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Greenhouse Gas Emissions in the West



By Doug Elliott, Editor,
Western Policy Analyst

Under the Copenhagen Accord, the government of Canada committed to reducing its greenhouse gas emissions to 17%

below 2005 levels by the year 2020. There is virtually no possibility that the country will meet that target, at least in part because greenhouse gas emissions are increasing, rather than decreasing, in Alberta and Saskatchewan.

Environment Canada prepared the statistics used in this article for submission to the United Nations Framework Convention on Climate Change. They measure the emissions that contribute to climate change in CO₂ equivalents by source¹. The classification system used by the UN breaks down greenhouse gas (GHG) emissions according to the activity that generates the CO₂ or other greenhouse gas rather than to the end user. For example, the statistics measure GHG emissions from electricity production not from commercial, industrial, or residential users of electricity. Emissions from Alberta's oil sands production are allocated to Alberta rather than the end-user of the petroleum products. As a final *caveat*, readers should know that the calculation of GHG emissions is complex and involves many simplifying assumptions – this is an art not a science.

Greenhouse Gas Emissions

The four western provinces accounted for 58% of Canada's GHG emissions in 2012 (see Figure 1). With their energy-intensive economies, Saskatchewan and Alberta together account for nearly one-half of the 2012 GHG emissions in Canada – in fact, emissions from Alberta total more than Ontario and Quebec combined. This is clearly a Canadian public policy issue that mainly affects western Canada.

This disproportionate share of the total emissions in the West is emphasized by examining emissions per capita or per dollar of GDP as shown in Figure 2.

Figure 1: Greenhouse Gas Emission (CO₂ equivalent), 2012

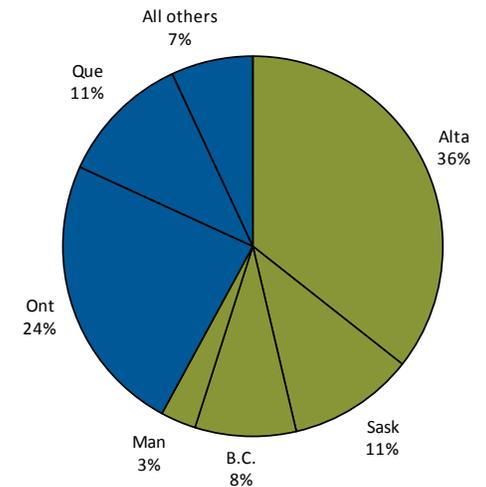
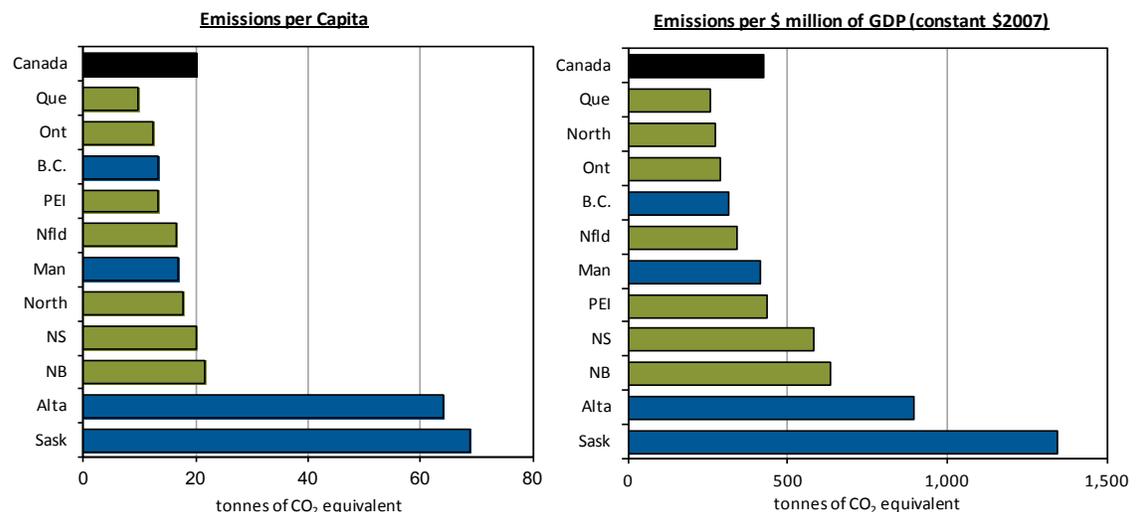


Figure 2: Greenhouse Gas Emission (tonnes of CO₂ equivalent), 2012



¹ About 80% of the emissions are actually carbon with methane being the second most potent.

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On a per capita basis, emissions in Manitoba and B.C. are below the national average on a per-capita basis. On the other hand, Saskatchewan's GHG emissions are 69 tonnes per person and Alberta is close behind at 64 tonnes per person. To put this into perspective, driving your car for 4,000 kilometres generates approximately one tonne of CO₂. As another example, the new carbon-capture facility at Boundary Dam will remove one million tonnes or the equivalent of about one tonne per person.

Measured against the size of the economy, Saskatchewan and Alberta are once again the highest emitters by far. In Saskatchewan,

generating one million dollars of economic activity generates (some would say requires) 1,341 tonnes of CO₂ equivalent. The equivalent figure in Alberta is 893 tonnes. Both are well above the national average of 423 tonnes.

Figure 3 examines trends in emissions by province. Emissions in B.C. and Manitoba, the lowest in the West, are effectively unchanged from 2000 to 2012. Emissions in Alberta and Saskatchewan, on the other hand, are up with increases of 13% and 10% respectively. Figure 4 shows that this is the main reason why emissions are not declining in Canada. Three of the four western provinces show increases rather than decreases from 2005 to 2012.

Figure 3: Greenhouse Gas Emissions, Western Canada, 1990 to 2012 (millions of tonnes of CO₂ equivalent)

