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**PRICING PROBLEMS IN THE FOOD INDUSTRY
(With Emphasis on Thin Markets)**

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THIN MARKET CONDITIONS IN THE LIVESTOCK — MEAT INDUSTRY

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After wrestling mightily with the concept of "the thin market," like Daniel Webster with the devil, I am not sure that it has real substance of its own. Along with others, I find a wide array of economic problems within all sectors of the livestock-meat industry. Some of these problems include characteristics or conditions which Hayenga, et al, mentioned during heroic efforts to identify and define a "thin market." Characteristics of thin markets, however, often seem to be so thoroughly intertwined or blended with companions that they are identified only with difficulty. In addition, placing emphasis on these characteristics sometimes obscures the basic problems. Such characteristics may be only one of several results of a problem.

The positive side of these arguments suggests consideration of the thin market concept as a measure of performance. As an outcropping of underlying problems, thin markets are a result rather than a cause. While this points toward emphasis on the problem rather than the symptoms, they might be employed as a useful detector of the problems. Economic implications and related consequences of thin market conditions, of course, also may be important.

INDUSTRY SOURCES OF THIN MARKETS

In the process of attempting to focus on "thin markets" as a problem, I find several causes or contributing conditions. One of these is the drive by buyers, and especially by large-volume carlot buyers, for efficiency in the pricing process. We are accustomed to distinguishing between problems of "operational efficiency" in the physical processes of distribution and those of "pricing efficiency" in the development and maintenance of an adequate system of pricing and communication. Few, however, have recognized that there are both operational and pricing efficiency problems in the pricing process itself. Pricing practices, it appears, often are adopted for the principal purpose of reducing costs and improving operational efficiency in the pricing process. Industry buyers and sellers generally are much less interested in the industry-wide or social implications of pricing practices with respect to their accuracy or efficiency in allocating production or marketing resources.

The desire to avoid price risk in the marketing process along with efforts to ensure location and adequacy of supply, as needed, at competitive prices may lead to trading practices which produce few reportable prices. These might be contract arrangements or institutionalized forms of pricing. Stable or predictable prices or margins are a distinctive feature of institutionalized pricing systems.

Another important source of thin markets, it seems, is disorganized markets or disorderly markets. This, I shall argue, is an important contributor to the appearance of thin market characteristics in the cow and stocker-feeder sectors of the cattle industry. An excessive number of competing markets in an area, as well as too few, can distort pricing structures and complicate price reporting procedures. The goal of convenience

as opposed to both operational and pricing efficiency, contributes importantly to decentralization and disorderly market conditions.

Peculiar demand or supply conditions in markets can produce seasonal, cyclical, or periodic conditions with characteristics of thin markets. In the livestock industries, such characteristics become particularly important when combined with decision models as exemplified by the cobweb theorem or by necessary biological lags in production. A shift in a highly inelastic demand function with biological limitations on response over the near-term can produce violent price changes. Thus, demand functions which are exceptionally sensitive to variations in consumer incomes, changing preferences, or general economic conditions may exhibit a history of wide and erratic variations in short term market supplies and prices.

The combination of low per capita consumption, elastic demand conditions, and sizable economies of scale sometimes lead, possibly through oligopolistic situations, to thin market characteristics. In the lamb industry, for example, individual plants and firms almost necessarily account for a high percentage of total U.S. slaughter. Here, oligopoly is not the problem. The economic conditions limiting the number of plants which can operate at an efficient scale and reasonable level of capacity are the problems.

The division of commodities such as beef and pork carcasses into an increasingly large array of individual products, each with its own market characteristics, is another potential source of thin market activity. In the pork industry, separate and distinct marketing structures, demand characteristics, market channels, and marketing practices exist for hams, picnics, pork bellies, loins, butts, and a long list of other items. Within some of these, periodic, and in some cases, persistent thin market conditions prevail. To an increasing extent, beef carcasses also are being disassembled at the packing plant. This is advantageous in many respects, but as in pork, each of the meat and by-product items has its own peculiar market characteristics. One or more often are in relatively short market supply compared with market requirements.

