



Accounting for the Impact of Lower Oil Prices on the Canadian Economy

Overview

There has been considerable discussion about the negative impact of falling oil prices on the Canadian economy. This has been reinforced by anecdotal reports about oil-producing companies cutting back on investment spending particularly within the oil sands. However, as we have emphasized in earlier commentaries^{1,2}, there are offsetting positive outcomes from lower oil prices. One such offset is that lower oil prices remain a clear positive shock to the U.S. economy. This is the case despite the recent expansion of oil production in that economy reflecting greater utilization of shale oil reserves. Though the U.S. oil and gas sector is likely to see reduced investment activity, its share of overall capital spending is relatively small. As well, lower oil prices mean lower gasoline prices which provide a clear boost to the much larger consumer spending area of the U.S. economy while lower energy costs imply an incentive to greater investment spending outside of the oil and gas sector. A stronger U.S. economy implies a growing market for Canadian exports.

The second key offset is that the competitiveness of Canadian products in the U.S. market has been enhanced further by an attendant weakening in the Canadian dollar in the face of weaker oil prices.

The third key offset is that Canadian consumers will also be looking at lower gasoline prices that will provide an attendant boost to consumer spending domestically. It is of note that while business investment is a sizeable 13.0% of nominal GDP (including investment in intellectual property products), consumer spending is a massive 54.3%. Thus a small rise in consumer spending can go a long way to offsetting a marked drop in investment.

The intent of this paper is to try and size in dollar terms the relative impacts emanating from lower oil prices in Canada and the U.S. based on an assumed per-barrel WTI price of \$65 on average in 2015 and \$74 in 2016. The main conclusion with respect to the Canadian economy is that a rise in consumer spending and exports has the capacity to more than fully offset a likely drop in business investment. However, it is important to note the risks to this assessment. The cuts to oil production investment are more certain to occur as the financial viability of projects is undermined by the lower selling price for the production. Several companies already announced cutbacks to capital expenditure. In contrast, the supportive factors enumerated above are less certain. Will consumers spend the savings realized at the gas pumps? Will Canadian exporters more aggressively seek out markets for their goods benefitting from the strengthening U.S. economy and a weaker Canadian dollar? Our current Canadian forecast assumes that both consumers and exporters will respond to these incentives that will slightly more than offset the expected weakening in oil sector investment.

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Investment/output in oil & gas related industries to decline, but how much?

The first casualty of lower oil prices is likely to be weaker investment in the oil & gas extraction sector. Indeed, anecdotal reports have already emerged that businesses will be cutting capital expenditure plans for 2015. Our own modeling suggests that the approximately 30% drop in oil prices in 2015 we've assumed, on an annual average basis, in our forecast would, all else equal, be expected to reduce business investment in the oil & gas extraction sector by around 3% in 2015. That would look small relative to the 40% drop in 2009, which occurred alongside an oil price decline of close to 38% in U.S. dollar terms; however, it is likely that the financial crisis and credit crunch, which forced all businesses to cut back on spending to preserve cash, had more to do with that earlier investment decline than the price of oil alone.

Table 1: Canada Investment in the Oil & Gas Extraction Sector in 2013

| Industry | \$billions | % of private | |
|---------------------------------|-------------|-------------------|------------|
| | | nonres investment | % of GDP |
| Oil & gas extraction | 76.3 | 30.3 | 4.0 |
| Support activities for mng, o&g | 5.4 | 2.2 | 0.3 |
| Petroleum & coal manufacturing* | 1.8 | 0.7 | 0.1 |
| Pipeline transportation* | 6.7 | 2.7 | 0.4 |
| Total | 90.2 | 35.9 | 4.8 |

*Investment by industry data taken from Statistics Canada's CANSIM table 031-0005 except petroleum & coal manufacturing and pipeline transportation industries which are taken from table 029-002

Source: Statistics Canada, RBC Economics Research

Admittedly, we cannot rule out a more negative outcome for oil & gas investment in 2015, particularly if there is any disruption to businesses' access to capital (or fear that there could be disruptions to that access in the near-future) or if the most recent price drop is come to be seen as a longer-run structural shift rather than an ultimately temporary phenomenon. With that said, even accounting for this possibility, it is important to keep in mind that the Canadian economy is more than just oil & gas extraction. As shown in Table 1, investment in the oil & gas extraction and closely-related industries together accounted for more than a third of business investment in Canada in 2013; however, that still amounts to a smaller 5% share of GDP since business investment itself accounts for about 13% of all GDP. Moreover, the import content of Canadian equipment investment is typically quite high, suggesting that a portion of any decline in business investment will be reflected in weaker import growth rather than weaker domestic production. Accounting for import content, a 3% drop in investment in the oil & gas extraction sector would subtract around 0.1 ppts from Canadian GDP growth. Assuming a much larger decline of 10% in investment would still subtract a relatively modest 0.3 ppts from GDP growth in 2015.

