An Economic Analysis of Removing the Canadian Wheat Board's Single Desk Authority and Rail Deregulation in Western Canada

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Poster prepared for presentation at the Agricultural & Applied Economics Association 2012 AAEA Annual Meeting
Seattle, Washington, August 12-14, 2012

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Introduction

Wheat marketing in Western Canada has lbeen dominated by the Canadian Wheat Board (CWB)'s single desk structure and rail regulation.

- All wheat for export and human consumption must be marketed through the CWB
- All producers receive the same price for their wheat at the end of the crop year (pool system)
- CWB also tried to use its market power to obtain lower marketing costs for producers in the logistic system.
- Rail rates are regulated (revenue cap).

Starting in the 2012/13 crop year, CWB's single desk will no longer exist, thus producers will be in charge of their own marketing.

Objective

The objective of this research is to explore how changes in the wheat marketing system (removal of single desk and possible deregulation of rail system) affect expected profits and risk for producers in Western Canada.

Research method

- Expected utility framework: impact of changes in marketing system are measured in terms of certainty equivalents (CE).
- Analysis focuses on marketing simulations for a 4-year period between 2006/07 and 2009/10.
- Producers are assumed to maximize profit;

  profit (Π) = price – marketing costs

Base scenario (CWB)

- current system with CWB's single desk and rail regulation
- price received is given by the pool price
  - o same price regardless time of the year when grain is sold (producers face no price variability)
- similarly, there is little variability in marketing costs
- producer's utility in the base scenario is represented by a power function, where R is the coefficient of risk aversion.

$$U(\pi_{CWB}) = \pi_{CWB}^{1-R} / 1 - R$$

Open market scenarios (OM)

- Removal of single desk and deregulation of rail system
- There is uncertainty on the price received and marketing costs, which can vary depending on the time of the year when wheat is sold
- Four marketing strategies are assumed, with different portions of the crop being sold throughout the crop year

	Strategy 1	Strategy 2	Strategy 3	Strategy 4
Sep	25%	10%		
Oct		10%	100%	
Nov	25%	10%		
Dec		10%		
Jan		10%		
Feb		10%		
Mar	25%	10%		100%
Apr		10%		
May		10%		
Jun	25%	10%		

- Final price received is a weighted average of the prices obtained on each day when wheat is sold.
- Price risk is assumed to be the same as the variability in U.S. wheat price during the same sample period.
- Marketing costs in an open market scenario are based on a previous studies (Fulton et al., 1998; Fulton, 2011).
- Marketing cost risk is represented by variability experienced by marketing costs in the U.S. during the same sample period.
- Producer's preferences are represented by the expected utility of profits, expressed as a mean-variance CRRA function:

$$EU(\pi_{OM}) = -\left(\mu_{OM}^2 - R\sigma_{OM}^2\right)^{-1}$$

- Comparisons between base and open market scenarios rely on certainty equivalents (CE):

$$EU(\pi_{OM}) = U(\pi_{CWB} + CE)$$

Data

- Data for the simulations were obtained from the CWB, Minneapolis Grain Exchange, and Bank of Canada for the period 2006/07 2009/10.

Results

- Certainty equivalents (CE) for relative risk aversion of 3 are presented below.
- Two situations are considered:
  - o single desk is removed, rail system is deregulated : marketing costs increase 46%
  - o only single desk is removed : marketing costs increase 4%
- In both situations and almost all marketing strategies and crop years, simulations show negative CEs indicating producers would be willing to give up a portion of their profit in order to remain in the base scenario (CWB).
- For example, CE of –Cdn$2.32 /bu means that producer would be willing to forego Cdn$2.32/bu to avoid the open market scenario and stay under the CWB (Table 1).
- Table 2 shows CE expressed as a proportion of the pool price. Results suggest that producers would generally be willing to forego 40-60% of the pool price in order to remain under the CWB system.

Table 1: Certainty equivalents (Cdn$/bu) for risk aversion R=3

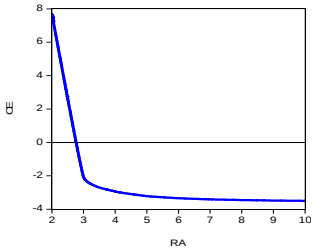
	2006/07	2007/08	2008/09	2009/10
Marketing costs increase by 46%				
marketing strategy 1	-2.32	-2.35	-4.26	-2.90
marketing strategy 2	-2.35	-1.89	-4.53	-2.84
marketing strategy 3	-2.35	-3.59	-4.55	-2.96
marketing strategy 4	-2.45	+1.48	-5.04	-2.84
Marketing costs increase by 4%				
marketing strategy 1	-2.04	-2.06	-3.88	-2.56
marketing strategy 2	-2.08	-1.60	-4.15	-2.50
marketing strategy 3	-2.10	-3.30	-4.16	-2.62
marketing strategy 4	-2.18	+1.78	-4.65	-2.50

Table 2: Certainty equivalents as a proportion of the pool price for risk aversion R=3

	2006/07	2007/08	2008/09	2009/10
Marketing costs increase by 46%				
marketing strategy 1	-51.1%	-26.5%	-59.0%	-55.9%
marketing strategy 2	-51.8%	-21.3%	-62.8%	-54.8%
marketing strategy 3	-51.9%	-40.5%	-63.0%	-57.1%
marketing strategy 4	-54.1%	+16.7%	-69.8%	-54.8%
Marketing costs increase by 4%				
marketing strategy 1	-45.1%	-23.2%	-53.8%	-49.4%
marketing strategy 2	-45.8%	-18.0%	-57.6%	-48.3%
marketing strategy 3	-46.3%	-37.2%	-57.7%	-50.5%
marketing strategy 4	-48.2%	+20.0%	-64.5%	-48.3%

- Increases in profit over 100% would be necessary to make CE become positive, indicating preference for the open market scenarios.
- Sensitivity analysis: CE for risk aversion R<3 quickly become positive (such as in Figure 1).

Figure 1: Certainty equivalents (Cdn$/bu) for different levels of risk aversion in 2006/07



Conclusions

- Producers who exhibit more risk aversion have a stronger preference for the current system with CWB's single desk and rail regulation.
  - o those producers would be willing to forego the equivalent of about half of their pool price under the CWB in order to avoid the open market scenarios.
- Producers who are less risk averse would prefer an open market system, without single desk and rail regulation.
  - o those producers would require substantial increases in profit in order to prefer the current system with the CWB and rail regulation.

References

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For further information

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