



Examining Market Power in the Red Meat Packing Sector

Summary of Phase I & II Results

Canfax Research Services December 2012

Why the Market Power Study?

In 2006, Dr. Jeffrey Church and Dr. Daniel Gordon from the University of Calgary examined the extent to which the closure of the border to live animals had increased the monopsony power of packers in Canada. This study found that when competitive conditions in Alberta limited the potential buyers for fed cattle to a small number of packers in Alberta market power was exercised, but was not consistent with any coordinated exercise of market power by packers.

Since 2006 a tremendous amount has changed in the Canadian fed cattle markets. Market access for fed cattle has increased with the reopening of the U.S. border in 2005 to fed cattle and further reduction of technical requirements with the implementation of Rule II that expanded live cattle trade. In addition Canadian red meat packing capacity, which expanded between 2003 and 2006, has a substantial consolidation and reduction. The Cargill acquisition of the Better Beef plant was finalized, the Calgary-based Rancher's Beef was closed, the Natural Valley plant in Saskatchewan is no longer processing cattle, the Quebec-based Billette, Gencor and Levinoff operations have closed. Domestic capacity was further consolidated when Tyson sold their Brooks Lakeside operations to XL Foods, which saw Western Canada essentially down to two major packers (Cargill & XL Foods). XL has since closed their Moose Jaw and Calgary facilities.

Reduced competitive bidding due to reductions and consolidations of domestic packing capacity, has been further exacerbated by the implementation of U.S. mandatory country of origin labeling in September 2008. Mandatory country of origin labeling resulted in a reduction in the number of U.S. packing plants bidding on Canadian cattle due to difficulties in managing and segregating these cattle. Reduced competitive bidding has also been a growing

concern of primary producers, with quantitative and anecdotal information showing significant increases in packer ownership and contracting of cattle in Canada.

The consolidation of the red meat packing sector, recent regulatory and market events, and concerns over further reductions in packing capacity in light of poor profitability and reduced cattle inventories has seen growing concerns raised about packer concentration. In particular, the potential impact of market power on Canadian cattle prices and long-term industry structure is needed to be better understood. Consequently Canfax Research Services, with support from the Alberta Livestock and Meat Agency, initiated a research project to update and expand upon the Market Power study completed in 2006.

Objectives

Key objectives of this study are broken down into three major phases including:

- 1) Examining the changes in market power that have occurred since the border reopened to trade in live cattle in the summer of 2005 and further restrictions were removed with the implementation of Rule II in 2007.
- 2) Provide estimates of the extent of income transfer from feedlot producers to packers and the loss in economic value attributable to the exercise of market power by packers.
- 3) Evaluate alternative mechanisms to facilitate effective market surveillance, manage the impacts of market power, and guide potential industry and government policy and regulatory decisions moving forward.

Phase I Results

The first phase updated the market power estimates that were originally done in 2005. This analysis will provide insight regarding the extent to which changes in market access and packing capacity reduction and consolidation has

impacted the ability of Alberta packers to exercise market power. Specifically the analysis included: pre-BSE (99-May 03), BSE (May 03-Aug 05), Post-BSE (05-09), Rule II (Nov 07-09), Post-COOL (Country of Origin Labeling) (Oct 2008-09); and the sale of the Lakeside plant at Brooks (Mar-Dec 09).

Updated Market Power Estimate

Market power is calculated using estimated packer margins.

Packer Margin = cutout value + by-product value – the incremental cost associated with processing that animal

The Canadian cutout value and Western by-product value were used as published by Canfax. However the incremental costs, which should not include fixed capital and overhead costs associated with the packing plant, had to be estimated to be consistent with the Competition Bureau’s and internationally accepted methodology for measuring market power. The incremental cost should be equal to the short run marginal cost of processing another animal (less the cost of the animal). Two alternative packing margins are used to provide a reasonable upper and lower bound. The Base margin assumes that the by-product value is equal to the processing cost. The Alternative margin uses a USDA estimate converted to Canadian dollars and an adjustment factor for differences in regulations (i.e. long list SRMs) – this was calculated with the assistance of expertise in the packing industry. The USDA estimate was only available post-2003, with a pre-BSE estimate of \$150/head used from the George Morris Centre.

Processing Cost Est. <i>CDN \$/hd</i>	Base <i>(=By-product)</i>	Alternative <i>(GMC, USDA)</i>
Pre-BSE	\$112.11	\$150.00
03-09 Avg	\$92.97	\$187.34

Therefore, depending on utilization rates of the plant it may or may not include processing labour costs. The actual is probably somewhere between these two extremes with the Base estimate for market power too high and the Alternative slightly lower than actual.

The estimate for market power is equal to zero in a perfectly competitive environment and equal to one in a perfect monopoly. The data analyzed was from 1999 to 2009. Table 1 shows the estimated level of market power for each of the periods.