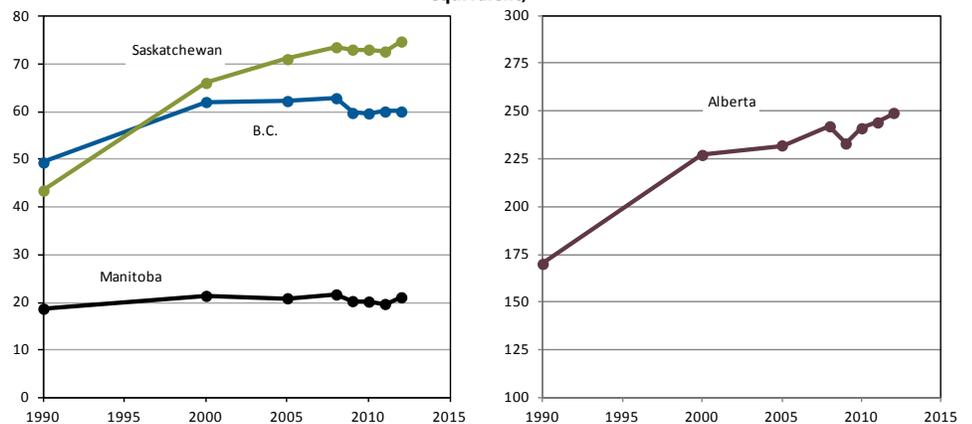


Figure 4: Average Annual Increase in Greenhouse Gas Emissions, 2005 to 2012

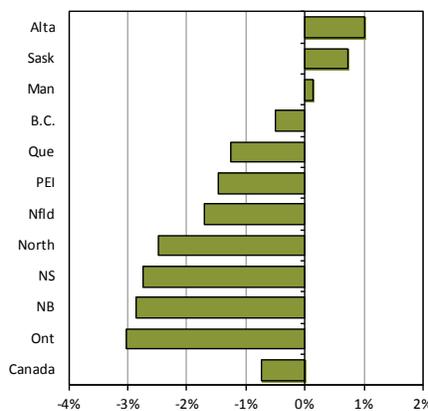
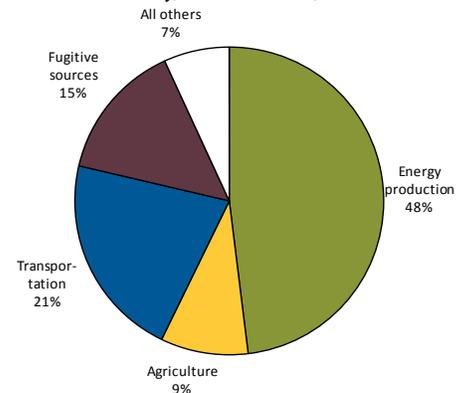


Figure 5a: Greenhouse Gas Emissions by Activity, Western Canada, 2012



Emissions by Source

There are five activities that lead to GHG emissions in the West and these are shown graphically in Figure 5a.

- Energy production from stationary sources produced 195 million tonnes of CO₂ equivalent, or 48% of the total. The vast majority (88%) of these emissions are from Alberta and Saskatchewan.
- Transportation produced 37 million tonnes of CO₂ equivalent or 21% of the total with B.C. responsible for a disproportionately high share in this category.
- Emissions from agriculture account for another 9% of GHG emissions. The bulk of these are N₂O emissions from manure and artificial fertilizers. (Fuel used for field operations is included in energy production, not in this category.) Manitoba is a heavy producer in this category.
- Fugitive sources measure the intentional and unintentional release of GHGs when drilling for oil or gas or mining coal. It accounts for 14% of GHG emissions in 2012 with Saskatchewan accounting for 27% of the total in this category.
- The remaining 7% shown in Figure 5a is from other sources such as industrial processes and waste management. B.C. is an above-average producer in this category.

Figure 5b: Greenhouse Gas Emissions from Energy Production, Western Canada, 2012

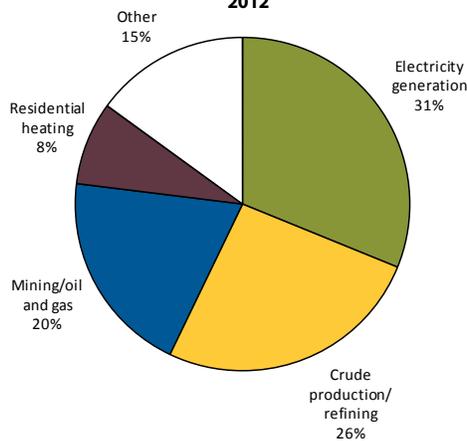


Figure 5c: Greenhouse Gas Emissions from Transportation, Western Canada, 2012

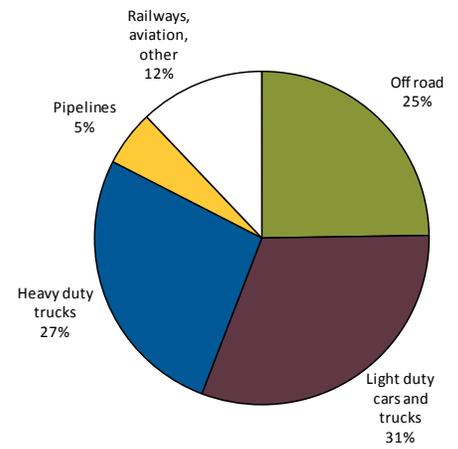


Figure 6: Average Annual Change in Greenhouse Gas Emissions, by Source, Western Canada, 2005 to 2012

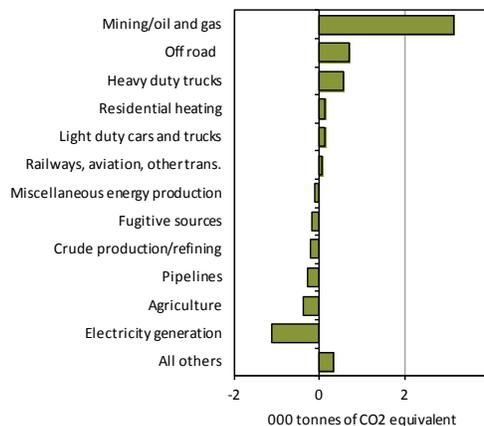
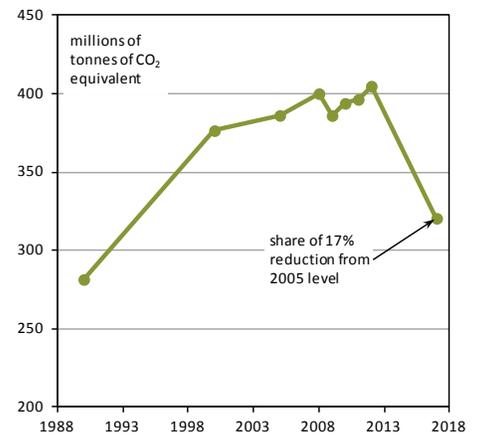


Figure 7: Annual Greenhouse Gas Emissions, Western Canada



The largest two categories – energy production and transportation – are examined in more detail in Figures 5b and 5c. Here we see that electricity generation is a major contributor in spite of the fact that both Manitoba and B.C. have extensive hydroelectric generating plants that emit virtually no greenhouse gases.

The resource sector, including the refining of crude oil, accounts for nearly one-half of emissions from energy production; this is where the West is a major emitter.

In the transportation sector, trucking and off-road activities such as construction and farming (as well as snowmobiles and lawn mowers) each account for 25% of emissions within the transportation category. Light duty

cars and trucks, a category that includes our personal driving, accounts for about a third of emissions in the transportation category.

One of the main reasons why emissions in the West are increasing rather than declining is the rapid growth of the resource sector. Figure 6 shows that emissions from energy use in the mining/oil/gas sector have grown by an average of 3,000 tonnes per year from 2005 to 2012. This dwarfs the modest declines in electricity generation, crude oil refining, and agriculture.

Summary

Greenhouse gas emissions from Alberta and Saskatchewan are the highest in the country and Canada is one of the highest emitters

in the developed world. Furthermore GHG emissions in the West are increasing rather than decreasing and there is no possibility that the West will meet its share of the Copenhagen target for 2020 (see Figure 7).

