

# **Preliminary Estimates of the Impacts of U.S. Country of Origin Labeling (COOL) on Cattle Trade**

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## **Summary**

The United States Mandatory Country-of-Origin Labeling (COOL) regime has not impaired cattle export market access to the United States. In 2008, the United States enacted and implemented COOL as part of the 2008 Farm Bill to ensure consumers could know the country of origin of many meat, fruit, vegetable and nut products that they purchase. This longitudinal multivariate econometric analysis found that COOL did not directly cause the declines in livestock exports to the United States, which largely coincided with a substantial economic downturn that sapped demand for more expensive meat products.

In 2009, Canada and Mexico challenged the COOL provisions related to muscle cuts of beef and pork as an alleged barrier to trade at the World Trade Organization for purportedly compromising their export opportunities and market access to the United States for live cattle and hogs. According to these countries, the cost of implementing COOL discouraged U.S. meatpacking and processing companies from purchasing livestock of non-U.S. origin and, as a result, reduced the prices of these livestock exports. In response to the WTO dispute, University of California-Davis professor Daniel Sumner and, in earlier submissions, with Iowa State University professor Sébastien Pouliot provided analysis bolstering these contentions (referred collectively as SP).

This study uses more robust data sources to assess the impact of COOL on market access and found that COOL has not had a significant negative effect on the price paid for imported slaughter cattle relative to comparable domestic cattle, COOL has not had a statistically significant negative effect on imports of feeder cattle relative to U.S. feeder cattle placements, and COOL has not had a negative impact on imported cattle for immediate slaughter. Specifically:

**Fed Cattle Price Basis Declined after COOL Went Into Effect:** COOL did not increase the price basis for imported slaughter cattle according to a more thorough analysis of MPR data; in fact, the price basis is substantially lower in the six years since implementation of COOL than it was the preceding four years by class, grade, and purchase arrangement.

**COOL Did Not Negatively Impact Imports of Slaughter Cattle:** Qualitative and econometric analysis of MPR and monthly trade and price data cast considerable doubt on assertions that COOL negatively affected imports of slaughter cattle. Econometric results are sensitive to model specification, estimation technique, and time period. The SP analyses are subject to omitted variable bias, in part, because it did not recognize the confounding effects of domestic and imported captive supply of slaughter cattle, or

macroeconomic and beef demand uncertainty during the time period when COOL was being revised and implemented.

**COOL Did Not Significantly Affect Imports of Feeder Cattle:** Using a comparable model to the SP model specification estimated with USDA monthly data on imports of 400-700 lb cattle did not show COOL having a significant negative effect of imports of feeder cattle from either Canada or Mexico relative to placements in U.S. feedlots.

The weight of credible economic and qualitative evidence demonstrates that COOL has had no demonstrable impact on the Canadian or Mexican cattle industries. Moreover, the analysis did not find that COOL resulted in substantial costs to beef packers, which would have been seen in lower reported prices. Finally, the robustness of the study provides more conclusive evidence that the SP analysis on behalf of the Canadian livestock and packing industry reached erroneous conclusions due to omitted variable and model specification limitations, and disregards the packers' own transaction data as reported under MPR.

This analysis uses the same metrics of cattle exports' market access as the SP analyses (including the difference between Canadian and U.S. cattle prices; the share of imported cattle processed in U.S. slaughterhouses; the share of Canadian feeder cattle placed on U.S. feedlots<sup>1</sup>). Each of these indicators was analyzed qualitatively and econometrically with weekly Mandatory Price Reporting (MPR) as well as monthly trade statistics. It also addresses several problems with omitted variable bias in the SP analysis, especially the failure to account for comparable cattle purchase arrangement techniques (negotiated purchases, captive supplies and packer-owned cattle) and comparing cattle of similar grades. The study uses data from the U.S. Department of Agriculture (USDA) for Mandatory Price Reporting (MPR) weekly data (from September 2005 to November 2014), USDA monthly data (1995 to 2014), USDA/U.S. Census Bureau trade data (1995 to 2014), monthly CanFax data (of limited availability) and USDA weekly data on Canadian feeder cattle prices (2005 to 2014).

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<sup>1</sup> The three factors in the SP analyses are: (a) the price basis, defined to be the price received for imported cattle minus the price of like cattle of domestic origin, (b) the ratio of imported cattle slaughtered in the U.S. to cattle of domestic origin, and (c) the ratio of imported feeder cattle to U.S. placements of feeder cattle in domestic feedlots.

## Introduction

American consumers overwhelmingly support Country-of-Origin labeling (COOL) to ensure that they know the source of their food. Farmers want to be able to differentiate their products in an increasingly international marketplace. This widespread support led to the enactment and implementation of Mandatory Country-of-Origin Labeling in the 2008 Farm Bill.<sup>2</sup>

Canada and Mexico immediately challenged COOL at the World Trade Organization (WTO) as a barrier to trade and the WTO dispute has continued since late 2008. In 2013, the United States strengthened the consumer disclosure on COOL labels to comply with the original WTO dispute resolution report. It is worth noting that the WTO has consistently ruled in favor of the legitimacy of the goal of COOL labeling and that COOL labels serve their intended purpose of informing U.S. consumers.

Canada and Mexico have contended that the COOL measures (as originally implemented and as strengthened in 2013) gave an advantage to domestic livestock producers by unfairly discriminating against livestock imports and that the compliance costs of COOL effectively create a barrier to export market access (in both volume and price of exported livestock). The Canadian government continues to allege that the COOL label itself has reduced livestock export market access to the United States by \$1.4 billion annually.<sup>3</sup>

Key considerations in determination of whether COOL negatively affected Canada and Mexico's cattle industry are: (a) the price basis, defined to be the price received for imported cattle minus the price of like cattle of domestic origin, (b) the ratio of imported cattle slaughtered in the United States to cattle of domestic origin, and (c) the ratio of imported feeder cattle to U.S. placements of feeder cattle in domestic feedlots. This report addresses each of these economic indicators with a more thorough econometric analysis and finds that COOL has not impaired livestock market access to the United States.

In a consulting report done for the Canadian Cattlemen's Association (CCA) and the Canadian government, with Canadian cattle market data provided by CCA, SP found *"significant evidence of differential impacts of COOL through widening of the price bases and a decline in ratios of imports to total domestic use for both fed and feeder cattle."* Veracity of the PS report cannot be determined because much of the Canadian data on which their econometric analyses were based is not publicly available, and public use of the data is controlled by CCA.<sup>4</sup> This study and subsequent studies by SP that relied on proprietary industry-controlled data were the basis for Canada's WTO challenge to the U.S. COOL measure. Not only is the data inaccessible but it was supplied to the authors

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<sup>2</sup> A series of legal and political difficulties have bedeviled implementation of Country of Origin Labeling (COOL) of beef and selected other food products since U.S. Congress mandated labeling in the Farm Security Act of 2002 then revised in the Food, Conservation, and Energy Act of 2008.

<sup>3</sup> See Tomson, Bill. "Canada's estimate of COOL damages: \$1.4B per year." *Politico*. December 24, 2014.

