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Price Discovery and Captive Supply Implications for the Canadian Beef Industry¹

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The Issue

As cattle markets have transitioned from predominantly cash market sealed-bid or negotiated price discovery to more formula pricing, marketing agreements, forward contracts, and packer-owned cattle feeding, concerns about methods of price discovery for fed cattle have escalated. High levels of concentration in beef packing in Canada were exacerbated by cattle trade restrictions with the United States that limited market access and thus caused further unease with the price discovery process for fed cattle in Canada.

Implications and Conclusions

Findings from U.S. studies on captive supply impacts are believed to be generally applicable to Canada, but important differences exist in the two markets. Our research suggests a few generalizations regarding captive supply in Canada. Negative cash-market effects are likely to increase

- with an increase in proportion of captive supplies;
- with an increase in the week-to-week variability of captive supplies;
- if key buyers tend to rely on a single type of captive supply method consistently; and/or
- if buyer market structure becomes increasingly concentrated.



Alternative public policy responses have been proposed. Several factors point toward consideration of mandatory price reporting in Canada to increase the amount, reliability, and transparency of market information to improve price discovery, especially related to captive supply quantities and prices.

Background

Cattle producers, industry analysts, policy makers, and others have voiced concerns about fed-cattle price discovery for many years. The magnitude of concern has prompted producers and policy makers in Canada and the United States to propose legislation limiting who can own and feed cattle and regulating how fed cattle can be priced and marketed. Producers who – for a variety of reasons – have adopted pricing formulas, marketing agreements, and contracts, and/or have vertically integrated into owning packing plants (as well as many who have not) largely oppose restrictions on how fed cattle can be marketed and who can own and feed cattle. As such, the policy debate surrounding legislation affecting the fed-cattle price discovery process, pricing methods used, and cattle ownership restrictions is contentious.

The overall objective of this research was to assess the potential impacts of captive supply arrangements on the beef industry in Alberta, the largest cattle feeding and beef processing province in Canada. Specific objectives were to

- summarize the relationship between captive supplies and short-run fed-cattle cash market prices;
- determine similarities and differences in beef packing industry structure and fed-cattle marketing between Alberta and the United States; and
- identify alternatives that might reduce information asymmetry regarding marketing arrangements and prices for cattle producers and enhance industry competitiveness.

Captive Supply Comparison – Canada and the United States

There are no “official” estimates of captive supply in Canada or Alberta. CanFax reports an annual percentage of packer purchases of fed cattle by Alberta packers based on voluntary self-reporting by packers (www.canfax.ca/). Dynamics of packer purchases are better shown by another CanFax report, begun in April 2004 and based on voluntary reports from CanFax members (figure 1). The highest percentage of captive supplies, based on the summation of forward contracts, grid trades, and packer-owned transfers, was 67 percent, in both November 2004 and January 2005. For 2006, captive supplies usually comprised 50 to 60 percent of the total reported sales in Alberta.

Canadian estimates can be compared with U.S. estimates from mandatory price reports, which began in April 2001 (www.ams.usda.gov/lsmnpubs/). Figure 2 shows packer purchases by alternative methods. One estimate of captive supply would be the

