveness measures. The report identifies areas of strength, highlights areas where opportunities for improvement may exist, and continues to form a benchmark against which Alberta's future progress on economic competitiveness can be measured.

What is competitiveness?

The definition of competitiveness varies depending upon its context. For a business, competitiveness may mean increasing sales, lowering costs and/or gaining market share. For the provincial economy as a whole, however, competitiveness has a much broader meaning, with greater significance for the future prosperity of all Albertans.

At the provincial level, competitiveness means the creation of the right conditions to allow companies and individuals to thrive economically, while reinforcing important social values and ensuring responsible stewardship of the environment.

Competitiveness is the condition created when government, industry and Albertans work together to collectively pursue sustained prosperity.

Competitiveness does not represent an objective in its own right. The ultimate objective for Alberta should be to improve the standard of living of Albertans in a sustainable way, and competitiveness represents a means to this end.

Alberta's competitiveness framework

Income generated by the economy is available for public spending on essential social services, individual consumption or saving and business re-investment. Therefore, the goal of economic prosperity is to generate more income and a higher standard of living for Albertans – but this must be done on a sustainable basis.

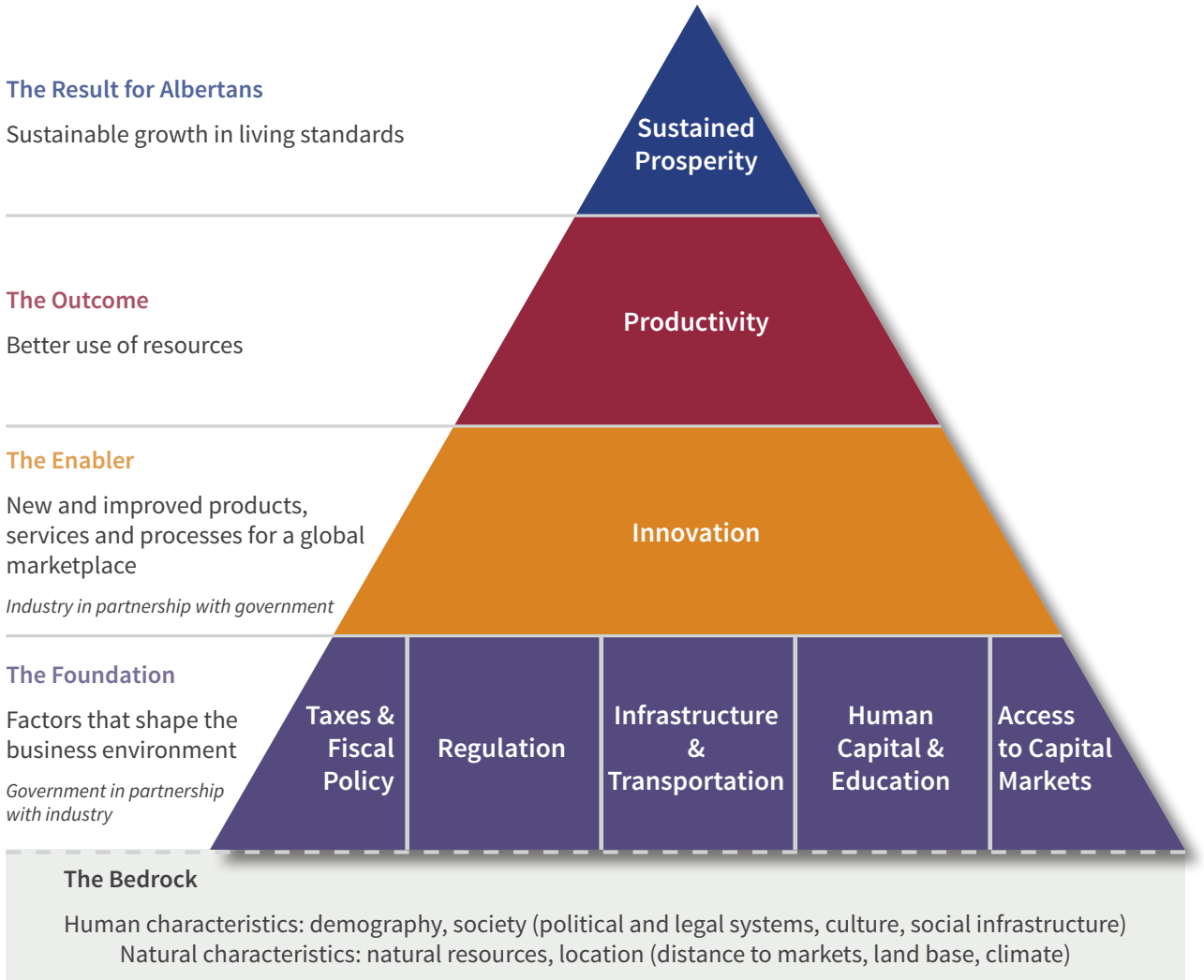
A higher standard of living can be pursued either by increasing labour effort or by working smarter:

- Albertans can increase total economic income by increasing their total labour effort, engaging more workers and/or working more hours. While delaying retirement, increasing immigration and working more hours per week can achieve this goal, the capacity to work harder has its limits.
- The other option is to work smarter – to generate more output for every hour worked by being innovative and raising productivity. The ability to improve productivity knows no limit.

With an aging population and fewer future workers, Alberta's high standard of living cannot be sustained solely by relying on increased labour effort. To sustain ongoing growth in Alberta's living standards, innovation is required and productivity must grow.

Therefore, sustained prosperity, productivity and innovation are all interconnected – innovation is the enabler of productivity growth, with productivity growth supporting sustained prosperity. To provide a structure for illustrating these relationships, this report adopts a framework for competitiveness defined as the Competitiveness Pyramid.

The Competitiveness Pyramid



With innovation, productivity and prosperity being the objectives of competitiveness, the focus then moves to what is required to foster innovation. No single factor causes innovation to occur, but establishing a competitive business environment increases the likelihood of innovation occurring. The role of government here is to actively manage taxes and fiscal policy, regulation, infrastructure and transportation, human capital and education, and access to capital markets – all factors that enhance the competitive environment and help to encourage innovation. Therefore, this group of elements represent the foundation on which the Competitiveness Pyramid is based.

The Competitiveness Pyramid represents the model used to assess the province's competitive performance.

While government can work to enhance the business environment as the foundation for competitiveness, once the foundation has been laid, industry has the lead role in innovation, generating jobs, enhancing productivity, and driving sustained prosperity. Therefore, a strong partnership between government and industry is required to guide the creation of the right mix of policies for Alberta to flourish.

Underlying the Competitiveness Pyramid itself is the bedrock – a collection of characteristics that uniquely define a jurisdiction. These include natural characteristics that do not change (e.g. natural resources and location) and human characteristics that can only change slowly in response to social or cultural change (e.g. demography and core social structures/values). These characteristics are generally considered to be fixed by policy makers, but still influence the approach taken in shaping Alberta's foundation for competitiveness.

This competitiveness framework was first presented in the report *Alberta's Competitiveness – A Primer for Discussion*, which was prepared for the Alberta Competitiveness Council and was reviewed and accepted by government and industry at a June 2010 Competitiveness Forum. This pyramid framework is broadly consistent with various frameworks developed by leading international councils on competitiveness, as well as academic institutions.

With the bedrock under the Competitiveness Pyramid being effectively fixed over the medium term, this report focuses on assessing Alberta's relative competitiveness for each layer of the Competitiveness Pyramid – sustained prosperity, productivity, innovation and the five elements of the foundation. For each of these components, this report benchmarks Alberta's performance relative to a group of national and international peers.

Provincial versus sector level competitiveness

This report focuses on developing a thorough understanding of the competitive position of the Alberta economy as a whole, to guide policy advice that the Alberta Economic Development Authority provides to government and to chart a path that will lead to sustained prosperity.

The competitiveness framework applied in this study is broadly applicable to the economy as a whole, but could also be readily applied to individual sectors within the economy. In general, when comparing the competitiveness of individual sectors, additional sector-specific "micro" drivers of innovation and productivity would need to be considered in addition to the "macro" level drivers examined in this report. Additional competitiveness drivers for individual sectors may include (but not necessarily be limited to) factors related to unique demand conditions, the stage of cluster development in the industry, the degree of competition domestically and abroad, and specific factor inputs required by the industry.

This report focuses on the competitiveness of the entire economy and cannot seek to present detailed assessments of individual industries. However, this report does present select information on five major economic sectors in the Productivity chapter, which includes separate benchmarking of labour productivity in the following sectors: agriculture; mining, oil and gas; manufacturing; construction; and business services.

Structure of the Alberta economy

Over the past 20 years, Alberta's economy has led Canada in average annual economic growth.

In 2013, Alberta's energy sector accounted for 23.1% of provincial GDP. The Alberta economy has achieved significant diversification in recent decades, with the current economic share of the energy sector being well below its 36.1% share of provincial GDP in 1985. However, the energy sector remains Alberta's most important industry sector, with further work on diversification still being required to continue to improve the balance of the provincial economy.

Finance and real estate accounted for 13.5% of GDP in 2013, representing the second largest sector in the provincial economy, followed by the construction sector at 10.9% of GDP. Together with business and commercial services (at 10.6%), these four sectors collectively accounted for more than 58% of Alberta's economic activity in 2013.

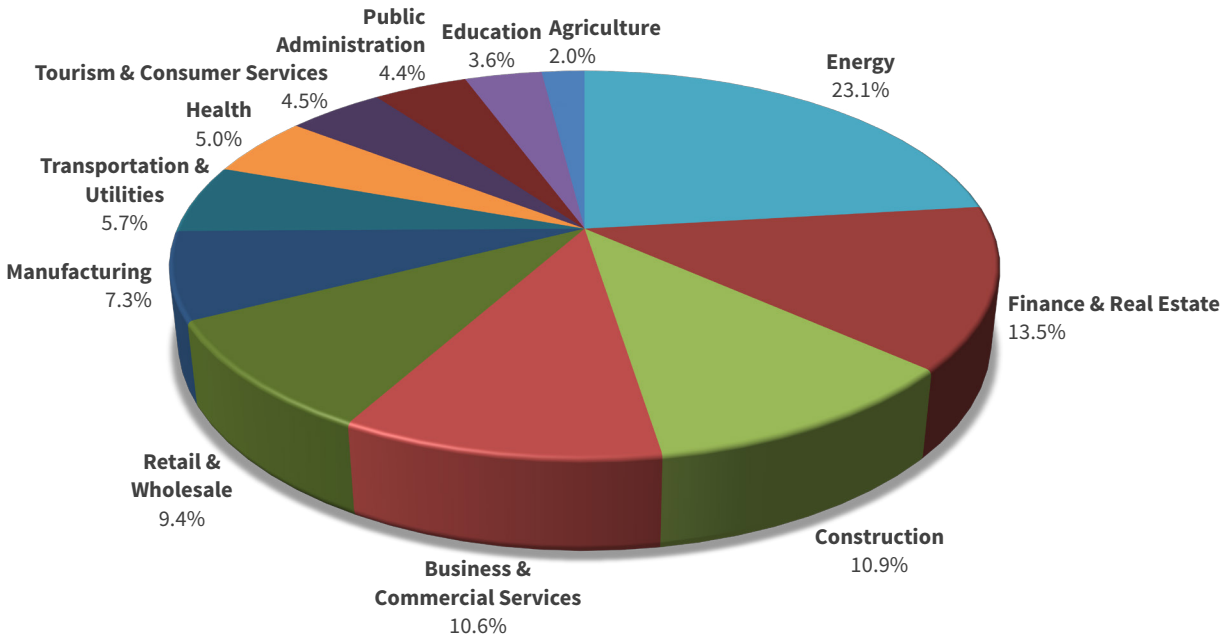
Other key sectors, and their share of provincial GDP, are also illustrated in the pie chart.

Alberta's economy is highly export oriented, with energy exports leading the way. Crude petroleum exports of $64.4 billion in 2013 were almost 13% higher than the $57.0 billion recorded in 2012.

Exports of gas and gas liquids also increased in 2013, but are still lower than they were in 2009, while exports of petrochemicals increased by $1 billion in 2013, to $7.6 billion.

Despite these significant gains in energy sector exports, most other major categories experienced modest declines in export values in 2013, as compared to 2012.

Distribution of Alberta's GDP (2013) and Alberta's major goods exports (2013 $B)



Source: Alberta Innovation and Advanced Education, Highlights of the Alberta Economy, April 2014

Competitiveness considerations for resource intensive economies

A highly relevant consideration for any form of economic measurement in resource intensive economies is the strong correlation between GDP, resource demand, and resource prices.

As global demand for resources rises, so too do resource prices, causing GDP to climb even if output remains unchanged. Where possible, producers respond to higher prices by increasing output, thus further raising GDP but also running the risk of excess supply. Excess supply will drive down resource prices, and even if demand and supply remain unchanged, GDP will decline. Volatility in resource prices can cause resource revenues rise or fall relative to the hours worked, registering as changes in productivity in nominal terms (but not in real terms).

This is not to suggest that the gains seen in boom years, or the pain of bust years are somehow not "real". They are very real. Gains from the up cycle can be harnessed to help build a more competitive economy, which in turn can help to provide some shelter from the effects of the next down cycle.

It is critical for resource intensive economies to take a long term view – to recognize that part of what is being recorded as "income" today represents a depletion of the province's natural wealth. Society must determine what share of this income should be directed towards the development of the human, physical and technological capital that can sustain prosperity as natural capital is depleted.

One further effect of this volatility in resource-related GDP is its effect on the measurement and assessment of performance for non-resource industries. When measured as a share of GDP, non-resource industries appear to "shrink" during resource booms, simply because they become dwarfed by the growing resource sector. The opposite occurs during down cycles, when other industries appear to "grow" as a share of GDP.

To counter this issue, it has been suggested that it would be useful to benchmark Alberta against its peers after excluding the "distortion" represented by the resource sector. While the direct impact of the resource sector can readily be identified, the tentacles of the resource sector run throughout the Alberta economy, through employees, suppliers, service providers and regulators. To try to separate the resource sector from the "rest" of the Alberta economy becomes an impossible task and would result in a picture of Alberta that is unrecognizable from the reality that exists today.

To address these issues, this report has chosen to scale some measures relative to population, instead of GDP, so that broad economic measures become less prone to volatility in resource sector revenues. In addition, a special section on productivity in key sectors does help break down the "full economy" picture and provides a view of how the non-resource sectors of the Alberta economy are performing.

It is critical to take a long term view – to recognize that part of what is being recorded as "income" today represents a depletion of the province's natural wealth.

Impact of recent oil price changes

The comparisons presented in this report represent a current snapshot, based on available data up to, and potentially including, 2014. However, for some measures where more recent data has not yet been released, data used are from earlier years. In particular, the major economic indicators in this report (e.g. GDP) still reflect data from 2013.

The subsequent downturn in oil prices from mid-2014 is having a significant negative impact on Alberta's economy. This change in the resource cycle will affect many economic measures for Alberta in the months and years ahead. However, Alberta is not alone in this regard and among the comparator jurisdictions in this report (refer to page 13), Saskatchewan, North Dakota and Norway are also being significantly affected by lower oil prices. In addition, oil prices have now rallied to around US$60 per barrel[1], a level that was considered a huge boon to the oil industry in Alberta (including oil sands) when it was first reached less than 10 years ago.

While oil revenues have declined along with the price of oil, the broader implications for Alberta's economy and competitiveness will depend on the vast matrix of indirect impacts. While a decline in oil prices alone does not decrease real GDP, to the extent it translates into a reduction in exploration and supplier activity, with employee layoffs, then real GDP will decline.

However, as the slowdown in the oil sector takes some of the pressure off the Alberta economy, this frees up human capital and other resources that are in short supply when the oil industry is running at full capacity. Together with the oil-induced decline in value of the Canadian dollar, this can give rise to new opportunities for diversification in other sectors.

1 West Texas Intermediate as at late May, 2015.

A downturn in the resource cycle can put downward pressure on Alberta's labour productivity, with employers trying to retain good employees even as activity declines. However, there is also a strong incentive to innovate and boost productivity – especially for oil sands producers who have invested huge sums in projects that now provide only a marginal return, if any. Production costs tracked upwards with the price of oil and now need to be contained. These firms are now seeking ways boost productivity.

Finally, for non-resource exporters, the news can be good. The lower Canadian dollar boosts their export revenues, increasing productivity. Lower gasoline prices leave more money in US consumers' wallets, for spending in other product categories. Lesser wage pressures in Alberta, lower costs for fuel used in production, and lower transportation costs for delivery also help exporters to price their products competitively and attract new customers.

A sample of these impacts are shown in the exhibit here, to illustrate the complexity of these issues. The effects are diverse, with interrelated impacts affecting the relative competitiveness of all jurisdictions. Therefore, this report does not try to predict future outcomes for Alberta. The final impact of this economic shift on Alberta's competitiveness will be revealed in future editions of this report.

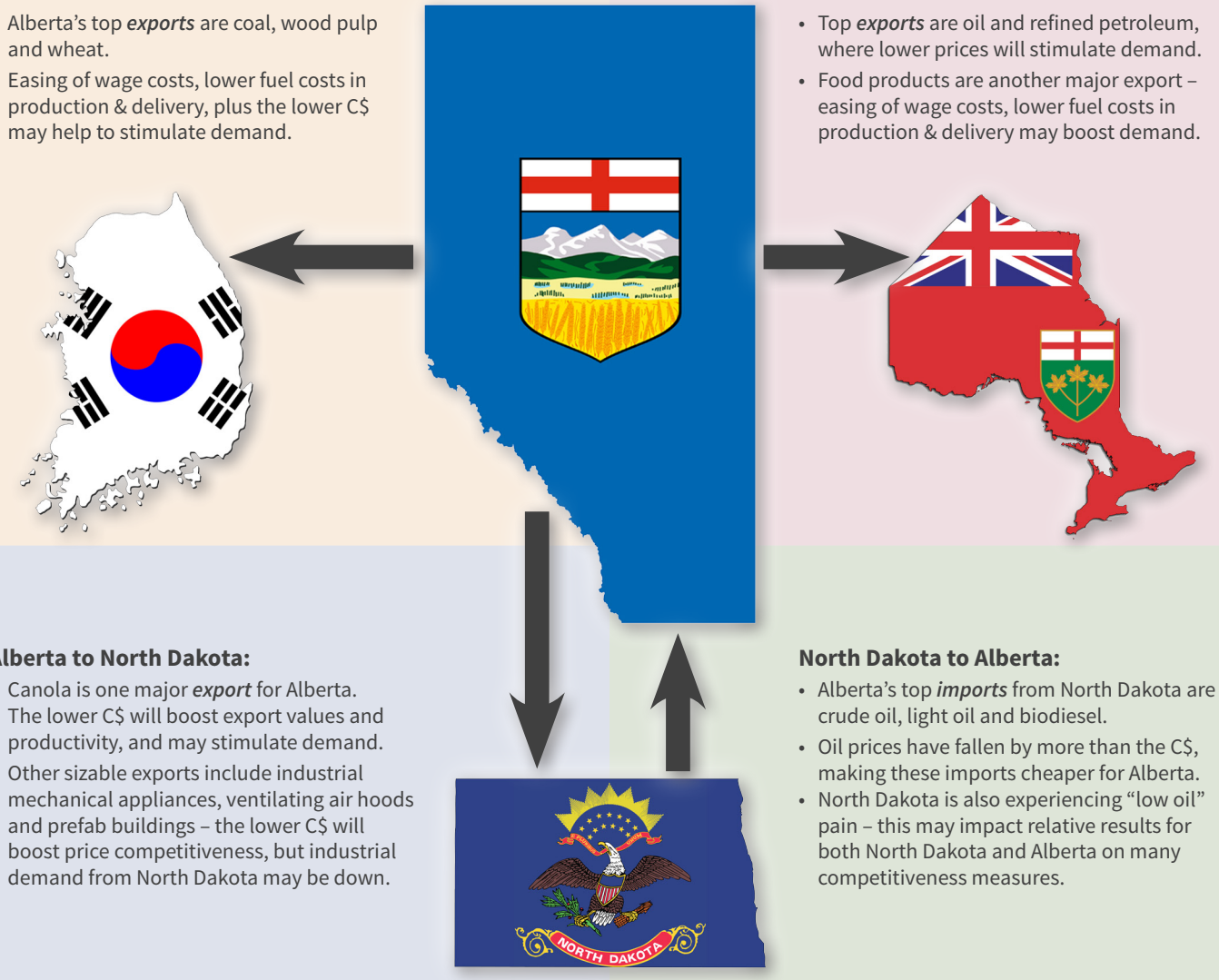
A sample of potential economic and competitiveness impacts from lower oil prices

Alberta to Korea:

- Alberta's top ***exports*** are coal, wood pulp and wheat.
- Easing of wage costs, lower fuel costs in production & delivery, plus the lower C$ may help to stimulate demand.

Alberta to Ontario:

- Top ***exports*** are oil and refined petroleum, where lower prices will stimulate demand.
- Food products are another major export – easing of wage costs, lower fuel costs in production & delivery may boost demand.



Alberta to North Dakota:

- Canola is one major ***export*** for Alberta. The lower C$ will boost export values and productivity, and may stimulate demand.
- Other sizable exports include industrial mechanical appliances, ventilating air hoods and prefab buildings – the lower C$ will boost price competitiveness, but industrial demand from North Dakota may be down.

North Dakota to Alberta:

- Alberta's top ***imports*** from North Dakota are crude oil, light oil and biodiesel.
- Oil prices have fallen by more than the C$, making these imports cheaper for Alberta.
- North Dakota is also experiencing "low oil" pain – this may impact relative results for both North Dakota and Alberta on many competitiveness measures.

Benchmark jurisdictions

In an increasingly global economy, which now experiences significant mobility in both capital and labour, Alberta's competitors are no longer restricted to nearby Canadian provinces and US states. Instead, Alberta now finds itself competing on a global stage to attract and retain both investment and talent.

As a result, this study utilizes both national and international benchmarks. The benchmark jurisdictions have been chosen on the basis of their relatively strong economic performance in recent years, as well as their size, locational and/or structural similarities with Alberta. Most of the benchmark jurisdictions share some common traits with Alberta (nationality, regional geography, key industries, etc.), while others have strengths in aspects of competitiveness to which Alberta aspires.

In total, 14 national and international jurisdictions have been chosen for comparison with Alberta, as detailed in the following table which provides a brief snapshot of each jurisdiction.

Three jurisdictions included in the previous reports have been replaced in the current edition, with three new jurisdictions being chosen based on the same selection criteria for all jurisdictions outlined above.

- The three jurisdictions discontinued from the analysis are Minnesota, Oregon and Finland.
- The three jurisdictions added to the analysis in this report are Louisiana, North Dakota and the Republic of Korea (also known as South Korea, and hereinafter referred to as Korea).

Data analysis across all benchmark measures shows that the new jurisdictions generally outperform the former jurisdictions, thus raising the competitive bar against which Alberta is being measured.

Comparator jurisdictions

	Jurisdiction	Abbr.	Population (2014)	Resource sector % of total GDP (2013)	Urbanization % (2014)	Major Cities
Canada	Alberta	AB	4,121,692	25.1%	66.4%	Edmonton, Calgary
	British Columbia	BC	4,631,302	6.5%	69.1%	Vancouver, Victoria
	Saskatchewan	SK	1,125,410	35.2%	47.8%	Regina, Saskatoon
	Manitoba	MB	1,282,043	8.2%	61.0%	Winnipeg
	Ontario	ON	13,678,740	2.2%	80.6%	Toronto, Ottawa
	Quebec	QC	8,214,672	3.1%	69.2%	Montreal, Quebec City
United States	Colorado	CO	5,355,866	8.2%	87.1%	Denver, Colorado Springs
	Idaho	ID	1,634,464	10.2%	67.0%	Boise
	Louisiana	LA	4,649,676	10.5%	83.5%	New Orleans, Baton Rouge
	North Dakota	ND	739,482	28.0%	61.8%	Fargo
	Texas	TX	26,956,958	14.3%	89.0%	Dallas, Houston
	Washington	WA	7,061,530	2.7%	83.0%	Seattle, Spokane
	Norway	NOR	5,137,429	25.3%	35.1%	Oslo, Bergen
	Korea (Republic of)	KOR	50,321,812	2.5%	79.0%	Seoul, Busan
	Queensland	QLD	4,722,447	12.1%	79.9%	Brisbane, Gold Coast

Notes: Resource sector % of total GDP is calculated using 2013 current GDP. Urbanization % represents the percentage of total population in metro areas with population >100,000. For Korea, urbanization percentage reflects 2010 instead of 2014 data. Sources: Statistics Canada, CANSIM Tables 051-0001, 051-0056 and 379-0028; US Census Bureau, Population Estimates Vintage 2014, Table 1; US Bureau of Economic Analysis, Regional Economic Accounts; Statistics Norway, Population Table 10211 and Annual National Accounts Table 09170; Korean Statistical Information Services, Population Projections & Summary Indicators for Korea and National Accounts (2010 Standard) Table 10.2.1.3; Australian Bureau of Statistics, 3101.0 Table 4, 5220.0 Table 4 and 3218.0 Table 3; www.citypopulation.de.

This report strives to provide complete benchmark comparisons for Alberta to all of the other 14 jurisdictions for every measure. However, for some of the measures comparable data are not available for all jurisdictions and the comparisons are therefore restricted to a subset of jurisdictions. In other instances, comparisons may reference national values for the United States and/or Australia, where data relevant to individual states are not available but national data do exist.

In order to benchmark Alberta's competitiveness relative to this group of jurisdictions, a total of 70 individual benchmark measures are compared in this report. This number of measures compared is the same as in the 2013 edition of this report, although seven of the measures are new this year as data sources for seven previous measures ceased to be available.

Each of the 70 measures relates to one of the eight components of the Competitiveness Pyramid – sustained prosperity, productivity, innovation and the five elements of the foundation. The number of measures compared for each component of the Competitiveness Pyramid ranges from 4 to 14. The measures chosen for comparison were selected based on three criteria – their relevance for Alberta and its economy, the reliability of available data, and the availability of relevant data to compare as wide a range of jurisdictions as possible.

Alberta's performance

An overview summary of Alberta's performance for each component of the Competitiveness Pyramid is presented in the table on this page. While the results for Alberta are generally positive, the table also identifies areas where Alberta performs less well.

At the apex of the Competitiveness Pyramid, Alberta maintains its "Good" rating for **sustained prosperity,** which is the core objective of competitiveness.

Productivity represents an area of improvement for Alberta, with its rating rising from "Average" to "Good". Improved construction sector productivity leads the way in this area.

The results for Alberta are generally positive, although there are areas where Alberta performs less well.

Innovation also sees improvement for Alberta, with its rating move from "Average" to "Good". Gains have occurred in various aspects of business innovation, including industrial funding of university research, investment in innovative equipment, entrepreneurship and high growth firms. Business R&D spending has also been improving, but is still below average relative to Alberta's peers.

At the **foundation** level of the pyramid, three of the five components are rated as "Good" or "Excellent", while both regulation and access to capital markets receive an "Average" rating. Alberta's ratings are summarized as follows:

Competitiveness benchmarking summary for Alberta

	# measures compared	Rating	Change from 2013
Sustained Prosperity	10		→
Productivity	14		↑
Innovation	13		↑
The Foundation:			
Taxes & Fiscal Policy	5		↑
Regulation	4		↓
Infrastructure & Transportation	6		↓
Human Capital & Education	13		→
Access to Capital Markets	5		→

Legend for ratings[1]

- *Excellent (top quintile)*
- *Good (second quintile)*
- *Average (middle quintile)*
- *Weak (lower quintile)*
- *Poor (bottom quintile)*

1 The ratings of Excellent, Good, Average, Weak, and Poor take into account both Alberta's ranking among the jurisdictions compared, and Alberta's measured value relative to other jurisdictions.

- **Taxes and fiscal policy** has improved from "Good" to "Excellent", mainly due to an increase in top personal tax rates in the US that improved Alberta's relative position for that measure.
- **Regulation** has dropped from "Good" to "Average", due to reductions in the time and cost of starting a new business in other jurisdictions that have impacted Alberta's relative result.
- **Infrastructure and transportation** has dropped from "Excellent" to "Good", primarily due to the addition of a new measure of broadband internet speeds for which Alberta (and most other Canadian provinces) rates relatively poorly.
- **Human capital and education** sees its rating remain consistent with both prior editions of this report, at "Good". Despite maintaining this consistent rating, several concerns for Alberta are identified in this area, including a decline in scores for high school math, reading and science skills, a decline in apprenticeship completions and the continued onset of an aging workforce.
- **Access to capital markets** also maintains a consistent rating, at "Average", even after a major refresh of the measures in this section with the replacement of three of the five previous measures for which data are no longer available.

Building on these summary results, the detailed table of results for all 70 measures, presented on page 6 (Executive Summary), identifies specific areas where Alberta scores below many of its peers. Whether or not these represent areas for improvement is a strategic issue presenting an opportunity to consider policy changes and action plans. In some instances, action may be appropriate. However, in other instances, action to remedy such factors could detract from Alberta's existing comparative advantages in other areas, or overall competitiveness may be better served by deploying available resources to further strengthen existing advantages.

The improvements in productivity and innovation identified in this report have come at a crucial time for Alberta, as these are the levels of the Competitiveness Pyramid that can help to support prosperity for Alberta during downward cycles in resource prices. Future editions of this report will reveal whether these improvements in productivity and innovation manage to sustain prosperity for Alberta during the current energy downturn.

Detailed analysis

The balance of this report presents the detailed analysis for each of the 70 individual benchmark measures, with explanations of the measures and comparative results for Alberta.

Sustained Prosperity

"Sustainable growth in living standards."

What it means

Sustained prosperity is defined as sustainable growth in living standards and represents the ultimate objective of economic growth and economic development for a jurisdiction.

In the broadest terms, economic prosperity reflects the income generated that is available to all citizens – gross domestic product (GDP). This income then flows to government to fund the provision of public goods and services, to individuals for personal consumption or saving and to firms for re-investment in their businesses.

While GDP represents an important measure of economic prosperity, to be truly competitive in a global economy it is important to take a broader view of prosperity. Sustained prosperity is about more than just dollars and cents, instead requiring a careful balance between economic, social and environmental considerations.

How it is measured

The internationally accepted measure for overall living standards is GDP per capita, which reflects the value of total economic output in a jurisdiction divided by its resident population. This report utilizes GDP per capita as its primary measures of economic income, with consideration being given to both the level of GDP per capita and its rate of growth.

Sustained Prosperity	
Economic income	GDP per capita
	Growth in real GDP per capita
Personal income	Personal income per capita, after tax
	Growth in real personal disposable income
Housing	Housing affordability
Unemployment	Unemployment rate, five-year average
	Unemployment rate, latest year
Jobs	Employment growth
Economic well-being	Index of Economic Well-being
Human development	Human Development Index

Broader measures are needed to assess all aspects of sustained prosperity and to ensure that macroeconomic gains are truly flowing down to benefit individual Albertans. Measures related to personal income (after tax), housing, unemployment and jobs all address how the changes in Alberta's provincial economic situation are impacting individuals and households.

Finally, recognizing that sustained prosperity is a complex multi-dimensional topic, this comparison also includes an Index of Economic Well-being and the Human Development Index, both of which are composite measures that assess many different aspects of overall living standards.

How Alberta performs

The 10 measures selected for benchmarking aspects of sustained prosperity are outlined in the table above. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

Economic income

GDP per capita represents the globally accepted measure of overall living standards and is the measure used in this report to benchmark and compare macroeconomic income.

When comparing the standard of living in international locations, it is important to recognize that a dollar of income will purchase a different amount of goods or services in each country. This reflects a difference in the purchasing power of a dollar in each country. To facilitate international comparisons of GDP per capita, all GDP estimates are converted to a common currency (US dollars) using an exchange rate called the purchasing power parity (PPP). These PPP exchange rates incorporate both foreign exchange trading rates for the currencies plus purchasing power differences in each country, to reflect "value for money" exchange rates between countries.

