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A Synthesis of Economic Costs and Benefits of AMA's to the Cattle and Beef Industry

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Summary of Key Points: Proposals to legislate Alternative Marketing Agreements (AMA's) go back to the Johnson Amendment of 2002, and resurface periodically. Those proposals focus on requiring beef packers to buy a mandated percentage of fed animals on the cash. Based on rigorous economic analysis, there are some key points:

- There are both economic costs and benefits of AMA's.
- The short-term net economic impact of limiting AMA's is negative at about \$2.5 billion.
- Economies (efficiencies) for size and scale are significant in beef processing (lower costs and higher profits for larger plants).
- Costs associated with AMA's are related to market power of the packers relative to fed cattle sellers (cattle feeders).
- Benefits of AMA's are cost reductions for packers, which improves processing plant efficiency (reduced personnel, improves plant scheduling and operating efficiency). Some of those cost efficiencies are past back to cattle feeders and cow-calf operations. Importantly, has contributed to higher beef product quality.
- Statistical analysis showed that when AMA volumes are larger, relative to plant capacity, fed cattle prices are lower. But the impact is small (i.e., cents per cwt.).
- Without AMS's fewer cattle would be fed in feedlots because borrowing from lenders and the number of investors in that activity would be reduced.
- Detailed interviews with feedlots and packers have pointed to two primary long-run effects of restricting AMA's. First, would be increased risk and reduced capacity utilization at both feedlots and packing plants. Second, would be reduced product quality by moving back to a "commodity" market, and not meeting the needs of branded beef programs.
- Feedlots reported that reverting to a commodity market would result in a sales price loss worth \$1.00 per cwt. or more.

This document offers a synthesis of costs and benefits from the use of Alternative Marketing Agreements (AMAs) in the cattle and beef industry. AMAs are all the marketing methods other than negotiated cash trade. In the cattle and beef industry, these methods are primarily formulas and forward contracts¹. This synthesis is constructed from and based on research conducted prior to 2007 as part of the USDA GIPSA RTI Livestock and Meat Marketing Study (LMMS). Importantly, since that study was done the structure (number of packing firms, concentration, etc.) is essentially unchanged.

The purpose of this document is to offer a research perspective on the two proposals that have been circulating related to negotiated cash trade levels and 14 day delivery windows: 30% negotiated cash trade per 14 day window (30/14) and 50% cash trade per 14 day window (50/14). One of these is currently the Senate Bill with the title, “To amend the Agricultural Marketing Act of 1946 to foster efficient markets and increase competition and transparency among packers that purchase livestock from producers.” The proposal of 30/14 prefers to the requirement that beef packing facilities must procure 30% of their cattle needs through the negotiated cash market for delivery within a 14-day period. The proposal of 50/14 is similar with a 50% negotiated cash trade requirement. Currently, just less than 70% of cattle marketings are through formula methods. Formula methods imply that the price for the transaction is discovered through some other transaction and approximately 10% are forward contracted. Forward contracts are cattle to be delivered 30 or more days in the future. This leaves about 20% that is transferred through the negotiated cash market and a small portion, 2%, uses a negotiated grid. Variations in these amounts differ greatly across the five USDA AMS Livestock Mandatory Price Reporting regions.

Mandates to negotiated cash trade are limitations on AMA use. LMMS was a research project which examined the costs and benefits to AMA use. Thus, the LMMS is informative. The LMMS itself was mandated and funded by the U.S. Congress. It was a project to address a similar policy mandate in 2002 within a proposed amendment to the Farm Bill: “The Johnson Amendment.” Thus, we have scientific research which addresses past and current mandated-cash-trade questions. This white paper document will attempt to synthesize the costs and benefits. The original research publications can be found at: https://www.gipsa.usda.gov/psp/publication/live_meat_market.aspx. Six volumes, four teams, 30 researchers, almost three years of research effort, and peer reviewed.

The bottom-line impact of such a mandate is that there are almost no benefits and considerable costs due to lost efficiency and product quality. Similarly, but context reversed, that is because AMA use has considerable benefits and almost no costs. AMAs have solid economic foundations. This was the conclusion across the fed cattle and beef, hog and pork, lamb and lamb meat, and downstream meat distribution industries. For the cattle and beef industry, the costs are ultimately incurred by

¹ In the cattle and beef industry, AMAs are all the marketing methods other than negotiated cash trade. AMA’s are a continuum or range of transaction types; these methods are primarily formulas and forward contracts. In terms of formula transactions (the largest category), at one end of the spectrum are nearly negotiated cash transactions, like a packer paying \$1.00 to \$2.00 per cwt. above the current weekly average price reported by USDA’s Agricultural Marketing Service, for delivery the next week. The other formula transactions, which currently are less common, use a base price in conjunction with an aggressive grid, which is a scale of premiums and discounts for meat carcass characteristics, etc.

