

Harvested Cattle, Slaughtered Markets?

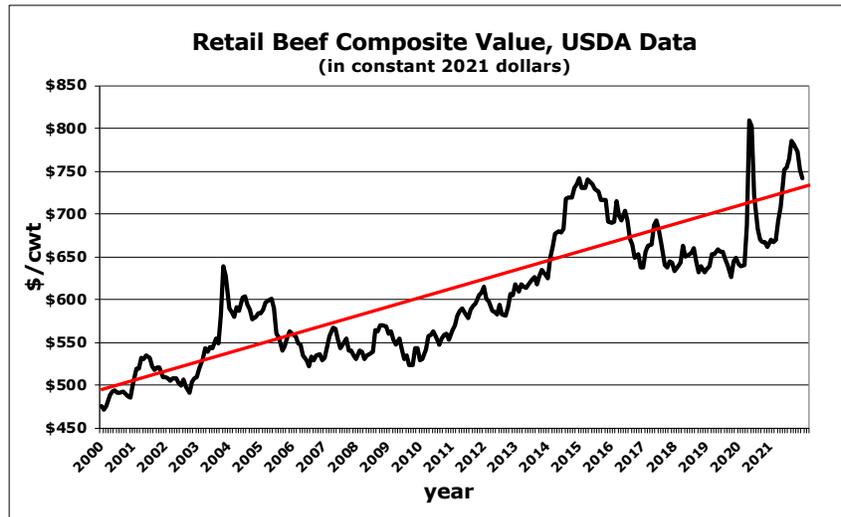
C. Robert Taylor¹

“In economics, the most potent checking force bar none is competition. Bosses, shareholders and pro-business politicians all loathe it.” The Economist, July 4, 2003

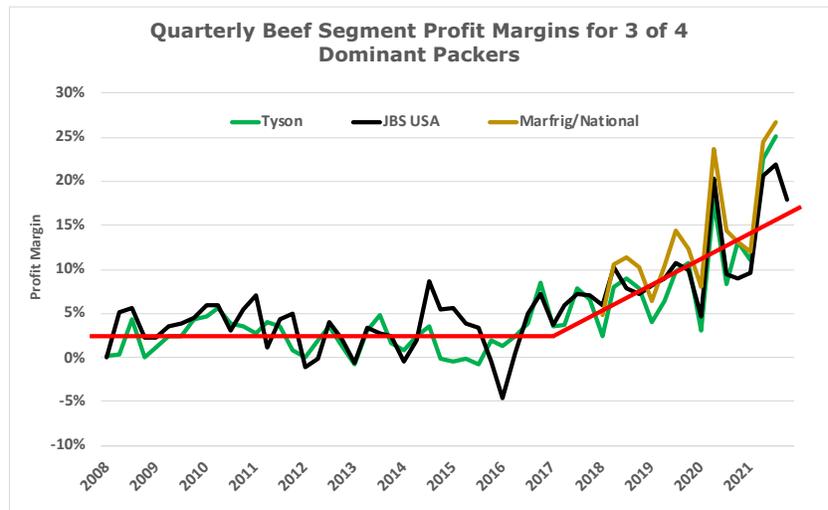
Chart Talk Overview

Reasons for intense concern about competition and fairness in cattle and beef markets are obvious from charts of retail beef prices, beef packer profit margins, grocery profit margins, and returns to independent cattle feeders.

Retail beef prices in constant dollars have trended strongly upward in the last two decades, from about \$500/cwt to over \$700/cwt. This dramatic increase cannot be fully explained by feed costs, food industry wage rates, any vestiges of a cattle cycle, COVID or other production factors. Efficiency gains would be manifested in retail price trending down, not up.

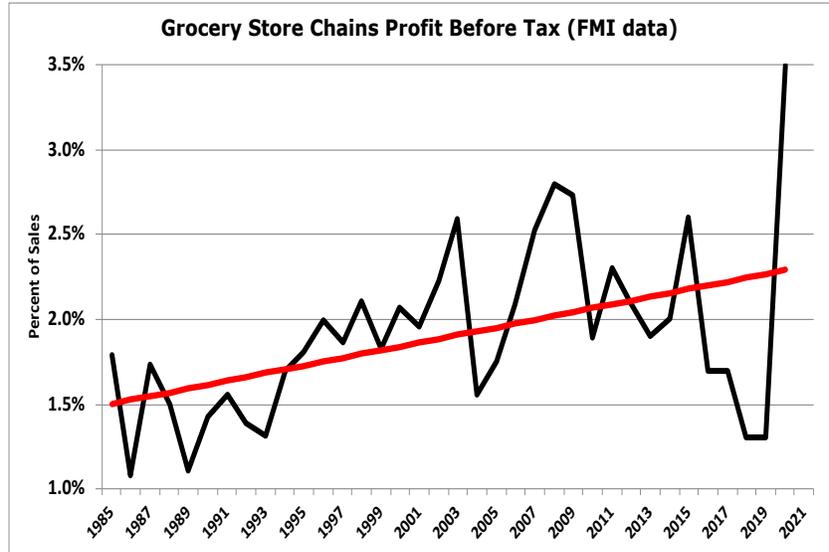


Profit margins for the beef segment of the three publicly traded beef packers have trended strongly upward since about 2016, rising well above levels consistent with a truly competitive market. The return on equity (ROE) for packers is much higher, averaging 20% or more.

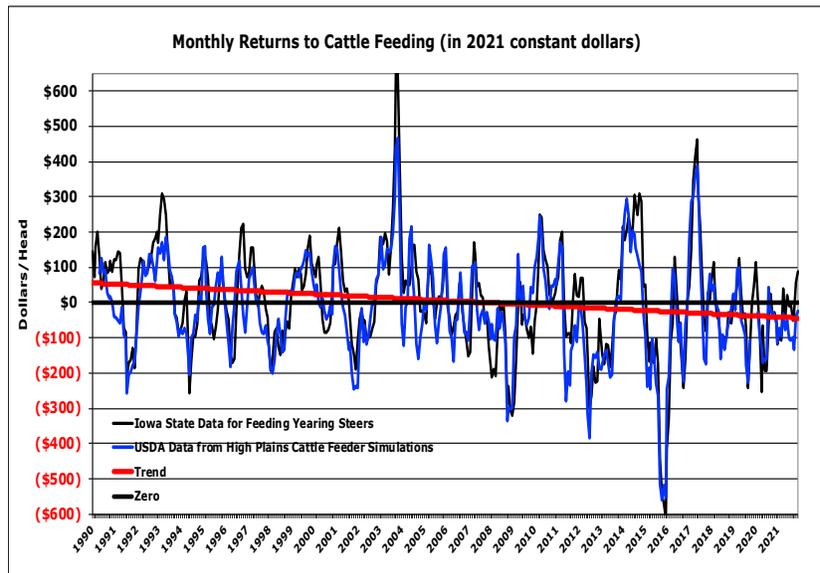


¹ Eminent Scholar (Distinguished University Professor) of Agricultural Economics and Public Policy, Emeritus, and American Antitrust Institute Advisory Board member Emeritus.

Grocery store profitability has also trended upward, about doubling in the last three decades. Returns on sales (ROS) are low as a %, but it must be recognized that product turnover averages only a few days. The ROE for publicly traded grocery chains has been in the 10-20% range and has generally trended upward like the ROS. Profitability data for the meat counter in grocery stores and other meat outlets is not publicly available.



Profitability of independent cattle feeding has trended downward over four decades, from an average profit of about \$50/head to an average loss of about \$50/head.



Profitability information for the giant captive feeders is not publicly available, but it is known that some receive sweetheart deals in the form of bonuses, financing and risk sharing that may more than offset the depressing effects of captive supplies on cash cattle prices.

Charts above clearly show increasing profitability of the dominant beef packers and grocery stores, while consumers are paying substantially more for beef, and independent cattle feeders experiencing sustained losses resulting in many going out of business. Together the trends strongly suggest that policy is needed to restore competition and fairness in cattle and beef markets. The time for policy to rebuild competition and fairness “fences” is now: Good Fences Make Good Neighbors.

Introduction

Cattle and beef production are increasingly horizontally concentrated and vertically integrated from cattle feedlots to packers/processors to beef retailers². Although size and integration may lead to economic efficiencies, narrowly defined, they may also be a deadly combination³ that lead to abuses of market power and many undesirable market and externality consequences, including an illusion of choice for consumers, unfairness and harm to the competitive process.⁴

The challenge today is to develop appropriate policy to neutralize the potential for market power exploitation, to internalize externalities, to insure or even increase efficiency by adoption of technology, and to insure competition and fairness in the future. Policy analyses must go well beyond simple textbook models of monopsony and monopoly due to the dominance of complex giant transnational corporations that have a vast web of corporate legal entities and broad wingspan with different food products for consumers, and financing and risk sharing arrangements offered only to a few aligned businesses, the chosen ones.⁵

There are many faces to economic power in the food system. The faces of power include traditional power due to size and dominance in a market resulting in a non-competitive price or non-competitive contract terms, asymmetric information, price discrimination, barriers to entry and control of entry/exit, control of innovation, use of threats, agency capture, association capture, economic power to control or influence legislation aimed at restoring competition, and firms simultaneously being buyers and sellers in a market.⁶

This report analyzes the market power of the four largest packers and its relationship to certain contractual and trading markets practices.⁷ In particular, the report explores certain current

² Extensive concentration and integration statistics are given in report The Food System: Concentration and Its Impacts, by Mary K. Hendrickson, Phillip H. Howard, Emily M. Miller and Douglas H. Constance, Nov. 19, 2020.

³ Dr. Neil Harl, <https://www.nytimes.com/2001/04/29/business/five-questions-for-neil-e-harl-converging-forces-afflict-farms.html>

⁴ A premise of this report is that competition and harm to competition should be viewed as an active, dynamic *process*, and not as a narrowly defined, perhaps temporary state of being as is sometimes evident in antitrust debate. Similarly, it is appropriate to view efficiency from a dynamic, not static, perspective. By not maintaining competition as a dynamic process, what is efficient now may be inefficient on down the road.

⁵ Diana L. Moss and C. Robert Taylor, “Short Ends of the Stick: The Plight of Growers and Consumers in Concentrated Agricultural Supply Chains, Wisconsin Law Review, Vol 2014, No. 2, p. 346.

⁶ A statement often made by defenders of the status quo is that “price is determined by supply and demand.” This is a meaningless statement. The same can be said for monopoly, monopsony, and other imperfectly competitive models, but this does not mean that price so determines measures up to the truly competitive norm. It is also common to see references made by business executives to “intense competition.” This is also another meaningless statement, as two duopolists may engage in what is intense competition to them, but that does not mean that the resulting price measures up to the true competitive norm.

⁷ This report was supported in part by a cooperative agreement with USDA through the University of Missouri. It reflects questions, comments, and academic engagement with USDA staff for the purposes of improving the relevance of analysis. It does not necessarily reflect the views of USDA or any staff thereof. Andy Green, USDA

market practices that may undermine fair and competitive markets, and harm competition as an active, dynamic process. These include:

- Overreliance on AMA base prices tied to the residual cash market
- Opacity of and variability around what “live cattle” is being priced in the markets
- Limited depth and competitiveness in certain cash negotiated markets
- Risks of market manipulation arising from captive supply flexibility, or flex, by dominant packers and/or large captive feeders
- Preferential deals offered to some, but not all, market participants
- Partial vertical integration by dominant firms that makes residual cash markets for cattle and beef “insurance” markets for the partially integrated packers and retailers, without an insurance premium paid to independents.

It also questions certain basic assumptions around the role AMAs, as currently structured, play in quality and efficiency. It concludes with analysis of several options for change. Those include:

- Modest reforms
- Breaking up the giant corporations
- Developing and protecting a parallel system; and
- Exchange trading.

Since the advent of AMAs, tens of millions of taxpayer dollars have been spent by academic and government economists “studying” cattle markets.⁸ All reflect an ideology, over simplified economic models, largely untested but critical assumptions, standards of statistical significance that may not be appropriate for policy prescription, and limited as well as sometimes inaccurate data.⁹ Restoring competition and fairness to cattle and beef markets will require moving policy

Senior Advisor for Fair & Competitive Markets, provided robust discussion and feedback throughout evolution of the report, but is not responsible in any way for content or opinions expressed herein. Diana Moss, President of the American Antitrust Institute, and Peter C. Carstensen, Professor of Law Emeritus, University of Wisconsin Law School, provided constructive reviews of a draft report but are not responsible for content.

⁸ Peter C. Carstensen provides a unique legal and economic perspective on some of these studies in his recent article, *Dr. Pangloss as an Agricultural Economist: The Analytic Failures of “The U.S. Beef Supply Chain: Issues and Challenges.”* <https://www.antitrustinstitute.org/work-product/aai-senior-fellow-peter-carstensen-responds-to-economic-research-on-marketing-of-beef-cattle-says-it-fails-to-address-market-power-and-buying-methods/>

⁹ Lester Thurow, MIT economist and former Dean of the MIT Sloan School of Management, succinctly assessed the status of the discipline of economics (which is reflected in academic studies of cattle markets): “*I am convinced that accepting the conventional supply-demand model of the economy is rather like believing that the world is flat, or that the sun revolves around the earth — you can make a rigorous case, on paper, for both propositions, but hard evidence is more than a bit scarce ... the profession, the discipline of economics, is on its way to becoming a guild. Members of a guild, as we know, tend to preserve and advance traditional theories rather than try to develop new ways of thinking and doing things to solve new problems. The equilibrium price-auction view of the world is a traditional view with a history as old as that of economics itself: the individual is asserted to be a maximizing consumer or producer within free supply-demand markets that establish an equilibrium price for any kind of goods or service. This is an economics blessed with an intellectual consistency, and one having implications that extend far beyond the realm of conventional economic theory. It is, in short, also a political philosophy, often becoming*

beyond the narrow economic ideology and hidden value judgments inherent in oft-cited academic studies of cattle and beef markets. This report moves beyond those traditional academic exercises in which quite sophisticated questions are addressed with simplified economic models based on untested assumptions and econometric models estimated with crude and perhaps invalid data.

The Big Picture

There is growing evidence that size and integration with centralized management are more about market power than efficiency, not just in agriculture but throughout the general economy.¹⁰ The size and scale of modern agribusiness corporations may be intended not always to gain true efficiency but to leverage market power and market opacity. Whether this be an effort to hide ownership of cattle, for example, or to avoid risk through difficult to trace legal entities, the web and scope of very large agribusiness firms may thwart true competition and fairness.¹¹

Competition and fairness issues go well beyond some of the hot button concerns of independent market participants, such as thin and deceptive markets and high consumer prices, to broad issues of independence of participants and to whether people want a food and agricultural system dominated by a few captains of industry. Who controls the food system? Who do the people want to control the food system? Will entry as a producer be by invitation only? Will exit from production be due to bad business practices of an individual, or triggered by predatory activities of dominant corporations? Is the system fair?¹² These are critical questions.

something approaching a religion. ... Price-auction economics is further blessed because it can assume mathematical form it can work hand in glove with calculus. Expression in mathematics imparts to the theory a seeming rigor and internal strength. But that rigor easily degenerates into scholarly rigor mortis, as mathematical facility becomes more important to the profession than a substantive understanding of the economy itself. To express an idea mathematically gives it the illusion of unassailable truth and also makes it utterly incomprehensible to anyone untutored in mathematics ... In economics today, 'The Theory' has become an ideology rather than a set of working hypotheses used to understand the behavior of the economy found in the real world." Lester Thurow, Dangerous Currents, The State of Economics. New York: Random House, 1983.

¹⁰ Bruce A. Blonigen and Justin R. Pierce, Evidence for the Effects of Mergers on Market Power and Efficiency <https://www.nber.org/papers/w22750> <https://www.federalreserve.gov/econres/feds/evidence-for-the-effects-of-mergers-on-market-power-and-efficiency.htm>

¹¹ For example, JBS split ownership of Five Rivers, with JBS owning the feedlots and J&F Oklahoma Holdings owning the cattle One reason JBS gave for this split was to avoid "existing and future potential 'Packer Ban' legislation at the state and federal level that place significant restrictions on packer ownership of livestock prior to slaughter." JBS "Notice to the Market," <https://sec.report/otc/financial-report/21482> Because JBS and various J&F entities are legally intertwined, this split may have been an effort to hide ownership of cattle.

¹² The fairness issue is much broader than cattle and beef and extends to all of agriculture. The return on equity (ROE) in farming averaged 1.7% from current income, while the ROE for 22 publicly traded corporations engaged partly or wholly in agriculture averaged about 20% in the last 15 years. This single metric highlights equity and fairness issues in the agricultural and food system. ROE in farming is after taking out a charge for family labor. Sources: ERS/USDA Farm Income & Wealth Data, <https://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/> Corporate financials taken from www.macrotrends.net/stocks/charts/AMZN/amazon/financial-ratios

Six decades ago, Professor Breimyer foresaw emerging issues with industrialization of agriculture:¹³

“The salient feature of industrialization of agriculture and the food system is that it replaces the time-honored system of markets. It substitutes centralized management for open exchange markets as the principal, though not exclusive, coordinating instrument.”

“If individual freedom is a timeless principle, if economic and social institutions are but transitory inventions, and if the human mind is capable of designing its institutions to fit its standards of freedom, therein lie opportunity and challenge for those who will frame a policy for agriculture for years of the future.”

Déjà vu

“It is not for the real prosperity of any country that such changes should occur which result in transferring an independent businessman . . . into a mere servant or agent of a corporation . . . having no voice in shaping the business policy . . . and bound to obey orders issued by others.” Justice Peckham in one of the first substantive decision interpreting the Sherman Antitrust Act

"The growth of bigness has resulted in ruthless sacrifices of human values. The disappearance of free enterprise has submerged the individual in the impersonal corporation. When a nation of shopkeepers is transformed into a nation of clerks, enormous spiritual sacrifices are made." Justice William O. Douglas, 1936

“As long as we had the frontier and there was not only ‘room at the top’ but an open road upward, the problem (distribution of economic power, opportunity and prestige) was not serious. But in a more settled state of society, the tendency is to make the game very interesting indeed to a small number of ‘Captains of Industry’ and ‘Napoleons of Finance,’ but to secure this result by making monotonous drudgery of the lives of the masses who do the work.” Frank Knight, The Ethics of Competition, 1923

The big question is whether centralized management by a complex web of giant transnational corporations will achieve true competition and fairness better than a properly structured open exchange market. Will food and agriculture and cattle markets be controlled by the few, or by Adam Smith’s Invisible Hand of exchange markets with many participants with easy market access?¹⁴ These are the broad questions.