This all seems a bit unfair because the Saskatchewan and Alberta economies are heavily dependent on the extraction of fossil fuels that are subsequently shipped to other locations. A better methodology would allocate the GHG emissions to the end user of the product rather than the producer. That would also mean that emissions for what we import would be allocated to the West rather than from the source.

Even so, our ranking is mainly the result of choices we have made rather than a flaw in the methodology. We have, for example, chosen to generate our electricity with coal rather than renewable resources, nuclear energy, or natural gas. We choose to drive to work rather than walk or take public transit and we have chosen road transport over rail. These choices are heavily conditioned by relative prices, and it follows that changing

these prices (through a carbon tax, for example) would modify our choices. However, the resulting higher prices of exports or final products would reduce our international competitiveness in the absence of similar initiative by other countries.

The public policy dilemma is that the ultimate negative effects of increased GHG emissions are so complex and so far into the future, that

the majority of the public does not see the imperative for paying higher prices for energy through a carbon tax or any other reasonable policy option. Further, our dependence on international markets, especially the USA, where these measures are not in force, suggests the potential for serious economic harm, without immediate tangible benefits. In this setting, politicians can continue to make commitments and do virtually nothing to help achieve them.

Source: Environment Canada National Inventory Report 1990–2012

The Persistence of the Gender Wage Gap



By Barb Flynn, Freelance Analyst
Earnings inequality in general has been documented since the early 1980s. Variations in income share and education levels are also well documented and have attracted a fair amount of attention.

Provincial variations have also been noted. Analysis by Fortin and Lemieux (2014) shows that the effects of the boom in the mining, oil and gas sector accounts for about two-thirds of the difference in mean wages of the provinces of Saskatchewan, Alberta and Newfoundland versus the rest of Canada. One dimension of inequality that continues to persist relates to gender. Although the education gap between men and women has pretty much been closed, the World Economic Forum's *Global Gender Gap Report 2013* ranked Canada 20th out of 136 countries surveyed in terms of gender inequality. Canada scored poorly on wage equality and the political empowerment of women. Wage inequality is important because it is a significant determinant of a woman's economic well-being.

Recent Employment Trends

Although there isn't a lot of empirical data and analysis on the subject, using Statistics Canada's 2013 Labour Force Survey (LFS) data we can start to get an overview of the situation in Saskatchewan¹. The data indicate that 61% of women in Saskatchewan over fifteen years of age were working on a full or part-time basis

in 2013. The labour force participation rate for women has grown steadily over the past eighteen years since the first LFS data were published.

The recent economic growth in Saskatchewan has contributed to the strong employment growth of women, an annual average of 1.3% from 2003 to 2013 (see Figure 1). Additionally, the employment rate for women in Saskatchewan is well above the national average of 58% and is the second highest among the provinces behind Alberta. Looking at the primary labour market group of 15 to 64 years, the employment rate of 73% is highest among the provinces and well above the national average of 70% (see Figure 2). The majority of employed women in Saskatchewan, 60%, were post-secondary graduates. Over the last ten years (2003 to 2013), the number of employed women with a university degree increased by an average of 5.7%/year (see Figure 3).

Looking at these statistics, it would be easy to assume that such a high employment rate and educational attainment for women would equate with commensurate wages with men. However, this is not the case.

A Persistent Wage Gap

In 2013, the average wage rate for Saskatchewan women was \$22.73, which is 85% of the average for men. Although Figure 4 shows that this is an improvement over the average gap in the late 1990s, which was 80% of the average for men, it begs the question as to why the gap still exists.

Figure 1: Employment Among Saskatchewan Women, 2003 to 2013

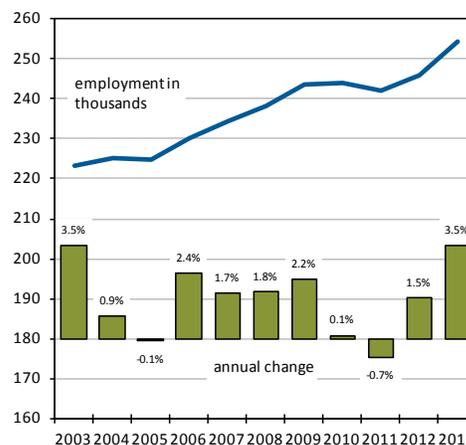
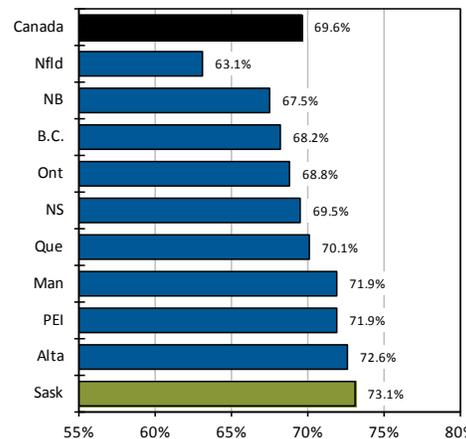
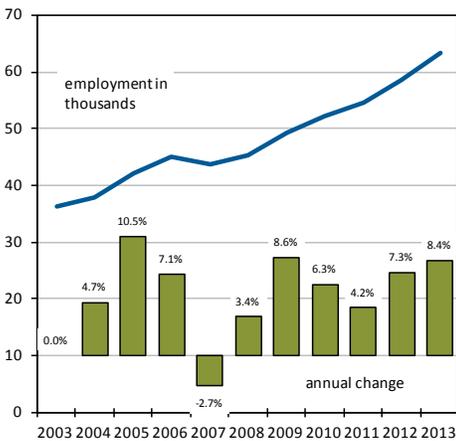


Figure 2: Employment Rates in 2013, Saskatchewan Women 15 to 64 Years of Age



¹ The LFS excludes the population living on Reserves so the employment among First Nations women will be understated in these figures.

Figure 3: Employment Among Saskatchewan Women with a University Degree, 2003 to 2013

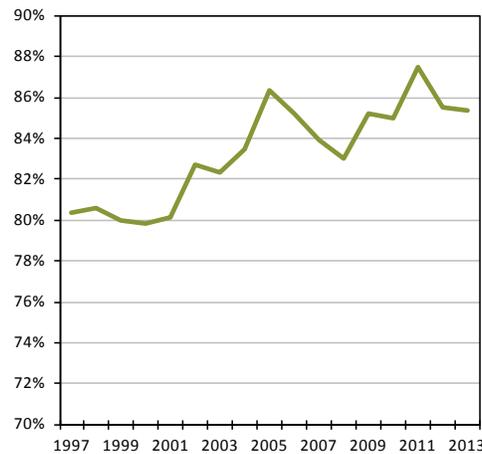


A look at labour market characteristics offers some additional insight into the overall employment picture for women. In 2013, the majority of women, 64.5%, were employed in the private sector, compared to 35.5% in the public sector. Over 85% of women held permanent positions.

