Federal Reserve Bank of Dallas

FARM and RANCH BULLETIN

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BEEF PRICES REFLECT CHANGING DEMAND AND MARKET STRUCTURE

The main reaction against rising food prices has centered on beef—the largest single item in the consumer's food budget. Much of the resistance to higher beef prices is in line with economic reasoning, but the issue has been clouded by considerable emotionalism. In spite of rising prices, there has been considerable reluctance to shift buying patterns away from beef. This preference for beef has been due to its importance to the American diet and the American life-style.

Consumption of beef has expanded sharply in recent years, rising on a per capita basis from 89 pounds in 1962 to 116 in 1972. With the increase in beef consumption, Americans bought less cereals, starches, and other forms of meat.

The ability to exercise this preference for beef resulted from generally rising personal incomes and accompanying changes in life-style. An increase in personal income of 85 percent from 1962 to 1972 gave consumers the economic leverage to exercise their preference for beef. And with this leverage, life-styles changed.

As more women took jobs outside the home, there was a further shifting to foods easy to prepare. And beef fulfilled this preference. Grills became a dominant feature in backyards: steaks and hamburgers were items men could cook with pride. In addition, with more people eating out, demand for beef continued to rise, since it is the main meat eaten away from home.

These changes in demand have been communicated by consumer expenditures at the grocery store. They are then relayed downward to packers, cattle feeders, and cow-calf operators.

Production and supply reactions

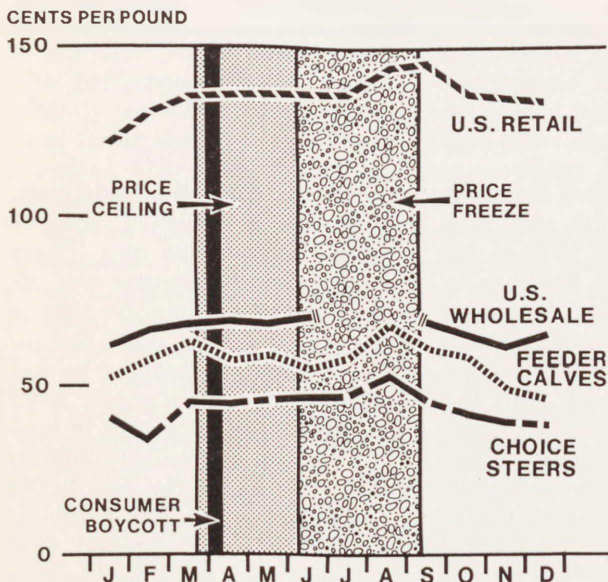
The beef breeder, or cow-calf operator, is the base of the supply chain. Cow-calf operators have been expanding their herds since the midsixties, but the rate of increase accelerated sharply in 1970 as the price of feeder calves rose. There is, however, a long lag between response and effect. Three or more years pass from the time a breeder decides to expand his herd until the resulting calves arrive at the supermarket as fed beef. And the decision to expand the cow herd uniquely results in a temporary reduction in beef supply. This is because the necessarily higher rate of heifer retention to expand the cow herds reduces the supply of calves going into feedlots.

The total number of beef cows reached 42.9 million on January 1, and over 8 million heifers were reported for addition or replacement. The number of cows and heifers has increased 8 million, or nearly a fifth, since 1970 and 12 million since 1965. These real gains were achieved in spite of serious drouth in 1970-71 and heavy death losses in the winter of 1972-73.

The second major step in the supply of beef involves the cattle feeding industry. Dramatic changes have occurred in feeding, primarily because lots have become larger and an increasing share of all cattle going to market is being fed. This means an increasing share is grading Choice or better—or, in other words, each animal is yielding more meat of better quality.

In terms of quantity, beef production expanded 40 percent between 1962 and 1972, well ahead of the advance in cattle numbers. And on a quality basis, Choice grade accounted for over three-fifths of all beef in 1972—up from less than half in 1962. And with the development of modern highways and improvements in shipping facilities for fresh beef, packers and processors have moved closer to the beef supply as feedlots have become larger and shifted westward. This has im-

Average Monthly Beef Prices in 1973



NOTE: Wholesale prices in July and August were not computed by standard procedure
SOURCE: U.S. Department of Agriculture

proved efficiency by lowering transportation costs, weight losses, and animal deaths in transit.