<sup>4</sup> <http://www.canfax.ca/Faqs.aspx>

by an industry group that is adamantly opposed to COOL and is a plaintiff in a COOL lawsuit against the USDA.<sup>5</sup>

Moreover, SP did not mention, let alone utilize, Mandatory Price Reporting (MPR) data as reported by U.S. beef packers to the Agricultural Marketing Service (AMS) of USDA, instead relying largely on data provided to them by CCA. MPR data are highly detailed, including origin, import or domestic, of cattle slaughtered in the U.S. and is thus a statistically and economically rich and robust data set for analyzing COOL. The time period covered by MPR data covers about 4 years prior to the implementation of the interim final COOL rule on September 29, 2008, and six years since, thus spanning the period in which COOL was defined, redefined and implemented and came into full force on March 16, 2009.

Since the MPR information comes directly from the beef packers, the MPR price and basis trends reflect actual operational slaughter costs and offers a distinct perspective from beef packers' statements about the costs of COOL to the U.S. packing industry.

### **The Difference between Canadian and U.S. Slaughter Cattle Prices (the Basis) Narrowed After COOL Implementation**

The detailed weekly MPR data show that the price basis was generally lower, not higher, by class, grade, and purchase arrangement after COOL was implemented in late 2008, compared to the four previous years. The use of the beef packers' own MPR data belie the claims that the cost of COOL compliance would create substantial segregation costs.<sup>6</sup> If these claims were true, the price basis would increase post-COOL compared to pre-COOL. Instead, the price differential between imported and domestic steers narrowed significantly since COOL went into effect after adjusting for inflation and expressed in U.S. dollars.

Table 1 shows the basis by class, purchase arrangement, and grade before and after COOL, computed as paired<sup>7</sup> averages. As can be seen, the basis declined for most of these categories after COOL was implemented. Categories in which the basis widened accounted for less than 15% of recorded import slaughter. Adjusted for inflation, the post-COOL basis changes shown in Table 1 would be even smaller compared to pre-COOL averages.

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<sup>5</sup> See United States Court of Appeals for the District of Columbia Circuit. No. 13-5281. American Meat Institute, et al. v. USDA et al.

<sup>6</sup> <http://www.meatami.com/ht/a/GetDocumentAction/i/87821>

<sup>7</sup> Paired comparison means that averages were computed only for weeks in which there was a domestic *and* an import transaction recorded in a category. There were many weeks in which no negotiated cash transactions were reported for imported slaughter cattle.

**Table 1. Price Basis by Purchase Arrangement, Grade and Class, Paired Comparisons Before and After Full Implementation of COOL, MPR Data, U.S. Dollars/cwt Dressed Weight**

<b>Class</b>	<b>Purchase Arrangement</b>	<b>Grade</b>	<b>Before COOL</b> (weeks ending 9/5/2005— 9/29/2008)	<b>After COOL</b> (weeks ending 10/6/2008— 1/12/2015)
Steer	Formula Net	0 - 35% Choice	-\$2.49	\$0.23
		35 - 65% Choice	-\$3.26	-\$2.14
		65 - 80% Choice	-\$4.60	-\$3.78
		Over 80% Choice	-\$7.26	-\$6.90
	Forward Contract Net	0 - 35% Choice	-\$2.91	-\$2.47
		35 - 65% Choice	-\$3.96	-\$3.30
		65 - 80% Choice	-\$4.63	-\$3.80
		Over 80% Choice	-\$5.47	-\$3.01
	Negotiated Grid Net	0 - 35% Choice	\$1.76	-\$1.43
		35 - 65% Choice	\$0.57	-\$1.03
		65 - 80% Choice	\$0.14	-\$1.67
		Over 80% Choice	-\$1.54	-\$2.71
Heifer	Formula Net	0 - 35% Choice	-\$1.59	-\$0.03
		35 - 65% Choice	-\$2.86	-\$1.70
		65 - 80% Choice	-\$4.51	-\$2.81
		Over 80% Choice	-\$6.89	-\$4.84
	Forward Contract Net	0 - 35% Choice	-\$4.91	-\$1.25
		35 - 65% Choice	-\$1.65	-\$4.02
		65 - 80% Choice	-\$2.53	-\$5.20
		Over 80% Choice	-\$4.07	-\$2.27
	Negotiated Grid Net	0 - 35% Choice	-\$4.04	\$6.25
		35 - 65% Choice	-\$0.25	-\$0.43
		65 - 80% Choice	\$0.41	-\$2.47
		Over 80% Choice	\$1.82	-\$2.39
Mixed Steer & Heifer	Formula Net	0 - 35% Choice	-\$2.74	\$0.97
		35 - 65% Choice	-\$2.06	-\$2.85
		65 - 80% Choice	-\$3.32	-\$2.92
		Over 80% Choice	-\$5.06	-\$4.85
	Forward Contract Net	0 - 35% Choice	-\$7.04	\$3.78
		35 - 65% Choice	-\$1.58	\$0.49
		65 - 80% Choice	-\$0.48	\$0.79
		Over 80% Choice	-\$2.81	\$1.47
	Negotiated Grid Net	0 - 35% Choice	\$1.72	\$0.55
		35 - 65% Choice	\$1.70	-\$0.04
		65 - 80% Choice	\$2.37	-\$1.14
		Over 80% Choice	\$1.72	-\$1.60

This analysis includes the important purchasing arrangement data element that has a significant impact on cattle prices. The omission of purchasing arrangements as a contributing factor to the basis yields analytical and model bias that incorrectly finds that COOL has negatively impacted the basis.

For example, the SP study concluded that *“after controlling for other factors that affect the basis, COOL widened the basis by 30 percent (Model 1) and 90 percent (Model 2).”* Another study done for the packers by Informa Economics, Inc. (previously Sparks Commodities) claimed a cost of \$15-18 per head for USDA’s initial proposal<sup>8</sup> and a cost to packers and processors of \$10-18 per head under the final rule. Informa claimed that under the final rule, *“... COOL costs ... (would) have a burdensome and differential cost impact at the packer/processor level.”*<sup>9</sup> CCA claims even larger impacts, *“The combined impact of the lower prices and the increased cost of transporting livestock greater distances resulted in a loss of about \$90 per animal.”*<sup>10</sup>

The SP analyses draw conclusions from a simple econometric analysis that is data dependent, including proprietary data and omitting key variables. But an estimation of the econometric model specification used by SP with MPR weekly average price data rather than the CCA data shows that COOL did not have a significant negative effect on the price basis. This analysis uses the packers’ own MPR transaction information which demonstrates that a more thorough model specification and data set reveals that COOL did not increase the basis between domestic and imported slaughter cattle prices, instead the price differential declined after COOL went into effect.

Basis comparisons must go beyond comparison of average basis, graphically or numerically or econometrically, and distinguish between class, grade and purchase arrangement to avoid invalid conclusions. Forward contracts dominate import slaughter cattle acquisitions, but not domestic acquisitions. There have been extended periods when pricing under forward contracts were both better than, and worse than, average pricing under formula arrangements or the residual cash market.

Figure 1 shows the weekly price received for imported and domestic slaughter steers and heifers averaged over all grades and purchase arrangements.

