



# Trends in Labour Productivity in Alberta

September 2014

## Introduction

Labour productivity is the single most important determinant in maintaining and enhancing sustained prosperity<sup>1</sup>. Higher productivity growth would alleviate most of Alberta’s labour shortage problems and secure long-term economic growth. The key drivers of labour productivity include skills and human capital, capital investment, and innovation.

Labour productivity is measured by GDP (Gross Domestic Product) per hour worked. In this report, Alberta’s performance in labour productivity will be analyzed relative to other provinces and by industry. Labour productivity is affected by both the quality of human capital (education, training, skills and experience), and by the amount and sophistication of the equipment, tools and machinery being used. Investment in people and equipment is therefore foundational to productivity growth. However, the innovative manner in which people apply their knowledge and skills is also crucial to productivity growth. Promoting a culture of innovation is a key element of the productivity equation.

**In May 2014, Statistics Canada released provincial productivity estimates for the years 2007 to 2013. This report provides an update of the Trends in Labour Productivity that was released in June 2013.**

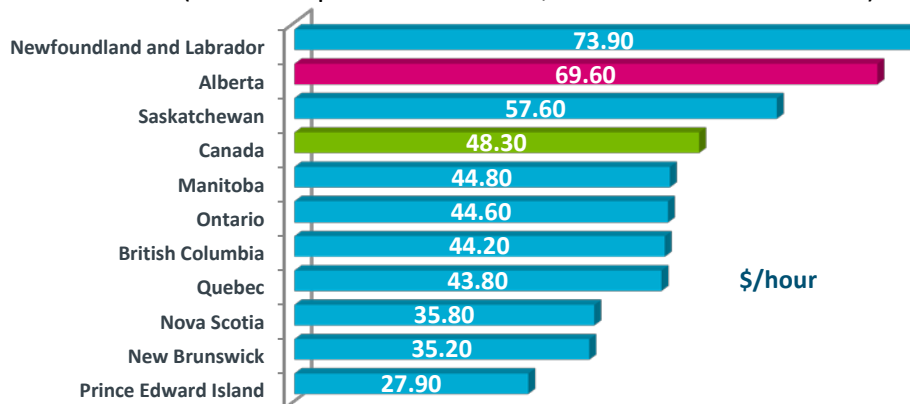
## Recent Productivity Trends

According to Statistics Canada, Alberta has the second highest labour productivity in the country. In 2013, labour productivity in Alberta’s business sector was \$69.60 per hour (Chart 1), 44% higher than the Canadian average of \$48.30 per hour. Only Newfoundland and Labrador had a higher level of productivity, \$73.90 per hour in 2013, because of its highly productive crude oil sector.

### Chart 1

#### Business Sector Productivity of Labour - 2013

(Real GDP per Hour Worked, in 2007 constant dollars)



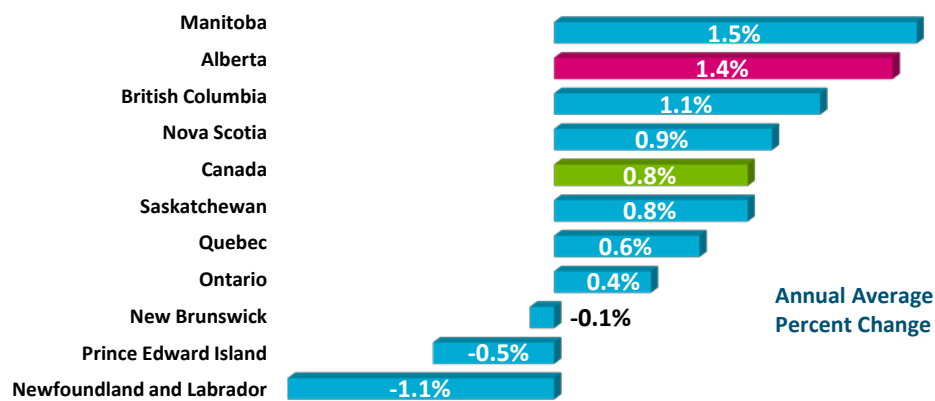
Source: Statistics Canada -- Table 383-0029, Labour productivity and related variables by business sector industry

<sup>1</sup> Alberta Competitiveness Council – Moving Alberta Forward, page 20

Over the past five years, GDP in Alberta’s business sector<sup>2</sup> has increased by 13.9% or 2.6% per year. Over the same period, the total number of hours worked increased by 6.4% or 1.2% per year. As a result, labour productivity rose 7.1% over the 5-year time period or 1.4% per year. In other words, just over one-half of the increase in GDP came as a result of increased labour productivity and just less than one-half was the result of increased labour input.

