



Cattle Markets, Price Discovery, and Emerging Issues

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Potential Strategies for Improving Price Reporting and Transparency in the Fed Cattle Market

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One of the major concerns surrounding marketing agreements and formula fed cattle purchases are how they impact price reporting and market transparency. To understand the concern and ultimately determine ways to address it, the nature of the concern must first be delineated - it is multidimensional.

First, marketing agreement purchases do not contribute directly to the current week's cash market price discovery, though they contribute indirectly through anticipated volumes and impacts on market "currentness". This is because marketing agreements tend to be formula pricing with the base price in the formula established by reported negotiated prices from one to two weeks previous. As such, an often-voiced concern is that in thinly traded spot markets, there may be insufficient negotiated trade to establish reliable and representative cash market information. Furthermore, in some important cattle producing market regions (e.g., Texas-Oklahoma-New Mexico) during certain weeks, no negotiated cash price information is reported by USDA Agricultural Marketing Service (AMS). The essence of this concern is that formula trade causes declining spot trade volume thus reducing market transparency. As long as formula prices are based on prior negotiated prices, they do not represent current prices. Switching to use of an alternative base price such as live cattle futures or some other concurrent price that matches the delivery date of formula purchased cattle could alleviate the time matching concern. However, it does not address the concern about the price not directly contributing to today's price discovery.

A second dimension of the concern over formula trade, not unrelated to the thin market concern, is data confidentiality. AMS uses a set of confidentiality guidelines to determine whether particular market information is publicly reportable. If guidelines preclude reporting, the information may be either not reported or combined with other data and reported in more aggregated form to preserve confidentiality. The confidentiality guidelines AMS employs are at times binding and impact reporting, especially in market regions where there are only a few major packers and markets are thinly traded. There are strategies to consider in reducing confidentiality constraints including:

- 1) Modifying the confidentiality guidelines used by AMS to lessen reporting constraints
 - Would need careful research to determine feasibility and possible impacts.
- 2) Aggregating information over time (e.g., combining multiple days/weeks of data in AMS reports)
 - Not likely to reduce the problem appreciably because in some cases it is endemic with the regional market packer structure and market thinness.
 - Makes reported information dated and as such reduces value in information content.
- 3) Aggregating information across purchase methods (e.g., combining negotiated cash, negotiated grid, and formula trade into a single category rather than separate categories)
 - USDA aggregates now across these pricing methods as well as adding in forward contract trade in the weekly national comprehensive report. This is always reportable and provides a national fed cattle composite net price/value.
 - Removing the forward contract price data from the reported composite prices has been recommended in the past to make this price reflect more current prices, but to date that has not been done by USDA (Schroeder and Tonsor, 2017).
 - Aggregated national price reports do not reveal price variation present across market regions at times (Schroeder, Tonsor, and Coffey, 2018 and Schroeder, Schulz and, Tonsor, 2019).
- 4) Aggregating across larger market regions when reporting AMS data
 - Has been explored and could work but it can reduce the quality of the information in combined regions. For example, Texas-Oklahoma-New Mexico negotiated trade could be combined with Kansas and be reportable more often, but since Kansas is already generally reportable, this would slightly dilute the Kansas report with prices from outside the region and it would not add information value to the existing Kansas report (Schroeder, Schulz, and Tonsor, 2019).
- 5) Reporting price summary information in a new way using statistical modeling such as a hedonic model (discussed in more detail later)
 - Has been explored in preliminary work with AMS transaction data and may have promise but needs more assessment (Schroeder and Tonsor, 2017).

Finally, a third concern relative to market transparency is related to the information that is and is not reported in formula trade market reports by AMS. Since formula trade is a “catch-all” category of transactions that are not negotiated cash, negotiated grid, or forward contract, there is considerable heterogeneity across transactions. For example, non-hormone-treated-cattle (NHTC), grass-fed, organic, specific export-certified, grid cattle, and non-grid cattle purchased under marketing agreements are all included in formula trade market information reporting under LMR by AMS. As such, the reported price range in the formula trade category, representing by far the largest volume of cattle of the four categories, typically exceeds \$30/hundredweight (cwt) dressed weight. Such a large price range makes it difficult to interpret the information reported. The weighted-average price represents a broad array of types of cattle and transactions as the price range suggests. As such, there is no way to know why the range is so wide or what exactly the mixture of volumes of various types of cattle are that comprise the weighted average without having more data and completing careful analysis of the data.