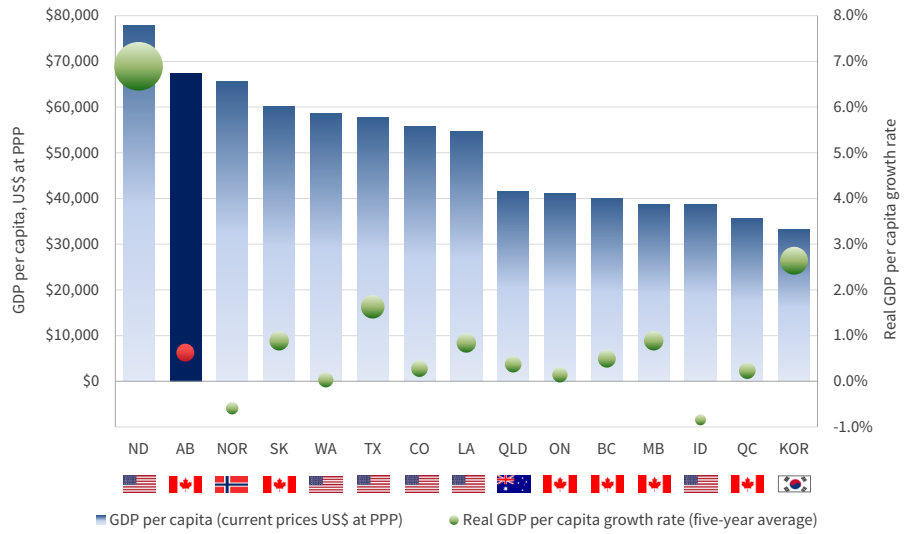
Looking at the **level of GDP per capita**, previously in 2011 Alberta led all jurisdictions – both those examined in the prior report and the new jurisdictions included in this report. However, North Dakota now represents the leading jurisdiction for GDP per capita, having overtaken Alberta for this measure in 2012.

North Dakota experienced a strong economic boom between 2009 and 2013, with a relatively small resident population among which the new wealth is being shared, so GDP per capita climbed rapidly. By 2013, GDP per capita in North Dakota was 15% higher than in Alberta.

Norway is the only other jurisdiction studied that comes close to Alberta's level of GDP per capita, trailing Alberta by less than 3%. For all other jurisdictions, Alberta's advantage ranges from a lead of 12% relative to Saskatchewan, to more than 100% relative to Korea. While Korea currently has the lowest level of GDP per capita, it trails Quebec by less than 7% and its high growth rate for GDP per capita suggests that Korea is rapidly closing that gap.

Growth in GDP per capita over time is compared in terms of real growth. This removes the effects of inflation from the analysis to ensure that gains in income are not being eaten away by inflation, leaving the population no better off than before. Real GDP per capita measures growth in the volume of activity in the economy, irrespective of how prices have changed.

GDP per capita (2013) and Growth in real GDP per capita (2008-2013)



Notes: GDP per capita at current prices is in US$ at PPP. Real GDP per capita growth is based on GDP at 2007 price levels, in local currency. Sources: Statistics Canada CANSIM Tables 384-0038 and 051-0001; US Bureau of Economic Analysis, Regional Economic Accounts and US Census Bureau Annual Population Estimates; Statistics Norway, Annual National Accounts Table 09189 and Population Table 10211; Korean Statistical Information Service, National Accounts (2010 Standard) Table 10.1.1 and Population Projections & Summary Indicators for Korea; Queensland Treasury, State Accounts Tables 1 and 11; Australian Bureau of Statistics 3101.0 Table 4; OECD PPP exchange rates.

Alberta's performance	*Rank*	*Rating*	*Change*
GDP per capita	*2/15*		→
Growth in real GDP per capita	*7/15*		→

Between 2008 and 2013, Alberta's real GDP grew by an average of 0.6% per annum. Coming out of the recession of 2009, this represents a moderate rate of real growth with Alberta ranking seventh among 15 jurisdictions. Alberta also ranks third among the six Canadian provinces compared, behind Saskatchewan and Manitoba but having moved ahead of both Quebec and British Columbia since 2011.

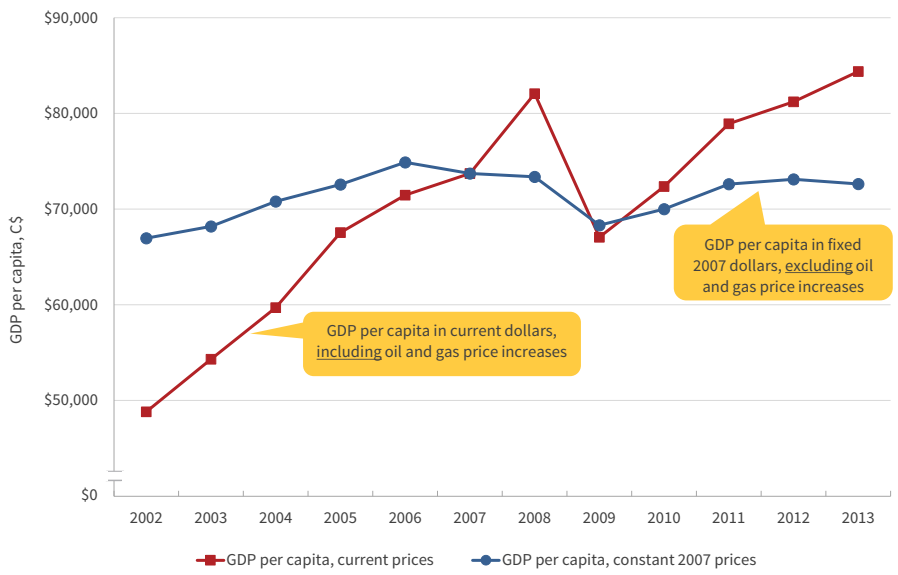
The chart on this page provides additional context on historic trends for GDP per capita for Alberta. The red line tracks GDP per capita at current prices and reflects the full impact of changes in oil and gas prices. This line shows generally strong growth, particularly in 2002-2008[1] and again in 2009-2011[1], with an intervening recessionary correction in 2008-2009 when oil prices dropped by more than US$100 per barrel within six months[1].

The blue line shows Alberta's performance in real terms – based on actual output – after removing the impact of oil and gas price changes. Alberta's real GDP growth shows very little change over the years with 2013 being virtually unchanged from 2005.

Strong oil and gas revenues have supported high levels of current GDP per capita for Alberta (and the other resource-intensive jurisdictions) through to 2013. With the recent sharp decline in oil prices[1], Alberta can expect to see some decline in GDP per capita at current prices (red line), even if output and real GDP are not badly impacted. However, to the extent that the oil price slump has led to changed levels of economic activity (reduced oil exploration, construction of new wells, consumer spending, etc.), this will present Alberta with a challenge in terms of maintaining real GDP per capita (blue line) within the narrow range in which it has moved over the last decade. Future editions of this report will assess how Alberta (and the other jurisdictions) fare in the changed economic environment.

From this comparison of GDP per capita, Alberta's high level of GDP per capita to 2013 is a strong positive for the province. However, Alberta's lack of long term growth in real GDP per capita leaves little room for downward correction without a real erosion in living standards. Efforts to further diversify Alberta's economy may also put downward pressure on GDP per capita, as very few industries can match the high level of value-added (GDP) per capita currently provided by the oil and gas industry.

Context: The influence of oil and gas prices on Alberta's prosperity advantage



Notes: The difference between the current price and constant price GDP values represents price inflation on types of goods and services produced by the Alberta economy. This overall price inflation is significantly influenced by rising oil and gas prices over the periods from 2002 to 2008 and from 2009 to 2011. Source: CANSIM Table 384-0038.

1 New York Mercantile Exchange (NYMEX) prices for West Texas Intermediate (WTI) crude oil climbed from below US$20 per barrel in early 2002 to over US$145 per barrel in July 2008, declined to below US$40 per barrel by December 2008, rose again to over US$110 per barrel by April 2011 and then remained within the range of US$80-110 per barrel from April 2011 until October 2014. The current market downturn appears to have established a new floor at approximately US$45 per barrel in mid-March, 2015.

Personal income

While Alberta has the second highest level of GDP per capita among the 15 comparison jurisdictions, Alberta's performance is not as strong when looking at personal income per capita after tax (personal disposable income).

Alberta ranks seventh on this measure, placing behind all six US states compared. North Dakota, the front runner for GDP per capita, also achieves the same distinction in personal income per capita.

Alberta remains as the clear leader among Canadian jurisdictions, with net personal income in Alberta (US$32,199) being 22% higher than in Saskatchewan and approximately 50% higher than in Quebec.

Lower tax rates partially explain the strong performance of US states in this comparison of after-tax personal income. US states generally benefit from lower personal tax rates, leaving a higher proportion of take-home pay.

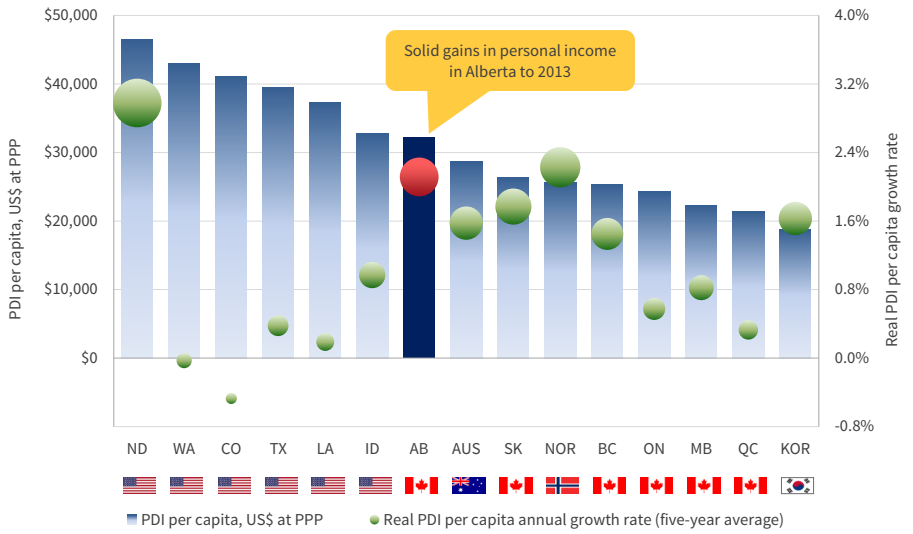
However, after tax income does not present a full and fair comparison between Canadian and US locations. The private medical system in the United States results in substantial healthcare costs for US households, when many of the equivalent costs in Canada are covered through the tax system. According to the Centre for the Study of Living Standards[1] , in 2013 Albertans spent approximately 3.0% of after tax income on healthcare (below the Canadian average of 4.0%), while Americans spent 10.4% of net income on healthcare. This difference of 7.4 percentage points is greater than the gap separating personal income per capita in Alberta and Idaho.

A further issue influencing the difference between Alberta's second place rank for GDP per capita and seventh place for personal income per capita relates to the structure of the economy. Alberta's economy benefits from a very high level of foreign investment in productive capacity. One consequence of this for Alberta is that a greater share of total economic income leaves the province as returns to foreign investors.

On a positive note, growth in real personal income in Alberta has outpaced growth in real GDP per capita, reflective of Albertans taking home a relatively larger share of the total economic pie. Personal disposable income grew in Alberta by an average of 2.1% per annum between 2008 and 2013, well ahead of the 0.6% average growth rate for real GDP per capita. The only jurisdictions to outpace Alberta for real income growth between 2008 and 2013 were North Dakota (3.0% growth) and Norway (2.2% growth).

1 Index of Economic Well-being database, Table 5.

Personal income per capita, after tax (2013) and Real growth (2008-2013)



Notes: Personal income after tax represents disposable income after payment of personal social security contributions. Sources: Statistics Canada CANSIM Tables 384-0040 and 051-0001; US Bureau of Economic Analysis, Regional Economic Accounts, State Annual Personal Income Table SA51; Statistics Norway, Annual National Accounts Table 10799 and Population Table 10211; Korean Statistical Information Service, National Accounts (2010 Standard) Table 10.1.1 and Population Projections & Summary Indicators for Korea; Australian Bureau of Statistics, 5204.0, Table 37 and 3101.0 Table 4; OECD PPP exchange rates.

Alberta's performance	*Rank*	*Rating*	*Change*
Personal income per capita, after tax	*7/15*		↓
Growth in real personal disposable income	*3/15*		↑

Housing

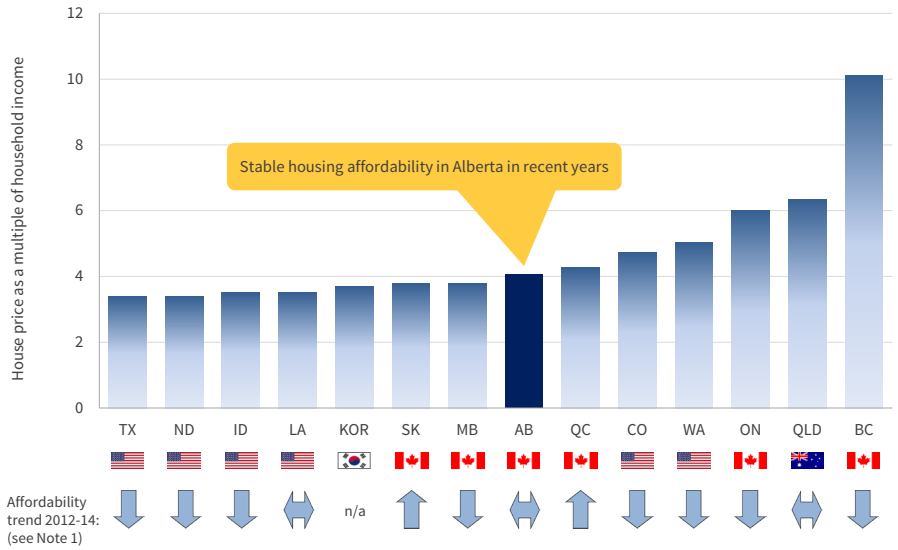
For many Albertans, housing affordability is a vital aspect of their standard of living – possibly more important than their level of earned income. Housing affordability also relates to net migration, as migrants can be attracted to areas where housing is affordable but high levels of net migration have the potential to drive up housing prices.

Housing affordability is an ongoing issue of concern in Alberta – and in many Canadian cities – with a general perception that house prices have climbed faster than incomes since the turn of the millennium. However, the reality being seen for much of Canada is that the decline in housing affordability has halted, or is even being reversed. Housing prices as a multiple of income reached their highest points for Alberta in 2007, for Saskatchewan in 2008, for Quebec in 2010, for BC in 2011 and for Manitoba in 2013. Only in Ontario does 2014 represent a new record for housing unaffordability. While the chart on this page reports a decline in affordability between 2012 and 2014 for Manitoba and British Columbia (as well as Ontario), Manitoba saw a drop in affordability from 2012 to 2013 but then a small improvement in 2014, while for BC the affordability decline in 2012-2014 is reversing an improvement seen in 2011-2012.

In 2014, Alberta ranked 8th among 14 jurisdictions for housing affordability, with median housing prices at 4.1 times median annual household income (before tax). This result shows very little change since 2012 and is well below 2007 when house prices in Alberta peaked at 4.6 times income. (These results for Alberta represent the average of results for Calgary and Edmonton, with housing in Calgary costing 4.2 times household income in 2014, as compared to 3.9 times income in Edmonton.)

In the United States, several of the states compared offer highly affordable housing, with Texas, North Dakota, Idaho and Louisiana leading all jurisdictions for this measure. However, stronger economic growth seen in the US in recent years is now putting upward pressure on housing prices, causing housing affordability to deteriorate in five of the six US states compared. Only Louisiana has managed to maintain a very steady ratio of housing prices to household income in recent years.

Housing affordability (2014)



Notes: (1) Housing affordability is measured by comparing median house prices as a multiple of median annual household income (before tax). The affordability trend represents the direction of movement for housing affordability between 2012 and 2014, which is the inverse of the movement in the charted house price / income multiple. For example, between 2012 and 2014 house prices as a multiple of income in Texas have increased from 2.9x income to 3.4x income, thus representing a decrease in housing affordability. No past data are available for Korea. (2) Results generally represent the population-weighted average results for the two largest cities per jurisdiction included in the source study. Specifically, results for each jurisdiction represent the following cities: Texas, Dallas and Houston; North Dakota, Fargo; Idaho, Boise; Louisiana, New Orleans and Baton Rouge; Korea, "overall major markets" average; Saskatchewan, Saskatoon and Regina; Manitoba, Winnipeg; Alberta, Calgary and Edmonton; Quebec, Montreal and Quebec City; Colorado, Denver and Colorado Springs; Washington State, Seattle and Spokane; Ontario; Toronto and Ottawa; Queensland, Brisbane and Gold Coast; British Columbia, Vancouver and Victoria. Data for Norway are not available. Source: Demographia, Annual International Housing Affordability Survey, 2015 (reporting 2014 data, except Korea which represents 2013 data).

Alberta's performance	*Rank*	*Rating*	*Change*
Housing affordability (median multiple)	*8/14*		→

Unemployment

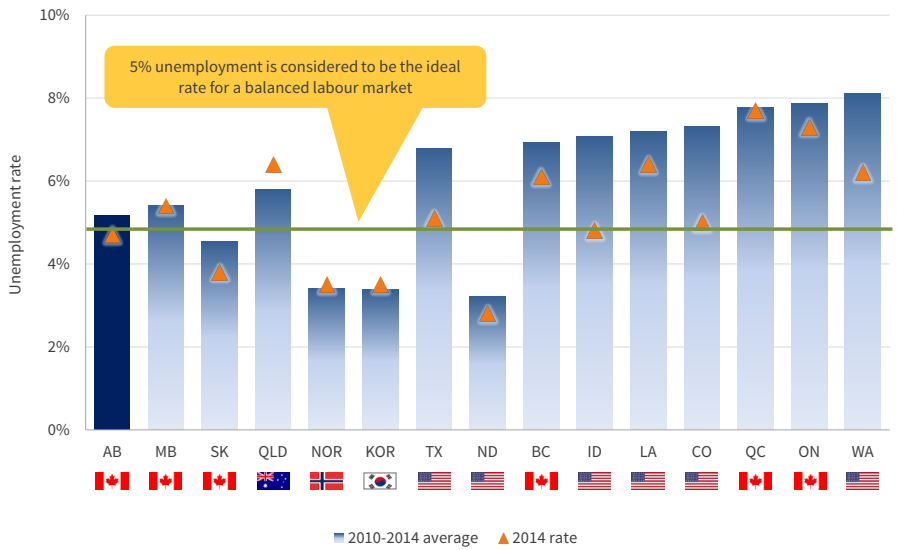
Irrespective of aggregate GDP and personal income statistics, ensuring that individual Albertans have the opportunity for gainful employment represents a core aspect of achieving sustained prosperity. This issue is assessed through two measures, examining both five-year average and current unemployment rates.

While full employment may appear to be the objective, it is actually more important to maintain a balanced labour market – where unemployment is neither too high, nor too low. In Alberta (and many other jurisdictions), if the unemployment rate drops below a balanced level of approximately 5%[1] then labour shortages can occur, negatively impacting competitiveness and jeopardizing long term employment prospects for all workers. Therefore, for measures of unemployment, the jurisdictions have been ranked not based on their actual rates of unemployment, but rather by the differential in their unemployment rates (in absolute terms) above or below Alberta's 5% balanced rate.

The **five-year average unemployment rate** in Alberta for 2010-2014 was 5.2%, closer to the target balanced rate of 5% than any other jurisdiction and thus ranking Alberta first for this measure. By contrast, North Dakota had the lowest average unemployment rate for 2010-2014 at 3.2%, but it ranks in eighth place because of its variation from the "ideal" rate of 5%. In total, four jurisdictions had unemployment rates below 5% for 2010-2014 while the other 11 jurisdictions all had unemployment rates over 5%.

After seeing unemployment spike to 6.6% in 2010, by 2012 Alberta's unemployment rate had dropped back to 4.6% and stabilized around that level, ending at 4.7% in 2014. For this measure of **unemployment rates for the latest year**, Alberta ranks fourth among the 15 jurisdictions in 2014, with only Colorado, Texas and Idaho ranking closer to the balanced unemployment rate of 5%. In 2014, 10 jurisdictions had unemployment rates higher than Alberta, with the highest rate being in Quebec at 7.7%.

Unemployment rates, Five-year average (2010-2014) and Latest year (2014)



Notes: The order of jurisdictions in this chart is based on their deviation, in absolute terms, from an unemployment rate of 5%, which is treated as representing Alberta's ideal balanced labour market that works in the best interests of both employees and employers.
Sources: Statistics Canada, CANSIM Table 282-0002; US Bureau of Labor Statistics, Local Area Unemployment Statistics; Eurostat, Table une_rt_a; Korean Statistical Information Service, Economically Active Population Survey; Australian Bureau of Statistics, 6202.0 Table 12. Ideal unemployment rate for Alberta of 5% is from Building and Educating Tomorrow's Workforce, Alberta's 10 Year Strategy, Government of Alberta, 2006.

Alberta's performance	*Rank*	*Rating*	*Change*
Unemployment rate, five-year average	*1/15*		→
Unemployment rate, latest year	*4/15*		↑

1 *Building and Educating Tomorrow's Workforce, Alberta's 10 Year Strategy*, Government of Alberta, 2006.

Jobs

While unemployment rates measure those out of work at certain points in time, unemployment rates are also influenced by the ebbs and flows of people entering and leaving the workforce. Individuals can choose to enter or exit the workforce due to studying, aging, migration, health, work opportunities, lifestyle choices, or other personal circumstances.

To address the overall ability of the economy to generate new jobs for Albertans, the measures of unemployment presented on the previous page are supplemented here by a measure of total growth in employment over the last five years.

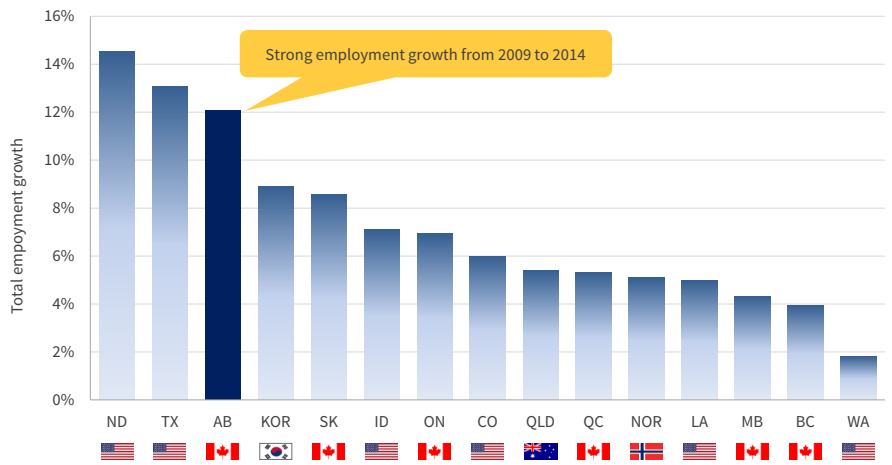
The five year period examined for this measure is from 2009 to 2014. For many jurisdictions, 2009 represented the low point for employment during that recession, before economic recovery set in. However, in Alberta, Colorado, Louisiana and Washington State, employment growth did not resume until 2011 or 2012. Due to the timing of these events, this measure reflects the creation of new jobs in each jurisdiction as they have emerged from the recession of 2009.

Alberta has seen strong employment growth since 2009, with a 12.1% increase in the number of jobs between 2009 and 2014. Alberta ranks third among the 15 jurisdictions for employment growth in this period, with only North Dakota and Texas outpacing Alberta for job creation.

There is a resource-oriented theme linking the three leading jurisdictions for job creation, with Saskatchewan's positioning in fifth place continuing this theme. However, breaking from the resource focus is fourth-ranked Korea, which has a very small resource sector but nevertheless saw job growth of 8.9% from 2009 to 2014.

Among the Canadian provinces, employment growth from 2009 to 2014 ranged from 12.1% in Alberta, followed by 8.6% in Saskatchewan, to a low of 3.9% in British Columbia.

Employment growth (2009-2014)



Sources: Statistics Canada, CANSIM Table 282-0002; US Bureau of Labor Statistics, Local Area Unemployment Statistics; Eurostat, Table lfsq_egan; Korean Statistical Information Service, Economically Active Population Survey; Australian Bureau of Statistics, 6202.0 Table 12.

Alberta's performance	*Rank*	*Rating*	*Change*
Employment growth	*3/15*		→

Economic well-being

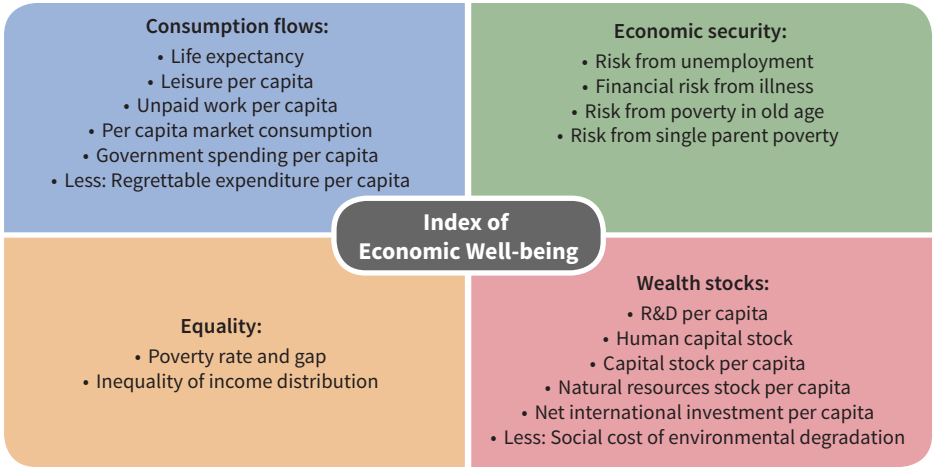
The Index of Economic Well-being was first developed in 1998 by the Centre for the Study of Living Standards, based on the work of Dalhousie University economist Dr. Lars Osberg. The index comprises four domains of economic well-being, as illustrated in the diagram. Each of these domains – consumption, economic security, equality and wealth – in turn includes a range of specific measures that are scored and aggregated to determine the Index of Economic Well-being.

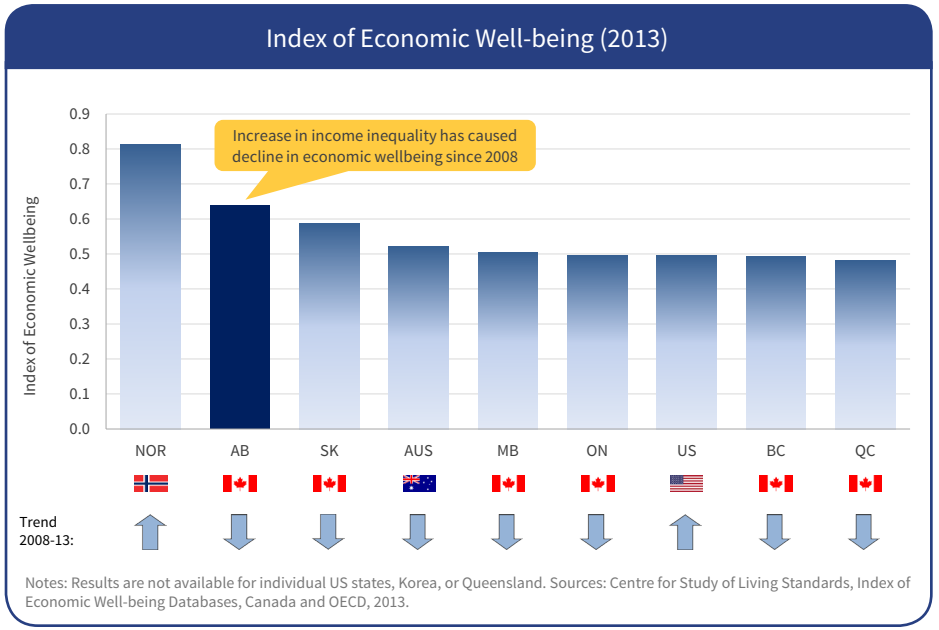
The Index of Economic Well-being is intended to provide a broader view of well-being than can be reflected in purely economic measures related to GDP or personal income. Using the Index of Economic Well-being allows a variety of social and environmental measures – from the poverty rate to greenhouse gas emissions – to be incorporated implicitly into the results of the analysis.

Alberta ranks second among the nine jurisdictions compared for this index in 2013, with Norway holding the top ranking. Norway and Alberta have consistently ranked in first and second places (respectively) for the Index of Economic Well-being since data collection began in 2002.

All Canadian jurisdictions have experienced declines in their Index of Economic Well-being scores between 2008 and 2013. The declines for Canada in general are triggered by weakening in both the economic security and the wealth stocks domains of the index (right-hand quadrants in the diagram). Growing income inequality has also been a factor influencing Alberta's decline in this index since 2008.

Overall, Alberta's positive performance on this index correlates with the strong standings seen for Alberta on a wide range of specific economic and competitiveness measures assessed in this report. However, the declines seen for Alberta (and the other Canadian provinces) are a cause for concern over a period when other nations, including Norway and the United States, have been able to improve their Economic Well-being scores.





Notes: Results are not available for individual US states, Korea, or Queensland. Sources: Centre for Study of Living Standards, Index of Economic Well-being Databases, Canada and OECD, 2013.

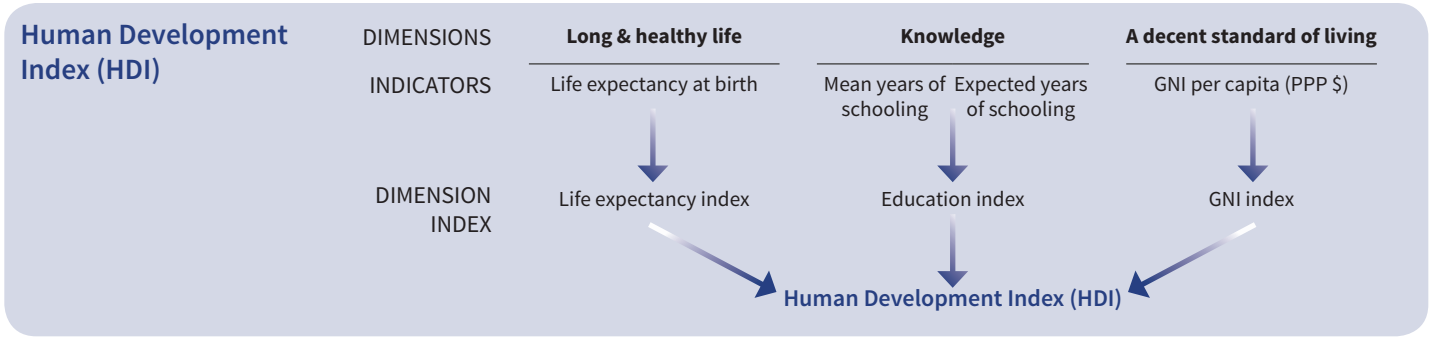
Alberta's performance	*Rank*	*Rating*	*Change*
Index of Economic Well-Being	*2/9*		

Human development

The Human Development Index is a measure developed by the United Nations Development Program to provide a broader perspective on human development, beyond standard income-based measures.

The Human Development Index offers a high-level comparison of general socio-economic development between jurisdictions. As illustrated in the diagram, the Index is broadly based on three key dimensions of life expectancy, average years of schooling relative to expected years of schooling and income per capita.

