

*Dr. Pangloss as an Agricultural Economist: The Analytic Failures of
THE U.S. BEEF SUPPLY CHAIN: ISSUES AND CHALLENGES*¹

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In August of 2020, the then leadership of the House Agriculture Committee requested the United States Department of Agriculture (USDA) to fund research on the issues surrounding the marketing of beef cattle.² The scope of the request included consideration of “industry structure,” “barriers to entry,” “price discovery and methods to address deficiencies,” “purchasing mandates,” as well as a variety of issues for which more “in-depth description” was sought.³

The USDA’s Office of the Chief Economist commissioned Texas A & M University and its Agricultural and Food Policy Center to carry out this project.⁴ As acknowledged in the Introduction, the result “focused primarily on fed cattle pricing. . .”⁵ Indeed, there is only passing reference to the structure of the industry, barriers to entry, or many of the other specific issues raised in the letter to the USDA. The result is a series of nine papers that, with a couple of partial exceptions, present a sustained, unreflective, Panglossian, defense of the status quo.⁶ Moreover, Professor Koontz issued a dire, but

¹ THE U.S. BEEF SUPPLY CHAIN: ISSUES AND CHALLENGES, papers from the Proceedings of Workshop of Cattle Markets, Kansas City, Missouri, June 3-4, 2021, (Bart L. Fischer, Joe L. Outlaw, David P Anderson, eds.).

² Id. at VI – VII.

³ Id. at VI

⁴ Id. at XV

⁵ Id. at VIII

⁶ Dr. Pangloss in Voltaire’s CANDIDE was presented as a philosopher but based on the papers in this book it appears plausible that his frame of reference (“this is the best of all possible worlds”) has become the rallying cry of agricultural economists studying cattle markets.

implausible, prediction that reforms in the methods of marketing cattle could result in increased costs of more than a billion dollars!⁷

The authors of the papers in this volume repeatedly commit the errors of assuming causal relationships and ignoring plausible alternatives already in use in some regions. Given the controversies surrounding the market for beef cattle, it is truly remarkable that the organizers were unable (or unwilling?) to include anyone who might have a less positive view of the current systems for marketing cattle and a greater awareness of alternatives.⁸ It is, of course, possible that no credentialed agricultural economist dissents from the views expressed in this volume. If that is true, then the discipline itself is at risk of Panglossian intellectual irrelevance because there are significant and proven concerns with the operation of these markets.⁹ Indeed, the issues

⁷ See, Stephen R. Koontz, *Another Look at Alternative Marketing Arrangements Use by Cattle and Beef Industry*, 102, 104. It would unduly extend this brief review to comment in detail on the narrow and implausible assumptions made in this effort to transfer some analyses based on a couple of years of data in the early 2000s into an estimate of increased transactional costs. The greatest weakness in this exercise is the failure to consider whether alternative negotiated strategies would effectively avoid the assumed cost increases. Another serious problem is the failure to recognize that the lack of cash markets in some regions is a direct consequence of the high level of concentration in those regions rather than a movement from one marketing system to another based on inherent advantages.

⁸ The short paper by Professor Scott Brown, *What Can the Cattle Industry Learn from Other Agricultural Markets that have Limited negotiated Trade?* 149 -155, does describe how other agricultural industries, e.g., pork and dairy, have found other ways to identify market prices.

⁹ See, *In re Cattle Antitrust Litigation*, 2020 WL 5884676 (D. Minn. 2020); at least one defendant, JBS, has chosen to settle with the class of direct purchasers with a \$52.5 million payment. See, Jacqui Fatka, *JBS Pays \$52.5M to Partially Settle Beef Antitrust Litigation*, FARMPROGRESS, Feb.2, 2022 available at <https://www.farmprogress.com/farm-policy/jbs-pays-525m-partially-settle-beef-antitrust-litigation>.

go back more than a century and motivated Congress to adopt the Packers and Stockyards Act.¹⁰

In this brief review, the central concern is that, despite a couple of papers that acknowledged that causal questions existed, there was a fundamental failure to address the relationship between what some authors recognize as the market power of the packers and the choice of buying methods which might exploit that power by choosing the most anticompetitive method to accomplish efficiency enhancing goals. In addition, the failure to consider how strategic conduct and game theory might illuminate the impact of buying strategy is a striking omission that again undermines the Panglossian enthusiasm for the status quo. On the other hand, one useful contribution provided an analysis of the merits of creating a library of AMA contracts, and there were several acknowledgements of the existence of the packers' market power as buyers even if the authors sought to trivialize the significance of that fact.