Resolving the issue of excessive heterogeneity in formula trade is an issue that AMS may be able to partly address through modifications to LMR and/or how it is implemented. LMR began in 2001, a time when fed cattle trade was still mostly negotiated cash and has had only modest changes since inception. Over the same time, formula trade has become the dominant purchase method. A few options exist for providing more transparency in formula trade cattle. One proposal suggests having AMS publish a data library of marketing agreements similar to what has been done for years in the swine market. We will let others opine on the value of publishing contracts, but we suspect the value for weekly price discovery and market transparency is relatively low. A more obvious way to increase transparency is to detail more what the large price range represents in formula trade reports. A few possible ideas come to mind, each of which would need to be tested using transactions-level data collected under LMR that is currently not published:

- 1) Split formula trade market information into more refined categories for i) grid, ii) non-grid, and iii) specialty (NHTC, naturally raised, etc.) for price reporting. Currently, this level of transaction detail is not collected by AMS under LMR, so reporting it would require a change in data collection protocols.¹ Such further refined reporting, though, could be subject to confidentiality challenges which can only be determined by collecting and analyzing the data. Even if reporting under more refined categories was only feasible nationally it could still increase market information.
- 2) Combined with the above recommendation, we have also recommended AMS report percentiles of prices in addition to simple high and low prices in formula trade. For example, rather than reporting the high and low, report the 15th and 85th percentile prices. These are much tighter ranges than the absolute high and low and will exclude extreme prices that are likely not relevant to many producers (Schroeder and Tonsor, 2017).
- 3) Develop some form of hedonic modeling to refine price/value reporting. We have proposed this concept to AMS in past exploratory analysis of LMR transaction sample data, though only through preliminary testing (Schroeder and Tonsor, 2017).² The idea with hedonic modeling of LMR transaction data is that it might be capable of increasing pricing transparency while also maintaining confidentiality of actual reported prices if structured accordingly. This approach necessarily entails economic and statistical modeling of reported data to arrive at a reportable price and not just publishing reported prices themselves. However, what we are proposing is not as different as it might first seem since weighted-average prices regularly reported by AMS also require a statistical price summary method and are not prices themselves. One of the flexible advantages of using hedonic modeling to facilitate market information reporting is subsets of trade can be aggregated over time or space if necessary to ensure confidentiality while not withholding all the information. For example, if only a small number of NHTC cattle traded this week, they could be included in the hedonic model with the previous week's NHTC transactions, so an NHTC price differential could still be reported.
- 4) Combine currently reported separate categories with a goal towards more frequent reporting with details of most importance to the industry. Past research has considered alternative aggregation across market regions regarding negotiated trade. Here possible enhancements in formula

¹ Any considered adjustment in the level of transaction detail collected by USDA would warrant careful assessment and would apply to all forms of reportable transactions, not just formula trade.

² Hedonic modeling is routinely used by other federal agencies in price reporting (e.g., Bureau of Labor Statistics).

reporting may include merging steer and heifer categories (or live and dressed; or splitting % Choice categories into two groups rather than four) with a goal of enabling other perhaps more desired breakouts on reports such as specialty (e.g., NHTC) vs non-specialty distinctions.

Inherent in these possible suggestions, as is the case throughout this topic of discussion, are the trade-offs between what is reported and not reported that are directly influenced by private decisions regarding market channels used to transfer ownership of fed cattle.

Conclusion and Recommendations

Fed cattle marketing agreements were launched some 30 years ago focused on ensuring market access, enabling greater capacity utilization, and reducing transaction costs. Since then marketing agreements have evolved to become instrumental in improving overall supply chain coordination. In addition to the original benefits, cattle producers, now also utilize marketing agreements to secure higher prices associated with producing higher quality cattle, producing cattle to match downstream customer preferences, establishing stronger ties and relationships with cattle and beef customers, and building downstream alliances. Together, these provide important economic benefits to the cattle producer that collectively improve overall beef industry value and better serve end consumers. Any limits imposed on cattle feeders' ability to utilize marketing agreements would directly reduce the benefits such agreements have provided producers; packers; customers; and, ultimately, consumers.

Development of marketing agreements have also reduced weekly visible price discovery information. The increased popularity of marketing agreements, combined with the ways marketing information is reported by AMS, makes the associated price information challenging to interpret. Some suggest this reduces market transparency. Indeed, difficult to discern marketing agreement price information is not entirely transparent. However, neither is cash negotiated trade where only limited details about the cattle (sex, market region, and visually estimated quality grade) are known. We have suggested several ways to improve information and transparency for marketing agreement transactions.

References

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