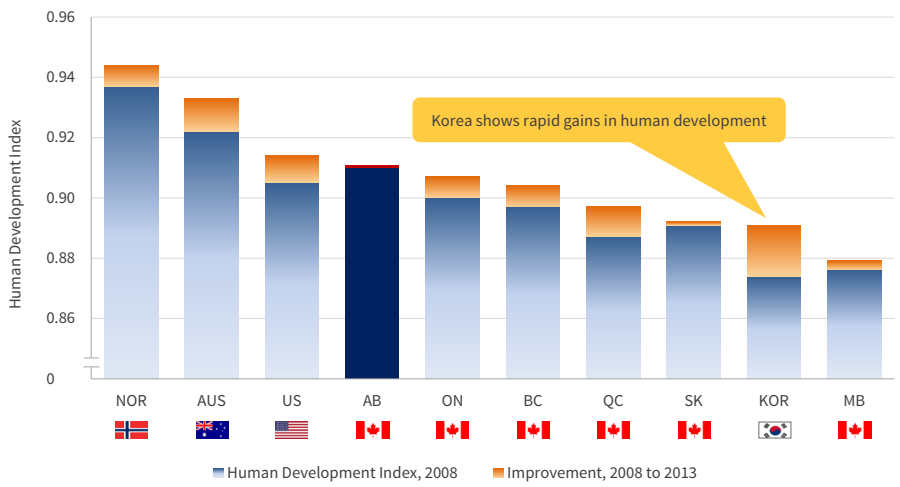
Subject to limitations expressed in the notes to the chart on this page, in 2013 Alberta is estimated to have the fourth highest Human Development ranking among the 10 jurisdictions compared, behind Norway, Australia and the United States. Alberta also enjoys the highest Human Development ranking among the six Canadian provinces compared.



Despite this positive ranking, Alberta has seen virtually no change in its Human Development Index between 2008 and 2013, with Canada's index score barely changing between 2011 and 2013. This suggests a pattern of stalled growth in human development in Alberta and in Canada, with the US having overtaken Alberta on this measure between 2011 and 2013.

Among all jurisdictions compared, Korea has experienced the most rapid advancement in human development between 2008 and 2013. Korea pulled ahead of Manitoba on this measure in 2009 and is now virtually tied with Saskatchewan. However, the 2012 and 2013 results for Korea suggest that its rapid growth in human development may be starting to taper off.

Human Development Index (2013)



Notes: Results are not available for individual US states or Queensland. Between 2011 and 2013, Canadian provincial numbers have been adjusted according to the (minor) change in Canada's national result for those years, thus assuming similar (limited) advancement in all provinces as in the national average over that period. Updated provincial index results are expected for the next edition of this report. Sources: Centre for Study of Living Standards, *The Human Development Index in Canada: Estimates for the Canadian Provinces and Territories, 2000-2011*; UN Development Program, International Human Development Indicators.

Alberta's performance	*Rank*	*Rating*	*Change*
Human Development Index	*4/10*		↓

The importance of environmental outcomes

Albertans define sustained prosperity to include healthy ecosystems and a healthy environment. Therefore, overall quality of life is based upon responsible development that meets the economic, environmental and social goals of Albertans. Given this societal context, industries are increasingly reflecting the importance of responsible environmental stewardship in their business models.

While many of the indicators in this report reflect economic variables, complementary work is underway to take into account the cumulative effects of development within Alberta and the environmental performance of industry.

This is important to competitiveness from many perspectives:

- There is a shared objective of maintaining and enhancing quality of life for Albertans.
- There is a shared understanding that economic prosperity and environmental protection/quality are mutually supportive objectives. Strong environmental performance is reflective of technological innovation and effective management.
- Alberta's environmental quality is a competitive advantage in attracting human capital to this province.
- Alberta's demonstrated environmental outcomes, along with the performance and continuous improvement of industry in Alberta, contribute to meeting the sustainability expectations of export customers.

Productivity

"Better use of resources."

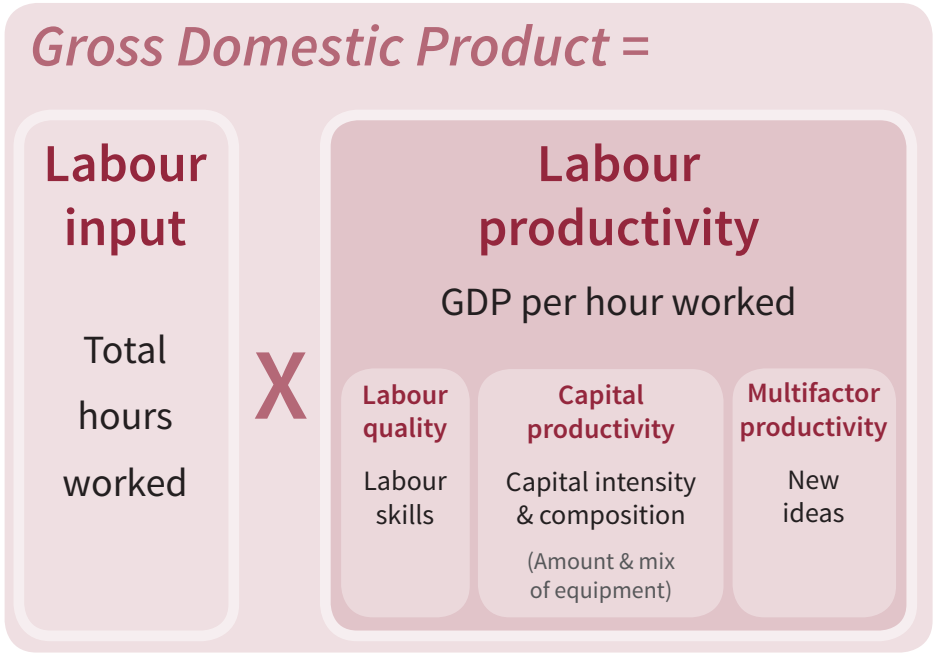
What it means

Productivity is defined as the better use of resources in productive activities; the ability to create more value through the use of all forms of resources – renewable and non-renewable natural resources, human resources, land and capital. The more value that can be created when using a given measure of resources, the more productive the economy is.

The concept of productivity is frequently misunderstood in the workplace. Employees worry that "improving productivity" translates into having to work longer and harder, while the companies reduce their numbers of workers. This is not the case, as productivity gains are not achieved by working harder, but rather by working smarter – finding new ways to produce more value while still contributing the same level of effort.

As illustrated in the diagram, growth in GDP can be generated by a wide range of factors. These include:

- **Increasing labour input** – engaging more workers and/or having existing employees work longer hours.
- **Increasing labour quality** – improving education and skills in the workforce.
- **Increasing capital productivity**, either by increasing the amount of equipment used in production, or by enhancing the mix of equipment used.
- **Employing technological change**, organizational change, process improvements, or other new ideas to increase efficiency – a concept known as "multifactor productivity".



While all of these factors work to increase overall GDP, individual factors can be very difficult to measure and value in isolation. Therefore, GDP (and its growth) is often measured in terms of two major components – labour input and labour productivity. Labour input can be readily measured as the total hours worked, while labour productivity encompasses all the other factors that govern how much value a worker can create for every hour worked.

To generate and sustain increases in living standards, improving labour productivity is key – to create more value per hour worked, rather than relying on more people to work more hours. Sustainable growth in GDP – and sustained prosperity – must result from working smarter not harder; from enhancing labour productivity.

How it is measured

Labour productivity is measured as the total value of GDP, divided by the number of hours worked by all workers in the economy – reflecting the new economic value created by each hour of work. Labour productivity can be examined for the entire economy, for specific sectors, or for individual industries.

This report assesses overall labour productivity for the economy as a whole, with measures for both the current level of productivity (GDP per hour worked) and productivity growth rates (growth in real GDP per hour).

However, such a macro view can mask significant differences between sectors, therefore it is also important to consider productivity performance in major sectors of the economy. This report includes 10 measures of sectoral productivity performance, assessing both the level of productivity and productivity growth rates for five defined economic sectors – agriculture; mining, oil and gas; manufacturing; construction; and business services.

For international comparisons, GDP per hour worked is converted into US dollars, based on the purchasing power parity (PPP) of each nation's currency.

Another way to assess productivity is to look at international trade performance. A high level of exports is evidence of a competitive and productive economy, as international buyers are choosing to source their goods and materials from Alberta, rather than other possible global suppliers.

This report includes two measures related to trade performance – both the level and growth rates for exports per capita. Due to the predominance of resource exports in the Alberta economy, and the limited choices the world has for where it can source oil and gas, this report focuses on non-resource exports per capita. This reflects a better measure of the types of goods that foreign buyers may choose to purchase from Albertan firms, instead of other international suppliers.

How Alberta performs

The 14 measures selected for benchmarking aspects of productivity are outlined in the table below. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

Productivity	
Overall labour productivity	GDP per hour worked
	Growth in real GDP per hour
Sectoral labour productivity	GDP per hour worked, agriculture
	GDP per hour worked, mining, oil and gas
	GDP per hour worked, manufacturing
	GDP per hour worked, construction
	GDP per hour worked, business services
Sectoral labour productivity growth	Growth in real GDP per hour, agriculture
	Growth in real GDP per hour, mining, oil and gas
	Growth in real GDP per hour, manufacturing
	Growth in real GDP per hour, construction
	Growth in real GDP per hour, business services
Trade performance	Non-resource exports per capita
	Growth in non-resource exports per capita

Overall labour productivity

Labour productivity represents a vital factor in maintaining and enhancing long term prosperity, as the only other option to continually increase prosperity is to continually work more hours. Working more hours may generate more income, but not higher levels of well-being.

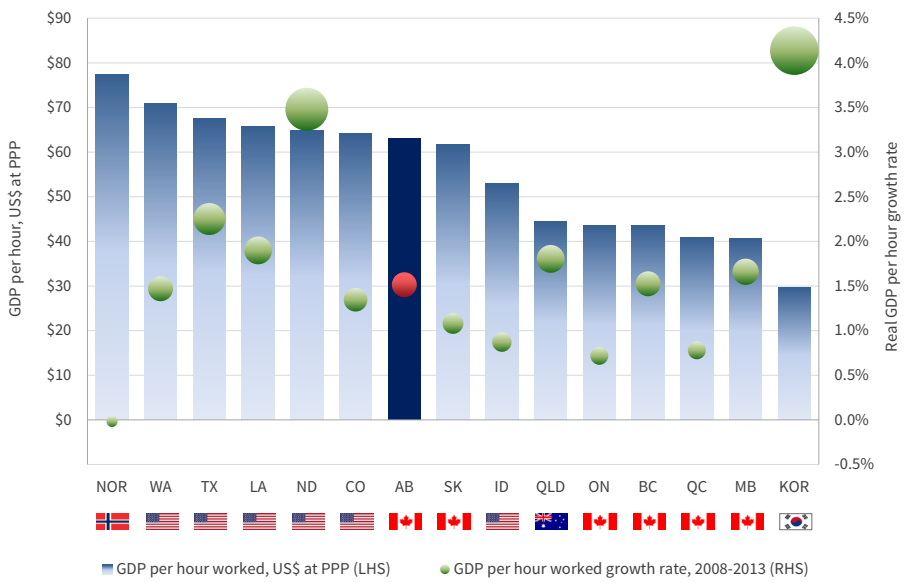
In terms of **current levels of labour productivity**, Alberta ranks seventh among the 15 jurisdictions based on GDP per hour worked data for 2013. Alberta's GDP per hour has increased from US$59.76 in 2011 to US$63.05 in 2013, moving Alberta ahead of Saskatchewan and back into the lead among the six Canadian provinces compared. Alberta and Saskatchewan continue to pace each other very closely on this measure, with less than 2.5% separating their levels of labour productivity in recent years.

Norway continues to lead all jurisdictions with its high level of labour productivity. Among the US states, Texas previously ranked behind Alberta, but new GDP data series for both countries now place Texas consistently ahead of Alberta in recent years. Washington State and Colorado continue to maintain their advantages over Alberta, while the states newly added to the study, Louisiana and North Dakota, also demonstrate high levels of labour productivity.

Real growth in labour productivity has improved in Alberta in recent years, with Alberta's ranking for this measure rising to eighth among the 15 jurisdictions. From 2008 to 2013, Alberta's real GDP per hour grew at an average rate of 1.5% per annum, as compared to 2.2% in Texas and 3.5% in North Dakota. However, with real labour productivity growth of 4.1% per annum between 2008 and 2013, Korea represents the growth leader among the 15 jurisdictions, helping it to narrow the gap it still has with all other jurisdictions for its level of labour productivity.

The improvement in real labour productivity growth seen in Alberta likely reflects the ongoing evolution of development in the oil sands. Several major projects have been completed and commenced production in recent years, resulting in an increase in value of output relative to the required labour input. Ongoing improvements in previously-experimental extraction techniques for unconventional oil and gas reserves are now also showing favourable dividends in terms of increased labour productivity. Indeed, Alberta's level of real labour productivity is now higher than it has been at any point in the last 12 years.

GDP per hour worked (2013) and Growth in real GDP per hour (2008-2013)



Notes: GDP (basic prices) per hour worked at current prices is in US$ at PPP. Real GDP per capita growth is based on GDP at 2007 price levels, in local currency. Sources: Statistics Canada CANSIM Tables 384-0037 and 383-0031; US Bureau of Economic Analysis, Regional Economic Accounts (GDP less taxes and subsidies) and Bureau of Labor Statistics, Current Employment Statistics; Statistics Norway, Annual National Accounts Tables 09170 and 09174; Korean Statistical Information Service, National Accounts (2010 Standard) Table 10.3.1.1 and Survey on Labour Conditions; Queensland Treasury, State Accounts Table 11 and Australian Bureau of Statistics 6202.0 Table 20; OECD PPP exchange rates.

Alberta's performance	*Rank*	*Rating*	*Change*
GDP per hour worked	*7/15*		→
Growth in real GDP per hour	*8/15*		↑

Sectoral labour productivity

Separate results are presented here for labour productivity levels in five major sectors – agriculture; mining, oil and gas; manufacturing; construction; and business sector services.

Due to international differences in data definitions, the level of labour productivity within specific sectors can only be compared reliably within a single country. Therefore, productivity levels (value added per hour worked) are compared only for Alberta and the five other Canadian provinces chosen for comparison.

Overall, Alberta ranks first or second among the six provinces for its levels of labour productivity in 2013 in all five of the sectors compared.

For **agriculture, forestry and fishing**, Alberta ranked second behind Saskatchewan in this sector in 2008. The top rankings of these two provinces have repeated themselves in each of 2011, 2012 and 2013.

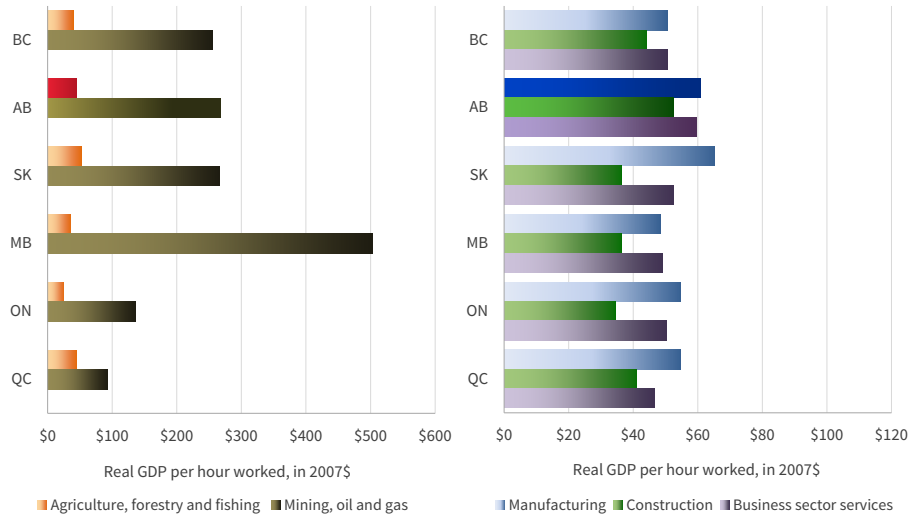
In the **mining, oil and gas** sector, since 2008 Manitoba has consistently expanded its productivity lead over all other provinces, while Saskatchewan, British Columbia and Alberta have been relatively tightly grouped in second, third and fourth places. Strong productivity growth in Alberta in 2013 allowed it to move up into second place in this sector.

For **manufacturing**, Alberta's labour productivity level was the highest among the six Canadian provinces through to 2011. However, in 2012 Saskatchewan overtook Alberta and took the lead in this sector.

In the **construction** sector, Alberta's previously-reported fifth place ranking for 2011 was eliminated as Statistics Canada completed a major revamp of its Provincial Accounts methodology in 2012/13. Alberta's large number of high value engineering construction projects have caused it to rank as the productivity leader in this sector in every year since 2007, except in 2009 when Saskatchewan briefly edged into the lead position.

The **business services** sector measure includes all forms of private sector services – from utilities, trade and transportation, through to "other services" – but excludes the health and education sectors which are dominated by publicly provided services. Utilizing this approach to measure the services sector, Alberta's lead over second-ranked Saskatchewan is over 13%.

GDP per hour worked, by major sector (2013)



Notes: GDP per hour worked represents 2013 labour productivity, but for comparison purposes is expressed in chained 2007 Canadian dollars. Business sector services include all service industry classifications from utilities, transportation and trade, to other services (excluding public administration, healthcare and education). Source: Statistics Canada CANSIM Tables 379-0030 and 383-0031.

Alberta's performance	*Rank*	*Rating*	*Change*
GDP per hour worked, agriculture	*2/6*		↓
GDP per hour worked, mining, oil and gas	*2/6*		↓
GDP per hour worked, manufacturing	*2/6*		↓
GDP per hour worked, construction	*1/6*		↑
GDP per hour worked, business services	*1/6*		→

Sectoral labour productivity growth

While the absolute level of labour productivity per sector can only be compared reliably within a given country because of different measurement approaches, it is still possible to compare the real growth of labour productivity by sector among international locations.

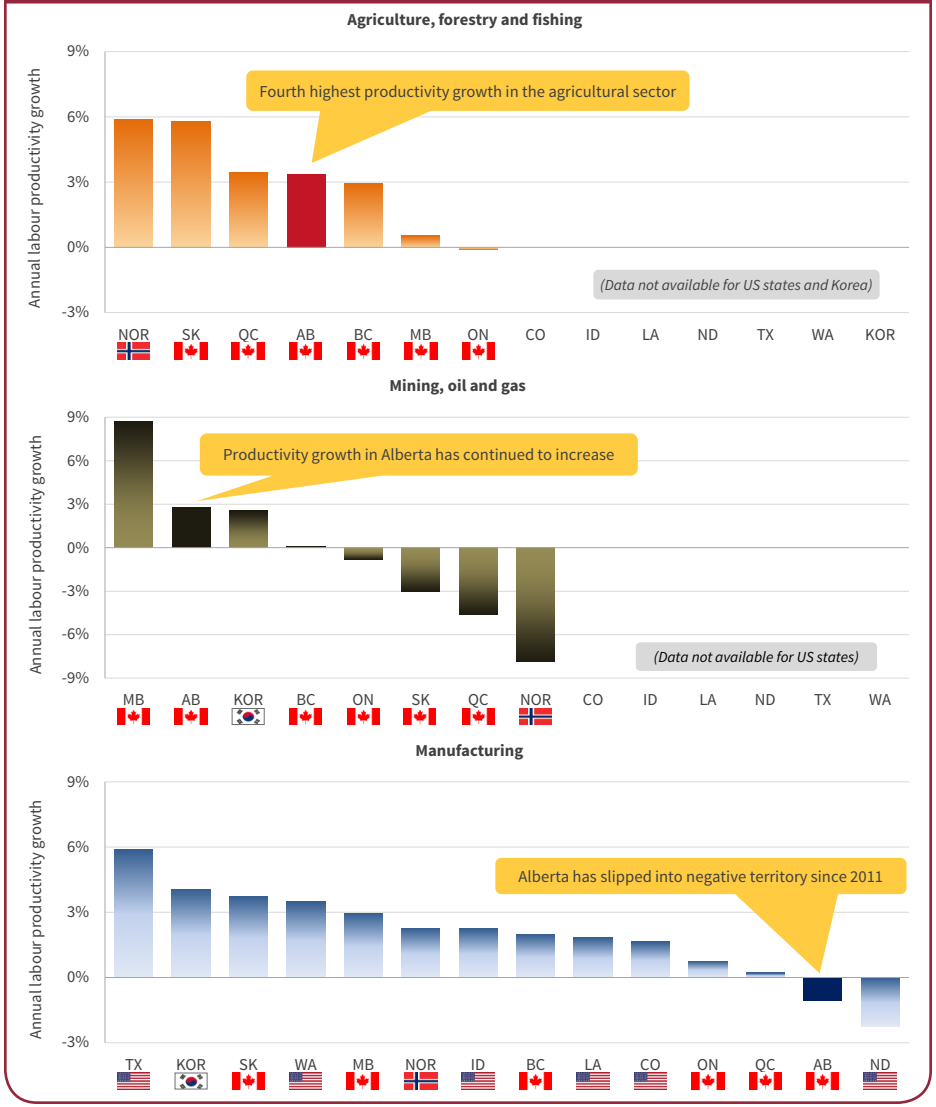
For **agriculture, forestry and fishing**, Alberta ranks fourth for productivity growth among the seven jurisdictions for which data are available. Alberta's average annual productivity growth rate was 3.4% for the period 2008-2013, just marginally behind third-ranked Quebec (3.5%) but well behind the growth leaders, Norway (5.9%) and Saskatchewan (5.8%).

For **mining, oil and gas**, Alberta's lackluster productivity performance up to 2011 improved substantially in 2012 and 2013, to reach an average annual productivity growth rate of 2.8% for the period 2008-2013. (More oil sands projects coming online may explain this strong productivity growth for Alberta.) This positive performance ranks Alberta second among eight jurisdictions for which data are available. While Manitoba posted very impressive productivity gains in this sector in 2008-2013, its small resource sector makes its results more volatile and susceptible to greater influence by individual projects.

In **manufacturing**, Alberta ranked 10th among 14 jurisdictions for labour productivity growth in 2006-2011, but slips to 13th place for 2008-2013 as its productivity growth turned negative in this sector. With an average decline of 1.1% per annum, the only jurisdiction to rank behind Alberta was North Dakota, which suffered a 2.3% average annual decrease in manufacturing sector labour productivity over the same time period. Highly specialized, labour intensive industrial engineering products for oil fields customers may potentially represent the common link driving the poor manufacturing productivity results for both of these jurisdictions.

Chart notes: GDP growth is calculated based on real GDP per hour worked in national currency. Data are not available for Queensland, nor for the US for the two primary resource sectors, nor for Korea in the agricultural sector. Sources: Statistics Canada CANSIM Tables 379-0030 and 383-0031; US Bureau of Economic Analysis, Regional Economic Accounts and Bureau of Labor Statistics, Current Employment Statistics; Statistics Norway, Annual National Accounts Tables 09170 and 09174; Korea Productivity Center, Indices of Value Added Labor Productivity.

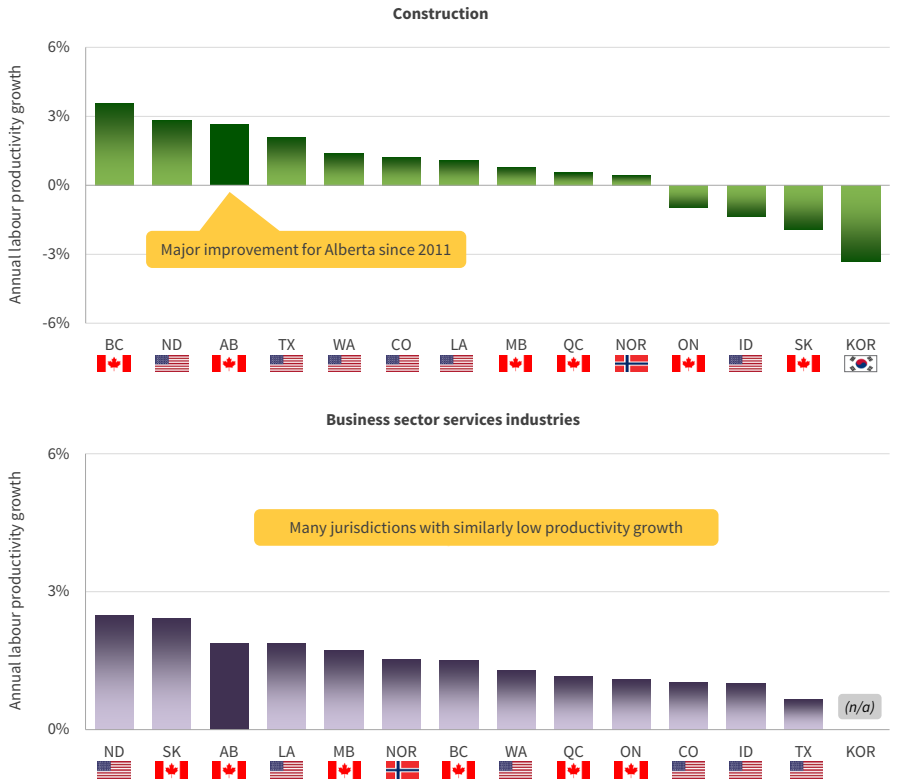
Growth in real GDP per hour, by major sector (2008-2013)



In the **construction** sector, Alberta ranks third among 14 jurisdictions for labour productivity growth in 2008-2013, representing a strong improvement over its previous results. After productivity declines during the 2000s, Alberta's labour productivity in this sector has been growing since 2010 and reached an annual average growth rate of 2.6% for 2008-2013, with only British Columbia and North Dakota exceeding this mark.

In the **business services** sector, Alberta ranks third among 13 jurisdictions for labour productivity growth in the period 2008-2013, with average annual productivity growth of 1.9%. In this sector, differentials in productivity growth rates are relatively smaller than in other sectors, with 10 jurisdictions reporting productivity growth rates between 1.0% and 2.0%. Even in the two leading jurisdictions – North Dakota and Saskatchewan – annual labour productivity growth rates for 2008-2013 were below 2.5%.

Growth in real GDP per hour, by major sector (2008-2013)



Notes: GDP growth is calculated based on real GDP per hour worked in national currency. Data are not available for Queensland, nor for Korea in the business services sector. Sources: Statistics Canada CANSIM Tables 379-0030 and 383-0031; US Bureau of Economic Analysis, Regional Economic Accounts and Bureau of Labor Statistics, Current Employment Statistics; Statistics Norway, Annual National Accounts Tables 09170 and 09174; Korea Productivity Center, Indices of Value Added Labor Productivity.

Alberta's performance

	Rank	Rating	Change
Growth in real GDP per hour, agriculture	*4/7*		↓
Growth in real GDP per hour, mining, oil and gas	*2/8*		→
Growth in real GDP per hour, manufacturing	*13/14*		→
Growth in real GDP per hour, construction	*3/14*		↑
Growth in real GDP per hour, business services	*3/13*		↑

Trade performance

Global trade performance reflects Alberta's productivity by measuring the ability of Alberta companies to compete on the world stage and to attract international buyers for their products. This is particularly relevant for non-resource exports, as such exports are not tied to local natural resources and foreign buyers may choose to purchase such goods either from Alberta or from other international sources.

Comparing the **current value of non-resource exports per capita**, in 2014 Alberta's non-resource exports totalled US$3,850 per capita, ranking Alberta ninth among 15 jurisdictions. This ranking is consistent with Alberta's prior ranking in 2011 and generally the same jurisdictions continue to lead Alberta on this measure. In this report, Korea replaces Finland in the list of overseas jurisdictions compared – in the prior report Finland ranked second for non-resource exports per capita and Korea now takes over the same ranking in the current analysis.

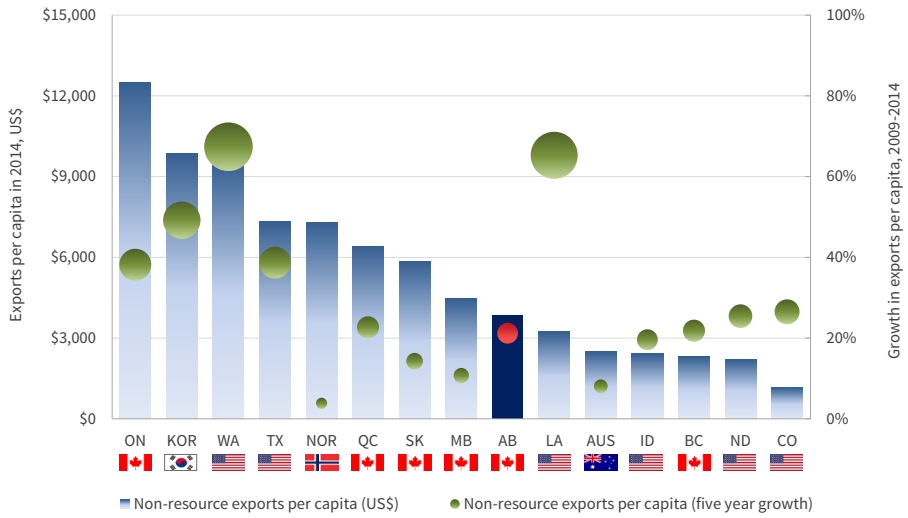
Comparing the jurisdictions that are most resource-intensive, Norway and Saskatchewan both rank well ahead of Alberta for non-resource exports per capita, while Alberta manages to hold an advantage relative to Louisiana, Australia and North Dakota.

When comparing **growth in non-resource exports,** subsequent to the recession of 2009, Alberta saw a strong rebound in exports in 2010 and 2011 – by 2011 Alberta's non-resource exports per capita (in US$) were up by 34% from 2009. Since 2011, Alberta's non-resource exports per capita have continued to grow in Canadian dollar terms, but have declined in US dollar terms due to the global strengthening of the US dollar. Therefore, for the entire period 2009-2014, Alberta recorded growth in non-resource exports per capita of 21.2% (in US$).

This export growth rate ranks Alberta in 10th place for this measure, well behind the leading jurisdictions, Washington State and Louisiana, both of which saw their non-resource exports per capita grow by more than 65% between 2009 and 2014.

Overall, stronger growth in non-resource exports per capita would be desirable for Alberta, to improve its standing in this comparison and as proof that Alberta is diversifying its export base to become less reliant on resource exports.

Non-resource exports per capita (2014) and Growth (2009-2014)



Notes: Non-resource exports include all significantly processed manufactured products, but excludes food products and lightly-processed wood, oil, and mineral products (SITC codes 00-34 and HS equivalents). Values are FOB, and converted to US$ at annual average exchange rates. Sources: MMK Consulting based on trade data from Industry Canada, Trade Data Online; US Census Bureau, US Trade Data Online; Statistics Norway, External Trade Table 06766; OECD StatExtracts, International Trade by Commodity Statistics HS2012 (Korea); Australia Bureau of Statistics, 5368.0 Table 12a.

Alberta's performance	*Rank*	*Rating*	*Change*
Non-resource exports per capita	*9/15*		→
Growth in non-resource exports per capita	*10/15*		→

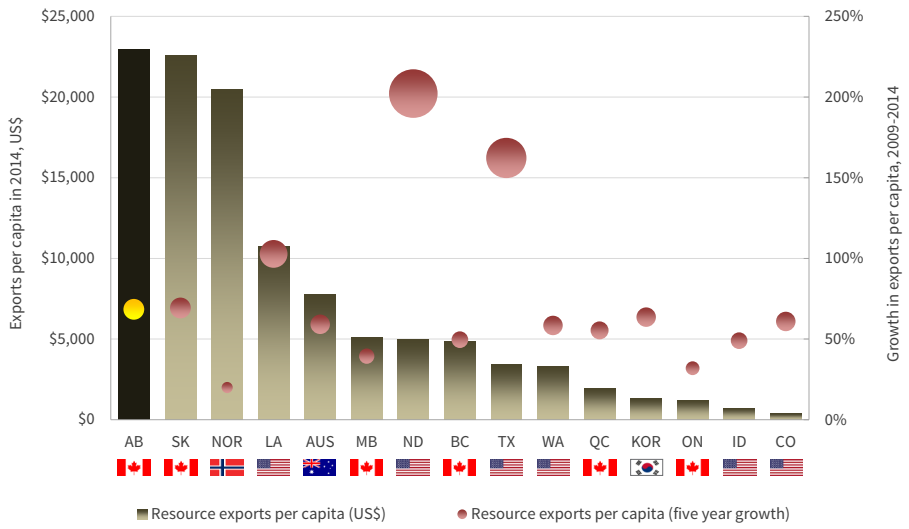
The benchmark measures used to assess Alberta's economic competitiveness focus on non-resource exports per capita, due to the higher degree of global competition for supplying non-resource goods. To complement the measures presented on the previous page, this chart provides additional context on the level and growth of **resource exports** per capita for all jurisdictions.

