Understanding Livestock-Meat Industry Pricing Issues

Oklahoma Cooperative Extension Service • Division of Agricultural Sciences and Natural Resources

WF-551

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Livestock and meat prices are common concerns among livestock producers. Some pricing issues relate to price determination and some to price discovery. Understanding the nature of the issue is important in evaluating potential alternatives to pricing problems. For example, low cattle prices are related to price determination factors, *not* price discovery factors. Low prices result from supplies which are large relative to existing beef demand conditions. Widely varying prices, both above and below the market price level, result from many factors directly affecting price discovery, of which captive supplies, market information, and meatpacking concentration could be contributing causes.

Price discovery is frequently confused with price determination. These are two *related* but *different* concepts which need to be understood when discussing pricing issues. This fact sheet distinguishes between both concepts, identifies how they are interrelated, and provides an indication when price discovery concerns may increase.

Price Determination

Price determination is the interaction of the broad forces of supply and demand which determine the market price *level*. Figure 1 depicts a typical textbook diagram for price determination. It shows the interaction of a supply curve and a demand curve to determine the general price level (P). For fed cattle, supply determinants or factors affecting the quantity of beef produced include:

- input prices (feeder cattle and grain),
- technology (nutrition management, growth promotants, etc.), and
- price of outputs produced from those inputs (fed cattle).

Broad demand forces or factors affecting the amount of beef consumed include:

- the price of products produced from fed cattle (beef),
- price of competing products (pork and poultry),
- consumer income, and
- consumer tastes and preferences.

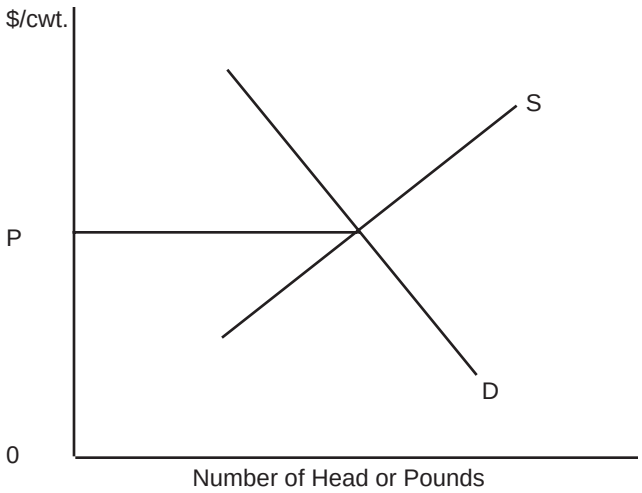

Figure 1. Price Determination.

Price Discovery

Price discovery is the process of buyers and sellers arriving at a transaction price for a given quality and quantity of a product at a given time and place. Price discovery involves several interrelated concepts, among them:

- market structure (number, size, location, and competitiveness of buyers and sellers),
- market behavior (buyer procurement and pricing methods),
- market information and price reporting (amount, timeliness, and reliability of information), and
- futures markets and risk management alternatives.

Price discovery begins with the market price level. Because buyers and sellers discover prices on the basis of uncertain expectations, transaction prices fluctuate around that market price level. Price discovery is more difficult to show graphically, but Figure 2 is one illustration. We begin with the same diagram as in Figure 1. However, because of information uncertainty, we never know exactly the shape and

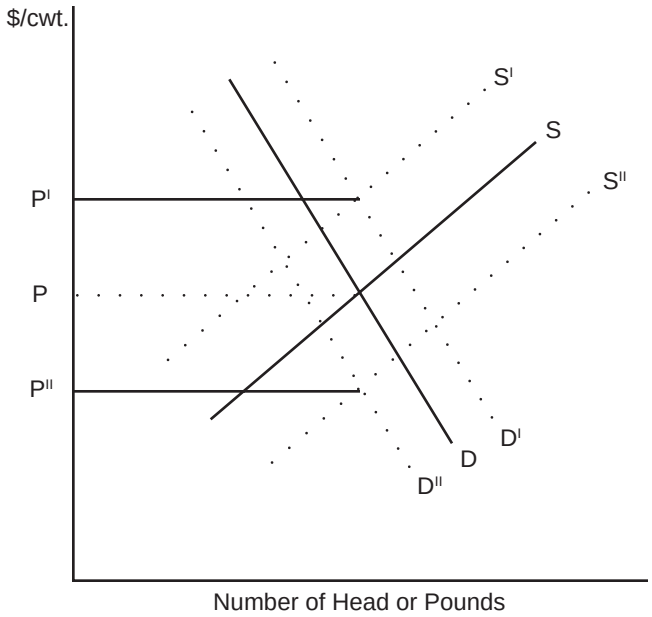

Figure 2. Price Discovery.

location of the demand and supply curves. Therefore, we must estimate demand and supply, which is illustrated in Figure 2 by the dotted lines parallel to and on either side of the "true" or underlying supply curve (lines S' and S") and demand curves (lines D' and D"). Those estimated supply and demand curves intersect at a range of prices (P' to P"). Thus, discovered prices fluctuate above and below the general or market price level (P). This fluctuation is attributable to the quantity and quality of the commodity brought to market, the time and place of the transaction, and the number of potential buyers and sellers present. Other factors are the amount and type of public market information available, captive supplies, and packer concentration in the case of fed cattle prices.