¹³ Harold F. Breimyer, Individual Freedom and the Economic Organization of Agriculture, University of Illinois Press, 1965.

¹⁴ Adam Smith was not a patron saint of free unregulated markets, as some claim. His view on monopoly: *“People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices. ... To widen the market and to narrow the competition is always the interest of the dealers ... The proposal of any new law or regulation of commerce which comes from this*

Factors for Concern in Cattle Markets

Market power of the Big 4 beef packers, enhanced by leverage obtained with captive supply¹⁵ arrangements with large feedlots, have been at the heart of competition and fairness concerns of independent cattle feeders since the advent of alternative marketing arrangements (AMAs) in the late 1980s. Increasing dependence on AMAs places high pressure on packers to engage in practices that may manipulate and depress cash prices. Manifestations of market power are sometimes obvious and direct, while at other times quite subtle.

Substantive issues with cattle markets include: (a) institutionalization by the Big 4 of certain business practices, (b) sweetheart deals such as bonuses, financing, and risk sharing arrangements offered to some feeders but not to all, (c) packer ownership or control of significant numbers of cattle through a complex web of domestic and transnational legal entities, (d) relationship agreements that are equivalent to formal AMAs, but which are not reported, (e) vertical integration that is only partial, making the residual cash market an uncompensated insurance market for the partially integrated firms, and (f) a lack of transparency in cash and contract markets, in part because there is no standard for “live cattle” and because of possible loopholes in LMR reporting.

Taken together these factors give large packers and their affiliated captive feedlots significant leverage over independent producers and cash markets.

Quality Incentives for Cattle Producers

Packers claim they need AMAs to provide feeders quality incentives, to obtain quality cattle, and to have branded beef programs. These are not true.

In fact, it has not been clearly established that packers want all of their beef to be high quality, or that packer profits from high quality beef are greater than from low quality beef.¹⁶ A large segment of the population cannot afford high quality beef, and thus purchase lower quality, cheaper beef.

order, ought always to be listened to with great precaution, and ought never to be adopted, till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. It comes from an order of men, whose interest is never exactly the same with that of the public, who have generally an interest to deceive and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it.” The Wealth of Nations, 1776.

¹⁵ Some say that captive supply is a pejorative term and so use the euphemism AMAs in its place. But since some packers use the phrase, we will too. For example, JBS used this terminology in a Brazilian “Notice to the Market,” “JBS Five Rivers enjoys a relationship with a **captive cattle supplier** who is able to deliver a majority of animals to its feedlots...” <https://sec.report/otc/financial-report/21482>

¹⁶ A peer reviewed article establishes that it is not clear that packers have a profit incentive to provide high quality beef. “In a multiproduct duopoly, the profit from a high-quality product can be lower than that from a low-quality product. This finding sharply contrasts with the literature on single-product firms, which finds the high-quality

Several studies by academics and government economists attribute quality gains in the industry to AMAs, and further claim that prohibiting or restricting captive supply arrangements would result in loss of quality incentives. This is true by “assumption” only; inferential proof contradicts the assumption.

Packers already obtain cattle on the cash market with quality premiums and discounts, called a “grid.” In fact, their own records show that cattle they have obtained in the cash market are typically of *higher* quality than cattle they have obtained under formula arrangements.

The Table below summarizes mandatory price reporting (LMR) data for the past 7 years.¹⁷ Columns show grade ranges reported in LMR. The packers own data reveal that 67% of cattle they acquired with a negotiated grid and 62% of the cattle they acquired in a negotiated market on the hoof were in the top category, over 80% choice, while only 51% of their formula cattle were in this category.¹⁸

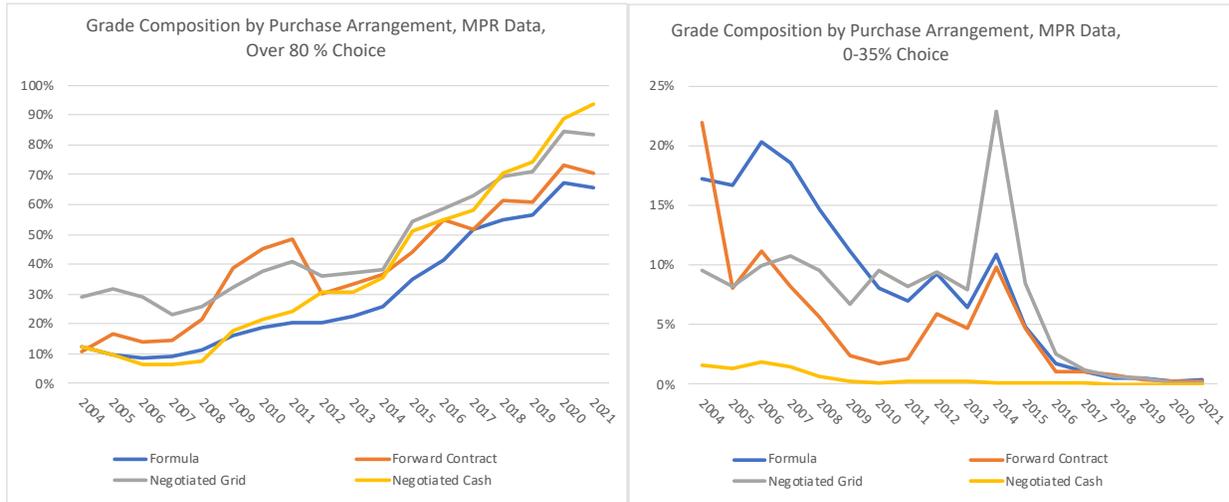
Percentage of Cattle by LMR Grade Category by Acquisition Type, Average 2015-2021				
ACQUISITION TYPE	0 - 35% Choice	35 - 65% Choice	65 - 80% Choice	Over 80% Choice
FORMULA	1.3%	17.6%	30.0%	51.1%
NEGOTIATED LIVE	0.1%	7.3%	30.4%	62.2%
NEGOTIATED GRID	2.2%	10.4%	20.5%	66.9%

advantage.” Cheng and Peng, Quality and Quantity Competition in a Multiproduct Duopoly, Southern Economic Journal 2012, 79(1), 180–202.

¹⁷ Curiously, LMR data show average Choice percentage only for packer owned cattle. Grade ranges are used for other acquisition methods.

¹⁸ As the number of negotiated cattle has declined overall, the fact that some remaining cattle continue to be negotiated may reflect a degree of market power arising from superior quality of these cattle. It may be the case that “commodity cattle” being acquired through formulas benefitted from the sustained commitment to quality achieved through the application of the grid. However, any cost-savings that accrue to the feedlot utilizing a formula pricing mechanism—such as not having to negotiate, or from running at higher capacity—have little if anything to do with quality.

Trends in percentage of cattle by acquisition type are shown in the charts below.



Therefore the packers own data prove that they have obtained quality cattle in the cash market, and can thus obtain quality in the cash market without captive arrangements if they so choose.

Cattle for marketing in various “branded” beef programs are obtained under both captive arrangements and in the cash market. Verification of cash cattle for branding programs requires only a brief affidavit from the feeder, which is more substantive verification than available under some formula arrangements that tend to rely more on relationships and trust.

AMAs are not needed to support investment in genetics because the grid, not the acquisition arrangement, provides the incentive for cattle producers to improve (or not improve) genetics.¹⁹ A grid for a negotiated acquisition provides exactly the same economic incentive to improve genetics as does the same grid with an AMA. Moreover, improvements in genetics trace back largely to registered breeding operations and cow/calf producers, not cattle feeders per se. And due to long biological cycles, improvements in cattle genetics takes a long time.

This is not to say that AMAs do not offer benefits to those that obtain them, at least under current market practice. They may offer a more established relationship for the purpose of placing cattle, which may give banks greater comfort in financing larger operations. While larger operations may offer some efficiencies from scale, they may also come with certain costs such as water use and pollution (discussed below). It is far from clear whether the societal costs and benefits have been properly netted, above and beyond the impact on the viability of independent farmer-feeders.

¹⁹ The TX/OK/NM region generally feature fed cattle genetics that tend to be considered lower quality than other regions, largely because cattle feeders in the region bring in some feeder cattle (partly from Mexico) that have more Brahman cattle characteristics. In such a case, the feeder may receive a lower net price for fed cattle but pay less for the lower quality feeder cattle. Thus, profit to the feeder may be as high with poor genetics as with top genetics. Unfortunately, LMR does not report cattle by attributes or characteristics, so pricing based on quality may rely extensively on proxies such as regions with commonly known breeding practices.

Factors for Concern in Beef Markets

Although public discourse often focuses on cattle markets, growing concentration and integration of beef retailing is of equal concern. Substantive competition and fairness issues include: (1) growing market power of meat retailers, (2) market access for independent small and mid-sized processors, particularly if the packer manages the meat counter in a retail outlet, (3) deceptive labeling, (4) misunderstood labeling such as USDA's inspection seal, (5) the effect of category captains and slotting fees, (6) availability of retail market data for outsiders, (7) the illusion of choice, (8), the potential for predatory activities, (9) ability of large packers to capture benefits of innovations made by small, independent producers and processors, and (10) increasing vertical integration upstream into beef processing and cattle production by retailers.²⁰

An oversimplified but instructive way to view the current structure of the beef industry—from packer to consumer—is as a bilateral oligopoly/oligopsony with a fringe of small firms without market power: A few dominant beef packers trade with a few dominant beef retailers, all flavored with a marinade of partial vertical integration.

The textbook bilateral oligopoly model generally reveals that suppliers are paid less, and consumers charged more, than in a truly competitive market. Greg Foran, CEO of WalMart in the US, stated the problem succinctly in 2019 in commenting on WalMart's partial vertical integration into beef production, *"I think we all know the market dynamics of what happens when you generally operate in a duopoly. It's not all that good for the customer."*²¹ Yes indeed. And it is not all that good for the beef consumer. And it's not all that good for independent cattle suppliers, either.

Growing market power of retailers is evident from Tyson's recent SEC 10-K report, *"Many of our customers, such as supermarkets, warehouse clubs and food distributors, have consolidated in recent years, and consolidation is expected to continue throughout the United States and in other major markets. These consolidations have produced large, sophisticated customers with increased buying power who are more capable of operating with reduced inventories, opposing price increases, and demanding lower pricing, increased promotional programs and specifically tailored products. These customers also may use shelf space currently used for our products for their own private label products."*²²

In the 1960s, prominent agricultural economists warned, *"Carried to a distant and perhaps never-to-be-realized but still logical extreme, present trends could well mean that competitive*

²⁰ WalMart has partially integrated into Certified Angus beef production, in part to gain market leverage. *"Walmart's move to vertically integrate its Angus beef supply chain evolved in part from a **desire to gain leverage** in the face of industry consolidation, company executives recently told investors." ... "(WalMart's objective is not that we try and supply every single Walmart store with milk, but it gives us some leverage. Similar sort of thing with beef," Greg Foran, WalMart US CEO quoted in a 2019 Meatingplace article.*

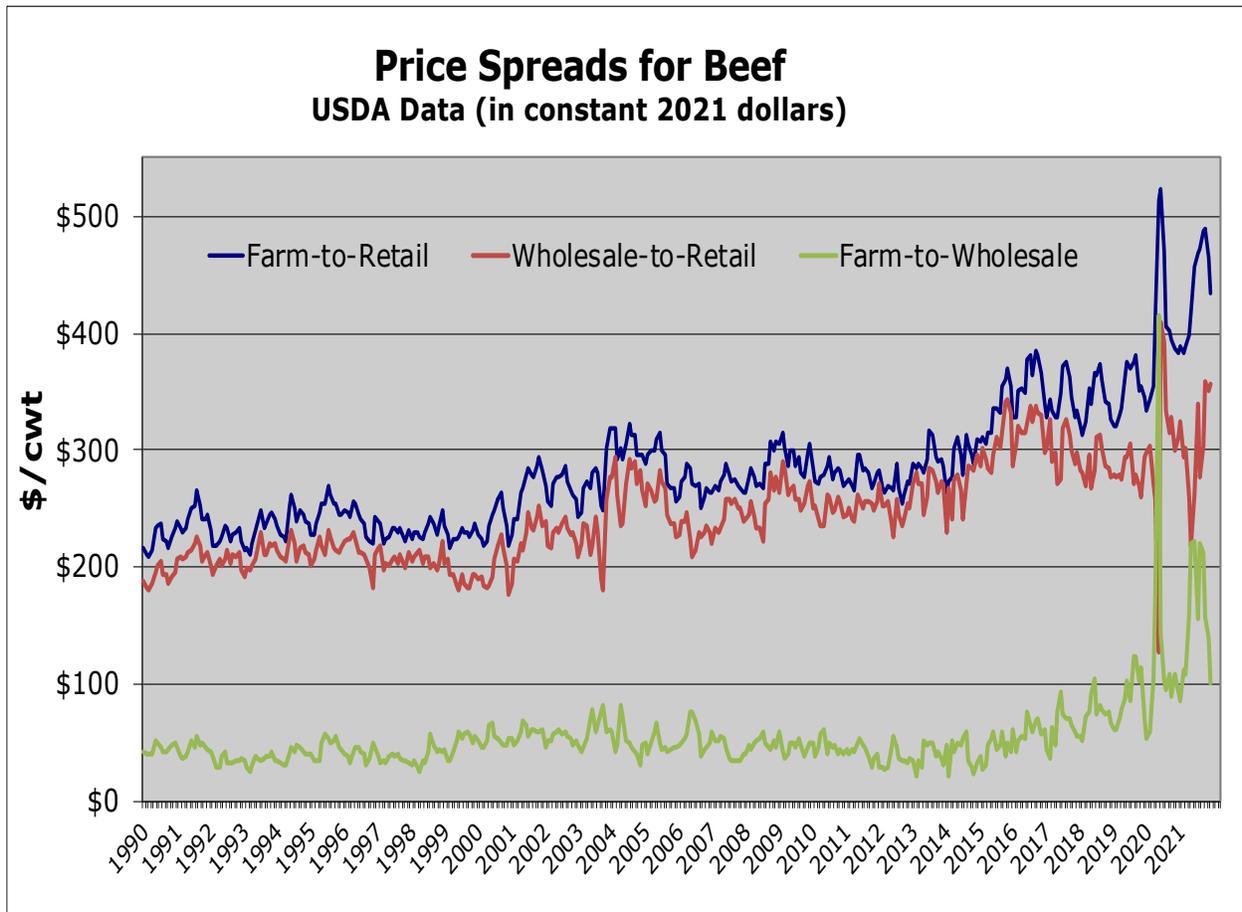
²¹ <https://www.cnn.com/2019/06/15/business/walmart-angus-beef-steaks-meat/index.html>

²² Tyson Foods SEC 10-K, for the fiscal year ended 10/3/2020, filed on 11/16/2020. This statement was eliminated from their amended SEC 10-K/A filed on 2/11/2021.

independence may one day be restricted basically to the retailing segment—and such competitive independence may be greatly different from that which prevails today.”²³ The future they were concerned about is rapidly being realized in cattle and beef markets.

Chart Talk

Market power excesses by packers and retailers is strongly suggested by USDA beef price spread data shown in the chart below.



The inflation adjusted²⁴ farm-to-retail price spread for beef, which is gross revenue for packers and retailers, has increased from about \$225/cwt in the 1990s to about \$350/cwt pre-COVID, and to about \$450/cwt post-COVID. Roughly a third of the increase has accrued to beef packers, and two-thirds to beef retailers based on USDA data.²⁵

²³ George Mehren, quoted by Harold Breimyer, *Individual Freedom and the Economic Organization of Agriculture*, University of Illinois Press, 1965, pp 287-288.

²⁴ Expressed in current dollars using the CPI.

²⁵ <https://www.ers.usda.gov/data-products/meat-price-spreads/>

Available information shows that inflation adjusted processing costs have not changed appreciably. JBS’s annual breakdown of cost of goods sold (COGS) for their USA beef division is shown in the table below.²⁶

JBS's Breakdown of Production Costs for their USA Beef Division					
Year	JBS Actual Breakdown			Proxy Costs/cwt	
	Raw Material Cost (livestock)	Processing Cost (including ingredients and packaging)	Labor Cost	Processing Cost (including ingredients and packaging)	Labor Cost
2014	88.1%	5.0%	6.9%	\$21.61	\$29.82
2015	87.2%	5.3%	7.5%	\$17.29	\$24.47
2016	84.6%	5.1%	10.3%	\$12.99	\$26.24
2017	84.9%	5.2%	9.9%	\$13.07	\$24.87
2018	84.2%	6.8%	9.1%	\$16.19	\$21.66
2019	83.7%	6.7%	9.6%	\$15.45	\$22.14
2020	82.2%	7.6%	10.2%	\$16.08	\$21.58
2021	82.8%	7.7%	9.5%	\$17.16	\$21.17

Packaging cost and labor cost as a percentage of COGS have trended upward somewhat since 2014. However, since livestock costs have generally trended downward, packaging cost and labor cost/cwt are essentially unchanged since 2014, as shown by the proxy costs/cwt.²⁷ Based on JBS’s breakdown of COGS, packaging costs averaged about \$16/cwt and labor costs averaged about \$24/cwt over the last 8 years.

BLS data show that the real wage rate in food manufacturing has increased by only 1.5% annually in the last decade, and even less in the prior two decades.