In 2014, Alberta led all jurisdictions for the value of resource exports per capita, with exports totalling US$22,942 per capita, 1.7% higher than for second-placed Saskatchewan. Norway rounds out the group of three leading jurisdictions, all with resource exports approximately double (or more) than in all other jurisdictions.

Between 2009 and 2014, Alberta places fifth among the 15 jurisdictions for growth in resource exports per capita, with 68% growth.

North Dakota places seventh for its level of resource exports per capita in 2014, with its resource exports per capita having more than tripled (202% growth) from 2009 to 2014. Recent trends suggested that North Dakota was poised to overtake both Manitoba and Australia for per capita resource exports, but the recent decline in oil prices will set back the value of exports per capita for North Dakota.

Context: Resource exports per capita (2014) and growth (2009-2014)



Notes: Resource exports include all food products and lightly-processed wood, oil and mineral products (SITC codes 00-34 and HS equivalents). Values are FOB and converted to US$ at annual average exchange rates. Sources: MMK Consulting based on trade data from Industry Canada, Trade Data Online; US Census Bureau, US Trade Data Online; Statistics Norway, External Trade Table 06766; OECD StatExtracts, International Trade by Commodity Statistics HS2012 (Korea); Australia Bureau of Statistics, 5368.0 Table 12a.

Innovation

"New and improved products, services and processes for a global marketplace."

What it means

GO Productivity (formerly Productivity Alberta) defines innovation as "two or more people or organizations working towards a common goal of the commercially successful exploitation of new technologies, ideas, or methods, through the introduction of new products or processes, or through the improvement of existing ones, adding new sources of growth."[1]

While this definition may be lengthy, it captures all elements of the modern understanding of innovation. The US Council on Competitiveness provides a more succinct alternative, that "innovation is the intersection of invention, insight and investment that leads to the creation of social and economic value."[2]

Within the framework of the Competitiveness Pyramid, innovation is the key driver of productivity in the modern economy, with real productivity gains underpinning growth and sustained prosperity.

Innovation is primarily driven by industry, but with support from government. Innovation can occur in many different settings. Whether a graduate student conducting original research, a team working on commercialization of a new technology, a manufacturer installing major new machinery, an entrepreneur introducing a new service to the market, or a production worker trying a new approach to solving an old problem – all represent potential sources of innovation.

Innovation	
R&D expenditures	Total R&D expenditures
	Growth in total R&D expenditures
	Business R&D expenditures
University research	University patents received
	Industrial share of research funding
University technology transfer	Start-ups licensing university technology
Business innovation investment	Investment in machinery and equipment
	Investment in ICT equipment and software
Innovation employment	Employment in natural and applied sciences
Intangible innovation	Multifactor productivity growth
Entrepreneurship	Total early-stage entrepreneurial activity (new)
	New business start-ups
	High growth firms

How it is measured

Because innovation is such a broad concept, it is not possible to encompass all aspects of innovation within a few measures. Accordingly this report uses 13 separate measures that are indicative of various aspects of innovation to assess Alberta's competitiveness in innovation.

Education is an important contributor to innovation, but the measures selected for comparison here focus on innovation processes and outcomes. Within the Competitiveness Pyramid framework, education is considered as part of the Human Capital component of the Foundation, as presented in a later chapter.

1 *Regional Innovation, Best Practices in Competitiveness Strategy*, Global Federation of Competitiveness Councils, 2014.
2. *A Clarion Call for Competitiveness*, US Council on Competitiveness, 2012.

How Alberta performs

The 13 measures selected for benchmarking aspects of innovation are outlined in the table on the previous page. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

The measures of innovation compared in this chapter are grouped into seven themes, each of which touches on a different aspect of innovation processes and outcomes. These themes are R&D expenditures, university research, university technology transfer, business innovation investment, innovation employment, intangible innovation and entrepreneurship.

R&D expenditures represent an important precursor to innovation, as new ideas are more likely to be found if effort and funding are dedicated to research and development. This report measures the levels of (gross) expenditures on R&D, both for the entire economy and specifically for expenditures made by business. In addition to comparing the relative levels of R&D spending (expressed as a percent of GDP), this report also measures the growth of actual R&D spending over time.

Research universities form one component of a jurisdiction's innovation infrastructure and strong connections between universities and industry promote the undertaking of commercially relevant R&D. Within this context, this report measures the number of US patents earned by major research universities and the willingness of industry to invest in university R&D.

When university R&D leads to promising new products or services, the next logical step in the innovation process is technology transfer, to license the new ideas for commercial development. This stage of innovation is measured based on the number of start-up enterprises licensing university technology in each jurisdiction.

The business sector represents another vital source of innovation. Investments in innovative technologies, such as machinery and equipment, and also information and communications technology (ICT), strongly influence business innovation. Therefore, this report measures business investments in these two categories of innovative technologies.

Having skilled employees working in jobs focused on innovation is the fifth main theme for assessing innovation. Within this theme, this report measures the percentage of workers employed in jobs that relate to science and technology. This measure is particularly important as many innovative science and technology jobs can be found in industries that are not generally considered to be "high tech", including the oil and gas extraction industry.

Having assessed the business capital investments and workforce that influence innovation, there is a residual element of productivity growth that represents intangible innovation. This measure is called multifactor productivity growth, representing a macro-level measure of business innovation stemming from technological change.

The final theme for measuring innovation relates to entrepreneurship. Innovation requires a willingness to take risks and try new ideas, often in the context of a new business start-up. This report assesses the state of entrepreneurship through three measures, comparing a new measure for early-stage entrepreneurial activity, plus existing measures of new business start-ups and the number of firms achieving rapid, multi-year job growth.

Research and development expenditures

R&D is an important platform for innovation - representing a planned, systematic search for new knowledge, whether at the conceptual (research) or applied (development) stage of the innovation process. R&D is conducted by business, universities, non-profit research institutes and by consortia among these groups that can pool R&D resources and talent.

Comparing **total R&D expenditures**, Alberta lags behind most jurisdictions. With total R&D spending representing just 1.1% of GDP in 2012, this leaves Alberta ranking 12th for this measure. Only North Dakota, Saskatchewan and Louisiana rank behind Alberta for total R&D expenditures, with a common resource theme linking these jurisdictions. Despite this, Norway manages to rank in seventh place for total R&D expenditures.

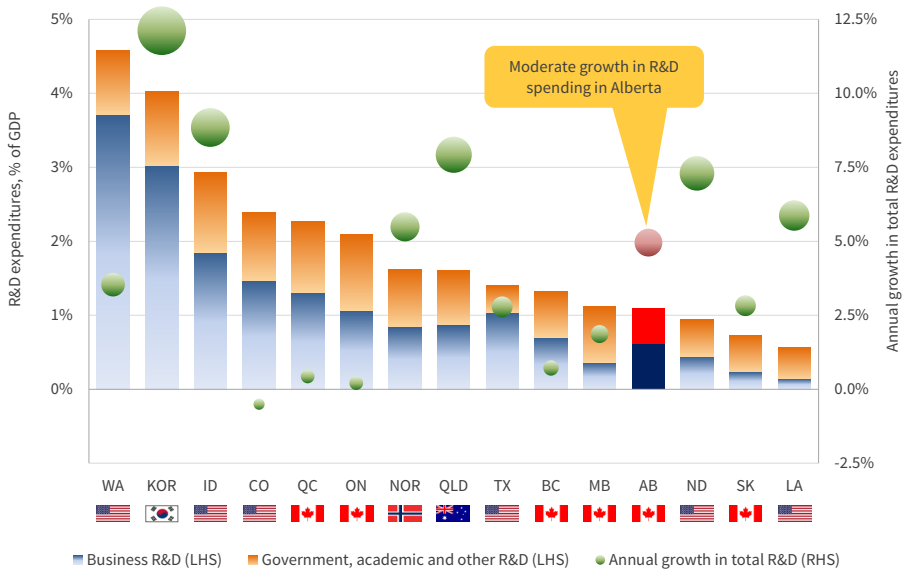
While Alberta has a fairly low level of total R&D investment, from 2007 to 2012 Alberta saw moderately strong **growth in total R&D expenditures**, with an average annual growth rate of 5.0%. This ranks Alberta seventh among the 15 jurisdictions for R&D growth, well below the growth leader, Korea, but well ahead of the other Canadian provinces compared. Indeed, in British Columbia, Ontario and Quebec, annual R&D growth from 2007 to 2012 was below 1.0%.

Within total R&D expenditures, the jurisdictions are also ranked for **business R&D expenditures**, reflecting the leading role that business should take in developing new products and services. Measured as a percentage of GDP, business R&D expenditures in Alberta amounted to 0.6% of GDP in 2012, as compared to 3.7% of GDP in Washington State and 3.0% in Korea. As a result, Alberta ranks 11th for this measure.

In Alberta, similar to the other large Canadian provinces, business R&D expenditures represent approximately 55% of total R&D. In comparison, in Washington State, Korea and Texas, business R&D investments account for at least 74% of total R&D spending, with governments and non-profits playing a lesser role in R&D.

While these three measures of R&D activity are critically important, it is equally important to recognize their limitations. These standard international measures reflect "formalized" R&D – specific programs of R&D undertaken in research labs, in prototype plants, etc. What these measures cannot capture is the "informal" R&D that occurs every day on the shop floors of manufacturing firms, at the desks of ICT firms and in the workplace sites of construction and resource firms.

R&D expenditures, percent of GDP (2012) and Growth (2007-2012)



Notes: Australian data for R&D expenditures by higher education and by government/non-profits are only published in alternating years. Intervening years are estimated as the average of the preceding and following years. Sources: Statistics Canada, CANSIM Table 358-0001; US National Science Foundation, National Science Foundation, National Patterns of R&D Resources: 2011–12 Data Update, Table 13; Nordic Institute for Studies in Innovation, Research and Education, R&D Statistics for Norway; Korean Statistical Information Service, Science Table ID DT_KBA0001; Australian Bureau of Statistics, 8104.0, 8109.0 and 8111.0.

Alberta's performance	*Rank*	*Rating*	*Change*
Total R&D expenditures	*12/15*		→
Growth in total R&D expenditures	*7/15*		↓
Business R&D expenditures	*11/15*		↑

University research

Major research universities represent an important source of innovation, due to their high levels of formalized basic and applied research. Both governments and industry capitalize on these strong research capabilities, funding university R&D projects that are of interest to each group.

The first measure used to assess university research is the number of **university patents received** from the US Patent Office from the period 2009-2013. This measure identifies potentially valuable research results for which universities have taken the time and covered the cost required to obtain patents.

The University of Alberta ranks ninth among 13 universities for US patents received, followed closely by University of Calgary in 10th place. These rankings are unchanged for both universities since 2010 and are not impacted by the change in mix of jurisdictions included in this year's benchmarking comparisons.

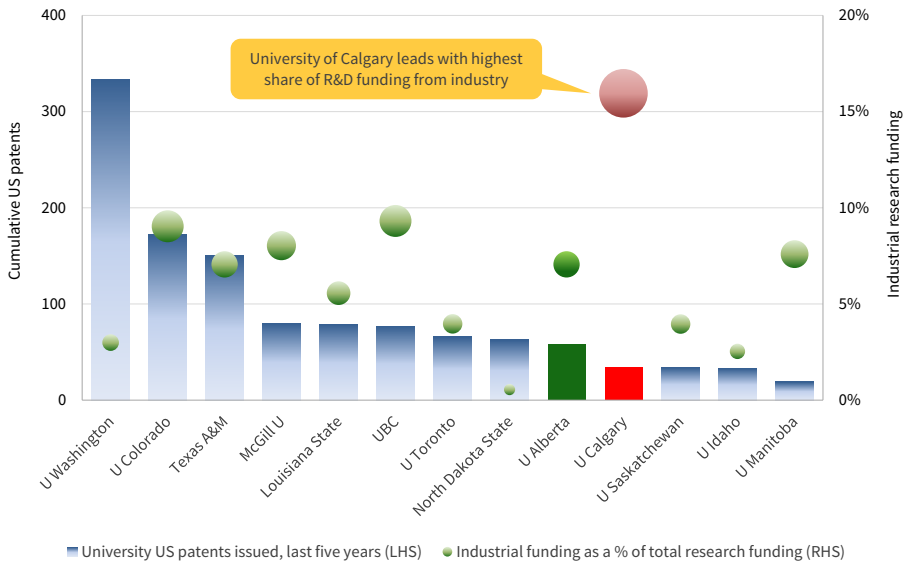
The leading university for patents received, University of Washington, has close connections with the large local ICT cluster in Seattle. These connections likely influence the very high number of patents received by the University of Washington.

The second measure used to compare these major research universities is the **industrial share of research funding**. This measure identifies the degree of partnership activity between the university and industry in their research activities, as well as the confidence that industry has in the university's research capabilities.

The University of Calgary has grown its share of research funding that comes from industry in recent years, from 13.2% in 2008-2010 to 15.9% for the period 2011-2013. Over the same time span, the University of Colorado has seen a large decline in its industrial share of research funding, leaving University of Calgary in top position for this measure. Meanwhile, the University of Alberta ranks seventh among the 13 universities for this measure, with a respectable 7.1% of all R&D funding coming from industry in 2011-2013.

Patentable inventions developed at universities only represent part of the innovation story. There are also patentable inventions developed in the private sector, and just as importantly, innovative process improvements by firms that boost innovation and productivity, but which do not result in patents.

University patents received (2009-2013) and Industrial share of research funding (2011-2013)



Notes:. In all jurisdictions other than Alberta, the single largest publicly-funded university is shown. Texas is an exception, where data are used for Texas A&M University as the largest stand-alone public university in the state rather than data for the much larger multi-campus University of Texas system. Source: Association of University Technology Managers, Licensing Surveys Database.

Alberta's performance	*Rank*	*Rating*	*Change*
University patents received	*9/13*		→
Industrial share of research funding	*1/13*		↑

University technology transfer

When universities have obtained patent protection for potentially valuable research findings, these new technologies may then be transferred to industry for further development and commercialization.

Universities license new technologies to a wide range of organizations, including large corporations, small start-up firms and non-profit entities. Technology licenses issued to start-up firms provides a strong indicator that innovations have commercial potential, with a new business being formed and funded to capitalize on the opportunity. While licensing technology to start-up firms is often risky, it can be a very effective way for new technologies to transfer from universities to the wider society.

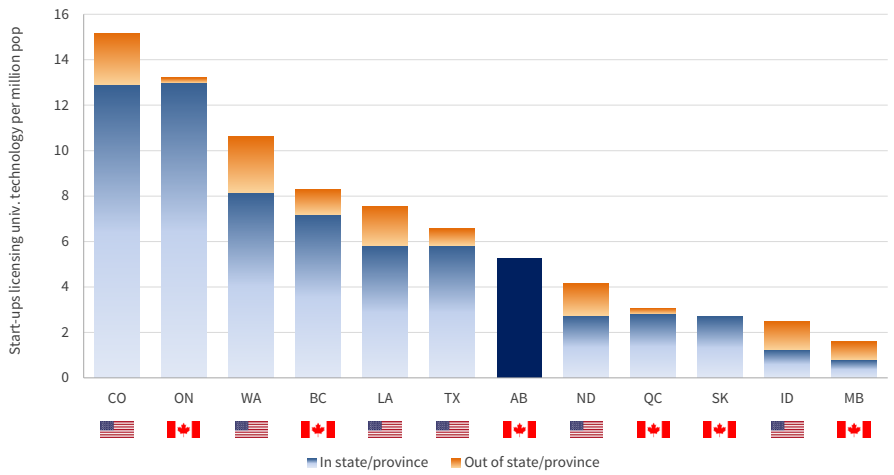
The measure used to compare the success of each jurisdiction in this area is the number of start-up firms licensing university technology, per million population.

Alberta ranks seventh among the 12 US and Canadian jurisdictions compared for this measure, reflecting data for 2009-2013. While Alberta's rate of licensing activity has edged up marginally since 2006-2010, Manitoba has seen a decrease in its start-up licensing activity and drops behind Alberta (and to the back of the group of jurisdictions) in this comparison.

While jurisdictions are ranked based on their total rate of start-ups, the chart also shows the breakout between start-ups located in state/province and out of state/province. This aspect has not been rated as a measure, because there are both positive and negative aspects of having a high number of out of state/province start-ups. On the one hand, a large number of out of state/province start-ups reflects favourably on the quality of the R&D at an institution and its ability to attract interest from national and international firms. On the other hand, out of state/province start-ups mean that less of the economic impact of technology commercialization is being captured in the local jurisdiction, with employment and income instead accruing in another jurisdiction.

For the period compared, 2009-2013, Alberta and Saskatchewan were the only two jurisdictions where 100% of university technology licensing activity was with firms located in-state or in-province.

Start-ups licensing university technology, per million population (2009-2013)



Notes: Start-up licenses are aggregated for all reporting institutions in each jurisdiction. Source: Association of University Technology Managers, Licensing Surveys Database.

Alberta's performance	*Rank*	*Rating*	*Change*
Start-ups licensing university technology	*7/12*		→

Business innovation investment

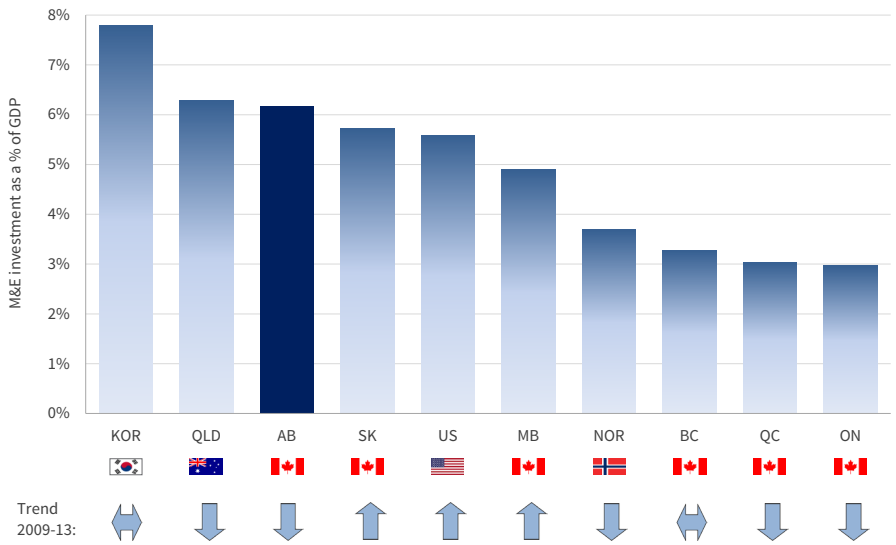
Business investments in innovative technologies, including machinery and equipment, as well as information and communications technology, strongly influence innovation in firms.

In 2013, Alberta ranks third among the 10 jurisdictions compared for business **investment in machinery and equipment**, with 6.2% of GDP representing new investments in machinery and equipment.

Alberta's high level of investment in machinery and equipment reflects the capital-intensive nature of the province's oil and gas sector, although completion of some major oil sands projects in recent years may have somewhat slowed the growth of new capital investment. Since 2009, Alberta's level of investment in machinery and equipment has declined as a percentage of GDP - a product of the province's strong GDP growth during that period. Between 2009 and 2013, underlying investment in machinery and equipment actually increased, but not sufficiently to keep up with growth in GDP.

Due to changes in international standards for preparing national accounts, the results for Alberta (and for other jurisdictions) shown in this chart cannot be compared to those presented in prior editions of this report. Among other changes to the international standards, investments in software are no longer counted as part of machinery and equipment. Previously software was included as equipment along with the hardware on which it runs. Now, software is separately classified as a form of investment in intellectual property.

Investment in machinery and equipment, percent of GDP (2013)



Notes: Results are not available for individual US states. Software is now excluded in the definition of machinery and equipment in all countries, reflecting updated international standards for National Accounts. Sources: Statistics Canada, CANSIM Table 384-0038; US Bureau of Economic Analysis, National Economic Accounts: Fixed Asset Tables, Table 2.7; Statistics Norway, National Accounts Table 09181; Bank of Korea, National Accounts (2010 Standard) Table 10.6.2.1; Australian Bureau of Statistics, 5220.0, Table 4.

Alberta's performance	*Rank*	*Rating*	*Change*
Investment in machinery and equipment	*3/10*		

While the measure on the previous page looked broadly at total business investment in all types of machinery and equipment, this next measure focuses more narrowly on **investments in ICT equipment and software**. Reflecting the importance of ICT in the modern innovation ecosphere, this measure assesses the value of ICT tools being provided to each worker.

Comparable data on the per-employee value of ICT investments are only available for the Canadian provinces and the US national average, so this comparison is restricted to seven jurisdictions. This measure also continues to bring together values for ICT hardware and software, even though these two elements are now classified into separate asset categories in national accounts.

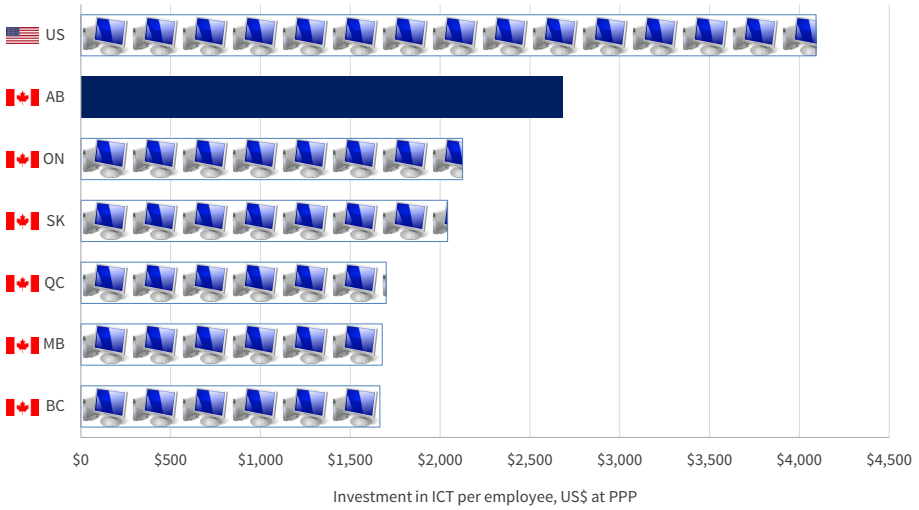
Within Canada, Alberta continues to lead the six provinces compared for investments in ICT per employee in 2013. Since 2011, the value of ICT investments per worker in Alberta have increased by almost 11%, to US$2,683 per employee. Meanwhile, ICT investment figures in Ontario and Quebec grew by 2% or less from 2011 to 2013, increasing Alberta's lead.

While the results for Alberta are generally favourable within the Canadian context, investment in ICT by Canadian employers continues to lag well behind US firms.

Possible reasons for this lower average level of ICT investment by Canadian employers include Canada's smaller share of employment in the ICT-intensive cultural and information industries, and also Canada's larger share of employment in small and medium enterprises (which typically spend less on ICT than larger firms).

Between 2011 and 2013, Alberta employers did manage to narrow the gap on ICT investment relative to the United States. Over that period, Albertan investments in ICT grew by 10.8%, or $261 per employee, while investments in ICT by US firms only grew by 3.8%, or US$152 per worker.

Investment in ICT equipment and software, per employee (2013)



Notes: ICT investment includes non-residential capital investments in: (i) for Canada: computers, electronic products and software; and (ii) for the United States: computers and peripherals, communications equipment and software. In Canada, investment and workforce data represent both private sector and government. In the US, investment and workforce data represent non-residential private sector only (government is excluded). This distinction is not expected to result in a material difference in data comparability.
Sources: Statistics Canada CANSIM Tables 031-0007 and 282-0002; US Bureau of Economic Analysis, National Accounts, Fixed Asset Table 2.7; US Bureau of Labor Statistics, Employment Hours & Earnings; OECD, PPP exchange rates.

Alberta's performance	*Rank*	*Rating*	*Change*
Investment in ICT equipment and software	*2/7*		

1 *What Explains the Canada-US ICT Investment Intensity Gap?*, Centre for the Study of Living Standards, 2005

Innovation employment

Innovation cannot occur without well educated individuals working in innovation-orientated positions. Within the Competitiveness Pyramid framework, education falls within the Human Capital and Education component of the Foundation (addressed in a later chapter). With a focus on innovation, this measure examines occupations that are particularly innovation orientated.

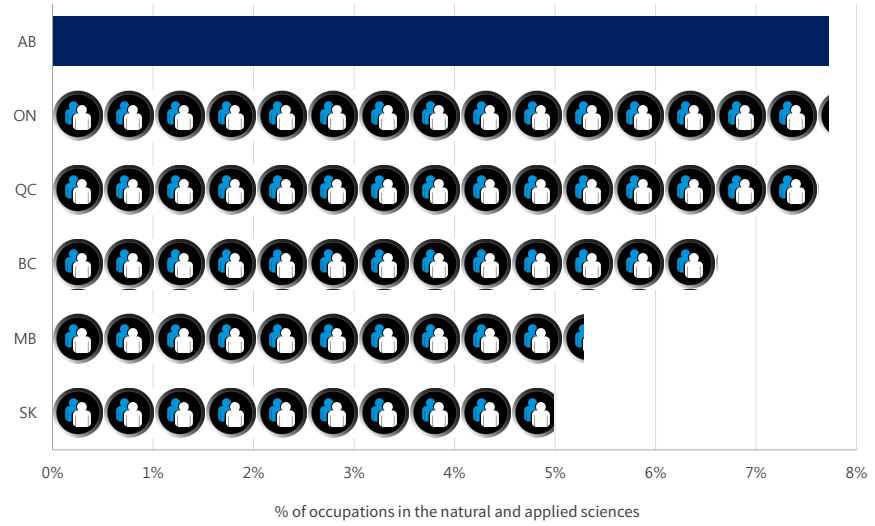
This measure compares the share of the workforce employed in jobs that relate to natural and applied sciences, regardless of the industry sector that the jobs exist in. This approach reflects the fact that many science and technology jobs are found in industries that are not usually considered "high tech". Employment in natural and applied sciences is a measurement concept only reported within Canada, so for this measure comparisons are limited to the six Canadian provinces.

Alberta fares well in this comparison, due to high levels of employment in engineering and science in the resources sector (e.g., geology, chemistry, etc.).

While Alberta continues to lead all other Canadian provinces for employment in natural and applied sciences occupations, Ontario has seen recent growth in this measure. In 2014, Alberta and Ontario are virtually tied for this measure, with both provinces reporting 7.7% of jobs as being in natural and applied science occupations. For Alberta, science-related jobs have now returned to approximately the same levels seen in 2007-2011, after briefly moving above 8.0% of all jobs in 2012 and 2013.

Quebec has also seen a growing share of its jobs in the sciences over the last five years, having almost caught up to both Ontario and Alberta. These changes have substantially reduced the margin of difference between the three leading provinces, although the actual rankings of all provinces remains unchanged in 2014 as compared to 2011.

Employment in natural and applied science (and related) occupations, percent of total occupations (2014)



Source: Statistics Canada, *Labour force survey estimates by National Occupational Classification for Statistics*, Table 282-0009.

Alberta's performance	*Rank*	*Rating*	*Change*
Employment in natural and applied sciences	*1/6*		→

Intangible innovation

The preceding measures have compared business capital investments that can be considered to increase innovation and also the innovation-oriented, science-related workforce. As innovation seeks to drive growth in productivity (refer to the diagram on page 26), these aspects broadly align with "capital productivity" and "labour quality". The final element of productivity is multifactor productivity (MFP), a residual element that broadly represents intangible innovation.

Changes in MFP reflect innovation advancements, capturing the effects of process improvements, the adoption of new technologies and improved production and management techniques in the business sector. Research by the OECD has shown that linkages exist between MFP and overall living standards.

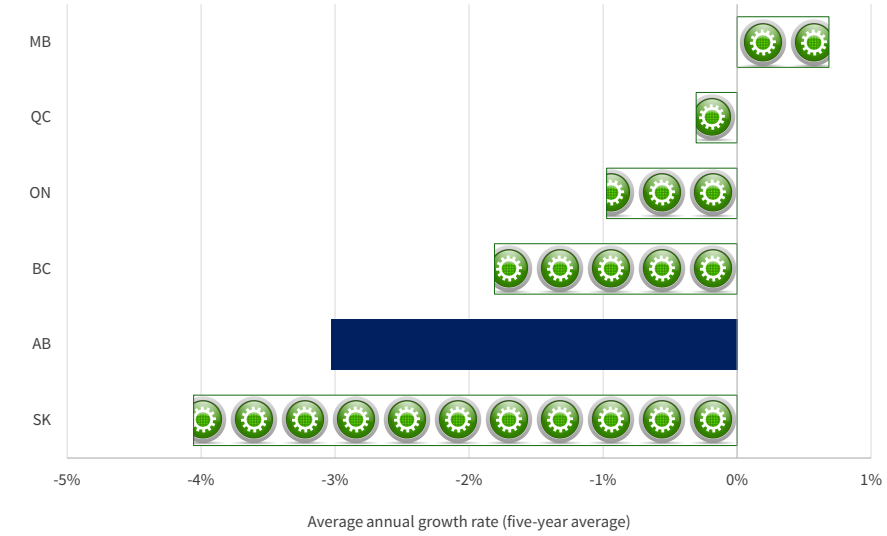
Comparable data for multifactor productivity growth are only available for the Canadian provinces, so the comparison for this measure is restricted to six jurisdictions. The data presented here are from 2005-2010 – very dated and unchanged from that presented in the previous edition of this report. In Statistics Canada's ongoing process to revise the Provincial Economic Accounts in line with new international standards, MFP is one of the last remaining items that has not yet been updated. This measure has been presented here once again, with old data, in anticipation that up-to-date results for all provinces will be available for the next edition of this report.

MFP is a difficult factor to estimate and MFP estimates can be quite volatile from jurisdiction to jurisdiction and from year to year. For this reason, this comparison measure reflects five year average growth in MFP, rather than a point-in-time comparison or a one-year change.

Despite the strong performance for Alberta in the preceding measures of business investments in innovative technology, Alberta ranks fifth among six jurisdictions for MFP growth, based on 2005-2010 data. The Canadian provinces generally fared poorly for MFP growth, with Manitoba being the only province to report MFP gains in the comparison period.

MFP gains can potentially be made in any sector of the economy. It is an ongoing priority for Alberta and Albertan businesses to improve their approaches to innovation with combinations of labour and capital that maximize productivity growth.

Multifactor productivity growth, market sector (2005-2010)



Sources: Unpublished Statistics Canada estimates with growth estimates calculated by the Centre for Study of Living Standards.

Alberta's performance	*Rank*	*Rating*	*Change*
Multifactor productivity growth	*5/6*		→

Entrepreneurship

Entrepreneurial activities may in some instances be inventions of necessity, but in many situations reflect a willingness to take business risks in order to capitalize on product or process opportunities.