cow-calf producers and beef consumers. *The short-term impact, for a policy most like what is being considered, is a negative \$2.5 billion in the first year and a cumulative negative impact of \$16 billion over 10-years. This is the impact or cost leveled mainly on cattle producers. The 50/14 proposal would have these negative impacts and the 30/14 would have similar negative impacts albeit likely halved.*

It is also important to recognize the distribution of impacts regionally across the U.S. The current proposed mandates will have some impact on the upper Midwestern cattle feeding and packing industry. But there will be substantial impacts on the cattle feeding and packing industry in the southern plains and on producers that supply calves into that market. In my assessment, the distribution of impact could be called egregious.

Returning to details of the synthesis, the main “cost” to the cattle and beef industry of AMA use is the potential for beef packers to exercise market power. The main benefit to the cattle and beef industry of AMA use is the ability of feeding and processing facilities to operate more efficiently and provide higher quality beef products to consumers. The market power versus efficiency question is of interest to producer groups, industry groups, and policy makers and is often the bottom line in many policy discussions. Specifically, will legislation that limits or prohibits the use of AMAs result in a net benefit or net cost to the cattle and beef industry?

A second main cost to the cattle and beef industry of AMA use is the potential detrimental impact on the quality of price discovery. The LMMS did not address this issue whereas some of my ongoing and other research work does. An important point to keep in mind is that improving the quality of price discovery does not fundamentally change supply and demand and will, therefore, not change the costs and benefits as measured in the LMMS.

Four portions of the 2007 LMMS Final Report provide direct research results that help answer the question posed. First, the LMMS measures the effect of market power stemming from AMA use on fed cattle transaction prices. Fed cattle prices change with a variety of market factors, quality factors associated with the cattle in the transaction, and the extent of AMA use by the packing industry at the time of the transaction. This “cost” associated with market power and AMAs was measured in the study.

Second, individuals associated with businesses in the cattle feeding industry and in the beef packing industry were interviewed to assess the reasons for AMA use and to attempt to place a value on these alternatives to those businesses. AMA use was always part of a cost-reducing, efficiency increasing, and product quality increasing exercise with all the businesses interviewed. AMA use allowed for reductions in personnel, increases in capacity utilization, and improvements to cattle and beef product quality. These changes were all important.

Third, packer plant-level profit and loss (P&L) statements were analyzed in the LMMS. The focus was to determine the impacts of AMA use on the reported costs of slaughtering and processing fed cattle. The study examined supply chain management questions associated with AMA use. Specifically, did plants with higher levels of AMA use have lower cost of slaughter and processing? More efficient slaughter and processing results in higher prices to producers selling cattle and lower

prices to consumers buying beef and is a benefit to the industry. This efficiency benefit was measured in the study.

Fourth, these prior three results were combined in an economic model representing the cattle and beef markets such that the net impact can be estimated. The net impacts were measured across the different segments of the industry - from the consumer to the producer - and over different time horizons - from the current year out to 10 years in the future.

Evidence from each of these four topics will be presented in turn. Here, dollar impacts are quoted from the LMMS research. The base inflation year for that work is reasonably 2004. Between 2004 and 2019, the Producer Price Index (PPI) showed an inflation rate of about 36%. The CPI-measured inflation is higher, but the PPI rate likely better measures impacts within the raw material portion of the food system. Thus, impacts as measured in the LMMS are likely at least a third larger.

Impact of AMAs on Cattle Prices

The LMMS research team used packer data on fed cattle transaction prices between October 2003 and March 2005. These databases were maintained by packers for accounting purposes for the payment for cattle and are reported in aggregate terms by the USDA AMS under Mandatory Price Reporting. The databases contain a wealth of information about the cattle in the transaction including: whether or not the animals are predominantly beef breed, number of head, percent of animals in various USDA Quality Grades, percent of animals in the various USDA Yield Grades, percent of out-weight carcasses (too light or too heavy), cattle destined for branded or certified programs, and the method of pricing and marketing. Pricing methods include liveweight, carcass weight, and carcass weight with grid premiums and discounts. Marketing methods include individual negotiated (cash market), forward contracted, packer-owned, formula, and auction barn or dealer purchased.

