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Economic Analysis of the Alberta Oil Sand Development

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Abstract:

This paper analyzed the development of Alberta's oil sand development. We review the literature in assessing the economic contribution that the oil sands have on the overall economy of Alberta. Further, this paper discusses the effectiveness of current subsidy programs and considers alternatives available. Results found that Alberta receives a small portion of revenue compared with oil revenue in other jurisdictions. In addition, there are a number of negative impacts from oil sand development that need addressing moving forward to assist Albertans in improving quality of life factors.

Keywords: Oil sand development, fossil fuel subsidies, competitiveness

1. Introduction

Prime Minister Stephen Harper envisions Canada as 'the emerging energy superpower.' ('Harper Canada an 'energy superpower,' 2006) With Canada's declining conventional oil and natural gas production, the oil sands development is the cornerstone for Canada's energy strategy.

The tar sands are located in an area roughly the size of Florida in the province of Alberta. Approximately 173 billion barrels of oil are found in the oil sands out of an estimated 176 billion barrels in all of Canada that are recoverable with today's technology. (Canada's Industry FAQ, 2015)

The oil sands are increasingly important to Canadian oil production, comprising 52% of all oil production in 2010, and projected to increase to 79% by 2025. (CAPP, Crude Oil Forecast, Production and Supply Data, cited Shadow of Boom, P.18) Oil production from Alberta's oil sands is estimated to reach 5.2 million barrels per day by 2030, supplying approximately 5% of global demand.

This boom in oil production has brought about many changes within Alberta. Volatile oil revenues have created fiscal challenges. Oil sand employment has increased, while employment in many other sectors has declined. Workers have shifted toward oil sand industries both within Alberta, as well as across Canada.

This paper will begin by introducing the economic and demographic changes in Alberta as a result of the oil sand expansion. The next section explores the oil sand contribution to government revenues, and look at the effects on workers in Alberta. The paper concludes with discussion focusing on key policy considerations for current oil sand development.

2. Alberta Introduction

Alberta's economic growth averaged 3.5% from 1994-2004, which led all ten Canadian provinces. Alberta's per capita GDP of CAD\$84,390 in 2013 was the highest of any state or province in North America. Energy was the single greatest sector making up Alberta's CAD 364.5 billion GDP, accounting for more than a quarter of GDP. ('Alberta Economic Quick Facts,' 2015)

Alberta is the 4th most populated province in Canada. With a population of 4,121,7000 people in 2013, Alberta accounted for 11.6% of the total population in Canada. ('Population by sex and age group,' 2014) Between 2004-2014, Alberta's population increased by 27%, which was the highest rate of increase in any state or province in North America. ('Alberta Economic Quick Facts,' 2015) Employment opportunities in Alberta attracted workers from throughout Canada, as well as foreign workers.

3. Alberta Provincial Government

Alberta's government acts as a steward for ensuring that equitable benefits of the non-renewable resource accrue to its owners in addition to companies who produce the oil. The people of Alberta, owners of the resource, receive jobs and a portion of the revenue, predominantly via royalties.

4. Royalties

Royalties are collected for the private use of public resources. They are collected in addition to taxes, which represent the share of public income from use of these resources. In 2011-2012, the Alberta government collected \$4.5 billion in royalties from oil sand operations, which was 11.4% of total government revenue. (Government of Alberta Budget, 2013, P.130)

Alberta's government provides an initial royalty holiday for oil sand companies, charging only a nominal 1%-9% of gross revenue depending on the price of oil, until bitumen sales enabled investors to recover costs. The objective was to entice private investment, as the royalty holiday allowed corporations to begin earning project-specific profits much earlier than they would otherwise (Campanella & Studen Bower, 2011, P.9) This is a powerful incentive for reinvesting profits into expansion in order to delay higher royalty payments. Once project payout is reached, there is a 25-40% royalty imposed on net project revenue, which is the gross revenue minus all costs. (Woynillowicz, Severson-Baker & Reynolds, 2005, P. 62)