I. A Little Background on the Methods of Buying Cattle

There are two broadly defined method of buying fed cattle today: 1) “negotiated prices” which means open market sales, or 2) an alternative marketing agreement (“AMA”).¹¹ AMAs involve an agreement to deliver cattle at future times based on some

¹⁰ See, e.g., *Swift & Co. v. United States*, 196 U.S. 375 (1905) (defendant packers fixed prices to exploit producers and consumers); REPORT OF THE FEDERAL TRADE COMMISSION ON THE MEAT-PACKING INDUSTRY (6 volumes, 1918-1920) (documenting in great detail the competitive problems created by the concentrated meat packing industry). Packers and Stockyards Act, 65 Cong. Pub. L. 67–51, 42 Stat. 159, codified as amended at 7 U.S.C. §181 et seq. See also, Peter C. Carstensen, *How to Assess the Impact of Antitrust on the American Economy: Examining History or Theorizing?* 74 IOWA L. REV. 1175, 1198-1210 (describing the history of change in meat packing and cattle marketing).

¹¹ See, Derrell S. Peel, *How We Got Here: A Historical Perspective on Cattle and Beef Markets*, 1, 32 – 33; see also Ted C. Schroeder, Brian K. Coffey, and Glynn T. Tonsor,

price formula. There are apparently a variety of formulas, but predominantly their basis is either a price based on contemporary market prices (i.e., negotiated prices) or prices derived from the futures market in cattle which, again, in turn, relies on expected negotiated prices. AMAs then provide increases or decreases in the final price paid based on characteristics of the cattle as evaluated after slaughter. Negotiated sales can be based either on the weight of the live animals (“conventional negotiated” sales) or on a grid of prices (“negotiated grid” sales) in which the final price paid uses the conventional negotiated market price adjusted by the characteristics of the animals after slaughter. The use of a negotiated grid avoids the “lemons” problem that exists when a packer pays based on the live weight of the cattle.¹² In different regions of the country there are distinctly difference proportions of sales based on AMAs and the two types of negotiation.¹³

II. *The “Post Hoc Ergo Propter Hoc” Error*

The basic syllogism of the authors of the studies presented in this volume is that after the introduction of AMAs, prices paid feeders were better, efficiency was better, and

Enhancing Supply Chain Coordination through Marketing Agreements: Incentives, Impacts, and Implications, 81, 82-83.

¹² See, id., at 85, Table 4.1, comparing different marketing methods showing that negotiated grids and AMAs with grids have similar characteristics on quality dimensions, while asserting that they are more costly for price discovery, less secure for market access, and do not provide the same timing options for delivery. However, the significance of these purported limitations is questionable because they result from assumptions drawn from a world in which the packers generally have no incentive to improve the characteristics of negotiated grids because that would increase the potential for price competition.

¹³ Koontz, supra note 7 at 123-124. The differences seem to correlate with the number of competing buyers in each region with the negotiated sales more common in more competitively structured markets. Also there seems to be a preference for negotiated grid sales in those markets with more competitive structures.

quality was better than under a conventional negotiated price system. Hence, the AMAs must have caused all these good things.¹⁴ The goal of these claims is to dispute the desirability of several pending proposals to require that major packers engage in negotiated purchases for some percentage of their cattle buying. Because such proposals would reduce the number of cattle coming to market through AMAs, this would, it follows, necessarily harm feeders and consumers in at least one telling.¹⁵ These harms would come from increased “transaction costs” as well as loss of quality control based on various characteristics in cattle that packers can obtain using AMAs that specify such details.

The Congressional mandate was to examine “price discovery and methods to address deficiencies” where “price discovery” means the process of setting a specific transactional price. On the one hand, the chapters acknowledge there are a variety of types of transactions that produce price discovery by different means. The uniform conclusion of those chapters is that AMAs are the best option for individual feeders. On the other hand, the first and painfully obvious weakness in this conclusion is that the articles also report that there are a wide variety of AMAs and, worse, there is little knowledge of their specific terms. Indeed, the most interesting contribution is from Maples and Burdine who recommend creating an AMA contract library like that used in the hog business so that producers can be better informed of options.¹⁶ This same paper even acknowledges that as the volume in the cash market declines price variance

¹⁴ Schroder, et al., supra note 11 at 93, do recognize that at best the evidence shows correlation and not causation, but then they ignore this insight.