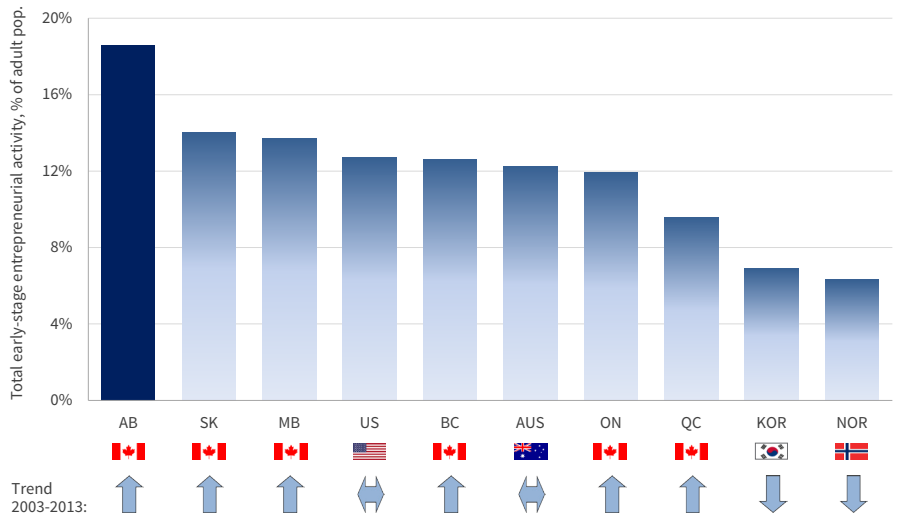
Entrepreneurial activity typically begins before the establishment of a new business, as entrepreneurs develop plans and strategies, then pursue the financing necessary to capitalize on their business ideas. Entrepreneurial activity continues after the establishment of a new business, through the early stages of the business life cycle as entrepreneurs shepherd their new businesses either to a solid foundation for success, or to their demise.

The Global Entrepreneurship Monitor (GEM) conducts detailed interviews on an annual basis around the world to capture data on this full spectrum of **Total early-stage Entrepreneurial Activity** (TEA) among entrepreneurs. The TEA approach used by GEM captures relevant activity that precedes more usual measures based on "when the business license is issued".

Alberta leads all the jurisdictions, with 18.6% of the adult population reporting some form of early-stage entrepreneurial activity in 2013. Alberta places significantly ahead of second-ranked Saskatchewan (14.0%), indicating that Alberta's strong entrepreneurial spirit is alive and well. The rate of entrepreneurial activity in Alberta is almost triple the rate of activity in last-placed Norway (6.3%).

The last year in which data for all the relevant jurisdictions are available is 2003. All Canadian provinces have seen significant increases in their entrepreneurial activity between 2003 and 2013, with rates of activity in all provinces in 2013 being at least one fifth higher than in 2003. In contrast, Norway and Korea both saw significant declines in their rates of entrepreneurial activity over the 10-year period, while Australia and the US are the only jurisdictions where rates of entrepreneurial activity remained relatively stable over the 10-year comparison period.

Total early-stage entrepreneurial activity, percent of adults (2013)



Notes: The upward or downward trend arrows reflect an increase or decrease in the rate of total entrepreneurial activity of at least one tenth, being 10% of the former value, not 10 percentage points on the chart scale. Sources: Global Entrepreneurship Monitor global results database and Canada Reports 2003 and 2013.

Alberta's performance	*Rank*	*Rating*	*Change*
Total early-stage entrepreneurial activity	*1/10*		*new*

Early stage entrepreneurial activity, presented on the previous page, includes a range of activities preparing for a business start-up, as well as post-start-up activity during the early stages of the business life cycle. However, actually starting a business represents a crucial threshold in the process of an entrepreneur bringing their innovative new products or services to market. For this reason **new business start-ups** are used as another measure of innovation.

Alberta ranks second among the 12 provinces and states compared for business start-ups, reflecting data on new businesses formed in 2012. Alberta's rate of start-up activity increased between 2010 and 2012, up from 1.79 new businesses per 1,000 population in 2010 to 1.92 in 2012. As a result, Alberta has moved ahead of the former leader on this measure, Colorado. However, North Dakota's strong resource boom between 2010 and 2012 saw its rate of start-ups jump by almost 58% over two years, moving well ahead of Alberta on this measure.

Another important part of the process of innovation, is the success of the business venture. Innovative firms are more likely to succeed and grow and the most innovative firms are most likely to experience rapid growth.

High growth firms have been identified as businesses experiencing job growth of more than 20% per annum for each of three consecutive years. (Compounded, this represents 72.8% job growth over three years.) Many such businesses would represent small and medium businesses, for the simple reason that large percentage increases in employment become harder to sustain as companies grow.

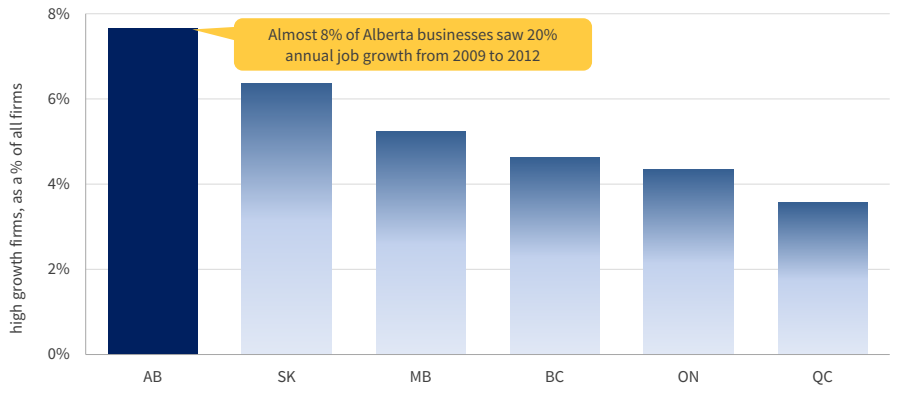
The period 2010-2012 represented a strong growth period for businesses in Alberta, with 7.7% of all firms being high growth firms, up from 5.0% for 2008-2010. This strong growth is not all attributable to emergence from the 2009 recession, as firms in other provinces did not achieve the same gains as those in Alberta, while Quebec saw a decline in high growth firms.

Alberta's performance	*Rank*	*Rating*	*Change*
New business start-ups	*2/12*		↓
High growth firms	*1/6*		↑

New business start-ups, per 1,000 population (2012)

Notes: Comparable data not available for overseas jurisdictions. Sources: Statistics Canada, LEAP Database, custom extract.; US Census Bureau, Business Dynamics Statistics, Firm Age by Firm Size by State.

High growth firms (>20% job growth for 3 straight years, 2012)



Notes: Results represent the percentage of all firms that experienced employment growth in excess of 20% in each of 2010, 2011 and 2012. Data not available for international locations. Source: Statistics Canada, LEAP Database, custom extract.

The Foundation – Overview

"Factors that shape the business environment."

What it means

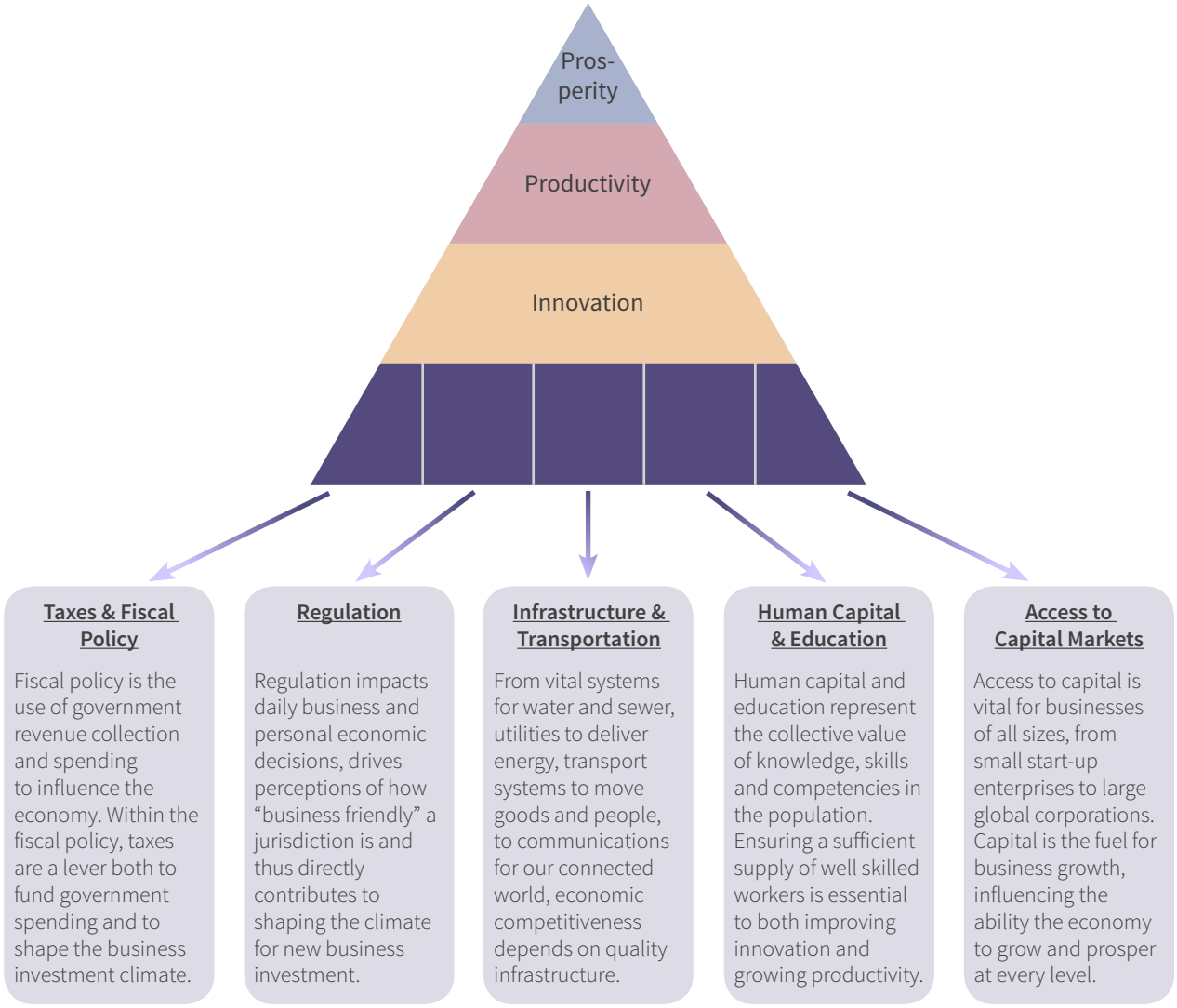
The preceding three chapters have addressed each of the upper levels of the Competitiveness Pyramid:

- **Sustained Prosperity**, as the ultimate objective of building a competitive economy;
- **Productivity**, as the key driver of achieving sustained prosperity; and
- **Innovation**, as the enabler of productivity growth.

We now come to **The Foundation**, which is defined by the factors that support and shape the overall business environment. These are the base building blocks of the economy, that enable future innovation and productivity. They include taxes and fiscal policy, regulation, infrastructure and transportation, human capital and education, and access to capital markets.

Government has a lead role in shaping and improving the foundation, but industry also has a role in helping to develop key aspects of the foundation, including technology infrastructure and business financing mechanisms. While developing a robust foundation does not ensure sustained prosperity, if the foundation is weak, then achieving sustained prosperity becomes a far more challenging task.

The five elements of The Foundation are examined in each of the subsequent chapters.



Foundation – Taxes & Fiscal Policy

"Factors that shape the business environment."

What it means

Fiscal policy represents the use of government revenue collection powers and spending capacity as a means of influencing the economy. Within the fiscal policy toolbox, taxation represents a key lever both for funding government spending priorities and for shaping the business investment climate.

While government spending initiatives can influence the level of economic activity and overall living standards in many ways, high levels of government spending can cause the need for high taxes, which in turn can limit investment and wealth creation. Therefore, this chapter considers these related topics, taxes and fiscal policy, together.

How it is measured

Taxes play a significant role in shaping day-to-day economic decisions of both business and individuals. From companies choosing where to locate new operations based on favourable tax structures, to an individual opening a Tax Free Savings Account or a Registered Retirement Savings Plan, tax policy affects economic decision making in profound ways.

This report uses two measures to compare different aspects of business taxes, one existing measure assessing the marginal effective tax rate on new business investments and one new measure of the business total tax index.

Foundation

Taxes & Fiscal Policy	
Business taxes	Marginal effective tax rate on investment
	Business total tax index (new)
Personal taxes	Top personal income tax rate
Total tax burden	Total tax burden
Public savings or debt	Government net financial assets

Just as important as business taxes are personal taxes. Personal taxes are separately measured, comparing the top marginal income tax rate for individuals.

The broader perspective of overall fiscal policy can provide businesses and individuals with signals regarding future economic stability and the general direction of future tax levels. To compare the fiscal policy of jurisdictions, this study looks at the current government tax burden (as a share of GDP) and the net savings or indebtedness of the governments of each comparison jurisdiction.

How Alberta performs

The five measures selected for benchmarking aspects of taxation and fiscal policy are outlined in the table above. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

Business taxes

In the modern global economy, fierce competition exists between jurisdictions for new business investments. Having a competitive business tax environment can make a difference in a jurisdiction's ability to attract new business investment.

This first measure of business taxes compares the **Marginal Effective Tax Rate (METR) on capital investment**. This measure assesses the impacts of corporate income tax, gross receipts tax, capital tax and sales tax on new business investment. METR is calculated as the annualized value of the taxes paid by large and medium sized corporations on their profits and capital inputs, expressed as the share of these taxes in the pre-tax rate of return on capital.

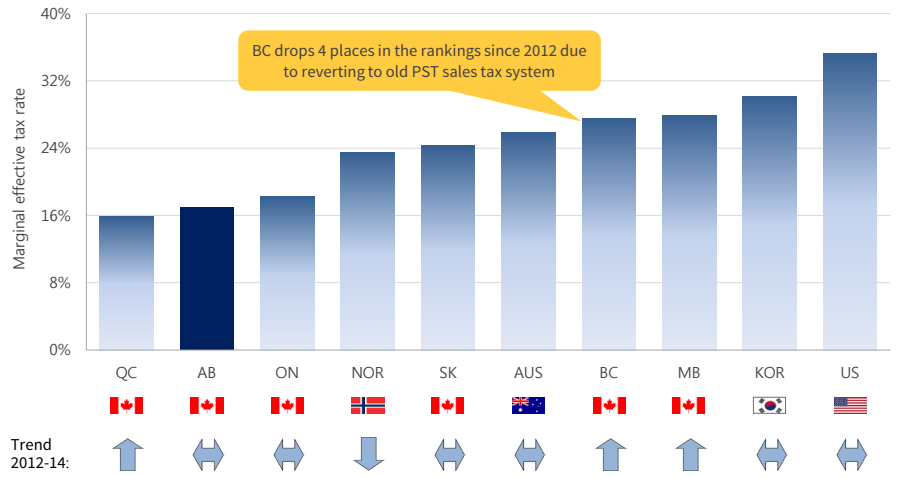
Alberta rates well on this measure, with the second lowest METR among all jurisdictions, behind only Quebec. The reason for Quebec's lead on this measure is because Quebec provides a tax credit of 4% (or higher) for new investments in manufacturing and processing machinery or equipment.

Alberta's low METR reflects its low corporate income tax rate and the fact that it does not levy any non-refundable sales taxes on business.

For most jurisdictions, METR has remained quite stable over the last three years. While Quebec and Norway have experienced modest changes in their METR rates since 2012, larger changes have been seen in British Columbia and Manitoba. In 2013, BC increased its corporate income tax rate and also reverted from the refundable (for business) Harmonized Sales Tax system back to the non-refundable Provincial Sales Tax (PST) system. These changes caused BC's METR to increase from 17.8% to 27.5%. In Manitoba, a July 2013 increase in the PST rate caused an increase in METR from 26.2% to 27.9%.

Previous editions of this report presented separate METR values for individual US states. However, due to limited availability of state-based data, METR is now presented only for the US as a whole. The differential between Alberta and the US average for this measure is substantial, with the US average METR of 35.3% being more than double the 17.0% rate seen in Alberta.

Marginal effective tax rate on capital investment (2014)



Source: The 2014 Global Tax Competitiveness Report, Duanjie Chen and Jack Mintz, University of Calgary School of Public Policy.

Alberta's performance	*Rank*	*Rating*	*Change*
Marginal effective tax rate on investment	*2/10*		→

The previous page focused on the tax burden for new business investment, measured by Marginal Effective Tax Rate (METR). The second measure used to compare business taxes, the **business Total Tax Index** (TTI), shifts the focus away from new business investment and towards ongoing business operations.

In the Total Tax Index calculation, annual taxes and levies such as local property tax and statutory labour costs become more prominent in the analysis, as do broadly available tax incentives such as credits for R&D, new investments and job creation. Corporate income tax, capital tax, sales tax and gross receipts tax continue to be included in the calculation. Analyzing all of these tax elements together, the TTI estimates the total tax burden faced by business over 10 years in operation. (Due to the inclusion of local property taxes, the TTI calculations reflect tax burdens for individual cities. The results presented here reflect tax costs for one major business centre per province or state.)

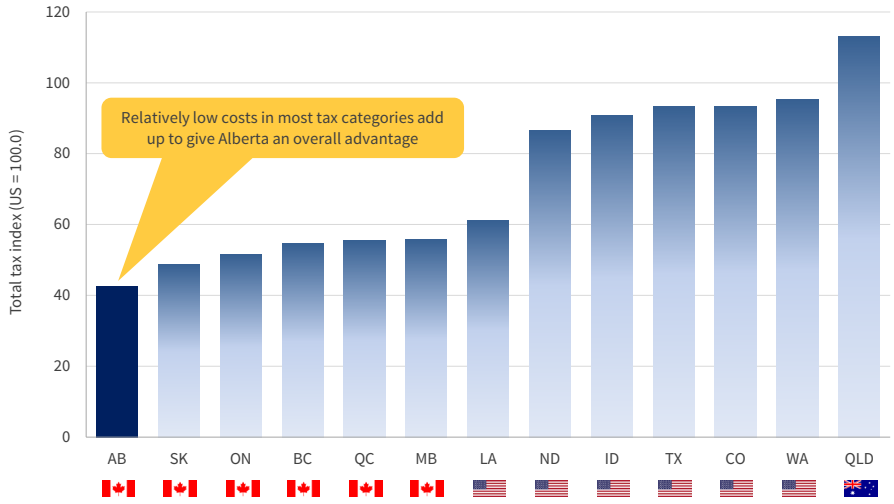
Business tax costs for the Canadian locations examined are consistently below the US locations compared, even though all of the US locations compared here have tax costs below the US baseline cost (below 100.0 in the chart).

These TTI results are higher in the United States than in Canada due to the high combined federal/state corporate income tax rates that apply in all US locations, together with the fact that local property tax is levied on machinery and equipment (as well as real estate) in many US jurisdictions. The structure for Social Security contributions for US employers creates another disadvantage, with higher salary thresholds for US Social Security than for Canada Pension Plan resulting in higher contribution costs on behalf of higher-paid (high skill, professional, managerial) employees in the US than in Canada.

Within this favourable framework for Canada, Alberta stands out in first place for low business tax costs. The TTI measure reports a business tax burden in Alberta (Edmonton) of 42.7 out of 100.0, representing tax costs 57.3% below the US baseline. Saskatchewan is the only other jurisdiction to achieve a TTI below 50.0 (Saskatoon, 48.8).

Louisiana represents the leading US jurisdiction, due to its aggressive use of tax incentives for business to lower its overall tax burden. Louisiana achieves a TTI score of 61.0 (New Orleans) and ranks seventh in this comparison.

Business total tax index (2014)



Notes: Business total tax index expresses total business taxes in percentage terms relative to the United States baseline of 100.0. The US baseline represents the average of business tax costs in the four largest US business centers: New York City, Los Angeles, Chicago and Dallas-Fort Worth. Results for each jurisdiction represent a single major metropolitan area, as follows: Alberta, Edmonton; Saskatchewan, Saskatoon; Ontario; Toronto; British Columbia, Vancouver; Quebec, Montreal; Manitoba, Winnipeg; Louisiana, New Orleans; North Dakota, Fargo; Idaho, Boise; Texas, Houston; Colorado, Denver; Washington State, Seattle; Queensland, Brisbane. Data for Korea and Norway are not available. Source: K*PMG Competitive Alternatives Special Report: Focus on Tax, 2014.*

Alberta's performance	*Rank*	*Rating*	*Change*
Business total tax index	*1/13*		*new*

Personal taxes

Personal tax rates influence the ability to attract top-notch management, engineering and R&D personnel to live and work in a jurisdiction. In this respect, the top marginal tax rate paid by high income earners is especially important.

With its top marginal tax rate of 39.0% remaining unchanged between 2012 and 2014, Alberta moves into first place for this measure in 2014 due to tax rate changes in other jurisdictions.

In the United States, the *American Taxpayer Relief Act* of 2012 introduced a new federal income tax bracket of 39.6% for high-income taxpayers (earning $400,000 for individuals or $225,000 each for couples filing separately). This new tax rate came into effect in 2013, increasing the top marginal tax rate applicable for all US states. Even in states with no state income tax, including Texas and Washington State, the US top marginal income tax rate of 39.6% for 2014 exceeds the rate of 39.0% that applies in Alberta.

Meanwhile, Norway cut its top tax rate from 40% to 39% for 2014, bringing Norway down to the same top tax rate as applies in Alberta. However, Norway has a lower threshold for reaching that top rate, coming into effect at US$93,818 in Norway versus US$108,612 in Alberta.

In addition to these changes, British Columbia, Ontario and Quebec have all adjusted their top marginal tax rates since 2012, either increasing tax rates for existing tax brackets, or adding a new tax bracket with higher rates for higher income earners.

The top tax rate in Alberta is now at least 5.0 percentage points lower than in the other Canadian provinces compared and 11.0 percentage points lower than in Quebec. This differential is largely due to Alberta's single-rate personal income tax system (10%, as at 2014), as compared to the multi-rate systems used in other provinces that result in higher top marginal tax rates.

Top marginal personal income tax rate with corresponding income threshold (2014)

Notes: Income thresholds are converted to US$ at PPP exchange rates. US income thresholds represent thresholds for married persons filing separate returns. Thresholds are higher for single tax filers. In all countries, medical levies, social security and similar additional specific-purpose levies are not included. Sources: KPMG Canada, Tax Facts; US Tax Foundation, Federal and State Tax Rates Tables; PriceWaterhouseCoopers, Worldwide Tax Summaries; OECD PPP exchange rates.

Alberta's performance	*Rank*	*Rating*	*Change*
Top personal income tax rate	*1/15*		→

Total tax burden

Taking a broader view of taxes within the context of overall fiscal policy, total tax burden examines the ultimate cost of all taxes imposed by all levels of government, relative to GDP. This measure helps to compare the tax burden among jurisdictions, irrespective of how each jurisdiction structures or labels their various taxes.

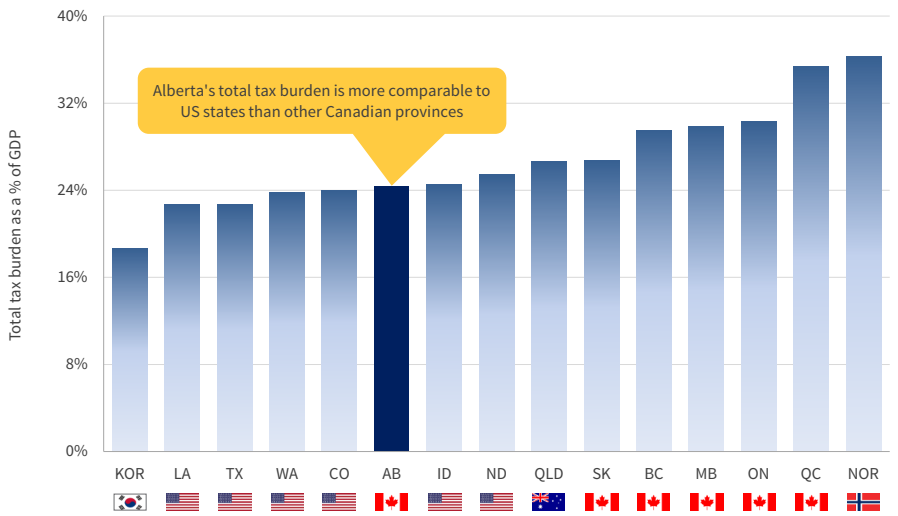
This measure of total burden includes all federal, provincial/state and local taxes for the 2012 calendar year. Alberta ranks sixth among the 15 jurisdictions for this measure, up from seventh in 2010. Alberta's total tax burden reduced slightly over that period, from 24.6% of GDP in 2010 to 24.4% in 2012. Meanwhile, all US jurisdictions compared experienced increases in their tax burdens, by an average of 1.3% of GDP. For Idaho, its tax burden increased from 23.0% of GDP in 2010 to 24.6% in 2012, slipping behind Alberta on this measure.

This measure is a complex one to interpret. The increases in tax burden seen for the US states from 2010 to 2012 reflect, in many instances, a return to prior levels of taxation after high unemployment rates led to low tax collections and government fiscal shortfalls during the recession of 2009.

Alberta performs very well relative to the other Canadian provinces, all of which provide generally similar levels of public services, including universal public healthcare. While the US states typically have lower total tax burdens than the Canadian provinces, they also provide a different level of services and US businesses face substantial additional expenses for private healthcare costs.

The results for Korea also help to illustrate how healthcare costs can impact on total tax burden. Like Canada, Korea has a mandatory national health insurance plan with the government as the single payer for the majority of medical services. With some co-payments and excluded treatments, Korea's public system covers 55% of all medical expenses, as compared to 70% in Canada[1]. The single national system also allows Korea to establish very competitive pricing for medical services and, as a result, final public expenditures on healthcare amount to approximately 4.1% of GDP in Korea versus 7.7% in Canada[1]. The difference in public spending between Korea and Canada in this one expenditure category represents 3.6% of GDP – a significant amount relative to the 5.7% (of GDP) differential in total tax burden between Korea and Alberta.

Total tax burden, percent of GDP (2012)



Notes: Calculation includes taxation at all levels of government: federal, provincial/state and local for calendar year 2012. Where fiscal years don't align with the calendar year, tax revenues were apportioned equally by month. Federal tax collections are apportioned by province/state based on relative shares of total GDP. Tax burden includes all forms of taxes and social security contributions, but excludes resource royalties (or other special taxes on resource profits) and gambling revenues. Sources: MMK Consulting calculations based on data from Statistics Canada CANSIM Tables 385-0033, 385-0034, 385-0037 and 385-0038; US Census Bureau, State Government Tax Collections and State and Local Government Finances; US Bureau of Economic Analysis, National Economic Accounts and Regional Economic Accounts; Statistics Norway, Public Finance Table10722; Korean Statistical Information Service, Local Tax Statistics Table 3-1; Australian Bureau of Statistics, 5506.0 Tables 1 and 13, 5220.0 Table 1.

Alberta's performance	*Rank*	*Rating*	*Change*
Total tax burden	*6/15*		→

1 World Health Organization, *World Health Statistics 2014*, Part III, Table 7, reporting 2011 data.

Public savings or debt

Public savings or debt represents the net financial assets (financial assets minus liabilities) or the net debt of the central government for each jurisdiction. A positive value reflects net public savings, while a negative balance reflects net public debt.

For governments with net public savings – net financial assets in the bank – there is a greater ability to draw on those savings to weather short term fiscal storms and to make strategic investments to enhance competitiveness.

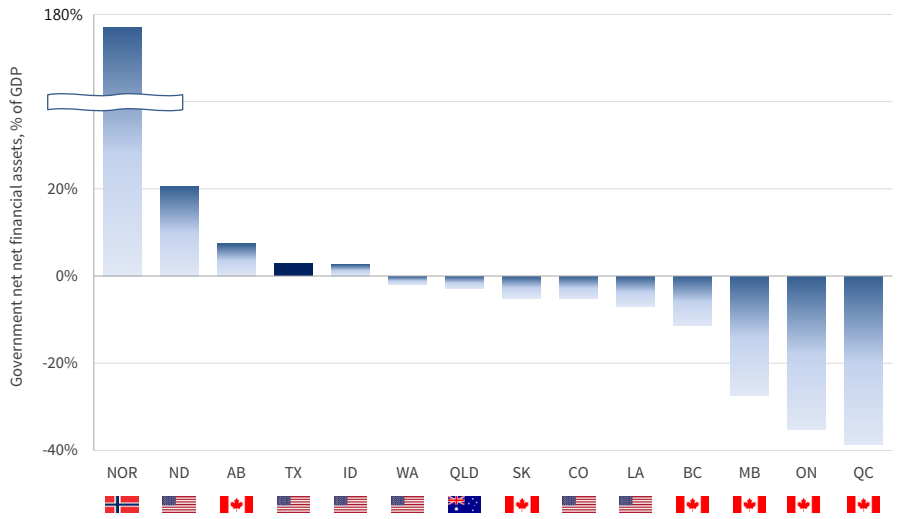
Alberta ranks third on this measure, reflecting positive net financial assets in 2012 which include the Alberta Heritage Savings Trust Fund (a legacy from Alberta's significant natural resource endowment). However, Alberta's strength in this area declined between 2008 and 2012, with net public savings dropping from 11.0% of GDP in 2008 to 7.4% of GDP in 2012.

All jurisdictions place far behind Norway, which has accumulated public savings that exceed the country's annual GDP. However, in the tax measures above, Norway placed behind Alberta, reflecting an intentional policy of maintaining a higher tax burden on current citizens to allow the government to save a larger share of resource revenues for the future.

The only other jurisdiction with significant net public savings is North Dakota. The strong net financial position of North Dakota is not solely the result of the boom experienced by that state over the last five years. North Dakota's net savings position only increased marginally in recent years, from 18.0% of GDP in 2008 to 20.4% of GDP in 2014. Therefore, the state's strong financial position predates its recent boom.

Jurisdictions below the line all have a "net debt" position and Alberta is the only Canadian jurisdiction not in this situation. In addition, three of the six US states compared were in a net debt position as at 2012. Between 2008 and 2012, Washington State and Queensland both crossed the threshold from net public savings to net public debt, while no jurisdictions crossed the threshold in the other direction.

Government net financial assets, percent of GDP (2012)



Notes: Represents financial assets – liabilities. Pension plan assets are excluded, either based on accounting classification (Canada, Norway, Australia), or by exclusion of data (United States). All jurisdictions represent the consolidated position for the central government only (provincial, state, or national, as relevant), excluding local government. Korea is excluded because data are only available for "general government", inclusive of central government, local government and the national pension plan. A scale break is applied to Norway as its net fiscal position is higher than other jurisdictions by an order of magnitude. Sources: Statistics Canada Table 385-0034; U.S. Census Bureau State Government Finances; The Pew Center on the States, The Fiscal Health of State Pension Plans, April 2014; Statistics Norway, Central Government Finances Table 07511; Australian Bureau of Statistics 5512.0 Table 233.

Alberta's performance	*Rank*	*Rating*	*Change*
Government net financial assets	*3/14*		↓

Foundation – Regulation

"Factors that shape the business environment."

What it means

The regulatory environment directly impacts on business and personal economic decisions on a daily basis and ultimately governs how "business friendly" a jurisdiction is perceived to be. With many businesses having a strong preference for locations with straight-forward and transparent regulatory requirements, business regulation is one major area where government can directly shape the business investment climate.

How it is measured

Despite its importance, the regulatory environment cannot be measured as readily as other elements of competitiveness. Good regulation cannot be assessed simply based on the number (or lack) of regulations in a given jurisdiction. Indeed, quality of regulations and the regulatory development process is a major focus for both the Government of Alberta and international regulatory reform experts.

The complexity of regulatory requirements make it exceedingly difficult to compare aspects of regulation across a wide range of jurisdictions. Important regulatory procedures and requirements – environmental assessments for major projects as just one of many possible examples – can vary from project to project or industry to industry within a jurisdiction, let alone trying to make a comparison across jurisdictions.

Foundation	Regulation	
	Starting a business	Time required to start a new business
		Cost of procedures to start a new business
	Transferring property	Property transfer costs
	Cost of business	Total business cost index

In an attempt to provide some context in this complex area, this report includes four measures that demonstrate the impact and cost on business of certain aspects of the regulatory environment.