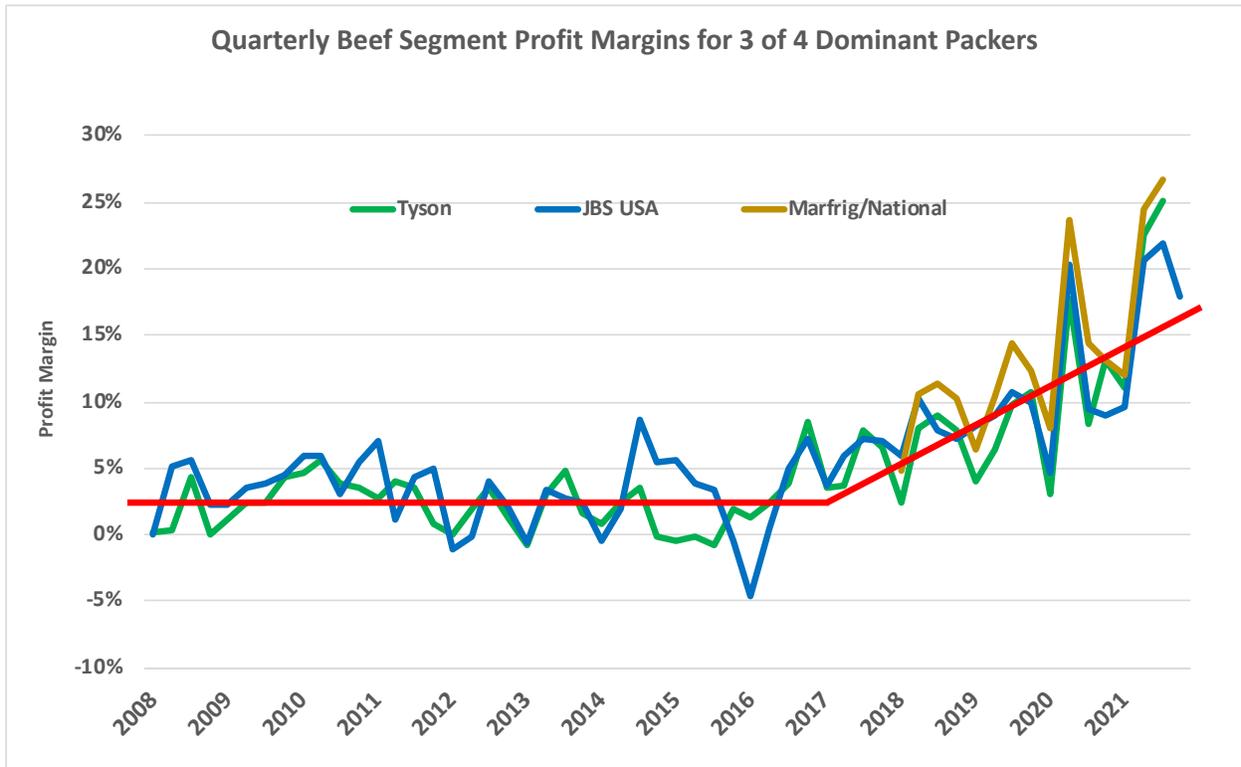
Recent increases in inflation adjusted wage rates and other costs do not appear sufficient to fully explain the increase in the farm-to-retail price spread. Rather, dramatic increases in beef packer profit margins in the last decade, and a continuing upward trend in grocery store profit margins strongly suggest that much of the increase in price spreads is due to market power excesses.²⁸

²⁶ Source: <https://sec.report/otc/financial-report/275113> and other JBS annual reports.

²⁷ Proxy costs per cwt are estimated using JBS percentage COGS breakdown and inflation adjusted USDA net farm value of beef. Cost/cwt is estimated because JBS does not report COGS on a per head or cwt basis.

²⁸ Several academic and government sponsored studies have examined these issues but, unfortunately, have been hampered by inappropriate models and assumptions, and lack of access to detailed proprietary data essential for meaningful market power analyses.

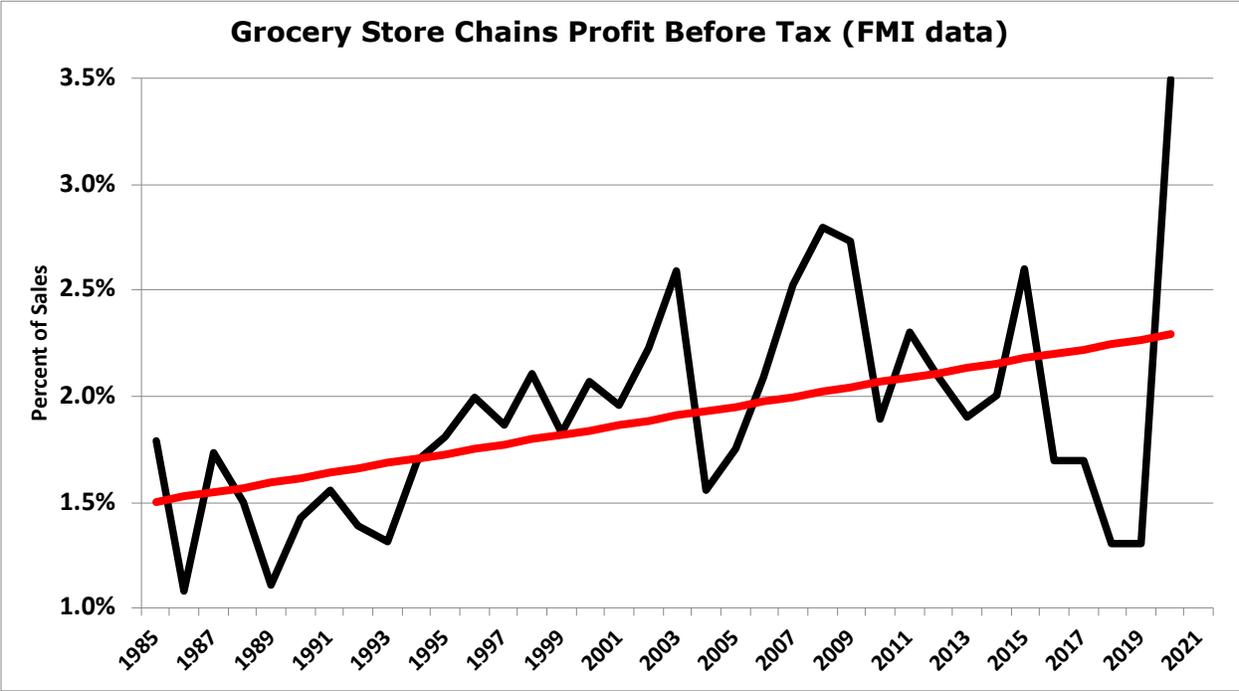
Beef packer profit margins have increased dramatically beginning in about 2016, as shown in the chart below.²⁹



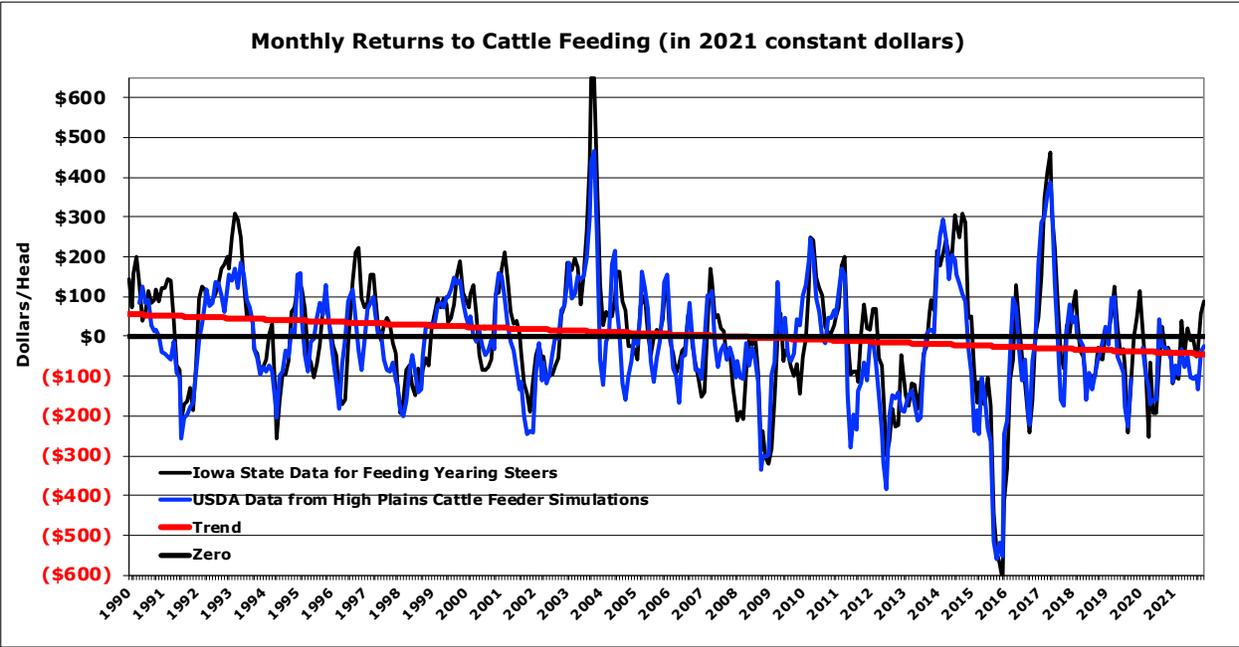
Grocery store profit margins have also trended upward, as shown in the chart below. Publicly available data are not available on profits for retail meat counters.³⁰

²⁹ Based on publicly available profit margins for the beef segments of Tyson Foods, Inc., Marfrig, and JBS USA. Cargill/Excel, the other large beef packer, does not publicly report financials.

³⁰ <https://www.fmi.org/our-research/supermarket-facts/grocery-store-chains-net-profit>



While beef packer and grocery store profits have trended upward, estimated returns to cattle feeding based on monthly Iowa State University (ISU) and USDA Fed Cattle Simulator estimates reveal a significant downward trend over the past four decades, as shown in the chart and table below.³¹



³¹ ISU and USDA estimates are based on reported prices and apparently reflect returns to independent cattle feeders. These are the only two consistent sources of public data on estimated returns to cattle feeding.

Average Annual Estimated Profit (Loss) from Cattle Feeding, in Current Dollars/Head		
Decade	Iowa State University	USDA Cattle Feeding Simulator
1990s	\$15.44	\$1.29
2000s	\$5.38	(\$6.11)
2010s	(\$36.59)	(\$40.17)
2020s	(\$70.00)	(\$63.68)

ISU and the USDA Fed Cattle Simulator estimates reveal that independent feeders have lost about \$50 per head during the last decade.³² Suppression of fed cattle prices is transferred in part back to cow/calf producers.

Sustained financial losses for independent feeders likely explain, in part or in whole, the loss of 83,000 feedlots with a thousand or fewer head capacity in 25 years, and 48,000 in the last decade.

A small feed lot with only a thousand head turned 3 times per year would have lost \$1.5 million dollars in those 10 years. A large captive feedlot with a million head per year, would have lost \$450 million over the 10-year period based on the ISU or USDA cattle feeding returns estimates. Assuming the cattle feeding profitability estimates and LMR prices are accurate, the obvious questions are how could a large feedlot sustain such losses, and why would the number of feedlots with over 50,000 head capacity increase from 45 to 77 in the last 25 years? Publicly available data on costs and returns for giant feedlots are not available to address this question. Sweetheart deals with large captive feeders may explain, in part or in whole, how they have survived and even grown in the last decade.

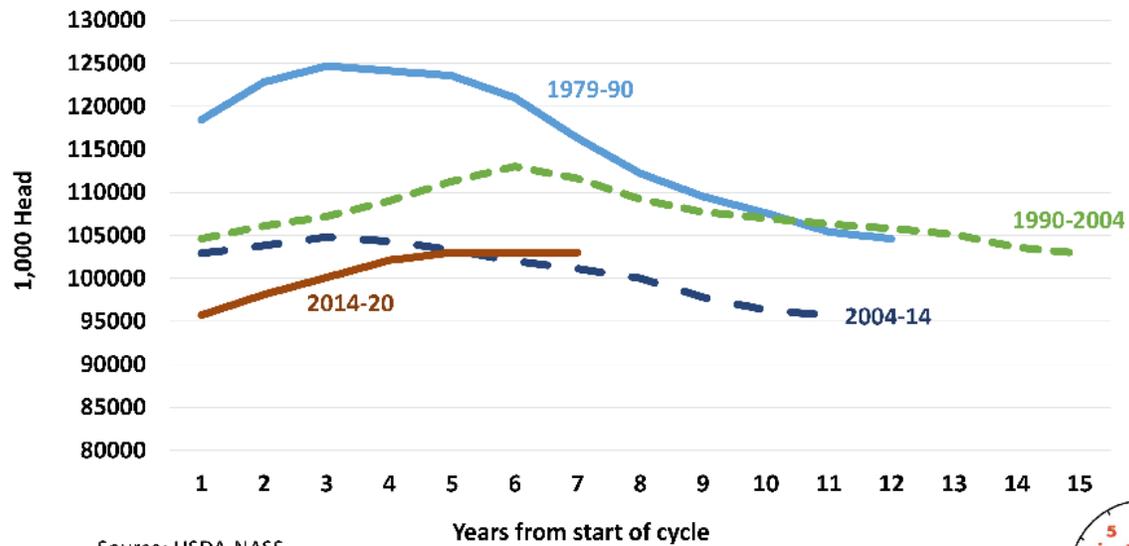
Academic studies going back to the advent of AMAs have generally found a statistically significant negative relationship between weekly and monthly cash prices and the level of captive supplies.³³ Whether this negative relationship is due to distorted incentives with formula base price tied to the cash price, to exploitation of market power, or to packers flexing in and out of the cash market, or all, has not been definitively established in academic studies.

³² Both sets of estimates are based on reported market data and do not include any sweetheart deals.

³³ Based on econometric analyses of weekly LMR data, this negative relationship is statistically significant with 99.9% confidence.

Some attempt to explain higher profits and increases in marketing margins by the cattle cycle. While the cycle does partly explain the level of cattle prices, it does not explain changes in the margin.³⁴ Furthermore, cattle cycles as shown in the figure below, have flattened over time and are becoming much less important than in the distant past.

Jul 1 Inventory of Cattle & Calves in U.S. by Cycles

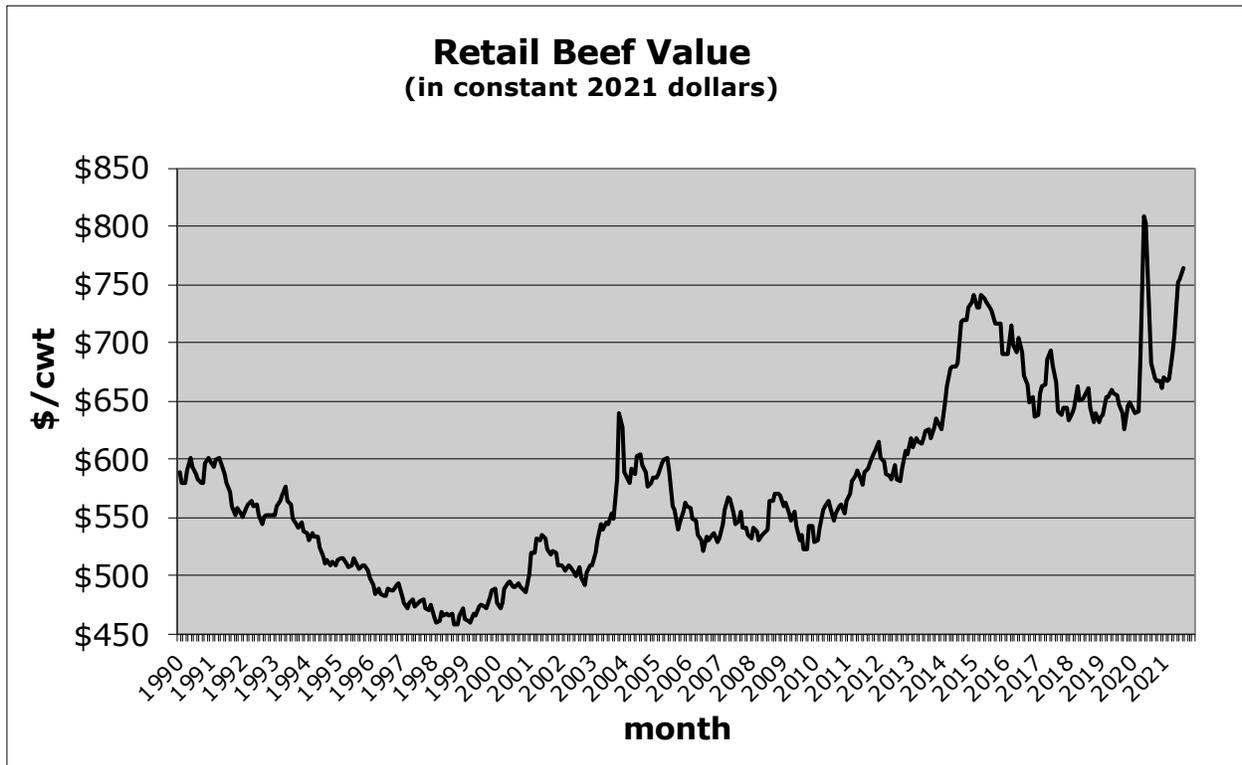


Source: USDA-NASS



³⁴ Econometric analysis of LMR data show that a binary variable representing the stage of the cattle cycle (expansion or contraction) is significant in explaining the level of cattle prices, but NOT significant in explaining marketing margins.

Retail beef prices adjusted for inflation have increased over \$100/cwt in the last two decades.



A decline in retail beef prices during the 1990s is consistent with gains from improved packing plant efficiency during that period. However, the upward trend in the last two decades cannot be fully explained by wage rates, feed prices, or any vestiges of a cattle cycle.

There is considerable circumstantial evidence, as is apparent from the above charts, that independent cattle producers and consumers have lost from consolidation and integration in the last few decades, while packers and retail food businesses have gained.

USDA beef marketing margins, beef packer and grocery profits, and food manufacturing wage rate data taken together suggest that there may be about \$100/cwt of “fat” accruing to packers and retailers. Eliminating the fat through improved market structures could restore profitability to independent cattle feeding and cow/calf operations while also reducing beef prices paid by consumers.

Policy Challenges

Operational efficiencies may come with size, but market power generally also comes with size. A relevant policy issue is how to eliminate market power excesses while maintaining or even increasing operational efficiencies, or how to sacrifice some efficiencies to eliminate market power excesses. Restoring competition and fairness in cattle and beef markets necessitates corrective policy not just in cattle markets but also in retailing.

Several policy options will be explored after discussion of critical features of cattle and beef markets.

History of Competition & Fairness Issues

One of the “plus factors” used in the academic field of Industrial Organization (IO) for assessing the potential for market power abuses and collusion is whether there is a “history and sociology” of collusion in the industry.³⁵ The cattle industry clearly has such a history.

