

The Impact of Clause 57 (Revised)

Summary

The railway contribution markup in the revenue cap can be calculated in two parts. The 27% set for 1998 included in the legislation and the accumulated railway productivity growth achieved since then. Productivity growth is estimated below at 2.7% a year so the cumulative contribution in July 2007 amounted to 61.5%.

For August 2007 the Canadian Transportation Agency has reduced the cap by \$2.59 a tonne for car maintenance and increased it by \$0.58 for inflation making the revised contribution 50.6%. These adjustments result in a cap of \$27.83 a tonne. This is still \$5.66 higher than it would be if the contribution were 20%. To achieve a contribution of 20% requires a further reduction in the cap of \$157.6 million, assuming an average year with shipments of 27.85 million tonnes.

Introduction

The purpose of this paper is to estimate the impact on railways, shippers and producers of a \$2.59 a tonne reduction in the railway revenue entitlement (the cap). The study covers the period from 1998 to 2007 to include the work done by Kroeger and the subsequent changes made by the federal government to the Canadian Transportation Act, implemented on August 1, 2000. The railway data used is from the Railways' annual reports to shareholders and from the Agency inflation setting determinations. The methodology follows in many ways that used by Kroeger and implemented in the Act.

To set rates under the Western Grain Transportation Act a full determination of railway grain costs was done every four years. The WGTA gave the railways a contribution to fixed costs of 20% in the base year. Between costing reviews the rate was updated each year for inflation and volume but not productivity. The railways were allowed to keep productivity gains for four years to encourage system improvement. After four years rates were set back to cost plus 20%. During the WGTA period the railways averaged a contribution of 27%, made up of the 20% in the base year and an average of 7% accumulated productivity.

In place of a full grain costing review in 1998 the federal government used a system-wide productivity index to adjust costs, based on work done for the Kroeger review by the Agency. The Agency estimated costs had decreased by 22% percent since 1992 because of productivity. The government then revised the Act to reduce rates by \$5.92 on average but increased the base contribution from 20% to 27%.

The current paper extends this 27% by adding system-wide productivity gains from 1998 to 2007 to estimate current contribution levels. The contribution is then reduced by \$2.59 a tonne to show the impact on shippers, i.e., grain companies or the Canadian Wheat Board, and producers.

The reader should recall that productivity growth is defined as the ratio of the change in railway outputs to the change in railway inputs. System-wide productivity gains are achieved by improved operations and taking advantage of the high fixed costs that characterize the rail industry.

Outputs

The database included a time series for freight revenue ton-miles, the most common system-wide measure of output.

Year	CP Revenue Ton Miles (millions)	CP Output Percent Change	CN Revenue Ton Miles (millions)	CN Output Percent Change
1998	96094		138669	
1999	100434	4.5	143613	3.6
2000	110409	9.9	149557	4.1
2001	110622	0.2	153095	2.4
2002	107689	-2.7	159876	4.4
2003	114599	6.4	162152	1.4
2004	123627	7.9	174240	7.5
2005	125303	1.4	179701	3.1
2006	122874	-1.9	185610	3.3
2007	129352	5.3	184148	-0.8
Average		3.4		3.2

The series indicates that increases in freight output contributed on average 3.4% to CP and 3.2% to CN's productivity growth annually since the Kroeger review. The averages shown here are the compound annual growth rate, i.e., the geometric mean of the growth rates.

Inputs

Some examples of input quantities are gallons of fuel, hours of labour or tonnes of steel. The data do not show any direct measure of input quantities. To determine the change in the level of inputs the operating expenses were examined. Like all costs, operating expenses are a product of both the input price per unit and the input quantity. The impact of the change in price per unit was removed from the expenses using the Agency approved price index. The resulting data varied only by input quantity. Changes in these real expense data were used as a measure of input change. For CP:

Year	CP Operating Expenses (\$millions)	Index 1998=100	Real Expenses (\$millions)	Inputs Change (percent)
1998	2751.4	1.000	2751	
1999	2734.1	1.009	2709	-1.6
2000	2809.9	1.086	2587	-4.5
2001	2870.5	1.098	2613	1.0
2002	2821.6	1.094	2579	-1.3
2003	2931.1	1.094	2679	3.9
2004	3116.3	1.131	2754	2.8
2005	3390.1	1.203	2819	2.3
2006	3454.6	1.278	2704	-4.1
2007	3543.4	1.328	2669	-1.3
Average				-0.3