Retail grocers—the final step on the supply side—have also improved merchandise handling procedures and, through centralized breaking and cutting, have improved cost efficiencies in many cases. Grocers have built new, strategically located outlets and have generally improved their individual store sales.

From the physical side, all appears favorable. But there is still the question of prices. Has the marketing of beef from producer to consumer operated as an orderly economic system?

Market structure and pricing

Beginning with the cow-calf operators, it is clear these generally small-scale producers are nearly perfect examples of competitive market participants. Farmers and ranchers whose individual herds tend to be small and scattered across the country supply most of the calves to the beef industry. None of these operators has a large enough share of the market to seriously affect supply by independent action. They are price takers and historically have experienced boom or bust, being insulated only by their relatively high equity position.

The average annual price received by Texas farmers and ranchers for calves in the past decade ranged from $18 to $68 per hundredweight. On average, a 600-pound calf last year would have sold for well over $300. This has made cow-calf operations very profitable when prices were in the higher range, but these prices and returns are in sharp contrast to recent levels. Between 1960 and 1964, the average calf sold for about $130, and in the last half of the 1960's, the price had only increased to $150. Only in the past few years have prices been exceptionally strong. And even now, changes in them are not unidirectional: since the one-month record high of $68 last August, prices have fallen sharply.

The important point is cow-calf operators face a derived demand—that is, they do not sell to the ultimate consumer. Therefore, the price bid for their animals is the price feeders think they can pay and still operate profitably.

The feeding segment is slightly more concentrated than the cow-calf operators. But like the cow-calf operator, feeders are fully exposed to market swings—and in much the same way, they go from boom to bust. Some of these sways have been dampened by custom feeding, but feeders must still buy calves, feed them, and then market five to six months later at the going market price. They are increasingly specialized, so their profitability is tied exclusively to beef.

The feeding margin (or price of fed cattle minus the cost of feeder calves) in the past two years has run from plus $1.86 per hundredweight to minus $17.13. Normally, a slight negative margin means a feeder continues to receive a profit, because the higher cost per pound of

calves is averaged downward by the lower cost per pound of weight gain in the feedlots. However, rising costs for feed and other inputs in the past two years have moved the average cost of weight gain up sharply.

Like most agricultural producers, feeders are price takers, and they have lost money at times such as the present. One alternative they have is to temporarily hold the cattle, rather than market them. However, costs continue to mount and prolonged holding of the cattle lowers the market value of the animals. In the longer term, a feeder can modify management practices if all costs are not increasing equally or he can stop operations. The latter situation is occurring, as many smaller feeders are exiting each year.

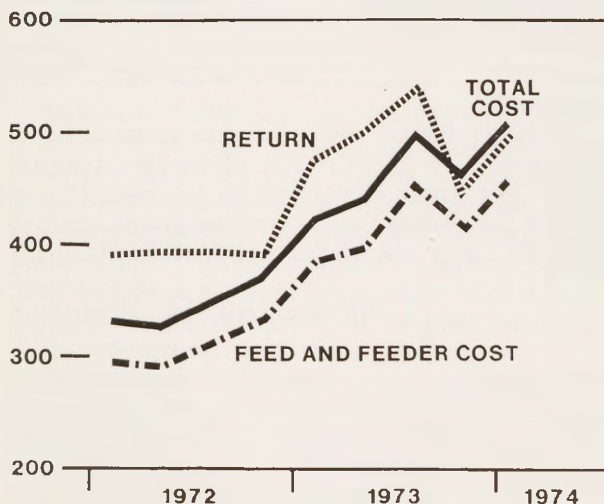
Packers represent the most concentrated step in turning live cattle into beef. And they, too, face derived demand. The decision-time parameters for packers are much shorter, however, and they can increase or reduce bids, or even start or stop production, much quicker than either feeders or breeders. In addition, packers produce other products besides beef. Hides and tallow, for example, have risen in value over the past few years and byproducts are now valued at about $50 per head. Because of this return, packers in 1973 actually sold beef about 5 cents per pound less than would have been required for them to break even in the absence of such byproducts. So, while the price of shoes and candles is increasing, packers are actually reducing the relative cost of beef to consumers.