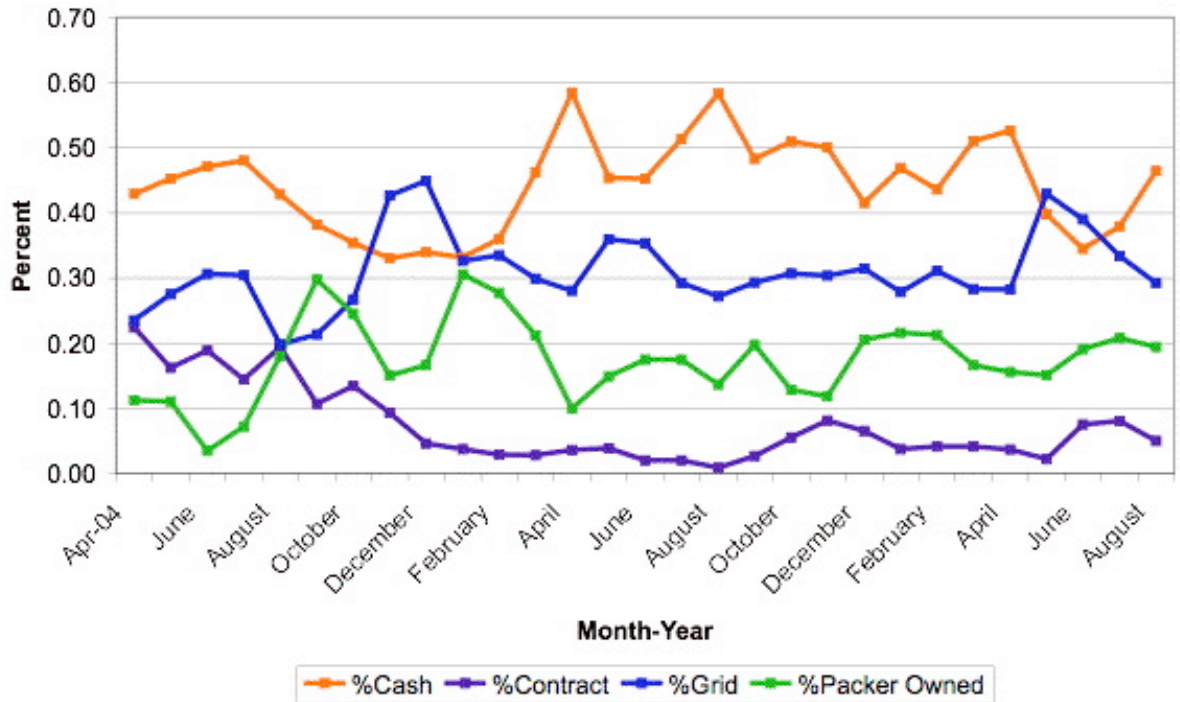


Figure 1 Weekly Alberta fed-cattle trades by procurement method as a percentage of total voluntarily reported trades, April 2004 to September 2006 (source: CanFax).

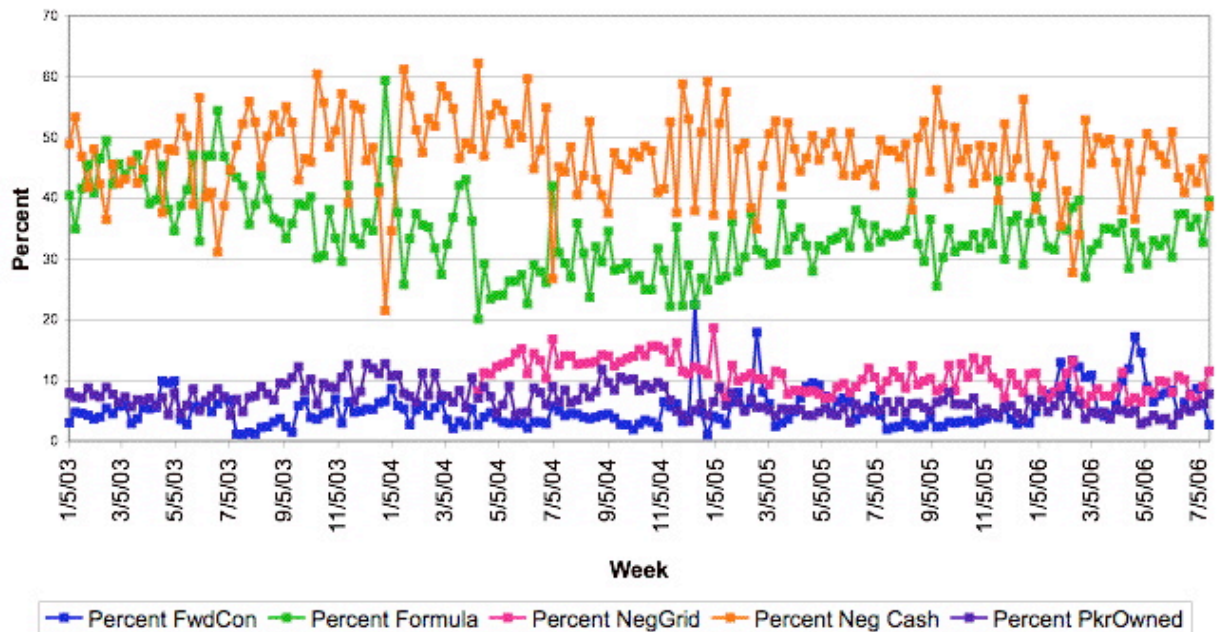


Figure 2 Weekly U.S. fed-cattle trades by procurement method as a percentage of total fed-cattle purchases, January 2003 to June 2006 (source: Agricultural Marketing Service).

summation of purchases by formula-based and negotiated grid, forward contracts, and packer-owned transfers. The highest weekly percentage of captive supply occurred in December 2003, at 78.6 percent. On two other occasions, the weekly percentage of captive supplies exceeded 70 percent. Typically, in 2006, the weekly percentage ranged between 50 and 60 percent, much like the level in Alberta.