Statistical analyses were used in which fed cattle transaction prices were explained as a function of market conditions, animal quality, and AMA use. Market condition variables included the USDA reported boxed beef cutout value, the nearby CME live cattle futures prices, the prior week's AMS reported cash market price for the packer's region, and the volume of animals on the showlist. Animal or transaction quality is measured by the variables listed earlier. Another important variable is showlist. Showlist size is not seen in the data directly nor reported by the USDA but it is the volume of cattle for sale at any one time. We measured showlist assuming the following. By definition, cattle slaughtered on any one day must have been for sale - or on the showlist - for at least the prior two-to-three weeks. So, the showlist on a given day is the sum of cash market animals slaughtered over the next 14 days. (Likewise, 21 days into the future were used but the results are the same.) AMAs were measured as a percent of plant weekly purchases or capacity. In other words, the percentage of cattle slaughtered in a given week that were AMA cattle. This variable provides a measure of market power.

What are the results? First, economic fundamentals and animal quality are the most important in explaining transaction prices. Higher boxed beef cutout values, higher futures prices, and higher prior week cash prices all result in higher transaction prices. Further, higher quality cattle garner premiums and lower quality cattle receive discounts relative to average quality animals. Larger numbers of animals in a transaction result in a premium. The model also shows that showlist size is

important - outside of the showlist variable itself. When cattle prices are strong relative to market conditions then they tend to stay strong and when prices are weak then they tend to stay weak. All these results show that many things impact cattle prices. You cannot just look at AMA volume by itself with prices. You must account for these other economic factors that can impact price.

The average fed cattle price in the sample period was 138 cents per pound of carcass weight. All prices, carcass, grid and liveweight, were converted to in-the-beef. Once all the above things were accounted for, we can look at the impact of AMAs. What we find is that when AMA volumes are higher, relative to plant capacity, then fed cattle prices are lower. But the impact is small. On average, a 1% increase in AMA cattle is associated with \$0.04 per hundredweight decrease in transaction price. Likewise, a 10% increase in AMA cattle is associated with a \$0.40 per hundredweight decrease in transaction price. If all AMAs were eliminated - for all plants the average utilization was 17% - then the associated price increase would be \$0.68 per hundredweight of carcass. This is \$6.12 for a 900-pound carcass. The impact was small but statistically significant. Further, it is important to recognize that this measure is from all the plants in the US. The result is a weighted average across all plants. The national average result is small, and this suggests all the regional or plant specific impacts are small as well.

Impact of AMAs on Cattle Feeding and Packing Operations

Part of the project involved interviewing cattle feedlots and packers in person and asked a series of questions regarding on how restricting packer procurement would impact business. The questions asked included the following:

- What kind of immediate adjustments would your company have to make if packer procurement relationships of livestock were restricted?
- What effects would restrictions on packer procurement relationships of livestock have on how your company operates in the long run?
- If this method affects costs, what would you estimate is the percentage change in costs compared with using the negotiated cash market?
- If this method affects quality, what would you estimate is the percentage change in value compared with using the negotiated cash market?

The cattle feeder responses to the question of immediate adjustments were mixed. Some thought they would go out of business and that the adjustments would have a dramatic effect on the structure and stability of the industry. Others thought that the adjustments would have no impact on their business or that effects would depend on how narrowly packer procurement relationships was defined. Still, others had no opinion.

One implication of restricting AMAs that was noted by several respondents was the impact on risk-bearing ability and capacity utilization. Outside investor capital reduced the equity that the cattle feeding business must provide to feed cattle. Known marketing arrangements allowed cattle feeders to secure both outside investment and better terms from lenders. Without AMAs then the cattle feeding business would feed fewer cattle and would have to borrow more against the cattle. The individual feeders would have underutilized capacity or would have to find new investors to

replace the capital that investors whom sought specific marketing methods once provided. There is investment capital that will feed cattle when the cattle are forward contracted or marketed under formula.

To attract capital that is not in cattle feeding would require a higher rate of return than cattle feeding currently offers; otherwise, that capital would already have been invested in cattle feeding. Given that the supply and demand of beef is relatively fixed in the short run, fed cattle prices are not expected to change substantially. Thus, higher rates of return would have to come from downward pressure on feeder cattle price. Likewise, if feedlots have more debt and/or more risk, the higher cost of borrowing will result in lower bids for feeder cattle.

Packers indicated that in the short run they simply would adjust to the new restriction and the extent of adjustment would depend on how the restrictions were defined. And that over time any costs implied by restrictions would be internalized and would impact fed cattle bids.

In the short run, feedlots and packers would adjust to restrictions on packer procurement relationships. Packers face the same beef demand and cattle supply, but they would buy more cattle through other methods. Individual feedlots that have AMA cattle would face increased risk and higher financing costs because they must own or find owners for the cattle. Packers expect that they would have to reduce capacity utilization if procurement relationships were limited. In the short run, because cattle supplies are fixed, someone would own and feed the cattle, but there would be a higher rate of return or higher finance costs to replace the capital that is removed, thus leading to downward pressure on fed cattle and feeder cattle prices.