¹⁵ See. e.g., Koontz, supra note 7 at 104, 124.

¹⁶ Joshua G. Maples and Kenneth H. Burdine, *Market Reporting and Transparency*, 132, 141-145.

increases because most AMA prices are derived directly or indirectly from the cash market.¹⁷ Moreover, Brown reports that other comparable agricultural markets have moved away from using the market for the commodity to using some downstream basis derived from an apparently more competitively robust market context.¹⁸

Consider the circularity of the argument for the AMA as a better option. First, conventional negotiated sales are critiqued because they do not allow buyers to differentiate between high quality and less desirable cattle, do not allow grading of the resulting beef to play into the final price, and do not permit the use the breeding or certification requirements.¹⁹ Hence, because AMAs provide one means to improve the pricing for cattle in comparison to one negotiated method, these scholars conclude it is the best option.²⁰ But the base price for most, perhaps all, AMAs appears to be the price set by conventional negotiated sales.²¹ Hence, the AMA price predictably is better than the conventional negotiated price both because that price is likely to be depressed to some

¹⁷ Id. at 132 (“Reductions in public cash market information has also been shown to increase price variance and decrease production efficiency . . .” citing Anderson et al., *Experimental Simulation of Public Information Impacts on Price Discovery and Marketing Efficiency in the Fed Cattle Market*, 23 J. AG & RESOURCE ECON. 262 (1998)). See also, Schroeder, et al, supra note 11, at 87.

¹⁸ See, Brown, supra note 8. But experience in dairy where cheese prices on public exchanges are the primary basis for pricing milk is that the resulting market is thin and manipulable. See, WILLARD F. MUELLER, ET AL, CHEESE PRICING: A STUDY OF THE NATIONAL CHEESE EXCHANGE PREPARED FOR THE WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE, AND CONSUMER PROTECTION INVESTIGATION INTO CHEESE PRICING SUMMARY, CONCLUSIONS, AND POLICY INITIATIVES (1996).

¹⁹ See, Koontz, supra note 7, at 104; Schroeder et al., supra note 9, at 86.

²⁰ See, e.g., Schroeder et al., supra note 11, at 86.

²¹ See, Koontz, supra note 6, at 116; Christopher T. Bastian, Chian Jones Ritten, and Amy M. Nagler, *How Market Institutions, Risks, and Agent Incentives Affect Price Discovery: Fed Cattle Market Implications*, 65 (report experiments showing that an English auction under competitive conditions consistently result in higher prices to buyers while AMA type agreements result in lowest prices).

degree given the market power of the packers and because the conventional negotiated price does not allow for the kinds of efficiency enhancing quality incentives that AMAs generally are claimed to provide. But, compared to what a workably competitive market might have produced including strategies that would achieve comparable quality improvement, the AMAs might still yield a lower price even if higher than the conventional negotiated price. Thus, feeders as group would be better off with a better designed negotiated price system, but packer buyer power makes it impossible for any feeder, however substantial, to demand such treatment.²² As long as the AMA house of cards rests on conventional negotiated prices which by definition are inferior, the claim that AMAs are preferable proves nothing of relevance about a fair and equitable pricing system.

III. The Roads Unexamined

Within the marketing systems discussed in the papers in this volume there are some interesting options that warrant, but do not receive, consideration as alternative ways to do price making and discovery.

The most obvious is the negotiated grid. These are negotiated sales in which the value of the cattle is assessed after slaughter and the feeder compensated based on the actual quality of the cattle sold. This form of negotiated sale could also take account of certification and other characteristics in much the same way that AMAs are said to do. Hence, none of these “unique” attributes of AMAs are in fact only possible with an AMA

²² This poses a classic collective action problem. All would be better off with a better negotiated price system, but that would require all or most feeders to act together. But even if feeders were to solve the collective action problem by some agreement, it would likely violate antitrust law.

unless one adds the negotiated grid to the list of AMA types.²³ But then there should have been a much more critical review of alternatives among the AMAs in current use.