Supermarkets are the final step in the production and marketing of beef. Unique to the supply side is their direct contact with consumers. Therefore, they are acutely aware of any modifications in consumer demand.

The grocer has the additional leverage of a "conglomerate." While most producers and processors of beef are involved with a single commodity or a very limited number of products, the average supermarket offers several thousand items and is not wholly dependent on beef sales for its livelihood. This diversity, along with the growing size of grocery chains, is the source of the retail grocer's market strength. And among the supply components, the retail grocery makes the most effective use of advertising—a very important marketing tool.

The retail margin on beef—the difference between commodity cost and selling price—has increased about 60 percent in the past five years, or from 25 cents a pound in 1968 to 40 cents in 1973.

Food retailers have a low average return on sales, and their group profitability in 1972 was fairly low. In the face of this problem, grocers very naturally followed a short-term pricing strategy of lifting prices on items with more inelastic demand, including beef. As a result, their profit situation improved significantly in 1973. In the future, however, they may need to follow a different pattern.



MARKETING MARGINS ON A POUND OF BEEF

	1968	1969	1970	1971	1972	1973
Feeding margin[1] ...	0.5¢	0.7¢	–4.0¢	–1.0¢	–2.4¢	–4.8¢
Packing margin[2] ...	2.0	1.0	–1.0	–3.9	–3.3	–5.1
Grocery margin[3] ...	25.1	29.2	32.1	30.1	35.5	40.0

1. Difference between cost of feeder calf and price of fed animal five months later
2. Difference between procurement cost and selling price (excluding byproduct sales)
3. Difference between procurement cost and selling price

SOURCES: National Live Stock and Meat Board
U.S. Department of Agriculture

Consumer concern

Consumers are resisting the high meat prices, and with inflation nibbling into purchasing power, they are becoming sensitive to the price of meat as compared with alternative food items. The flurry of sales of meat extenders is a prime example of consumer concern, although not necessarily of cost awareness. But increasing focus on meat cuts with lower costs per serving—especially hamburger—is evidence of cost awareness.

Retailers are aware of this shift in consumer shopping patterns and are beginning to respond. In the first two weeks of March, the price of selected cuts of beef in some retail outlets fell about a dollar a pound. And with increasing frequency, beef is once again being featured in grocery advertising.

FARM INCOMES SURGE

On the strength of record prices—up 37 percent over the average for 1972—farm incomes established records in every category in 1973. Cash receipts from farm marketings surged to $83.4 billion, a gain of nearly $23 billion. Expenses also showed a record increase—rising $15.2 billion to $64.4 billion. However, realized net income rose to over $26 billion. Average per farm gross income and production expenses both advanced 32 percent from a year before, but since fewer farms were in operation, average net income rose 34 percent to $9,193.

The improved income position of farmers has impacted on nearly all segments of agriculture. The exodus of farmers has slowed, and in some areas, farm labor has increased. Farm real estate values advanced more than a fifth from November 1972 to November 1973—the second largest 12-month advance on record. And purchases of tractors and other capital equipment last year were greater than in any other recent year. Farmers are preparing to expand their plantings of most crops in response to strong domestic and export demand.

CITRUS CROP DECLINES

The national orange crop, estimated at 211.9 million boxes on March 1, will be 6 percent less than the record 1972-73 crop. The Texas crop, at 6.5 million boxes, is expected to be off 12 percent from last season. The Arizona crop, projected at 3.4 million boxes, will be a third less.

The national grapefruit crop is expected to be off only 2 percent, or 64.1 million boxes. But in Texas, the expected crop of 11 million boxes will be down 7 percent from last season. And in Arizona the projected 2.4 million boxes will be down 9 percent.

Arizona's lemon and tangerine crops are also expected to be significantly under last season's levels. The lemon crop is apt to be down 37 percent to 2.9 million boxes, and tangerine production will likely fall 25 percent to 400,000 boxes.

Prepared by Dale L. Stansbury