Feedlots and packers identified two primary long-run effects of restricting packer procurement relationships of cattle. The first effect, consistent with short-run impacts, would be increased risk and reduced capacity utilization due to removing capital from the feeding sector. The second effect would be reduced product quality by moving back to a commodity market. Feedlots and packers expressed concern about the difficulty of meeting the needs for customized product in branded programs. New strategies would have to be developed to meet this segment of the market; otherwise feedlots and packers would miss out on these higher-value consumer markets.

Several respondents have an expectation that removing or restricting capital to the sector ultimately will lead to reduced capacity, particularly during downturns in the market. Greater quality concerns, more risk, and less capital will lead to a smaller beef industry. Feedlots thought that their costs would increase if packer procurement relationships were restricted. Cost savings associated with AMA cattle come in the form of operational efficiency and lower average overhead cost through improved throughput.

Operational efficiency from packer procurement relationships results in more consistent operations. The number of cattle in the feedlot is more consistent from month to month. Labor is used more efficiently because of this predictability. For example, a labor efficiency of one person per 1,500 cattle may be achieved using packer procurement relationships rather than an industry average of one per 1,000 cattle. Feedlots with AMA cattle have more consistent cattle and feeding programs and the consistency improves efficiency. For example, a feedlot might need fewer feed trucks and could have larger feed batch runs, because a high percentage of the cattle would be on

the same program (instead of having many different types of cattle and rations). Some feedlots reported a 20-percentage point increase in capacity utilization due to packer procurement relationships, which spreads overhead costs over more cattle.

Cost savings were estimated in the 17% to 22% range across those interviewed. With \$0.30 per day yardage cost (not including feed) and 150 days on feed, total feedlot cost per head is \$45.00; thus, cost savings would be \$7.65 to \$9.90 per head. Labor cost savings estimates account for much of this gain and were reported to be in the \$1.25 to \$10.00 per head range. Quality premium loss estimates are over and above the efficiency gains and ranged from \$15.00 to \$17.00 per head.

Packers estimated their change in costs from restricting packer procurement relationships would be less than those reported by feedlots. They noted some lost efficiencies and the need to add more cattle buyers to return to an all-cash procurement system (for example, an additional buyer costs \$0.40 per head). Packers' concerns were related to beef quality and loss of customers for higher quality products.

Feedlots and packers expressed concern about the impact on quality if packer procurement relationships were restricted. They expected to revert to a commodity market with few incentives for higher quality cattle. Feedlots reported this loss to be worth \$1.00/cwt or higher.

The interviews and economic model results (in the last section) agreed that the changes in quality and prices are expected to be small because of restricting AMAs. They also agree that everyone from consumers to cow-calf producers would be worse off because of the restrictions. That is quality would be reduced, costs would increase for feedlots and packers, and cattle supplies would decline.

Impact of AMAs on Packer Plant-Level P&Ls

Monthly P&L statements from October 2003 and March 2005 were examined for all the plants operated by the four largest packers. These plants slaughtered 83% of USDA Federally Inspected Fed Steer and Heifer slaughter numbers.

The P&L data were used to examine four things. First, what is the average total cost (ATC) of slaughter and processing? We used a regression model to explain ATC as a function of volume - and other things. We were interested in the shape of the curve - how steep is it, is the bottom flat, and does it increase at higher volumes? Second, do plants with higher AMA volumes have lower costs all else constant? Third, do plants with higher AMA volumes have higher throughput than those with less? Fourth, do plants with higher AMA volumes have more predictable volumes?

What was found? The results indicate that ATC was a function of volume and other economic factors. Larger plants had lower ATC than smaller plants and the more cattle that were pushed through a plant the lower the costs were per head. The ATC curve for a representative plant is presented in Figure 1. Packer slaughter and processing ATC decreased sharply over the entire range of processing volumes. Plants that operated at the low end of ATC are 5-7% more efficient than those that operated in the middle and 12-15% more efficient than those on the high end. Large plants have significant cost advantages over small plants. This is a main reason for increasing concentration in the beef packing industry. Big plants are less expensive to operate per head than

are small plants. However, large plants require large volumes to realize these efficiencies. Consequently, securing supplies is crucial.

