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MARKET INFORMATION AND PRICE REPORTING IN THE FOOD AND AGRICULTURAL SECTOR

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PRICING AND PRICE REPORTING ISSUES IN THE TURKEY SUBSECTOR

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INTRODUCTION

The turkey subsector is relatively concentrated at both the producer and processor levels. Two hundred forty firms raising over 100,000 or more turkeys sold 43 percent of the U.S. production, according to the 1974 Census of Agriculture. Nearly 60 percent of slaughter was accounted for by the 10 largest processors.¹

Aggressive competition with some product differentiation has been the rule among processors. Swift's Butterball is a nationally known brand, particularly for whole turkeys. Private labels are common but packer brands are dominant at the retail level. Even small producer-processors tend to market their own brands.

The primary product is frozen whole birds, which are used heavily during the Thanksgiving-Christmas holiday period. The trend is toward less seasonal use and greater use of fresh whole birds, fresh and frozen parts, and further processed products. The latter range from raw or cooked rolls and roasts to turkey franks and sausage.

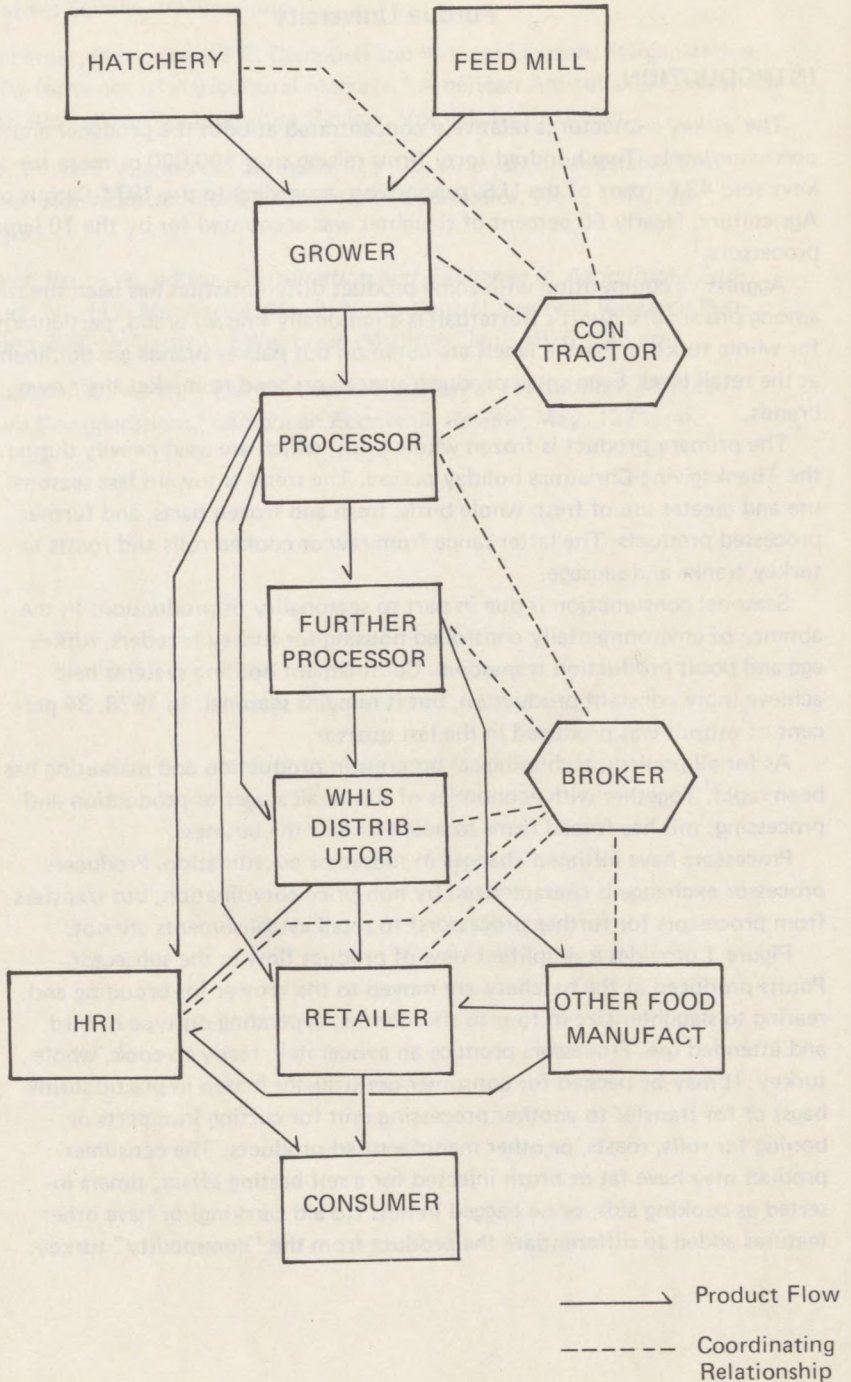
Seasonal consumption is due in part to seasonality of production. In the absence of environmentally controlled housing for turkey breeders, turkey egg and poult production is seasonal. Confinement housing systems help achieve more constant production, but it remains seasonal. In 1978, 34 percent of output was produced in the last quarter.