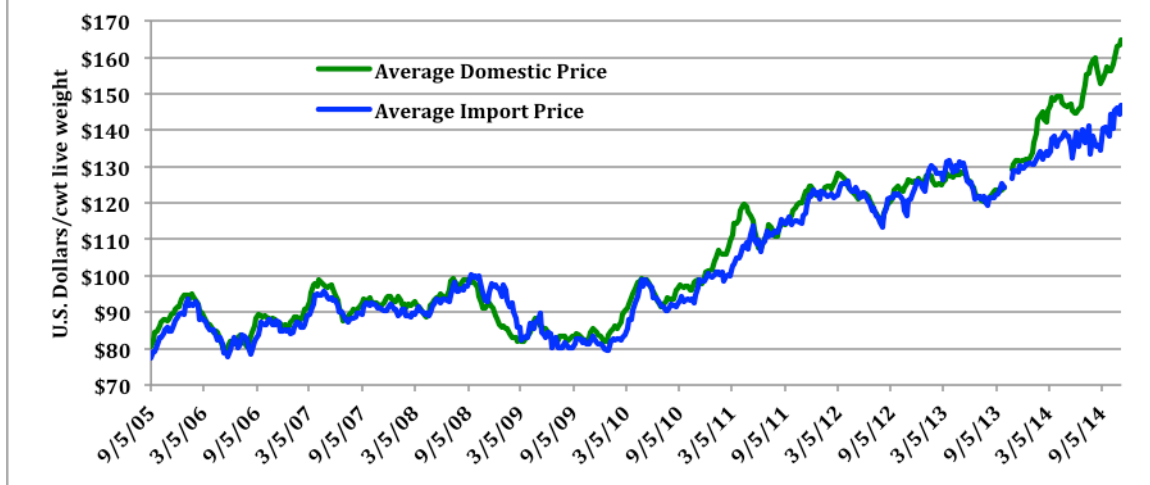
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<sup>8</sup> Comments on Guidelines for Voluntary Country of Origin Labeling Program, Sparks Companies, Inc., April 2003.

<sup>9</sup> Informa Economics, Update of Cost Assessments for Country of Origin Labeling – Beef & Pork (2009), June 2010.

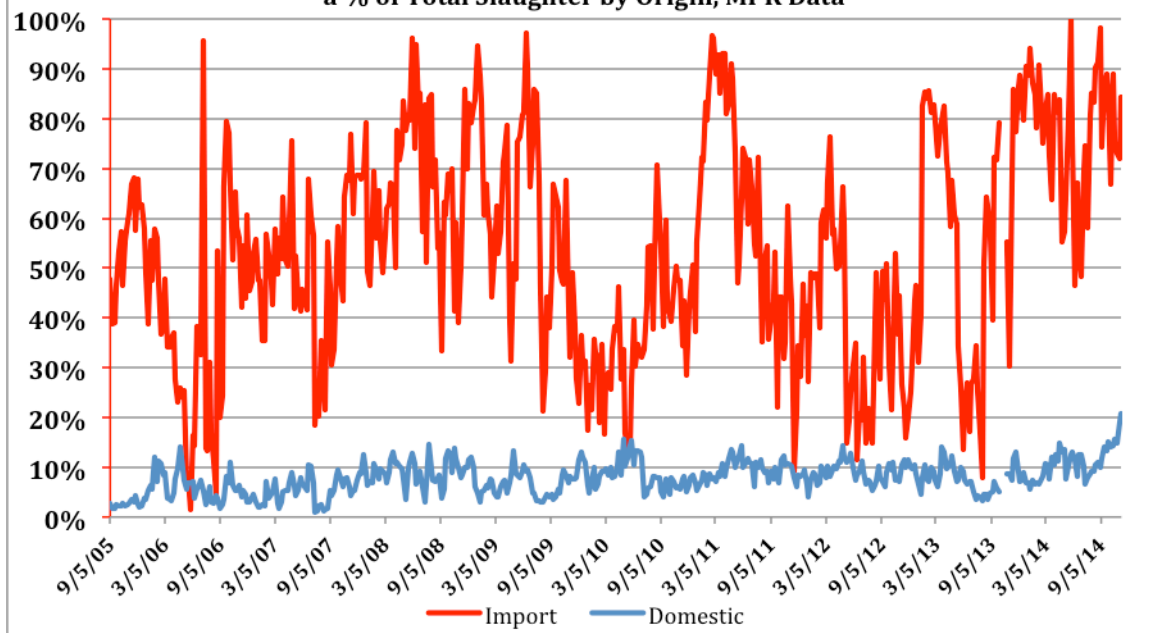
<sup>10</sup> <http://www.cattle.ca/market-access/wto-disputes/>

**Fig. 1. Average Prices Paid for Slaughter Steers & Heifers of Imported & Domestic Origin, MPR Data**



Domestic and imported prices generally moved together, with a small basis, except for notable exceptions in 2014 and 2011 when import price was well below domestic price, and in late 2008 and early 2009 when import price was well above domestic price for an extended period (figure 1). These differences are not due to COOL but to different purchase arrangements dominating domestic compared to import slaughter cattle acquisition. Forward contracts accounted for 54% of imports but only 8% of domestic slaughter over the past ten years (figure 2).

**Fig. 2. Slaughter Steers and Heifers Acquired under Forward Contracts as a % of Total Slaughter by Origin, MPR Data**

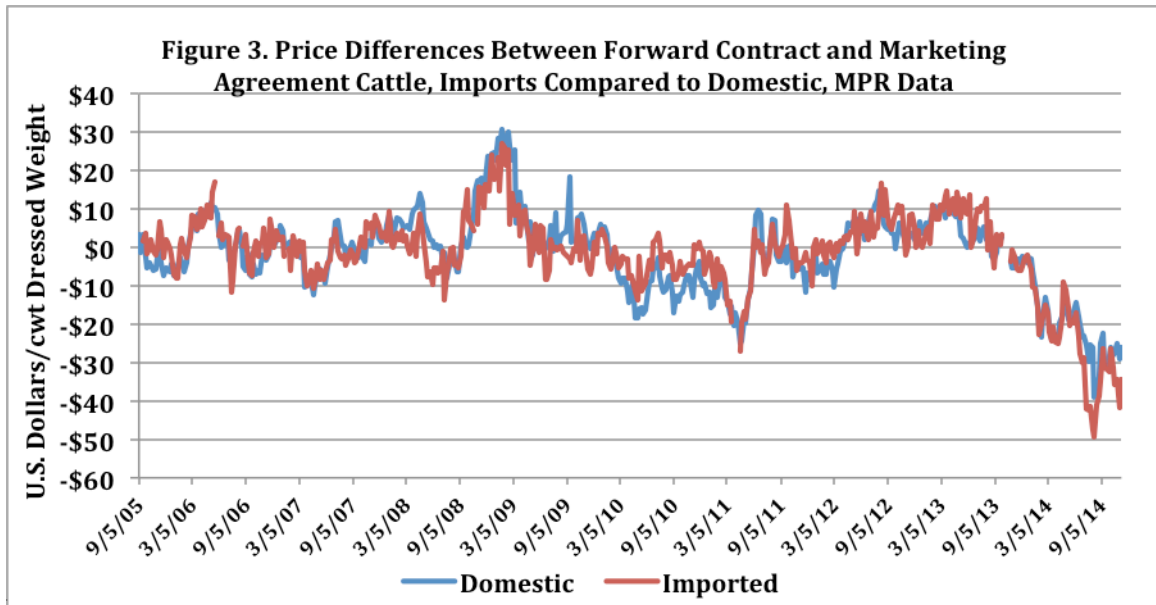


Formula (marketing agreements) and negotiated acquisitions dominate domestic but not import slaughter. Most marketing agreements have a base price tied to a negotiated price, while forward contracts are generally tied to futures market prices for cattle and/or exchange rates. Negotiated prices thus dominate domestic acquisitions, while futures prices dominate import acquisitions. When cash and futures market prices diverge, as they do from time-to-time, the average prices for imported slaughter cattle can diverge from the average domestic price because of the purchase arrangement between packer and feeder.