Table 1. Level of Market Power by Period

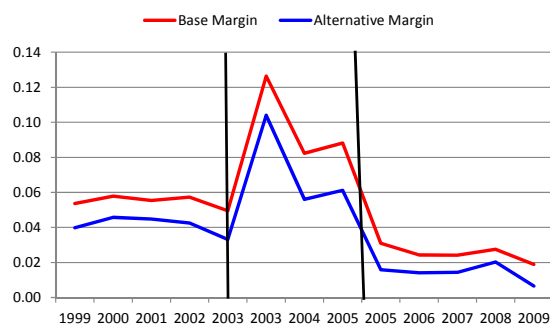
Time Period	Base	Alternative
Pre-BSE	0.0561	0.0441
BSE	0.0868	0.0602
Post-BSE	0.0234	0.0107
Rule II	0.0196	0.0078
Post-COOL*	0.0295	0.0185

*Post-COOL/Lakeside sale effects combined.

Market power increased sharply during BSE. This was followed by a sharp drop after the border opened in 2005. The post-BSE period actually saw a lower level of market power than the pre-BSE period. Rule II resulted in a small decline in market power, while COOL and the sale of Lakeside increased market power by 44-150% from a low level. The researchers were not able to separate the sale of Lakeside (cleared Feb 27, 2009) and COOL (final rule in effect March 2009) they are combined throughout this analysis. **Overall the results are consistent with the exercise of market power; but not with coordinated market power by packers.**

It is important to note that the periods mask large changes that occurred from year to year, with a spike of market power in 2003 that was three-times larger than the pre-BSE period (see Figure 1).

Figure 1. Annual Estimates for Market Power in the Beef Packing Industry



It is important to look at these annual changes because the Competition Bureau is not a price regulator. They are not concerned about the exercise of market power (whether the level is 0.05 or 0.85) but are concerned about behaviour that creates or enhances market power (so changes in market power). The decision to approve the sale of the Lakeside plant to XL was known to have created market power, but it was deemed that it was not inefficient. In that without the sale, lost capacity if the plant closed would be more harmful than allowing it. Also the competition with US packers, as shown in the BSE period, was deemed to be more important for limiting market power in the sector.

Economic Impact

While the estimate for market power was small, the next step was to determine what the economic impact of this market power was on producers, which could be significant. This was done by measuring what the impact from market power was on fed cattle prices in each period. These were compared against a counterfactual price estimated for what the fed cattle price would have been if market power was absent (assuming price was equal to the short run marginal cost for the packer).

Table 2. Estimated impact on fed cattle price from market power in each period

Time Period	By-Products =Costs \$/cwt	USDA est. Cost \$/cwt	Difference from competitive \$
Pre-BSE	\$0.14	\$0.11	10%
BSE	\$0.22	\$0.17	17-21%
Post-BSE*	\$0.09	\$0.05	6-10%
Post-COOL**	\$0.061	\$0.046	6-8%

* post-BSE 2005-2009

** assumes COOL is removed with market power held steady at levels 2005-2008

It is recognized that a sector may need some level of market power to recover fixed costs. To provide some context retailers typically have a 1% margin on products with profit coming from the large volume turned over. The question then becomes is the 6-10% difference from a competitive market price presented in the Post-

BSE period (05-09) too much? Or just enough to cover larger fixed cost as utilization rates decline?

Conclusions from Lot Level Data

Transaction level data was collected from 9 feedlots in Alberta and Saskatchewan to measure market power. In addition, these transactions were evaluated to see if there was any discernible relationship in how packers exercised market power across the various feedlots.

- ▶ There was NO relationship between the exercise of market power & feedlot distance to the border
- ▶ The ability to export to the US provided minimal bargaining power with domestic packers
- ▶ There is a negative relationship between market power & size of feedlot – with smaller feedlots seeing a larger impact from market power, while larger feedlots see less.
- ▶ There is an advantage in marketing co-ops OR ownership of multiple feedlots to increase bargaining power.

Market integration tests showed that the fed cattle market in Western Canada was integrated with the US pre-BSE, with US prices leading Alberta pricing. However it was not integrated post-BSE. This is not just due to a thicker border from trade barriers (such as COOL), but the lack of a stable relationship between the two trading regions caused by continued policy and structural shocks.

Welfare Effects

There are two changes to consider when looking at the impact on price and quantity in any period:

- (1) the change in market power;
- (2) the change from a shifting supply curve which also impacted price and quantity sold.

The supply shift occurred with captive supplies while the border was completely closed and to a lesser degree from a thickening of the border following the implementation of the initial COOL rule. In order to evaluate market power, the supply impact is removed and only the impact

from the change in market power is presented here.

The reason only the change in market power is evaluated and not the total cost of market power is because the Competition Bureau is concerned about behaviour that creates or enhances market power, not the prevailing level of market power in a sector.