The analyses, especially that in Koontz and Schroeder et al, argue that negotiated sales do not address supply risk, i.e., result in uneven supply, so result in higher overall transaction and processing costs as well as diminishing the ability of buyers to seek specific characteristics. The supply risk problem is spurious as increased use of negotiated sales which allow the buyer to take or order delivery within up to 30 days simply means that the buyers will need to organize their purchases so that they have the desired flow of cattle. Use of negotiated grids, as Schroeder et al recognize, can solve the problem of rewarding appropriate types of cattle and create appropriate market incentives. Hence, the overall claims of Koontz and Schroeder et al rest on the assumption that the market dynamics which have made AMAs a preferred method of dealing with a number of efficiency issues would not also operate in a negotiated market context to induce the same or better results assuming, of course, that the buying market is workably competitive.

A second interesting but unexplored option is the use of the wholesale price of beef as the basis for AMA contracts.²⁴ Those prices pit the packers against the large

²³ Given modern technology it should be no more costly to do any of the post-slaughter evaluation when the packer used a negotiated grid to obtain the cattle than when it used an AMA.

²⁴ The USDA has the authority to forbid unfair or discriminatory practices by packers. 7 U.S.C. §181 et seq. It could invoke that authority to forbid AMAs based on negotiated or future cattle prices and even determine that only AMAs based on the wholesale price of beef are sufficiently free from the risks of discrimination and unfairness to be lawful.

retailers and better reflect the value of the cattle delivered to the packer.²⁵ It is, indeed, possible that some AMAs use this basis, but the lack of information in the hands the expert economists preclude them from any investigation of how this option would perform relative to one based on the conventional negotiated price. Under such an AMA system, when the capacity of packers or the limited supply of cattle increased wholesale prices, the gain would be likely to go to the feeders who provided the more valuable input rather than the packers whose other production costs had remained largely unaffected.

There are two scenarios implied here. In the first, the supply of feed cattle is such that demand drives up the wholesale price of beef. Here, one would predict that packers operating in a competitive market would raise the price they pay for cattle. Hence, use of the wholesale price would not result in a different outcome for the feeder. But if the packers constrain their use of their slaughter capacity, an exercise of monopsony power, then wholesale prices for beef would go up but prices for cattle would be likely to decline despite the fact that the value of the cattle actually sold was greater. In this context, use of the wholesale beef price would be likely to protect feeders and provide an inducement for packers to expand or restore production.

Another option that was not even mentioned in any of these chapters is the use of “custom packing” which is a system in which a downstream wholesaler, restaurant chain, or retailer buys the cattle and contracts to have the packing house slaughter and process them. Whenever there is significant spread between the price of cattle and the wholesale price of beef, such a system would allow downstream buyers of beef to lower their costs

²⁵ See, Brown, *supra* note 8, at 152, reporting that some pork AMAs in fact use the wholesale price of pork as the basis for the price of pigs given the increasingly limited negotiated market for pigs.

even as the feeders would receive higher prices for their cattle. But such a system requires that there be sufficient slaughter capacity available for such a use.²⁶ Packer market power could plausibly explain why this option is relatively rare and provided only by a few small packers.

IV. The Partially Acknowledged Problems with the Current Market Methods

Intermittently, there are admissions that the world of cattle marketing is not perfect. The need for an AMA library is an example of a market failure. Feeders are ignorant of the options that might be relevant to them which is the hall mark of a defective market. Of course, if a feeder operated in a market with a few buyers, better knowledge might not be of much economic value. On the other hand, AMAs are probably the better strategy in such markets given the risks of sales in markets with such concentrated buying power. Koontz's argument against negotiated sales (his focus seems to be exclusively on conventional negotiated sales) and in favor of AMAs ignores his own data showing the relationship of buyer concentration to the use of AMA.²⁷ In such concentrated markets it is implausible that buyers are not exercising their power.

It is here that the models commonly used in the non-agricultural part of economics would seem relevant. AMAs, for example, can be strategic conduct that functions in part to exclude potential competition by tying up a key input. These agricultural economists, on the other hand, did not examine how AMAs combined with high buyer concentration might both entrench market power and minimize the prices that

²⁶ Whether the USDA authority under the Packers and Stockyards Act, see supra note 24, would permit a requirement that some percentage of packer capacity be dedicated to custom packing is an interestingly technical question.

