The Impact of Grain Handling and Transportation Constraints on Western Canadian Grain Farmers

The Issue

This policy brief summarizes the main finding of a technical report (Gray, 2015) that uses an economic framework to describe how constraints in export capacity result in increased export basis and lower prices for grain producers over the past three crop years. The observed increase in export basis levels in the past two crop years are then used to estimate the impact on producer income. In addition, observed reductions in the Vancouver FOB versus Portland FOB wheat prices, are used to estimate a loss in export sale value.

Main Findings and Conclusions

The analysis as outlined in the report conservatively estimates that revenue losses of $5-6.7 billion dollars were incurred by producers over the past two crop years as a direct result of elevated export Vancouver basis levels, which were primarily driven by the lack of adequate grain handling and transportation (GH&T) capacity relative to the large 2013 crop levels. Additional losses of over $1.4 billion were incurred as the Vancouver FOB (Free on Board) prices for the sales of wheat traded at a discount to equivalent quality US wheat. Producer losses of this magnitude highlight the importance of increasing future grain export capacity, and the need to have grain producers, who bear much of cost of limited movement, engaged in process of finding solutions to this important problem.

Background

Western Canadian grain producers are heavily reliant on the GH&T system to move their product to export markets. All production that is not processed or consumed for domestic use must eventually find a home in export markets. Given the importance of the west coast export market, the price of grains in Western Canada reflects export value minus grain handling and transportation margins. The difference between FOB Vancouver prices and the Saskatchewan elevator cash bids to producers is referred to as the *export basis*[1].

When there is sufficient capacity in the GH&T system, the export basis approximates rail transportation tariffs plus grain handling tariffs, all of which include a normal profit margin as a return to shareholders. However, when there is insufficient capacity in the GH&T system to move the grain offered for sale by producers, grain handling companies lower their cash bids to discourage producer delivery to the point where deliveries match the limited movement capacity in the system. The resulting widening in export basis is reflected in a lower price paid to producers and reduced farm revenues.

In 2013, Western Canadian grain crop production was far in excess of any previous production level. The record crop, combined with limited early fall deliveries and very low rail performance during the winter months, created a crisis in grain movement. The crisis resulted in record high basis levels, as grain companies lowered their cash bids to deter producer grain deliveries into a congested GH&T system. Responding to the grain transportation crisis, the Federal Government passed an Order in

[1] Basis can refer to the difference between any two prices. As the largest volume port, Vancouver FOB, minus the elevator bid prices representative measure of the “export” basis for grains in Western Canada.

Council on March 7, 2014, and the *Fair Rail for Grain Farmers Act,* which required both of Canada's major railway companies to ship a minimum number of railcars per week or face financial penalties for under-performance. As spring arrived, the overall grain movement increased considerably. Despite the increased movement between March and July 31, 2014 and record exports for the crop year, there was a significant carry-over of grain into the 2014 /15 crop year and export basis levels remained high. With a moderately large crop produced in 2014, and the carry-over of stocks from the previous crop year, there was the second highest exportable supply of grain in recent history, which exceeded export capacity for the 2014/15 crop year. This "capacity constrained" export situation resulted in a second year of higher than normal basis levels.

The Impact on Export Basis Levels

The observed export basis for the past three crop years is presented in Figure 1, below.