Allegations of anti-competitive behavior by meat packers have cyclically characterized the cattle industry almost since it evolved from the Chisholm Trail. Cattlemen’s claims that the meat packers were colluding began in the late 1880s. At the time, the Big Five packers (Armour, Cudahy, Swift, Wilson and Morris) operated what became known as the Veeder Pool. Every Tuesday representatives from each company met in the office of Swift’s lawyer, Mr. Veeder, to set price and divide up the market for the week.³⁶

In 1902 the U.S. Department of Justice (DOJ) filed charges of conspiracy and restraint against the Big Five packers, resulting in a 1903 injunction against them. Legal activity continued for over two decades. Despite the injunction, the Veeder Pool continued in one form or another for decades. An extensive and complex investigation culminated with a 1918 Federal Trade Commission (FTC) report to President Woodrow Wilson.³⁷ It stated,

“... (there was) evidence that unlawful combination and conspiracy were practiced by the five largest meat packers, and that collectively they held a dominating or monopolistic power in the meat business. Furthermore, it was made evident that the meat packers were using their enormous power and wealth to extend their control into many branches of the food business wholly unrelated to the business of meat and its by-products. ... Among the methods of unfair competition used by the big packers of which the Commission found evidence may be mentioned the following: Bogus independents, local price discriminations, short weighing, acquiring stock in competing companies, shutting competitors out of livestock markets, and manipulation of livestock prices....”

³⁵ IO literature elucidates structural conditions (so-called plus factors) that tend to make industry more conducive to collusion. These include: (1) communication between firms, (2) conditions of mutual monitoring, (3) number of sellers, (4) relative sizes of sellers, (5) conditions of entry, (6) ease of expansion by smaller firms, (7) cost structure of sellers, (8) structure of the buyer side of the market, (9) industry conditions, (10) nature of the product, and (11) industry history and sociology. Lawrence J. White, Chapter 5. “Market Power: How Does It Arise? How Is It Measured?” in The Oxford Handbook in Managerial Economics, edited by Christopher R. Thomas and William F. Shughart II.

These structural conditions are contributory factors to whether a group of oligopolists/oligopsonists will be able to maintain an understanding among themselves and thereby jointly to exercise market power. Many of these conditions along with inelastic demand are relevant to competition issues in cattle and beef markets.

³⁶ Additional discussion of the history of competition issues in the cattle industry is given in C. Robert Taylor, “Buyer Power Litigation in Agriculture: *Pickett v. Tyson Fresh Meats, Inc.*” Antitrust Bulletin, Vol. 53, No. 2, Summer 2008:455-474.

³⁷ https://www.ftc.gov/sites/default/files/documents/reports_annual/annual-report-1918/ar1918_0.pdf

The Federal Government intervened in 1920 with a consent decree under the Sherman Act requiring divestiture of assets by the Big Five. This action was followed in 1921 by Congressional enactment of the Packers and Stockyards Act (PSA).³⁸

Massive structural changes in the meat packing industry began anew about a hundred years after the Veeder Pool. Before divestiture in 1920, the concentration ratio or market share of the four largest firms (abbreviated as CR4) totaled about 45%. With the 1920 divestiture and other changes, the CR4 dropped to about 25% through the 1970s during which time there was competitive bidding on fed cattle, and numerous active regional auction barns for calves and breeding cattle.

However, revised DOJ-FTC merger guidelines³⁹ in 1984 opened the gate for mergers and acquisitions that essentially reversed the 1920 divestiture. The CR4 quickly rose to over 80% in the early 1990s, where it has remained. The HHI market concentration index (sum of squared market shares) is often used by DOJ, FTC, academics and others as a better metric of concentration than the CRx. The HHI in beef packing is now about 2,000.

Typically cited CRx and HHI statistics measure concentration on the processor or seller-side of beef packing. While these annual packer concentration statistics are important in analyzing the wholesale market for beef, they are totally inappropriate for measuring buyer-side concentration that is of concern in cattle markets, because they do not reflect concentration in captive draw areas or show large buyers moving in and out of weekly cattle markets. USDA/AMS claims that they can't release weekly regional HHI because of potential confidentiality concerns.

Rise of AMAs

Alternative Marketing Arrangements (AMAs) refer to cash market alternatives that commit a feeder's cattle to a single packer. AMAs include arrangements such as formula arrangements, sometimes called marketing agreements, forward contracts tied to the cattle futures market, and packer owned cattle.

AMAs typically specify a process for determination of a base price, state the grid, state who is responsible for deciding when cattle are to be slaughtered, and sometimes give maximum and minimum numbers of cattle to be provided to the packer. AMA contracts may also indicate whether the feeder can sell some cattle on the cash market.

AMAs emerged with re-consolidation of beef packing in the late 1980s. Adoption of captive arrangements trended strongly upward to 73% of slaughter as reported under Livestock

³⁸ A 1920 article provides an excellent discussion of legal and economic issues leading up to the PSA. G. O. Virtue, "The Meat-Packing Investigation," *The Quarterly Journal of Economics*, Aug. 1920, Vol. 34, No. 4.

³⁹ <https://www.justice.gov/archives/atr/1984-merger-guidelines>

Mandatory Reporting (LMR) and have leveled off in the last five years. Captive supplies are much higher in some regions, making some weekly regional markets especially thin.

As reported by packers under LMR, 61% of fed cattle acquisitions are under formula arrangements, 10% with forward contracts, 2% packer owned, 23% negotiated cash and 5% with a negotiated with a grid in the last five years. Cash markets may be thinner than LMR statistics indicate to the extent that there are “relationship agreements” that are the equivalent of AMAs but without a formal contract.

Packers claim that AMAs improve supply chain management and help lower transaction cost. However, the 2007 GIPSA study reported, “*Packers identified cost saving of \$0.40 per head in reduced procurement cost*” attributable to AMAs.⁴⁰ Adjusted for inflation, this would be a saving of only 58 cents per head on a \$1,800 animal, which is only \$0.0007 per pound of beef at retail.

Captive feeders may prefer AMAs because they guarantee a market, and they no longer need to haggle over a base price.⁴¹ Bankers sometimes claim that AMAs reduce their exposure to risk.

Some claim that AMAs are needed to provide quality incentives through the grid. But this claim is bogus as the same grid can be, has been, and continues to be used for some negotiated transactions.⁴² Moreover, packer buyers are skilled in recognizing quality “on the hoof” and packers collect post-slaughter quality data on such acquisitions which they do not typically provide to the seller.⁴³

Despite mandatory price reporting (LMR), cash markets lack transparency and, indeed, reliability due in part to no uniform standard for reporting “live cattle” transactions and no uniform standards for reporting the market to which formula arrangements are tied.⁴⁴ The ability to lower (or raise) the price of a formula by changing the component parts with a different mix

⁴⁰ GIPSA Livestock and Meat Marketing Study, Volume 3: Fed Cattle and Beef Industries Final Report, January 2007, p. ES-2.

⁴¹ Hagglng over price need not have time inefficiencies of buyer and seller leaning on a feedlot fence as once was the case, as electronic apps can make hagglng quite efficient.

⁴² LMR reporting has two classifications for negotiated transactions, one is for negotiated live (on the hoof), and the other negotiated with a grid.

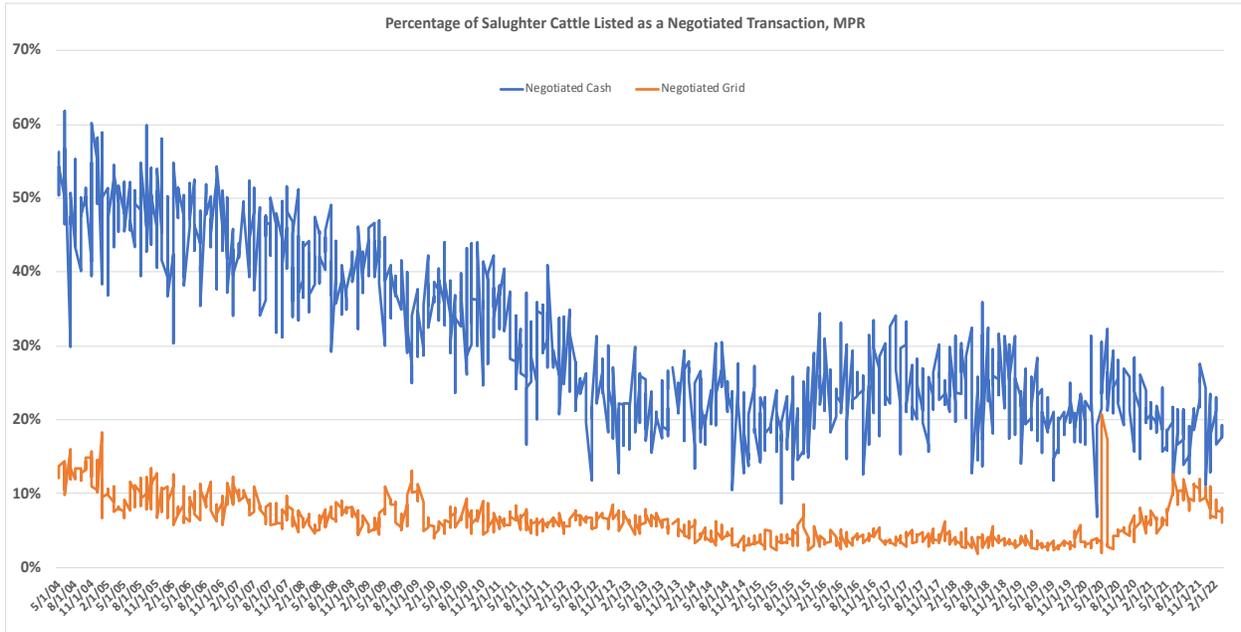
⁴³ It is well known that packer-buyers are skilled at assessing the quality of a pen of cattle “on the hoof,” as are most cattle feeders. Tyson Foods acknowledges the experience of their buyers, “*We ... employ cattle buyers located throughout cattle producing areas who visit independent feed yards and public auctions to buy live cattle on the open spot market. These buyers are trained to select high quality animals, and we continually measure their performance.*” Tyson Foods SEC 10-K for the FY ending October 2021 and many previous years.

⁴⁴ For example, some formula arrangements in the TX/OK/NM market, which is especially thin, are tied in part or whole to announced cash prices in other regions.

quality of cattle should not be discounted. Most transactions now have a grid but there is no specific yield grade, weight class, or other quality standard for reporting.

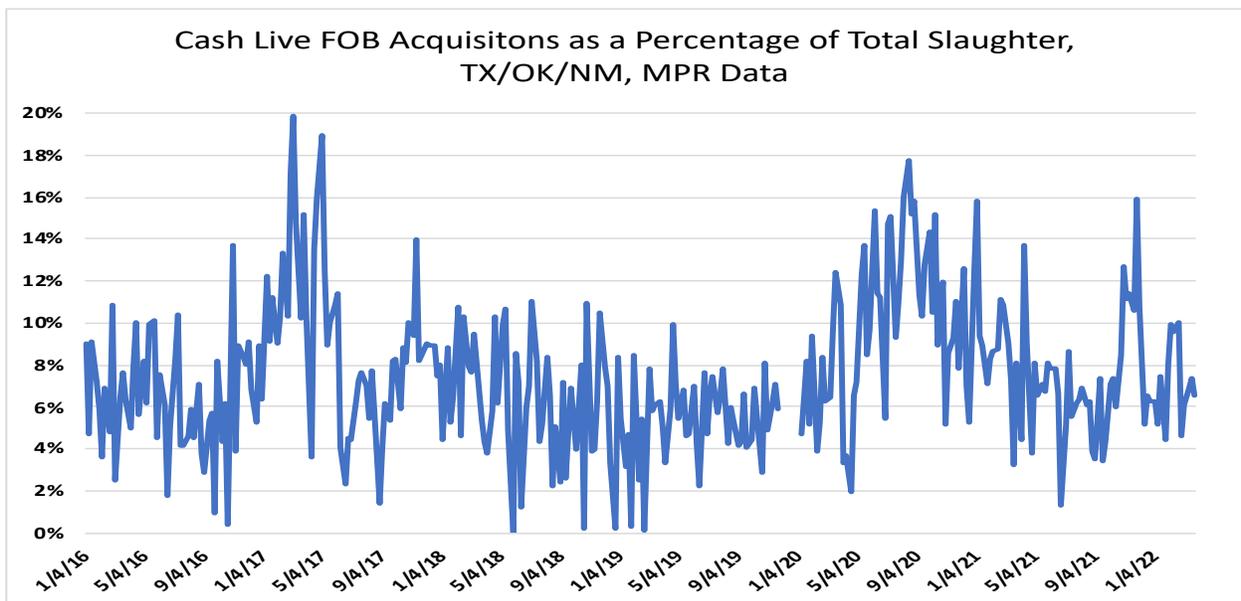
Thin Markets

Thinness of the weekly national cash market for fed cattle as reported under LMR is shown in the chart below.

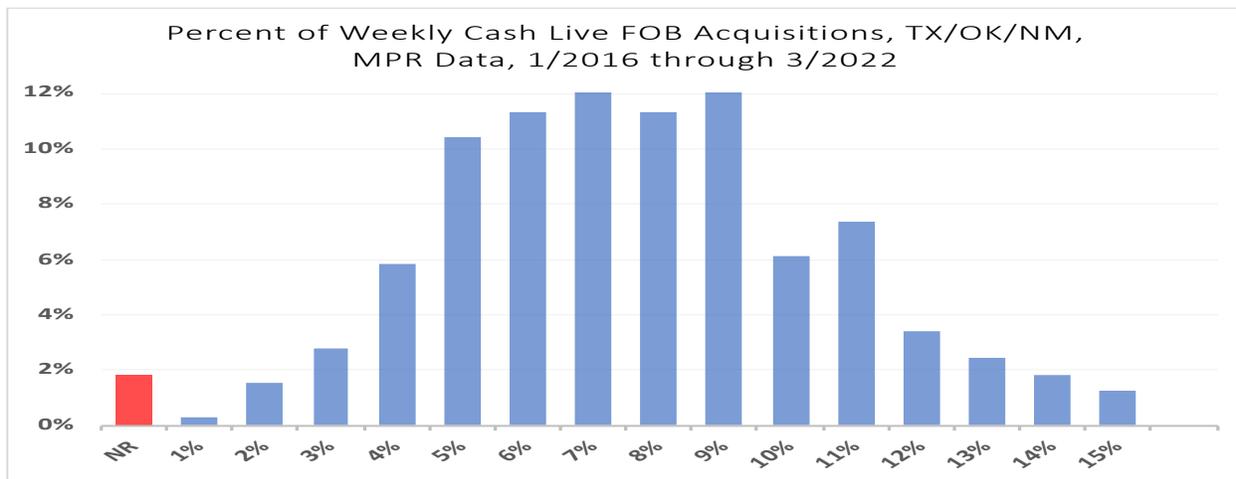


The chart also reveals how cash market purchases fluctuate considerably on a weekly basis.

As is well known, some regional markets are particularly thin. Variability of cash transactions in the TX/OK/NM market for the past six years is charted below.



The bar chart below shows the frequency of cash acquisitions as a percent of total cattle slaughter in the region. For example, cash transactions accounted for about 4% (3.5 to 4.5%) of the market about 6% of the weeks; cumulatively the cash market accounted for 5% or less of the market about 12% of the time.⁴⁵



Even more revealing is that there were 6 consecutive weeks in 2019 in which **NO** cash transactions were reported under LMR in the TX/OK/NM region, apparently due to the 3/70/20 confidentiality guideline.⁴⁶ This means that there was either no market for an independent feeder for 6 consecutive weeks, or that the feeder was selling into a particularly highly concentrated market for an extended period. During this 6-week period, the base price for some or all feeders with a formula arrangement was apparently tied to a cash price in another regional market that was thicker.

The issue of how thin is too thin has not been resolved, theoretically or empirically. There are no bright lines. However, thinness as revealed in the chart above raises substantive concern about whether so-called price discovery process in such a market discovers a truly competitive price or discovers an oligopsonistic price.

Transactions not presently reported due to confidentiality guidelines may be more important than what is reported, as the highly concentrated exchanges, perhaps by a single packer, may allow for more market power to be exerted than in other periods in which LMR confidentiality guidelines allow transactions to be reported.

⁴⁵ This chart does not include negotiated grid transactions, which account for a much smaller percentage than cash live transactions, except for a brief period during early COVID. Moreover, it is not clear that some of the transactions reported as “negotiated” with a grid were truly negotiated or were relationship deals like formula arrangements. Econometric analysis weakly supports precedence of price determination in the cash live market.

⁴⁶ “In order for a report (regional or national) to be published, at least 3 companies have to submit data 50% of the time or more over a 60-day period. No one company can account for 70% or more of the cumulative market volume for any individual report over a 60-day period. In cases where only one company submits data for individual reports, the same company cannot be the sole reporting entity more than 20% of the time during a 60-day period.” https://LMR.datamart.ams.usda.gov/dataDictionary.do?idx=2&selItem=cattle_reports

Better Metrics Needed

Annual seller side HHI statistics have often been used in academic and government econometric analyses of cattle prices. This is inappropriate as annual seller-side HHIs do not measure weekly concentration of buyers in a residual market. Such use of inappropriate concentration metrics can lead to biased econometric results and overall conclusions.

Seller-side market concentration statistics are inappropriate for assessing competition in cattle markets for several reasons. First, it is expensive to transport cattle, and quality is lost from hauling. There may be only a single packer within practical hauling distance. Thus, the concept of captive draw areas and buyer-side HHIs are much more relevant than national seller-side statistics.

Second, with high captive supplies, participation in the residual cash market, and not statistics averaged over all cattle acquisition methods, is the key metric for econometric analysis of price discovery. Packer participation in regional cash markets is not necessarily the same as seller-side packer concentration statistics would suggest. For example, if only a single packer participated in the cash market and other packers filled needs with AMAs, the HHI in the cash market would be the maximum of 10,000 (pure monopsony) and not the 2,000 based on all cattle acquired nationally.

Third, fed cattle are a perishable commodity, with an optimal marketing window of only a week or two. Annual market concentration statistics--buyer-side or seller-side--will not reveal packer-buyers moving in or out of a thin cash market on a weekly basis.

USDA/AMS claims that they can't release weekly regional HHI because of potential confidentiality concerns, but they have provided HHIs shown below for cash transactions averaged over all weeks 2004-2021.