We also found that plants with higher AMA volumes had lower costs, after accounting for other factors like volume. If AMA usage was eliminated, then costs would increase by 0.9%. The average cost of slaughter and processing for this period was \$138.61 per head. Thus, the industry was saving \$1.22 per head through direct use of AMAs. But the direct impact was not the only impact nor the most important. We also found that plants with higher AMA volumes had higher average monthly slaughter and processing volumes. In the absence of AMA usage, average monthly volume would be 8% lower and increase costs by 2.6%. Finally, we found that plants with higher AMA volumes had more predictable average monthly volumes. Without AMAs, average monthly volumes would be 70% more variable and cause a 1.2% increase in cost. In combination, packing industry slaughter and processing costs are 4.7% lower because of the use of AMAs. This was approximately a \$6.50 per head cost savings. During this time period, the four largest packing firms had an average loss of \$2.40 per head. AMAs were important to the packing industry, and to the cattle industry, from the standpoint of efficiency. The dollar impacts may have been small because of the short period for which P&L data were available. Over a longer period than 18 months, cattle supplies would be more variable, costs would be more variable, and more variation in cost might be associated with AMA use.

Market-Wide Impacts of AMAs

The market-wide impacts of AMAs were estimated using an economic model that can simulate the variety of market interactions in the cattle and beef industry. The model starts with the consumer demand for beef and then demand is derived for the upstream products of boxed beef, fed cattle, and finally feeder cattle. The supply side of the model starts with feeder cattle supplied by producers and then downstream supplies are derived for fed animals, boxed beef, and retail product. U.S. imports of fed cattle and beef exports are also included in the model. All the models are dynamic but with most of the action occurring on the supply side. Price incentives at the retail level take time to filter down to the cow-calf producer and this producer's response is different for an incentive that lasts one year when compared to an incentive that lasts multiple years.

Figure 2 illustrates a very simplified version of this model. There are no dynamics in the picture and the industry segments are simplified to beef at retail and cattle at the producer level. Consumers pay the retail price and buy the equilibrium quantity. Consumer expenditure is the total revenue for the beef industry, is calculated by price multiplied times quantity, and is represented by the size of the largest box with dashed black lines. Marketers provide services and these services cost. The marketing margin is the top portion of the large box. Marketers receive consumer expenditures and pay producers the cattle price multiplied by the quantity. Revenue to cattle producers is the dark shaded bottom portion of the large box. In percentage terms, this is the producer's share of the consumer dollar.

Increasing marketing costs requires the marketers to capture a larger portion of consumer expenditures. We know marketing costs will increase if AMAs are limited from the interviews and the P&L analysis in the LMMS. Packers with AMA cattle have lower costs. If AMAs are limited, then marketers must pass on these cost increases - some to consumers who buy beef and the rest to producers that sell cattle. Beef prices must increase and cattle prices must decrease. These

changes are represented by the red lines in figure 2. The derived supply of beef and the derived demand for cattle both shift left. But consumers don't take higher prices without reacting - they buy less beef. Consumer expenditures are the large box with dashed red lines. Likewise, cattle producers will supply less when prices are lower or there are fewer cattle producers. The result is the same. It's less profitable to produce cattle so fewer cattle are produced. The overall impact is that the marketing margin portion of consumer expenditures and industry revenue must increase, and the remaining payment to cattle producers is smaller - and is represented by the red shaded box.

The magnitude of the changes depends on the relative size of all the supply and demand elasticities. Thus, all must be estimated, and these measures are presented in the LMMS Final Report. Reported and used elasticities are very similar to much other research. Once the elasticities are measured, the market model can be used to measure the changes in all the different prices, the change in the quantity (including imports and exports), and the changes in revenues for the different industry segments. However, there are two additional things to consider.

First, if there is market power and it is due to the use of AMAs then the cattle price may be too low in the beginning. We know there is market power from the analysis of fed cattle transaction prices. It's not in figure 2, but the market power will cause the cattle price to be too low and that piece of marketing margins can be given to the producer. (The idea is expressed by the text in the box.)

Second, the original demand may change. Beef demand has seen improvement since 1998 and if some of this is due to improved quality and consistency facilitated by AMAs so that limiting them would adversely impact demand. This point is backed up in the LMMS in the interview results, survey results, analysis of gross margins in the P&L data, and market modeling done to estimate the elasticities.

So, what is found when everything is combined and all the market interactions are considered? Even if all market power is due to AMAs and if there is no link between AMAs and improved beef quality - both of which are unlikely - limiting the use of AMAs does economic harm to producers and consumers. The impacts are presented in tables 1 and 2. This is the best-case scenario for producers. All other cases have larger negative impacts. The specific policy considered in the LMMS was a 25% reduction in the use of AMAs. And for the cattle and beef industry this means formula cattle. Changes in prices and quantities are presented in Table 1 for - some of - the different segments of the cattle and beef industry. Impacts on non-US producers and consumers are not presented. Changes in the wellbeing of the beef industry and its different industry segments and in the wellbeing of the consumer are measured through the economic concepts of producer and consumer surpluses. One-year impacts and cumulative 10-year impacts are presented in Table 2.