Packer Concentration Comparison – Canada and the United States

Price discovery occurs in a given competitive environment. While levels of captive supply are generally similar between Alberta and the United States, packer concentration in the two countries differs enough to potentially influence price discovery in the two market areas.

No official estimates of packer concentration exist for Canada. In Alberta, the four-firm concentration figure approaches 100 percent, since nearly all fed-cattle slaughter occurs in plants owned by three packers. The combined market share of the four largest beef packers for U.S. steer and heifer slaughter has ranged from 79 to 82 percent since 1993 (www.gipsa.usda.gov/GIPSA/webapp?area=newsroom&subject=landing&topic=pub-stat). While concentration is seemingly higher in Alberta than in the United States, it should be noted the percentage is for a single province and is being compared with a concentration measure for all of the United States. Many U.S. states have only one or two large plants, much like Alberta, which has two large plants.

The United States has several adjacent states with large numbers of fed cattle for harvest, leading to substantial interstate movement as well as interstate competition among packers; however, relatively little interprovincial movement of fed cattle occurs in Canada.

More important than interprovincial movement to measuring buyer competition in Alberta is international movement. As long as the Canada–U.S. border is open, U.S. packers can and do compete along with Canadian packers for fed cattle from Alberta feedlots. Canadian feedlots reported that in 1999, prior to the border closing, 67.9 percent of fed cattle were sold to packing plants located in Alberta (Ward, Brocklebank, and Carlberg, 2006). The second largest percentage (20.9 percent) was exported to U.S. packing plants (note some of the packers purchasing Alberta fed cattle in the United States also own the two largest plants in Alberta).

Price Discovery Comparison – Canada and the United States

Ward, Carlberg, and Brocklebank (2007) reported how trading between feedlots and packers changed in Canada and the United States based on recent cattle-feeder surveys in both countries. Feeders in both countries have reduced their reliance on sealed-bid or live-weight negotiated pricing. Canadian feeders marketed 42.3 percent of their fed cattle by sealed bid in 2004 compared with 52.6 percent in 1999. U.S. feeders marketed 28.7

percent of their marketings on a live-weight basis in 2001, down from 53.5 percent in 1996. Canadian feeders increased their use of rail or dressed-weight pricing slightly (to 33.2 percent in 2004), while U.S. feeders significantly lowered their use of dressed-weight pricing (to 25.9 percent in 2001). Grid pricing increased slightly in Canada, but to just 8.0 percent, in 2004, while grid pricing increased markedly in the United States, to 43.5 percent in 2001.

A major issue with grid pricing, or value-based marketing, is how the base price is discovered before premiums and discounts for carcass characteristics are applied. Formula pricing was most common in both Canada and the United States (Ward, Carlberg, and Brocklebank, 2007). Canadian respondents reported using a formula tied to plant average costs for 37.8 percent of cattle marketed with a grid in 2004. Next most important was a formula tied to a cash market price quote (29.8 percent). In the United States, feeders using a grid for more than half their marketings in 2003 reported using a formula tied to the plant average price most frequently (39.1 percent of marketings) and a formula tied to a cash market quote next most frequently (29.6 percent).

Captive Supply Impacts in the United States and Canada

One objective of this study was to conjecture whether and to what extent previous research on the impacts of captive supply completed in and for the United States is relevant to Canada. With considerable consistency, this research finds small negative effects on cash market prices in the United States when captive supplies increase (Schroeder and Ward, 2006). There is no strong evidence of packers using their oligopsony power; in fact, there is some evidence that feeders initiate use of marketing contracts and agreements with packers.

Several factors combine to affect the impacts from captive supplies. One is the absolute level of captive supplies, which we noted is only slightly lower in Alberta than in the United States. Second is the variability and unpredictability of precommitted supplies in Alberta, which seems somewhat comparable (figure 1) to the United States (figure 2). Third is market structure, especially packer concentration, which we noted is similar in Alberta to individual feeding states in the United States when the Canada–U.S. border is open. Fourth is a factor potentially important in Alberta, combining motivation for using precommitted supplies with market structure.