The time required to form a new company and the mandatory cost of the required procedures represent two direct measures of how business regulations impact upon business start-up. These factors impact both major corporations that need to incorporate a new subsidiary, or small entrepreneurs who are starting their own business.

After starting a new business, often another early step will be to acquire property for the business operation. In such a transaction, regulatory requirements can impact the process and this report measures and compares the fees and taxes incurred in transferring a property.

Given that all forms of business regulation ultimately impact the cost of doing business in a given location, the final measure compared is quite general, looking at the total cost of doing business in each jurisdiction.

How Alberta performs

The four measures selected for benchmarking aspects of regulatory environment are outlined in the table above. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

Starting a business

Incorporation, tax registration, permitting and licensing can all represent obstacles to the start-up of a new business entity – whether an entrepreneur trying to get their own business up and running, or a large corporation that needs to move quickly to establish a new entity.

The World Bank *Doing Business* project compares the ease of starting a business in countries around the world, considering the time, cost and procedures required to get a new company up and running. In that international study, Canada ranks second among 189 countries for the ease of starting a business.

This report compares international results from the *Doing Business* report to results developed for each of the Canadian provinces. These results compare the time and the costs associated with required provincial incorporation, tax registration and municipal licensing procedures for establishing a new business office.

Due to local licensing and permitting requirements, the results of this analysis vary by city. Alberta's results reflect an average of values for Calgary and Edmonton, although both cities are shown separately in the related charts. Results for other jurisdictions reflect the single major business centre in each jurisdiction.

Comparing the **time required to start a new business**, Alberta ranks eighth among 10 jurisdictions with an average start-up time of 6.5 days (average of Edmonton and Calgary). Both cities have shortened their average processing time for local permits since 2012, each cutting two days off the elapsed start-up timeline. However, between 2012 and 2014, British Columbia, the US, Norway, Saskatchewan and Manitoba also managed to reduce their start-up timelines, with some combining multiple procedures as one way of speeding up the overall process.

Among the comparison jurisdictions, British Columbia is now the leader, with the ability to obtain all required registrations and licenses within two business days. Among all 189 countries compared in the World Bank's *Doing Business*, New Zealand was the only jurisdiction to beat this timeline, with a new business in that country able to complete all required processes in a single business day.

The changes identified for the time required to start a business highlight the fact that regulatory processes such as this can be influenced by both structural improvements to streamline the process and by changes in timing that result from differing workloads at the relevant agencies.

Time required to start a new business (2014)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Business days	1 START	2 BC	3 AUS EDM	4 KOR US ON QC	5 NOR	
	6	7	8	9	10 CAL	
	11 MB	12 SK	13	14	15	
	16	17	18	19	20	
	21	22	23			

Notes: Results represent the elapsed time required (in business days) to complete all incorporation, business licensing, building occupancy, tax registration and/or workers' compensation registration requirements prior to commencing operations for a new general business office in an existing office building in the largest city in each jurisdiction. Results allow for ability for procedures to be completed concurrently. Results are not available for individual US states. Sources: Australia, Korea, Norway and United States: World Bank, *Doing Business 2015* (reporting 2014 data). Comparable results for Canadian locations were developed using the World Bank methodology and data from BizPal, provincial corporate registries, approved private registration service providers (where applicable), city development and licensing departments, Canada Revenue Agency, provincial tax agencies and provincial workers' compensation agencies.

Alberta's performance	*Rank*	*Rating*	*Change*
Time required to start a new business	*8/10*		↓

1 World Bank, *Doing Business 2015* (reporting 2014 data).

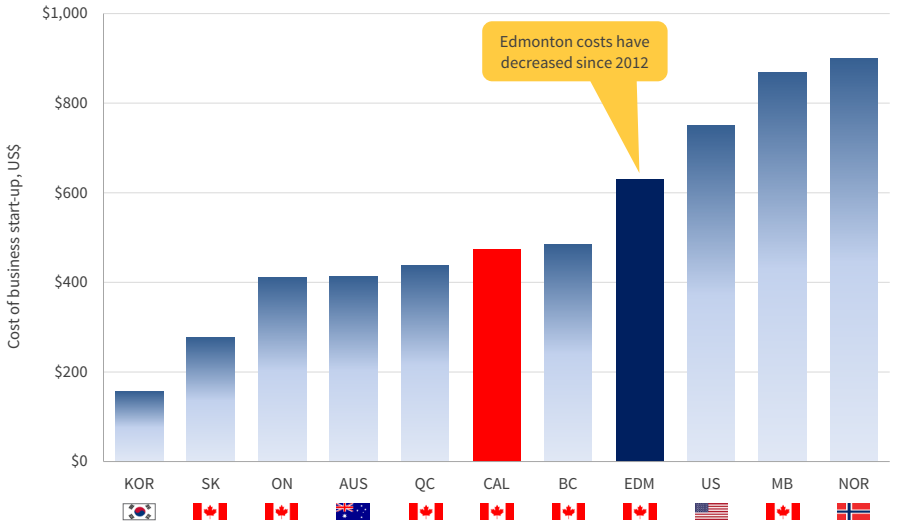
Comparing the **cost of procedures to start a new business**, the results for the two Alberta cities are the reverse of those shown on the previous page, with Calgary offering lower start-up costs than Edmonton.

Based on the average costs for starting a business in both Calgary and Edmonton, Alberta ranks seventh among the 10 jurisdictions, down one place from 2012. Edmonton's costs decreased between 2012 and 2014, while costs in Calgary only increased marginally. However, British Columbia also reduced its cost of business start-up procedures and moves ahead of Alberta on this measure.

Looking overseas, new to the comparison in this report is Korea, where the cost of procedures to start a new business are more than 40% lower than in any other jurisdiction. At the other end of the scale, while Norway still represents the most expensive location to start a new business, its costs have fallen by approximately 50% due to the elimination of one procedure for starting a business.

This analysis presented here only reflects the direct fees associated with the required start-up procedures. The analysis does not include the value of time spent by company employees nor costs incurred with professional advisors on the various procedures.

Cost of procedures to start a new business (US$, 2014)



Notes: Results represent the cost of all required fees (including rush fees, where relevant) to complete incorporation, business licensing, building occupancy, tax registration and/or workers' compensation registration requirements prior to commencing operations for a new general business office in an existing office building in the largest city in each jurisdiction. Results only include out-of-pocket costs and do not include the cost of company employee time spent on each procedure. Results are not available for individual US states. Sources: Australia, Finland, Norway and United States: World Bank, *Doing Business 2015* (reporting 2014 data). Comparable results for Canadian locations were developed using the World Bank methodology and data from BizPal, provincial corporate registries, approved private registration service providers (where applicable), city development and licensing departments, Canada Revenue Agency, provincial tax agencies and provincial workers' compensation agencies.

Alberta's performance	*Rank*	*Rating*	*Change*
Cost of procedures to start a new business	*7/10*		→

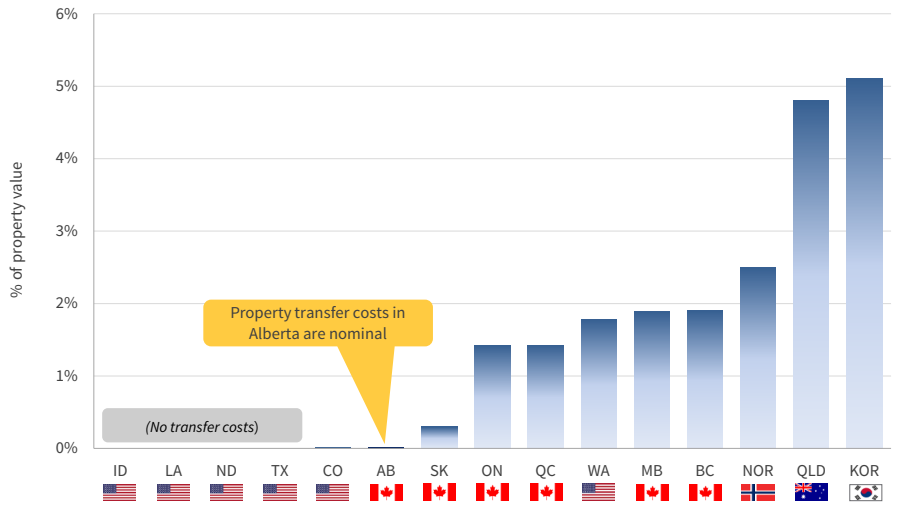
Transferring property

When purchasing real estate, either for personal use or for a business operation, property transfer fees and taxes can have a significant impact on the final cost of the transaction. These fees or taxes often end up being hidden – capitalized in the cost of the property, rather than explicitly viewed as an additional expense.

This measure compares the regulatory costs for transferring a property valued at US$2 million. Property transfer costs in Alberta represent just 0.02% of the property value, ranking Alberta sixth among 15 jurisdictions. Locations ranking ahead of Alberta are Colorado, with transfer costs of 0.01%, plus four US states which have no material property transfer costs – Idaho, Louisiana, North Dakota and Texas.

These six jurisdictions stand in contrast to all others compared. In Saskatchewan transfer costs are approximately 0.3% – 15 times higher than in Alberta. Transfer costs in all other jurisdictions exceed 1.4% of the property value. In Queensland and Korea they exceed 4.8% of the property value – more than 240 times the cost in Alberta. Queensland was the only jurisdiction to change its property transfer fees between 2011 and 2013, with an increase in transfer cost.

Property transfer costs, percent of value on a US$2 million property (2013)



Notes: Includes all material transfer fees, taxes and stamp duties. Sources: KPMG Competitive Alternatives 2012, World Bank Doing Business 2012.

Alberta's performance	*Rank*	*Rating*	*Change*
Property transfer costs	*6/15*		→

Cost of business

The regulatory environment of a jurisdiction directly and indirectly impacts the cost of doing business in wide variety of ways. From provincial labour standards, to regulation of transportation and utilities, municipal land use policies and tax regulations at all levels of government, many forms of regulation ultimately end up impacting the overall cost of business. This also impacts competitiveness, as offering a climate in which businesses can operate freely, with a reasonable level of costs, represents an important aspect of competitiveness.

According to KPMG's international business location study, *Competitive Alternatives 2014*, business costs in Alberta are competitive with the United States. Alberta reports a business cost index of 94.0 in 2014, representing business costs 6.0% below the United States baseline.

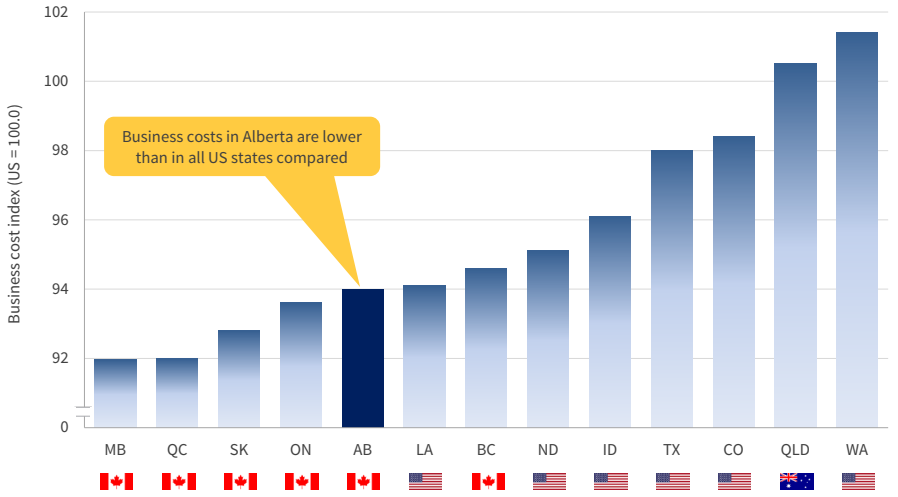
This result for Alberta is comparable to Louisiana (cost index of 94.1), the leading US location among those compared here and reflective of the "low cost" US Southeast. Closer to home, business costs in North Dakota (95.1) are more than one percent higher than in Alberta, while costs in Idaho are more than two percentage points above Alberta (96.1).

Since this cost index was finalized in early 2014, the US dollar has seen significant further appreciation relative to many currencies, including the Canadian dollar. From the viewpoint of US and international firms, this exchange rate change will help to improve the relative business cost position of Alberta (and other Canadian locations).

Within Canada, business costs in Alberta are lower than in British Columbia, but higher than in the other provinces compared. Quebec and Manitoba have the lowest business costs, both with a business cost index of 92.0 (8.0% below the US baseline).

This result is due to Alberta's strong economy during the mid-2000's, which led to higher increases in key business costs – especially labour, electricity and facility costs – than seen in other provinces. These cost factors have tended to be strongly cyclical in Alberta, rising rapidly in boom cycles due to labour shortages, high demand for electricity and strong real estate markets, but then stabilizing or even moderating during slower economic cycles. With the current downturn in resource activity in Alberta, only time will tell whether this allows Alberta to improve its cost position relative to other regions in Canada.

Total business cost index, United States = 100.0 (2014)



Notes: Business cost index expresses total business costs, including taxes, in percentage terms relative to the United States baseline of 100.0. The US baseline represents the average of business costs in the four largest US business centers: New York City, Los Angeles, Chicago and Dallas-Fort Worth.. Results for each jurisdiction represent a single major metropolitan area, as follows: Manitoba, Winnipeg; Quebec, Montreal; Saskatchewan, Saskatoon; Ontario; Toronto; Alberta, Edmonton; Louisiana, New Orleans; British Columbia, Vancouver; North Dakota, Fargo; Idaho, Boise; Texas, Houston; Colorado, Denver; Queensland, Brisbane; Washington State, Seattle. Data for Korea and Norway are not available. Source: KPMG, *Competitive Alternatives 2014*.

Alberta's performance	*Rank*	*Rating*	*Change*
Total business cost index	*5/13*		→

Foundation – Infrastructure & Transportation

"Factors that shape the business environment."

What it means

In an advanced economy, infrastructure encompasses many different dimensions. Vital systems for water and wastewater ensure that basic health and living conditions can be maintained for a society. Utility infrastructure brings energy to homes and businesses, transportation infrastructure provides the ability to move both goods and people, and technology infrastructure provides the communications systems that support our modern, connected world. All of these components must exist and work together in a competitive economy in order to support a high standard of living.

Foundation

Infrastructure & Transportation	
Public infrastructure	Government investment in infrastructure
	Net stock of public infrastructure assets (new)
Transportation infrastructure	Government spending on roads, bridges and transit
	Airport passengers per capita
Technology infrastructure	Households with broadband internet
	Broadband internet speed (new)

How it is measured

Public infrastructure represents the backbone of the province and its communities and includes water and sewer pipes, wastewater treatment facilities, bridges, overpasses, public transit, highways and roads. To compare the quality of such infrastructure, this report includes an existing measure of the new dollars invested by government in such infrastructure, as well as a new measure of the net stock value of public infrastructure.

Transportation infrastructure represents a mix of public and private infrastructure. Roads, highways and public transit infrastructure are generally publicly owned and are included in the measures of public infrastructure, listed above. Transportation infrastructure assets that are privately owned and operated (or possibly semi-publicly by Crown corporations) can include ports, airports and railways. This report includes two measures in this area, one examining government spending (capital and operating) on roads, bridges and public transit, plus a second measure related to airports in each jurisdiction. Ports and railways are also considered more broadly, in an international context.

Technological infrastructure plays an important role in supporting the modern economy. Consistent with prior editions of this analysis, this report measures the penetration of broadband internet in each jurisdiction to compare the availability of high speed networks. This report also adds a new measure to assess how emerging broadband technologies are impacting (and increasing) average broadband internet speeds.

How Alberta performs

The six measures selected for benchmarking aspects of transportation and infrastructure are outlined in the table above. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

Public infrastructure

Building and maintaining public infrastructure is a major role for all levels of government. Government investment in infrastructure is essential to ensure that public infrastructure is suitably maintained and enhanced to meet the growing needs of the economy.

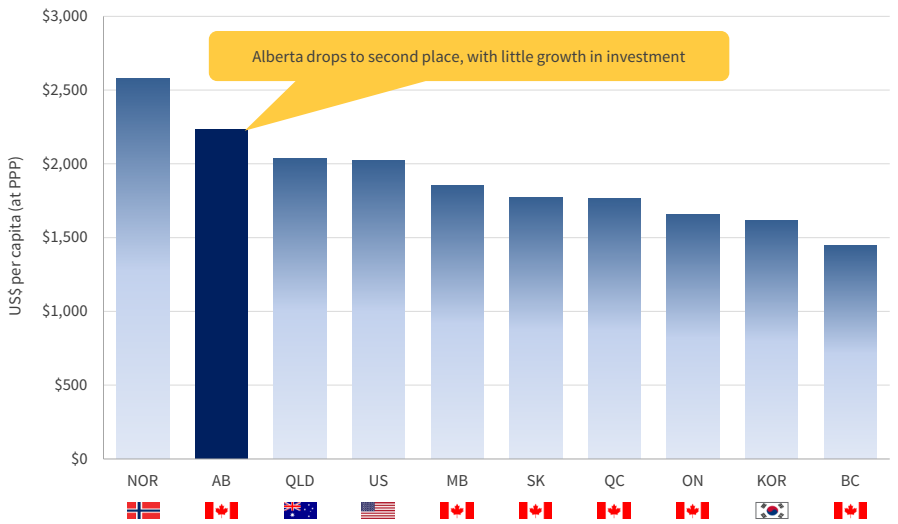
Comparable data on **government investment in infrastructure** are available for all study locations, except for the six US states. National data for the United States are used in this comparison, reported per capita.

Due to changes in international standards for preparing national accounts, the results shown here for all locations cannot be compared to results presented for this measure in prior editions of this report. Among other changes to the international standards, government investments in direct R&D activities (but not funding of university R&D) are now counted as part of gross fixed capital formation, together with investments in more "traditional" capital assets. For most jurisdictions, government spending on traditional infrastructure far exceeds direct R&D, so this change has limited impact on the comparison. However, the impact is noticeable for Norway, with that country moving ahead of Alberta, both in the current rankings and in restated historic data.

Over the period compared, from 2009 to 2013, Alberta invested an average of US$2,231 in infrastructure, per person per year. This level of investment places Alberta second among the 10 jurisdictions. Alberta is followed in the rankings by Queensland and the United States (national average), with the other Canadian provinces all ranking fifth or lower in the comparison. Thus, Alberta continues to show a significant lead over its Canadian counterparts for government investment in infrastructure.

However, Alberta recorded the second lowest increase in per capita infrastructure investment between this comparison and the prior comparison period (2007-2011). Between these two periods, Alberta's investment in infrastructure grew up just 0.6%. In comparison, Saskatchewan's per capita investment in infrastructure increased by 11.5% between these two periods, while both Manitoba and Quebec achieved increases of 7-8%.

Government investment in infrastructure, US$ per capita at PPP (2009-2013)



Notes: Data represents government gross fixed capital formation divided by population and converted to US dollars using PPP exchange rates. Data are unavailable for US states. Sources: Statistics Canada CANSIM Tables 384-0038; US Bureau of Economic Analysis, National Economic Accounts Table S.2.a; Statistics Norway, Annual National Accounts Table 09189; Korean Statistical Information Service, National Accounts (2010 Standard) Table 10.4.3; Queensland Treasury, State Accounts, Table 11;

Alberta's performance	*Rank*	*Rating*	*Change*
Government investment in infrastructure	*2/10*		

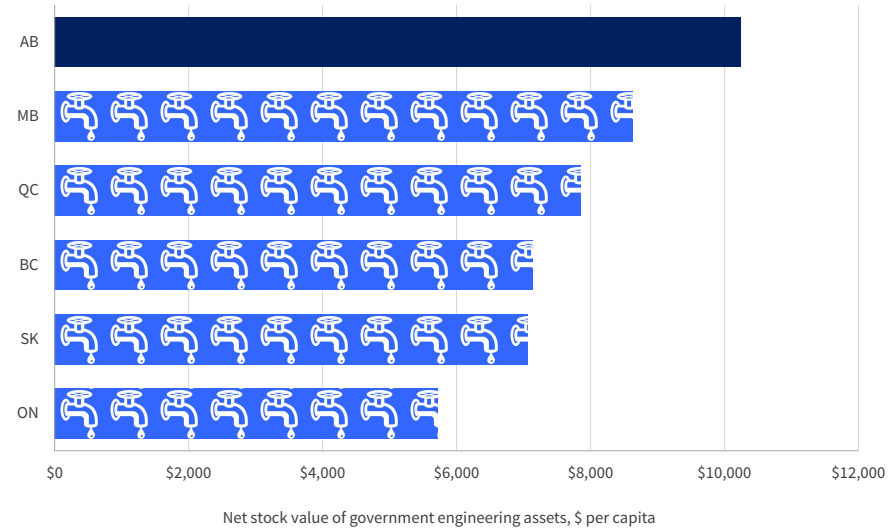
While the previous measure assesses recent government investments in infrastructure, this new measure assesses the overall quantity and quality of infrastructure in each jurisdiction by comparing the **net stock of public infrastructure assets**, on a per capita basis.

This measure helps to provide a "net value" context to the investment measure shown on the previous page. A jurisdiction with a high value for recent investment in infrastructure could represent a leading jurisdiction with quality, modern infrastructure, or a jurisdiction that is lagging on infrastructure provision but is trying to catch up. In turn, a lagging position on infrastructure value could reflect a lower quantity of infrastructure, or declining quality of infrastructure due to insufficient reinvestment in required maintenance.

Comparable data for this measure are only available within Canada, therefore this comparison is restricted to the six Canadian provinces.

Alberta leads all other provinces for the net value of its government infrastructure assets, at $10,248 per capita – almost 19% higher than in second-ranked Manitoba. This positive result is influenced by the substantial infrastructure investments made by Alberta during the last decade, thus confirming that Alberta's favourable result on the previous measure (new investment in infrastructure) reflects the province taking a leading position in terms of overall value of infrastructure (quantity and quality).

Net stock of public infrastructure assets, $ per capita (2013)



Notes: Represents Linear end-year net stock value of government investment in engineering construction assets in Canadian dollars.
Source: Statistics Canada CANSIM Table 031-0005.

Alberta's performance	*Rank*	*Rating*	*Change*
Net stock of public infrastructure assets	*1/6*		*new*

Transportation infrastructure

Transportation infrastructure represents a mix of public and private infrastructure, with public roads, highways and bridges; semi-public Crown Corporations delivering some aspects of port, airport and railway infrastructure; and private companies also delivering aspects of transportation infrastructure such as public-private-partnership highways and bridges and private rail networks.

This report includes two separate measures related to transportation infrastructure, one measure looking at roads, bridges and public transit, plus a second measure related to airports. Ports and railways are more difficult to assess, with the nature of facilities varying significantly between coastal and inland jurisdictions, and much of the investment coming from corporations and therefore not subject to the same detailed reporting as public infrastructure investments.

To address these issues and to provide a broader view on transportation (and utility) infrastructure overall, the table on this page presents some additional context on **global quality of infrastructure rankings** for Canada and the other benchmark countries.

Among the five countries compared, Canada ranks third for each of the four aspects of transportation infrastructure compared. Canada rates behind the Korea and the US for both road and rail infrastructure, and behind Norway and the US for both ports and air transportation infrastructure. This mix of results and leading countries allows Canada to rank second in the overall assessment of infrastructure, behind only the United States and ahead of both Korea and Norway.

Within this broader national and global context, we can now move on to specific transportation infrastructure measures available for Alberta and the other benchmark jurisdictions.

Government spending on roads, bridges and transit compares per capita provincial spending on these categories of transportation assets, reflecting both capital and operations (including repairs and maintenance), plus relevant transfer payments to local governments. This measure provides a more complete picture of government funding for road and transit networks than looking only at infrastructure capital investments.

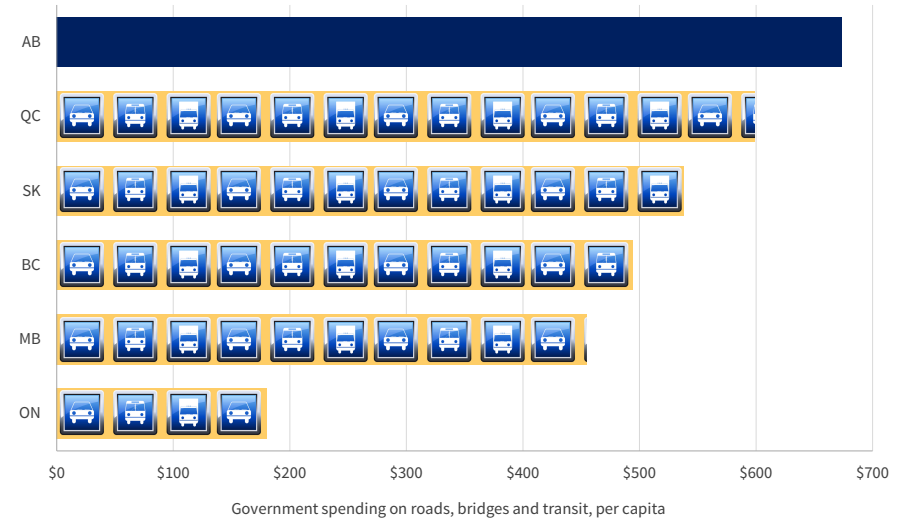
Alberta spent an average of $674 per capita on roads, bridges and transit annually in the 2011-2013 period, $75 per capita ahead of second-ranked, Quebec. Alberta's level of spending per capita was more than 25% higher than in third-ranked Saskatchewan.

Context: Global quality of infrastructure rankings, national rankings among 144 countries (2014)

	Overall	Roads	Railroads	Seaports	Air Transport
United States	**16**	16	15	12	9
Canada	**19**	23	18	21	16
Korea	**23**	18	10	27	31
Norway	**28**	74	36	13	6
Australia	**35**	43	32	38	29

Notes: Rankings are from World Economic Forum Executive Opinion Survey where #1 is top rank globally among 144 countries. The #1 countries for each category are as follows: Switzerland (overall), United Arab Emirates (roads), Japan (railroads), the Netherlands (seaports) and Singapore (air transport). The overall category reflects all forms of transportation infrastructure, plus energy and telephony infrastructure. Source: World Economic Forum, *The Global Competitiveness Report 2014-2015*, data tables 2.01 to 2.05.

Government spending on roads, bridges and transit, per capita (2011-2013)



Note: Represents provincial gross expenditures, including total capital and operating expenditures, plus transfer payments to local governments. Source: Transport Canada, Transportation in Canada 2013 Addendum, Table G8

Airport infrastructure assets have become increasingly important in the era of globalized trade and higher international flows of skilled knowledge-economy workers. For many companies, airport proximity and services represent an important site selection consideration.

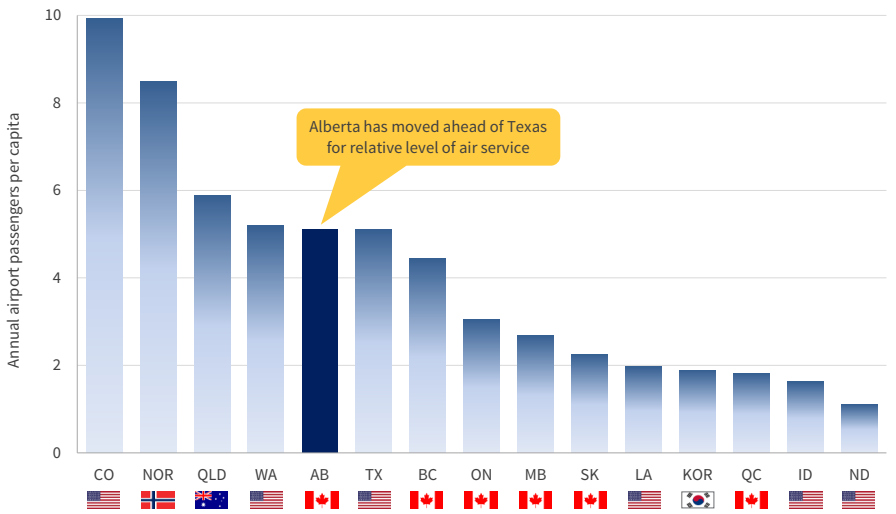
Airports and air services for each are compared by measuring total annual **airport passengers per capita,** for each jurisdiction. Passenger counts (arrivals and departures) are included for airports which reported more than one million annual passengers as at 2009. The passenger counts are scaled per capita to indicate the range and frequency of air service available in each jurisdiction, relative to demand of the local population.

Alberta ranks fifth among 15 jurisdictions on this measure, being very closely grouped between fourth-ranked Washington State and sixth-ranked Texas. Alberta has moved ahead of Texas on this measure since 2011, with growth in passenger traffic in Alberta of 7.9% between 2011 and 2013 while passenger volumes for Texas have stayed relatively flat.

Based on this measure of air services, Alberta ranks ahead of all Canadian provinces, including Ontario and British Columbia – home to Canada's two major international gateway airports. Calgary's position as a major hub for WestJet helps to boost both Alberta's air service options and its ranking on this measure.

Despite a seeing a decline in relative passenger numbers from 2011 to 2013, Colorado continues to hold a large lead on this measure because of Denver International Airport's role as a major national and global hub for United Airlines. Similarly, Norway represents a major hub for air travel within the Scandinavian countries, with an increase of 8.8% in passenger numbers between 2011 and 2013.

Airport passengers per capita (2013)



Notes: Passengers per capita represent total annual airport passenger counts (departures plus arrivals) for each airport recording more than one million passengers per year (as at 2009) in each jurisdiction, divided by the population of the jurisdiction. The criteria of "one million passengers as at 2009" is used to ensure that a consistent range of airports are compared across time in each jurisdiction, rather than having some airports drop in and out of the comparison based on marginal changes in passenger numbers from year to year. For North Dakota, no airports exceed one million passengers, so data are used for the largest airport in the state (Fargo). US FAA data only records 'emplanements' (departures) and these numbers have been doubled to estimate for arrivals.
Sources: Transport Canada, Transportation in Canada 2013 Addendum, Table A19; US Federal Aviation Authority, Emplanement Statistics; Avinor, Traffic Statistics; Korea Airports Corporation, Traffic Statistics; Brisbane, Cairns and Townsville Airports.

Alberta's performance	*Rank*	*Rating*	*Change*
Government spending on roads, bridges and transit	*1/6*		→
Airport passengers per capita	*5/15*		→

Technology infrastructure

Technology infrastructure plays an increasingly important role in the modern economy. While there are many important aspects of technological infrastructure, a widely distributed, high speed, broadband internet service has become essential to meeting the data needs of the modern economy.

Households with broadband internet access is used as a measure to compare the penetration of broadband internet into households in each jurisdiction, including both wired and wireless high speed data connections. Household uptake of these services is broadly reflective of the availability and affordability of such services – both factors that also benefit businesses. This measure also reflects how ingrained use of the internet and ICT has become in everyday life – in other words, how "tech savvy" the population is.

Alberta ranks fourth among 15 jurisdictions for broadband internet access by households, behind only Korea, Norway and British Columbia. The percentage of households with broadband internet access in Alberta has grown from 80.4% in 2010 to 85.3% in 2013, but remains well below the level of Korea which has reached a broadband penetration rate of 98.1% of all households.