Changes in producer and consumer surpluses can be a difficult concept to follow. These are not changes in revenues or expenditures. There's more to it than revenue - for example costs change too - but it's also important not to get tangled up in the subtleties. The important thing is that the surplus changes are measures of changes in economic wellbeing. The measures are well-accepted and are bottom line dollar impacts. If you want to know what the economic impact of a policy will be on producers then you are asking about producer surplus. Likewise, the economic impact of a policy on consumers is consumer surplus. Let's outline producer surplus a little more first. In figure

2, if marketing costs increase then producers will receive lower prices and will produce fewer cattle. The portion of the gray box outside of the red box is the loss in revenue to producers - there is a vertical piece and a horizontal piece. But the economic harm to the producer is not the entire change in revenue. The vertical portion of the gray box is a loss of revenue due to actions by producers - their response to lower market prices - so it is not counted. You can view it as producers are responding rationally to economic incentives. You can also view it as the highest cost producers being pushed out of the business. The resources in the vertical portion move to other industries, are lost to the beef industry, but are not lost to the economy. So, the loss in producer surplus is the horizontal portion of the gray box. This can be viewed as lost profitability to the beef industry and lost wealth to the economy. This is the portion due to the price decrease and is outside of the producer's control. Let's turn to the consumer next. In figure 2, if marketing costs increase then consumers pay higher prices and purchase less beef. The price increase is larger than the quantity decrease because beef demand is inelastic so consumer's expenditures on beef increase. But the economic harm to the consumer is not the change in expenditure. Like the producer, the vertical portion of the change in expenditure is the consumer rationally responding to higher prices - they buy less beef. The vertical portion is shifted to consumption of other food products. However, the change the consumer can do nothing about is the change in price. This is the loss of surplus for the consumer.

Let's look at the magnitude of the impacts on prices, quantities, and surpluses from limiting AMAs. Consumers of beef and producers of cattle are impacted the most. Consumers face higher beef prices and eat less beef. Think about it, if a policy change drives up beef prices then they eat more chicken or pork. A policy that reduces AMA use will cost consumers close to \$370 million in the short run and \$2.5 billion in the long run. The impact was 0.8% of the size of total surplus the consumers get from beef.

The downstream industry segments face changing prices and quantities but most of the impact is due to fewer cattle. Retailers and wholesalers (packers are part of the wholesale segment) see higher prices but sell smaller quantities. The cost of the policy is about \$200 million in the short run and \$3 billion in the long run. These impacts are just over 1% of the total producer surplus for retail and wholesale industries.

Producers of slaughter cattle and feeder cattle (and cow-calf producers) are impacted the most. The simple fact is that the industry segment furthest upstream is the residual claimant on the consumer's dollar. Producers of cattle benefited the most from improving demand in the early-2000s and producers will be the most harmed from any policy that increases costs in the marketing system. Slaughter cattle and feeder cattle prices decrease, and the numbers of animals produced are also less. The policy costs slaughter cattle producers \$558 million in the short run and \$3.9 billion in the long run. The policy costs feeder cattle producers \$1 billion in the short run and \$5 billion in the long run. These impacts were 1.4% and 2.67% of the total producer surplus for the slaughter cattle and feeder cattle industries.

The total cost to all producers and marketers in the cattle and beef industry was about \$1.9 billion in the short run and \$12 billion over ten years. And these are in 2004 dollars. This is 6% of the total producer surplus that all industry segments capture. These losses are significant

percentages of the surplus that each industry captures, and the impact is mainly leveled on feeder cattle producers. The bottom line was that the market power was a lot smaller than the efficiency savings from the use of AMAs. Limiting AMAs loses producers a lot of efficiency downstream and gains producers little.

This is not a popular message, but it is consistent with large amounts of agricultural economics marketing research; the culmination of which was the 2007 LMMS.

Regional Distribution of Impacts

Before summarizing, it is important to discuss potential differences in the impact across USDA AMS price reporting regions. Regional differences were not considered with the LMMS. Thus, this section is not a synthesis of that report but is based on an understanding of current market conditions.

Nationally, just less than 70% of cattle marketings are through formula methods and approximately 10% are forward contracted. And nationally, about 20% of fed cattle marketings are through negotiated cash trade. However, in the Southern Plains and specifically in the Texas-Oklahoma-New Mexico region, just over 90% of cattle marketings are through formula methods, approximately 5% are forward contracted, and about 5% are marketed through negotiated cash trade. In the upper Midwest, 10-30% of cattle marketings are through formula methods, 10-30% are forward contracted, and about 40-60% are marketed through negotiated cash trade. Based on the national marketing method amounts, negotiated cash trade volumes will have to increase from 20% of the total to 30% or 50%. In the furthest southern plains, the negotiated cash trade will have to increase from 5% of the total to 30% or to 50%. This is between a tripling and a five-fold increase in the average use of negotiated cash trade marketing methods for the southern cattle feeding and packing industry. The costs of all mandate proposals are overwhelming leveled on the southern U.S. and producers that supply that system.