HHIs Averaged over 2004-2021 Based on Transactions Reported Under LMR						
	CO	IA, MN	KS	NE	Other	TX, OK, NM
National Acquisition Shares	8.1%	11.6%	23.9%	20.6%	15.0%	20.9%
HHI	4,342	1,925	3,422	2,330	3,055	2,595

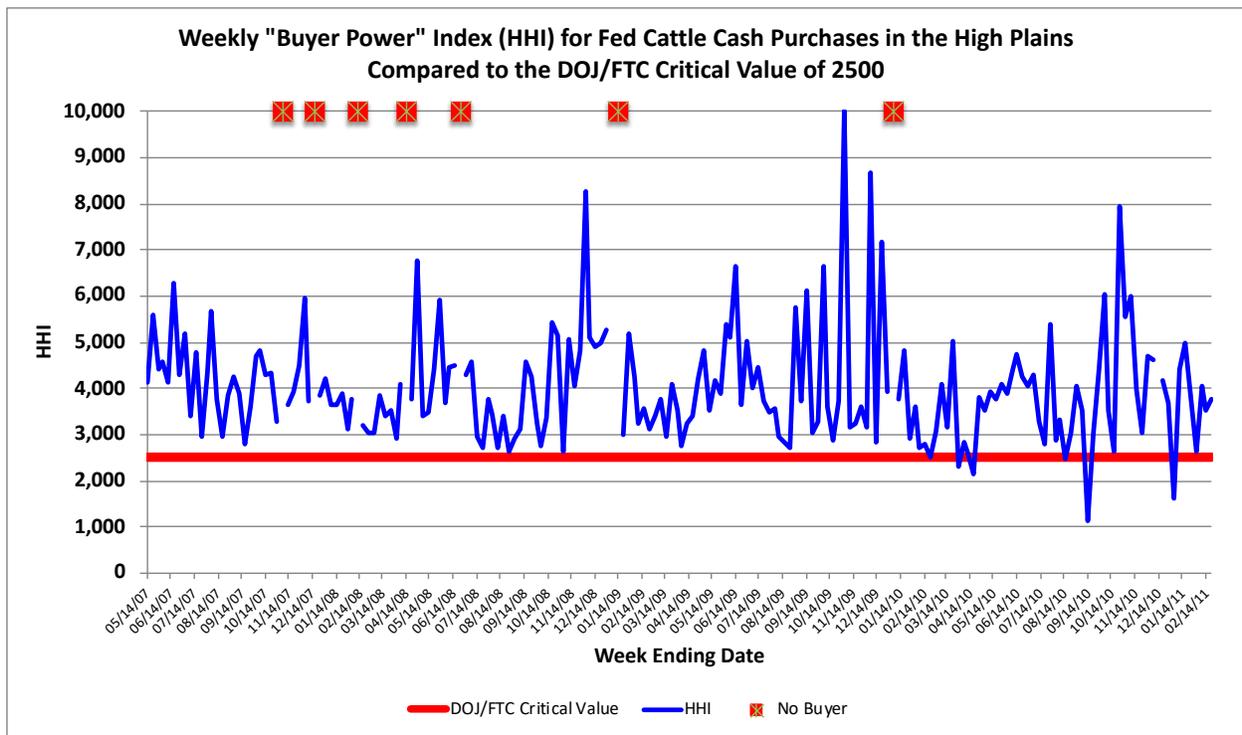
HHIs Averaged over 2004-2021 Based on All Transactions						
	CO	IA, MN	KS	NE	Other	TX, OK, NM
National Acquisition Shares	8.1%	11.6%	23.9%	20.6%	15.0%	20.9%
HHI	3,841	1,703	3,026	2,060	2,702	2,296
Adjusted to account for the purchase by packers that are in P&S data but not LMR data due to LMR excluding packers with less than 125,000 from reporting. This difference represents 6.33 percent in unreported sales.						

HHIs for the last decade are likely higher than shown in the above tables because markets have thinned. HHI values for the cash market for major regional markets for fed cattle thus raise

presumptive concerns about the lack of competition in the partially integrated markets. Furthermore, it has been theoretically shown that exclusive captive supply arrangements may substantially reduce the critical value of the HHI well below traditional thresholds used by DOJ/FTC for final consumer markets.⁴⁷

Insight into the variability of dominant packer-buyers moving in and out of the cash market, and the need for weekly HHIs, is given by testimony at the 2010 DOJ/USDA Livestock Competition Workshop. Bruce Cobb, who at the time was CEO of Consolidated Cattle Feeders (essentially a cattle hotel), emphasized the importance of "meaningful" buyers, the Big 4. He testified that in the previous 52 weeks there were 4 meaningful buyers in only 2 weeks, 3 buyers in 5 weeks, 2 buyers in 23 weeks, a single buyer in 18 weeks, and no buyers in 4 weeks in the High Plains market.⁴⁸

Cobb's weekly data covering almost three years show the weekly HHI in the TX/OK/NM market fell below the DOJ/FTC threshold of 2,500 in only 4 of 198 weeks, and average over 4,000, which is more than double the seller-side HHI of about 2,000. Wide variability of the weekly HHI based on Cobb's data is shown in the chart below.⁴⁹



⁴⁷ C. Robert Taylor, The Effect of Captive Supplies on the Critical Value of the Herfindahl-Hirschman Index of Market Power, Auburn University Working Paper ES-0207, February 2007.

⁴⁸ <https://www.justice.gov/sites/default/files/atr/legacy/2012/08/20/colorado-agworkshop-transcript.pdf>

⁴⁹ Based on weekly acquisition data for each of the four packers provided to the author by Bruce Cobb.

Thus seller-side concentration statistics are not indicative of buyer-side concentration, and annual statistics do not measure weekly fluctuations relevant in perishable commodity trade.

Better buyer-side concentration statistics and market power metric are needed.^{50 51} Furthermore, availability of weekly HHI data or similar metrics is essential to econometrically analyzing buyer-side market power in markets for perishable commodities like fed cattle.

Competitive and Fairness Impacts of AMAs

Bob Peterson, CEO of IBP (now Tyson Beef), told cattlemen in 1988 how captive supplies were being used by other packers to influence the cash market. Peterson warned, or perhaps threatened, cattlemen by emphasizing how captive supplies gave packers leverage that was creating aberrations that did not reflect the true value of cattle in the cash market. In 1994, after IBP adopted the formula arrangement, he stated that they did so to gain the same leverage as other packers had in the cash market. Furthermore, Peterson indicated that the formula arrangement was IBP's way of "feeding cattle," implying that the formula was no different than direct packer ownership.⁵²

Adoption of AMAs by the big packers has more than tripled since Peterson's talks to cattlemen, giving large packers significantly more leverage over the thinning cash market.

Captive arrangements with a base price tied to an increasingly thin cash market provide large packers with undeniable incentives to manipulate markets.⁵³ Large packers or large feeders can flex significant numbers of captive cattle ready for slaughter up or down a week or so to

⁵⁰ The Antitrust SSNIP (Small Significant Non-Transitory Increase in Price) test is common in antitrust law and economics. The threshold standard that has evolved is a 5% increase in price. This test, while developed for final consumer markets, is typically flipped over and applied to buyer-side and intermediate market levels. A major problem is with the 5% threshold applied to intermediate markets. For example, applying it to a \$1,800 steer would be a decrease of \$90, which may be the difference between a modest profit of \$40/head and an average loss of \$50/head for the past 10 years. This is a much different economic impact than a final consumer simply paying 5% more for a product.

⁵¹ Peter Carstensen has cogent arguments that buyer side metrics should be different from the seller-side metrics. Competition Policy and the Control of Buyer Power, New Horizons in Competition Law and Economics, Edgar Elgar Pub., 2017.

⁵² Remarks by Bob Peterson at a Cattlemen's Meeting at IBP, July 26, 1994

⁵³ "(NCBA should) adopt a policy position opposed to contractual arrangements between cattle feeder/producer and packer when the base price is tied to a cash market in which the buying packer is active in buying fed cattle and/or when the base price is tied to plant or firm prices paid or cattle costs into the plant(s) for some time period prior to the date of delivery with the reasons for the policy position coming from the inappropriate incentives of this approach and from the need to restore integrity to the pricing system. The incentives facing buyers when price is tied to markets in which they are large buyers are not consistent with confidence and integrity of the pricing process." Drs. Wayne Purcell, Clement Ward, Ted Schroeder, Rodney Jones, James Mintert, James Trapp, Barry Goodwin, Matthew Holt, and DeeVon Bailey, White Paper on Status, Conflicts, Issues, Opportunities, and Needs in the U.S. Beef Industry, 1999.

strategically affect the cash market.⁵⁴ Empirical studies going back two decades have clearly established a significant negative relationship between weekly captive supply deliveries and the residual cash market⁵⁵ at any stage of a cattle cycle.

Packers have institutionalized formula arrangements tying the base price directly to a cash market price. Under the best of circumstances this means that feeders selling on the cash market and feeders with formula arrangements will receive the same price for like quality cattle in any week.⁵⁶ But the formula arrangement guarantees the captive feeder a market, while independent feeders have no such guarantee. Thus, the independent feeder should receive a risk premium for not having guaranteed market access. But the arrangement institutionalized by the Big 4 packers prevents this from happening.

An independent feeder may have only a single meaningful packer-buyer with a processing plant within practical hauling distance. And that packer may have a full commitment with captive supply, which means that the independent feeder may not receive any bid that week. Furthermore, if beef demand softens for a sustained period, the independent feeder may have no market, unlike captive feeders.

In regions with especially thin markets, the base price in some formula arrangements is tied to cash prices in other regions with more negotiated transactions.⁵⁷ As a consequent the independent feeder may receive a bid from a single monopsonist packer-buyer, while formula feeders in the same region benefit from cash prices in outside regions that may have more competitive bidding. In other words, some formula feeders have a base price tied to a thicker

⁵⁴ A very bad assumption made in academic and government studies is that the captive feeder always decides the week of slaughter. This is not the case, as some decisions can be made exclusively by the packer, while others are made jointly by the packer and affiliated feeder.

⁵⁵Part of the academic debate is not whether this negative relationship exists, but whether it is due to correlation or causation. Unfortunately, there is no empirical test for pure causation. Bob Peterson's early anecdotal statements identify causal, but largely unobservable, influences. However, as noted in the Federal Judicial Center [Reference Manual on Scientific Evidence](https://nap.nationalacademies.org/catalog/13163/reference-manual-on-scientific-evidence-third-edition), "*When causation is the issue, anecdotal evidence can be brought to bear. So can observational studies or controlled experiments.*" p. 217.
<https://nap.nationalacademies.org/catalog/13163/reference-manual-on-scientific-evidence-third-edition>

Basic economics indicates that tying a formula base price to the cash market or to a top-of-the-market price distorts incentives for large buyers and is thus a causal influence.

The correlation v causation debate may be largely academic because Section 202(e) of the PSA "*(prohibits) any course of business or ... any act for the purpose or with the effect of manipulating or controlling prices, or of creating a monopoly in the acquisition of, buying, selling, or dealing in, any article, or of restraining commerce...*" One legal issue is whether "purpose" equates with causation and "with the effect of" equates with correlation. A second legal issue is whether the legal definition of a causal influence "more likely than not" corresponds to the academic concept of causation "beyond a reasonable doubt" or with academic certainty. Whether causal or not, the strong negative relationship between captive supplies and cash price is very real to many market participants.

⁵⁶ Assuming no sweetheart deals.

⁵⁷ Tying base price to other markets may subtly provide an additional advantage to the extent that the base price is tied to a regional price that has higher quality cattle.

market than an independent feeder who may have only one packer to sell to in a very thin cash market, or no market at all.

Some formula arrangements have a base price tied to a top-of-the-market (TOPM) price rather than to an average price. Such an agreement further distorts packer-buying incentives in the cash market, as paying a top price for a pen of high-quality cattle in the cash market would increase the cost of perhaps thousands of formula cattle.⁵⁸ TOPM pricing is thus one of several causal explanations for the negative relationship between captive supply and cash price.

TOPM pricing by one packer may also lead to anticompetitive strategic games as a packer without a TOPM arrangement could pay a high price in a cash market just to drive up the cost of another packer's formula cattle.

Some captive arrangements establish a minimum number of cattle to keep on feed, irrespective of price. Other feeders would be harmed by resulting oversupply and lower cash price to the extent that a minimum dictate exceeds what the same feeder would supply in a truly competitive market.

Sweetheart deals such as bonuses, financing, and risk sharing arrangements⁵⁹ are provided to selected captive feeders, but not offered to all and not sufficiently revealed in LMR reporting.

Preferential treatment may be substantial. For example, TOPM pricing may amount to a bonus of \$6/head, or \$600 on a single pen of cattle. Outright bonuses may be even higher for selected captive feeders. These large sweetheart bonuses are far in excess of any efficiencies packer-buyers gain by not having to negotiate base price.

USDA and ISU cattle feeding estimated returns data show an average interest charge for cattle and feed of about \$50/head over the past two decades. If the packer provides free financing, the opportunity cost savings of \$50/head would offset the \$50/head loss shown by ISU and USDA cattle feeding returns estimates. Thus, provision of financing, or subsidization of financing by a

⁵⁸ The practical implication of TOPM pricing as stated by an independent feeder is, "... *an IBP cattle buyer ... looked at high quality cattle we had on our show list for sale. The market was about \$66/cwt in the cash market, based on live weight. (He) was very complimentary of our cattle's quality. He said his hands were tied and he could not offer more for the cattle, despite their above average quality. (He) said 'In the old days I would have been able to offer \$67.50 for these cattle, but now paying more would screw up 20,000 formula cattle.'* It was completely clear to me that (the buyer) was telling me paying a higher price for our cattle would influence prices for cattle bought on a formula contract basis, off the cash market, before the transaction involving our cattle occurred. We lost money in this deal because IBP would not allow its buyer to engage in competitive bidding." Affidavit by Randy Stevenson, a cattle feeder, dated October 11, 2002. This means that the packer-buyer would have to pay \$1.50/cwt more on not just Randy's pen of 120 head, but on 20,000 formula head. Buyer incentives are obviously distorted from the competitive norm.

Theoretical discussion of the anticompetitive implications of TOPM pricing is given by Tian Xia and Richard J. Sexton, "The Competitive Implications of Top-of-the-Market and Related Contract-Pricing Clauses," *American Journal of Agricultural Economics*, Feb. 2004, Vol. 86, No. 1, pp. 124-138.

⁵⁹ For example, Tyson Foods states, "*We also enter into various risk-sharing ... arrangements with producers to secure a supply of livestock for our facilities.*" TSN SEC 10-K Oct 2021 and many earlier years.

packer to some captive feeders, but not all feeders, can be seen as clearly distorting economic incentives.

Cattle feeding is highly risky as revealed by the monthly USDA and ISU data that show extremes of about +/- \$600/head, and a standard deviation of profit of about \$200/head. Due to high risk, federally subsidized insurance for cattle feeding costs the feeder about \$65/head, depending on coverage. Risk-sharing by a packer could therefore have significant financial benefits to a feeder.

Sweetheart deals will likely result in supply responses by the chosen feeders. Supply responses by the chosen group will lower cash price below a competitive level in the aggregate market thereby harming those who do not receive the sweetheart deal. This is very basic economic reasoning. Sweetheart deals likely explain, in part, the loss of independent feedlots and the increase in giant feedlots since the inception of AMAs.

Trading Window in the Cash Market

The narrow trading window imposed by packer-buyers on cash acquisitions further enhances leverage.

Today, the “negotiation” for cattle typically consists of a phone call made by a single packer representative to a feeder offering a specific take it, or leave it, price. The feeder can take the price, notify customers if necessary, and call back in 15 minutes to confirm sale. Or, the cattle feeder can keep the cattle and hope for the best next week, recognizing that at a 5 lb. daily gain rate in the large, market ready animals, there may be only a week to hope for a better price and to worry about what will occur if there is no bid at all next week. Packers may delay offers until late in the week and use the threat of captive supplies to soften the feeder up into taking a lower price.

This is the “15 minute” market. It is no market at all; instead, this event window is the take-it or leave-it decision window, but it does not involve negotiation that yields competitive price discovery.⁶⁰

Ability to Flex a Large Number of Captive Cattle In or Out of the Cash Market

Who decides the week of slaughter for captive cattle, the captive feeder, the packer, or are decisions made jointly? Contracts and testimony indicate that all three possibilities exist with AMAs.⁶¹ Yet, academic and government studies have generally assumed that the captive feeder, not the packer, decides the week in which cattle will be slaughtered, thereby overlooking the possibility that a large packer can move sufficient cattle up or down a week to influence cash

⁶⁰ David A. Domina and C. Robert Taylor, Restoring Economic Health to Beef Markets, submission as part of invited testimony at the 2010 DOJ/USDA Livestock Competition Workshop.

⁶¹ Testimony in *Pickett v IBP/Tyson* indicated that the packer could flex up to 15% of cattle committed by the captive feeder.

price and thus the base price received in their formula agreements. These are bad assumptions that determine conclusions from such studies.

Potential of dominant packers or large feeders to flex, or threaten to flex, many cattle up or down a week can affect the psychology of the cash market. Psychological effects are quantitatively unobservable but can be very real. The ability of a large packer or large feeder to affect the psychology of the market can enhance textbook market power.

Bob Peterson, CEO of IBP (now Tyson beef), emphasized in 1994 how packer owned cattle could be flexed, “... *not formula cattle but packer-fed cattle, which can be killed early or late to fill a particular time frame, be it a day or a week grant the packer far greater flexibility to move in and out of the market. On the way down (in price), he kills his cattle first and on the way up, last.*”⁶² This statement also applies to formula and forward contract cattle that can be flexed up or down a week or so.

As Bob Peterson indicated over three decades ago, captive supplies could be used to game—leverage—the residual cash market. To paraphrase Peterson for the current environment, “if you anticipate more COVID worker absences in your packing plant next week, whose cattle are you going to slaughter first, yours or theirs?”

To illustrate the aggregate potential of flexing slaughter week or AMA cattle, suppose that weekly captive supply averages 500,000 head and weekly cash acquisitions average 100,000 head. If all packers flex up an additional 15% (and plan to slaughter 575,000 next week), cash acquisitions would drop from 100,000 head to 25,000 head. Such a large change would substantially depress cash price. Of course, to maintain production, the packers would have 75,000 head fewer captive cattle the next week and would need to increase cash acquisitions to 175,000 head to maintain production. This would increase cash price.

During stable periods, the downward effect on cash price of flexing up captive cattle one week might average out with a higher price the next week as the supply difference would have to be made up from the cash market. However, during periods when demand and thus price was falling (or increasing) due to demand shifts or other factors, prices for the two adjacent weeks would not average out and could benefit the packer.

Cash and formula cattle are priced the week before slaughter. If cash prices are expected to be trending downward, formula feeders may flex some cattle up a week from optimal slaughter condition to take advantage of falling prices. But this becomes a self-fulfilling expectation as more formula cattle will depress cash price. This has the potential to be a very complex game of market manipulation by giant feeders as well as packers.