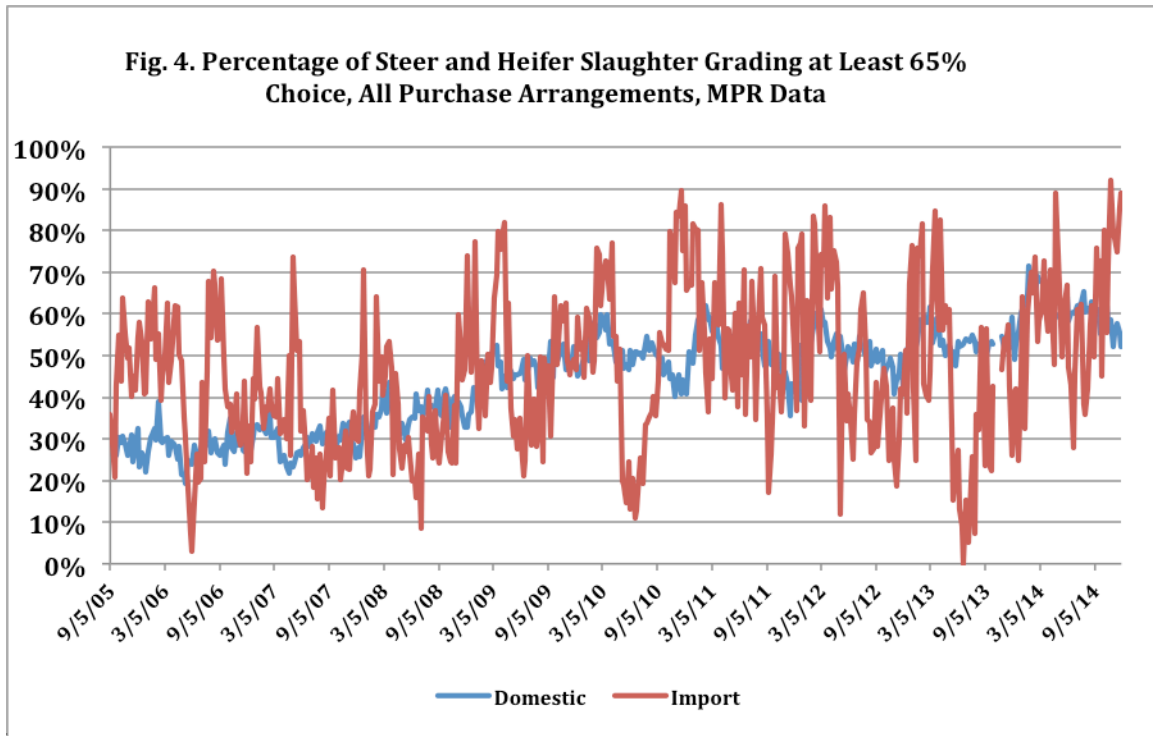
Figure 3 compares the difference between average prices received under forward contracts compared to formula arrangements for fed cattle of domestic and import origin. As can be seen, the differences are about the same for imported and domestic slaughter cattle. Thus, a simple comparison of price basis averaged over all purchase arrangements (see figure 1) may give the illusion of a negative effect of COOL on the price basis when, in fact, the differences are affected by price fluctuations in futures markets (forward contracts) relative to the residual cash market<sup>11</sup> and not due to COOL.

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<sup>11</sup> The base price in most marketing agreements is tied in one-way or another to price in the residual cash market for slaughter cattle.



Quality differences may also be important in explaining changes in cattle trade over time. MPR data reveal that that grade of domestic slaughter steers and heifers has trended upward faster than the grade of imported cattle has improved. Figure 4 shows the percent of steers and heifers grading at least 65% Choice. Those of domestic origin in this grade category have approximately doubled from 30% to 60%, while those of foreign origin have been quite variable but not trending as strongly as those of domestic origin. To the extent that packers desire to acquire high quality animals, they no longer need to rely on imported cattle to the extent that they did in the era prior to implementation of COOL.