Further, it is important to consider the lower bound usage of negotiated cash trade. Week to week variation in cash market use is substantial. And mandates are not focused on averages but require minimums. So, all regions will be impacted. Clearly, the two regions that will be most impacted are Texas-Oklahoma-New Mexico and Colorado. The two regions of Nebraska and Iowa are least impacted. And Kansas is in between. It is also potentially important to not dilute the impacts through averaging. A region that is historically one in four weeks below the mandate threshold is not necessarily impacted by 25% of any total. Disruptions in supply chains in a single week or month do have the potential to persist for weeks or months.

Thus, it is reasonable that the 50/14 proposal is most like the 25% AMA reduction considered in the LMMS. The 30/14 proposal would be approximately half the impact of the 25% AMA reduction but could potentially be larger.

Some Concluding Comments

Limiting the use of AMAs by the cattle feeding and beef packing industries will decrease efficiency, will increase processing and marketing costs, and has the potential to reduce beef product quality. In today's dollars the impact is at least \$10 per head for the packer and at least \$25

per head for the cattle feeding industry. The dollar amounts in this summary are converting the LMMS impacts to today's dollars and also placing them in context based on my continued communication with the cattle feeding and beef packing industries. In today's dollars the total direct impact to the marketing system ranges reasonably from \$35 per head to \$65 per head. The larger amount is based on recent communications. The costs at the industry level would potentially be over \$2.5 billion per year in today's dollars, with the industry making economic adjustments and reducing in size, so that over a 10-year horizon the cumulative costs would be over \$16 billion. The majority of the impact would be borne at the cow-calf producer level (farmers and ranchers). Further, the impact is distributed substantially on the industry that does business or supplies those in the southern plains of the U.S.

In my assessment, there are substantially less expensive methods for improving the quality of price discovery in fed cattle markets than by legislating mandates. Further, for me and for my academic profession, these mandates offer an unprecedented experiment. The existing research is clear but are also conclusions drawn for a world that has not happened. Measurements from the real world must be made and extended to the policy proposed through economic concepts. That is the nature of and the common approach to this type of question. However, the mandate proposals, if enacted, will allow researchers to test if our economic thinking is correct. Actual cost and benefits of the policy can and will be measured.

Figure 1: Average Total Costs of Slaughter and Processing for a Representative Packing Plant