As noted above, royalty income is dependent on the price of oil. The price of oil features large fluctuations, and this trend is expected to continue in the future. (McNally & Levi, 2011) The OECD's 2008 Economic Survey of Canada noted, 'The dependence of the economy, Alberta in particular, on oil revenues poses vulnerability and sustainability challenges.' (OECD Economic Surveys: Canada, 2008, P.109) Long-term economic planning is undermined by the government's impaired ability to accurately forecast oil revenues. For example, Alberta was forced to alter fiscal budget due to the \$6.2 billion shortfall in resource revenue than was forecasted in 2013. (Dobson et al., 2013, P. 23)

5. Jobs

In 2012, the oil sands employed 22,340 people, many of which were well-paying jobs. (Petroleum Human Resources Council of Canada, 2012, P. 23) When indirect jobs and induced jobs are considered, such as the boom for construction in support of the bitumen industry growth, one estimate suggested that the oil sands accounted for 390,000 Canadian jobs in 2010. (Honarvar et al., 2011)

The oil sands industry is a uniquely capital-intensive project. Funding expansion of oil sands production involves a disproportionate amount of machinery and equipment compared with labor relative to other industries. Recent research reveals that it requires over 2 million dollars of output in order to create a single job in the oil sands industry. (Bitumen Cliff, p. 45) This same 2 million dollars of output in manufacturing (rather than from oil sands) would create more than 19 direct jobs.

6. Effects on Alberta's Economy

In 2010, Alberta featured 40% higher GDP per capita than the Canadian average, and median wages were almost 15% higher than the Canadian average. Alberta's inflation, and in particular increases in housing prices, were consistently the highest in Canada. The oil sands demand for inputs and accompanying population increases were major contributors to Alberta's high inflation rates. In Fort McMurray for example, epicenter of the tar sands boom, the average price of a single family home was \$784,961 in 2013, well above the average cost in Calgary (\$527,429) and Edmonton. (\$417,836) (Booms, Busts and bitumen, P. 23)

Inflation has a profound effect on workers' standard of living in Alberta. Real wage growth accounts for inflationary effects and provides a clearer picture of the value for workers' wages. Real wage growth in Alberta was among the lowest in Canada, ranking just 8th out of 10 Canadian provinces from 2006-2011 (Clarke et al., 2013, p.48). So while Albertans were paid a higher wage than other parts of Canada, workers' economic health was undermined by the higher inflation rates.

For low and middle income Albertans, the tar sands boom meant a quality of life that only maintained or even deteriorated over time. The vast majority of income gains during the early bitumen boom went to the top income bracket, with small gains for the rest of Albertans largely due to increased working hours. (Gibson, Diana, Spoils of the Boom, 2007, P.10-12) The rising costs of living in Alberta put strains on many working families. Albertans had the highest percentage of households with employment income served by food banks. (Hunger Count, 2011) According to a poll results released in 2007, Albertans themselves agreed that their quality life either remained the same or became worse off in recent years despite the oil sands boom. (Environics Research Group, Focus Alberta Survey, March 2007, cited in Diana Gibson 2007 The Spoils of the Boom: Incomes, Profits and Poverty in Alberta. Parkland Institute, p.32)

7. Discussion

The tar sands represent an incredible economic opportunity for Alberta. Oil serves a critical component in providing our energy needs, and Canada sports the world's second largest reserves of oil due in large part to Alberta's oil sands. Government policy and promotion of the oil sands contributed to the problems of volatility of oil prices generating boom and bust cycles for government revenue and employment, creating relatively few jobs through investment due to its capital-intensive nature, and creating a widening inequality gap between rich and poor.

Proper management of this publicly-owned, non-renewable resource is vital for maximizing benefits to both current and future generations. It is therefore imperative that public discussion and public policy consider the speed of expansion, the elimination of fossil fuel subsidies, and current income distribution of the oil sands industry as solutions to the problems mentioned above.

8. Speed of Expansion

In 1995, the National Oil Sands Task force devised an ambitious 25-year strategy. This collective of oil industry and government representatives planned to increase production by 200-300%, reaching 800,000 to 1,200,000 barrels per day. ('The Oil Sands,' 1995) The rapid oil sands expansion that occurred led to reaching 1 million barrels per day in production by 2004, 16 years earlier than planned. Accompanying this economic opportunity, the unexpected speed of growth created a host of challenges.

