

Meat Prices – Too High or About Right?

by CLIFTON B. LUTTRELL

THE SHARP increases in retail meat prices in recent months have been the subject of much discussion. The increases have had a major impact on total consumer outlays since meat expenditures account for about one-third of the average family food budget. Reflecting their disappointment at these higher costs, some people have accused farmers, meat packers, and grocery stores of “gouging consumers” by forcing meat prices up. These views are generally stated without a full understanding of the underlying economic processes involved in price determination.

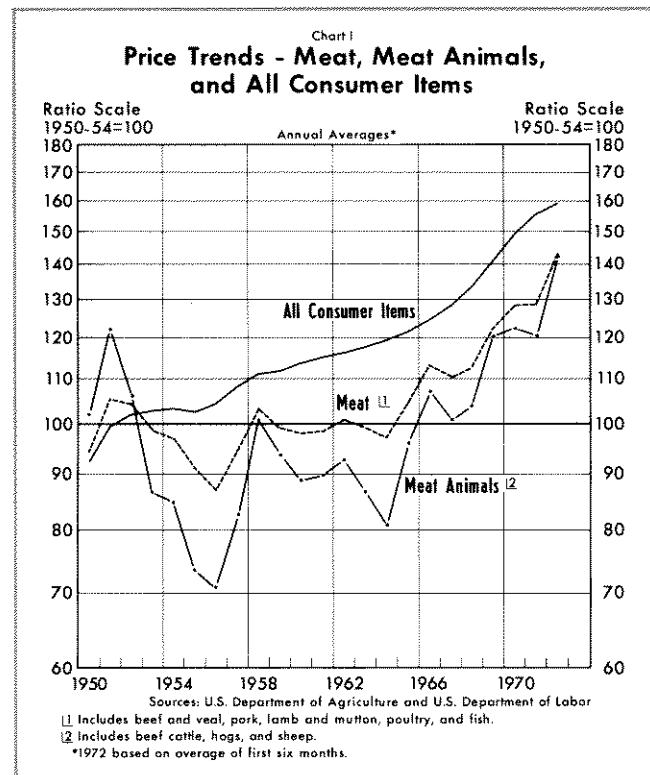
This article presents an economic analysis of the forces which have led to meat price increases both this year and over a longer-run period. The analysis emphasizes the function of the market system in pricing meat, in allocating meat products to consumers, and in allocating resources to meat production. As pointed out by Kenneth Boulding in rhythmic form, the production and allocation of food involves both humane and incentive considerations.

The young, the old, the sick, the crazy
Even the shiftless, and the lazy,
Eat at the common human table
Spread by the Active and the Able.
The problem is, to organize
This monumental enterprise
So that — to see that all are boarded —
Both Need and Virtue get rewarded.¹

The consumer price index for all meat² in the first eight months of this year averaged 9 percent above the average for the same period a year ago. This, however, was just one episode in the upsurge of meat prices. With the exception of one minor setback, aver-

¹Kenneth E. Boulding, *Principles of Economic Policy* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1958), p. 233.

²Beef and veal, lamb and mutton, pork, fish, and poultry.



age meat prices have risen since 1964 (Chart I). Average consumer prices for meat rose at a 12.9 percent annual rate from late 1964 to early 1966. They declined slightly in late 1966 and early 1967, rose somewhat from late 1967 to early 1969 when they accelerated again, rising at a 10.4 percent rate until April 1970. They held almost stable from April 1970 to early 1971 when the recent acceleration began.

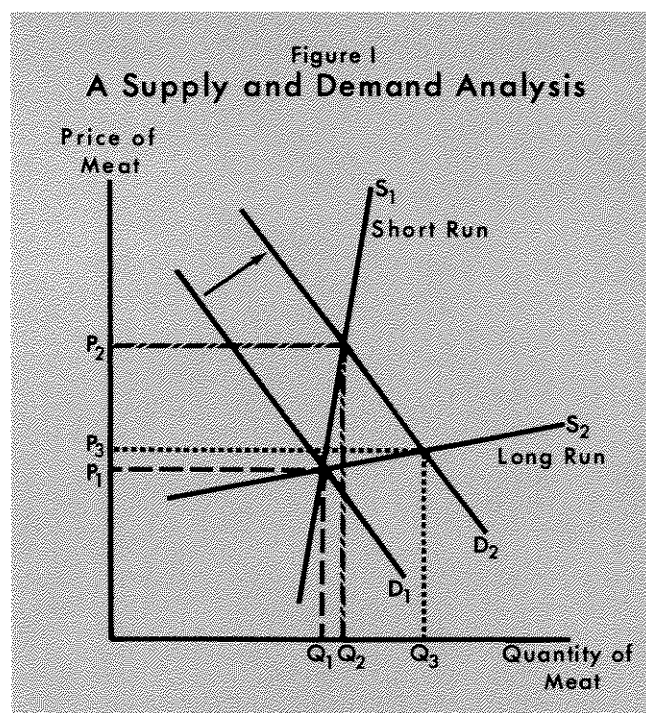
Economic Analysis of Price Determination