Alberta’s 1.4% average annual growth rate in labour productivity was the second highest provincial growth rate over the past five years (Chart 2) and was nearly double the Canadian growth rate of 0.8% per year.

**Chart 2**  
**Business Sector Labour Productivity Growth Rates**  
 2008 - 2013 (Based on Hours Worked)



Source: Statistics Canada -- Table 383-0029, Labour productivity and related variables by business sector industry

The 1.4% productivity growth rate for the 2008 to 2013 period is a vast improvement over the 1.0% average for the 2007 to 2012 time period. The improvement in the productivity growth rate is mainly the result of an improvement in Alberta’s oil and gas sector productivity. Prior to 2009, productivity in that sector steadily declined as Alberta’s conventional oil and gas reserves were slowly depleting and new oil sands projects had staff on-site years before they started to produce bitumen. Starting in 2009, oil and gas productivity increased as oil sands projects went into production, and it grew robustly in 2013.

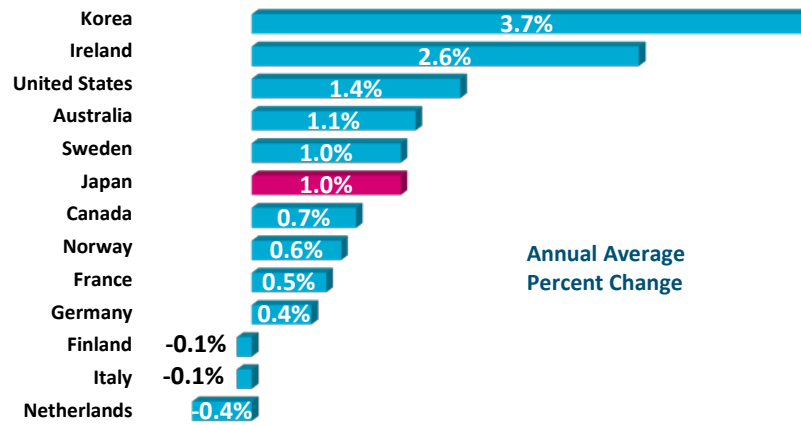
Alberta’s productivity growth rate is now the same as the United States’ 1.4% growth rate over the same period and higher than that of a number of other international competitors (Chart 3<sup>3</sup>). Average annual productivity growth rates are generally lower over the more recent 5-year period than over longer time periods because of the recent global recession.

<sup>2</sup> Excludes non-commercial sectors, such as public administration, healthcare and education

<sup>3</sup> Productivity growth rates in the international comparison (Chart 3) are based on the total economy rather than the business sector and therefore Canada’s growth rate in Chart 3 is not directly comparable to the one in Chart 2