As for all poultry, technological progress in production and marketing has been rapid. Together with economies of size at all stages of production and processing, this has forced firms to adapt or exit the business.

Processors have initiated changes in subsector coordination. Producer-processor exchange is characterized by non-price coordination, but transfers from processors (or further processors) to retail establishments are not.

Figure 1 provides a simplified view of product flow in the subsector. Poults produced at the hatchery are moved to the grower for brooding and rearing to slaughter size in four to six months, depending on type of bird and intended use. Processors produce an eviscerated, ready-to-cook, whole turkey. It may be packed for consumer use (usually frozen in plastic shrink bags) or for transfer to another processing unit for cutting into parts or boning for rolls, roasts, or other manufactured products. The consumer product may have fat or broth injected for a self-basting effect, timers inserted as cooking aids, or be bagged in nets (to aid carrying) or have other features added to differentiate the product from the "commodity" turkey.

Figure 1. Simplified Diagram of Product Flow and Coordinating Arrangements in the Turkey Subsector



Further processing and processing are usually performed at the same site. Federal inspection statistics classify injected whole turkeys as further processed. However, we shall use the term further processing to portray only those activities which involve dismantling the turkey, whether for parts or bone-out products. Further processed products are parts, raw and cooked turkey meat, cured meat, sausage, lunch meat, franks, and items similar to processed red meat products.

Wholesale distribution is often performed by the processor, further processor, or retail firm. An important share of the business is handled by full-line distributors operating at the wholesale stage, particularly in the hotel, restaurant, and institutional area.

SOURCES OF INFORMATION

The following analysis of pricing systems and market information in the turkey subsector draws heavily upon data and observations gathered in personal interviews with 15 processing firms, visits with private and government price reporters, a mail survey completed by 11 small producer-processors, and conversations with retail firm buyers. The processors interviewed accounted for about two-thirds of U.S. turkey slaughter during 1978.

PRICING AT THE PRODUCER-PROCESSOR LEVEL

The production-processing linkage is coordinated largely by non-price means. Coordination of physical flows of turkeys through growing and processing are critical to efficient operation at both levels. A contractor function is shown in Figure 1 to illustrate the coordination of the production and processing functions. This contractor function may be performed by the processor, hatchery, feed mill, or others. Production contracting is frequently a two-stage process with, for example, a feed mill or dealer contracting with the processor and, in turn, subcontracting with farmers for housing and care for birds owned by the contractor.

The procurement arrangements used by processors are varied and complex (Table 1). About 18 percent of the turkeys produced in 1978 were owned by processors. Integration of production and processing is more extensive in medium-sized and small processing operations. In some cases processing represents a forward integration move by producers. Transfer prices in integrated firms may be on a cost basis, or based upon market price quotations.

Producer-owned cooperatives account for an estimated 10 percent of turkey production. While some elements of the payment received by producers may be dependent on current market quotes, the final net price to producers depends on the marketing performance and processing efficiency of the cooperative firm. While variations exist, these transfers are basically internal.

Resource-providing contracts are the most common transfer arrangement, accounting for 28 percent of turkey volume. Typically, the processor provides poults, feed, field supervision, and other productive inputs to a grower, who provides facilities and labor. Payment is most often on a per-unit-of-production basis and may include performance incentives for feed conversion, livability, and grade. In most instances, the processor accepts all or nearly all of the price risk during the production period.