An economic approach to factors determining prices of meat or any other commodity is developed briefly

in this section. The analysis holds that changes in meat prices at grocery stores result from a series of economic factors rather than arbitrary decisions by farmers, meat packers, wholesalers, and retailers. Behind retail price increases is often found greater consumer demand as indicated by a rising volume of sales. When the demand for a commodity increases, the first change one typically observes is a higher sales volume which results initially in a reduction of inventories. In order to restore depleted inventories retail grocers increase their meat orders from packers hoping to continue selling a larger volume at the prevailing price. Upon receiving increased orders for meat the packers in turn increase their rate of meat slaughter and seek to restore meat animal inventories by additional purchases from farmers. Since the prevailing price only provides sufficient incentive for producing the current number of animals, additional animals are not available for immediate delivery at current prices. As packers compete among themselves in an attempt to obtain more animals, they raise their offering prices to farmers.³

In the short run the number of animals available for marketing is relatively fixed. The number of animals on farms cannot be increased rapidly and the increase in meat production per animal is relatively limited. In other words, the supply of meat is "inelastic" with respect to price in the short run; only a small percent increase in quantity will be forthcoming with a relatively large percent increase in price. Such a short-run supply curve is indicated by the relatively steep upward sloping line S_1 in Figure I. With the demand for meat represented by the curve D_1 and supply represented by S_1 the price is P_1 . An increase in demand to D_2 results in a relatively sharp short-run price increase as shown by the D_2 - S_1 intersection at P_2 .⁴

Over the longer run, however, the supply of meat is more "elastic," meaning that with each incremental increase in price, a larger quantity will be offered than in the short run. This situation is illustrated by the supply curve S_2 , wherein a small increase in price provides incentive for a relatively large increase in production. Given sufficient time, farmers and ranchers find it profitable to expand their meat animal



breeding herds and produce additional animals for slaughter. The fact that the long-run meat supply curve is more elastic than the short-run supply curve means that a given increase in demand for meat has a smaller impact on prices after passage of some time. For example, the rise in demand from D_1 to D_2 would result in the relatively small price increase from P_1 to P_3 in Figure I after farmers have adjusted meat animal production to the new demand conditions. Nevertheless, with an upward sloping supply curve any upward shift in the demand for meat involves a rise in the price paid by consumers. The higher price equates the larger amount demanded with the amount supplied.

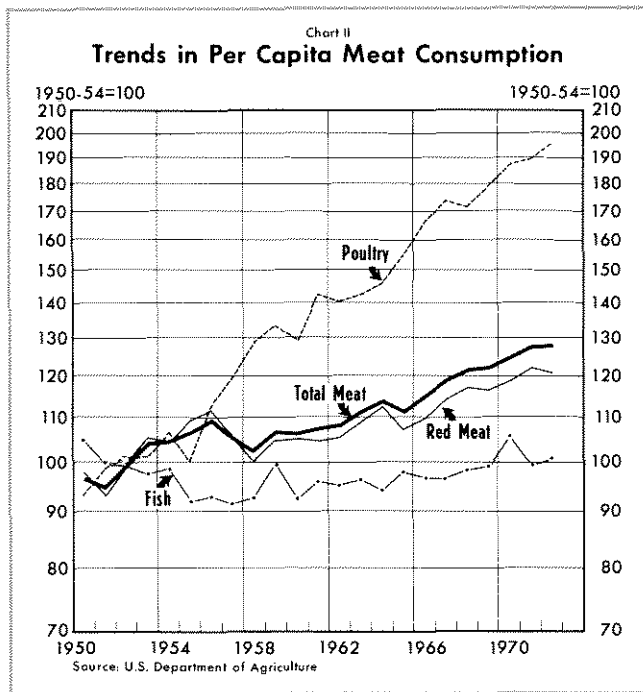
Conversely, advancements in production technology which tend to increase supply (shift the supply curve to the right), or declines in meat demand, result in lower prices. More meat animals are offered to packers and more meat to consumers than can be sold at previous prices. Prices are thus marked down by retail grocers until the quantity of meat demanded by consumers equals the amount supplied.