## Chart 3

### International Labour Productivity Growth Rates 2008 - 2013 (Based on Hours Worked)

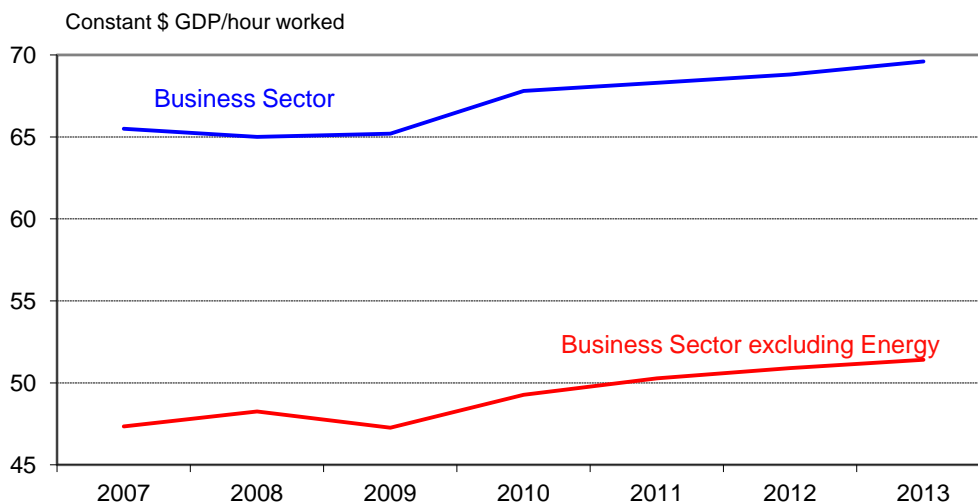


Sources: The Conference Board and Groningen Growth and Development Centre

Most of Alberta’s productivity gains occurred in 2010 (see Chart 4). In 2008 and 2009 productivity growth was elusive as a result of the global recession. When the economy turned around in 2010, companies did not feel confident enough to hire additional workers and productivity grew strongly by 4% as a result that year. Productivity growth was rather subdued in both 2011 and 2012 as companies started to hire again before turning in a respectable 1.2% growth rate in 2013.

## Chart 4

### Productivity Levels in Alberta Business Sector and Business Sector excluding Energy



Sources: Statistics Canada and Alberta Innovation & Advanced Education

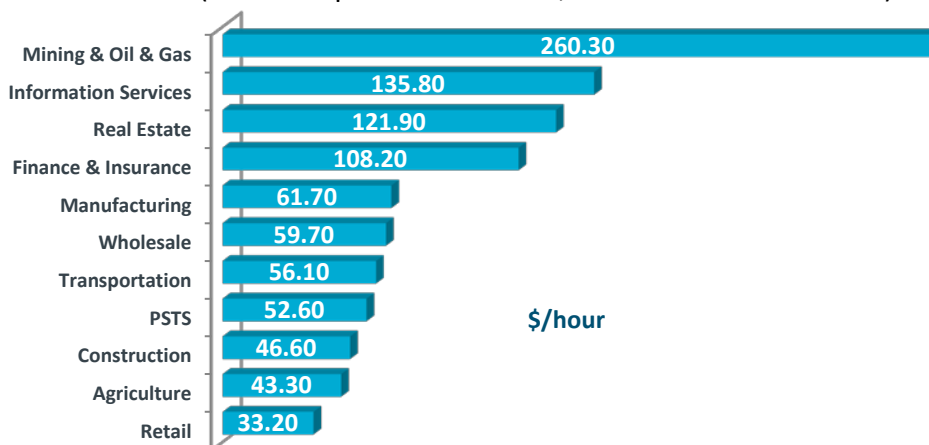
## The Oil and Gas Sector Drives Alberta’s Overall Productivity Performance

Both Alberta’s high productivity level and its (until recently) less than robust productivity growth are in large part the result of its large and capital-intensive oil and gas extraction sector. In 2013, the labour productivity level was \$260 per hour in the mining and oil and gas sector (Chart 5), because of very high levels in the oil and gas extraction sub-sector (\$564 per hour). Levels are high as output (or GDP) per worker and therefore also per hour worked is very high in that industry. When excluding the mining and oil and gas sector Alberta’s labour productivity level drops to \$51.40 per hour, 17% higher than the Canadian average of \$43.90. The \$51.40 is much lower than the overall business sector productivity level of \$69.60 in Alberta which in turn was 44% higher than the Canadian average.

**Chart 5**

### Labour Productivity in Alberta Industries in 2013

(Real GDP per Hour Worked, in 2007 constant dollars)



Source: Statistics Canada -- GDP at basic prices  
 PSTS: Professional, Scientific and Technical Services

Although the mining and oil and gas sector has the highest productivity level, it declined sharply over a 10-year period ending in 2008. Productivity in the oil and gas extraction sub-sector declined by more than one-half between 1999 and 2008 and there are a number of reasons for this decline. First, Alberta’s conventional oil and gas resources were in decline and more effort was required to find and extract each additional barrel or gigajoule. Second, the switch to oil sands reduced the overall productivity level for the oil and gas extraction sector as oil sands require more labour to develop than conventional reserves. Third, new oil sands projects have employees on-site before production actually starts (raising hours worked without any increase in GDP). Fourth, high oil prices made high cost, labour and capital intensive oil reservoirs more attractive.