Almost one-quarter of women were employed in health care and social services in 2013 (see Figure 5). Retail trade and the accommodation/food services group also are significant employment areas for women at 20%. Traditionally, these employment areas have not provided particularly high paying jobs. Goods-producing industries such as agriculture, manufacturing, construction and the resources sector that have greatly contributed to Saskatchewan's recent impressive employment and economic growth, accounted for only 11% of employment among women. Thus, a part of the gender wage gap may be explained by differences in the industry and occupation distributions between men and women. But there are exceptions that show employment in low-paying industries cannot explain the wage gap. Women, for example, dominate the health and education sectors where wage rates are well above the average.

Between 2003 and 2013, the largest increase in all employment areas was in health care and social services, which accounted for more than a one-third of the employment growth. Regardless of wage differentials among industries and

Figure 4: Average Hourly Wage Rates, Women as a Percentage of Men, Saskatchewan



the fact that overall wages have been steadily increasing, there is still a persistent wage gap between men and women.

Summary and Implications

Wage differentials between industries can be explained because of the different occupations in each that require various levels of experience and skills. Some of the key variables that impact a person's employment level and wage earning potential include educational attainment, labour market demand and family status. The latter is important because most women with children have left the labour market for varying amounts of time to care for their children. What the data suggests is that despite significant gains in educational attainment and labour force participation, the economic well-being of women is not as solid as it is for men.

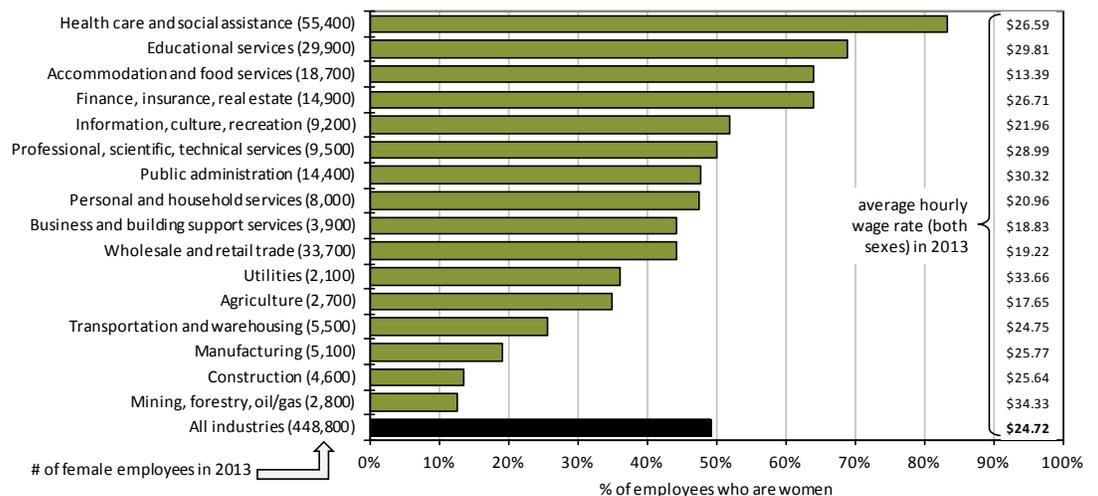
This is a complex issue that is impacted by many additional variables including technological changes, institutional factors, labour supply and changes in social norms that are difficult to quantify. As noted by Morissete, Picot and Lu (2013), education, work experience and job tenure within a company are positively correlated with wages. The influence of other influencing factors may be difficult to measure and require a more sophisticated analysis.

This study shows that over the last three decades the wage gap has narrowed due to women attaining higher education levels, remaining in their jobs longer and working in higher-paying occupations and industries. The authors acknowledge that other factors such as female university graduates in high-paying fields of study were not measured. This type of analysis would be useful and help to frame a discussion on the number of women in executive leadership roles and board appointments which viewed in relation to the data just presented, suggests a disconnect between the sexes in these areas as well.

While the data highlights the great strides women have made in the labour market, the wage gap still persists. More attention needs to be paid to less quantifiable factors such as workplace discrimination, as well as the motivation behind the choices women are making with respect to the type of jobs they take.

~ Sources available on page 12

Figure 5: Employment by Industry Group, Saskatchewan Women, 2013



Economic Diversification - the Economic Elixir?



By Dale Eisler, Senior Policy Fellow, JSGS

Few things unite politicians more than the belief in the merits of economic diversification. It's not surprising, given the litany of good reasons. The idea is easy to understand. Moreover,

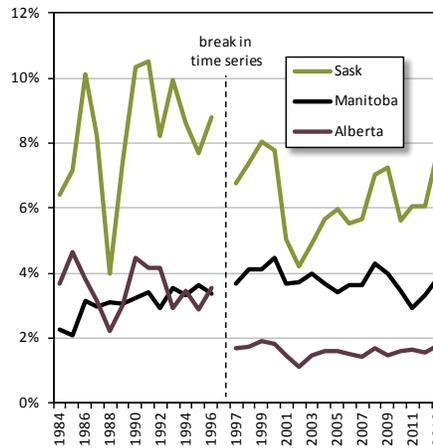
it's easy to communicate, seemingly self-evidently true, and rooted in the common sense of not putting all your eggs in one basket. For generations, governments of all stripes have embraced it as a goal. So is economic diversification, objectively, an outcome to be pursued?

Clearly, the underlying premise is true: the broader the range of economic activity, the less vulnerable an economy is to a decline in a specific sector. Thus, diversification is like an economic elixir, a remedy to the ups and downs of the business cycle. As economist Florian Kaulich says in his 2012 study of diversification for the United Nations Industrial Development Organization: "The most straightforward argument for the importance of diversification is that diversified economies are less vulnerable to economic shocks than specialized economies."

In western Canadian jurisdictions that depend heavily on natural resource extraction – particularly Saskatchewan and Alberta – the quest for a more diversified economy has been the elusive holy grail of economic policy. If only it were possible to expand the economic base into manufacturing and value-added sectors, the less vulnerable the West would be to the inevitable ups and downs of the natural resource sector.

For government, the benefits extend to public finances. The less dramatic the economic swings, the more predictable is fiscal forecasting. Fiscal stability makes planning more manageable, just as economic volatility makes governing more challenging, both in political and policy terms.

Figure 1a: Agriculture GDP, as Percentage of Total



But is diversification unquestionably a good thing? Should it be an economic objective for government? The answer might not be as obvious as you think. We begin by looking at the western economies over the recent past to find out how well they have diversified.

Three Measures of Diversification

Three time series to measure diversification in the prairies are available:

- contribution to the gross domestic product (with a methodology break in 1997);
- employment; and
- revenue to the provincial government.

We examine these three measures for agriculture, the resource sector (mining, oil and gas), and the manufacturing and processing sector – the traditional target for diversification.