First and foremost was the impaired ability of government to properly monitor and regulate the industry. ('Environmental and Health Impacts,' 2010) Changes to Canadian environmental laws meant to expedite the licensing and approval process of gaining permits for oil sands activities further compromised the long-term health of Alberta and its economy. (see Lemphers & Woynilowicz. 2012, p.13-14; Clarke et al., 2013, p.39) Public discussion was stifled by oil sand proponents, including defaming scientists publishing peer-reviewed reports meant to promote alternate viewpoints on tar sand activity. ('Scientist Apologizes to oilsands researchers,' 2010) Current project approval already allowed expanded production to reach 5.2 million barrels per day by 2030. Yet the environmental and economic impacts were inadequately determined. Public discussion and debate needed input on the current and future state of Alberta rather than acting to develop the oil sands using an as-fast-as-possible approach.

The rapid increase in oil sand production created a surge in Alberta's population. This rapid influx of users of public infrastructure and social services undermined their effectiveness, and further exacerbated the shortage of housing in the province. This housing shortage, as well as scarcity of materials and labor posed challenges in many economic sectors. (Campanella & Studen Bower, 2013) Inflationary pressure by both the increased demand for goods from an increased population, as well as the demand from increased oil sands production, created economic challenges for many in Alberta. These negative effects must be countered by slowing future growth within the oil sands and carefully planning expansion in order to minimize adverse effects to Albertans, and collateral damage to competing industries.

9. Eliminate Fossil Fuel Subsidies

In 2008, the oil and gas sector received \$1.38 billion in federal subsidies as well as \$507 million provided directly to the tar sand operators by the Alberta government. (Tax and royalty-related subsidies, 2010, p.54). These subsidies were meant to achieve four outcomes: to encourage companies to build on future reserves, to develop new oil fields, reduce operational costs, and conduct research and development for enhanced oil recovery and environmental protection. (Tax and royalty-related subsidies, 2010, p.51) While providing these incentives to highly profitable oil sand companies, these subsidies also reduced government income and accentuate jobs losses in sectors outside the oil sands industry.

The 1.3 billion in government subsidies for the oil and gas industry accounted for an estimated 2,340- 2,860 jobs, which was an average cost of \$500,000 per job. ('More Bang,' 2012, p.1) In spite of the higher corporate taxes and royalty payments resulting in the expansion of oil sand activities from government subsidies, the shift of labor toward capital-intensive oil sand industry had a net decrease in labor taxes. This coupled with the major spending involved in providing subsidies resulted in government balances worse-off as a result of the subsidies- Alberta government revenue decreased by 5%, and the federal government by 1%. (Sawyer & Stiebert, 2010, p.17)

10. Job Losses

These subsidies helped fuel the recent oil boom in Alberta. The increased production and export of oil contributed to the appreciation of the Canadian dollar. (see Lemphers & Woynilowicz, 2012; Dobson et al., 2013; Desjardin Economic Study, 2006; CERI, 2012; IMF, 2013) Further research cites global petroleum companies' interest in Canada's oil as the key structural reason why the Canadian dollar has so closely followed the price of oil. The key reasons explaining global private interest in Canada's oil sands include current profitability of oil sand projects, substantial tax cuts issues by federal and provincial governments, and weak limitations on foreign ownership of the oil sands.

The rise in the Canadian dollar made Canadian exports less competitive, causing the rapid contraction of Canadian manufacturing sector. (Carney, 2012) While oil sand expansion was expected to provide benefits to the manufacturing sector due to increased demand, the decline in Canadian manufacturing has been profound.

Manufacturing has traditionally been an important sector in the economy of Alberta. At the start of the recent oil sands boom in 2002, manufacturing accounted for 9% of jobs in Alberta. At the end of the boom in 2008, manufacturing accounted for only 7.1% of provincial employment, which is a loss of 3,400 jobs (Statistics Canada). This trend of shrinking manufacturing employment continued, with manufacturing reduction expected to account for 6.2% of provincial employment by 2015. (Alberta Enterprise and Advanced Education, 2012).