Cost-plus arrangements (contracts) base the transfer price on costs of production at an agreed upon standard performance, plus provision for profits. In some cases, producers may receive a share of price increases above a specified level, but the price risk is borne mainly by the processor. The producer provides all inputs. When producers share in price changes, it is by formula based upon published quotes. These arrangements include about 7 percent of 1978 production.

Table 1. Estimated Percentage of Turkey Procured by Processors by Means of Procurement

| Means | Percent |
|------------------------------|---------|
| Owned Production | 18 |
| Cooperatively | 10 |
| Resource-Providing Contracts | 28 |
| Cost-Plus Arrangements | 7 |
| Marketing Agreements | 23 |
| Joint Ventures | 7 |
| Open or Spot Market | 7 |

Shared-risk or joint-venture arrangements also account for 7 percent of production. Under these arrangements the live birds are transferred at a market value based on processing costs and a market quote for processed products; profits or losses in turkey production are shared by the grower and processor.

Purchasing agreements with prices based on processing cost and market quotes for processed products account for about 23 percent of the total. All the price risk during production is borne at the production stage, with the financial outcome heavily influenced by a market quote.

Open or spot market purchases account for only about 7 percent of total processor procurement. Turkeys grown without prior commitment to a processor are concentrated in the Southeast and West Coast. Uncommitted production in other areas is rare.

PRICING OF SALES BY PROCESSORS

Processing and further processing are largely integrated; thus, we treat processed product sales as if they were from a single stage of the marketing system. This is not completely correct, because there is a market for canner pack turkey (fresh, without neck and giblets) transferred from processors to other firms engaged in further processing. The wholesaling functions are performed largely by processors and retailers. Brokers perform a coordinating and trade-facilitating role at this level, but their utilization rate varies widely with individual buyers and sellers.

We found processors generally willing to discuss pricing. However, in a number of cases, detailed breakdowns were not available. Thus, while confident of our general observations, the estimates are only approximations.

The need for close coordination is less at the product level than at the production-processor interface. Much of the product is sold frozen and storage is common. Price plays a major role in short-term coordination.

Federally inspected slaughter data indicate the following produce mix for all plants during 1978:

| | <u>Million Pounds</u> |
|---------------------------|-----------------------|
| Plain, whole | 306 |
| Whole, self-basting, etc. | 501 |
| Further processed | 710 |
| Cut-up | <u>466</u> |
| Total ready-to-cook | 1,983 |

Nearly all further processed items are price listed by the packer. Price lists are typically based on costs and market conditions, and are revised weekly or monthly. Most transactions are for spot delivery.

Strong packer brands of whole turkey also tend to be sold from a price list. But plain "commodity" whole turkey, packed under a retailer label, tends to be formula priced based on a market quote. In this case, the arrangements for supply and packing materials must be made earlier than either packer or retailer may wish to establish a price. Thus, the majority of whole birds sold on forward contracts are tied to a quoted market. But in other turkey products, forward selling is very limited. Generally, the remaining forward sales are based on prices "heavily influenced" by expected market quotes, but prices are not tied to quotes.

Parts are generally sold for immediate delivery at prices negotiated at time of sale. More than three-fourths of all processed turkey sales are on a spot basis. *None* of the firms interviewed indicated that their spot sales were tied to any market quote. Of those firms reporting spot sales, less than half indicated that price was "heavily influenced" by market quotes. These tended to be medium-sized firms, which presumably have less sophisticated market intelligence networks than do larger firms.

The remaining firms reporting spot sales indicated that pricing was "somewhat influenced" by market quotes. These were generally large firms, which tended to view market quotes, whether from Urner Barry or the USDA *Market News*, as "one of several sources of market information."

When marketing personnel were asked about how they used market quotes in pricing, a typical response was the following: "Certainly we look at Urner Barry just as we look at Market News. But in no way are our sales tied to the quoted market. Too many other factors influence a sale. Local conditions, our inventory position, our ability to service a customer, and other non-price factors determine whether we can move product at, above, or below the quote. Sometimes I can sell above the quote. Obviously, I do so when I can. Sometimes, I sell below because I just have to or because the quote is just not consistent with actual market conditions."