The discovery and adoption of new technology in transportation, refrigeration, communication, or other key functions are primarily responsible for the phenomenon of growing or dying markets, of which Hayenga and Company speak. Within the livestock industries, the classic controversy between centralized and decentralized markets is a prominent example. Essentially, it was thin market conditions and price distortion at the terminal markets which opponents of direct marketing cited in attempting to preserve the terminal marketing system. Evolutionary changes in market structures, therefore, can be cited as a basic source of thin market conditions. For many years following substitution in the cattle industry of direct marketing for terminal marketing, the industry was afflicted with a serious case of pricing inefficiency. Price reporting by USDA or others was a serious problem. It still is a problem in many direct trade areas of the nation.

FORWARD FORMULA PRICING IN THE MEAT INDUSTRY

It is in the meat sector of the beef and pork industries that the most widely publicized and clear cut case of thin market conditions is found. There is nothing inherently wrong with pricing or contracting on a formula basis. However, when the formula price is tied directly to a major industry price report on a forward basis (to a reported price to be realized in the future), serious problems and questions arise.

The basic problem is an institutionalized pricing system tied on a forward basis to a market price report which also is employed widely throughout the meat industry and in buying livestock on a negotiated basis. It effectively removes mainstays of both the beef and pork marketing systems from the price reporting process, forces the reporting services to rely almost exclusively on meat brokers and other peripheral sectors of the meat industry for price reporting, tends to perpetuate the monopolistic position of one price reporting service, leads toward highly questionable and controversial reported pricing results, greatly increases incentives for manipulation of reported prices, and tends to force the reporting services to accommodate themselves to the system.

We cannot say that the volume of product traded or market structure are the underlying culprits. On the basis of available evidence, Hayenga's three major "performance dimensions" remain unaffected. We have no clear-cut demonstration of material price distortion or bias. I seriously doubt that monopoly profits arise from the system or that risk is increased. Instead, the principal aim of the system is to reduce both cost and risk associated with the pricing process. This system is operationally efficient as it moves huge quantities of meat effectively and with relatively little input of skilled or unskilled labor. Under the "system" it becomes possible for one or two employed buyers of a large retail food chain to buy all of the meat required by the chain or a major division of it. Control, in a sense, is centralized. Sales costs of packers and other suppliers also are reduced. It is difficult to conceive of a pricing system that, considered strictly from an operational viewpoint, would be more efficient. The advantages, however, are not without attendant serious disadvantages.

Pricing problems associated with forward formula pricing tied to a major price report rise with incidence of its use. Evidence concerning incidence in the meat industry is convincing. The National Commission on Food Marketing reported that for 1964-65, formula pricing arrangements with most important customers accounted for 41 percent of the frozen pork, 29 percent of the cured hams, picnics, and bacon, and 20 percent of the other processed meats.¹ By 1968, my surveys were suggesting a much higher percentage on beef.² By areas, the estimated percentages for the period ranged on carlot shipments or receipts from a 50 percent flat sheet basis for Chicago to 60-65 percent for New York-Philadelphia, 70 percent for Omaha-Des Moines and the Texas Panhandle to 90 percent for the Denver area. Relatively little was reported from the West Coast and some areas of the South. While no firm evidence is available, the national average percentage seems to have increased since that time on beef to 70-75 percent, but from the Great Plains through the Corn Belt and into the Northeast, the percentages probably are much higher. About that time Stout and Hawkins also were finding a high incidence of formula pricing on beef, pork and poultry in Ohio.³

The Meat Sheet, a newcomer on the scene, has been attempting to report volume traded as well as prices. On about 70 percent of the reported items, the volume consistently is reported as zero for the reason that there is no reportable volume. Where volume is reported, it generally is small in relation to total industry movement. Since prices, nevertheless, are shown for nearly all categories, serious questions arise concerning the validity and representativeness of these prices.