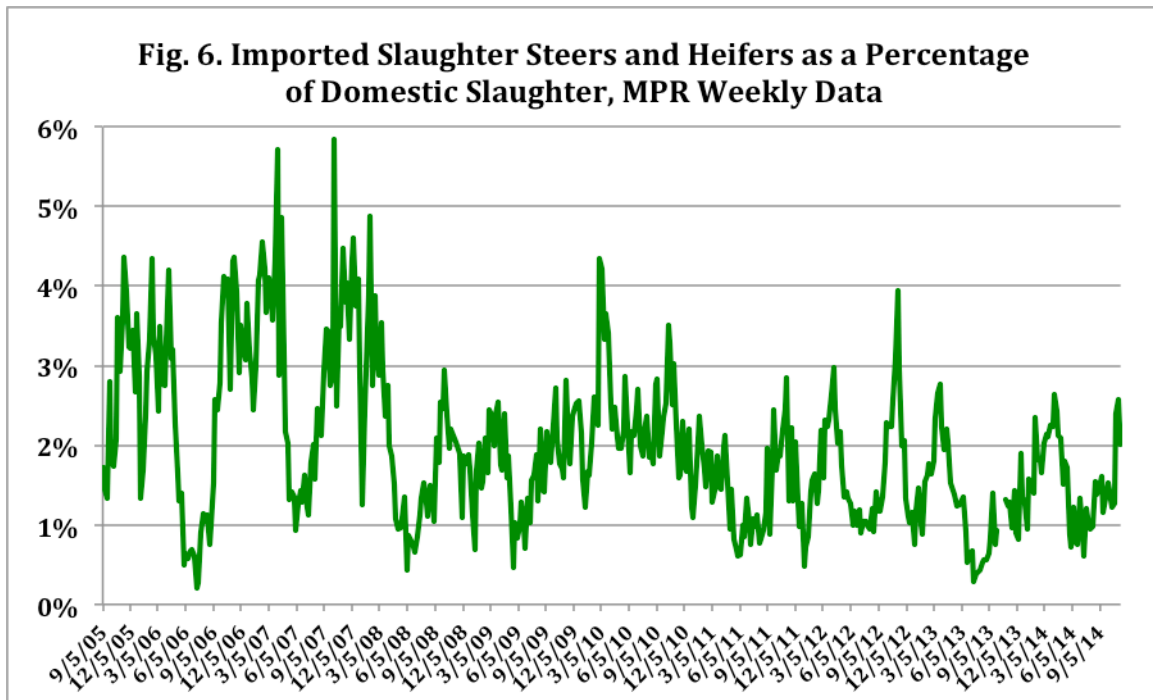
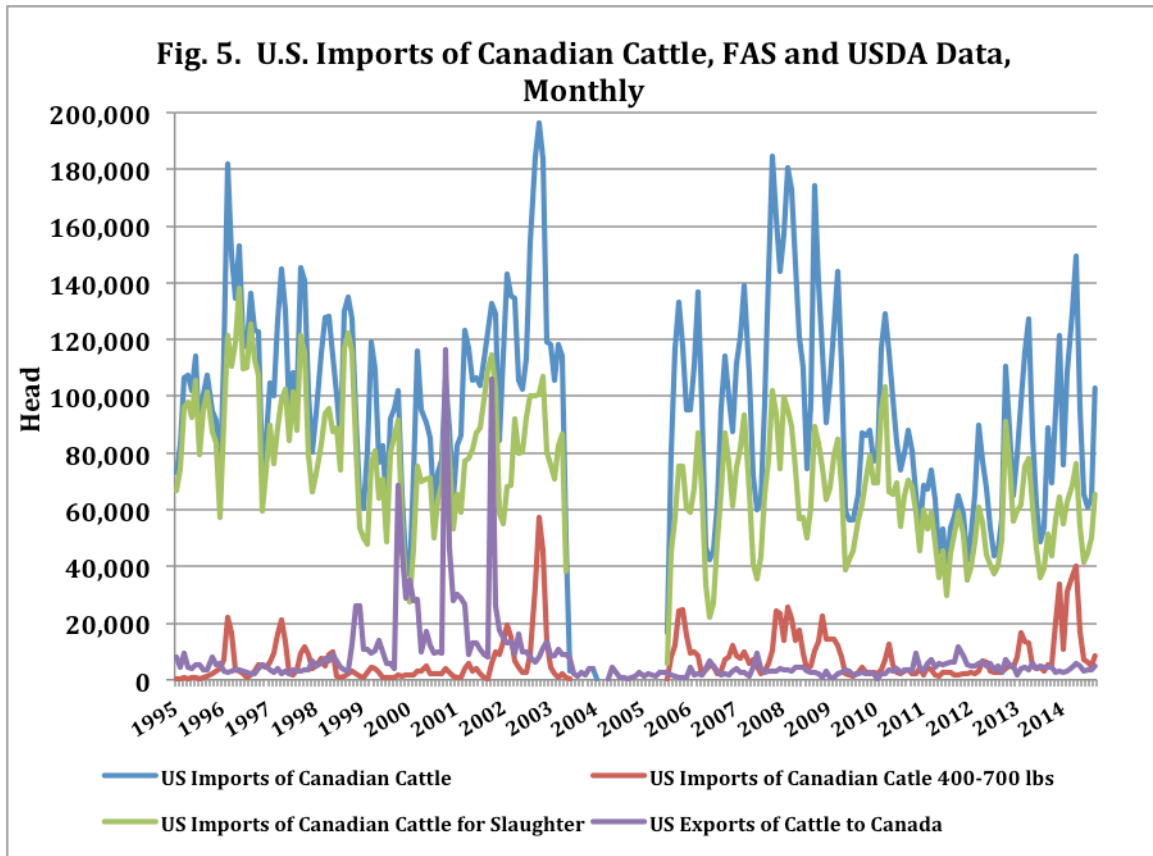


Thus there is no legitimate empirical evidence, based on actual transaction data as reported by the packers, to support claims that implementation of COOL created substantial segregation costs and caused the price of imported slaughter cattle to decline relative to the price of cattle of domestic origin.

### **COOL Did Not Lower the Ratio of Imported Slaughter Cattle to Domestic Slaughter**

Statistical, econometric and qualitative analyses do not provide strong support to the contention that COOL reduced slaughter of imported cattle. Econometric results are mixed, depending on data set, observation period, and included variables. The more comprehensive data sets analyzed here demonstrate that COOL itself had little if any impact on the share of imported cattle slaughtered by U.S. beef packers.

Figure 5 shows monthly U.S. and Canadian cattle trade for the past 20 years, while figure 6 shows slaughter of imported cattle, primarily Canadian, relative to slaughter of steers and heifers of domestic origin, as identified in the weekly MPR data.



An SP-like model estimated with MPR data has a significant negative coefficient on the COOL binary variable. However, addition of weekly captive supply (as a % of total

slaughter) negates this result. Models estimated with monthly data on the ratio of imports of Canadian slaughter cattle over 700 lbs to total U.S. slaughter are mixed, depending on observation period. Based on monthly data since Sept. 2005, beginning of the observation period used by SP, results show a significant negative coefficient on the COOL binary variable. However, estimating a similar model with observations going back to 1995 and allowing for the ban due to BSE, gives insignificant results.

In statistical terms, the SP finding that COOL negatively impacted imports of slaughter cattle is not a “robust” result because of confounded results and omitted variable bias.

Numerical and visual comparison (figures 5 and 6) of pre and post-COOL imports do not support the contention that COOL has or will harm the Canadian cattle industry. For the past several decades, about four-fifths of Canadian cattle have been slaughtered at Canadian beef packers and that has not changed since COOL went into effect. Nor has the share of Canadian slaughter cattle processed at U.S. plants declined significantly. The total Canadian beef cattle exports to the United States has not trended downward, particularly considering the buildup and historically high Canadian cattle herd before the BSE ban<sup>12</sup> relative to the declining U.S. cattle herd during that period.<sup>13</sup>

Annual data on Canadian cattle slaughter reveal that the ratio of exports of slaughter cattle to the U.S. to slaughter in Canadian plants was 21.2% pre-COOL and 20.5% post-COOL, an insignificant decline. Monthly trade data show that imports of Canadian cattle over 700 lbs for slaughter, which includes some cattle put in U.S. feedlots for finishing as well as cattle that go directly to slaughter, fell from 3.0% of U.S. slaughter to 2.7%.

MPR data reveal that the ratio of import to domestic steer and heifer slaughter was 2.4% pre-COOL and 1.7% after COOL was implemented.<sup>14</sup> However, it is noteworthy that this was not a slow downward trend but a shift that occurred in early 2008, a year before COOL was fully implemented. This shift may well have been triggered not by impending COOL implementation, but by macro economic conditions translating into beef and cattle demand uncertainty as well as to the Canadian dollar and the Peso weakening by 20-30% relative to the U.S. dollar during the developing world financial crisis.