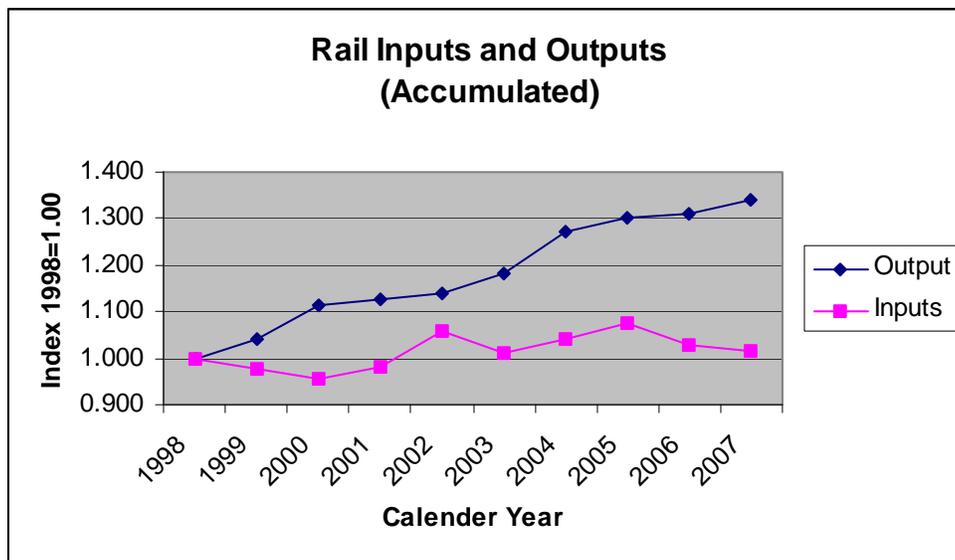
The data show that for CP the quantity of inputs actually fell by 0.3% annually even though as we have seen output was up 3.4%. For CN the story was similar. (Note that the 2002 expenses had to be restated because of a change in accounting practices at CN.)

Year	CN Operating Expenses (\$millions)	Index 1998=100	Real Expenses (\$millions)	Inputs Change (percent)
1998	3858	1.000	3858	
1999	3769	1.009	3734	-3.2
2000	4061	1.086	3739	0.1
2001	4286	1.098	3902	4.4
2002	4994	1.094	4565	17.0
2002*	4681	1.094	4279	
2003	4107	1.094	3754	-12.3
2004	4380	1.131	3871	3.1
2005	4822	1.203	4010	3.6
2006	4899	1.278	3834	-4.4
2007	5021	1.328	3781	-1.4
Average				0.5

At 0.5% CN inputs increased by a little more than CP. Combining the two railways we have the following result for operating productivity:

Year	CP Inputs Change	CP Output Change	CP Productivity	CN Inputs Change	CN Output Change	CN Productivity
1999	-1.6	4.5	6.2	-3.2	3.6	7.0
2000	-4.5	9.9	15.1	0.1	4.1	4.0
2001	1.0	0.2	-0.8	4.4	2.4	-1.9
2002	-1.3	-2.7	-1.4	17.0	4.4	-10.7
2003	3.9	6.4	2.4	-12.3	1.4	15.6
2004	2.8	7.9	4.9	3.1	7.5	4.2
2005	2.3	1.4	-1.0	3.6	3.1	-0.4
2006	-4.1	-1.9	2.2	-4.4	3.3	8.0
2007	-1.3	5.3	6.7	-1.4	-0.8	-0.6
Avg.	-0.3	3.4	3.7	0.5	3.2	2.7

The following chart summarizes this data and demonstrates dramatically how the railways have increased traffic without any corresponding increase in their use of labour, fuel and materials.



Accumulated Productivity Gains

Tonne miles were almost equal over the study period so the two railways were averaged to calculate the productivity accumulated since the Kroeger calculation for 1998.

The table also adjusts the productivity to include capital costs. For purposes of this study, the net investment index is assumed to include a measure of changes in capital inputs. Therefore capital productivity is already included in the rate. To be comparable with costs, it need not be included there. The only issue is productivity gains in operating costs.