While I cite these figures mainly as evidence concerning the incidence of formula pricing, it is fair to say that competing services, the Yellow Sheet and the USDA meat price reporting service encounter similar problems and contain similar deficiencies. Despite assertions to the contrary, the available evidence strongly suggests that many,

perhaps most, of the Yellow Sheet prices are based on few or non-existent reportable trades. The USDA wholesale price reports themselves are thin because the reportable market is thin.

The system, it would seem, is potentially self-destructive. As increasingly high percentages of the trading take place on a formula basis, there are progressively fewer negotiated trades for use as reporting bases in the formulas. The system, however, tends toward an equilibrium sufficient to keep the private reporting services in business. A limited amount of trading through meat brokers, fill-in trading on a negotiated basis, and other peripheral trading outside the mainstream of the industry may persist indefinitely. I define the "mainstream" as large volume carlot sales from packers to the larger scale retail buyers. With basic structural changes taking place in the restaurant sector of the meat industry, formula pricing apparently is spreading to that sector. The reporting services are forced to rely heavily on a relatively few verified trades to shift gradually toward questionable definitions of "verifiable" trades and to use increasingly questionable price reporting practices.

Prior to the entrance of the Meat Sheet, the Yellow Sheet frequently was not quoting a market price (unquoting the market) on particular items. The purpose, according to Provisoner management, was to force the industry back toward a negotiated basis and a larger volume of verifiable trades. This was not always successful because buyers and sellers under these conditions continued trading by formula on the basis of the last reported price. With the added competition of the Meat Sheet there has been a noticeable reduction in the incidence of unquoted markets in the Yellow Sheet. Increased competition among the reporting services, therefore, is tending toward increased reliance on nominal pricing practices and to perpetuation of the forward formula pricing system. Possibilities of distorted prices through heavy reliance on prices of merchandise in distress and interpretations of market conditions by reporters is increasing.

I conclude that the system is self-perpetuating rather than the reverse. Horizontally integrated retailers and other large scale buyers apparently are strongest supporters of formula pricing, but many packers also defend the system. Those who oppose it or privately recognize disadvantages nevertheless feel compelled to accept it and to "go along." The possibilities of legal entanglements are preventing individual meat packers and associations of meat packers from openly opposing or even questioning the system. The price reporting services also are locked into the system. The practical compulsion is to report prices in the manner desired by the industry. This means reporting prices suitable as bases for formulas. This has been clearly demonstrated by the failure of certain innovations attempted by USDA and the Meat Sheet. I, personally, have had considerable difficulty in attracting the media to the subject matter of formula pricing. Out of testimony or pointed addresses on the subject, reporters consistently select minor points or peripheral questions for reporting purposes and avoid the central issues.

SELECTED ALTERNATIVES TO FORMULA PRICING AND POSSIBLE CONSEQUENCES

I have devoted considerable attention elsewhere to possible remedial alternatives.⁴ Most of these, I find, do not strike directly at the central problem. I, therefore, will consider only a few of the more prominent proposals.

Required changes in private reporting systems have been suggested as a solution. The use of futures prices or any series other than an influential price report would remove many thin market aspects of forward formula pricing from the scene. Any alterations in reporting practices which would leave buyers and sellers uncertain concerning the appearance or timing of prices on particular classes and grades of meat or meat products might contribute to a reduction in the incidence of formula prices. It might be helpful, for example, if both sheets would report to the wire services and other media on a continuing basis throughout the day as reportable prices were developed. However, if either sheet or another agency published recaps showing opens, highs, lows, and closes, or closes alone, or averages, these would provide bases for pricing formulas. Recaps surely would be published.