Figure 7 shows weekly exchange rates for the Canadian dollar and Mexican Peso for the past ten years. Vertical lines in the chart bracket the period during which interim and final COOL were being implemented. As can be seen, both the Canadian dollar and the

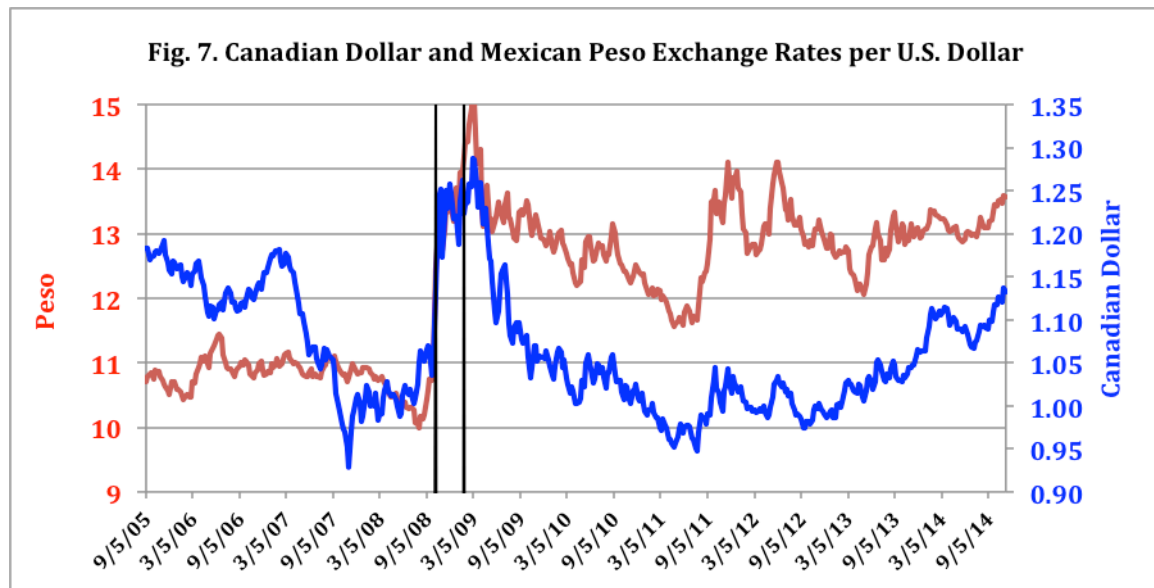
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<sup>12</sup> Slide 5 at [http://canfax.ca/CFX\\_forum\\_2014/pdf/CFX2014\\_speaker\\_Perillat.pdf](http://canfax.ca/CFX_forum_2014/pdf/CFX2014_speaker_Perillat.pdf)

<sup>13</sup> <http://www.beefusa.org/CMDocs/BeefUSA/Resources/Statistics/annualcattlenumbersandbeefproduction774.pdf>

<sup>14</sup> Rather than use the MPR data on the ratio of slaughter cattle imports to domestic slaughter, SP constructed a data series for fed cattle slaughter based, in part, on their “prediction” of feeder imports. Since they did not report their constructed data, or even mean values, the validity and relevance of their analysis is unclear. Figure 3 in their report apparently charts their constructed data for the fed cattle import ratio. The vertical axis in this chart is not labeled, but assuming that the chart represents percentages, visual inspection suggests an average of 2-4%. This, however, is higher than the actual ratio from MPR data, which has an average of 2.0% for the same time period.

Mexican Peso weakened dramatically during this period. Both currencies were at their weakest when COOL went into full force in mid-March of 2009.



Due to these substantial currency fluctuations, comparison of imported cattle prices in other currencies to domestic prices in U.S. dollars can be deceiving. Moreover, econometric models with price basis in Canadian dollars and the (change in the) currency exchange rate as a potential explanatory variable, as done by SP, may not fully account for currency fluctuations and are inappropriate to the extent that captive supply contracts with Canadian feeders are priced in U.S. dollars.

The contention that imports will make up a smaller share of slaughter capacity because of COOL also suffers from a logical fallacy that is revealed by more thorough analysis. SP's theoretical argument is that COOL reduces the U.S. domestic demand for imported slaughter cattle, thus explaining the significant negative coefficient in their econometric model of the import ratio. The corollary to their theory, which they did not consider, is that the demand for slaughter cattle of domestic origin should increase. Thus, one would expect that a COOL binary variable included in an SP-like econometric model of U.S. cattle slaughter would have a significant positive coefficient. But this is not the case, as a SP-like reduced form model with U.S. slaughter of fed cattle as the dependent variable, estimated with MPR data and with monthly trade data, has a significant negative sign, just like it does in the model estimated with the import ratio as the dependent variable and the same set of independent variables. This inconsistent statistical finding casts doubt on SP's attribution of a significant negative coefficient on their COOL binary variable to COOL, per se. The estimated coefficient may be confounded by a host of variables, omitted or included, and thus not represent any causal net effect of COOL.

Additionally, the use of various marketing arrangements by powerful buyers in the beef packing industry affects cattle prices. Changes in market power confound both statistical and qualitative analyses of COOL. SP assert that "... allowing for market power by US

*buyers would not impact the results qualitatively.*” At best, this assertion is true only if market power, by U.S. or Canadian buyers, did not change. To the extent that market power changed, and there are compelling reasons supporting a change in buyer power, statistical results based on the SP model specification are subject to omitted variable bias.

Domestic and foreign captive supplies of slaughter cattle are highly plausible variables to include in a model intended to estimate effects of COOL for two reasons. First, study after study has shown that captive supplies have a negative effect on acquisition price and may thus indirectly influence head slaughtered.<sup>15</sup> Second, captive supplies commit packers to future slaughter of cattle and may thus directly affect trade.<sup>16</sup>

Augmenting the SP model specification with captive supply variables negates the negative significance of the COOL binary variable and shows that import captive supply (as a % of total imports) has a highly significant POSITIVE effect on the import head ratio while domestic captive supply (as a % of total domestic slaughter) has a highly significant NEGATIVE effect on the import head ratio.

MPR data show that captive supplies of imported slaughter cattle, as a percent of total imports, were near 100% through 2007. Beginning in early 2008, before COOL was implemented, imported captive supplies dropped to an average of about 75% but fluctuated considerably from 20% to 100% through 2012, returning to about 100% in early 2013 (figure 8). The drop in imported captive supplies occurred months before interim COOL was implemented and almost a year before mandatory COOL and may have been triggered by packers’ uncertainty over beef demand during turbulent economic times that occurred along with implementation of COOL.<sup>17</sup> Although domestic as well as imported captive supplies vary considerably week to week, a strong upward trend is apparent in domestic captive supply from about 35% ten years ago to 70% now. However, the trend in domestic captive supply (as a percent) dropped off somewhat