Figures 1a and 1b show the contributions made to GDP by agriculture and the resource sector in the prairie provinces. Weather has a dramatic effect on crop production so there is a great deal of volatility in the sector's economic contribution. In spite of this volatility it is clear that agriculture made a lower contribution to the Saskatchewan

Figure 1b: Resource Sector GDP, as Percentage of Total

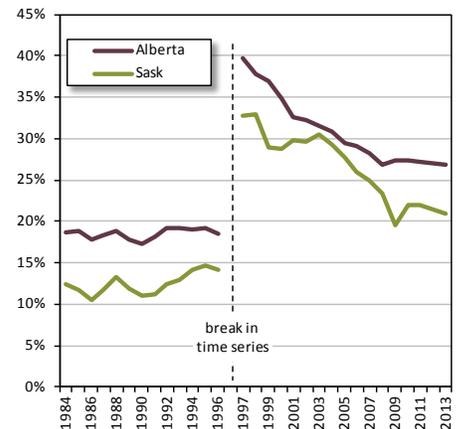
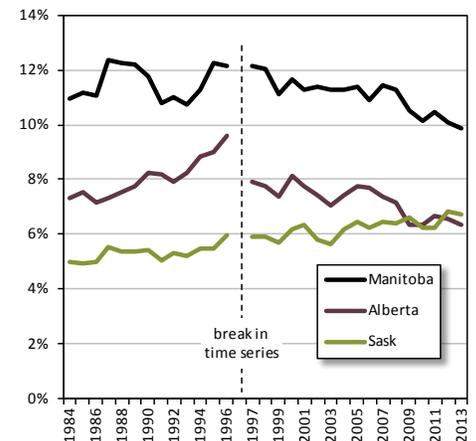


Figure 1c: Manufacturing and Processing Sector GDP, as Percentage of Total



economy in the 2000s than in the 1980s. In Alberta and Manitoba, on the other hand, the share is basically unchanged over the years. Resource sector GDP is on a clear downward trend in both Alberta and Saskatchewan.

Figure 1c shows the contribution to GDP that is made by the manufacturing and processing sector. Here we see a slight upward trend in Saskatchewan and a slight downward trend in Alberta and Manitoba. From a GDP perspective, it is clear that the manufacturing and processing sectors are not growing in the prairies.

¹ Employment in agriculture is not a good indicator of economic performance and was not included in the analysis. Manitoba's resource sector is very small and was also excluded.

Figure 2a: Employment in the Resource Sector, as Percentage of Total

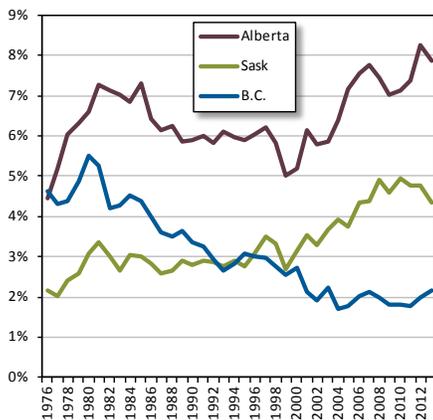


Figure 2b: Employment in Manufacturing and Processing, as Percentage of Total

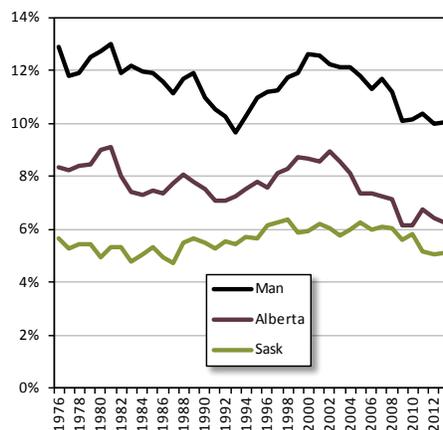
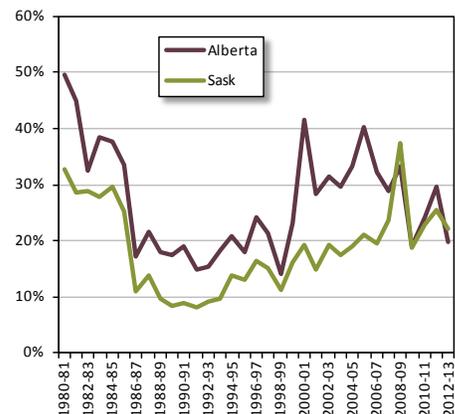


Figure 3: Resource Revenues as Percentage of Total Provincial Government Revenues, 1980-81 to 2012-13



Figures 2a and 2b show employment in the resource and manufacturing sectors¹. After declining in the 1980s and 1990s, employment in the resource sector is clearly increasing in Alberta and Saskatchewan. Employment in manufacturing, on the other hand, is either stable (Saskatchewan) or declining (Alberta and Manitoba) as a share of total employment.

The final measure looks at the importance of resource revenues to the provincial treasuries of Alberta and Saskatchewan. Figure 3 shows that in spite of some annual volatility, the provincial governments of Alberta and Saskatchewan are as dependant on resource revenues in 2012-13 as they were twenty years ago.

The data suggests that efforts to diversify the prairie economies away from agriculture and the resource sector have not been successful in the sense that manufacturing represents a smaller proportion of the economies than in the past. The decline in the contribution of the resource sector that was evident in the 1980s has reversed since the turn of the century.

The Logic of Economic Diversification

So how should we interpret the data in the context of diversification as a policy objective? A good starting point is to think of economic diversification in the abstract. What does it really mean? One way to describe it is as regression to the mean, or average. Instead of

a focus on your economic strengths through the pursuit of excellence, attention is directed to areas of perceived economic weakness.

He might have been talking about investment portfolios, but Warren Buffet's description is worth considering. "Diversification is a protection against ignorance. It makes very little sense for those who know what they're doing," Buffet says.

To pursue diversification means to widen your economic perspective, focus less on an economy's natural comparative advantage that led you to have all your eggs in one basket in the first place. So, instead of doing what you do well, relative to the global economy, find other sectors where you believe, or hope, you can compete successfully. By using fiscal levers, whether through tax policy or financial incentives and support, the idea is to stimulate investment in new enterprises, thus adding to growth and expanding the economic base. As a result, economic dependency becomes less tied to the fate of specific sectors.

Inherent in that thinking is the belief that producing based on your comparative economic advantage and then trading those products for what other nations produce best, based on their comparative advantage, is fine, but only to a point. Inevitably, especially when the resource commodity cycle turns down, it's not good enough. What happens is the unpleasantness of public opinion intervene.

When an economy goes bust, governments are expected to do something about it at the same time revenues are falling. Diversification is rolled out as the insurance policy.

Economic history in the West is littered with examples of governments unable to resist the lure of diversification. At the federal level, there is Western Economic Diversification, a regional agency dedicated to diversification in the West. Provincially, there is an array of tools deployed in the name of diversification, from lavish tax incentives to the film industry and tax breaks for liquid natural gas development, to green energy incentives, embraced as a matter of faith by virtually all governments across the West.