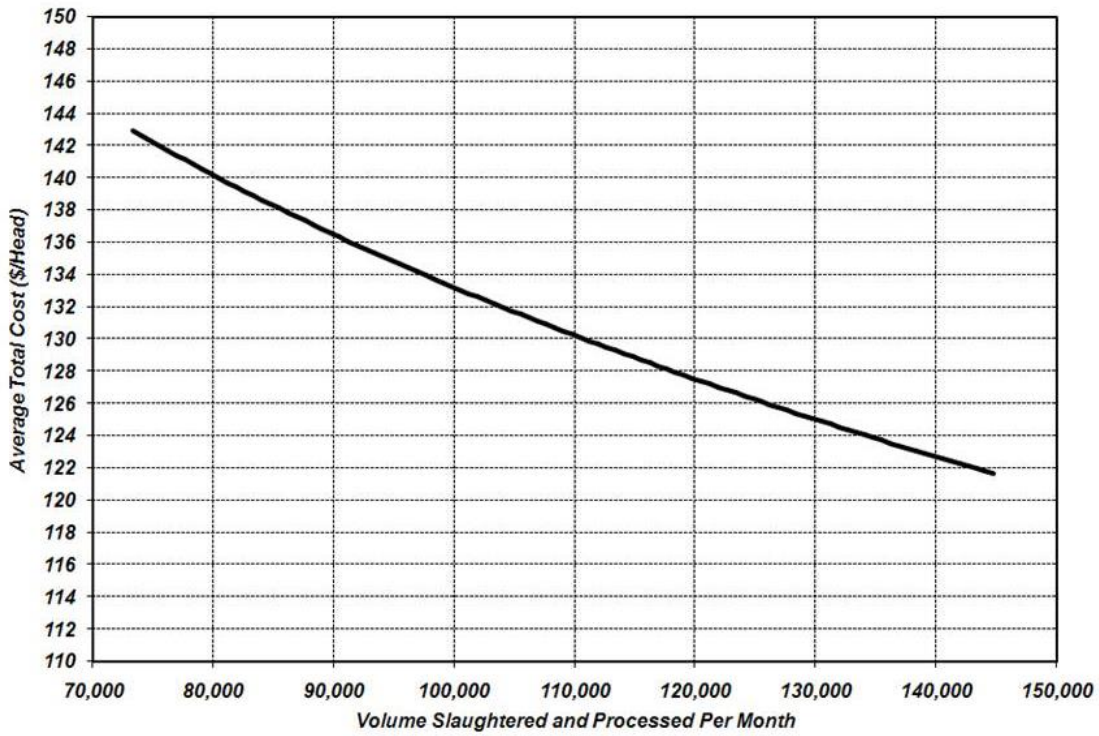


Figure 2: Simplified Market Equilibrium

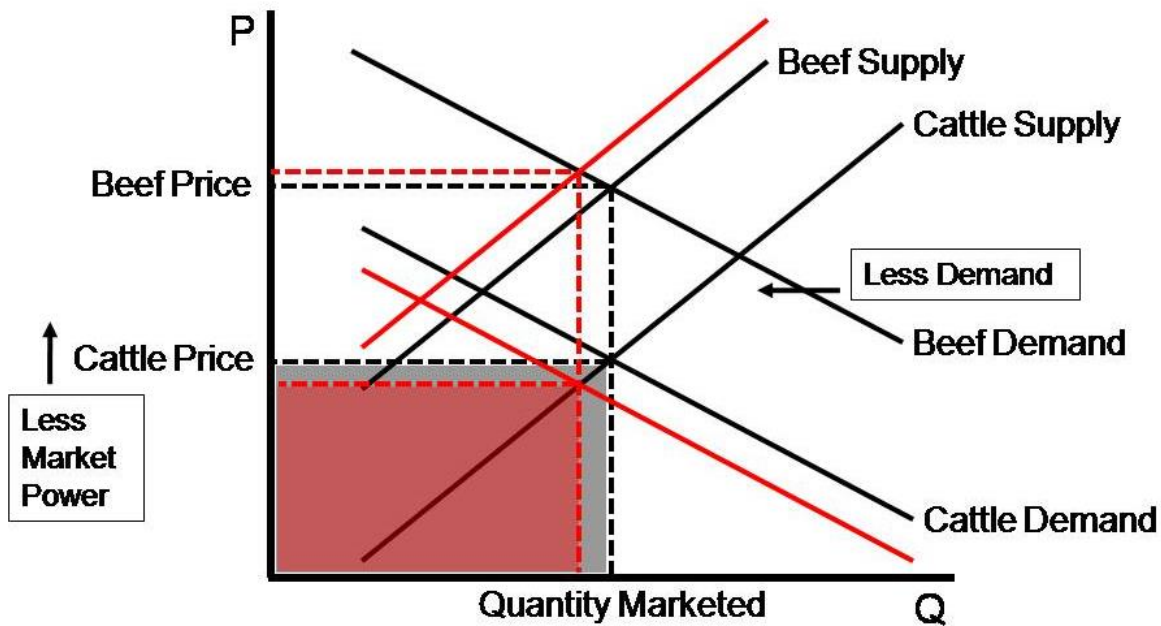


Table 1: Percent Changes in Prices and Quantities Given a 25% Reduction of AMAs in the Cattle and Beef Industry.

Variable of Interest	Short Run (1 Year)	Long Run (10 Years)
Retail Beef Price	+0.46%	+0.17%
Retail Beef Quantity	-0.43%	-0.24%
Wholesale Beef Price	+0.70%	+0.66%
Wholesale Beef Quantity	-0.82%	-0.83%
Slaughter Cattle Price	-1.43%	-0.81%
Slaughter Cattle Quantity	-0.25%	-0.38%
Feeder Cattle Price	-0.10%	-0.08%
Feeder Cattle Quantity	-0.94%	-0.34%

Table 2: Billions of Dollars of Changes in Producer and Consumer Surplus Given a 25% Reduction of AMAs in the Cattle and Beef Industry.

Industry Segment of Interest	Short Run (1 Year)	Cumulative Long Run (10 Years)	Percent Change in Total Surplus
Consumer Surplus			
Retail Beef Consumer	-\$0.371	-\$2.539	-0.83%
Producer Surplus			
Retail Beef Producer	-\$0.098	-\$1.504	-0.36%
Wholesale Beef Producer	-\$0.143	-\$1.654	-0.86%
Slaughter Cattle Producer	-\$0.558	-\$3.886	-1.35%
Feeder Cattle Producer	-\$1.069	-\$5.141	-2.67%
Total of All Producers	-\$1.867	-\$12.184	-1.14%

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