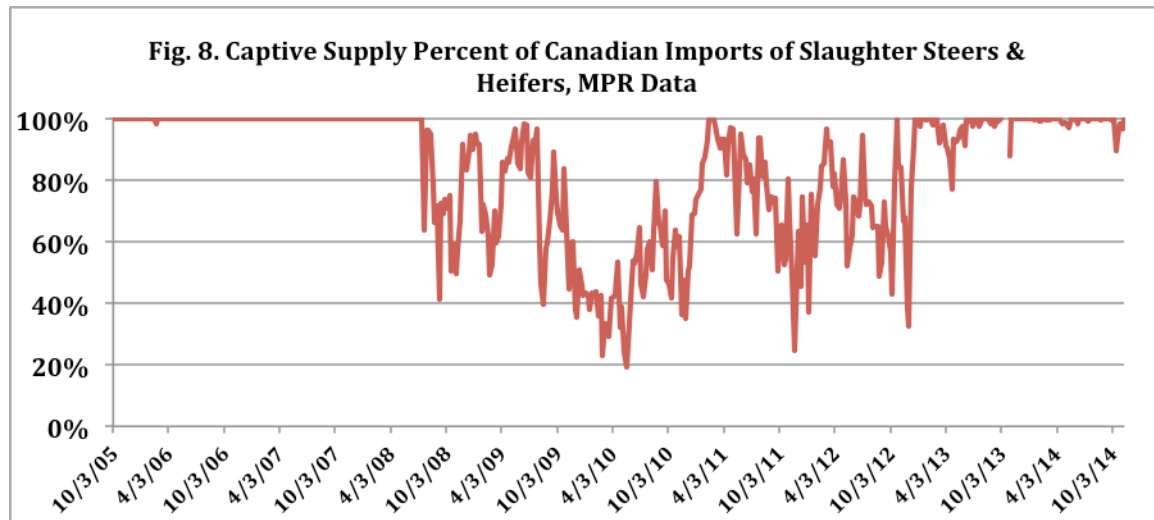
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<sup>15</sup> Some academic studies have argued that the strong negative relationship between captive supplies is correlation, not causation. However, public statements made by the CEO of IBP in 1988 and 1994, that captive supplies gave IBP “leverage” in the residual cash market, and sworn testimony by the Head buyer for IBP/Tyson strongly supports causality. See, Taylor, C. R., “Buyer Power Litigation in Agriculture: Pickett v. Tyson Fresh Meats, Inc.,” Antitrust Bulletin, Vol. 53, No. 2, Summer 2008:455-474.

<sup>16</sup> As a hypothetical illustration of the potential market and trade distortion of captive supply, suppose that a large domestic packer has a blanket marketing agreement with a large domestic captive feeder, normally acquiring 100 million pounds weekly. The packer also acquires imported slaughter cattle on the cash market, normally accounting for 10 million pounds weekly. The marketing agreement extends indefinitely and guarantees the feeder a buyer, but not a price. Contracts between packers and retailers are not publicly transparent, but are known to dominate the industry. Suppose that the packer has such a long-term contract with a retailer at a stated price, but volume is not specified exactly. The packer normally provides 110 million pounds to the retailer. What happens if demand softens to 100 million pounds? Because of the captive arrangement, the packer must abandon the import market and supply the retailer with cattle only from the large captive domestic feeder. Without these captive arrangements, we would expect the packer to acquire cattle from domestic as well as foreign feeders, say 95 million pounds domestically and 5 million pounds from imported suppliers. Thus, captive arrangements can distort trade and confound interpretation of binary variables in econometric models that do not account for captive supplies, domestic and imported.

<sup>17</sup> Lack of consistent time-series data on plausible macro economic variables to include in a model for import or domestic slaughter, particularly proxies for “uncertainty,” unfortunately limits how far one can go with statistical and econometric analyses.

during early 2008 at the same time that import captive supply fell sharply.



Expectations that beef demand would be lower due to macro economic events during the period when COOL was being implemented may have triggered packers' cutbacks in aggregate captive commitments.<sup>18</sup>

Public data are not available on the extent of captive supplies of Canadian cattle that are slaughtered in Canada. These arrangements for slaughter in Canada may also affect trade and confound interpretation of coefficients in a SP-like econometric model.

A detailed analysis in 2008 by the Canadian National Farmers Union (CNFU) points to captive supply problems on both sides of the border, concluding that “... *dramatically increased levels of captive supply in both Canada and the US have had price-depressing effects in both countries.*” How fluctuations in Canadian and U.S. captive supply arrangements affect price and trade cannot be determined without reliable data. One study reports that captive supplies in Alberta accounted for 50-60% of slaughter in Alberta in 2006<sup>19</sup>, while more recent news reports mention that Canadian captive supply is “large.”<sup>20</sup> Canadian captive supply data are maintained by the CCA based on packers voluntary reporting, but such data are not publicly available.

<sup>18</sup> Economic theory suggests that beef packers would not fully integrate vertically by ownership or through captive arrangements in the face of demand uncertainty. We can expect them to integrate for demand that they expect to occur with high probability, but not necessarily to integrate for demand that may be highly uncertain. If a packer is fully integrated vertically and the uncertain demand is not realized, the packer is nevertheless legally committed to slaughter the captive animals, thus resulting in financial losses to the packer. With partial vertical integration, the packer can meet contracted retail commitments in the presence of low demand, but walk away from the cash market, foreign or domestic, for slaughter animals. Thus we can expect packers to reduce captive commitments during periods of relatively high demand uncertainty to the extent permitted by contract terms. Such a reduction is expected to occur not instantly, but over a period of weeks or months.

<sup>19</sup> <http://ageconsearch.umn.edu/bitstream/46435/2/ward28-1%5B1%5D.pdf>

<sup>20</sup> <http://www.cattlenetwork.com/cattle-news/Canada-cattle-report-Packers-cushioned-by-large-captive-supplies-168180546.html>

Tyson's sale of their Canadian Lakeside cattle feeding and slaughtering operations also confound interpretation of econometric results.<sup>21</sup> Their exit reduced the number of meaningful buyers in Canada from three to two, which may have also affected prices (including the Alberta-Nebraska feeder price differential) and trade. The shift from three to two meaningful buyers is well beyond levels of market concentration that raise antitrust concern.

The 2008 CNFU report raises concerns about exertion of increased market power with Tyson's sale to an existing Canadian packer.

Fundamental "generational" change is also occurring in both the U.S. and Canadian cattle industry, change that cannot be accounted for in econometric models without meaningful and consistent time series data on quite complex socioeconomic factors responsible for such changes.

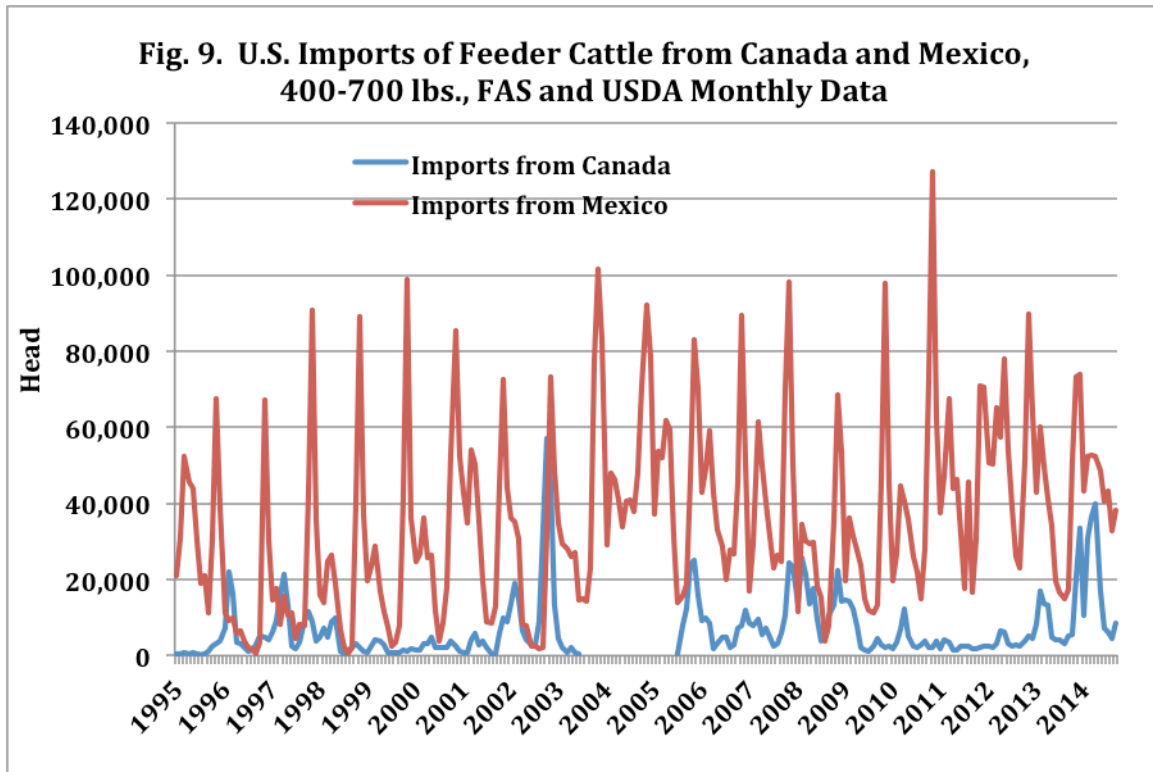
In summary, econometric and qualitative analyses do not support the contention that COOL has negatively impacted imported slaughter cattle relative to slaughter of cattle of domestic origin. At best, the econometric evidence is weak and lacks robustness.