Legislation for purposes of developing a federally supported and administered meat price reporting system on an expanded basis has been given consideration. A comprehensive federal reporting system, however, would not necessarily eliminate or even reduce the incidence of formula pricing. Initially, there would be no assurance that it would be used more than the present USDA system is employed. Prestige of the system possibly would grow if adequately funded and administered. It would be easier to adopt reporting practices and procedures which tend to discourage formula pricing rather than to require those of private firms. Opportunities for and incidence of manipulation possibly could be reduced. A major disadvantage would be the possible replacement of self-supporting private systems with a publicly supported one. At least one private system might survive and thrive, primarily as a basis for formula pricing. It probably could not be legislated out of existence.

Recently, much thought has been devoted to possibilities and proposals for mandatory reporting of meat prices. These obviously could be accompanied by severe penalties for dishonesty or efforts directed toward manipulation of reported prices. By itself, however, making reporting mandatory probably would solve few problems. It would not tend to reduce the incidence of formula pricing and, in this event, many or most of the prices received would not be usable. About all it would do is bring those firms with policies against cooperation with price reporting services and formula pricing into the reporting basis. It would facilitate collection and verification of prices on a wider range of negotiated trades, but it also would produce much useless garbage.

Penalties for dishonesty and attempted manipulation have appeal. Enforcement, however, would encounter several commanding problems. For example, private reporting firms would be reluctant to report the violations of cooperators and customers to the authorities. The law would need to exempt "honest" mistakes or "inadvertent" errors, and there could be many of these. Still, existence of a law providing for close federal surveillance and penalties following successful prosecution were stiff.

Computerized or electronic trading in pricing systems for meat has a strong appeal to academicians, systems analysts, and others. Remote electronic trading has been employed in one form or another since the early 1960's on such commodities as eggs, hogs, and lambs, but always on a localized basis. It probably has reached its most advanced form for agricultural products in trading cotton. The TELCOT system is a fully computerized remote access spot market. It has the capability of compiling recaps from data on individual sales, retaining seller decisions in the hands of producers, providing potential market prices continuously, and does all of this on a timely basis. It also

is applied effectively to sales involving deferred delivery (contracts). Workability has been proven and the system is expanding rapidly.

If certain basic obstacles to development and use of a computerized trading and pricing system for meat could be removed, it would tend to reduce costs compared with an open, negotiated system. It would provide continuous, instantaneous information, and it probably would tend to reduce the incidence of formula pricing. Obstacles to development and use in the meat industry, however, are formidable. The principal one is absence of incentives for change under present conditions. So long as the present forward formula pricing system is available, the industry is unlikely to give serious consideration to another alternative. Another obstacle is found in the exceptionally large number and wide range of products, weights, grades, quality characteristics not specified by grade, leanness, and other specifications found in meat. The programming problem, alone, would be horrendous. Another major obstacle is found in the sizable cost of initial investment and development. This problem, of course, is intimately related to others, such as the question of who would and should own and operate the system. Another related problem would be that of making the system available and useful to the large number of small volume firms throughout most parts of the meat industry. Cost for these firms might be prohibitive.

In my personal opinion, outright prohibition of formula trading on a forward basis is the most viable and reasonable alternative available. As a remedy, it would be clean and strike directly at the central problem. While some formula pricing probably would persist on some basis, a law prohibiting it would be a powerful deterrent. Prohibition probably could be justified on the basis of industry-wide as well as the general public interest. Once released from the bonds of the formula system, many suppliers and some buyers probably would welcome the return to a negotiated trading world.

Not all suppliers and few large scale retailers are "tooled up" for negotiated trading on all items purchased. Most would need to hire additional salesmen or buyers. In many instances, these people would need to be trained. Additional clerical personnel also would be needed to provide buying information and to maintain adequate records. To avoid chaos, the industry could be given a specific period of time, six months to a year if necessary, to comply with the law.

A disadvantage is that marketing costs undoubtedly would be increased. This could be viewed as a serious disadvantage if the aim is to preserve operational advantages of the present system while improving pricing efficiency aspects. Prohibition, however, probably would provide the incentives necessary for exploration of other alternatives such as electronic trading. Toward this end, funds should be made available for research on computerized methods of trading and pricing consistent with technical and economic conditions of the meat industry. In my opinion, computerized electronic trading could be developed and made useful for carcasses and major, well defined and identified meat cuts.

