

An Economic Analysis of Western Canadian Grain Export Capacity

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The Issue

Gray (2015) ([Link](#)) estimates the cost to Western Canadian grain producers of limited export capacity in the 2013-14 and 2014-15 crop years. The purpose of this subsequent report is to follow up on this research and estimate the need for additional grain export capacity in Western Canada. The report initially describes an economic framework and methodology, and then reports the economic impact of limited export capacity during the 2013-14 and 2014-15 crop years. After quantifying this impact, the need for future export capacity is estimated by forecasting exportable grain supplies for the 2016-25 period, and then simulating the impact of additional export capacity. The results indicate that an additional 10 million tonnes of annual port capacity is worth several billion dollars to Prairie grain producers.

Background

Export basis is defined as the difference between the cash prices paid to farmers at the primary elevator and the export sales price in Vancouver.

The reported *export basis levels* for the 2012-13 crop year remained comparable to long run averages, as there was adequate export capacity to move the crop. This situation changed dramatically following the record 2013 crop. In the 2013-14 and 2014-15 crop years, access to the limited grain export capacity was rationed, which resulted in much higher export basis levels. In a recent report, Gray (2015) estimates these higher basis levels and demonstrates that lower cash bids came at a substantial cost of at least \$5 billion to prairie grain producers. While export basis levels have returned to more normal levels in the 2015-16 crop year, this costly past experience provokes two important questions:

- Were the elevated export basis levels an anomaly, or can we expect similar situations in the future?
- If limited export capacity is likely to result in additional costs to producers in the future, how effectively will investments in capacity reduce these costs?

Methodology

In order to address these important questions, we forecast future grain production levels and use an economic model to calculate the effect of limited export capacity on future expected basis levels. The economic model uses production forecasts and export capacity estimates to calculate future expected basis levels, and farmers' expected loss when limited export capacity constrains exports.

The model simulates a competitive market by minimizing the cost of transporting the exportable supplies of cereals, oilseeds, and pulses from several Western Canadian origins to the export markets through the West, East, and South ports. We assume that when export capacity is limited relative to exportable supply, grain can be stored into the next crop year at a cost.

Main Findings

In the absence of any capacity increase, the upward trend in forecasted production indicates that the probability of running into a "limited grain export capacity" problem increases over time. The increase in expected production also results in an increase in average expected basis over time. Accounting for normal random fluctuations in projected upward production trends, the excess export basis will occasionally reach \$120/tonne, which is the equivalent of the cost of storage for two consecutive years. Without increases in rail and port capacity, production increases will lead to an expected loss for farmers of approximately \$10.8 billion for the 2016-25 period.

Results also indicate that under the Maximum Revenue Entitlement (MRE) regulation of the Canadian Transportation Act (CTA), the railways can increase their revenue by moving more grain. Removing the MRE, however, will create a perverse incentive for the railways where they can increase their revenues by moving less grain and charging more for their services. Without MRE regulation, the railways can maximize their profits by reducing their grain transportation services to 25 MMTs, which is the revenue-maximizing level for normal production years. This means, in most years there would be a shortage of rail capacity and high export basis levels. In the 2013-14 crop year, basis rents exceeded \$3.7

billion, and accrued largely to grain companies with terminal elevators. In the absence of an MRE, grain companies would bid for cars and transfer most of these large rents to the railways. If the railways had been prepared to move only 25 MMT, the impact on basis levels and producers' welfare would have been greater.

Given its importance, some grain companies have made investments to improve their storage and export capacity at the west coast. Richardson made a \$120 million investment to add 80 thousand tonnes of storage capacity, which will result in increasing their export capacity by 2 MMTs. Global Grain Group (G3) has announced a \$500 million investment to create 180 thousand tonnes of storage capacity that will result in at least 4.5 MMTs of export capacity. The reported estimates show that it will require approximately \$1 billion to add 10 MMT of capacity (\$100/tonne) at the West Coast. The estimates of this study show that increasing West Coast capacity even without any improvements in total grain rail capacity will result in \$3.1 billion of cost-saving benefits for farmers. This implies a benefit-to-cost ratio of 3.1/1. If the West Coast expansion is accompanied by a similar increase in rail capacity, a 10 MMT increase in West Coast capacity will create \$9.1 billion of cost-saving benefits. This implies a benefit-to-cost ratio of 9.1/1 for these critical infrastructure investments. With this level of returns, expansion of port capacity should be considered a national priority.

Policy Recommendations

Given the high benefit-to-cost ratios estimated in this study and the large financial implications of expanded port capacity, finding appropriate policy solutions to improve West Coast export capacity seems necessary. The following policy solutions are recommended in this study:

1. Facilitate Investment in Increased Port Capacity: Private firms have already made some investments to increase port terminal capacity, and other plans have been announced. This additional capacity can be facilitated with complementary investments in public infrastructure and through timely and efficient regulatory processes. Notably, improved port capacity is not confined to physical storage. Improved ability to load ships

in the rain might accelerate the movement of grain and reduce the magnitude of backlogs and demurrage costs.

2. Improved Rail Capacity: The importance of sufficient rail capacity cannot be overemphasized. While the current MRE regulation provides the railways with strong incentives to make capacity improving investments, the removal of the MRE would eliminate these incentives.

3. Refining the MRE: Under the MRE, railways can earn higher revenue levels by moving greater volumes of grain. It is important to retain this key aspect of the MRE mechanism. Nevertheless, the existing MRE can be refined to create incentives to increase rail capacity, possibly including additional incentives for early crop year and winter grain movement. If these additional incentives are developed, it is important that they are done through negotiation with producers groups and shippers and remain within the current MRE structure to avoid the perverse incentives that are created when the railways can drive up service rates by reducing service levels.

4. Improved Competition: This might be a difficult task in the Western Canadian grain handling and transportation system. The only mechanism that would appear to mimic a competitive market would be to move to a system of open running rights where multiple operators could run on the existing rail infrastructure. In the meantime, the retention of the inter-switching provisions of the current CTA would be useful.

5. Improved Coordination and Overall System Performance: Improved coordination mechanisms including the development of viable West Coast cash and futures markets could improve coordination among marketers and speed up the movement of grain, prevent backlogs, and reduce demurrage costs. The need for a third party that can intervene to coordinate movement when contracted rail service has been disrupted due to weather or avalanches should also be carefully considered.