REPORTING TURKEY PRICES

The two primary public sources of turkey price information are Urner Barry Publications (a private price-reporting firm) and the USDA's *Poultry Market News*, a federal-state cooperative system.

Urner Barry Publications

The Urner Barry Producers' *Price-Current* is a daily price report which includes poultry and eggs, dairy products, fruits, and vegetables. This service began more than 100 years ago as a report representing the New York wholesale market. As processing and trading decentralized, the price collection was broadened to cover commodities traded at other locations. While the information base for the price quotes has been broadened, the *Price-Current* continues to represent prices delivered into the New York area. Trades in other areas are adjusted, where appropriate, to the New York base, using current freight rates. The firm has initiated a West Coast report to serve that area, where prices may differ significantly from the pattern of New York prices. One reporter is primarily responsible for the turkey quotes, although another reporter contributes turkey-trading information.

The Urner Barry reporters do not view their quotes merely as a reflection of recent price history. When few negotiated prices are available, Urner Barry's quotes may include a larger element of judgment, as they establish price quotations which they expect will cause the market to clear. Urner Barry reporters and trade firms who use formula price contracts believe that such contracts lower transaction costs and result in desirable risk reduction or transfer. The Urner Barry staff are very much aware that the accuracy of their quotations is dependent on an adequate number of trades with prices negotiated at the time of contract. They have also expressed concern about the validity or desirability of firms' basing live turkey transfer prices on processed product quotes.

This view of the reporters' role leaves more room for judgment or art on the reporter's part than would be the case in a strictly construed reporting role. The reporter will judge sources, perhaps determine that a reported trade is not representative, adjust for suspected bias, etc. The "reporter's judgment" factor makes manipulation of the quote more difficult for the trade but also leaves room to question that judgment. In most instances, the reporter will

reflect actual trading directly in the quotes. We mention the judgment factor because it differs from the approach one might expect if the government were reporting or setting the procedures for market reporting.

Urner Barry Publications worked with the trade and the National Turkey Federation to develop a Computerized Turkey Marketing Service (CTS) as a means to gather and distribute turkey marketing information. The CTS, or "black box" as it is called in the trade, is a system to collect trading information on up to 100 items and to feed back summary information to processors, using a telephone-linked computer and relatively simple terminal devices. Processors enter data by setting a series of switches on the "black box." They then receive reports by voice response. This system has been in full scale operation since 1974. Present participants account for about 30 percent of federally inspected slaughter.

Examination of weekly reports from the CTS system during the September-December period of 1978 revealed just over 1,200 full loads reported. More part loads were reported, but the quantity involved is unknown. Contracts with transfer price based on some future quote are reported without a price. During the period analyzed, 22 percent of the loads were unpriced, but only three of the unpriced loads represented products other than whole fresh or frozen turkey, which confirms the results in our survey. The reported full loads represented about 5 percent of total slaughter for the period. Note that this represents only full loads of a single product, and that only about 20 percent of U.S. slaughter was represented by processors reporting at that time.

USDA Market News

Turkey price and trading information is collected from more than 150 regular buyer, seller, and broker contacts by six offices across the U.S. The information is reported in a special weekly report from the Kansas City office and in poultry reports from other cities.

Market News price reports include averages of trade prices; offered prices are also reported for turkeys, which is a departure from the usual *Market News* practice of reporting only trades. By reporting transaction prices, the influence of judgment is minimized. It is important to note that the difference between Urner Barry and *Market News*, in this respect, is one of degree. While judgment is explicitly used by Urner Barry, it is not totally absent in USDA procedures.

A primary concern expressed by *Market News* reporters is the disappearance of the commodity turkey. According to data from federally inspected slaughter, the plain commodity turkey (whole and not injected for self-basting) represented 35 percent of the output in 1974. By 1978, it represented only 15 percent of industry volume and shows no sign of return. This declining volume, combined with formula pricing of a substantial proportion of that volume reduces the number of trades potentially reportable.

ASSESSMENTS OF MARKET QUOTES

Industry views of market quotes, both Urner Barry and *Market News*, range from highly complimentary to highly critical. Both quotes provide useful, if incomplete, market information which facilitates trade. At the same time, there are potential problems with some uses of the quotes.