One type of price discovery research attempts to determine factors which explain variation in transaction prices. In the 1970s, most fed cattle were priced on a live weight, cash market basis. Factors affecting fed cattle prices included (Ward 1981):

- carcass beef prices,
- live cattle futures market prices,
- cattle quality (including sex, weight, quality grade, and yield grade),
- sale lot size,
- number of days between purchase and delivery of cattle,
- number of packers bidding on cattle,
- individual packing plants or firms,
- time of year, and
- region of the country.

Many things have changed since the 1970s. Transaction prices for the same kind of price discovery research today would include more dressed weight (in the beef) prices and dressed weight and grade prices (formula prices) and more forward contract prices. Factors affecting variation in transaction prices include the following variables (Jones et al. 1992; Ward 1992; Schroeder et al. 1993; Ward, Koontz, and Schroeder 1996):

- boxed beef cutout values (instead of carcass beef prices),
- live cattle futures market prices,
- cattle quality (including sex, weight, quality grade, and yield grade),
- sale lot size,
- number of days between purchase and delivery of cattle,
- number of packers bidding on cattle,
- individual packing plants or firms,
- individual feedlots,
- day of the week,
- time of year,
- region of the country, and
- extent and type of captive supplies.

Price Discovery Interactions with Price Determination

Price determination and price discovery are interrelated. Price determination finds the market price level, and the general level of prices may be high or low. However, when market prices are low or are falling, questions and concerns about price discovery increase. Figure 3 is a matrix showing potential price discovery problems or concerns under given supply and demand scenarios. When demand is strong or expanding and when supplies relative to processing capacity are small or declining, price discovery problems are generally not a major concern. Under these conditions, competition is generally keen, thus ensuring efficient price discovery.

For some recent years, the opposite conditions have existed. Beef demand studies indicate consumer beef demand has been weak or declining. During the part of the cattle cycle when inventory numbers increase, as they have during the early 1990s, beef supplies have been large or increasing. Under these conditions, large supplies of cattle and beef occur simultaneously with weak or declining consumer and processor demand. This causes low fed cattle prices and heightens producers' price discovery concerns.

	Demand for Beef	
	Strong or Expanding	Weak or Declining
Relative Supply of Beef		
Large or Expanding	Potential Concerns	Probable Concerns
Small or Declining	Unlikely Concerns	Potential Concerns

Figure 3. Price Discovery Concerns Under Alternative Price Determination Conditions.

Compounding the problem at some times in the past have been large supplies of pork and poultry. The combined result is increased producer concerns about price discovery and accusations about captive supplies and packer concentration. Captive supplies and packer concentration affect

price discovery, i.e., transaction prices resulting from given market conditions. However, the market price level is not a result of packer concentration or captive supplies.

It should be noted that, along with distinguishing between price determination and price discovery, demand must be understood in its proper context. For example, demand for beef refers to purchase or movement of total beef supplies by consumers from retail or food service channels *at some price*. Producers frequently read or hear the movement of cattle or beef (or the demand for cattle or beef) described by such terms as good, strong, brisk, etc. However, if price had to be lowered to cause the good, strong, or brisk movement, then demand was not also strong. Producers are correct that there never is a surplus of beef or meat, but there may be a surplus *at prices* that result in profits for retailers, packers, feeders, and producers. We consume what we produce *at some price*.

Conclusion

The general level of prices reflects supply and demand factors. Individual transaction prices fluctuate around the general market price, whether that market level price is high or low. Variations in transaction prices are related to many factors, including quantity and quality of cattle, and the timing and location of cattle sales/purchases.

To paraphrase the above in terms of cattle prices during the early-to-mid 1990s, low prices were related to price determination factors, *not* price discovery factors. Low prices result from beef supplies which are large relative to existing beef demand conditions. Widely varying prices, both above and below the market price level, result from many factors directly affecting price discovery, of which captive supplies, market information, and meatpacking concentration could be contributing causes.

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Samuel E. Curl, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is issued by Oklahoma State University as authorized by the Dean of the Division of Agricultural Sciences and Natural Resources. 1297