Demand for Meat has Increased

Demand for meat has increased substantially in recent years, as evidenced by the fact that consumers have purchased larger quantities of meat at higher prices. Factors contributing to the greater demand include rising per capita incomes, increased food subsidy programs, and a larger population.

³See Armen A. Alchian and William R. Allen, *University Economics*, 3rd ed. (Belmont, California: Wadsworth Publishing Company, Inc., 1972), pp. 95-97, and Kenneth Boulding, "A Liquidity Preference Theory of Market Prices," *Collected Papers - Boulding* (Boulder: Colorado Associated University Press, 1971), pp. 135-143.

⁴The shift of the demand schedule from D_1 to D_2 indicates that consumers have registered in the market a willingness to purchase larger quantities of meat at each price.



Both Consumption and Prices Have Risen

During the period of rapid increase in average meat prices from 1964 to 1971 as shown in Chart I, total meat consumed rose from 42 to 52 billion pounds, an increase of 22 percent. Per capita consumption rose from 224 to 253 pounds, an increase of 13 percent. The rise in per capita consumption was at a faster rate during this period of rapid price increase than during the previous 14 years (1950-64) when prices were relatively stable. In the recent period total meat consumption per capita rose at an annual rate of 1.8 percent, whereas from 1950 to 1964 per capita consumption rose at the rate of 1.6 percent (Chart II). According to the United States Department of Agriculture per capita consumption of meat will increase slightly again this year. An estimated decline of one percent in red meat consumption will be more than offset by a four percent increase in poultry.

The fact that meat consumption has increased reveals little about meat demand without information on prices.⁵ Meat consumption, like consumption of any other commodity or service, depends in part upon its price. Given no change in the demand schedule (line D_1 in Figure I), a decline in meat prices will

⁵Economists explain a larger quantity of a good being purchased in two different ways. One way is for the demand schedule to shift to the right, indicating a greater quantity will be taken at each price. The other way is a movement along a given demand schedule, indicating that price changes are the result of a shift in the supply schedule. The latter means that larger quantities are purchased only at lower prices.

induce consumers to purchase a larger quantity. For example, a larger volume of meat production caused by livestock cycles or by unusually favorable weather conditions will increase the supply and result in lower prices. The lower prices will induce some consumers to purchase larger quantities of meat. This is indicated by the downward slope of the D_1 line in Figure I. Conversely, a cyclical or seasonal decline in meat output will cause an increase in meat prices, which will in turn cause some consumers to substitute other types of food for meat and reduce their meat purchases. These short-run shifts in supply can cause price changes without a shift in demand. For example, a shift of the supply curve S_1 to the left will intersect the demand curve D_1 at a higher price. Such short-run shifts in supply have no doubt been a factor in the irregular upward course of meat prices since 1964. However, consumers have purchased larger quantities of meat at higher prices per pound indicating that demand has increased.

Personal Incomes Have Accelerated

While numerous factors contribute to rising meat demand, rising per capita personal income is perhaps the most important. In numerous studies research analysts have found that rising demand for meat results from gains in per capita income.⁶ Per capita consumption of beef, veal, lamb, pork, and poultry have all been positively associated with income. All studies confirm the common explanation that as personal incomes rise people spend more for food.

Personal incomes have accelerated since the mid-1960s. Disposable personal income rose at the average annual rate of 5.9 percent from 1950 to 1955, at 4.9 percent from 1955 to 1960, and 6.2 percent from 1960 to 1965. With the rising rate of inflation, personal income growth accelerated to 7.8 percent per year from 1965 to 1970 and has continued at a relatively high 6.9 percent rate since 1970 (Table I). While the acceleration in personal income growth has been primarily in nominal rather than real terms, it has added

⁶For examples of such studies see Edward Uvacek, Jr., "A New Look at Demand Analysis for Beef," *American Journal of Agricultural Economics* (November 1968), p. 1505; Willard Williams, "The Meat Industry," *Market Structure of Agricultural Industries*, ed. John R. Moore and Richard G. Walsh (Ames: The Iowa State University Press, 1966), p. 40; Larry Langemeier and Russell G. Thompson, "Demand, Supply, and Price Relationships for the Beef Sector, Post-World War II Period," *Journal of Farm Economics* (February 1967), p. 179; Frederick Lundy Thomsen and Richard Jay Foote, *Agricultural Prices* (New York: McGraw-Hill Book Company, Inc., 1952), p. 362; and Russell G. Thompson, J. Michael Spratt, and Richard W. Callen, "Demand, Supply, and Price Relationships for the Broiler Sector, with Emphasis on the Jack-Knife Method," *American Journal of Agricultural Economics* (May 1972), p. 247.