A telling example of the loss of competitiveness resulting from the appreciation of the Canadian dollar lies in the oil sands industry. Alberta spends over \$20 billion annually on machinery and equipment, driven by oil sand projects. The vast majority of these purchases, upwards of 75%, are purchased from outside Canada's borders. (Clarke et al., p.53)

The decrease of the manufacturing sector is particularly important due to important contributions of a healthy manufacturing sector. These benefits include the importance on manufactured goods in international trade and a country's trade balance, contributing to higher productivity levels and growth across economic sectors, providing stable and high paying jobs, increasing research and development spending, and strengthening innovation throughout an economy. (Clarke et al., 2013, p. 64)

As the manufacturing sector atrophies, government revenues rely more on volatile oil revenues.

11. Getting a Reasonable Slice of the Pie

The tar sands represent 64% of all proven oil reserves open to private ownership. (Campanella & Studen Bower, 2013, p.16) The size of the tar sands offers additional benefits by centralizing oil production in a single geographical area. The tar sands have already been mapped, negating need for any oil exploration activities. Canada is a stable political and economic environment in which to operate, particularly with the current government incentives for doing so. In short, the tar sands represent an ideal circumstance for private oil companies.

Given these facts, it is important for Canadians to assume more equitable terms for oil sands extraction. This includes royalty rates that reflect industry standards, if not at a premium given the above factors, capturing rents received from use of Alberta's oil, and ending the tax avoidance measures granted to tar sand companies. These incentives cost Canadians billions of dollars annually, and are unnecessary.

According to Canadian oil industry data, Canada ranks 11th out of 15 countries compared in total government take of revenue. In spite of the unique set of circumstances inherent in Alberta's oil sands, Canada ranks behind Saudi Arabia, Iran, Venezuela, Algeria, UAE, Kazakhstan, China, Russia, Indonesia and Norway (Alberta Energy, 2009. P. 21-26, 43). Another report comparing Venezuela and Alberta oil sands finds that Venezuela's government take being four times that of Alberta. (Nikiforuk, 2015)

A reasonable rate of return is generally accepted as 10% of investment, beyond which excess profits are known as 'rent.' Rents in the oil sands industry represent surplus profit from operations which derive from using public resources. Governments collect varying amounts of this rent for providing public goods to enhance the business environment as well as improve public services. Since 1997, the Alberta government has never captured more than 20% of the oil sands rent, and has averaged only 9% during this time. (Campanella, *Misplaced Generosity*, 2012, P.9) This is in stark contrast to Alberta's claim that the royalty system is designed to collect all of the economic rent. The lost rent costs tens of billions of dollars to the people of Alberta, estimated at 30 billion in 2010. (Campanella, *Misplaced Generosity*, P.8)

Labor incomes paid in the petroleum industry are uniquely low as a share of the industry's total output. (Clarke et al., 2013, P. 46) For every dollar paid for labor in the oil sands industry, almost five dollars is paid to capital in gross surplus, including depreciation compared to 60 cents in Canada's economy as a whole. (Clarke et al., 2013, p.49) This causes greater returns for capital owners compared with labor, growing economic inequality between capital owners and working classes. As the Parkland Institute aptly described the tar sands recent boom, 'the benefits of the boom are disproportionately going to higher income Albertans, most notably the top income bracket.' (Parkland Institute, 'Gibson op. cit. p.6' p.97 cited in Clarke et al., 2013, P.97)

12. Conclusion

The oil sands industry features short-term contract work which is perfectly suited for capturing immediate profit in line with government policy promoting the same agenda. Cashing in on Alberta's non-renewable resource while leaving tailing ponds and a polluted environment in its wake is an outcome which falls short of what Albertans and Canadians deserve. Slowing down the gold rush in order to determine a more socially and environmentally responsible development process of the oil sands would better serve humanity socially, economically, and environmentally.

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