²⁷ See, Koontz, supra note 7, at 123-125.

would be paid for desired cattle. To imagine that the packers, given the history of this industry, have become naïve or altruistic in the use of their market position is a charming but unhelpful fantasy. A game theory model would suggest that the interdependence among the four major packers is likely to lead to parallel strategies in both upstream and downstream markets that are likely to entrench the dominant buyers and limit the gains to their suppliers while at the same time exploiting consumers. Yet the authors of these papers ignore all the tools at their disposal to examine how much exploitation is possible consistent with the acquisition over time of sufficient supplies to achieve an optimal return for the shared monopoly.

There are several acknowledgements that the packers have buyer power.²⁸ But the implications of this indisputable fact are not examined beyond the claim that there was little observable effect from this power. Indeed, one author contends that the “efficiencies” of large-scale production outweighed the harms of market power without asking whether a less concentrated maker would both produce the same or more efficiencies and more competitive prices.²⁹ This is a classic example of Panglossian tenor of these articles.

Despite the claims of great advantage to scale and by implication concentration, the 22 largest packing plants on average slaughter 3.26% of the federally inspected

²⁸ See, e.g., *id.*, at 107-108; see also, Peel, *supra* note 11, 27-30, Figures 1.27, 1.30, 1.31, showing the increase in concentration (fig. 1.31) which correlates with increased prices for boxed beef (Fig. 1.30) and prices paid by consumers (fig. 1.29). It is noticeable that the increases came after the industry achieved its present concentration level in the late 1990s. There is also a distinct difference in the price increases for boxed beef sold to major buyers and the greater increase in price experienced by consumers despite the fact that boxed beef reduced retail processing costs significantly.

²⁹ See, Koontz, *supra* note 7, at 107-108.

production.³⁰ Given that all other plants have lower capacity and work varied hours, it is highly likely that the minimum efficient scale is in the range of 2% to 3%.³¹ The most obvious implication of this economic fact is that the market structure is not the product of scale economies. Beef packing 50 years ago had evolved away from its earlier high concentration and become quite unconcentrated.³² Its current structure is the consequence of mergers and other strategic choices in the subsequent decades. These papers make no effort to show why such a high level of concentration is necessary for the efficiencies that are identified. At best, the “analysis” is that there is concentration and efficiency; hence, concentration is necessary for efficiency. But nothing in the nine chapters of this book provide any theory of why that might be the case.³³

³⁰ Mellin Ma, Layson L. Lusk, *Concentration and Resiliency in the U.S. Meat Supply Chain*, 1 (the 22 largest beef processing plants average 3.26% of the total slaughter of federally inspected cattle) available at <https://www.nber.org/papers/w29103>.

³¹ Packing plants are high volume operations relative to the fixed costs. This suggests that the incremental cost curve is likely to be relatively flat through some reasonable range of production. The bigger issue would be the cost implications of operating at levels substantially below optimal capacity. Again, the papers in this volume do not address this issue which is another element in the kinds of strategic options open to dominant firms.

³² See, Carstensen, *supra* note 10.

³³ In 2013 (the most recent listing that included the number of plants and aggregate capacity that available on the web), the average daily capacity of the plants belonging to the big four ranged from 3,013 head (JBS Swift) to 4,666 head (National) while the sixth largest packer, Greater Omaha, had roughly comparable capacity to Swift (2,900 head). See Top 30 Beef Packers 2013 available at <http://www.themarketworks.org/sites/default/files/uploads/charts/Top-30-Beef-Packers-2013.pdf>.

Further, the existence of market power means that the packer has the bargaining power to insist on the form of AMA or negotiated purchase most favorable to itself and least favorable to the feeder.

Conclusion: Wasted Taxpayer Funds

This volume fails to provide the kind of analysis that the letter from the House Agriculture Committee requested. It fails to recognize the incentives of dominant buyers to exploit their power over time while preserving their sources of input. It does not evaluate the full range of known options for price making and discovery that might cabin that power more effectively. Rather its primary contribution is a defense of the status quo even while recognizing that there is only limited information about how the various AMAs operate or might operate and, of course, no way to determine which are better or worse for feeders. The taxpayers paid for this project, and neither they nor Congress got much in return.