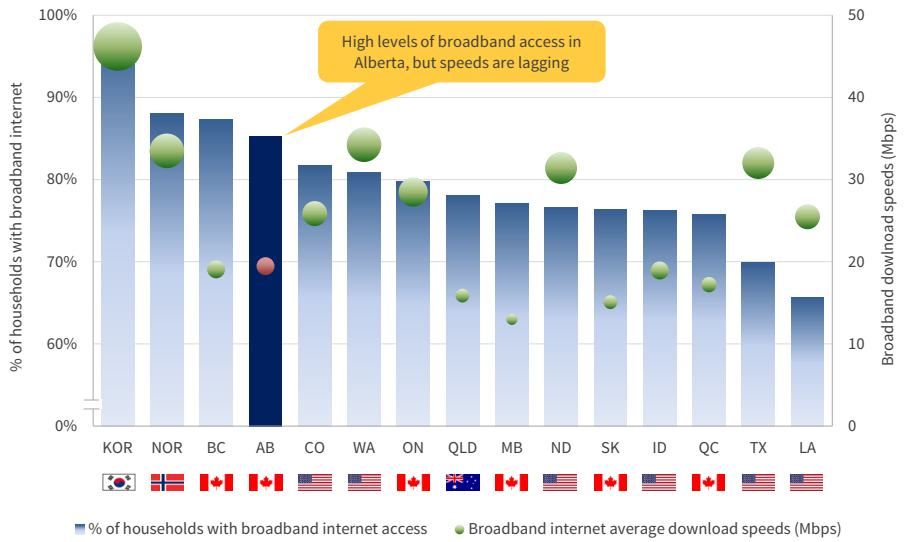
All jurisdictions saw their rates of broadband internet penetration increase between 2010 and 2013, by an average of 6.0%. Colorado and Quebec saw the highest growth over this period, both with increases in excess of 10 percentage points.

With broadband penetration rates now so high, and continuing to climb, there is a growing focus by governments and industry on actual broadband speeds. Technological innovations continue to increase internet speeds, including the leading edge of gigabit fiber connections now starting to reach some households.

Comparing the jurisdictions for **broadband internet download speeds**, Alberta ranks ninth among the 15 jurisdictions and second among the 6 Canadian provinces compared.

Excluding Ontario, internet speeds in Alberta and the other Canadian provinces compared are generally in the range of 13-20 megabits per second (Mbps). This is notably lower than the average speeds of 25-35 Mbps seen in Norway, Ontario and the US states compared. In Korea, average broadband internet speeds are even faster, at 46.2 Mbps.

Households with broadband internet access, percent of total (2013) and Broadband internet average download speeds (Jul-Dec 2014)



Notes: For internet download speeds, Canadian provincial data represent estimates based on Canada national data for Jul-Dec 2014 adjusted for inter-provincial differences in average download speeds as at April and May 2015. Future editions of this analysis will be able to eliminate this estimation adjustment. Sources: Statistics Canada, CANSIM Table 203-0027; US National Telecommunications and Information Administration, Current Population Survey Internet Use; Eurostat Table isoc_bde15b_h; OECD Broadband Portal, Table 2.1; Korea Internet and Security Agency, 2013 Survey on the Internet Usage; Australian Bureau of Statistics 8146.0, Table 2; Ookla Net Index Explorer.

Alberta's performance	*Rank*	*Rating*	*Change*
Households with broadband internet	*4/15*		↓
Broadband internet speed	*9/15*		*new*

Foundation – Human Capital & Education

"Factors that shape the business environment."

What it means

Human capital and education encompass the collective value of the knowledge, skills, and competencies of Albertans. Ensuring that there is a sufficient quantity of workers with the skills required by the economy is fundamental to increasing productivity and innovation.

Human capital and education are intrinsically linked with innovation. In this report, this Human Capital and Education component of the Foundation deals with education and workforce development, while the Innovation level of the Competitiveness Pyramid focuses on the innovative outcomes from a highly educated and highly skilled workforce.

How it is measured

Workforce development represents a complex, but important, topic for every economy. The education of human capital – the people who live and work in the economy – is critical to innovation and prosperity.

This report compares a total of 13 measures related to human capital and education, as illustrated in the table. These measures cover eight important themes, from high school education to workforce aging.

Foundation

Human Capital & Education	
High school skills	High school math, reading and science skills
Education attainment	High school completion rate
	Post-secondary education other than degrees
	Bachelor degree completion rate
Graduate studies	Graduate student rate
	International graduate students
Trade skills	Apprenticeship completion rate
Lifelong learning	Ongoing formal or informal education
Employed labour force	Employment rate
	Change in employment rate
Attracting new workers	Net migration rate
Workforce age	Share of labour force aged 55+
	Share of labour force aged <25

High school represents the first point at which skills development for the future workforce is measured across countries, so this report includes one measure of high school math, reading and science skills.

As students advance in their academic careers, educational attainment becomes the next yardstick for comparing the performance of jurisdictions. This report uses three measures for education attainment, comparing the relative rates for completion of high school, completion of post-secondary education other than degrees, and completion of bachelor degrees (or higher).

The next theme then relates to graduate studies. Two important facets of graduate studies are compared using separate measures for the rate of students undertaking graduate studies and the numbers of international students attracted to study as graduate students at local universities.

While the above themes place an emphasis on the academic progression through high school and university, it is also important to consider alternative learning paths that help contribute to a balanced, skilled workforce. Trade skills are measured based on the rate of completion of apprenticeships. A separate measure for lifelong learning examines ongoing formal and informal education.

In addition to education, the size of the workforce is another important aspect of human capital. In this regard, this report utilizes measures of the employment rate and recent changes in the employment rate. Challenges in attracting new workers are also assessed, with a measure of net migration (domestic and international).

The final theme in this section is workforce age, an important issue in all advanced economies. To assess workforce age dynamics, this report measures and compares the share of workers aged 55+ in the labour force, as well as those aged under 25.

How Alberta performs

The 13 measures selected for benchmarking aspects of human capital and education are outlined in the table on the previous page. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

High school skills

The Program for International Student Assessment (PISA) is a worldwide evaluation of scholastic performance among 15 year old students. PISA assesses scholastic achievement in three key areas: mathematics, reading and science. Standardized international PISA testing first took place in 2000, and is repeated every three years.

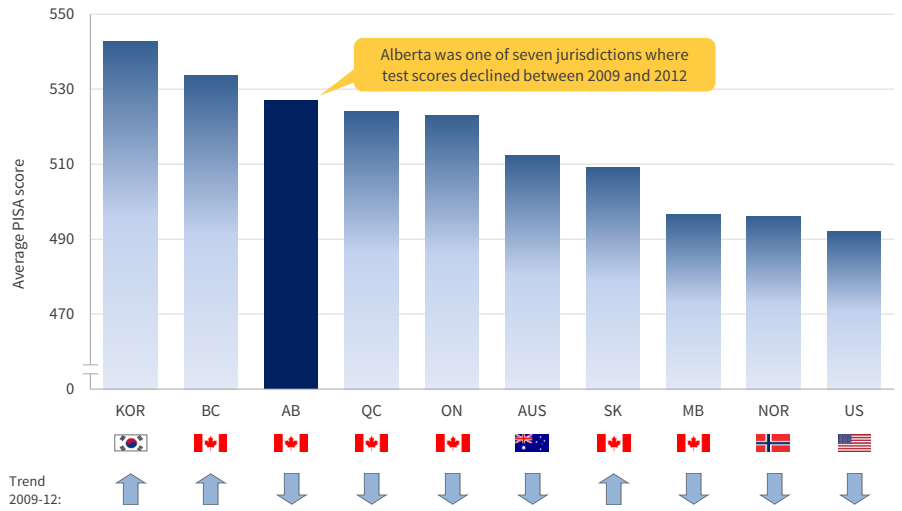
This program is coordinated by the OECD with an objective of improving educational policies and outcomes. The OECD publishes PISA test results on a national basis, and on a regional basis for several countries, including Canada (but not including the US).

Alberta ranks third on this measure, behind only Korea and British Columbia, but a downward trend in results for Alberta between 2009 and 2012 is concerning. Not only did average test scores for Alberta students decline in 2012, but the drop of nine points for Alberta (from 536 to 527) was the largest decline among the 10 jurisdictions compared here. Meanwhile, British Columbia saw the largest increase in PISA score among the jurisdictions compared, moving ahead of Alberta. While BC's score improved by six points in 2012 to 534, this does not exceed the 536 points scored by Alberta students in 2009.

The strong results for Korea in PISA 2012 highlights the emergence of east Asian high school systems as a leading force in the global math, reading and science competencies being tested by PISA. In 2012, based on average PISA scores across all three subjects, the top six places in the PISA rankings are all filled by east Asian jurisdictions. Korea ranks fourth overall, behind Shanghai, Singapore and Hong Kong. Following after Korea are Japan and Chinese Taipei (Taiwan). All of these jurisdictions achieved higher test scores than Alberta in 2012, with scores for Shanghai being almost 10% higher than in Alberta.

While the results for Alberta in this measure do reflect favourably on the future workforce of the province, the results also highlight the growing global competition for academic performance. With Alberta seeing a drop in its performance at the same time that competition from Asia intensifies, reinvigorating the performance of Alberta's high schools will represent a challenge for the coming years.

High school math, reading and science skills, test scores among 15 year olds (2012)



Notes: Results are not available for individual US states. Sources: Council of Ministers of Education, *Measuring up: Canadian Results of the OECD PISA Study*, 2012; OECD Program for International Student Assessment, 2012.

Alberta's performance	*Rank*	*Rating*	*Change*
High school math, reading and science skills	*3/10*		↓

Education attainment

Completion of formal education – high school and/or post-secondary – is a core objective of the education system.

Comparing jurisdictions based on their **high school completion rates** (upper half of the chart), Alberta ranks seventh – behind four of the six US states and also behind both British Columbia and Ontario.

The high school completion rate in Alberta in 2013 was 90.0%, up slightly from 89.2% in 2009. However, Ontario saw an increase of 2.0% over the same period, and moved ahead of Alberta.

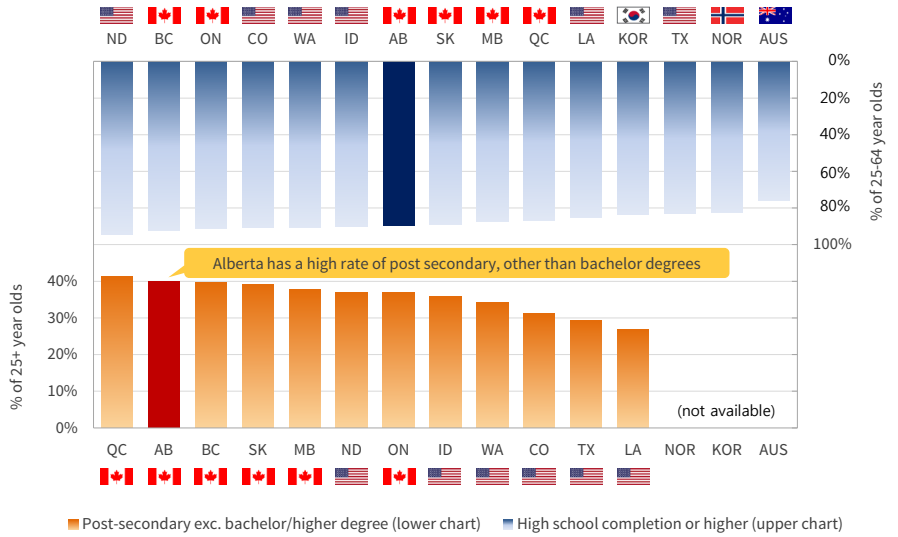
Resource sector job opportunities are often cited as a cause of young Albertans leaving school early without finishing high school. Despite this temptation, Alberta's rate of high school completion exceeds those of Saskatchewan, Manitoba, and Quebec. A similar effect could potentially be expected in North Dakota, but that jurisdiction leads all others with a high school completion rate of 94.7%.

The next step up the education ladder from high school is post-secondary education, which includes all individuals who have upgraded their skills and knowledge beyond the high school level.

To broadly capture a measure of post-secondary education below the level of university completion, the lower half of the chart compares those individuals who have achieved **post-secondary education other than bachelor/higher degree**s. This measure captures individuals completed anything from "some post-secondary coursework" through to completion of vocational certificates, diplomas, and associate degrees.

Alberta ranks second among the 12 US and Canadian jurisdictions that can be compared for this measure, reflecting favourably on Alberta's technical and vocational education. In the lead is Quebec, whose rate of education for this measure (41.3%) has barely changed since 2010. Meanwhile, in Alberta, the percentage of adults in this education category has dropped from 41.9% in 2010 to 39.9% in 2013, causing Alberta to fall behind Quebec. This change represents a real decline for Alberta in its level of vocational training. While the next page shows that Alberta also saw an increase in individuals earning university degrees over this period (thus moving out of this category), Quebec saw a similar increase in degree holders while maintaining its numbers in this category of post-secondary education other than degrees.

High school completion rate (2013) and
Post-secondary education other than bachelor/higher degrees (2013)



Notes: High school completion is measured as a percentage of the population aged 25-64 years, while post-secondary education is measured as a percentage of the population aged 25+ years. Post-secondary education other than bachelor/higher degrees includes all forms of post-secondary education from completion of some training, through to completion of certificates, diplomas and associate degrees. Comparable data are not available for Australia, Korea and Norway. Sources: Statistics Canada, CANSIM Table 282-0004; US Census Bureau, American Community Survey, 1-Year Estimates; OECD, Education at a Glance 2014, Table A1.2.

Alberta's performance	*Rank*	*Rating*	*Change*
High school completion rate	*7/15*		→
Post-secondary education other than degrees	*2/12*		→

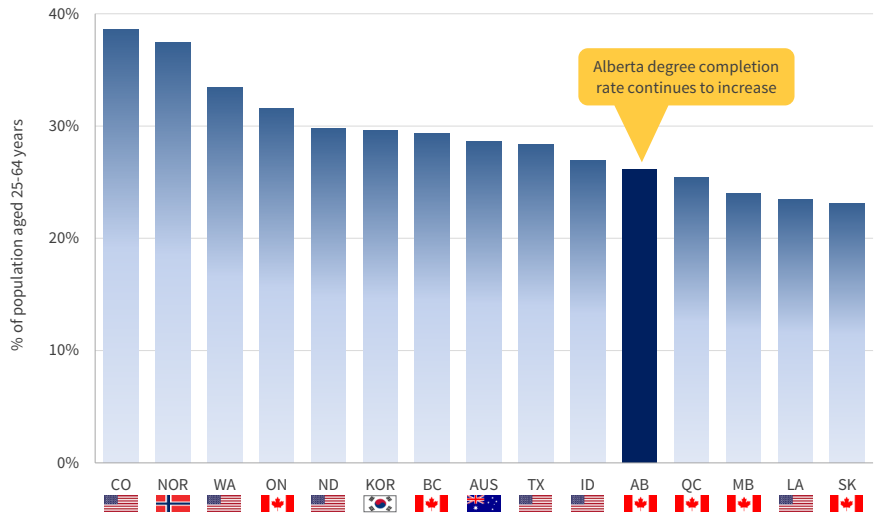
The final level of education attainment measured here is **bachelor degree completion** (sometimes referred to as the "university completion rate"). This measure captures all individuals who have ever completed a bachelor degree, including those who continued on to masters and/or doctoral degrees.

Alberta ranks 11th among the 15 locations compared, based on 2013 data, unchanged from its previous ranking in 2009. Alberta also continues to rank third among the six Canadian provinces compared.

Many jurisdictions are seeing rapid upgrades in the education levels of their workforce. Between 2009 and 2013, the percentage of Albertan 25-64 year olds holding bachelor degrees has increased from 24.3% to 26.1%, a gain of 1.8% and a fairly rapid increase considering that the 25-64 age group comprises the vast majority of the adult population. However, eight jurisdictions managed to outpace Alberta in this process, with Norway, Ontario and Saskatchewan all seeing their share of adults holding bachelor degrees increase by more than 3.3% over the same period.

Considering educational attainment overall, Alberta fares relatively well within the Canadian context, and particularly well for non-degree post-secondary education (although not as well as in the recent past). While seeing ongoing improvements in both high school completion and bachelor degree completion, Alberta continues to lag the comparator US states in both of these areas.

Bachelor degree completion rate (2013)



Notes: Bachelor degree completion includes all individuals who have ever completed a bachelor degree, including those who continued on to masters and/or doctoral degrees. Sources: Statistics Canada, CANSIM Table 282-0004; US Census Bureau, American Community Survey, 1-Year Estimates; OECD, Education at a Glance 2014, Table A1.3.

Alberta's performance	*Rank*	*Rating*	*Change*
Bachelor degree completion rate	*11/15*		→

Graduate studies

Holders of advanced degrees are an important indicator of competitiveness in today's knowledge-based economies, with individuals developing their knowledge, work skills, and critical thinking skills beyond the foundational level provided by an undergraduate education.

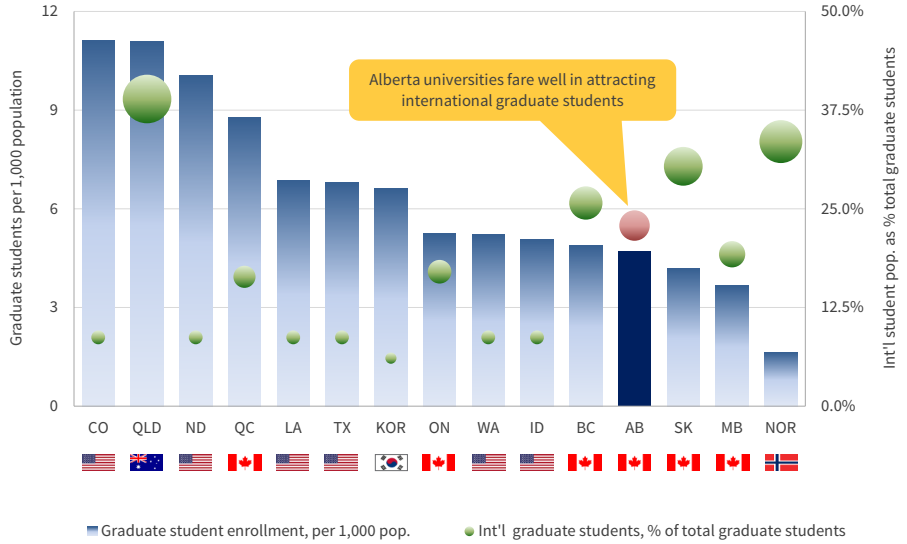
Graduate students provide a benefit to economic competitiveness in two ways. During their studies, they are engaged in cutting edge research to develop and apply new knowledge in innovative ways. Upon completion of their degrees, they graduate with advanced degrees and knowledge desired by employers both in industry and the public sector. Therefore, the number of graduate students in a jurisdiction reflects the future pipeline of highly skilled people.

The first measure presented here is the **graduate student rate**, which compares the number of enrolled graduate students in 2012, measured per 1,000 population. Alberta ranks 12th among the 15 jurisdictions for measure. Of course, a bachelor degree is a prerequisite for graduate studies, so it is not surprising that this ranking is relatively consistent with Alberta's bachelor degree completion rate (presented on the previous page).

The ability of a jurisdiction to attract **international graduate students** reflects on the quality of universities, as international graduate students are motivated to seek out high quality schools for their studies. The presence of international students also adds to the diversity of thought and approach seen in graduate schools. To the extent that some international students stay on as residents after graduation, having a strong cohort of international graduate students also helps to build global economic linkages.

In this regard, Alberta's universities are very successful, ranking fifth among the 15 jurisdictions for the presence of international students among all graduate students. From 2009 to 2012, Alberta's ratio of international graduate students increased from 20.2% to 22.9% of all graduate students. This increase reflects an ongoing internationalization of graduate education seen in all Canadian provinces. Although Saskatchewan has moved ahead of Alberta on this measure since 2009, the proportion of international graduate students in Alberta universities is now more than 2.5 times that seen in the United States.

Graduate student rate (2012) and
International graduate students percent of graduate students (2012)



Notes: International graduate student percentage reported for all US states represents the US national average as state-specific data is not reported. Sources: Statistics Canada CANSIM Table 477-0019; US Department of Education, National Center for Education Statistics, Digest of Education Statistics Table 304.70 and Quadrennial NPSAS:2012 Graduate Students Survey; Eurostat Tables educ_enrl1tl and educ_mofo_gen; Korean Educational Statistics Service, University Trends by Year, Number of Students in Higher Education Institutes; Australian Department of Education & Training, Selected Higher Education Statistics, Student Data, Full Year Data, All Students, Table 5.

Alberta's performance	*Rank*	*Rating*	*Change*
Graduate student rate	*12/15*		→
International graduate students	*5/15*		↑

Trade skills

While university education represents one important aspect of human capital development in modern, competitive economies, the ability of workers to take theoretical knowledge and apply it on the job is also vital. Apprenticeship programs provide a very direct link between education and job skills.

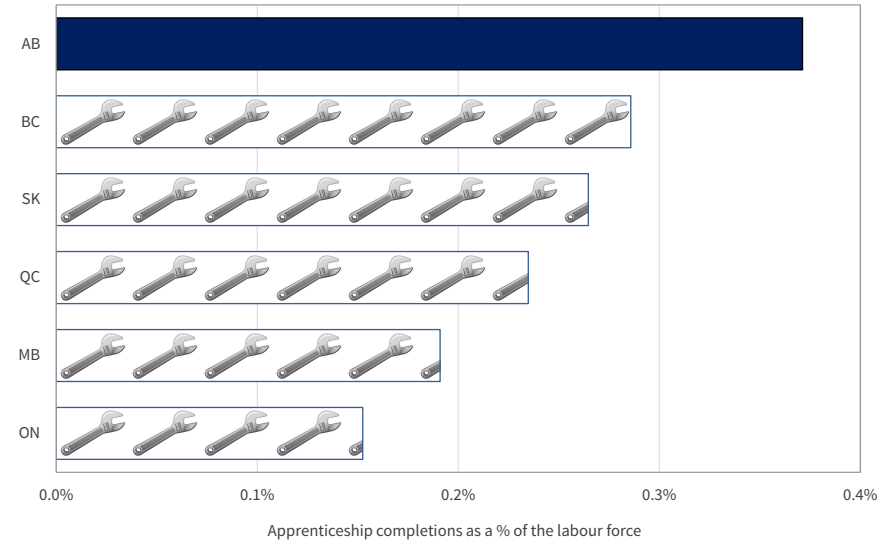
This facet of education and trade skills development is measured by comparing the number of apprenticeship completers in each jurisdiction in a given year, as a percentage of the total labour force. Comparable data for this measure are only available within Canada, therefore this comparison is restricted to the six Canadian provinces.

Alberta performs very well on this measure, with the highest apprenticeship completion in Canada. In 2012, Alberta's apprentice completion rate was more than 25% higher than in second-ranked British Columbia and more than double the rate seen in Ontario, a province that historically would have been expected to generate high numbers of apprentices given the significance of its skilled manufacturing sector.

Alberta's significant resource sectors provide a strong incentive to follow a trades career path out of school, making this strength in Alberta's technical workforce development especially important. The high rate of apprenticeship completions in Alberta indicates the responsiveness of training opportunities to the needs of the provincial economy.

While Alberta is still the leader in this measure, its rate of apprentice completions declined between 2010 and 2012, from 0.43% of the workforce to 0.37%. Meanwhile, all other provinces saw modest increases, except for British Columbia where the apprentice completion rate jumped significantly from 0.19% to 0.29% over the two year period. This increasing trend for apprenticeship training across Canada is favourable – after completion of their apprenticeships, qualified tradespeople are often mobile and will tend to gravitate to wherever demand exists for their skills. However, Alberta should not rely on training in other provinces and net migration to meet its skilled workforce needs. Alberta should work to ensure that its in-province apprentice training does not decrease any further, especially in light of workforce aging issues noted on pages 74-75.

Apprenticeship completion rate, percent of labour force (2012)



Sources: Statistics Canada CANSIM Tables 477-0054 (apprenticeship completions) and 282-0002 (labour force).

Alberta's performance	*Rank*	*Rating*	*Change*
Apprenticeship completion rate	*1/6*		→

Lifelong learning

In today's knowledge-driven global economy, lifelong learning has become a factor of critical importance, both for economic competitiveness and personal career development.

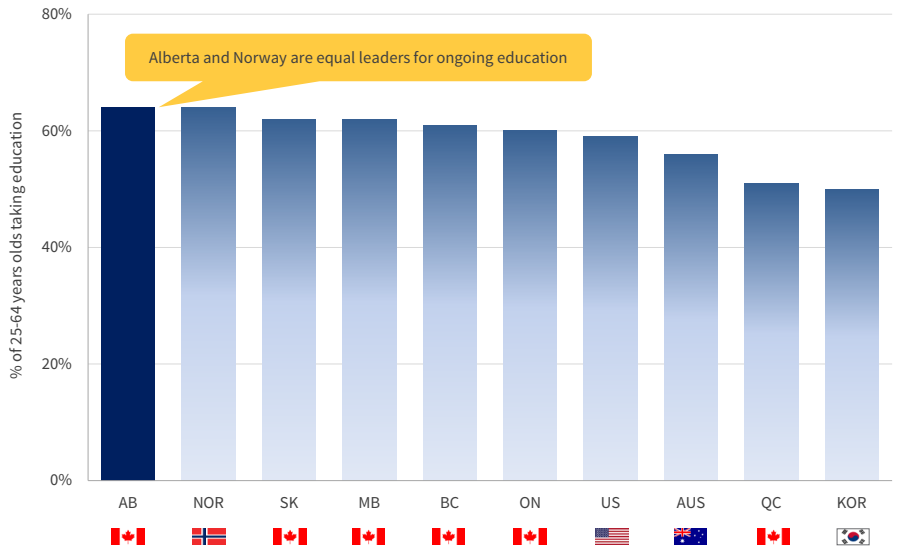
Lifelong learning can take place either through formal education, such as adults returning to university to earn a higher degree, informally in the workplace, or through knowledge sharing in business networks.

Alberta's rate of participation in lifelong learning activities in 2012, at 64%, matched Norway and exceeded all other jurisdictions including the United States. (Comparable data for this measure are only available for the US as a whole, so this comparison is restricted to 10 jurisdictions.)

For Alberta, the jump in prevalence of ongoing learning is quite dramatic, up by 15 percentage points from 49% in 2008 to 64% in 2012. This allowed Alberta to close the learning gap with Norway and move into a tie for first place for this measure.

Since 2007-08 (prior data) the rate of participation in ongoing education has increased notably in all jurisdictions, as individuals recognize the dynamic nature of the modern economy and realize that lifelong learning is a key to individual career success. All jurisdictions have seen increases of 9 to 20 percentage points in their results for this measure since 2007-08. In all jurisdictions, 50% or more of 25-64 year olds participated in some form of ongoing education in 2012.

Ongoing formal or informal education among 25-64 year olds (2012)



Notes: Data are not available for individual US and Australian states. Sources: OECD, Education at a Glance 2014, Indicator C6, Table C6.1; Statistics Canada, Education Indicators in Canada, An International Perspective, 2014, Catalogue no. 81-604-X Table: E.1.5.

Alberta's performance	*Rank*	*Rating*	*Change*
Ongoing formal or informal education	*1/10*		

Employed labour force

The employment rate is a key measure of workforce dynamic, reflecting the percentage of the adult population that is actively employed. While the employment rate is influenced by short term unemployment rates, in the long term employment rates are reflective of labour force vibrancy – assessing whether adults are motivated to be part of the workforce and be actively employed. A strong employment rate also acts as a magnet to help attract talent from other jurisdictions.

For this analysis, the **employment rate** has been measured based on total employment as a percentage of the population aged 15+ (16+ in the US). This measure also includes seniors (65+), recognizing that employment among this group is likely to become increasingly significant in the future.

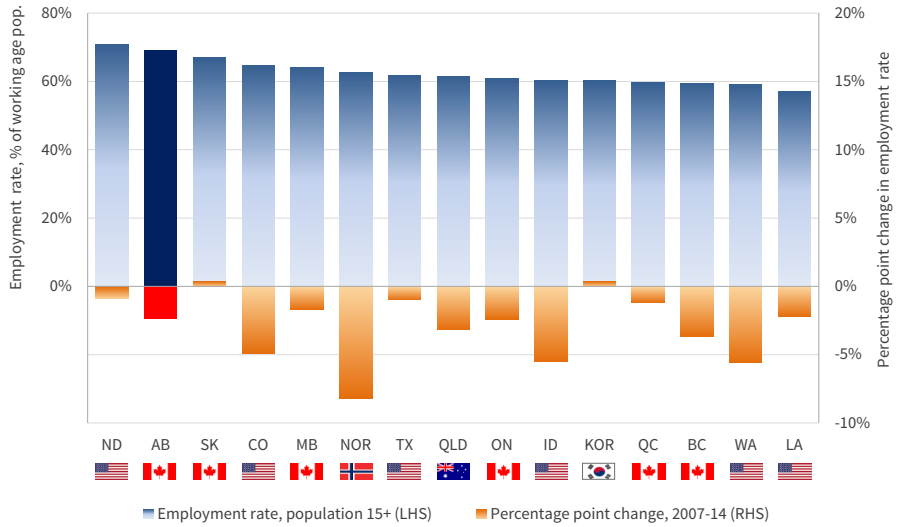
Alberta ranks second among the 15 jurisdictions for its employment rate in 2014, with 69.3% of the population aged 15+ actively employed – thus reflecting Alberta's long tradition of representing a hard-working society. Only North Dakota exceeds this rate, with an employment rate of 70.8%.

The **change in employment rate** over the longer term represents the second measure compared here.

Between 2007 and 2014, Alberta's employment rate decreased by 2.4 percentage points, from 71.7% in 2007 to 69.3% in 2014. Among the 15 jurisdictions compared, 13 have seen declines in their employment rate over this period, with an average change across all 15 jurisdictions of -2.8%. In this regard, the decline in Alberta's employment rate is less than the average for all jurisdictions, but still leaves Alberta ranking ninth among the 15 jurisdictions. Saskatchewan and Korea are the only jurisdictions where employment rates increased between 2007 and 2014, both with increases of 0.4%.

The trend toward lower employment rates in Alberta appears to be reflective of structural workforce aging impacting almost all jurisdictions. Overall, Alberta's high employment rate illustrates the importance of Alberta not relying on more people working more hours to sustain future prosperity, but instead striving to improve labour productivity.

Employment rate (2014) and Change in employment rate (2007-2014)



Notes: Employment rate for US states is measured as a percentage of the population aged 16+, as compared to 15+ in all other jurisdictions. This has a marginal positive effect on US numbers, due to the low percentage of 15 year olds who are working in all other countries. Sources: Statistics Canada, CANSIM Table 282-0002; Bureau of Labour Statistics, Local Area Unemployment Statistics, Employment Status of the Civilian Non-institutional Population in States; Eurostat, Table lfsq_ergan; Korean Statistical Information Service, Economically Active Population Survey; Australian Bureau of Statistics, 6202.0 Table 12.

Alberta's performance	*Rank*	*Rating*	*Change*
Employment rate	*2/15*		→
Change in employment rate	*9/15*		↓

Attracting new workers

Because of Canada's low rate of natural population growth, the ability to attract and retain immigrants, along with the ability to increase labour force productivity, are of key importance for competitiveness and future sustained prosperity.

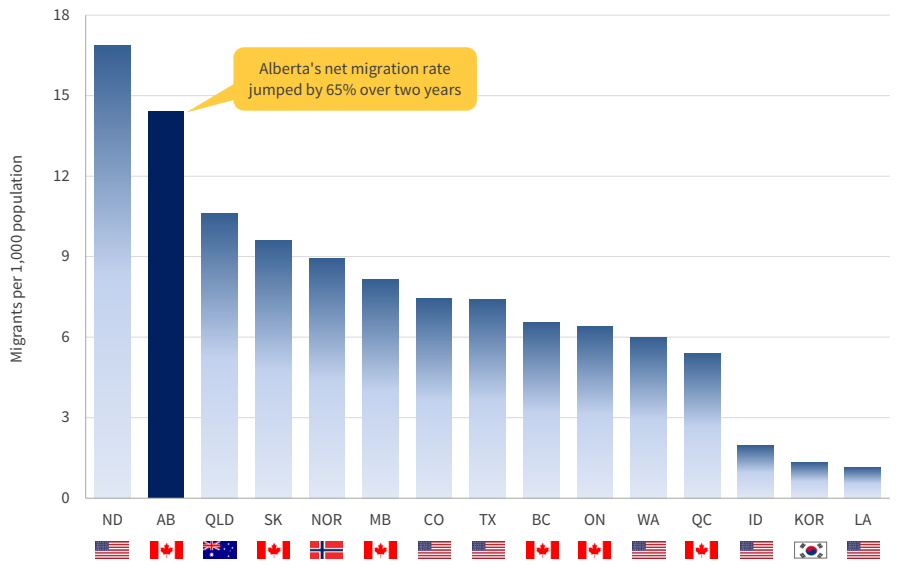
This measure compares net migration for each jurisdiction (immigration net of emigration). It compares international plus domestic migration for the Canadian provinces, US states and Queensland, but only international migration for Norway and Korea. International labour mobility within the European Union provides Norway an "equivalent" to domestic migration within Canadian and US jurisdictions. Therefore, Korea is the only country where this measure solely reflects restricted/approved international migration.