Regarding the last item, the Tyson plant at Brooks, one of the two largest packers in Alberta, owns a large feedlot (Lakeside Feeders) adjacent to the plant. The feedlot existed prior to the packing plant being built, and ownership of the plant and of the feedlot has changed over time, altering the relationship of cattle fed in the feedlot as a procurement source for the plant. In 2006, the feedlot provided a relatively stable flow of fed cattle to the plant. Cargill, the other large packer in Alberta, has owned cattle in the past but tends to use contracts more commonly for its precommitted supplies. As noted earlier, most contracted cattle are marketed on a grid basis, thus enabling the packer to target specific

cattle qualities for its branded beef programs. While some feedlots market a reasonably predictable flow of cattle to the Cargill plant each week, others do not, leading to some degree of week-to-week variability of precommitted supplies into the plant. Thus, each of the two largest packers uses a different form of captive supply to procure a substantial proportion of its harvest demand.

Policy Alternatives – Focus on Mandatory Price Reporting (MPR)

The Canadian beef industry could pursue one or more of several potential policies. One policy proposed in the United States as well as Canada would prohibit packers from contracting with feeders. Another would prohibit packers from owning cattle for slaughter. Canadian feeders were asked about outlawing contracts and marketing agreements in a 2005 survey, which was similar to a 2002 survey in the United States (Ward, Brocklebank, and Carlberg, 2006). Only a third of Canadian respondents (32.8 percent) favoured a ban on packers contracting with feeders, and more than half (55.2 percent) disagreed with this alternative. A significantly higher percentage of Canadian respondents (58.3 percent) favoured a ban on packers owning and feeding cattle. Of interest is the fact that the percentage of packer ownership is significantly lower than use of contracts and agreements, but feeders were more opposed to packer ownership than use of contracts and agreements.

While there is industry support from cattle feeders and producers for prohibiting certain types of business arrangements, there is also considerable opposition. Consequently, other policy alternatives that might result in less opposition need to be considered. One possibility that would affect captive supply use less directly than prohibitive types of legislative intervention but potentially could have a broader positive effect on overall price discovery – is mandatory price reporting (MPR).

A thorough assessment of implementing MPR in Canada was not within the scope of our study. However, drawing on the U.S. experience and evaluation of MPR provides a useful base from which to discuss the possible effects in Canada.

MPR in the United States provided the beef industry with new, useful information, though it resulted in a loss of other important market information. MPR revealed considerably more detail about numbers and general terms of trade for cattle procured under alternative methods to the cash market (i.e., contracts, marketing agreements, grids, etc.). In addition, more price information about boxed beef sales became available (or at least more transactions were represented in the reported prices). What were lost were price quotes for certain market regions where the USDA no longer summarized prices as they did before MPR. Timeliness of some market information also was adversely affected by MPR.

Would the Canadian cattle industry benefit from mandatory price reporting? A recent study in Canada reviewed MPR in the United States (Grier, 2004). Grier concluded that

MPR had increased the amount, accuracy, and transparency of information about prices to producers. He found MPR to be less timely than some voluntary price reports that it replaced. Thus, Grier was unsure whether or not MPR assisted producers in making better marketing decisions. He concluded that MPR probably had not helped producers get better prices for their cattle.

Grier's assessment of MPR in Alberta relative to the United States made no explicit reference to information as a public good. Any individual can use public information freely, and regardless of how many people access market information, the amount of information available remains the same. Because of this character of market information, its value is difficult to measure for each user. As a result, each user in turn has difficulty placing a value on ensuring its availability, timeliness, and accuracy. This paradox suggests that, from a public perspective, individual producers would underinvest in information collection relative to the public value of such efforts. Therefore, in the United States, the cost of market information has been borne in large part by taxpayers rather than relying on the private sector. That is not to overlook or diminish the voluntary price reporting efforts through such organizations as Cattle-Fax, Texas Cattle Feeders Association, and others, which Grier appropriately discusses.

An impediment to implementing MPR in Alberta and all of Canada as envisioned by Grier is the additional cost borne by CanFax members, which is a private primary provider of market information useful for price discovery, as well as the added cost to packers. However, no consideration was given to alternative means of implementing MPR, for example, if it were undertaken by Alberta Agriculture, Agriculture Canada, or some other public entity.