Sweetheart Deals

Sweetheart deals such as bonuses, packer-backed financing of feedlot cattle, and risk sharing arrangements raise substantive fairness, competition, transparency and deception issues. Basic

⁶² Remarks by Robert L. Peterson to the Kansas Livestock Association, December 2, 1994. Peterson made similar statements at a Cattlemen’s meeting at IBP on July 26, 1994

economic reasoning shows that sweetheart bonuses for selected feeders will lead to supply response by those feeders. Increased supply by that group of feeders lowers cash price to independents selling on the cash market. For the chosen feeders, the bonus may be sufficient to offset the price depressing effects of the bonus on base price in formula agreements. Thus, independents receive a sub-competitive price. But the effects of persistent bonuses lead to growth of chosen captive feeders and loss of independent feeders.

Packer-backed financing of cattle on feed may essentially hide ownership and control. Moreover, providing financing to some can be seen as unfair to those not receiving the financial support.

Risk sharing is another perk provided by some packers to selected feeders. Feeders not offered risk sharing and financial support should receive a risk premium to be on equal economic and financial footing. But the institutionalized formula pricing arrangement keeps that from happening.

Who finances cattle on feed may also influence market outcomes? A self-financed independent feeder, or one who has a loan at a local bank, may feel pressure to accept a lower bid than a feeder financed by a packer or investment group.⁶³

Sweetheart deals also raise substantive transparency issues, including the effectiveness of LMR reporting for bonuses and packer-backed financing and risk sharing arrangements.

Feeder Market Power

Large feeders may exert market power not only by flexing cattle, but also by dictating sweetheart deals and other acquisition terms to packers. Before captive supplies came to dominate fed cattle trade, Bob Peterson told cattlemen, “... *most of the feedlots in the U.S.—especially those in Western Nebraska, Kansas, Oklahoma, Colorado and Texas—price their cattle by requiring the packer to bid one price on the entire show list. Offer to bid on a pen by pen basis and they will laugh you off the property.*”

Lumpy transactions, mandated by buyer or seller, may not be consistent with the truly competitive market to the extent that transactions are not at marginal cost (the supply curve) but at an average cost for the lumpy transaction. Lumpy transactions thus raise competition concerns.⁶⁴

Academic studies of cattle markets have exclusively specified market power models (e.g., monopsony or oligopsony) that allow the seller to determine quantity. Perhaps more relevant is

⁶³ For an example of how financial leverage can influence bidding, see Matthew J. Clayton and S. Abraham Ravid, “The Effect of Leverage on Bidding Behavior: Theory and Evidence from the FCC Auctions,” *The Review of Financial Studies*, Summer, 2002, Vol. 15, No. 3 (Summer, 2002), pp. 723-750.

⁶⁴ Paul Klemperer, “Bidding Markets,” in OECD Policy Roundtables, *Competition in Bidding Markets*, 2006. <https://www.oecd.org/daf/competition/cartels/38773965.pdf>

the obscure all-or-nothing model (AoN) in which the buyer dictates both price AND quantity. As shown by Blair and Harrison⁶⁵, the output market outcome is the same as the competitive norm but is unfair because the AoN monopsonist appropriates profits from the seller.⁶⁶ A counterpart would be a seller that dictates both price and quantity to the buyer.

The possibility of a large feeder or a large packer demanding a single bid on many fed cattle is highly relevant to policy debate about requiring a set percentage of cattle to be acquired on the cash market. Certainly, using a single bid on many cattle to get cash trade above a threshold will likely only give an illusion of restoring competition to a thin cash market.

Selected Captive Supply Literature

Notable peer reviewed articles have established that market power has been exerted in the market for fed cattle, either because of size or because of leverage provided by large captive supplies.⁶⁷ Selected summaries follow.

“... the fraction of cattle purchased under AMAs ... is statistically significant and suggests that a one percent increase in the fraction of cattle purchased under AMAs is associated with a 5.9% reduction in the cash market price (based on 2005-2019 data).”⁶⁸

“We find strong evidence that links switching conduct by packers to disruptions in coordinating the derived demands for processed beef with the supply of live cattle. Once switched, cooperative regimes lasted an average of 21 weeks, while noncooperative regimes averaged 33 weeks. The average marketing margin for processed beef was 68% lower in the noncooperative regimes compared to the cooperative regimes. This led to an annual average increase in profits of 28

⁶⁵ Blair, Roger D., and Jeffrey L. Harrison, *Monopsony*: in *Law and Economics*, Princeton University Press, 2010.

⁶⁶ For a detailed mathematical and graphical exposition of the AoN model, see C. Robert Taylor, *Monopsony and the All-or-Nothing Supply Curve: Putting the Squeeze on Suppliers*, Working Paper ES.6.2003, Auburn University.

⁶⁷ The evidentiary standard applied in some academic and government studies of captive supply may not be appropriate for policy formulation or for civil litigation. In some cases, it appears that a standard that could be called “academic certainty” (that captive supplies do not cause cash price to go down). Such a standard may be akin to the legal standard of “beyond a reasonable doubt” rather the legal standard of “preponderance of evidence” that may be more appropriate for public policy. Moreover, in empirical studies by economists, there is often adherence to classical statistical criteria, commonly 95%. However, this bright line threshold may not be appropriate for policy decisions.

Daniel Rubinfeld, author of the *Guide on Multiple Regression* published in the *Manual on Scientific Evidence* for the Federal Judicial Council (FJC), states, “... I am convinced that if significance levels are to be used, it is inappropriate to set a fixed statistical standard irrespective of the substantive nature of the litigation.” Academics tend to use a fixed significance level.

⁶⁸ Francisco Garro, Kinji Kim, Nathan Miller, and Matthew C. Weinberg, *Buyer Power in the Beef Packing Industry*, Working paper, March 7, 2022.

million dollars to the beef packing industry and about an 8 to 9% reduction in live cattle prices.”⁶⁹

*“The TOMP (Top of the Market) clause (in some formula arrangements) is shown to have anticompetitive consequences when the same buyers who purchase contract cattle with the TOMP clause also compete to procure cattle in the subsequent spot market. The TOMP clause reduces packers' incentives to compete aggressively in the spot market.”*⁷⁰

*“Empirical evidence suggests that beef production, the farm, wholesale, and retail values of beef, and marketing margins increased, but farm sector share decreased in the cartel period (2015–2019), as compared with a prior period (2010–2014). The wholesale beef pricing by beef packers shifted from being consistent with a perfectly competitive industry pricing in the pre-cartel period to being consistent with the oligopoly and monopoly pricing in the cartel period. The retail beef pricing by food retailers was consistent with an oligopoly pricing in both periods. Beef packers and food retailers shifted to an output (beef) price stabilization practice in the cartel period.”*⁷¹

*“... beef packers employing multi-plant coordination leads to wider spreads between downstream beef prices and upstream fed cattle prices.”*⁷²

*“Overall test results indicate that captive supply causes cash market price, and it favors the price-dependent model. ... Several studies in the cattle procurement literature have reported a negative relationship between cash market price and captive supply.”*⁷³

*“Results indicate that the price effect of captive supply does not appear until its share reaches about 20% of the total cattle procurement. Beyond this point, the U.S. fed cattle price decreases approximately \$0.20/cwt ~ \$0.40/cwt for each percent increase in the captive supply share.”*⁷⁴

“The objective of this study is to estimate the degree of oligopsony power in the U.S. cattle industry with the use of the recently developed stochastic frontier estimator of market power. ... For the empirical part of the study we employed annual time series data from the U.S. cattle/beef

⁶⁹ Xiaowei Cai, Kyle W. Stiegert and Steven R. Koontz, Regime Switching and Oligopsony Power: the Case of U.S. Beef Processing, *Agricultural Economics* 42 (2011) 99–109.

⁷⁰ Tian Xia and Richard J. Sexton, “The Competitive Implications of Top-of-the-Market and Related Contract-Pricing Clauses,” *American Journal of Agricultural Economics*, Feb. 2004, Vol. 86, No. 1, pp. 124-138

⁷¹ Yuliya V. Bolotova, “Competition Issues in the U.S. Beef Industry,” *Featured Article, Appl Econ Perspect Policy*. 2021;1–19.

⁷² Christopher C. Pudenz and Lee L. Schulz, Multi-plant Coordination in the US Beef Packing Industry, Working Paper 21-WP 630, Updated February 2022, Center for Agricultural and Rural Development, Iowa State University.

⁷³ Elam 1992, Schroeder et al. 1993, Ward et al. 1996, Ward, Koontz, and Schroeder 1998, Schroeter and Azzam 2004.

⁷⁴ Andrew C. Lee. And Man-Keun Kim, Captive Supply Impact On The U.S. Fed Cattle Price: An Application Of Nonparametric Analysis, *Journal of Rural Development*, 2011.

*industry for the time period 1970-2009. Our results suggest that beef packers exert market power when purchasing live cattle for slaughter.”*⁷⁵

*“A criticism of mandatory price reporting (LMR) is that the increased price transparency may actually increase oligopsony power exercised by beef packers. We examine beef packing margins using time periods before and after LMR was implemented with a Markov model that tests for switching between cooperative and noncooperative pricing. Switching is indicative of noncompetitive conduct and we examine the duration and magnitude of market power. One key finding is that market power is two times higher after LMR than before. The second is that, while this study produces some of the largest measures of market power associated with fed cattle pricing, market power remains rather small and is consistent with prior research. Last, we offer the caveat that there is more occurring in fed cattle and beef markets during last 20 year than the transition from voluntary to mandatory price reporting. So LMR is likely not the only cause of increased market power. But there is clearly more market power exercised in fed cattle markets after 2001 than before.”*⁷⁶

*“The terms contracting, captive supplies, and packer ownership are not entirely interchangeable, but captive supplies is used by producers as a catch-all term for any coordination that creates a separate, private market between a packer and a supplier. This is how we shall use the term captive supplies as well. There is no dispute among producers or economists that such non-spot markets influence the spot market for fed cattle.”*⁷⁷

*“... the cattle stock’s negative effect on price is magnified by the market concentration in beef packing. Thus, the cycle itself is very importantly related to a posited cycle of bargaining power between cattle producers and beef packers. Secondly, the model also shows how beef packers may use the special feature of cattle as both consumption and capital goods to lower the cattle price by influencing cattle inventories.”*⁷⁸

“We first generalize the Xia and Sexton (2004) model to the oligopoly case. As the number of packers increase, more of the available supplies must be contracted in order to get the same price depressing effect. When the Xia and Sexton (2004) model is extended to the long-run case where supply from contract feeders is no longer perfectly inelastic, the price depressing effect of captive supplies is further reduced. The agent-based model gives nearly the same results as the

⁷⁵ Dimitrios Panagiotou and Athanassios Stavrakoudis, “A Stochastic Production Frontier Estimator of the Degree of Oligopsony Power in the U.S. Cattle Industry,” *J Ind Compet Trade* (2017) 17:121–133.

⁷⁶ Xiaowei Cai, Kyle W. Stiegert and Steven R. Koontz, *Oligopsony Fed Cattle Pricing: Did Mandatory Price Reporting Increase Meatpacker Market Power?* Paper presented at the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management St. Louis, Missouri, April 18-19, 2011.

⁷⁷ John M. Crespi and Tian Xia, *A Note on First-Price Sealed-Bid Cattle Auctions in the Presence of Captive Supplies*, *Agricultural and Resource Economics Review* 44/3 (December 2015) 340–345.

⁷⁸ John M. Crespi, Tian Xia, and Rodney Jones, *Competition, Bargaining Power, and the Cattle Cycle*, paper presented at the 2008 AAEA meetings.

*analytical models. The one exception is that the four-packer case with supply response shows slightly less price depressing effect than predicted by the analytical model. When the packers can adjust the number of contracts and feeders have a supply response for contract quantity, the price depression phenomena of captive supplies disappears since packers do not contract any cattle. This result leaves open the question of why packers use captive supplies, but it suggests that it is for reasons other than increasing market power. The results also predict more market power than is estimated empirically.”*⁷⁹

*“This paper examines the simultaneous impacts of horizontal concentration and vertical integration on oligopoly & oligopsony power and cost efficiency in the U.S. beef packing industry, using both static and time varying empirical industrial organization models. Two separate sources of market power are considered: concentration and the captive supply market. Empirical results show the presence of market power in both beef retail and cattle procurement markets, and that the market power exertion in these markets is positively affected by concentration and captive supply, respectively.”*⁸⁰

small is **BIG**

Many authors of academic studies of cattle and beef markets have opined that the effects of captive on cash markets are “small.” Whether the effects are small or big is a matter of perspective. Depression of fed cattle price by only 5%, for example, may mean the difference between profit and loss for an independent feeder.⁸¹

Partial Vertical Integration is Potentially Anticompetitive & Unfair, Making the Residual Cash Market an Uncompensated Insurance Market

Big 4 packers are only partially vertically integrated through AMAs, as full integration would not be a good business practice with uncertain future demand for beef. If they were fully integrated and demand fell short of expectations the packer could be stuck with too many captive cattle, which would be costly.⁸²

Consequently, packers have developed captive arrangements for a sufficient supply to satisfy high probability demand for beef, while meeting low probability demand from the residual cash

⁷⁹ T. Zhang, and B. Wade Brorsen. 2010. “The Long Run and Short Run Impact of Captive Supplies on the Spot Market Price: An Agent-Based Artificial Market.” Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO.

⁸⁰ Ji Inbae and Chung Chanjin, Assessment of Market Power and Cost Efficiency Effects in the U.S. Beef Packing, Journal of Rural Development 39(Special Issue): 35~58

⁸¹ If an academic author’s salary was cut by, say 5%, it might be considered small. But for cattle feeding, depressing cattle prices by 5% can be the difference between a modest profit and a loss. Certainly, academic economists would not think that any change that would take them from their current salary to having to pay the university to work would be “small”!

⁸² See, Xinghe Wang, “Partial vertical integration under market uncertainty,” Economic Letters, Vol 45(1), May 1994, Pages 119-123

market. The coefficient of variation, a statistic commonly used to measure relative variation, is twice as high for negotiated live cattle compared to formula cattle nationally. In the High Plains market, known for being particularly thin, the coefficient of variation is over three times higher for weekly cash transactions compared to formula cattle, and about 4.5 times higher for negotiated grid cattle compared to formula transactions. This is consistent with packers moving in and out of the weekly cash market, and is likely an outcome of partial vertical integration, not a lack of dependability of independent feeders or availability of fed cattle.

Potential anticompetitiveness and unfairness of partial vertical integration in cattle and beef markets have not been examined. Steiner's and Lynch's criticism of economists' neglect of both retailers and the competition between retailers and their manufacturer suppliers applies to many academic and government studies of cattle and beef markets.⁸³

Levy, et al, provide theoretical support for antitrust concerns about partial vertical integration for the cable industry which may also apply to cattle and beef,⁸⁴

"One of the main antitrust concerns that vertical mergers raise is that the merger will result in the foreclosure of either upstream or downstream rivals. Although most of the discussion has focused on full vertical mergers, in reality, many firms acquire partial stakes in suppliers (partial backward integration) or in buyers (partial forward integration). A case in point is the cable industry, where several operators acquired partial ownership stakes in cable or television networks. This situation has raised the concern that non-integrated networks will be denied access to cable systems or will obtain access at unfavorable terms. More broadly, policymakers seem to be increasingly concerned about the potential anticompetitive effects of partial vertical integration."

Partial integration by big packers and by big beef retailers subtly transfers risk to independent cattle producers, packers and retailers, making independent market participants, especially the farm or ranch, the shock absorber for the industry.

Captive supply arrangements institutionalized by the big packers makes the residual cash market an insurance market for the partially integrated firm, which means that the residual cash market is riskier.⁸⁵ The combination of partial vertical integration and institutionalized formula arrangements tied to the residual cash market essentially rigs the system in favor of the dominant

⁸³ Michael P. Lynch, "Why economists are wrong to neglect retailing and how Steiner's theory provides an explanation of important regularities," *The Antitrust Bulletin*, Vol. XLIX, No. 4, Winter, 2004.

⁸⁴ Nadav Levy, Yossi Spiegel and David Gilo, "Partial Vertical Integration, Ownership Structure, and Foreclosure," *American Economic Journal: Microeconomics*, February 2018, Vol. 10, No. 1.

⁸⁵ Dennis W. Carlton, "Vertical Integration in Competitive Markets Under Uncertainty," *The Journal of Industrial Economics*, March 1979, Vol. 27, No. 3.

packers. Participants in the residual cash market—the insurance market—are not paid premiums which can be seen as unfair and anticompetitive.

Captive feedlots interviewed as part of the GIPSA study “*identified cost savings of \$1 to \$17 per head from improved capacity utilization.*”⁸⁶ Since weekly beef production is just as variable now as it was decades ago, any improved capacity utilization attributed to captive arrangements would come at the expense of worsened capacity utilization with independent feedlots. Moreover, economic response to the price depressing effects of captive supply eventually reduces the number of fed cattle, thus reducing capacity utilization in the aggregate.

Because packers have institutionalized the tie between the base price in formula arrangements and the cash market, independent market participants are not compensated for being made an insurance market. No insurance premiums are paid by partially vertically integrated companies to non-integrated, non-captive market participants. Thus, partial vertical integration by large beef packers and perhaps by beef retailers raises substantive competition and fairness issues.

Risks and disincentives for new investment in local and regional packing capacity that are posed by partial vertical integration merit consideration in competition policy formulation.

Good Fences Make Good Neighbors

“A good fence helpeth to keepe peace between neighbours; but let vs take heed that we make not a high stone wall, to keepe vs from meeting.” Robert Frost, 1914.

In the cattle business, a sector in which a fence is a stereotypical fixture of the industry, fences have historically separated buyers of slaughter cattle from their sellers.⁸⁷ This is no longer true. Large packers and large feeders have sufficient control over scheduling and delivery of captive cattle to flex significant numbers of cattle in or out of the residual cash market in any week.

For a market to be competitive, fair, and transparent, the buyers of a particular commodity must be distinct from the sellers.⁸⁸ In a sense, a fence should separate buyers from sellers, and the market would work as a gate to pass goods and money from one side of the fence to the other. This should work in transactions involving buyers and sellers with relatively equal compulsions to engage in an exchange of goods for funds.

⁸⁶ GIPSA Livestock and Meat Marketing Study, Volume 3: Fed Cattle and Beef Industries Final Report, January 2007, p. ES-2.

⁸⁷ This section draws heavily from David A. Domina and C. Robert Taylor, Restoring Economic Health to Beef Markets, Report prepared for Domina’s invited presentation at the Joint U.S. Department of Justice, U.S. Department of Agriculture Workshop on Competition Issues in the Livestock Industry, Ft. Collins, CO, August 27, 2010.