Alberta ranks second among the 15 jurisdictions for its rate of net migration, having attracted 14.4 net migrants per 1,000 population from 2011 to 2013. This represents a strong increase for Alberta's net migration in recent years, as from 2009 to 2011 Alberta's net migration rate was just 8.7 migrants per 1,000 population.

For this measure, North Dakota is the only jurisdiction that exceeds Alberta's rate of net migration, at 16.9 net migrants per 1,000 population for 2011-2013. For North Dakota, its small resident population base makes it relatively easier to achieve a high rate of net migration. North Dakota was suffering from net emigration in the years up to and including 2007. After achieving positive net migration in 2008, North Dakota's number of net migrants has increased in every year through to 2013.

Domestic migration consistently represents the primary source of migrants for Colorado, North Dakota, and Texas in recent years, whereas international migrants tend to significantly outnumber domestic migrants for all of the Canadian provinces compared. Alberta was an exception to this rule in 2013, with net domestic migration exceeding net international migration for the first time since 2007.

Net migration rate, per 1,000 population (2011-2013)



Notes: For Canadian provinces, US states and Queensland, this measure includes both international and domestic net migration. For Norway, being a member of the EU, international immigration from EU member states is unrestricted, and thus can be considered similar to domestic net migration in North America. Korea is the only country where this measure solely reflects restricted/approved international migration. Sources: Statistics Canada, CANSIM Table 051-0004; US Census Bureau, Population Division, Estimates of the Components of Resident Population Change for the United States, Regions, States, and Puerto Rico; Statistics Norway, Population, Table: 05426; Korean Statistical Information Service, International Migration; Australian Bureau of Statistics, 3101.0 Table 2.

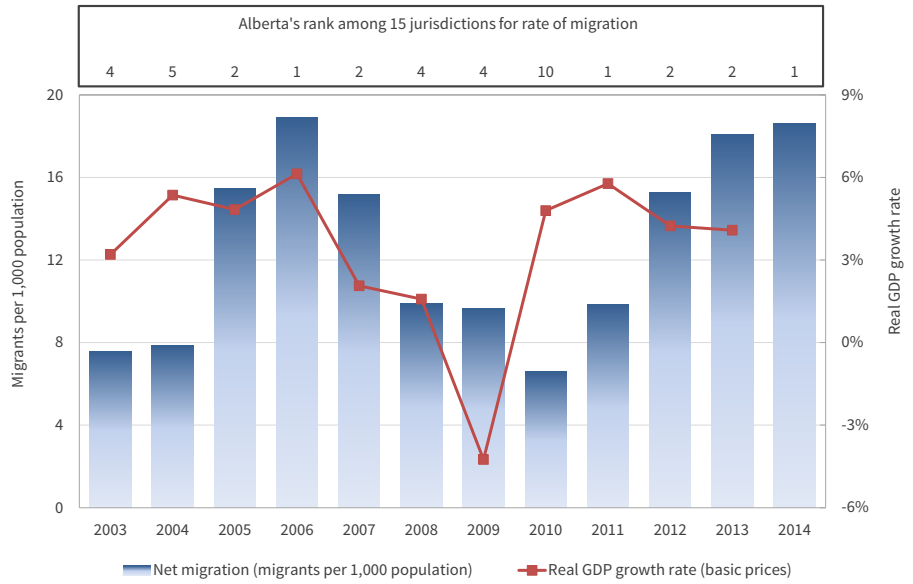
Alberta's performance	*Rank*	*Rating*	*Change*
Net migration rate	*2/15*		↑

Alberta's rate of net migration is highly responsive to the provincial and national economic situation. The chart on this page provides additional context on this issue, demonstrating the strong correlation between Alberta's rate of economic growth and its rate of net migration in recent years. When Alberta's economy was booming in 2005-2007, Alberta had the top or second highest rate of net migration among the 15 jurisdictions. Alberta's ranking dropped as low as 10th in 2010, a year after the 2009 recession, before returning to first place in 2011 as Alberta's economy rebounded from the recession, generating demand for additional labour. Alberta has remained in first or second place for net migration in each of 2011 through 2014.

GDP data for 2014 (not yet released) are expected to show a slowdown of growth for Alberta in 2014, with prospects for 2015 also appearing weak. Alberta has already seen a strong rate of net migration in 2014, meaning that migration is ahead of economic performance at this time – the 2014 migration numbers will add to Alberta's unemployment concerns as the economy softens. Alberta can also expect to see a slowdown in its net migration in the coming year(s), as these new economic signals are received by potential migrants.

The data presented here on net migration flows only includes new permanent residents for each jurisdiction. In addition to migration of permanent residents, Alberta also makes significant use of temporary "fly in, fly out" workers, both domestic and international, to help balance out shortages of general labour and specific skills.

Context: Trend in Alberta's net migration (2003-2013)



Sources: Statistics Canada, CANSIM Tables 051-0004 and 379-0030.

Workforce age

To assess the issue of workforce demographics, this analysis compares the relative share of the workforce in 2006 and 2013 for two key sections of the labour force – older workers and younger workers.

The **share of labour force aged 55+** represent those employees who are approaching the end of their careers. As shown in the upper portion of this chart, Alberta had the second lowest share of workers aged 55+ in 2013, with 17.8% of its workforce in this age group. In this regard Alberta ranks behind only Queensland.

While the share of older workers in Alberta increased from 13.3% of the workforce in 2006 to 17.8% in 2013, all other jurisdictions also saw their relative share of older workers rise over that time period and Alberta's second-place ranking for this measure remains unchanged from the previous edition of this report.

Alberta's increase in its share of older workers between 2006 and 2013, at 4.5 percentage points, is in-line with the median increase for all comparison jurisdictions. Norway saw the smallest increase in its older workforce in this period, at 1.7%, while Korea saw the largest increase in the share of older workers, at 5.3%.

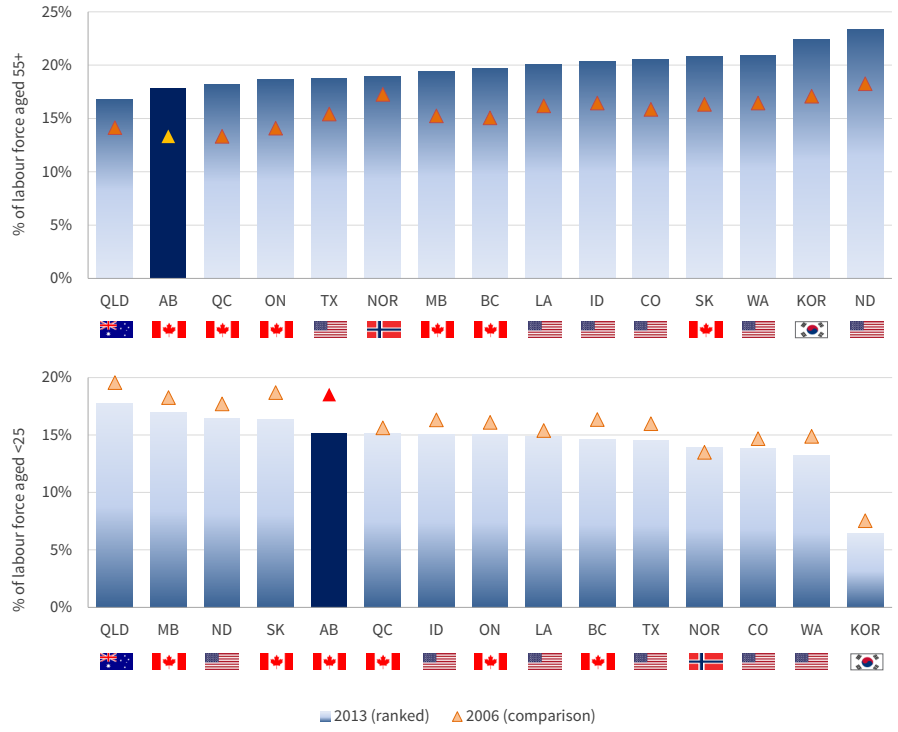
The **share of labour force aged <25** represents the opposite end of the age spectrum, being those employees starting out in their careers. Alberta ranks fifth for this measure, with 15.2% of its workforce aged under 25 in 2013. For this measure, Alberta ranks behind Queensland, Manitoba, North Dakota and Saskatchewan.

Between 2006 and 2013, all locations saw the relative share of younger workers in the workforce decline, except Norway where the share of younger workers increased marginally.

Among the jurisdictions new to this edition of the report, North Dakota is notable for having both the highest share of older workers in its workforce as well as the third highest share of younger workers. This dichotomy likely reflects an aging long-term resident population, supplemented by a large cohort of younger workers attracted by that state's recent boom.

In Korea, the labour force is aging rapidly. Among the 15 jurisdictions compared, Korea has the second highest share of older workers in the workforce, the largest increase in share of older workers from 2006 to 2013, and also the smallest share of younger workers in the workforce – by a very wide margin.

Share of labour force aged 55+ and <25 (2013)



Notes: Labour force aged <25 represents 15-24 year olds in all locations except for the US states, for which it represents 16-24 year olds. Sources: Statistics Canada, CANSIM Table 282-0002; US Bureau of Labour Statistics, Local Area Unemployment Statistics; Eurostat, Table lfsa_pganws; Korean Statistical Information Service, Economically Active Population Survey; Australian Bureau of Statistics, derived from 6202.0 Table 12 and SuperTable Data Cube ST GM1.

Alberta's performance	*Rank*	*Rating*	*Change*
Share of labour force aged 55+	*2/15*		→
Share of labour force aged <25	*5/15*		→

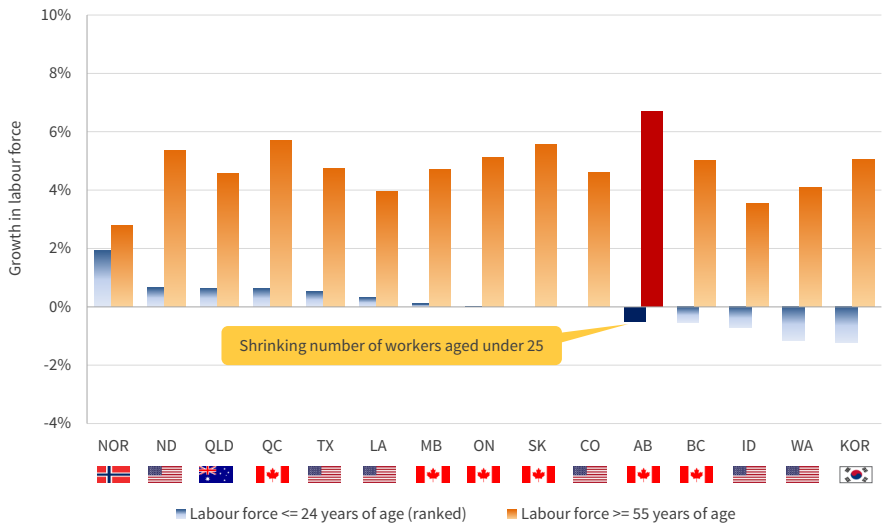
Like nearly all jurisdictions, Alberta saw its **share** of workers aged under 25 years decline between 2006 and 2013. However, due to the province's strong labour force growth, up until 2008 Alberta was still experiencing an increase in the **total number** of younger workers.

Since 2009, however, the number of younger workers in Alberta has been declining and, in 2013, Alberta's long term average growth rate for younger workers turned negative for the first time. This can be seen in the context chart presented on this page, with Alberta having now crossed a critical threshold where the long term trend for younger workers is in contraction.

In addition to this concern, the chart also shows that Alberta saw the highest rate of growth in its number of older workers between 2006 and 2013, even though it ranks second among the jurisdictions for its relatively low share of older workers.

All of these numbers indicate that Alberta's workforce is now being affected more significantly by population aging than it was in the past. Even with strong net migration, Alberta's total labour force growth has slowed and the labour force participation rate is declining (as it is in many other jurisdictions). This accelerating trend raises the urgency for Alberta of issues related to the recruitment of younger workers to fill positions vacated by retirees, as well as the transfer of institutional knowledge from older workers to their younger replacements.

Context: Growth of labour force aged 55+ and <25 (2006-2013)



Notes: Labour force aged <25 represents 15-24 year olds in all locations except for the US states, for which it represents 16-24 year olds. Sources: Statistics Canada, CANSIM Table 282-0002; US Bureau of Labour Statistics, Local Area Unemployment Statistics; Eurostat, Table lfsa_pganws; Korean Statistical Information Service, Economically Active Population Survey; Australian Bureau of Statistics, derived from 6202.0 Table 12 and SuperTable Data Cube ST GM1.

Foundation – Access to Capital Markets

"Factors that shape the business environment."

What it means

Capital is the fuel for business growth, so access to capital represents an essential issue for businesses of all sizes. From start-up entrepreneurs seeking seed funding to global corporations looking to finance major new projects, having appropriate access to capital influences the ability of businesses, and the economy, to grow and prosper at every level.

How it is measured

Small and medium enterprises (SME) include all businesses with fewer than 500 employees. More than 99% of all businesses operating in Canada are SMEs. Therefore, the ability of SMEs to access necessary capital and financing is vital to economic success. This report introduces two new measures for SME financing. The first measure assesses the actual success rate of SMEs that apply for business credit, while the second measure reflects SME opinions on whether access to financing represents a barrier to business growth.

Within the realm of SME financing, venture capital plays a special role in financing high-risk, innovative new business ventures. Measures used to assess venture capital include both the value of venture capital investments made in a year (expressed as a percentage of GDP) and the number of venture capital deals made (relative to population).

Foundation

Access to Capital Markets	
Small and medium enterprise (SME) financing	SME authorization of requested credit (new)
	SME financing as an obstacle to business growth (new)
Venture capital	Venture capital investment
	Number of venture capital deals
Head offices	Head office employment (new)

For larger corporations and corporate groups, head offices represent the central decision making authority and the location from which financing is typically sought and procured. Capital providers can be found anywhere there is a cluster of major corporate head offices. Therefore, this report uses a new measure of head offices (specifically, their employment) as a proxy for access to financing among larger corporations.

How Alberta performs

The five measures selected for benchmarking aspects of access to capital are outlined in the table above. The balance of this chapter details Alberta's relative performance for these measures, as compared to the other benchmark jurisdictions.

Small and medium enterprise financing

Small and medium enterprises (SME) represent a major force in the economies of Alberta and Canada. Representing all businesses with fewer than 500 employees, more than 99% of all businesses in Canada are SMEs.

Two measures are utilized here to assess different facets of SME financing, drawing on both quantitative results for SME financing applications and also more subjective results drawn from the opinions of SME business executives.

Data for these measures come from an Industry Canada survey, therefore results are only available for the Canadian provinces. The data presented here reflect results from 2011 and are now somewhat dated. However, the next edition of this triennial survey has already been conducted and results from the 2014 survey will be available for the next edition of this report.

Credit authorized as a percentage of credit requested reflects the success of SME financing applicants, reporting the value of debt and lease credit granted relative to the total value of credit applied for.

Alberta ranks third among the six provinces for this measure, with SME applicants being authorized for 95.6% (by value) of credit requested.

The prairie provinces lead the rest of Canada on this measure, with Saskatchewan reporting a credit authorization rate of 99.5% (by value). In British Columbia, Ontario and Quebec, credit authorization rates are between 92% and 95%.

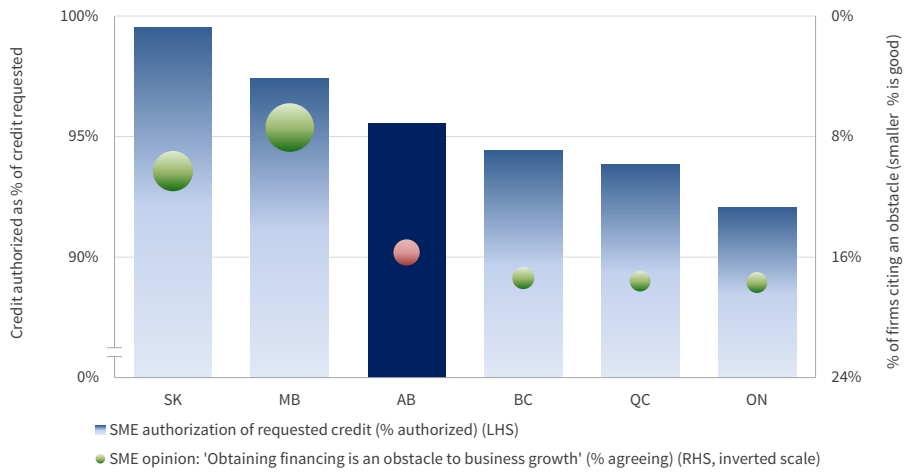
While the first measure reflects a high rate of success among SMEs seeking credit, the above measure excludes any SMEs that may have been discouraged or deterred from submitting a loan or lease application.

To address this shortfall, the second measure draws on an opinion-based question, asking all SMEs in the survey whether or not **access to finance is an obstacle to business growth**.

Consistent with the measure of credit authorization, Alberta also ranks third among the six provinces for this measure. Overall, 15.7% of SMEs in Alberta reported that access to finance is perceived to be an obstacle to their business growth.

A correlation exists between these two measures, with Manitoba as an exception. Lower rates of credit authorization correlate with greater levels of concern among SME executives that access to finance is holding back their business growth, thus reflecting easier or tougher markets for accessing business credit.

SME credit authorized as a percentage of credit requested (2011) and SME opinion: 'Access to finance is an obstacle to business growth' (2011)



Notes: Authorization of requested credit reflects total requests for both debt and lease financing, by province, except for Manitoba which reflects results for the "Prairies" combined due to a poor data reliability score for the "Manitoba" result for this question. For the SME opinion measure, results are presented on an inverse scale such that the jurisdictions showing highest results in the chart are those where the fewest firms report that obtaining financing is an obstacle to growth. (This approach ensures that the measures presented on this chart are presented consistently, reflecting "high is good, low is bad".) Source: Industry Canada, 2011 Survey on Financing and Growth of Small and Medium Enterprises, Tables 5 and 10 (credit authorization) and Table 20 (SME opinion)

Alberta's performance	*Rank*	*Rating*	*Change*
SME authorization of requested credit	*3/6*		*new*
SME financing as an obstacle to business growth	*3/6*		*new*

Venture capital

Venture capital plays a critical role in supporting the development of innovative companies, helping to bridge the gap between early individual investors and an initial public offering.

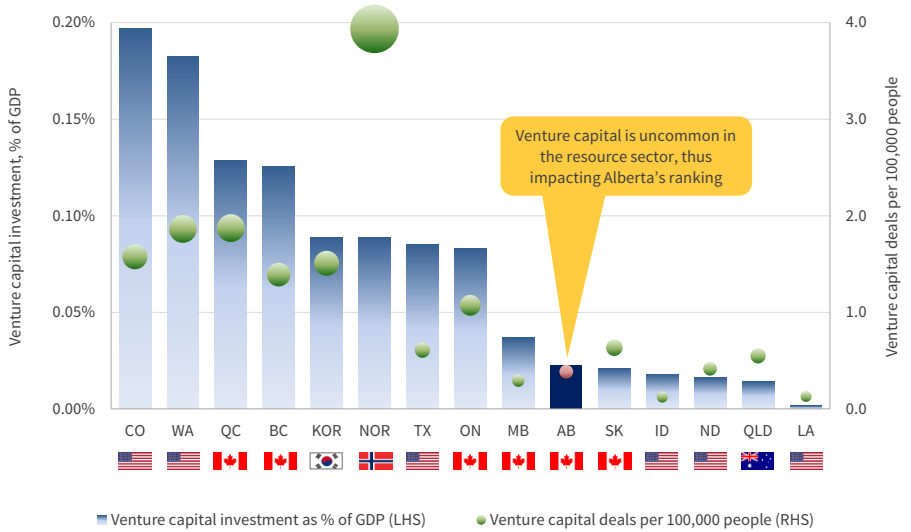
The first measure compared here assesses the **value of venture capital investments**, as a percentage of GDP. Based on this measure, reflecting data for the period 2009-2013, Alberta ranks 10th among 15 jurisdictions, having taken a lead over both Idaho and Saskatchewan since 2010. While nine jurisdictions rank ahead of it, Alberta, together with Manitoba, is now positioned at the front end of a group of resource-intensive North American jurisdictions, all of which have relatively low values of new investment in venture capital. Previously, Alberta was in the middle of this group of jurisdictions.

The second measure of venture capital investment is the **number of venture capital deals** per 100,000 population. For Alberta, this measure decreased from 0.59 deals in 2010 to 0.38 deals in 2013. This decrease for Alberta must reflect a trend towards fewer, larger venture capital deals, given that Alberta's value of venture capital investment (as a percentage of GDP) remained consistent over this period.

Even though Alberta's number of venture capital deals has decreased, its ranking for this measure remains unchanged, at 12th among the 15 jurisdictions.

These measures reflect the nature of different industries in each jurisdiction. Venture capital plays a significant role in the development of high tech start-ups, as commonly seen in tech-oriented jurisdictions such as Colorado, Washington, Quebec and British Columbia. By way of contrast, resource oriented start-ups are generally more reliant on traditional debt and equity markets, even for early stage capital.

Venture capital investment, percent of GDP (2009-2013) and Number of venture capital deals, per 100,000 population (2013)



Notes: Data represents venture capital only and does not include private equity. For Norway, number of deals is estimated from number of investee companies for 2011 and later years, based on average deals/company data for 2007 through 2010. Sources: Canadian Venture Capital & Private Equity Association, Annual Statistics Review; PricewaterhouseCoopers/National Venture Capital Association, MoneyTree Report; Eurostat Table htec_vci_stage2; Korea Venture Capital Association, Venture Capital Information Centre, Summary Report Q4 2014; Australian Private Equity & Venture Capital Association, Yearbook 2014, Table 3.

Alberta's performance	*Rank*	*Rating*	*Change*
Venture capital investment	*10/15*		↑
Number of venture capital deals	*12/15*		→

Head offices

For larger corporations and corporate groups, head offices represent the central decision making authority and the location from which financing is typically sought and procured. Capital providers can also be found anywhere there is a cluster of major corporate head offices.

In many corporations, having access to the head office is seen as beneficial for securing support for proposed projects and obtaining the funding necessary to move projects forward. Therefore, this measure uses head offices as a proxy for access to financing among larger corporations.

Some metrics for head offices used in other studies focus on the numbers of head offices per capita in each location. However, such an approach can bias results in favour of smaller jurisdictions that have a high number of head offices of smaller firms, relative to larger jurisdictions that are home to major corporate headquarters. Instead, this report measures head office activity by assessing head office employment relative to the total labour force. This approach is indifferent to the actual number of offices, but instead focuses on the magnitude of head office activities within the local economy.

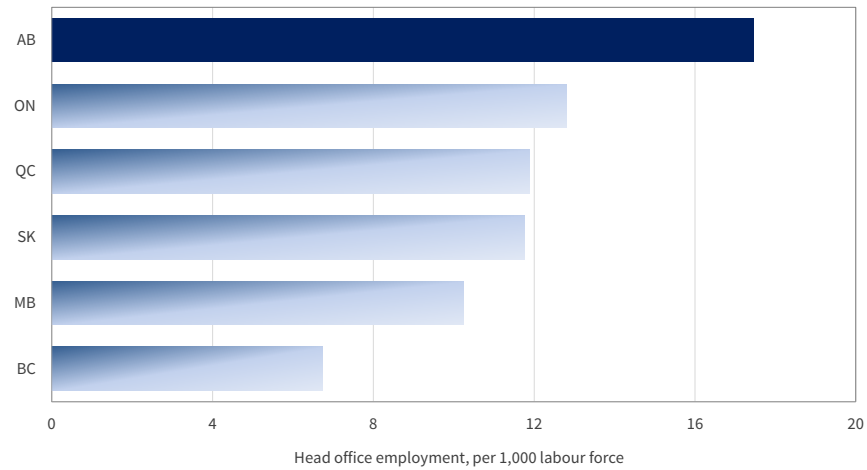
Comparable data for this measure are only available for the Canadian provinces, therefore this comparison is limited to six jurisdictions.

Alberta ranks first among the six Canadian provinces for head office employment in 2012, with 17.5 head office employees for every 1,000 people in the labour force. This level of head office employment more than 35% higher than in Ontario and almost 50% higher than in both Quebec and Saskatchewan.

Among the four leading jurisdictions for this measure, Alberta was the only province to see an increase in its head office employment levels between 2010 and 2012. In each of Ontario, Quebec and Saskatchewan, rates of head office employment declined marginally between 2010 and 2012.

Alberta also has the highest number of head offices per capita in Canada, suggesting that the province has a balanced mix between major corporate headquarters plus many smaller head offices supporting SMEs in Alberta's dynamic economy.

Head office employment, per 1,000 labour force (2012)



Notes: Head office employment represents the average number of people employed at a head office during the calendar year, including full-time, part-time and temporary employees, plus employees absent with pay. Source: Statistics Canada CANSIM Tables 528-0001 and 282-0002.

Alberta's performance	*Rank*	*Rating*	*Change*
Head office employment	*1/6*		*new*

Conclusion

Importance of competitiveness

"Talent, science and technology, modern infrastructure and capital are more widely distributed than ever before, and every day other nations get better at turning these building blocks into a competitive advantage."

- A Clarion Call, US Council on Competitiveness, 2012

While the Alberta economy is susceptible to the fluctuations of economic cycles, over the longer term Alberta has successfully built a competitive economy which sustains a high level of prosperity for individual Albertans. However, Alberta cannot afford to rest on its past laurels as future prosperity is not assured. Continued efforts are required of the Alberta government, Alberta firms and individual Albertans, working together in partnership, to maintain and build future economic competitiveness – in the face of increasing global competition – in order to maintain sustained prosperity for the province.

There are two main avenues for achieving and maintaining a high standard of living. One route is to work harder, something Albertans have long demonstrated their willingness to do. The other route is to work smarter, to find innovative new ways to raise productivity – to produce more value per hour worked while still contributing the same level of effort. The ability to work harder has obvious limitations, but the ability to work smarter and to raise productivity knows no limit – provided that the components of a competitive economy are in place to help foster innovation.

Alberta's performance

The benchmarking comparisons for 70 measures of provincial competitiveness presented in this report demonstrate that Alberta's performance is generally very positive. This result is consistent with the long-term strength and dynamic nature of the Albertan economy. However, the analysis also identifies areas where Alberta trails many of its peers.

The benchmarking results reveal an improvement in Alberta's relative ratings for both productivity and innovation. These improvements have come at a crucial time for the province, as these are the levels of the Competitiveness Pyramid that can help to support sustained prosperity for Alberta during downward cycles in resource prices.

These comparisons form a current assessment of Alberta's competitiveness and are based on the latest available data up to, and including, 2014. It is important to acknowledge that the downturn in oil prices in since mid-2014 is negatively impacting Alberta's economy and will affect key economic measures for 2015. While oil revenues have already declined, the broader implications for Alberta depend on the vast array of indirect impacts – potential declines in oil-related activities, but with offsetting benefits of a lower Canadian dollar, an incentive to improve productivity and new business opportunities opening up in other sectors. The final implications of this economic shift for Alberta's competitiveness will be revealed in future editions of this report.

Competitiveness benchmarking summary for Alberta

	# measures compared	Rating	Change from 2013
Sustained Prosperity	10		→
Productivity	14		↑
Innovation	13		↑
The Foundation:			
Taxes & Fiscal Policy	5		↑
Regulation	4		↓
Infrastructure & Transportation	6		↓
Human Capital & Education	13		→
Access to Capital Markets	5		→

Legend for ratings[1]

- *Excellent (top quintile)*
- *Good (second quintile)*
- *Average (middle quintile)*
- *Weak (lower quintile)*
- *Poor (bottom quintile)*

1 The ratings of Excellent, Good, Average, Weak, and Poor take into account both Alberta's ranking among the jurisdictions compared, and Alberta's measured value relative to other jurisdictions.

At the apex of the Competitiveness Pyramid, **sustained prosperity,** represents the core objective of competitiveness. Alberta fares well in most measures of prosperity and maintains its "Good" rating. However, Alberta has seen a decline in its Index of Economic Well-being (which encompasses social and environmental considerations), with rising income inequality and lower economic security being the drivers of this decline.

Productivity represents an area of improvement for Alberta, with its rating rising from "Average" to "Good". Improved productivity in the construction sector leads the way in this area. While Alberta's manufacturing sector continues to have a high level of productivity, of concern is the fact that manufacturing productivity growth has turned negative in recent years.

Innovation also sees improvement for Alberta, with its rating moving from "Average" to "Good". Gains have occurred in various facets of business innovation, but business R&D spending is still below average relative to Alberta's peers (despite recent relative improvement) and total R&D spending continues to represent Alberta's weakest point within innovation.

At the **foundation** level of the pyramid, Alberta's ratings are summarized as follows:

- **Taxes and fiscal policy** has improved from "Good" to "Excellent", mainly due to an increase in top personal tax rates in the US that improved Alberta's relative position for that measure.
- **Regulation** has a limited range of measures due to the overall complexity of comparing regulatory regimes. Alberta's rating dropped from "Good" to "Average", due to reductions in the time and cost of starting a new business in other jurisdictions that have impacted Alberta's relative result.
- I**nfrastructure and transportation** has dropped from "Excellent" to "Good" despite strong results for Alberta's public spending on infrastructure. The drop in rating is due to inclusion of a new measure of broadband internet speeds, for which Alberta (and most other Canadian provinces) rates relatively poorly.
- **Human capital and education** sees its rating remain consistent with both prior editions of this report, at "Good". Despite this, concerns for Alberta identified in this area include a decline in scores for high school skills, a decline in apprenticeship completions and non-degree post-secondary education, and the advancing onset of workforce aging.
- **Access to capital markets** required a major refresh of the measures used due to three of the five prior measures relying on data that Statistics Canada has ceased to report, including data on foreign investment in the economy. Despite this overhaul, Alberta maintains its prior rating of "Average" based on the new range of measures.

This summary identifies key measures where Alberta performs very well, but also those where Alberta trails many of the comparator jurisdictions. Whether or not these represent areas for improvement is a strategic issue presenting an opportunity to consider policy changes and action plans. In some instances, taking action in areas of relative weakness may be entirely appropriate (subject to other provincial competitiveness or diversification initiatives that may already be underway). In other instances, working to remedy such relative weaknesses may detract from existing comparative strengths, or overall competitiveness may be better served by deploying resources to strengthen existing advantages.

A call to action

Sustained prosperity, productivity, innovation, and competitiveness are interlinked in the modern global economy. Competitiveness paves the way for innovation, which is required to improve productivity. In turn, improving productivity is the only long term solution to achieving and maintaining sustained prosperity – irrespective of resource price cycles.

To boost competitiveness, improve innovation, grow productivity, and sustain prosperity, action is required by both government and industry, working in partnership. The Alberta Economic Development Authority acts as an advisor to government, drawing on senior-level industry expertise to make policy recommendations to government to strengthen and diversify Alberta's economy.

This represents important work and the stakes are high. Other jurisdictions are continually working to improve their competitiveness, risking the erosion of advantages that Alberta currently holds. Therefore, the future prosperity of Alberta and Albertans are at stake and will be determined by actions taken today.

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