Table 2: Canada Oil & Gas Shares of GDP

Based on 2011 Input-Output tables

| | % of GDP |
|---------------------------------------|------------|
| Oil & Gas Extraction | 5.3 |
| Support activities for O&G extraction | 0.8 |
| Oil & Gas Engineering Construction | 1.1 |
| Petroleum Refineries | 0.5 |
| Crude Oil Pipeline Transportation | 0.2 |
| Total | 7.8 |

Indirect impact (from Natural Resources Canada)

3.5

Source: Statistics Canada, Natural Resources Canada, RBC Economics Research

In terms of actual current production, Table 2 shows that the oil & gas sector directly accounts for about 5.3% of Canadian GDP. Oil & gas extraction support activities account for 0.8%, oil & gas engineering construction accounts for about 1.1%, and value added from petroleum refineries and crude oil pipeline transportation account for another 0.5% and 0.2% of GDP, respectively. Natural Resources Canada has estimated that another 3.5% of GDP is accounted for by indirect activity related to the energy sector³ for a total share of around 11% for the oil & gas extraction industry as a whole.

While this does represent a significant chunk of Canadian output, not all of the sub-components will be immediately negatively impacted by lower oil prices. In particular, the largest component, current oil extraction, is not likely to fall significantly in the short-run, as the price at which existing production would be shut down is much lower than the breakeven price for new investment (due to substantial sunk costs associated with existing production.) In 2009, for example, when the world economy was in recession and oil prices were falling sharply, actual crude oil production declined by just 0.3% at the national level in Canada while output in Alberta, where the majority of new investment in the industry has been taking place, actually increased by 5%. A larger hit will likely come from the support activities component, which declined by 26% in 2009 at the national level; however, as Table 2 shows, that component represents less than 1% of overall Canadian GDP. Output in the petroleum refining sector could actually increase as

lower energy prices induce greater consumption of refined energy products while pipeline transportation services will not likely be negatively affected other than in the unlikely case that oil prices fall so low that currently producing oil projects are significantly impaired. It is still possible, however, that declines in oil production, on its own, act as a modest drag on GDP growth to the tune of 0.1 ppts or so.

U.S. economy will benefit from lower oil prices

Key to our analysis that lower oil prices will have, on net, a slight positive impact on Canadian real GDP is our view that lower oil prices are still a positive for the U.S. economy and, by extension, for Canadian exports. In particular, we assume that every 10% drop in oil prices boosts U.S. GDP growth by 0.1 to 0.2 ppts. Given significant increases in U.S. oil production that are, at least in part, to blame for the decline in oil prices globally, however, the question arises as to whether the U.S. economy really is still a net beneficiary of lower oil prices. We think it is, for a number of reasons.

For one, the U.S. remains a net importer of crude oil and petroleum products more broadly. While U.S. energy production has increased significantly, the country's petroleum trade deficit still averaged almost \$200 billion, at an annualized rate, over the first three quarters of 2014. The share of U.S. crude oil consumption produced domestically has increased sharply; however, about 45% of the crude oil needed by U.S. petroleum refineries is still imported.

Table 3 shows that investment in the oil & gas industry accounted for about 7.3% of total U.S. private non-residential investment in 2013. That is more than double the share a decade ago but is still well-below the Canadian share of closer to one-third. Including industries closely associated with oil & gas extraction activities, total investment related directly to oil & gas extraction accounted for about 10% of total private non-residential business investment in 2013. That represents 1.2% of GDP, without accounting for the fact that at least some of that investment spending reflects imports rather than domestic production.

In terms of overall value added production, oil & gas extraction directly accounted for about 1.7% of total U.S. GDP in 2013, as shown in Table 4. Mining support activities accounted for 0.4%, pipeline transportation services for 0.1%, and petroleum and coal manufacturing value added accounted for 1.0% for a total of 3.3% for all four subsectors. Other industries, including construction for example, are also likely partially reliant on activity in the oil & gas sector; however, it is also true that, as in the case of Canada, not all of these components will be negatively impacted by lower oil prices. Support activities will likely fall but current production is not likely to be significantly affected while other components, like petroleum refining, could potentially increase due to a price induced rise in demand for refined energy products.

Moreover, energy products are also an important input into the production process for most industries. BEA estimates suggest that close to \$600 billion of energy was used up as an intermediate production input across all private industries in the U.S. in 2013, a slightly larger amount than the combined value added from the 4 industries closely related to oil & gas extraction listed in Table 4. Lower oil prices are a negative for the oil & gas extraction industry; however, they are a positive for most other industries which collectively account for the other 96.7% of U.S. GDP.