In more recent years, productivity has improved in the mining and oil and gas sector. Between 2008 and 2013, the sector’s productivity grew by an average of 2.6% per year (Chart 6). The main reasons

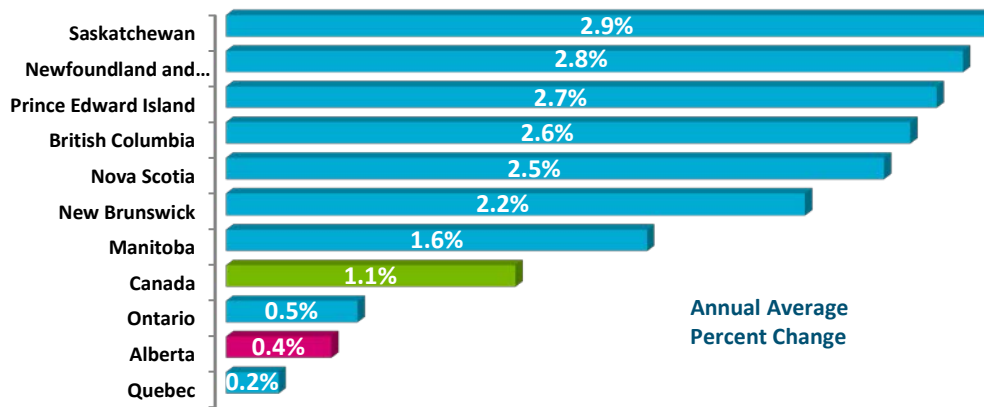
for this turn-around are that a number of large oil sands projects started producing and that conventional oil production staged a recovery during the past three years. It is likely that this sector's productivity will continue to improve as more oil sands projects enter the production phase and when Alberta's tight oil and shale gas reserves are developed with new technological breakthroughs such as fracking.

## Productivity in the Manufacturing Sector

Alberta's manufacturing sector also had the second highest productivity level of all provinces, behind Saskatchewan. However, this sector had weak productivity growth of only 0.4% per year between 2008 and 2013, a rate that was lower than Canada's 1.1% growth rate (Chart 6) and also lower than the 1.2% annual increase that was registered in Alberta for the 2007 to 2012 period.

### Chart 6

Provincial Labour Productivity Growth Rates - Manufacturing  
2008 - 2013 (Based on Hours Worked)

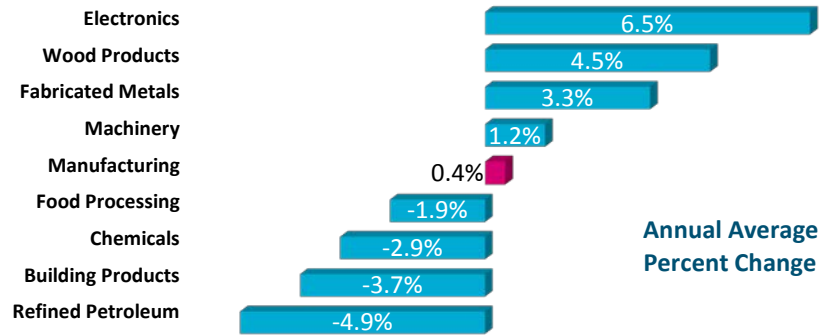


Source: Statistics Canada

The manufacturing sector's weak performance was mainly the result of declining productivity in a number of large sub-sectors, such as food processing, chemicals and refined petroleum products (Chart 7). The refining and chemical sectors' productivity declined, as high prices may have sheltered these industries. In the food processing sector, productivity also declined in many provinces and in Canada, as the sector showed little output growth while jobs continued to rise at a strong pace. High growth was registered in globally competitive sectors such as electronics (6.5% per year), machinery (8.4% per year), fabricated metals (6.0%) and wood products (5.4%) industries.

## Chart 7

Labour Productivity Growth Rates in Alberta's Manufacturing Sectors  
2008 - 2013 (Based on Hours)