Table I

Disposable Personal Income and Inflation
(Annual Rates of Change)

	Disposable Personal Income	Inflation*
1950-1955	5.9%	2.5%
1955-1960	4.9	2.6
1960-1965	6.2	1.4
1965-1970	7.8	4.1
1970-1972	6.9**	4.2***

*Based on GNP price deflator

**II/1970 to II/1972

***Estimated from 1972 Report of Council of Economic Advisers

Source: U.S. Department of Commerce

to meat demand by providing more dollars for the family budget.

The contribution of rising personal incomes to the higher demand for meat is indicated by the pattern of consumer expenditures. While the share of total consumer expenditures spent on meat declined substantially in the early post World War II years, it leveled off in the mid-1960s (Table II). In 1950 purchases of red meat, poultry, and fish accounted for 7.4 percent of total consumer expenditures, but by 1965 such purchases had declined to 5.6 percent of the total. Since 1965 the share of total consumer expenditures spent on meat has held constant and total outlays for meat have risen at the same rate as outlays for other purposes.

Table II

**Estimated Meat Expenditures as Percent
of Total Consumer Outlays**
(Dollar Amounts in Billions)

	Total Personal Consumption Expenditures	Total Meat Expenditures	Meat as Percent of Total
1950	\$191.0	\$14.2	7.4%
1955	254.4	16.4	6.4
1960	325.2	20.0	6.2
1965	432.8	24.1	5.6
1970	616.8	35.0	5.7
1971	664.9	36.5	5.5

Source: Calculated from U.S. Department of Agriculture and U.S. Department of Labor data

Among the foods, the proportion of expenditures on meat has turned upward in recent years. In 1965 all meats accounted for about 35 percent of the total expenditures on food consumed at home (Table III). By 1970 the meat portion of food-at-home expenditures had increased to 39 percent, and the quantity of meat consumed per capita had increased sharply. Furthermore, evidence indicates that the higher pro-

Table III

Importance of Meat in the Food-At-Home Budget
(Percent of Food-at-Home Outlays)

	Red Meat	Poultry	Fish	Total
1960	28.3%	4.1%	2.9%	35.2%
1965	27.8	4.1	2.9	34.7
1970	31.1	4.3	3.3	38.7
1971	31.3	4.2	3.4	38.9

Source: Calculated from U.S. Department of Agriculture and U.S. Department of Labor data

portion of such expenditures for meat has continued into 1972. Per capita consumption of red meat in the first six months was about one percent less than a year ago, but the decline was more than offset by a six percent increase in poultry consumption. This increase in consumption of red meat and poultry combined, along with the sharp rise in prices, points to a continuation of the upward trend in demand for meat and in consumer expenditures for meat in relation to other foods.

Food Subsidies Have Increased

Larger Government issues of food stamps to the lower income groups and increased donations of meat products to schools, institutions, and low-income families occurred during the recent upswing in meat prices. Total issues of food stamps rose from less than \$1 billion in 1969 to more than \$3 billion in 1971 and to an annual rate of \$3.4 billion in the first two quarters of 1972. Federal outlays on the school lunch program have more than doubled during the last two years, rising from \$227 million in 1969 to \$594 million in 1971. Food distributions to low-income families, institutions, and others also have increased, but at a lower rate than the school lunch programs. Total cost of the Federal food programs, including food stamps, food distribution, and money donated for food purchases, rose from \$1.2 billion in 1969 to \$3.1 billion in 1971 and to an annual rate of \$3.5 billion in the first half of 1972. In 1969 Government outlays for these programs amounted to only 1.4 percent of the total costs of food used at home by all consumers. By 1971 these outlays amounted to more than 3 percent of total food-at-home costs, and this year they may total 3.7 percent.