In Alberta, the 1980s and 90s was a period of particular economic diversification mania. It led to high-profile failures such as Novatel, the Swan Hills waste treatment plant, Gainers meats and the Magnesium Company of Canada. Tax incentives and free land for call centres in Saskatchewan and Alberta were also popular diversification initiatives at the time.

Summary and Implications

One could argue that historically Saskatchewan has had a special case of diversification envy. Its roots go back to the Dirty Thirties - as it is termed in provincial folklore - and the collapse of the wheat economy.

From social ownership in the form a shoe factory and a woollen mill, a government small business bank called the Saskatchewan Economic Development Corporation, to government-supported plastic shopping cart manufacturing and computerized language translation technology, to a potato grow-op known as Spudco, government efforts to spur diversification have long been part of the policy fabric.

The reality is that policy efforts to diversify are often akin to defying economic gravity. The natural strengths of an economy will crowd out investment in sectors that lack any comparative advantage. As the engine of the provincial economy, non-renewable resources drive overall growth. So increases in other sectors, which might look like diversification, really is a deepening of dependency in support of non-renewable resources.

To the current Saskatchewan government’s credit, the pursuit of diversification is not really about diversification in the traditional sense. That is, diversification into new sectors not intimately connected to the natural advantage of the province.

The Agenda for Growth pays typical homage to diversification. But it does so with appropriate caution in a policy sense. Gone is the 2007 idea of Enterprise Saskatchewan funneling government dollars to regional economic development authorities. Instead, the growth plan focuses government’s role on public infrastructure as part of getting the conditions right for economic growth. It is not prescriptive in the sense of identifying specific sectors by allocating public funds to incent diversification initiatives at the firm level.

The closest it gets is referring to the three Fs – food, fuel and fertilizer. Or, to put it another way, agriculture, oil and gas, uranium and potash, the very components of the resource sector that have formed the engine of the provincial economy for decades.

In other words, it talks about diversification without really meaning it, at least, not in the sense of broadening the economy out of its resource dependency. Rather the Plan for Growth focuses on the province’s strength and will make Saskatchewan even more vulnerable to the inevitable rise and fall of the resource sector.

Ironically, the economic evidence suggests that’s not such a bad thing. The strongest and most dynamic economies in Canada are those dominated by the natural resource sector, such as Alberta and Saskatchewan. It is probably time to stop envying those sectors we don’t have, focus on the strengths we do, and recognize the lure of diversification can be one of those ideas too good to be true.

Source: Statistics Canada for GDP and employment data, provincial government for revenue data



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Resource Revenue and Heritage Funds Revisited



By **Stuart Wilson**,
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The concept of using
non-renewable
resource revenues

to develop sovereign wealth funds for the benefit of future generations has been gaining considerable traction in Canada recently. Since the resources generating these revenues are non-renewable, there is a concern that resource wealth will be depleted, to the detriment of future generations unless governments plan to convert some portion of these depleting natural resource assets into financial assets. The Quebec government launched the Generations Fund in 2006 by saving water-power royalties, and has recently decided to contribute all mining revenues starting in fiscal year 2016 to the fund. The government of the Northwest Territories began public consultations in 2010 to determine how best to save benefits from its non-renewable resources for future generations, and created its Heritage Fund in 2012 with a contribution rate from resource revenues yet to be determined. The British Columbia government has been considering a Prosperity Fund to store revenues from liquefied natural gas.

The governments of Alberta and Saskatchewan have recently taken steps to renew old commitments to preserve resource wealth for future generations. This article updates the discussion of the resource savings funds of these two provinces from the Western Policy Analyst article titled, "Resource Revenues and Heritage Funds," published in 2012 (Volume 4 Issue 2), with a detailed focus on proposed contribution rates out of non-renewable resource revenues to these funds. Readers should keep in mind that the contribution rate for the Alaska Permanent Fund is 25% out of resource revenues, and is 100% for the Norway Pension Fund Global.

Governments in Canada are looking at ways to preserve non-renewable resource wealth for future generations.

The Alberta Heritage Savings Trust Fund

The Alberta government created the Alberta Heritage Savings Trust Fund in 1976. By saving up to 30% of annual government resource revenues, the fund value grew to \$12.7 billion by 1987. However, as a result of changes in the energy sector, the oil price collapse in 1987, and government spending pressures, resource revenue deposits to the fund were terminated in 1988. Investment income has been used to support government operations, and only special deposits to inflation-proof the fund have been made since 1988. The fund balance is projected to be \$15.2 billion by the end of fiscal year 2014.

Since the Alberta government eliminated its debt in 2001, it has come under considerable pressure to once again save a portion of its resource revenues, and reduce the growing dependence on these revenues to fuel growth in spending. In 2013, it responded. The 2013 Savings Plan states that the government of Alberta will once again direct non-renewable resource revenues into the Heritage

Savings Trust Fund starting in 2017, with increasing contribution rates over three revenue ranges:

- 5% of the first \$10 billion of government non-renewable resource revenues;
- 25% of the next \$5 billion; and,
- 50% of any additional non-renewable resource revenues above \$15 billion.

Non-renewable resource revenues amounted to \$7.7 billion in fiscal year 2012-13, and are projected to rise to \$10.1 billion in 2016-17. As such, the Alberta Heritage Trust Savings Fund is projected to receive a deposit of \$500 million in 2016-17, and rapidly growing amounts with higher revenues thereafter. The

Alberta government also plans to re-invest all income earned by the fund by 2017-18. These measures are intended to reduce the dependence on resource revenues to fund government programs and services. These measures are well-defined and will lead to annual contributions to the fund.

The Saskatchewan Futures Fund

In 1978, the Saskatchewan government established the Saskatchewan Heritage Fund, with an effective contribution rate of about 20% of non-renewable resource revenues. But under the pressure of collapsed oil prices, continued high levels of government spending, and a massive debt load, the government terminated the fund in 1992. As a result of strong economic and population growth since 2005, the idea of saving resource revenues for future generations has been revived in the province.

In October of 2012, the Saskatchewan government launched the Saskatchewan Heritage Initiative as part of its Saskatchewan Plan for Growth. The Saskatchewan Heritage Initiative was led by Peter MacKinnon, and a study of sovereign wealth funds of many jurisdictions was conducted. A particular focus was on the funds of Alaska, Alberta, and Norway, as well as on the Saskatchewan Heritage Fund which existed from 1978 to 1992.

In November of 2013, Peter MacKinnon presented his report proposing a Saskatchewan Futures Fund (SFF) to the government. In that report are specific recommendations for the establishment of a diversified and permanent investment fund dedicated to maximizing returns over the long run. The SFF would be owned by the government, but placed under third-party corporate management with a head office in the province.

The recommended contributions to the fund is only those non-renewable resource revenues in excess of 26% of total government operational revenues would be available for the SFF, allowing for the continued use of these revenues for the general operation of the government under that cap. The options for opening the SFF include:

- Channeling contributions (those non-renewable resource revenues exceeding 26% of total government revenues) to first help pay down government debt, and then when the debt is eliminated, to the SFF;
- Channeling contributions with an even split between reducing the government debt and to the SFF, and once the debt is eliminated, solely to the SFF; and,
- Depositing \$100 million to launch the SFF (with the assumption that either option 1 or 2 will be followed thereafter).