Following prohibition of formula pricing on a forward basis, I would not hesitate in moving forward, if necessary, with additional regulations to insure competitive trading on a broad basis, representative price reporting, and minimize opportunities for manipulation of reported prices. If necessary, I would follow prohibition with a federally supported and administered price reporting system on an expanded basis. Disappearance of formula pricing, however, would place the two private reporting services on a more

equal competitive basis. An improved competitive climate, in turn, should lead to improvements in coverage, techniques of sampling and data evaluation, and in reporting.

THIN MARKET CHARACTERISTICS IN LIVESTOCK MARKETING

To an increasing extent, cattle and hogs are sold on some type of carcass basis. In a proliferating number of instances, these are priced or valued on a forward formula basis in relation to the Yellow Sheet. In some instances, slaughter livestock produced by farmer-feeders are pooled and sold on a contract basis to specified packers. To insure interest of the packer and also to protect him, a carcass formula pricing basis tied to the Yellow Sheet is developed. Some larger operations sell on a formula carcass basis. For example, a major producer-owned company in Colorado operating a feedlot with capacity of 200 thousand head and a large scale packing plant buys cattle on a grade and yield basis through a formula that uses the Yellow Sheet as a guideline. While carcass basis trading offers many advantages, selling on a formula tied to the Yellow Sheet heightens the critical importance of representative meat price reporting.

At the packer level, interest tends to center on the new generation of large scale packers which has developed within the last dozen years. One, in particular, apparently has developed considerable competitive power out of advantageous labor contracts, modern technology, and acquired advantages on sales and distribution, in which the larger firms tend to specialize, offer advantages and contribute to the growing superiority of the larger firms. Scattered allegations are suggesting that, in the Midwest and in the Northwest, developing oligopoly structures at the packing level are producing some thin market characteristics. Solid information concerning these allegations, however, is meager.

Pricing efficiency among large scale cattle feeders and hog producers probably has improved considerably in recent years. The larger operators undoubtedly are much more adequately informed than in earlier years, and available information on supply-demand conditions is more evenly distributed between buyers and sellers than in earlier years. A frequent result, however, is a stalemate between cattle feeders and packers. These develop when packer margins are squeezed, packers are unable to increase wholesale values materially through reduced slaughter and producers are optimistic. Under these conditions, packers insist on buying at lower prices while cattle feeders hold firmly for steady to higher prices.

"Price explosions" also are a periodic by-product of the changed conditions at feedlot levels. These seem to develop when retailer and packer margins are relatively wide and when producer prices have been pressed down under cost of production to the point where strong resistance develops. As the downside resistance hardens, usually on the basis of gradually improving supply conditions, packers tend to restrict slaughter. Eventually, retailers presented with dwindling inventories display evidence of improving willingness to buy at current prices if possible, but at higher prices if necessary. As wholesale prices jump upward, packers begin bidding much more aggressively for live cattle, but sensing the new urgency, producers tend to hold even more firmly. The result often is an explosion.

Marketing and pricing practices and problems of the cow-calf and stocker-feeder sectors of the industry defy brief description. Elsewhere, I outline numerous sources of both operational and pricing efficiency in these sectors.⁵ Somehow, marketing systems

within these sectors function successfully. At the risk of underrating this success, let me outline some fundamental problems which deserve research attention. Thin market characteristics are a common by-product.

Despite improvements over the years, operational inefficiency clearly is illustrated by numerous and widespread instances of low 60-70 percent calf crops. Nutrition and handling of breeding herds often are little short of deplorable. Annual losses of 4 million calves and nearly 2 million other cattle are results of a whole host of problems resulting in operational inefficiency.