Year	CN Productivity	CP Productivity	Average for Operations	Including Capital	Accumulated Productivity
1999	7.0	6.2	6.6	5.3	5.4
2000	4.0	15.1	9.6	7.8	13.5
2001	-1.9	-0.8	-1.4	-1.1	12.3
2002	-10.7	-1.4	-6.0	-4.9	6.8
2003	15.6	2.4	9.0	7.3	14.6
2004	4.2	4.9	4.6	3.7	18.8
2005	-0.4	-1.0	-0.7	-0.6	18.1
2006	8.0	2.2	5.1	4.4	23.3
2007	0.6	6.7	3.6	3.1	27.2
Average	2.7	3.7	3.2	2.7	

This analysis indicates that in nine years of this review the railways achieved productivity gains of 27.2% or 2.7% a year not reflected in the rate. This was largely achieved in the first two years of the study. The five year rolling average is 2.4%.

It can be noted that the early years were the same years for which productivity was ignored in the federal legislation. Whatever the reason for this assumption, it does not seem to be based on the railway cost data. Grain shippers and producers can rightfully claim they contributed to this drop in railway inputs as these were the years when the greatest number of large elevators were opened and there was a significant shift to 50 and 100 car trains.

Effective Contribution Margin

The next step is to determine the impact the accumulated productivity gains had on the railways contribution margin during the period from 2000 to 2007. Railway costs are estimated by allocating to each commodity expenses that vary up or down with railway volume. These are known as variable costs. When all variable costs are determined, there remains an amount that cannot be assigned to any commodity. This is called fixed cost or constant cost and each commodity must cover part of this cost in their rate or the railway will not be viable. It is their “contribution”.

Railways normally recover fixed cost by charging what the market will bear. For grain, Parliament, because of the excessive market power of the railways, decided the market is not competitive and will generate an inefficient outcome. It requires the amount of contribution to fixed costs for grain to be set by a government policy decision. In the case of Clause 57, contribution has to be set by the Agency.

Tracking fixed and variable costs over time requires adjustments for volume, inflation and productivity. The current formula for updating the maximum revenue entitlement shown in section 151 of the Act does not include an adjustment for productivity and so

the cap does not completely track costs. Put another way, over time the revenue cap remains unadjusted for productivity while railway costs decrease. The result is a contribution that increases each year by the amount of productivity.

Under the WGTA the base contribution, i.e., the contribution set in the base year, was 20% of volume related costs. Productivity gains over the four years for which the rate was in effect averaged 7% for a total of 27%. After the Kroeger process the federal government increased the base contribution to 27%. Any productivity gains are now over and above that new base. The effective contribution percentages for recent years are shown below. They are calculated by combining the new base contribution and accumulated productivity.

Year	Base Contribution	Accumulated Productivity	Effective Contribution
1999		5.3	
2000	27.0	13.5	44.2*
2001	27.0	12.3	42.6
2002	27.0	6.8	35.6
2003	27.0	14.6	45.5
2004	27.0	18.8	50.9
2005	27.0	18.1	50.0
2006	27.0	23.3	56.6
2007	27.0	27.2	61.5
Average			48.6

As can be seen from the table, the contribution between 2000 and 2007 has averaged 48.6%. The contribution in July 2007 was 61.5%.

*It can be noted that the new rate regime and \$5.92 rate reduction were actually implemented August 1, 2000. Using Kroeger’s methodology, contribution for the first 7 months of that year can be determined in three parts: Kroeger’s 1998 estimate of 22.0 percent, the 13.5% for 2000 shown above and the 20% base. $(1.22 * 1.135 * 1.200 = 1.661)$. The effect of the 2000 amendment was to reduce the contribution level from 66.1% to the 44.2% (shown above for 2000).

Changes that occurred in August 2007 was discussed below.