An important effect of the food stamp program has been to shift the recipients to higher income brackets for food consumption purposes. As indicated earlier, studies of meat demand show that such a shift produces a sizable increase in meat consumption, which may be partially offset by a reduction in consumption of some other types of foods such as dried beans,

cereals, and fresh potatoes.⁷ In addition to the increased demand for meat resulting from the food stamp program, the share of meat in direct Government food donations has been rising sharply in recent years. In constant dollar terms, donations of all livestock products rose 11 percent from 1970 to 1971 and donations of meat rose by one-third.⁸

Although the food stamp program and other Government food donations are intended to improve the diets of the lower income groups, it is unlikely that total food expenditures rise by the same dollar amount as such donations. Some of the recipients will likely use less of their own earnings for food purchases as a result of the programs. Nevertheless, the programs may have added one or two percent to total food expenditures since early 1971 and a somewhat greater percentage to total meat expenditures.⁹ This increase in food subsidies was a factor contributing to the recent increase in demand for meat.

Impact of Population Growth

An increasing population has certainly been a factor in the rising demand for meat, but it has been less important during the sharp increases in meat prices since 1964 than in earlier years. The nation's population grew from 192 million in 1964 to 207 million in 1971, an annual growth rate of 1.1 percent. This, however, was well below the 1.7 percent annual population growth rate from 1950 to 1964 when meat prices were relatively stable. Also, during the sharp increase in meat prices since last year population has increased at less than a one percent rate.

Meat Supply

Over the longer run, production technology and imports have tended to increase the nation's meat supply and offset part of the impact on prices of the rising demand for meat. As shown in Charts I and II, meat production plus net imports have risen at a sufficient rate to provide consumers with increasing quantities at less than average price increases for other consumer items. From 1950 to 1971, red meat and poultry production combined rose from 25.9 to 48.4 billion pounds per year, a 3 percent annual rate of gain. Production of red meat rose from 22.1 to 37.8 billion pounds, an annual rate of 2.7 percent, while

output of chickens almost tripled. Meat imports in 1971 were equivalent to 6 percent of domestic red meat production, whereas imports were insignificant in 1950. Meat import controls were relaxed this year, and if they are not reimposed, rising meat production in other nations, along with rising domestic meat production efficiency, should have an even more favorable impact on the nation's meat supply in future years.

Between 1950 and 1971, when meat consumption was increasing rapidly, prices of meat animals rose less than one percent per year, and red meat prices rose only 1.8 percent per year. Poultry prices declined about one percent per year. In comparison, the consumer and general price indexes rose at average annual rates of 2.5 and 2.8 percent, respectively.

As indicated earlier, the long-run supply curve S_2 in Figure I, which assumes no change in technology, is relatively elastic, indicating that a small increase in price provides sufficient incentive for a sizable gain in production. In addition, over the very long run rapid gains in technology increase the efficiency of crop and livestock production causing the supply curve to shift to the right, assuming general price stability for other goods and services. The man-hours of labor used for crop production are now less than one-third the number in 1950, and labor used for livestock production has declined more than 50 percent. Efficiencies in feed utilization have increased substantially for poultry. Overall, the productivity index for agriculture (output per unit of input) rose 36 percent from 1950 to 1971.¹⁰ These efficiency gains tended to offset the price effects of rising meat demand and reduce meat prices from the early 1950s until the mid-1960s.

In the mid-1960s, however, accelerated monetary growth led to general price inflation which had adverse effects on the supply of meat. Inflation, which had averaged less than 2 percent per year in the early 1960s, accelerated to more than 4 percent per year after 1965 (Table I). This higher rate of monetary growth raised the demand for all goods and services and for productive resources. Meat producers were thus faced with rising production costs and the meat supply curve S_2 shifted to the left (Figure I). In other words, at each level of meat prices following the inflation, producers were willing to produce less meat than previously because of higher production costs. The accelerated monetary growth was thus a major factor in the sizable increase in average meat prices. It contributed to an increase in the demand

⁷United States Department of Agriculture, *National Food Situation* (May 1969).

⁸*Ibid.* (August 1972).

⁹This assumes that the gain in meat consumption by the lower income groups is not offset by a reduction caused by the increased taxes on the higher income groups.

¹⁰United States Department of Agriculture, *Changes in Farm Production and Efficiency*.

The analysis in the accompanying article assumes that all phases of the meat industry are reasonably competitive. The following quotes from studies by the National Commission on Food Marketing published in 1966 tend to confirm this view.

The meat industry involves mainly three large groups — the farmers, ranchers, and feeders who grow the livestock; the packers who slaughter the animals and turn them into dressed meat; and the retailers who sell meat to consumers.¹

Livestock producers are numerous and widely scattered. Each markets only a small share of livestock sold, even though average firm size has increased markedly, especially in cattle feeding.²

Concentration in meat packing declined markedly after World War II. Census data show the largest four companies accounted for 41 percent of the value added by manufacture in 1947 and 31 percent in 1963. The total number of slaughtering firms rose from 1,999 to 2,833 in this period.³ Earning rates for large meat packers have averaged lower than rates for leading firms in most other branches of the food industry since World War II. The largest four packers (ranked according to red meat sales in 1963) consistently reported

¹National Commission on Food Marketing, *Food From Farmer to Consumer* (June 1966), p. 21.

