

Beef Cattle Costs & Prices

Executive Summary

The U.S. meatpacking industry started consolidating rapidly in the 1970s and today, more than 70% of beef is processed by only 3% of meat processing companies. Large meatpackers are able to lower the cost of processing via economies of scale by running bigger operations. Options to supply beef cattle for processing for cattle managers have declined, since large packing organizations have led to the permanent shut down of smaller plants. By concentrating cattle slaughter geographically, large processors are able to mark down cattle prices because they have access to larger numbers of animals over a greater geographic area. Meanwhile, the cost of shipping cattle to processors, which increases with distance from the farm to the plant, are incurred by cattle farmers who already face increasingly narrow profit margins. These facets of the beef cattle industry are reflected in higher meatpacker profit margins, lower farm incomes for cattle producers, and higher consumer prices.

Highlights

- Four meat processors control the majority of the U.S. beef cattle market. They are:
 - Cargill, a global commodity trader based in Minnesota,
 - Tyson Foods Inc., the largest U.S. meat company by sales,
 - Brazil-based JBS SA, the world's largest meat packer, and
 - National Beef Packing Co, which is controlled by Brazilian beef producer Marfrig Global Foods SA.
- Due to this consolidation of the beef cattle industry, U.S. and state lawmakers are seeking increased oversight of the beef sector.
- Farm financial conditions in the cattle industry could continue to be challenging if slaughter capacity remains limited.

Limitations

- Changing to more transparent negotiating trade practices may help with price discovery and transparency for all market participants. However, it is not clear how any new system of negotiating cattle beef can affect future innovations in beef products and consumer preferences.

Research Background

Beef Cattle Lifecycle

Raising cattle for beef involves a complex chain of transactions; a single cow and its meat could be sold as many as six times before it finally reaches the consumer.¹ Raising beef starts at

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ranches, where ranchers maintain a herd of cows that give birth to calves once a year. At these cow-calf ranches, the calves will first feed from their mother's milk, then they are weaned and grazed on grass with supplemental feed, protein, and vitamins. Once mature, cattle can be sold at livestock auction markets, or moved to feedlots, where they will feed on roughage (such as hay and grass), grain (such as corn, wheat and soybean meal), and more. At 18-22 months of age or 1,200-1,400 pounds, cattle reach their market weight. At this point, the cattle are sold to beef packing plants to be inspected, slaughtered, processed into cuts of meat, packaged, and distributed.

Producer Side Pricing

Beef Cattle Trade

Cattle that have left the ranch and are in feedlots are mostly traded through alternative market arrangements (AMAs). These are standing agreements between feeders and packers that guarantee the price that the cattle will be traded at under a mutually agreed formula. They are the dominant means of trading cattle and in 2021 about 60% of all cattle sales in the nation were AMAs.¹

The second most common means for trading cattle is through prices negotiated directly between the feedlots and the packing plants. This system, in which all animals in a pen generally receive the same price, accounted for about 30% of sales in 2021.¹

The third most common way to trade cattle is through future/forward contracts. Cattle futures contracts are legally binding agreements between a buyer and seller for the delivery of cattle at a set date, in the agreement a price is set in advance. Cattle futures accounted for less than 10% of all transactions in 2021.¹

AMAs

Although AMAs reduce transaction costs and provide risk management advantages on both sides of the market, their pricing formula has raised concerns for market participants, including ranch producers and consumers. These concerns are related to the market power of some meat packers which allows them to reduce the prices paid to ranchers while also inflating marketing prices that the consumers face at the stores.^{2,3}

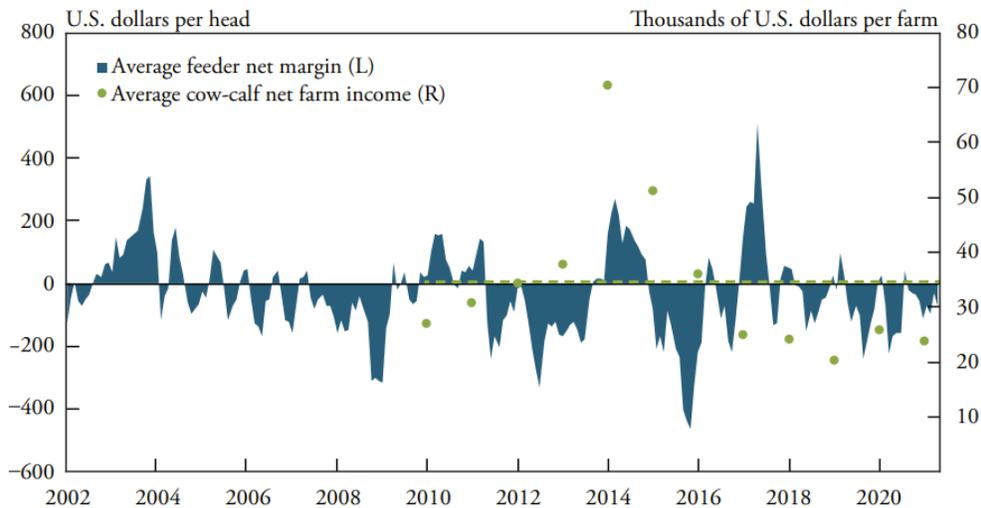
The reported gap between the price offered to a rancher and the price at the end of the consumer is largely impacted by the quality of price discovery. Price discovery is the process by which buyers and sellers arrive at a price for an asset.