Transfers from feedlots to packers

Transfers from feedlots to packers were calculated for both the BSE period when the border was closed and in the post-COOL period. The below calculations are annualized for a 52 week period. During the post-COOL period the transfer from feedlots ranged from \$130-182 million per year (Base case assumes by-products equal processing costs & the Alternative case uses the USDA estimate for packer margins). The transfer to the packer is less than the loss to the feedlot due to Dead Weight Loss (DWL). While the transfer is due to lower prices for cattle the DWL is from the number of cattle not produced as herds shrink due to lower prices.

BSE - Border Closure		Base *	(A)
▶ Feedlot Loss		\$443**	(\$313)
▶ DWL †		\$51	(\$27)
 Post-COOL/Sale Lakeside		Base	(A)
▶ Feedlot Loss		\$182	(\$130)
▶ DWL		\$7.4	(\$4.3)

* This is consistent with the report Table 6.1 & 6.2. The difference is that those were for the entire BSE period of 88 weeks (1.69 years) and in the Post-COOL period is based off the weekly estimate. These are annualized for 52 weeks here.

** Units: Million Dollars

Transfers do not mean profits occurred...

It should be noted that the market power methodology only looks at the marginal factor cost of producing one more animal. It does not consider overall margins or profitability, since fixed and quasi-fixed costs are not included in the incremental cost; changes in gross profits are assumed to directly impact net profits. Therefore, market power can be exercised in an industry that

has large fixed costs but small variable costs and is experiencing negative returns.

A clear understanding of the large fixed cost investment in the packing industry and the fact that it operates with relatively narrow margins is important. Whether these transfers are necessary for the packer to earn a competitive return on their capital is unknown. As we do not know if packers were profitable even after transfers occur.

Phase II – Supply Chain Impact

While transfers occur from the feedlots to the packers with increased market power, feedlots do not absorb this loss alone; they are able to pass some of it down the chain onto their suppliers. Phase II identified and quantified the extent to which the exercise of market power by packers is borne by other sectors, specifically how feedlot losses are passed down through the supply chain.

The two largest inputs into a feedlot are the feeder animal and feed, accounting for approximately 85% of a feedlot's total cost. Although feedlots are unlikely to have the ability to exercise market power in feeder cattle markets, the reduction in fed cattle prices will reduce their demand for feeder calves and feed. Consequently, the evaluation of the economic costs from the exercise of market power by packers, regardless of its source, needs to encompass both the direct and indirect effects as all markets within the supply chain respond. The BSE period was used to estimate these supply chain impacts. However, it can be assumed that these distributions would be similar for other periods.

Transfers of \$8.1 million/week (BSE period)¹

- Feedlot – 41%
- Barley producer – 24% (19-29%)
- Cow/calf or feeder owner – 35% (27.5-43%)

How much actually gets transferred is sensitive to the supply elasticity for barley and feeder cattle.

¹ This is smaller than the \$8.5 million in Phase I because the impact from the increased calf crop is not as large in this counterfactual in phase II (caused by the difference in feeder calf elasticities).

If feeder cattle owners can retain ownership less is transferred (27.5%) to them than if all calves must be sold, in which case the loss is much larger (43%).

Sensitivity Analysis

- If the feeder supply is inelastic – the calf crop coming is the same in the fall, no response to loss of border access - they incur a larger loss (as much as 43%).
- If the feeder supply is more elastic - retained ownership, more back-grounding, etc. in response to border access - they incur a smaller loss (as little as 27.5%).
- Similarly barley producers can change their supply elasticity by storing grain over the short term (29%) and over the long term switch to more profitable crops like Canola (19%) resulting in a smaller loss.

These factors obviously impact how much the feedlot passes down the line (28-53.5%). As we move from the short run to the long run the elasticities change, particularly if COOL is assumed to be permanent, while BSE was temporary. The prediction would be that in the long run barley producers would change crops out of barley and reductions in the beef cow herd would result in larger elasticities for barley and feeder calves (making it more difficult for feedlots to extract losses from these input suppliers).

Conclusions

Market Power Measurement:

- Market Power increased after COOL & the XL Lakeside sale but is still below the pre-BSE levels (see Table 1)
 - The results were consistent with the exercise of market power; but not with coordinated market power by packers.
 - Impact on fed cattle prices of 5¢/cwt below competitive level post-BSE
- It is unknown if the transfer from feedlots to packers is too much or just enough to cover larger fixed costs as utilization levels have declined.

Welfare Effects:

- The feedlot losses due to increased market power are around \$130-182 million annually post-COOL.
 - The packer receives less than the feedlot loss due to deadweight loss.
 - The feedlot is able to extract around 59% of those transfers from input suppliers.
 - Around 35% of these losses are passed onto the cow/calf or feeder owner.
 - Around 24% is passed onto barley growers.