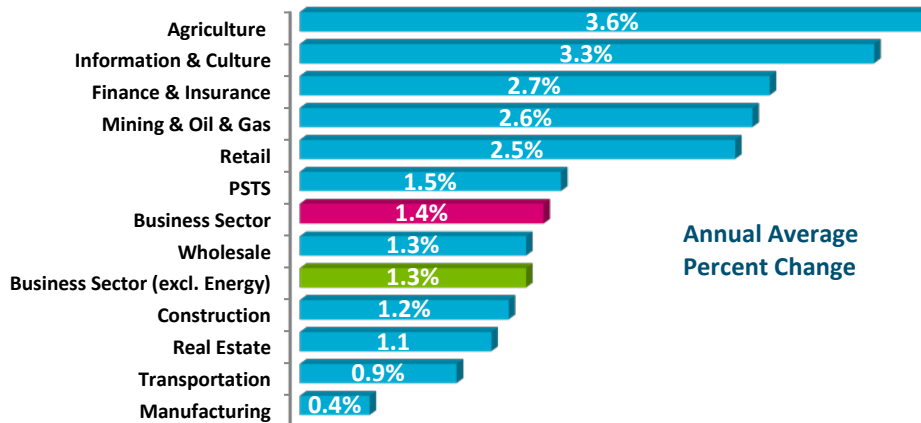
Source: Statistics Canada

## Other Sectors' Productivity Performance

Most other sectors had strong productivity growth. Farm consolidation and capital investment led to the highest productivity growth in the agricultural sector with a rate of 3.6% per year. Information and culture (mainly telecommunication services) benefited from heavy investment in telecom equipment, especially by cell phone companies, and had productivity growth of 3.3% per year. Productivity growth of 2.7% per year in the finance and insurance sector was the result of a large decline in the number of jobs in the rental and leasing sub-sector.

## Chart 8

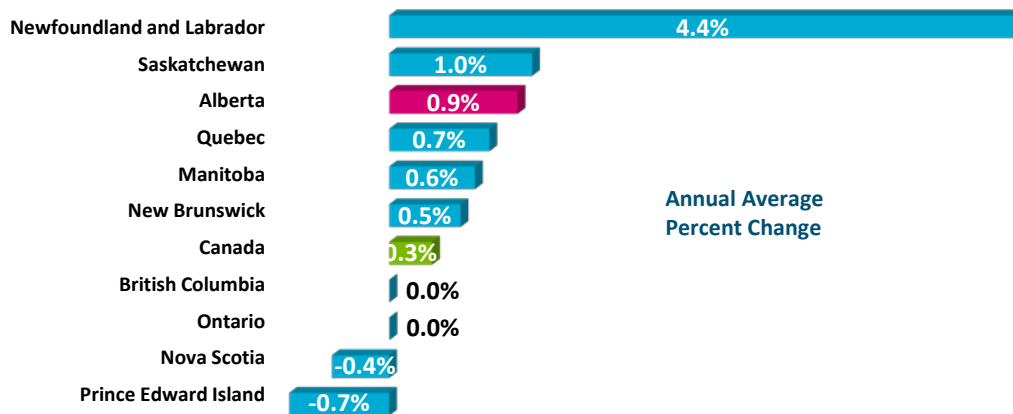
Labour Productivity Growth Rates in Alberta's Industries  
2008 - 2013 (Based on Hours)



Sources: Statistics Canada and Alberta Innovation & Advanced Education  
PSTS = Professional, Scientific and Technical Services

Productivity in the business services sector<sup>4</sup> (excluding retail and wholesale trade and real estate) has grown at an average annual rate of 0.9% per year (Chart 9), well ahead of the Canadian average growth of 0.3% per year. The following business service industries had the highest growth: information and culture (3.3% per year); finance and insurance (2.7%); professional, scientific and technical services (1.5%); accommodation and food services (1.3%); and arts, entertainment and recreation (1.3%).

**Chart 9**  
**Provincial Labour Productivity Growth Rates - Business Services**  
 2008 - 2013 (Based on Hours Worked)



Source: Statistics Canada -- GDP at basic prices

## Summary

In 2013, Alberta’s productivity level of \$69.60 GDP per hour worked was the second highest in the country and 44% higher than the Canadian average. Alberta’s productivity growth has been weak historically, mainly because the oil and gas sector had sharply declining productivity during the decade prior to 2008. However, productivity growth has improved in recent years because of a pronounced turn-around in the oil and gas sector as new oil sands projects came into production and conventional oil production started growing again. Alberta’s 1.4% average annual productivity growth between 2008 and 2013 compares favourably to rates achieved in the other provinces, Canada and even international jurisdictions such as the US. To gain a better understanding of productivity you need to understand productivity at the sector level. Different sectors are experiencing different productivity performance, which helps us to better understand of the success and challenges being experienced in productivity and where the focus needs to occur.

<sup>4</sup> Business Services include the following industries: Transportation & Warehousing; Information & Culture; Finance & Insurance; Professional, Scientific & Technical Services; Administrative & Support, Waste Management; Arts, Entertainment & Recreation; Accommodation & Food Services. Excluded: Retail; Wholesale; Real Estate