Over the past few decades, analysts have raised concerns about the relationship between AMAs and price discovery, including that AMAs depend on prior negotiated prices, such as the previous week's reported live cattle prices. The decline in negotiated transactions and the rise in AMAs to amplify those prices has led to fears of mispriced cattle.

U.S. Cattle Managers' Income

As demonstrated in Figure 1, net profit margins and farm incomes for U.S. cattle producers tend to be narrow. That means that while production costs remain high, producers' net incomes tend to fluctuate based on various determinants (e.g., weather), or to decline over time. As the figure illustrates, with the exception of the years 2013-2016, since 2010 the average net income of a cow-calf producer has been either negative or close to zero (green dots). The average net income has declined by 32% since 2014. Cattle feeders' incomes are calculated by subtracting the costs of finishing a steer from the price received from the packer when the steer is mature. Similarly with cow-calf producer incomes, since January 2002, the national average for profit margins at feedlots (in blue) has been negative most of the time.¹

Average Profitability in the U.S. Cattle Sector



Note: Green dashed line shows average income from 2010 to 2020.

Sources: U.S. Department of Agriculture (USDA) and Iowa State University.

Figure 1. Green dots show the average net income of cow-calf farms from 2010–2021, which correspond to the numbers on the vertical axis on the right and the blue squares show the average feeder net margins from 2002-2021, which correspond to the numbers on the vertical axis on the left.¹

One reason for narrower profit margins in the cattle industry is that production costs are relatively high compared with other commodities.³ The primary costs associated with cow-calf operations are breeding livestock, land, rent, fuel, and feed expenses, which can comprise 60–80% of total variable costs.

Beef production and processing is expensive and capital-intensive, which has driven the industry toward economies of scale. That means fewer, larger operations that are able to operate and produce beef with lower marginal costs.³

Consumer Side Pricing

COVID-19-related disruption and weather conditions substantially impacted producer costs,

which subsequently increased consumer prices even further.¹ Among all the food and agricultural supply chains in the U.S., the beef supply chain faced the biggest economic disruptions from COVID-19.¹ Packing plant closures, labor shortages, and supply chain logistics were all challenges that the beef industry had to contend with during the early stages of the pandemic. There were also significant consumer demand impacts from consumer panic buying, local pandemic restrictions, and restaurant and bar closures.¹

Abrupt weather changes, such as abnormally dry or wet conditions, can also further increase cattle production costs, sometimes by as much as 30–75%.¹ This is because grass and forage production (on which cattle feed) are largely dependent on the weather. When grazing is not sufficient to meet the dietary needs of cattle, cow-calf producers must supplement with hay and other feed, which drives up production costs.¹

Overall, extreme weather conditions are expected to worsen in intensity and frequency in the decades to come in the United States.⁴ These extreme weather events, such as rising temperatures, extreme heat, drought, wildfire on rangelands, and heavy downpours are expected to increasingly disrupt agricultural productivity and lead to further heat stress for livestock, cause changes in water and forage availability, and increase disease and pest outbreaks, all of which can result in large economic losses for all producers in the U.S.¹

Price Discovery & Legislative Action

While AMAs (the most common way that cattle is traded currently in the U.S.) provide some benefits to the market participants and especially meat packers, they have raised concerns within the cattle industry. Much of the discussion against AMAs is focused on “captive supplies”, which refers to how ranchers have their cattle committed to packers well in advance of slaughter, which reduces the available selling options of the ranchers and the bargaining position of cattle feeders.

Lawmakers have proposed legislation to create an office for a special investigator within [USDA](#) to address concerns about anticompetitive practices in the meat and poultry industries and to assess whether the enforcement of the [Packers and Stockyards \(P&S\) Act](#), which aims to protect farmers and ranchers from unfair trade practices, is effective.

Moreover, [The Cattle Price Discovery and Transparency Act of 2021](#) (CPDTA), would establish regional mandatory minimum thresholds of negotiated cash and negotiated grid trades for the five regional fed cattle markets. By establishing these minimum thresholds and requiring mandatory reporting of prices, the legislation would limit the use of formula pricing, or AMAs, which have come to dominate the fed cattle market in recent years. This would represent a significant intervention in the way that cattle beef trading is done and is estimated to generate a pro-competitive impact for cattle/beef and hog/pork livestock markets.⁵

Laws such as CPDTA could improve the negotiable options for cattle producers (including the people who raise cattle and those who finish raising it). However, it is possible that stepping

away from the efficiencies of AMAs could stifle future innovations that could more closely align beef products with consumer tastes and preferences.¹

References

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