²*Ibid.*

³National Commission on Food Marketing, *Organization and Competition in the Livestock and Meat Industry* (June 1966), p. 7.

net income after taxes at around 5 or 6 percent of net worth from 1948 through 1963.⁴

Between 1958 and 1963, . . . The market position of the largest four retail (food) chains declined approximately 1.7 percentage points while the market share of the largest eight firms combined declined about 1 percentage point. The market share of the largest 20 companies remained constant. These data again illustrate the more rapid growth of smaller firms when compared to the largest food retailers. It also indicates that while the largest retailers are growing, they are not growing as rapidly as the food market expands.⁵ For the industry as a whole, net profit as a percent of sales has followed an irregular but slightly downward trend since 1950.⁶ Profits of retail food chains were high relative to other industries during most of the postwar period. This high level of profits resulted from a rapid rise in the popularity of the supermarket. In response to this increase in demand, many thousands of supermarkets were built. As this rapid building program caught up with demand around 1960, profits for food retailers returned to levels comparable to other industries.⁷

Corporate profits after taxes averaged 11.4 percent of stockholders' equity in all of private manufacturing, 11.3 percent in nondurable goods manufacturing, and 9.8 percent in the manufacture of food and kindred products.⁸

⁴*Ibid.*, p. 59.

⁵National Commission on Food Marketing, *Organization and Competition in Food Retailing* (June 1966), p. 39.

⁶*Ibid.*, p. 277.

⁷*Ibid.*, p. 304.

⁸National Commission on Food Marketing, *Food from Farmer to Consumer* (June 1966), p. 99.

for meat through its impact on personal incomes (in nominal terms) and at the same time tended to reduce the meat supply. Its impact, along with other factors contributing to a growing meat demand, thus tended to submerge the impact of factors increasing the supply of meat since 1964.

Concluding Comments and Summary

The data indicate that meat prices in recent years have been determined largely by basic supply and demand conditions. As indicated by reports of the National Commission on Food Marketing, the meat industry is reasonably competitive (see screened insert). With the exception of the Government crop control and price support programs and import restrictions, the meat industry has generally operated in a competitive free enterprise atmosphere.

The meat industry meets a major competitive test of easy entry and exit. The industry is not hampered by rules and regulations such as chartering, licensing

or long periods of apprenticeship. Virtually all are free to enter all phases of meat production and distribution. It has numerous participants in all stages of production and distribution. The efficient prosper and the inefficient fail. This incentive has permitted the price mechanism to bring into equality the quantity of meat supplied and demanded at a relatively high level of consumption per capita and at prices which have risen only moderately compared with other consumer items.

If people want more meat they will bid up the price and the higher prices of meat will provide the incentive for increased production. Productive resources will flow freely to this sector when anticipated returns are attractive. The higher meat prices in recent years have been necessary to attract the additional resources used in producing the larger volume of meat demanded by consumers. If prices had been set arbitrarily at a lower level a smaller volume would have been produced and some consumers would have had less meat. Therefore, in the absence of a

responsive price system in which the quantity supplied and the quantity demanded are equated, the available quantity must be rationed among consumers by some other means.

In summation, the fact that meat prices have increased sharply since last year and have generally risen since 1964 is not a sufficient reason for the belief that the consumer is being taken advantage of or that the meat industry is callous or inefficient. The meat industry is reasonably competitive and takes advantage of developing technology. Meat production has increased at a high rate since the upward trend in meat prices began in 1964.

Excessive monetary growth and other forces which led to a sharp increase in demand for meat and a slower growth in supply have been the chief factors

contributing to the higher prices since 1964, rather than basic problems in the industry. Consumers have demanded a higher level of meat production per capita and have paid a higher price for the increased output.

The higher prices were necessary to provide incentive for producers to supply the amount of meat demanded. Without the higher prices output would have been less. Unforeseen events such as livestock cycles and unusual weather conditions may cause livestock and meat prices to fluctuate around their long-run equilibrium levels. However, given the generally competitive conditions in the industry, the market price of meat is always near that level required to match production with consumer demand. The recent price increases were probably no exception to this general rule.