The marketing system for stocker-feeder cattle is highly decentralized and, to a large degree, disorganized. Excessive cross hauling, the sale of the same calves through numerous auction facilities, mismanagement in handling and transportation, stress and loss of weight are all problems on which there seems to have been relatively little improvement. Operationally, livestock auctions probably are among the more inefficient facilities in the entire marketing chain. While they are convenient to local patrons, what other industry can afford to utilize expensive fixed facilities once or twice per week?

Inefficiency associated with the burgeoning growth of many different breeds of cattle is another quagmire of problems. The cattle industry is proliferating breeds almost endlessly. Undoubtedly, some will bloom, wither, and pass out of existence. While I will not argue about claims for improvements through new breeds and cross-breeding, costs of errors and floundering including misallocation of resources must be staggering.

Pricing inefficiency also is clearly apparent in live animal marketing. Nowhere in agriculture is such inefficiency so apparent as in the marketing of stocker-feeder cattle. Here, the old game among buyers and sellers of out-guessing and outdealing one another persists, especially in country selling. Under such conditions, accuracy in the assignment of price according to value is questionable at best. Many cattle and hogs still are sold on a per head basis. There is much guessing about carcass weight and quality. In these modern times, it seems doubtful that the industry can continue affording the luxury of "ripping one another off."

At auctions, cattle often are not adequately displayed or they are run through the ring in numbers too large for careful evaluation. Starting prices often are set too high or too low. In many instances, there are too many auctions in an area for adequate volume at any of them; at other locations, they are too few for adequate competition. Only one or two buyers sometimes are present for particular classes or there is collusion among them. In some areas, auction cattle still are weighed as they leave the ring rather than before. This requires more competitive guessing during the sale.

Out of all this, thin market conditions and prices inconsistent in one way or another with apparent values are easily identified. In addition, these are not necessarily temporary or transient. However, the problems and conditions which produce thin market situations in livestock markets generally lie much deeper and find expression in outcroppings of other results. For example, the absence of well developed and organized North-South marketing channels results in persistently large and often unjustified price differences on feeder cattle between northern and middle south or southern areas on comparable quality cattle.

CONCLUDING COMMENTS

Thin market characteristics of the livestock-meat industry apparently arise primarily out of formula pricing techniques of the meat sector and from emerging oligopolistic conditions at the packer level. Both deserve much more intensive study and analysis. It is possible that intrusion of institutionalized pricing practices, the reasons for such intrusion, and possible remedies would represent a more appropriate orientation for pricing problems of the industry than a "thin market" orientation. The agricultural marketing sectors, it seems to me, are adopting institutional pricing practices that have been common throughout industrial sectors of our economy for some time. Advantages as well as disadvantages of these institutionalized forms of trading should be given careful attention. Fully negotiated trading systems undoubtedly are time consuming and costly. They are inefficient. The challenge, then, is to arrive at suggested solutions which would preserve the advantages of negotiated trading while incorporating the operational efficiencies of institutionalized methods.

NOTES

¹The National Commission on Food Marketing, Organization and Competition in the Livestock-Meat Industry, Technical Study No. 1, June 1966.

²Willard F. Williams, *Livestock and Meat Industry-Pricing and Price Reporting (An Evaluation of Research Needs)*, an unpublished report to the Marketing Research Division, USDA, December, 1968.

³Stout, T.T., M.H. Hawkins and Bruce W. Marion, *Meat Procurement and Distribution By Grocery Chains and Affiliated Wholesalers*, Research Bul. 1014, Ohio Agri. Exp. Sts., Wooster, Ohio, October, 1968.

⁴Willard F. Williams, "Pricing Problems of the Meat Industry and Suggested Remedial Alternatives," paper presented before the Small Business Committee of the House of Representatives, October 13, 1977.

⁵Willard F. Williams, "Structure and Performance of the Meat (Beef) Industry," *Forage Fed Beef: Production and Marketing Alternatives in the South*, So. Co-op Series, Bul. 220.