⁸⁸ A lengthy review of auction theory is given in McAfee, R. Preston and John McMillan. “Auctions and Bidding.” *Journal of Economic Literature* 25 (1987): 699-738.

But the fence between the two has been torn down by vertical integration and consolidation of market power during the past three decades. This has happened, in part, because major packers own and feed cattle. But their ownership comes in more forms than a simple, specific, direct, and outright procurement of cattle as calves so they can be fed to market weight. Packers have developed ownership arrangements to gain control over cattle long before they pay for them. Their primary tools are contract arrangements whereby the cattle are essentially sold to the packer well in advance of slaughter, either at a committed price, or a formula price to be determined after delivery, but with stringent requirements that delivery must occur. In this way, the packer procures the cattle, even without paying for them, long before the slaughter date, and in many instances even before the calf is in a feedlot, so the packer need not participate in the cash market to the extent it has already captured the supplies it needs well in advance.⁸⁹

Packers, with their contract supplies of cattle, may literally be on both sides of the weekly cash market.⁹⁰ They procure a few cattle in the cash market as buyers. But they push the cash market down because they already control other cattle more favorably priced if the cash price is lowered, and in that sense, they are suppliers motivated to drive price downward. A packer with excessive committed captive supply cattle is a seller of the extra cattle, either directly or by allowing a captive feeder to opt out of the captive agreement and sell excess cattle on the cash market.⁹¹

A packer may be overcommitted with captive supply in one region and under committed in another region and thus sell cattle on the cash market in one region and buy cattle on the cash market in another region. Because weekly regional cash prices are highly correlated, such a packer can be seen to essentially be simultaneously buyer and seller from a national market perspective.

Being on both sides of the weekly cash market for a perishable commodity provides beef packers with many opportunities that may result in cash prices below a competitive level. For example, a packer may be able to satisfy daily slaughter needs or threaten to satisfy needs from their own cattle, from the cash market, from contracted supplies, or from all sources.⁹² If a packer expects price to be going down (or up) during the week, there is an obvious incentive for the buyer to enter the cash market late (or early) in the week. This ices down the feeder and affects the

⁸⁹ Textbook oligopoly and oligopsony models typically assumed for empirical analyses of market power issues in the cattle and beef markets focus on well-defined profit-maximizing firms. These textbook models are inadequate for fully understanding the vast web of interlocking, dominant firms. Nevertheless, mainstream economics gives insight into market power imbalances, and thus insight into anticompetitive and unfair business arrangements. For further discussions see C. Robert Taylor, *The Many Faces of Power in the Food Systems*, Presentation at DOJ/FTC Workshop on Merger Enforcement (2004).

⁹⁰ The extent of beef packers being on both sides of a market are uncertain, as packer sales of cattle are not reported in LMR. However, packer sales of market hogs are reported under LMR and constitute about 15% of packer-owned slaughter hogs.

⁹¹ If not a seller per se, the packer may have authority to permit the captive feeder to sell excess cattle on the cash market.

⁹² Packers may have a right of first refusal with some feedlots which gives the packer some control over what goes onto the cash market.

psychology of the market. The longer the packer waits to enter the cash market, the more worried the feeder gets that he will be feeding cattle past the optimum time for slaughter, thus being out feed costs and later receiving a lower price for the cattle due to quality discounts. Thus, the feeder might accept a lower price than he would in a competitive market with a tightly strung fence between buyers and sellers. This also tends to reinforce the packer's expectation about cash price movements during the week because of their actions that tend to make price move in the expected direction.

In essence, packers' ability to flex some committed AMA cattle allow them to tear down the fence, or at least push the trading fence one way or the other to their advantage. Or they can leave the gate open.

CME Cattle Futures Market

Theoretically, cash markets and CME cattle futures markets are linked, although the link is not perfect. Because they are linked, market power exertion in one indirectly affects the other. In essence, there is no investor fence between the CME and cash price that would prevent a dominant packer or feeder from simultaneously playing both markets.

Packers know months in advance the number of cattle they have in formula and forward contracts. It is conceivable that a packer could take a position in the futures market which would indirectly affect the cash price used as a base in a formula arrangement. It is also conceivable that knowing the extent of forward contracts that the packer could take a position in the futures market that could influence these prices as well.

The large size of dominant packers and feeders raise concern about indirect manipulation of cash prices through dominant positions in a futures market.

Only limited academic research has been done on the role of the futures market in determination of cash price.

One study found that *"the futures price continues as the dominant source of information in the fed cattle market. While the cash cattle price has a strong predictive influence on the boxed beef price, the boxed beef price plays only a marginal role in price discovery."*⁹³

In a related study, the same authors found, *"... the futures price leads the cutout price as the dominant source of information in the fed cattle market. The futures price has a strong predictive influence on the boxed beef cutout price and appears to assimilate fed cattle price information quicker than both contemporaneous and one-day ahead boxed beef cutout price. Newly*

⁹³ Joseph Kishore, Philip Garcia and Paul E. Peterson, "Price Discovery in the U.S. Fed Cattle Market," Paper presented at the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management St. Louis, Missouri, April 22-23, 2013

developed price discovery metrics interpreted to allow for a maximum cutout effect in the pricing process still identify the dominance of the current futures price, and nearly equal weighting for the lagged one-day futures price."⁹⁴

These price linkages merit further assessment, particularly recognizing the potential for large packers and large feeders to exert market power in either or both cash and futures markets.

Measures of Market Power

The standard in mainstream economics for assessing market power is the Lerner Index, LI.⁹⁵ Modified for a processing business like beef packing, the index can be defined as $LI = (FW - MC)/FW$, where FW is the farm-to-wholesale spread (Revenue minus Cattle Costs for the packer), and MC is the marginal cost of processing.⁹⁶ When marginal cost cannot be estimated, average cost is often used in calculation of LI.

LI can be for a firm or for an industry. In competition $LI = 0$, while an $LI > 0$ reveals that market power is being exerted. The problem in directly applying LI is that cost information is typically unavailable for empirical implementation.⁹⁷ Detailed weekly profit and loss data, which packers and retailers likely have, could be used to estimate market power on both the buying and selling side of cattle and beef markets. Unfortunately, such detailed data are not publicly available.⁹⁸

Nevertheless, some insight into values for LI for beef packing can be obtained with use of a proxy for beef packer profit based on the USDA farm-to-wholesale margin and average profit margins for dominant packers.⁹⁹ Admittedly, this is not an ideal LI, but it is the best that can be calculated with publicly available information.

⁹⁴ Joseph Kishore, Philip Garcia and Paul E. Peterson, "Does the Boxed Beef Price Inform the Live Cattle Futures Price?," Selected Paper Prepared for presentation at the 2016 Agricultural & Applied Economics Association Annual Meeting, Boston, Massachusetts, July 31-August 2.

⁹⁵ For discussion of the Lerner Index, see Lawrence J. White, Chapter 5. "Market Power: How Does It Arise? How Is It Measured?" in The Oxford Handbook in Managerial Economics edited by Christopher R. Thomas and William F. Shughart II.

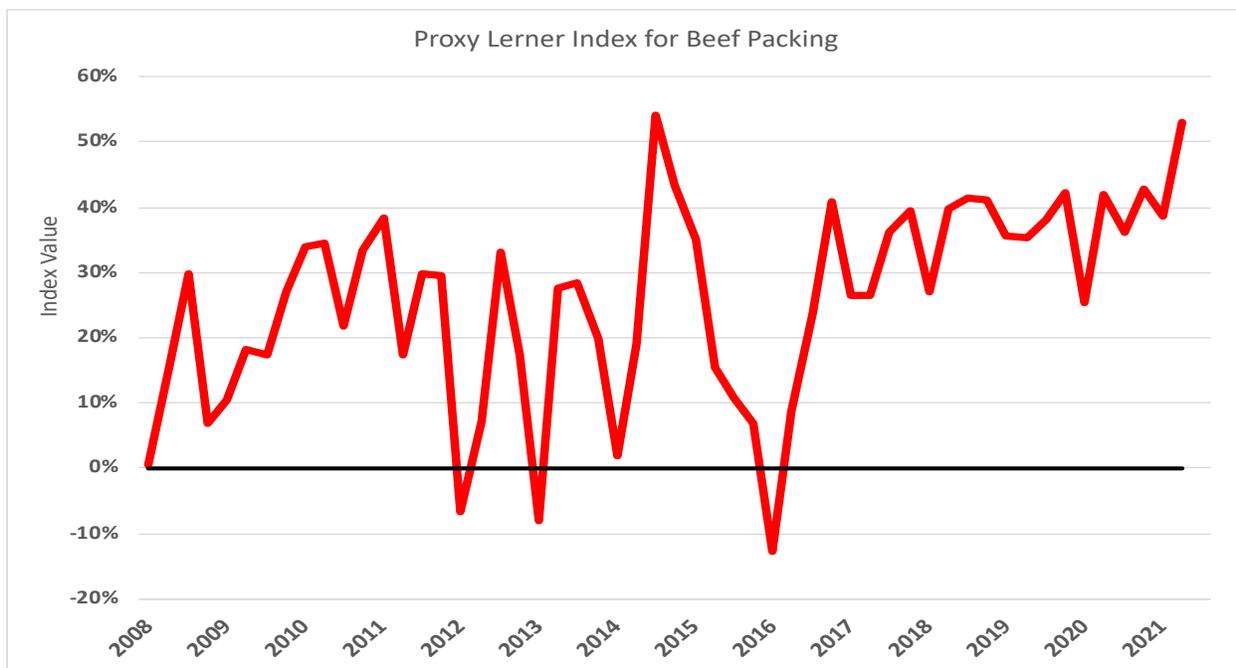
⁹⁶ This definition of the LI implicitly accounts for the combined effects of packer-buyer and packer-seller power. An index of buyer power only is provided by Blair, Roger D., and Jeffrey L. Harrison, Monopsony: in Law and Economics, Princeton University Press, 2010, pp 53-61.

⁹⁷ Surprisingly the Lerner Index was not computed in the RTI/GIPSA study that had 30 months of packer P&L data covering the October 2002 through March 2005 period.

⁹⁸ Reported profit margins cannot be used directly to compute LI because public financials disclose revenue and profit, but not the cost of cattle or number of head slaughtered. Admittedly this proxy LI is based on average costs and revenue, and not on marginal relationships. The slaughter cost function appears to be almost flat over the range of observations which means that marginal and average slaughter costs are about equal.

⁹⁹ Proxy profit is defined as the USDA wholesale value of beef times the average percentage profit margin of 3 of the 4 dominant packers. LI is proxy profit divided by USDA's FW gross margin.

The proxy Lerner Index based on average quarterly profit margins for the beef segment of three of the big four packers is shown below.¹⁰⁰



As can be seen, LI increased from an average of about 15% to an average of about 30% since 2016 and has continued to rise during the COVID period.¹⁰¹ There is no bright line threshold for the LI, but the high levels since 2016 strongly suggest significant market power exertion by beef packers.

Effects Beyond Cattle & Beef Markets

Market power excesses by giant packers or large feeders likely pulls profits out of rural America and transfers them to international financial centers. Thus, market power excesses may

¹⁰⁰ The proxy Lerner Index was based on a simple average of profit margins reported by Tyson, JBS USA and Marfrig/National. Marfrig/National margins were only available since 2017. Cargill, the other dominant packer, does not publicly report beef margins.

¹⁰¹ In contrast, earlier studies of cattle and beef markets have estimated or assumed a Lerner Index of 1% to 10%, which is well below that shown in the simple analysis reported here. See, for example, Chanjin Chung, Tong Zhang, and Derrell S. Peel, "Effects of Country of Origin Labeling in the U.S. Meat Industry with Imperfectly Competitive Processors," *Agricultural and Resource Economics Review* 38/3 (December 2009) 406–417. More refined estimates of the Lerner Index for cattle and beef require packer and retailer detailed profit data that are not publicly available.

contribute to a decline of many rural economies, with a (negative) multiplier effect. This is another fairness issue that merits consideration in policy formulation.

Largely hidden social, economic, environmental and health issues—externalities—are associated with large CAFOs.¹⁰² Real and potential issues include: (a) pollution of surface water, (b) pollution of groundwater, (c) depletion of groundwater, (d) air pollution and odors, (e) spread of pathogens and disease, (f) antibiotic use, (g) feed rations that may exacerbate externalities, (h) taxpayer subsidies to reduce externality impacts, (i) clustering of CAFOs in geographic areas that result in large amounts of manure that cannot be effectively used as fertilizer on nearby cropland, (j) lowered values of adjacent property, especially residences, (k) wildlife, and (l) impact on local communities.¹⁰³

Some of these issues are relevant to competition policy, most are highly relevant to fairness policy broadly defined. Consideration of externality issues goes well beyond the scope of this report; suffice it to say that these issues are significant and thus merit inclusion in policy formulation.

Beef Imports & Exports

Beef trade has an important effect on domestic cattle and beef markets. Exports of beef tend to be higher quality cuts, while imports tend to be of lower quality beef. Increased beef imports certainly depress domestic cattle prices, while increased exports strengthen domestic cattle prices.

Major beef traders have a dominant position in beef production in several countries that export to the U.S., as well as having a dominant position in domestic beef production. Whether dominant beef traders have used market power to influence domestic or world prices has not been adequately analyzed, in large part because of inadequate public data.

The connection between beef trade and domestic cattle and beef markets is nevertheless strong enough that there is the potential for imports and exports to be used to manipulate domestic

¹⁰² Cattle feedlots with more than 1,000 head are generally classified as CAFOs.
<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/livestock/afo/>

¹⁰³ See, for example, GAO report: Concentrated Animal Feeding Operations, GAO-08-944, Sept 2008; Erin M. Tegtmeyer and Michael D. Duffy, “External Costs of Agricultural Production in the United States,” *International Journal of Agricultural Sustainability*, Vol. 2, No. 1, 2004; JoAnn Burkholder, Bob Libra, Peter Weyer, Susan Heathcote, Dana Kolpin, Peter S. Thome and Michael Wichman, “Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality,” *Environmental Health Perspectives*, Feb., 2007 (Work Group Report); Doug Gurian-Sherman, *CAFOs Uncovered, The Untold Costs of Confined Animal Feeding Operations*, Union of Concerned Scientists, 2008; Michael Greger and Gowri Koneswaran, “The Public Health Impacts of Concentrated Animal Feeding Operations on Local Communities,” *Family and Community Health*, Vol. 33, No. 1, 2010; Josie Moberg, “Oregon’s Concentrated Animal Feeding Operations,” *Environmental Law*, 2021, Vol. 51, No. 3 (2021), pp. 771-790.

markets. Certainly, imports can potentially be used by packers to make up for shortfalls in domestic captive supplies, which would have a depressing effect on domestic cash prices.¹⁰⁴

Retail Market Power

Increased retail concentration increases the likelihood that large retailers can exert market power over suppliers and consumers alike, thereby earning super-normal profits.¹⁰⁵ Characteristics of contracts between beef packers and retailers, the role played by Category Captains,¹⁰⁶ grocery store slotting fees¹⁰⁷, and whether wholesaler or grocer employees manages the store meat counter may exacerbate the anticompetitive effects of market power.

Not much public information is available on the types of retail contracts, but some appear to be cost-plus, and some appear like cattle formula arrangements in that price is tied to an announced cash market price. Cost-plus contracts may have a “plus” that is above a competitive level that lock in supra-competitive profit margins. If the plus does not adjust to changing market conditions, such contracts negate competitive adjustments at the wholesale-retail level, thereby magnifying market adjustments in the cattle industry.

Retail contracts tied to a thin wholesale or farm market price raise the same competitive and fairness concerns raised by formula arrangements for cattle.¹⁰⁸ Retail contracts tied to an announced price by a single proprietary reporting service, raise concerns about whether negotiated markets for boxed beef are thin and whether prices are truly competitive and fair.¹⁰⁹

¹⁰⁴ Preliminary econometric analysis of monthly data shows that imports increase when the percentage of captive supplies go down.

¹⁰⁵ See, for example, Paul Dobson, Richard Clarke, Stephen Davies, and Michael Waterson, “Buyer Power and its Impact on Competition in the Food Retail Distribution Sector of the European Union,” *Journal of Industry Competition and Trade*, February 2001, 247-281.

¹⁰⁶ For a discussion of competition concerns with Category Captains, see Gregory Gundlach and Alex Loff, “Competitive Exclusion in Category Captain Arrangements,” 2018. <https://www.antitrustinstitute.org/work-product/marketing-scholars-gundlach-and-loff-examine-exclusionary-practices-in-retail-distribution-in-new-monograph-competitive-exclusion-in-category-captain-arrangements/>

¹⁰⁷ See, for example, Greg Gundlach, “Antitrust Analysis of Exclusionary Arrangements Involving Slotting Allowances and Fees: Issues and Insights,” <https://www.antitrustinstitute.org/work-product/aai-working-paper-no-05-03-antitrust-analysis-of-exclusionary-arrangements-involving-slotting-allowances-and-fees-issues-and-insights/>

¹⁰⁸ Retail cost-plus contracts for poultry that include broiler production costs such as feed are known to exist.

¹⁰⁹ For example, CalMaine, the largest egg producer, stated, “*we believe the majority of conventional shell eggs sold in the U.S. in the retail and foodservice channels are sold at prices that take into account, in varying ways, independently quoted wholesale market prices as published by Urner Barry Publications, Inc. (“UB”) for shell eggs.*” SEC 10-K for 2021. Earlier SEC 10-Ks stated that “... over 90% of all shell eggs ...” were so priced. SEC 10-K, 2011. The extent of similar contracts for beef is not available from public information.

Market access to retail meat and food outlets is critical to success for small, independent producers and processors. Market access may be limited by large slotting fees that are entry barriers, by Category Captains employed by retailers, or by packers who manage meat counters in some grocery stores.

Retailers, like big packers, may only partially integrate upstream to control sufficient supply to satisfy high probability demand for beef, while meeting low probability demand from the residual cash market for beef. This partial integration subtly transfers risk upstream to packers, but packers' partial integration transfers that risk further upstream to feeders and the cash market cattle, likely making the independent farm or ranch the shock absorber for the industry.

Growing concentration of retail food outlets and partial vertical integration upstream raise similar concerns to those in cattle markets. Yet, analysis of market power by retailers has not received adequate competition and fairness analysis, in part due to the paucity of publicly available data on contracts between packers and retailers.