Table 3: U.S. Investment in Oil&Gas Related Industries: 2013

| Industry | \$billions | % of private | |
|---------------------------|------------|--------------|----------|
| | | nonres | % of GDP |
| O&G extraction | 148.7 | 7.3 | 0.9 |
| Mining support | 21.5 | 1.1 | 0.1 |
| Pipeline transportation | 16.1 | 0.8 | 0.1 |
| Petroleum & coal refining | 12.2 | 0.6 | 0.1 |
| Total | 198.5 | 9.7 | 1.2 |

Source: U.S. Bureau of Economic Analysis, RBC Economics Research

Table 4: U.S. Current Production in Oil&Gas Related Industries: 2013

| | \$billions | % of GDP |
|---------------------------|------------|----------|
| Gross Value Added | | |
| O&G extraction | 291.9 | 1.7 |
| Mining support | 68.7 | 0.4 |
| Pipeline transportation | 21.0 | 0.1 |
| Petroleum & coal refining | 169.7 | 1.0 |
| Total | 551.3 | 3.3 |

| | | |
|------------------------|-------|-----|
| Energy input | | |
| All private industries | 594.0 | 3.5 |

Source: U.S. Bureau of Economic Analysis, RBC Economics Research

Finally, U.S. consumers are clear winners from the drop in oil prices. U.S. households purchased about \$400 billion worth of gasoline and other fuels, at an annualized rate, over the first half of 2014. Each 10% decline in oil prices lowers gasoline prices by about 7%, which effectively boosts consumer purchasing power by about \$29 billion. As shown in Table 5, our assumed 30% drop in oil prices, on average, in 2015 represents a sizeable \$86 billion boost to household purchasing power. Some of that is saved (current saving rate around 5%); however, even adjusting for this, stronger consumer spending could provide a boost to U.S. GDP growth of around 0.5 ppts (~\$82 billion). There is the possibility that more of the one-time boost to income will be saved but even if only half was spent it would still add 0.2-0.3 ppts to GDP growth.

Stronger U.S. GDP and weaker Canadian dollar to provide a boost to Canadian exports and investment outside of the oil & gas sector

Stronger U.S. GDP growth will have spill-over effects on the Canadian economy. While investment in the mining sector is typically tied closely to international commodity prices, activity in other sectors tends to be more closely related to rising or falling demand, particularly from the U.S. economy. Our estimates suggest that stronger U.S. GDP growth could boost investment outside of the oil & gas sector by close to a percentage point in 2015 which would offset some of the negative impact on GDP growth from lower investment in the oil & gas extraction sector discussed above.

Similarly Canadian exports can be expected to benefit from both a strengthening in U.S. demand as well as a weakening in the Canadian dollar that is also related to the drop in oil prices. Based on [our past estimates](#), a 0.3 to 0.6 ppt boost to U.S. GDP growth would typically result in a mid-point estimate of a 0.9 ppt boost to Canadian exports with a weaker currency, which we assume weakens about a percent for each 10% drop in oil prices, adding an additional 0.3 ppts. Assuming an import content of exports of 26%⁴, this would result in a net boost to Canadian GDP of roughly 0.3 ppts.

Canadian consumers benefit from lower fuel prices

As in the United States, Canadian consumers clearly benefit from lower oil prices via lower fuel costs. Over the first half of 2014, Canadian consumers purchased roughly \$48.5 billion of motor fuel, at an annualized rate (Table 6). Based on our own estimates of the rate of pass-through of lower oil prices into gasoline prices, a 30% drop in oil prices typically would be reflected in about an 18% drop in gasoline prices. That represents a savings of \$8.9 billion on the consumer's motor vehicle fuel bill, all else held equal. Well publicized concerns about the impact of lower prices on the Canadian economy, high household debt levels, as well as recent volatility in equity markets, could cause households to remain more cautious than normal about spending that windfall; however, even making the very conservative assumption that households spend only half these savings on other goods implies an additional \$4.4 billion in consumer spending in 2015 due to the drop in energy costs. Assuming a 35% import content for this new consumer spending leaves a net add to GDP of about \$2.9 billion, or about 0.1 percentage points, from increased consumer spending. Importantly, this increase in spending does not require households to take on additional debt. In fact, the assumptions above actually imply an increase in the share of disposable income that is being saved. The boost to the volume of consumer spending reflects purely the fact that households are able to purchase a greater volume of goods and services with the same amount of money.