Impact of Bill C-11 on Shippers

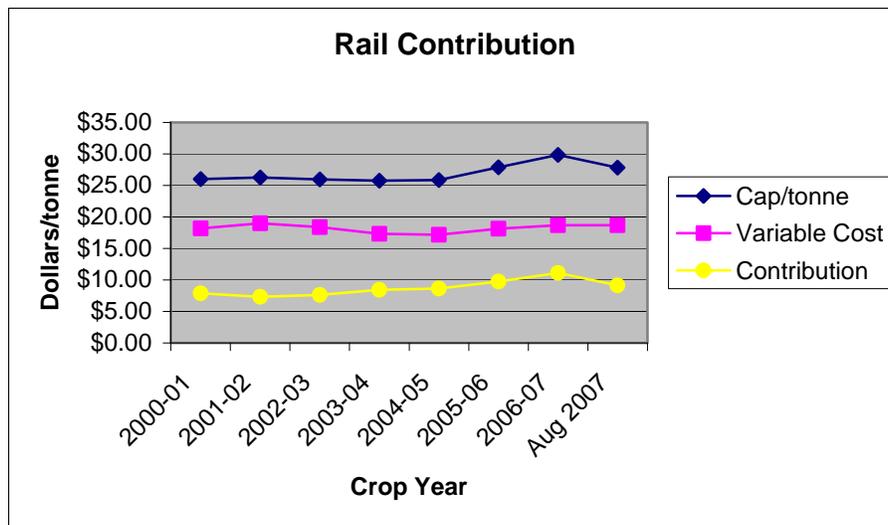
Bill C-11 received Royal assent on June 22, 2007. It provides for the Agency to reduce the revenue cap to reflect the costs incurred for the maintenance of hopper cars. At the time when the Bill was introduced the federal government estimated this reduction might be around \$2.00 a tonne. The Agency later estimated the reduction more exactly at \$2.59. This will impact the effective contribution.

In its decision number 655-R-2007, the Agency determined the railway revenue under the cap was for 2006-07 to be \$29.84 a tonne. In April 2007 it increased the cap by 1.93% for 2007-08 or \$0.58 for inflation. The Agency ordered the \$2.59 reduction to car maintenance costs to take effect at the same time for a total reduction of \$2.01. This leads to the following table.

	Before C-11	After C-11	20 Percent
a. Rail Variable Costs/tonne	\$18.48	\$18.48	\$18.48
b. Contribution	\$11.36	\$9.35	\$3.70
c. Rate & Shipper Cost (a+b)	\$29.84	\$27.83	\$22.17
d. Contribution Ratio (c/a-1)	61.5%	50.6%	20.0%
e. Reduction after C-11 & at 20%	-	\$2.01	\$5.66
f. Savings at 27.85 mt		\$56.0 m	\$157.6 m

By this calculation a reduction of \$2.01 a tonne in the rate will reduce the contribution ratio from 61.5% to 50.6%. For quick comparison, a rate with a 20% contribution would lower rates by a further \$5.66 a tonne. This amount reflects productivity gains since 1998 in rail activities other than car maintenance such as: locomotive, track and administrative costs etc..

Similar calculations can be done for every year since 2000 when the current rate regime was implemented. The following chart shows how contributions have changed over time.



Other Measures of Contribution

The 61.5% shown here for July 2007 is comparable to measures of contribution done by others. Mr. John Edsforth, a well-respected railway economist, completed a study for the Canadian Wheat Board showing a contribution for 2005-06 of 50.9%. He projected a

contribution of 53.9 % for July 2007. In his view contribution would not exceed 20% under conditions of effective competition. He estimates the average contribution for all CN and CP traffic in 2005 was 31%. This suggests that a markup of over 31% would make grain more competitive than half of the railways' traffic, if investment in grain were compared to investments in other commodities.

An Agency estimate was recently included in the railway case against the adjustment in the Federal Court of Appeal. In its consultation document on Clause 57 it is noted on page 34, "Agency staff currently estimate that, for the crop year 2007-08, before any adjustment is required for hopper car maintenance, the level of contribution to constant costs – based on projected Revenue Caps and estimates of underlying costs – will exceed 60%."

Impact of Bill C-11 on Producers

Producers pay more for rail freight than provided in the cap. This is because grain companies receive rate reductions from the railways for moving grain in multicar blocks while producers are deducted the higher single car rate at the elevator. In wheat, for example, farmers pay the Canadian Wheat Board deduction made up of the railways' single car freight rate and an adjustment factor to cover Seaway and other costs. The average Canadian Wheat Board total freight deduction in 2007-08 was \$40.58 including a single car rail rate of \$34.39. The \$2.59 should be passed through to producers but will be offset by inflation so farmers will likely not see any rate reductions.

Gerry Goyeau
Alberta Agriculture and Rural Development
March 31, 2008