The growing consolidation and partial integration of retailers and packers suggests an evolving tiered power hierarchy with retailers at the top.

In the 1960s, prominent agricultural economists warned, *“Carried to a distant and perhaps never-to-be-realized but still logical extreme, present trends could well mean that competitive independence may one day be restricted basically to the retailing segment—and such competitive independence may be greatly different from that which prevails today.”*¹¹⁰ The future they were concerned about is rapidly being realized in cattle and beef markets.

Potential Solutions

A do-nothing approach—the status quo—will likely result in increased market power abuses, continued loss of truly independent agriculture, small or large, and continued siphoning of dollars out of rural areas and off to international financial centers, and magnified externalities due to CAFOs growing size. Without protection, new packing plants could fail due to lack of retail market access or to predatory activities or to risks posed by partial vertical integration by packers and retailers. Beef consumers will likely continue to see higher prices due to increased oligopolistic/oligopsonistic pricing and reduced choice.

Many policy options for dealing with the lack of competition and fairness in cattle and beef markets have been proposed, ranging from doing nothing to breaking up the Big 4. All policy options have benefits and costs to someone; there is no panacea that benefits everybody.

Four options are offered for further discussion: (1) A box of Band-Aids to stem the flow of blood, (2) Break ‘em Up, (3) Essentially developing a duopoly with two clusters, essentially the Big 4 and their captive feeders and a new parallel system fenced off from the Big 4, and (4) A

¹¹⁰ George Mehren, quoted by Harold Breimyer, Individual Freedom and the Economic Organization of Agriculture, University of Illinois Press, 1965, pp 287-288.

cattle and beef exchange market that would make full use of current technology. Each of these options are outlined below.

A Package of Band-Aids

This policy approach would attempt to make use of current authority under the PSA to improve competition and fairness of cattle and beef markets. Key elements of this approach would be:

- Prohibit tying the base price in captive arrangement to the residual cash market,
- Eliminate preferential captive supply deals such as bonuses, financing and risk sharing arrangements unless offered to all producers,
 - Require full reporting of any such financing, risk sharing and any preferential bonuses under LMR, including incorporating these benefits into an all-in price paid for the cattle on a national and regional (weekly) basis, in the same manner as the live cattle price is otherwise reported today
 - Require LMR to report whether prices are for delivered or FOB for all types of transactions, and incorporate that price benefit into the all-in price
 - Require modifications of LMR reporting of imported cattle to eliminate the discrepancy between trade statistics and LMR reports;¹¹¹
 - Ensure that confidentiality reporting rules in LMR do not prevent a large transaction that can move a thin market from being appropriately captured in the reported prices. This could be accomplished by moving away from geographic-based reporting—which tends to be an imperfect, and manipulatable proxy for quality—towards cattle-attribute based reporting on a national basis. Such a move would better reflect the national nature of the market and prevent deceptive manipulation of specific regional market prices.
- Create market transparency and accuracy of LMR reporting by exposing hidden ownership of cattle on feed, by updating rules and regulations around when off-balance sheet cattle under the same corporate umbrella are considered owned
- At present, packers report to LMR what they choose to report as the “most common” grid. Grids not reported may hide preferential deals, so LMR should be modified to require reporting of all grids, or at least premiums and discounts averaged over all cattle.
- Implement a standard for price reporting:
 - Negotiated cash price, live FOB
 - Center the Grid on choice, yield grade 3, and a 600-900 lb. weight range (all 3 of which are presently reported in LMR grid data). Continue current grid reporting that allow for premiums or discounts for CAB, All Natural, dairy type and a few other quality factors

¹¹¹ At times there has been a large discrepancy between trade statistics showing imports of cattle “ > 700 lbs for slaughter” and number reported as imports under LMR. Is this due to imported cattle being placed in a U.S. feedlot for a short time, then being reported to LMR as domestic, or due to inaccurate statistics?

- Prevent large packers from setting minimums on cattle on feed in affiliated feedlots as this may not be consistent with truly competitive market adjustments,¹¹² and may block entry by other, perhaps more efficient, feeders
- Require packers to report, via LMR, significant positions in the cattle futures markets, much like insider trading is reported for corporate stocks
- Mandate trading windows that are at least two days long
- For cattle bought on the hoof, require packers to report slaughter data (that they already collect) to sellers
- Prevent large feeders from requiring a packer to bid one price on an entire show list
- Prohibit packers from imposing right of first refusal¹¹³ on aligned feedlots.
- Report the weekly HHI for negotiated cash transactions in each reporting region, as this is a widely accepted indicator of whether markets are competitive. Modify LMR guidelines, if necessary, to allow USDA to routinely report such HHIs.

This package of Band-Aids would not completely restore competition and fairness because they would not eliminate market power and leverage that comes with immense size of packers and feedlots, nor solve the retail market access problems. These changes would not force market participants to be openly competitive and may only result in the illusion that they look and act that way.¹¹⁴

Nevertheless, competitiveness, fairness, and transparency of the cash market would be improved with the package of Band-Aids, but likely only temporarily stemming the flow of blood.

Break ‘em Up

One option to address price manipulation across multiple markets is to reduce the size of participants as a way of eliminating or reducing the potential for market power exploitation. This could be done with court ordered divestiture, as was done in 1920. Divestiture could reduce or eliminate market power excesses, and if tailored to preserve the efficiencies of large plants individually or in smaller regional groupings, it could avoid substantially decreasing efficiency of beef packing and processing.

The extent to which any set of divestitures netted positive or negative would depend on the exact plan. These tradeoffs and net effects have not been established.

Another option would be to impose a progressive tax on size and scope to force corporate executives who are likely more informed than outsiders, to decide what units to dispose of or to

¹¹² Requiring a giant captive feedyard to maintain a minimum number of cattle on feed may force anticompetitive and unfair economic adjustments on other feeders under certain economic conditions.

¹¹³ Refusal to deal raises competitive concerns. See, for example, <https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/single-firm-conduct/refusal-deal> and <https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/dealings-supply-chain/refusal-supply>

¹¹⁴ Harold Breimyer, “The Issue of Transparency in Livestock Markets,” *Small Farm Today*, January 2000.

reduce in scale. Tax revenue could be used to compensate for externalities associated with some of the giant CAFOs.

The risks would be to expose the packer to greater buyer power pressure from larger retail grocers. Accordingly, antitrust or regulatory actions should also be taken to address potential retailer market power exerted upstream.

Develop a Parallel System—Good Fences Make Good Neighbors

Competitiveness and fairness problems in cattle markets deal, in part, with the fact that dominant packers have only partially integrated into cattle feeding and have institutionalizing the tie between the price for formula cattle and the residual cash market. If captive arrangements are as wonderful as packers have long claimed, then why not force the largest firms with market power to make a choice between full integration or obtaining all cattle on the cash market?

- The basic idea is to develop a parallel cattle and beef system, with conditions.¹¹⁵
- Build a big, strong fence around the big 4 packers and their affiliated giant captive feedlots, with a small gate that would be open for 3 years.
 - Captive arrangements tied to a base price in a residual cash market or to the parallel system would be prohibited because such is not consistent with incentives in a truly competitive market (for cash acquisitions or for contracts)
 - Cash feeders would have the option to enter during the 3 years, if the big 4 opened their gate
 - Current captive feeders could exit during the 3-year period
 - At the end of the three years, the gate would be permanently closed which would make feeders inside the fence 100% captive and would prevent the big 4 and their feeders from moving in and out of the present residual cash market.
- Begin building a parallel system and a strong fence around that system. The new system would be comprised of the new, smaller packing plants that are planned or already operational.
 - During the 3-year transition period, a gate to this parallel system would be open to independent feeders selling on the residual cash market.

¹¹⁵ In some ways, this proposal would develop a duopoly/duopsony of two systems, one with a few participants, and one with a larger group of connected participants.

A monopsony or oligopsony theoretical model is typically applied to the cattle and beef industry. Arguably, a better textbook model is known as the dominant firm model. Textbook assumptions are that there is a dominant firm, but a smaller competitive fringe who have higher production costs than the dominant firm. It is assumed that the dominant firm allows the high-cost fringe to take whatever part of the market they can supply, then the dominant firm behaves as a monopolist (or monopsonist) given the fringe. The seller-side outcome results in a price above the competitive norm, but below a single monopolist. Conceptually think of not a single dominant firm, but a tight oligopoly with a high-cost competitive fringe. Depending on how tight the oligopoly is, the outcome could approach the textbook case; with a looser oligopoly, the outcome will be better than a tight oligopoly but still not measure up to the truly competitive norm. Now think of two tight oligopolies—one the big 4 and the other a parallel system—with a competitive fringe. The theoretical outcome for consumers and producers is expected to be better than a single tight oligopoly. From a policy standpoint, this would not require breaking up the big 4 and their giant captive feedlots or negating their efficiency claims but would require building and maintaining fences.

- Policy would need to insure access to the retail markets for the developing parallel system
- Some business training may be needed to the extent that managers may not have marketing skills necessary to be successful in marketing beef produced by the parallel system.
- Limited antitrust protection offered to Capper Volstead Agricultural Cooperatives might provide legal protection for a parallel system¹¹⁶
- Unique branding could enhance retail market access
- Small cattle and beef operations, whether independent or vertically integrated, could continue to operate outside the fences.
 - They could also link together to form a third system
 - Aggregate development of small vertically integrated systems may be limited by the size of the consumer population willing to pay for their products
 - These small systems, to be successful, require a unique combination of production, processing and marketing skills that are uncommon.
- Rigorous enforcement of predatory activities—keeping the fences up and gates closed—would be needed to keep the big 4 from pushing the new packing plants into bankruptcy. If the parallel system is eventually highly successful, rigorous enforcement of predatory activities toward the Big 4 may also be required.

Fences that are necessary to ensure competition and fairness in cattle and beef markets need fixin'. The above proposal would partially rebuild fences torn down by market power and partial vertical integration.

Develop an Exchange Market for Cattle and Beef

A properly structured exchange market with an electronic trading platform is a possible alternative that could promote efficiency and fairness. As a minimum, an electronic exchange market could be for fed cattle only. But it could also be structured more comprehensively to include the value chain from feeder calves, to backgrounded cattle, to fed cattle, and to wholesaling of beef to fast food chains and to grocery stores.

Features of a fed cattle component of an electronic exchange market could be:

- Exchange trading of slaughter cattle and beef would be mandated for large businesses
- The largest cattle feeders, beef packers and retail food outlets would have to list on the exchange
- Captive arrangements would be prohibited
- A standard for fed cattle price reporting would be implemented
 - Negotiated cash price, live FOB,
 - Center the Grid on choice, yield grade 3, and a 600-900 lb weight range (all 3 of which are presently reported in LMR grid data). Continue current grid reporting that allow for premiums or discounts for CAB, All Natural, dairy type and a few other quality factors.

¹¹⁶https://www.ftc.gov/system/files/documents/public_statements/683651/19650809_macintyre_agricultural_cooperatives_and_the_antitrust_laws.pdf

- Quality would be measured and monitored through compliance with USDA grading, and for special attributes such as a Process Verified Program or other audit certifications.
- Buyers must submit evidence that they are a bonded packer with the authority to buy. Ability to buy on the exchange can be suspended at any time per manipulation or violation of rules.
- Listings for sale would have a 3-day minimum before closing to allow adequate time for bidding
- Sellers submit a pen of cattle to be sold along with a high-quality video of the cattle to allow for buyers to accurately evaluate quality.
 - a. Sellers provide information about the cattle including weight, age, time on feed, breed composition, location, delivery time, etc.
 - b. Cattle must be submitted the Saturday prior to the sale so a showlist can be made available to buyers.
- Packer owned cattle would need to be identified as such and restricted
- After cattle trade on the exchange, the seller has until the end of the sale to decide to accept or decline the selling price.
 - Cattle that do not sell on this platform, will have the opportunity to re-list on a future sale at no cost of the seller or reduced marketing cost.
- All cattle traded on the platform will be published via USDA LMR.
- Allow feeders to rate selling experience much like on Amazon or eBay. Each buyer would be rated with a series of “stars” based on past ratings. Cattle quality data would be publicly provided.
- Transactions permitted on no more than 1,000 head per transaction.
- Offers/purchases can be for any length of time into the future, if the planned week of slaughter is defined
- Sellers can provide video of cattle in the listing (and allow for field buyers to visit the feedlot to observe the cattle as well)
- General location of cattle and processing plant are defined
- Clearly identify who pays for delivery
- Transactions for branded cattle allowed, with brand (e.g., Certified Angus) indicated by seller with publicly posted affidavit.
- The exchange for boxed beef would have a similar structure to that for cattle, including quality data.
- Traceback for food safety or other reasons would be implicit.
- Government oversight and regulatory jurisdiction to minimize manipulation and bid rigging.

Advantages

- Historical and current information would be made publicly available to reduce or eliminate information asymmetry
- A stream of data could be publicly provided (w/o company disclosure) to allow traders, academics, and government economists to analyze whether the market is competitive.

- Government authorities could confidentially monitor the stream of data to monitor whether the PSA is being followed. For example, whether undue preference exists.
- Feeders now tied to a single packer would have more freedom in selling to other packers.
- Small feeders would have equal access to shackle space
- Small packers would have access to cattle from large feeders
- Formula contracts would be prohibited, thereby eliminating the distorted incentive large packers have in acquiring cattle on the residual cash market.
- All transactions would be negotiated
- Market transparency would be enhanced
- To the extent that such a market restores competition to the base price, it would also establish/restore/maintain competition for grid premiums and discounts.
- By allowing transactions for cattle to be delivered weeks or months in the future, packers would still be able to be assured of future supplies, which is a claimed advantage of captive supplies.
- Packers would likely not need as many field buyers, as the information now collected by them would be available on the electronic market.
- It would be much more time efficient than having an auctioneer in a sales barn. Click, click, click!

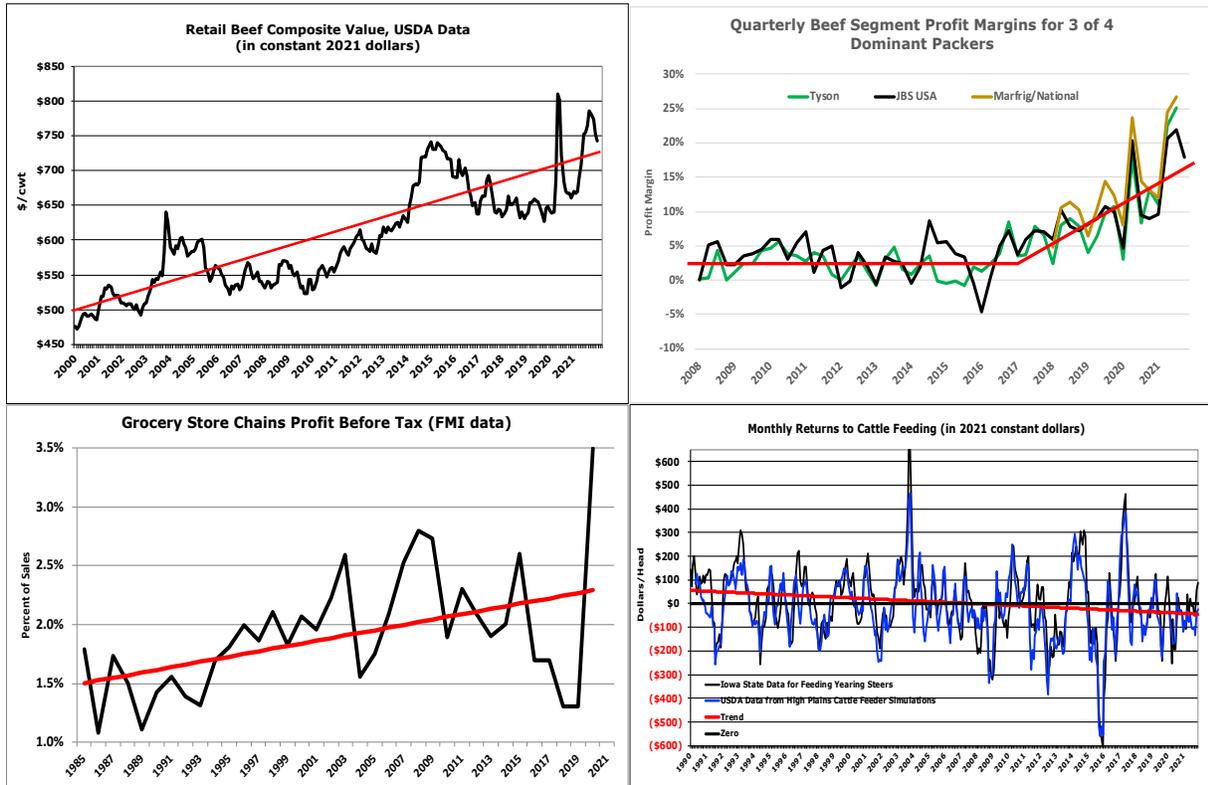
Challenges

- One primary issue would be how to make a smooth transition from the current system to an electronic market for all sales and acquisitions. So, market participants would need to try a beta test version before actual transactions are made.
- Ideally there would be a single market, much like a public utility, but there will be considerable resistance to such.
- If a single market is not viable, then a way of linking separate markets to a national coordinating market would be needed. Multiple electronic markets would make it challenging for big packers to obtain all their needs.
- Insure transparency and open access for buyers and sellers, cattle or beef, large or small.
- Independent referees for the exchange (USDA, DOJ, FTC, CME, and/or SEC) with authority to impose penalties sufficient to discourage undesirable behavior would be necessary for an exchange market to ensure that the process is, and continues to be, competitive and fair.

In summary, an exchange platform has the potential to enhance efficiency and transparency of cattle and beef trading, but is fraught, if not properly designed and policed, with potential problems with information exchange and collusion.

Final Remarks

Outlined above are just a few of the policy options. Hopefully these options will stimulate meaningful discussion of benefits and costs of various policy options to ameliorate competition and fairness issues obvious from the charts below.¹¹⁷



¹¹⁷ Klemperer noted biases that are often encountered in competition policy discussion, “The existence of a “bidding market” is commonly cited as a reason to tolerate the creation or maintenance of highly concentrated markets. We discuss three erroneous arguments to that effect: the “consultants’ fallacy” that “market power is impossible”, the “academics’ fallacy” that (often) “market power does not matter”, and the “regulators’ fallacy” that “intervention against pernicious market power is unnecessary”, in markets characterized by auctions or bidding processes.”¹¹⁷ Meaningful debate over policy options for cattle and beef markets necessitates moving beyond any such biases (including the author’s).