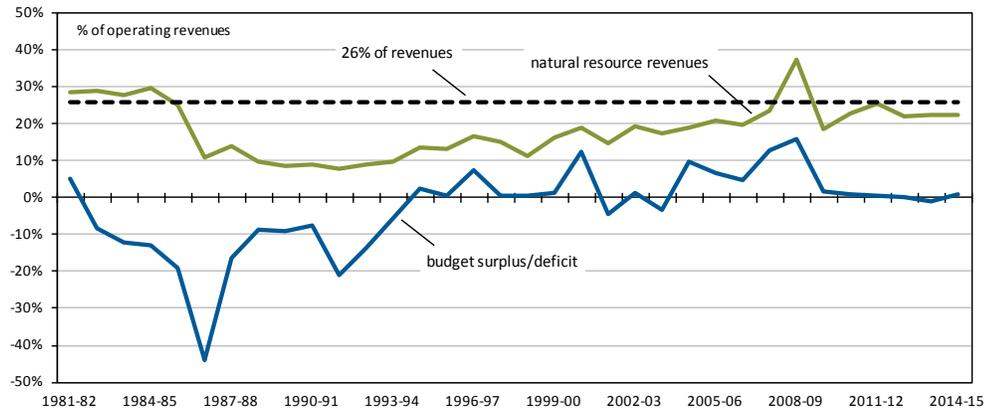
In its 2014-15 budget, the Saskatchewan government accepted the MacKinnon recommendations for the establishment of the SFF, with the 26% cap on non-renewable resource revenues flowing to the government operational budget, and with the caveat that the government operational debt must first be retired before contributions will flow to the fund, essentially following option 1 noted above. While these measures are well-defined, it is unlikely that they will result in annual, or even frequent, contributions to a savings fund.

The Effect of the 26% Cap

The Saskatchewan government has accepted the recommendation that only those non-renewable resource revenues in excess of 26% of total government operating revenues will be available to the fund once the debt is retired. This figure of 26% was calculated as the average of non-renewable resource revenues to total operating revenues over the five-year period from 2009 to 2013 (and the most recent data available to MacKinnon). This five-year period includes the extraordinary year of 2009, when resource revenues accounted for 37.4% of total government operational revenue.

Figure 1 shows the percentage of non-renewable resource revenues out of total government operational revenues from fiscal year 1981-82 (the height of the previous

Figure 1: Saskatchewan Government Non-Renewable Resource Revenue and Operational Surplus, 1981-82 to 2014-15



resource boom) to the present, including the estimate for 2013-14 and the 2014-15 budget amounts. The figure includes the 26% cap line, as well as the government operating surplus as a percentage of operating revenues for comparison. Only once since 1984-85 have non-renewable resource revenues accounted for more than 26% of operational revenues, in fiscal year 2008-09; non-renewable resource revenues that fiscal year were inflated by extraordinarily and temporarily high potash prices.

As a side note, the figure also indicates that government expenditure has become slightly more dependent on non-renewable resource revenues after 2008-09 than before. The government ran several sizable surpluses when resource revenues accounted for less than 20% of total operational revenues in the 2000s, and by contrast, only very small surpluses more recently when resource revenues exceeded 20% of total operational revenues. Possible reasons for this increased dependence are an increased demand for population-sensitive infrastructure spending as a result of strong economic and population growth since 2005, and the recent willingness to boost government spending after years of fiscal restraint and prudence as the Saskatchewan economy recovered from the resource price bust and high government deficits of the late 1980s and early 1990s. This increased dependence on resource revenues has contributed to the call for a futures fund.

The average percentage of non-renewable resource revenues was 18.3% of total government operational revenues over the

1981-82 to 2012-13 period, 21.2% over the 1999-00 to 2012-13 period, and 22.5% over the 2007-08 to 2012-13 period excluding the results from fiscal year 2008-09. This illustrates that the recommended cap of 26% makes it highly unlikely that contributions will become available on a frequent basis for the establishment of the SFF, unless resource prices unexpectedly surge upwards once again and remain high, or unless the resource sector vastly expands production and its relative size in the Saskatchewan economy. Government projections indicate that the cap of 26% is not expected to be surpassed in its four-year core operational plan to 2017-18; in fact, the government expects non-resource revenues to average 22.8% of total operational revenues over the next four years.

Counterfactual Exercises

If a cap of 26% might be considered too high given the Saskatchewan experience over the last three decades, how would a cap of 21% or of 22.5% enable viable contributions to a fund, and of what proportion of the surplus would these hypothetical contributions be? What would be the effect of adopting a contribution policy similar to that of the Alberta government, by dedicating at least 5% of all non-renewable resource revenues to the fund? What might have occurred if the government of Saskatchewan created the Saskatchewan Futures Fund in 2008 instead of the Growth and Financial Security Act policy of using surpluses to pay down debt and to supply funds for the Growth and Financial Security Fund? The following exercise provides answers to these hypothetical and counterfactual questions.

Saskatchewan Government Operational Surplus, Debt Reduction, and Hypothetical Saskatchewan Futures Fund Contribution Scenarios

Fiscal Year	Total Government Operational Revenues	Total Non-Renewable Resource Revenues	Government Operational Surplus	Contribution to the Saskatchewan Futures Fund Under Various Scenarios				Reduction in Government Operational Debt
				Resource Revenues in excess of 21% Cap	Resource Revenues in excess of 22.5% Cap	Resource Revenues in Excess of 26% Cap	Contribution of 5% of Resource Revenues	
2004-05	\$7,792	\$1,474	\$765	\$0	\$0	\$0	\$74	\$486
2005-06	\$8,218	\$1,721	\$539	\$0	\$0	\$0	\$86	\$348
2006-07	\$8,643	\$1,694	\$398	\$0	\$0	\$0	\$85	(\$48)
2007-08	\$9,847	\$2,325	\$1,283	\$257	\$110	\$0	\$116	\$421
2008-09	\$12,325	\$4,612	\$1,970	\$2,024	\$1,839	\$1,408	\$231	\$2,679
2009-10	\$10,266	\$1,911	\$168	\$0	\$0	\$0	\$96	\$5
2010-11	\$11,061	\$2,528	\$95	\$205	\$39	\$0	\$126	\$5
2011-12	\$11,120	\$2,822	\$54	\$487	\$320	\$0	\$141	\$325
2012-13	\$11,424	\$2,516	\$15	\$117	\$0	\$0	\$126	\$2
2013-14 estimate	\$11,463	\$2,552	(\$128)	\$145	\$0	\$0	\$128	\$3
2014-15 budget	\$11,909	\$2,694	\$105	\$194	\$15	\$0	\$135	\$0
Six Year Sum (2007-08 to 2012-13)			\$3,585	\$3,090	\$2,308	\$1,408	\$836	\$3,437
Eight Year Sum (2007-08 to 2014-15)			\$3,562	\$3,428	\$2,323	\$1,408	\$1,098	\$3,440

Sources: Saskatchewan Public Accounts and Saskatchewan Provincial Budget 14-15.