Table 5: U.S. Consumer Spending Implications of 30% Oil Price Decline

| | \$billions | % of GDP |
|--|-------------|-------------|
| Consumer spending | | |
| gasoline purchases, annualized H1/14 | 409 | 2.44 |
| Savings from reduction in gasoline prices* | 85.8 | 0.51 |
| Less amount saved rather than spent* | 4.3 | 0.03 |
| Total | 81.5 | 0.49 |

*Assumes: Every 10% decline in oil prices lowers gasoline prices by 7% and a 5% saving rate

Source: U.S. Bureau of Economic Analysis, RBC Economics Research

Table 6: Oil prices and Canadian consumer spending

| | \$ Billions (C\$) |
|--|-------------------|
| <i>based on assumed 30% drop in oil prices</i> | |
| H1/14 Spending on mv fuel | 48.5 |
| Savings from lower oil prices | 8.9 |
| Amount saved rather than spent* | 4.4 |
| Increased spending | 4.4 |
| Imported content** | 1.6 |
| Net impact on GDP | 2.9 |
| Percent of GDP | 0.1 |

*Assumes that just 50% of savings from lower gasoline prices are actually spent

**Import content of new consumer spending assumed to be 35%. Based on BoC Review, Autumn 2005

Source: Statistics Canada, RBC Economics Research

Canadian labour markets, in aggregate, not likely to be significantly impacted

An important component of the above discussed net benefit to consumers is our view that labour markets in Canada, on aggregate will not be significantly impacted by the drop in oil prices. This is premised largely on the view, discussed above, that weaker activity in sectors tied closely to oil & gas extraction will be offset, at a national level, by stronger exports and business investment reflecting stronger growth in the U.S. economy and a weaker Canadian dollar. As well, lower gasoline prices should provide a boost to consumer spending. Jobs in the oil & gas extraction sector (including the support activities for mining and petroleum & coal manufacturing sectors) accounted for about 1.1% of total Canadian payrolls in 2013. That total leaves out those workers in other industries, like construction or some financial services, whose jobs may also be tied directly to oil production and investment. [Natural Resources Canada has estimated](#) that, including these indirect workers, about 2.0% of Canadian jobs are tied to the oil & gas sector. While lower oil prices will likely have an impact on employment in these sectors, the size of the decline is unlikely to be large enough to offset, at the national level, gains in other sectors of the economy.

Moreover, most of the jobs in oil & gas extraction are located in regions with relatively tight labour markets. Unemployment rates in Western Canada are well-below the national average, particularly in the oil-producing provinces of Alberta and Saskatchewan, suggesting that the potential negative impact on labour markets is likely to occur largely in regions of the country that are best positioned to absorb the shock, with the potential exception of Newfoundland & Labrador which is both a significant oil producer and has an above-average unemployment rate. The other seven provinces are expected to, on net, benefit from lower oil prices the degree to which will be dependant on their ability to tap into a stronger U.S. economy.

Risk of Government Contraction?

An additional channel through which the decline in oil prices could negatively affect Canadian GDP growth is through government spending. We have noted in the past that, while we believe the impact of lower oil prices on real *production*, ie. GDP, growth is likely minimal, there is a clear negative impact on real Gross Domestic Income (GDI). In effect, the lower price for a major export product, crude oil, reduces the amount of imports that can be purchased for a given volume of exports and thereby lowers the purchasing power of domestic production. On a sectoral basis, however, the hit to incomes will largely be reflected initially in corporate profits and lower government spending rather than household incomes. The impact of lower corporate profits on real GDP and labour markets is discussed indirectly above via the resulting impact on business investment and output, that we have argued will be relatively minimal on net.

Lower oil prices, however, will also have a significant impact on government balance sheets, with the potential to create a significant revenue shortfall in government budgets. Key here is that, similar to labour markets, the negative impact will largely be concentrated in oil producing provinces which, owing to significant earlier boosts to revenue from the run-up in oil prices over the last decade or so, are in an enviable position. The province of Alberta, for example, is actually in a net asset position (with negative government debt) while Saskatchewan's government debt-to-GDP ratio was an enviable 5.5% in FY 2013/14. Newfoundland & Labrador's ratio is higher at 25.4% in 2013/14; however, that is still well below the National average. The fact that these governments are beginning from a position of relative fiscal strength suggests that the oil price shock need not induce an immediate response via contractionary expenditure and/or restrictive revenue measures; however, we are also aware of the aversion of the Canadian public to government debt (which in good times is healthy) and, as a result, the potential political pressure for governments to act more aggressively to eliminate deficits than might be warranted.

References:

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4. Based on [estimates from the Department of Foreign Affairs, Trade, and Development Canada](#)

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