Grier makes a critically important point that relates to the perception of MPR in the United States and is equally applicable to expectations for MPR in Canada. While many producers in the United States expected higher prices to result from MPR, most economists expected MPR would have a neutral to no significant effect on price level. MPR was expected by some economists to increase price variance, which it did (Perry et al., 2005). MPR also was expected to increase transparency and provide additional information regarding captive supplies, both of which have occurred.

The primary benefit expected from MPR in Canada would be more information based on broader industry representation every day on prices and methods of trading cattle. Information transparency would increase because of the larger and more consistent sample of price and volume data being summarized each day. As has been experienced in the United States, MPR would not likely displace private industry price reporting services such as CanFax. In fact, because of the timeliness of real-time data needs, MPR may increase the importance of supplemental information from private sources.

MPR in Canada could be expected to provide increased confidence and verification of prices and increased information on terms of trade, extent of various types of marketing methods, and prices for different forms of cattle trades. However, if MPR is to be pursued

in Canada, a careful and comprehensive review of alternative funding methods will have to be considered, as well as what data to collect and how best to synthesize, summarize, and report the data. A key question that must be answered is how information would be collected for fed cattle exported to the United States, because without information on international trades, considerable potential value of an MPR system in Canada would be lost.

Summary

Many producers both in Canada and the United States argue the presence of captive supplies results in lower cash fed-cattle prices. These price discovery concerns have motivated policy proposals targeted to controlling how fed cattle can be marketed and who can own and feed cattle. However, captive supply arrangements evolved out of economic incentives by cattle producers and beef packers to engage in new, more effective business arrangements. Therefore, policies that might curtail such practices are met with considerable opposition by those who enjoy direct benefits from these arrangements.

This study reviewed research on captive supply impacts in the United States to develop conjecture regarding the applicability of the research to Canada. Part of that process involved comparing the level and type of captive supply use, extent of packer concentration, and use of various price discovery mechanisms in Canada and the United States. Further, we explored alternative policy proposals, settling most on one that is believed to offer substantial benefits.

The impact of captive supplies in the United States consistently confirms a small but statistically significant negative relationship between captive supply levels and cash fed-cattle transaction prices. Our assessment is that findings from U.S. studies are *generally* applicable to Canada, but important differences in the markets also make the findings of past research *not completely* applicable.

Mandatory price reporting, if implemented in Canada as in the United States, appears to offer an opportunity to increase information transparency, reduce information asymmetry between buyers and sellers, increase reliability, and provide additional useful information for price discovery. Critical questions not addressed in this study pertain to how MPR would be implemented and who would bear the costs. Further study is needed before it can be said with certainty MPR would provide positive benefits net of development and operating costs. Considerable work is required regarding the details of what data would be collected and how, what would be reported and how, whether or not exported cattle would be included, what the cost would be, how the funding mechanism would work, and what organization would be responsible for MPR.

References

- CanFax. Calgary, AB. <http://www.canfax.ca/>
- Grier, K. 2004. Final draft report: mandatory price reporting of beef cattle in Alberta. George Morris Center. Prepared for Alberta Beef Producers, July 2004.
- Perry, J., J. McDonald, K. Nelson, W. Hahn, C. Arnade, and G. Plato. 2005. Did the mandatory requirement aid the market? Impact of the Livestock Mandatory Reporting Act. US Department of Agriculture, Agricultural Marketing Service, Outlook Report (LDPM13501), September 2005. www.ers.usda.gov/Publications/LDP/Sep05/ldpm13501/
- Schroeder, Ted C., and Clement E. Ward. 2006. Price discovery and captive supply implications for Alberta beef producers and feeders. Kansas State University, North American Institute for Beef Economic Research, Information Bulletin 12-2006-01, December 2006. www.naiber.org
- Ward, Clement E., Andrea Brocklebank, and Jared G. Carlberg. 2006. Canadian vs. U.S. fed cattle pricing and marketing practices and viewpoints. National Beef Industry Development Fund, Report. http://www.canfax.ca/beef_supply/IASCPgMktgRpt.pdf
- Ward, Clement E., Jared G. Carlberg, and Andrea Brocklebank. 2007. Comparing Canadian and U.S. cattle feeding pricing practices and perceptions of pricing issues. *Current Agriculture, Food, & Resource Issues* 8: 28-39. www.CAFRI.org
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Endnote

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