Note: The operational debt at the beginning of fiscal year 2004-05 was \$8,032; at the end of fiscal year 2012-13 it was \$3,808.

The table shows the operational budget surpluses and reductions in operational debt since 2004-05, along with hypothetical SFF contributions that would have been available under different contribution and cap scenarios. Over the six years from 2007-08 to 2012-13, the actual accumulated operational surplus amounted to \$3,585 million, while the government operational debt decreased by \$3,437 million. This indicates that all but \$150 million of the government's accumulated surplus was effectively used to reduce operational debt.

Under the scenario with a 21% cap on resource revenues and an SFF with contributions going first to pay down debt, \$3,090 million would have automatically been diverted to pay down debt, less than the actual amount of debt reduction from 2007-08 to 2012-13. So, it appears that the actual government debt repayment program was slightly more aggressive than one under this counterfactual alternative. These data indicate that a cap of 21% would lead to frequent contributions to an SFF, in all years since 2007-08, with the sole exception of 2009-10. Contributions would also be made in 2013-14 and 2014-15 based on government forecasts. In 2007-08 and 2009-10, surpluses were greater than the hypothetical

SFF contribution. However, in 2009-10 and after 2010-11, operational surpluses were smaller than the amounts of the expected contributions of resource revenues to debt reduction through the SFF. As such, these automatic contributions would have needed to be funded out of previously accumulated and unallocated surpluses. It appears that a counterfactual policy of an SFF devoted to debt reduction and with a 21% cap would have been feasible over the period.

The implementation of a 22.5% cap, also shown in the table, in comparison to the scenario with a 21% cap, would have required decreased contributions to the SFF, and would not have required contributions in 2012-13 (or in 2013-14 based on government estimates). The accumulated total of required contributions to the SFF for debt repayment would have amounted to \$2,308 million from 2007-08 to 2012-13, which is less than the total debt repayment of \$3,437 during that same period. These data also show that 2011-12 would be the only year in which the required contribution to the SFF for debt reduction, \$320 million that year, would have exceeded the operational surplus of \$54 million, but it is interesting to note that the government actually paid down \$325 million

in debt that year. On the whole, this counterfactual policy would have also been feasible, and would have provided the government with the additional flexibility of over \$1.2 billion of accumulated and unallocated surpluses, from which it could choose to further repay debt.

A 26% cap as proposed by the MacKinnon report which was accepted in principle by the government, would have only resulted in one contribution, of \$1.4 billion in 2008-09, as shown in the table. Such a policy would have left over \$2.1 billion in additional surplus for government use over the 2007-08 to 2012-13 period, providing the government with additional flexibility in its annual operations and in the pace of debt reduction. Of course, this policy would have been feasible, but the government actually pursued a much more aggressive policy of allocating surpluses for debt reduction over the last five years.

The final exercise to be considered involves a direct contribution of 5% of non-renewable resource revenues into the SFF, also shown in the table. This would be similar to the proposal of the Alberta government to deposit 5% of the first \$10 billion of resource revenues into the Alberta Heritage Savings Trust Fund. This contribution policy would have resulted in annual deposits averaging \$140 million each year from 2007-08 to 2012-13 in Saskatchewan, amounting to \$836 million over this period. The important aspect to this contribution policy is that annual contributions would be guaranteed, and contributions could be enhanced with a higher contribution rate for higher levels of resource revenues, as will be the case in Alberta. This policy would have been feasible.

In light of these counterfactual exercises, it might seem that the implementation of a 26% cap on NRR revenues is a conservatively high cap, allowing the government much room to deal with spending initiatives and tax relief. Unfortunately, this policy might not lead to revenues being directed to debt reduction and for the SFF in the future. The implementation

of a lower cap, around 22.5%, would lead to less flexibility in fiscal planning, but also to a feasible policy that would allow for more frequent contributions to debt repayment and to a viable SFF. In fact, the Saskatchewan government has recently pursued a debt reduction strategy similar to one that would have been possible with an SFF and a 21% cap. A contribution policy similar to that in Alberta would lead to annual deposits based solely on resource revenues rather than whether or not these revenues exceed a prescribed cap.

The Elimination of the Debt

During the extraordinary 2007-08 and 2008-09 fiscal years, the Saskatchewan government had a combined operational surplus of almost \$3.3 billion, and was able to pay down \$3.1 billion in operational debt, so that the debt stood at \$4.1 billion in 2008-09. This is a considerable achievement and a prudent use of unexpected surpluses. In the four years that followed, the government of Saskatchewan achieved an accumulated operational surplus of \$334 million, and has paid down \$337 million of the operational debt. The government has forecast an operational deficit for 2013-14, and a partially offsetting operational surplus for 2014-15. Correspondingly, the current forecast is for no change in the operational debt over these two years, which is expected to stay at \$3.8 billion by the end of 2014-15. In the 2014-15 budget, the forecast was for the debt to be reduced to \$3.4 billion by 2017-18.

The Saskatchewan government currently does not have an aggressive policy to pay down debt over the coming years. However, in order to meet its target of reducing the debt in half from the 2006-07 level of \$7,245 by 2016-17, as set in its 2012 Plan for Growth, it does not need one. It only has to pay down an additional \$200 million to meet its target over the next three years.

If the Saskatchewan government does not renew a commitment to reduce the debt in the future, then debt may only be reduced through unexpected revenue windfalls, but it will also be adversely affected by unexpected revenue shortfalls which may increase the operational debt and further delay SFF savings. Debt reduction might only be sustained if the resource boom intensifies so that resource revenues exceed the currently accepted 26% cap, and which would then raise hope for a future viable SFF.

Conclusion

Governments in Canada are looking at ways to preserve non-renewable resource wealth for future generations. In 2013, the Alberta government enacted new measures to direct well-defined portions of its annual resource revenues to grow its longstanding, but neglected, Alberta Heritage Savings Trust Fund. Starting in 2017, the government will contribute at least 5% of its non-renewable resource revenues each year into the fund, and the fund will grow and be viable.

In March of 2014, the Saskatchewan government agreed to establish a Saskatchewan Futures Fund to save non-renewable resource revenues for future generations. However, only those revenues that exceed a cap of 26% of total operating revenues will be directed to the fund, and only once the operational debt has been retired. A situation that would generate a contribution to the SFF has only arisen once since 1985. Government projections indicate that this cap is not expected to be surpassed in its four-year core operational plan to 2018. Unless the resource boom unexpectedly intensifies in Saskatchewan and is sustained for a considerable period, the operational debt may not be eliminated, and the Saskatchewan Futures Fund may remain virtually empty. Reducing the recommended

cap from 26%, or following the Alberta lead by defining contributions directly as a proportion of resource revenues, would lead to an active policy for debt reduction and a viable Saskatchewan Futures Fund.

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