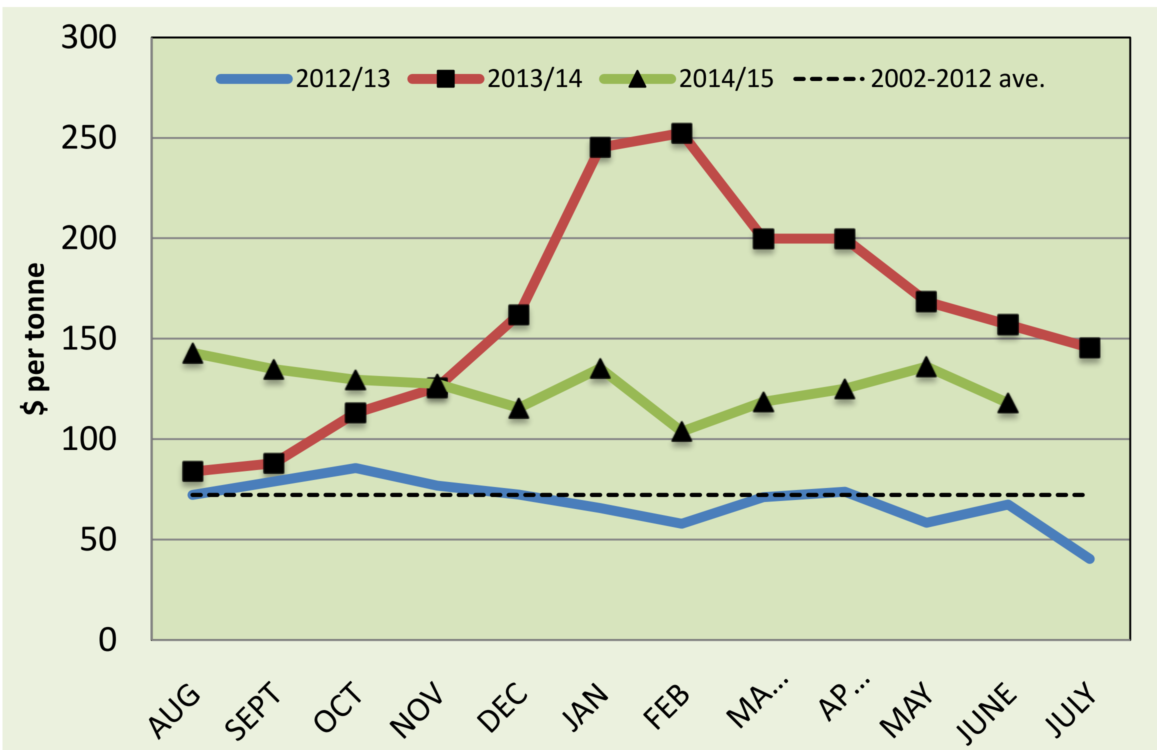

Figure 1: Saskatchewan Cash bid to Vancouver FOB Export Basis, 2012/13, 2013/14 and 2014/15

Source: (Reported in Gray Figure 5) As calculated from Industry, AAFC, CGC, and Sask. Ministry of Agriculture reported prices

In the 2012/13 crop year there was adequate GH&T capacity such that the export basis levels were close to average posted tariffs of $72/t. The increased export basis resulting from inadequate grain export capacity was evident in the 2013/2014 and 2014/15 crop years. With the harvest of the record crop, basis levels rapidly increased. By February 2014, the export basis levels for wheat exceeded $250/t and the combined canola basis and crush margins exceeded $270/t. With record volumes of exports, basis levels declined somewhat by the end of the crop year but were still 200% of posted tariffs. With a large carry-over of stocks and large available total supply, higher than normal basis levels persisted for all of the 2014/15 crop year (ranging between $100 and $150 per ton), with a reduction in basis levels occurring at crop year end as producers began to anticipate a drought reduced 2015 crop.

The Impact on Grain Producer Income

The elevated export basis had a very large and significant impact on grain producer income in Western Canada. As grain export companies reduced their cash bids to ration deliveries, producer prices in the region were reduced relative to Vancouver FOB values. The range of plausible impacts on farmer's income is estimated to be in the order of $5 to 6.7 billion (all figures in CDN $). These estimates are reported in Table 1, (Reported as Table 4 in Gray, 2015) below.

Table 1: Estimated Grain Producer Income Impact of Congestion Related Excess Export Basis in Western Canada 2013/14 and 2014/15

		2013---2014 Crop year			2014---2015 Crop year			
		Aug---Dec	Jan---Mar	Apr---Jul	Aug---Dec	Jan---Mar	Apr---Jul	Total
Farm Deliveries*	Million t	21.80	11.86	18.92	22.85	12.72	15.00	103.15
All Sold at Prevailing Basis**								
Ave Excess Basis	$/t	51.49	143.53	77.67	48.63	59.97	34.94	64.88
Producer Losses	$Million	1,123	1,702	1,470	1,111	763	524	**$6,692**
All sold at basis 12 weeks prior^								
Excess Basis (t ---12weeks)	$/t	6.02	75.78	130.82	58.62	48.48	56.82	61.21
Producer Losses	$Million	131	899	2,475	1,339	617	852	**$6,314**
80% sold at basis 12 weeks prior^^								
Excess Basis (t ---12weeks)	$/t	6.02	75.78	130.82	58.62	48.48	56.82	48.97
Producer Losses	$Million	105	719	1,980	1,071	493	682	**$5,051**

Source: Authors Calculation, Table 3, and CANSIM Table 0010043

* Farm Deliveries of wheat, oats, barley, canola, peas, Western Canada

**Excess basis is estimated to be Vancouver FOB – Sask. Cash bids for wheat --- $72 /t see Table 3 for calculation and sources

^Excess basis reported for 12 weeks prior to delivery is used to estimate impact.

^^This lower bound estimate assumes that only 80% of producer deliveries are impacted and all basis is priced 12 weeks prior to delivery

Comparing to the "normal basis" case, if the price of all producer deliveries of wheat, oats, barley, canola and peas was reduced by the excess over normal basis levels, producer income in the region would have been reduced by an estimated $6.69 billion. Alternatively, if it is conservatively assumed that all production was contracted at basis levels 12 weeks prior to delivery and that 20% of production was marketed to avoid any impact of the increased basis, then income reduction from excess basis is estimated to be $5.05 billion. In either case, the reduction in income is tremendously large.