Firms asked to comment on market quotes generally elected to discuss Urner Barry. The most complimentary comments indicated that the Urner Barry quote was "generally pretty accurate," but that it was occasionally in error. The observation that the quote was "occasionally off" was not made critically, but with a view that it was an estimate understandably subject to occasional error. People holding such views found the Urner Barry quote a valuable piece of market information, which facilitated both procurement and marketing. They particularly expressed the point that in its absence, procurement would be made more difficult, and much more cost and effort would be required to determine a selling price. They tended to think that any serious weaknesses in the system could be eliminated by greater participation in sales reporting by the trade. Since most sales are not tied to the quotes, they did not view the potential for price manipulation as a serious threat.

More critical viewpoints included concerns that the quote was derived from inadequate sampling of transactions, false or deceptive reporting (by sellers), failure of reporters to verify sales and prices with both parties, personal judgment, excessive optimism, bias due to conflict of interest, and the inappropriate reporting of prices determined by intrafirm transfers (California live market quotes).

Two serious consequences of inaccurate reporting were alleged. Some parties claimed that turkey markets were glutted in 1967 and 1974, due to consistently "high" quotes by both reporting services. Another claimed that, in California markets, where live turkey quotes are reported by *USDA Market News*, a large, integrated firm could make false or deceptive price reports and squeeze margins for smaller processors or growers who rely heavily on the quotes.

As suggested earlier, most comments fell between these extremes. While most people interviewed found it easy to criticize the quotes, they were generally sympathetic to the difficulty of the information gathering task. In any case, they said, traders were not bound to buy or sell at quoted levels. Quotes are occasionally in error, and a good marketing manager will not rely on them exclusively, nor will he ignore them entirely. Most of those who expressed an opinion believed that both the government and private reports were needed. Even those who held a strong opinion that one was better indicated a desire to keep both.

CONCLUSIONS

Market participants' views of the accuracy and adequacy of the existing market price reporting differ, in part, because of differences in perception of what the quote should be. Those who view the quotes as an estimate of a market clearing price based on a sample of transactions, subject to sampling and other errors and representing a limited product specification and locale are not disappointed. Those expecting changes in one or a few quotes to adequately reflect changes in values over more than two-thirds of the U.S. do find reason to complain. The latter is all but impossible to achieve.

The higher the proportion of transactions which are formula priced, the greater the problem of reporting prices and the larger the misallocation associated directly with an error in price reporting. Less than one-fifth of turkey product pricing and about one-fourth of live turkey pricing are tied *directly* to market quotes. An additional 20 percent of live bird transfers are tied indirectly to quotes. For the remainder of these markets, the quotes serve only as a source of information used in making transaction decisions. These remaining transactions in the product markets provide an adequate base for discovery of market clearing price and for reportable trades.

The trend of the product mix away from whole frozen turkey toward more product variation results in thinly traded individual markets, which complicates market reporting. The thrust of firm marketing efforts (including product differentiation) is in directions which reduce the number of transactions that provide information useful to the market reporter. Thus, while the present pricing and coordination system appears viable, the trend is not encouraging. Formula pricing based on the quotes is probably a relatively unimportant factor among the causes of market information problems.

USDA Market News maintains an extensive network of reporters who contact a large number of buyers, sellers, and brokers regularly. Urner Barry's CTS provides the means for rather complete processor reporting supplemented by other contacts. The quality of market quotes is limited primarily by the extent of cooperation by industry participants. Any voluntary system is vulnerable to non-reporting, selective reporting, and false reports. The problems cited by market participants do not appear so severe that mandatory reporting is justified.

Use of product market prices as the base for live bird transfer formulas adds another problem dimension. The producing firm has no input into the quotes which determine its income. This fosters suspicion and a feeling of helplessness among some producers. The volume of negotiated trades at the live market level is too small in diverse regional markets to serve as the basis for a national live market quote. Developing a report on contract terms and formulas being used to compute live turkey transfer prices from processed product prices may be a useful market information innovation. Producers would likely benefit most from such information. However, producers have not organized their own market information system to date, perhaps due to an illusion that each one is doing a better negotiating job than his neighbors.

FOOTNOTE

¹ *Turkey World*, Jan., Feb. 1979.