### **COOL Did Not Affect the Ratio of Imported Feeder Cattle to Domestic Feedlot Placements**

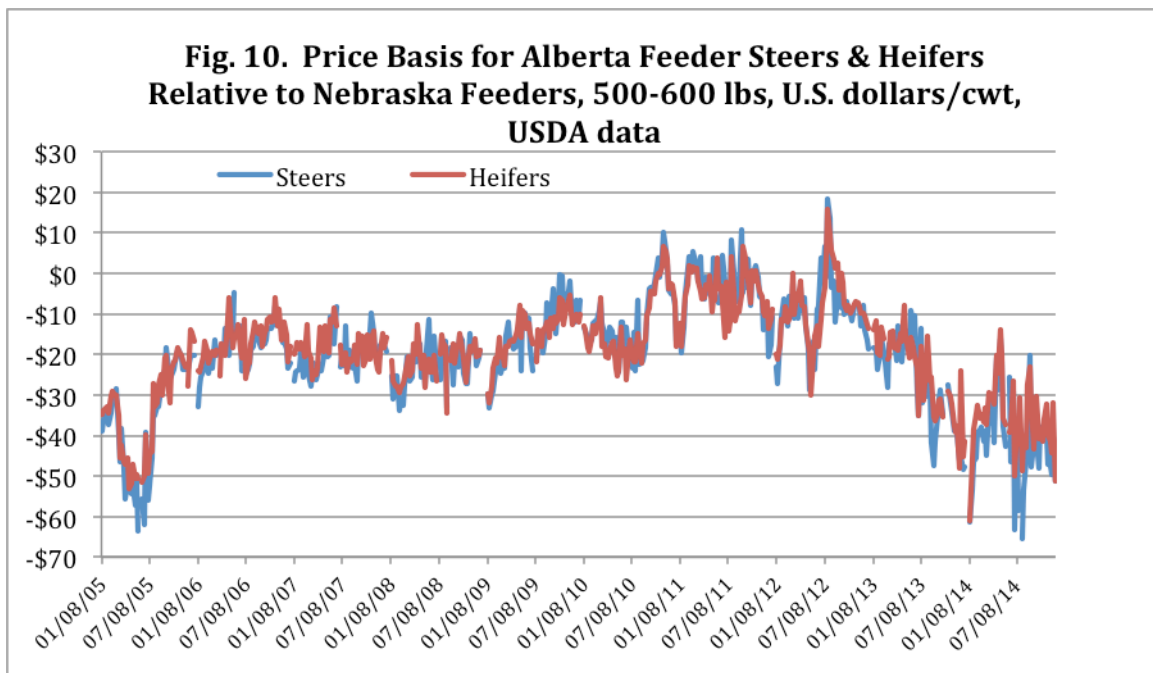
COOL did not have a significant negative effect on either Canadian or Mexican feeder cattle imports. Feeder cattle placements are especially responsive to weather, economic and cattle cycle variability. Numerical comparison of imports of feeder cattle from Canada is sensitive to the time period chosen. A severe drought in Alberta and other parts of Canada that spanned two years, 2001-02, resulted in a spike of feeder cattle moving to the U.S. During September-November of 2002, Canada exported over 8 times more feeder cattle than in the same months in 2001, and over 16 times more than in 2000. In the 3 years prior to full implementation of COOL, an average of 10,416 feeders were imported monthly, which fell to 7,456 feeders since. However, the average over 1990-2003 was 7,047, slightly lower than post-COOL. Imports of feeder cattle from Mexico have continued to rise (figure 9).

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<sup>21</sup> Tyson claims that they sold their Canadian cattle business because of COOL, but this appears to be pretext.. Instead, Tyson appears to have shed its Canadian subsidiaries because of business considerations. Statements in Tyson's SEC filings leading up to their sale indicate financial losses on their Lakeside packing and cattle feeding operations. U.S. cattle feeders suffered huge losses beginning in late 2007 and extending through 2009, so Tyson likely also suffered huge losses on their Lakeside feedlots that accounted for about 20% of their Canadian slaughter. More recently, Tyson's motive in announcing (October of 2013) that they would no longer buy Canadian slaughter cattle but would continue to buy Canadian born animals sent to U.S. feedlots is unclear.



SP's econometric analysis did not show a significant negative effect of COOL on the feeder cattle price basis. A similar model estimated with USDA data shown in figure 10 did not show a significant negative effect of COOL on the feeder cattle price basis. Exchange rates, transportation costs, and seasonality econometrically explain most of the variation in the feeder cattle price basis.



SP did report a significant negative effect of COOL in their model purporting to represent Canadian feeder cattle imports, however, this finding is compromised because their constructed data for the ratio of Canadian feeder cattle imports appears to include other cattle. SP's figure 3 shows the feeder import ratio fluctuating between about 0.5% and 9.0%, averaging roughly above 2%. Yet, USDA data show the ratio of imported Canadian 400-700 lb cattle to U.S. feedlot placements to average only 0.4% over the time period used for the PS chart.

SP-like econometric models estimated with the dependent variable defined to be imports of 400-700 lb cattle divided by U.S. feedlot placements does not show a significant negative effect of COOL on either Canadian or Mexican feeder cattle imports. In fact, U.S. imports of Canadian feeder cattle in 2013-14 are the highest they have been in the past 20 years (figure 9), excluding the period in 2001-02 when extreme drought in Canada caused a spike in imports.

The analysis above indicates cattle export opportunities from Canada and Mexico to the U.S. are subject to a number of variables that are completely independent of the implementation of COOL. Changes in market access are caused by these other forces rather than by COOL. In light of this reasoning, USDA should not undertake any changes to COOL based on arguments that COOL has limited Canadian and Mexican access to the U.S. market.