An additional cost of the congested GH&T system was a reduction in the Vancouver FOB price for 13.5% CWRS wheat relative to 13.5% DNS wheat FOB in Portland. In the 2012/13 crop year, the Vancouver discount was $7.73/t. In the 2013/14 crop year, this discount increased to an average of $29.49/t and in 2014/15 it increased further to an average of $43.04/t. These impacts, which are not included in the Saskatchewan-Vancouver FOB export basis calculations, had an additional negative impact on producer incomes. Applying the additional discounts to the volume of Vancouver CWRS wheat exports, grain export values were further reduced by $550 million and $880 million over the past two crop years, or $1.430 billion for the exports of CWRS wheat.

To summarize, the lack of GH&T capacity to export the available supplies from the large 2013 grain crop had a "multibillion dollar" negative impact on the income of Western Canadian grain producers. The lack of export capacity forced prairie elevator bids downward, significantly increasing the export basis over a two year period. Moreover, Vancouver FOB wheat prices became discounted to equivalent quality US wheat at FOB Portland. Combining the very conservative estimate of basis impact of $5.05 billion with the $1.43 billion wheat price discounts to Portland, means that the total value of loss to western Canadian producers is approximately $6.5 billion dollars.

The lack of grain export capacity has come at a very significant cost to producers, to provincial economies and to the Canadian economy as whole. For producers, using the conservative estimate, the export capacity constraints reduced their incomes by $63 per tonne sold over the two-year period. For a 5000 acre farmer producing one tonne per acre per year, this represents a total gross income reduction of $630,000 over the two crop years. Given the diversity in location, production levels and marketing strategies, each producer would have been impacted differently but the average impacts were very large and economically important.

Policy Implications

When there is sufficient capacity in the GH&T system, the export basis approximates rail transportation tariffs plus grain handling tariffs, both of which include a normal profit margin as a return to shareholders. However, when there is insufficient capacity in the grain handling and transportation system to move the grain offered for sale by producers, grain handling companies lower their cash bids to discourage producer delivery to the point where deliveries match the limited movement capacity in the system. The resulting increase in export basis is reflected in a lower price paid to producers and reduced farm revenues. A conservative basis impact of $5.05 billion, in addition to the $1.43 billion price differential for Canadian wheat relative to US wheat in Portland, means that the minimum total value of loss to producers is approximately $6.5 billion dollars.

The longer term upward trend in Western Canadian grain production, combined with the growth in Asian markets suggests that grain export capacity is likely to be longer-term issue. The impact will be particularly acute whenever there is an unexpected large crop or unanticipated disruptions to grain export capacity.

Given the potential costs to the economy and the projections for growth in exports of other commodities that will compete with grain, there is a need for a more strategic national approach to the development of export capacity. This strategic approach must include a comprehensive analysis of future export needs and a full economic exploration of options to expand export capacity, including publically supported infrastructure investment, improved logistics, regulatory structures and transportation policy. Given the magnitude of the negative economic impact that congested export movement can have on grain producers, it is vital to give these important stakeholders adequate voice in the development of any strategic approach to grain export capacity.

This latter point was made in the recommendations submitted to the Canadian Transportation Act Review Panel on behalf of producers. As concluded in the submission;

While all of Canada has an interest in a properly sized and efficiently operating grain handling and transportation system, farmers are uniquely affected when problems arise. The need for a process in which producers are included and engaged is necessitated by the unique financial impacts borne by producers alone." (APAS et al, 2014)

Making a plan and taking strategic action will require leadership from the federal and provincial governments working with primary industry to achieve economic growth in the national interest. Going forward it is vitally important for producers and the national economy to have an efficient grain handling and transportation system with the capacity to meet current and future industry needs.

References and Data Sources:

AAFC, 2014 --- Weekly Price Summary http://www.agr.gc.ca/eng/industry---markets---and---trade/statistics---and--- market---information/by---product---sector/crops/crops---market---information---canadian---industry/weekly---price--- summary/?id=1378745200250

CANSIM (Statistics Canada) 2014a --- 001---0010 --- Estimated areas, yield, production and average farm price of principal field crops, in metric units,

CANSIM (Statistics Canada) 2014b. Field Crop Reporting Series (Detailed tables from CANSIM).

APAS, SWDC, SBDC, and SPG, 2014. Producer Recommendations on the Future of Canada's Transportation Act. Submitted to the Canadian Transportation Act Review Panel

Gray, R.S. (2014). "Policy Options to Reduce Basis" presentation at the Grain Handling and Transportation Summit, March 26, Saskatoon, Sk. http://www.grainsummit2014.ca/

NWTL (Northwest Terminal Ltd.) 2014 posted cash prices http://www.northwestterminal.com/index.cfm

USWA (United States Wheat Associates) 2014. Weekly Price Report. http://www.uswheat.org/

USDA (United States Department of Agriculture), 2014. Portland, Market News Pacific NW Wheat Basis Report http://www.ams.usda.gov/mnreports/jo_gr111.txtts