

## The Relation Between Prices and Costs

The relation between the price and the cost of producing a commodity is a perennial problem, and a thorny one, in agriculture.

Basically, this relation is simple. It is the same in agriculture as in other lines. The price must cover the cost of production, or to look at it the other way around, the cost of production must be lower than the price; otherwise the producer sooner or later will run out of money and quit producing.

The direction of causation from the one to the other, however, is a more complicated matter. A good many farmers believe that the line of causation runs from costs to prices in most of the industrial world. They believe that manufacturers, distributors, the service trades, etc. compute their costs, add a margin for profit, and set their prices accordingly. But farmers seem to run under opposite conditions. They are confronted by a price for their products, and they have to cut their costs below the price, or go broke.

Farmers maintain that what is sauce for the goose ought to be sauce for the gander; they ought to operate under the same sort of rules as business. If it costs farmers 60 cents to produce a bushel of corn, surely the price ought to be set high enough to cover those costs, plus a modest profit.

The things farmers buy appear to them to be priced according to their costs, at each step of the way from the manufacturer to the retailer. When the cost of living goes up, labor demands higher wages (higher prices for their labor). When labor asks for higher wages, manufacturers point out that this will increase their costs and that they, the manufacturers, will have to pass these increased costs on in the form of higher prices. The "cost-plus" basis upon which building contractors bid appear to offer another example of the use of cost of production. The local storekeeper provides another. He takes the wholesale price plus transportation as his cost, adds a standard margin to cover his costs and profits, and sets his retail price accordingly. He does not ask the farmer what price he is

willing to pay for a can of beans; he tells him what price he will have to pay. Yet when the farmer takes his hogs to market, he cannot compute his costs and name his price as the retailer does. He has to ask the packer what he will pay, and take it or leave it.

Accordingly, it appears to many farmers that they are not getting a square deal. They get it in the neck both coming and going. They seem always to be asking the other fellow—buyer and seller as well—what his price is. They never seem to be able to name their own prices, but the buyer always names his. If, as it appears, others base their prices on their costs of production, or processing, or marketing, it seems to farmers that they ought to be able to do the same.

Are they right, and if so, is their desire attainable?

#### COST OF PRODUCTION IN INDUSTRY

The appearance that industry simply uses cost of production as the basis for its prices is misleading. There is a more direct relation between costs and prices in industry than in agriculture, but the line of causation runs from prices to costs as well as from costs to prices. This is true of merchandising as well as manufacturing.

#### MERCHANDISING

“Merchants, engaged in buying and selling finished goods, customarily raise and lower their selling prices in accordance with current changes in wholesale prices, although sometimes with a considerable lag in time. They are able to do this only through changes in the quantity of goods sold. If the retail grocer started out with a definite number of cans of evaporated milk to sell each month, he would have to adjust his price to a point necessary to move this quantity from his shelves, regardless of the cost price. Actually, he first adjusts his retail price to the wholesale cost, then obtains from the wholesaler only as many cans as he is able to sell at that price. Of course, *if farmers could first set a price based on cost and then place on the market only the amount of the commodity that would sell for that price, they, too, could get cost of production.* However, this is impossible because of the peculiarities of farming and farm products.

“It should be noted, however, that the merchant’s position is far from being as pleasing as the foregoing might indicate. If his own operating costs, which he adds to the wholesale price in setting his

retail selling price, are higher than competition will allow, his volume of sales will be so small that he will be forced out of business. This actually happens, it is estimated, to perhaps 90 per cent of retail store ventures. Thus, the ordinary merchant's ability really is to name a cost price rather than to get it. The farmer, also, could name his cost price, but like many merchants he may be unable to sell at that price.

#### MANUFACTURING INDUSTRIES

"The greater ability of manufacturers, as compared with farmers, to both name and receive a price covering cost of production is due largely to three conditions:

"1. *Manufactured goods are continuously rather than seasonally produced.* Because of this, adjustments in production can be made immediately, whereas with most farm products such adjustments require at least a season, and even then farmers may expect price conditions to change, further prolonging adjustments.

"2. *Manufactured goods usually are nonperishable and can be stored in order to take up the 'slack' in the market.* If the supply of goods offered by the manufacturer of a certain commodity will not sell at a price high enough to cover cost, he may store enough so that the remainder will sell for the cost price. At the same time, he is able, because of continuous production, immediately to cut down output so that stocks will not accumulate at too rapid a rate. Here we see the essential difference in farming. We cannot store strawberries. We might store part of the cotton crop for sale in succeeding years; but unless we made a compensating cut in production, this would merely postpone the trouble.

"3. *Production of manufactured products can be speeded up or contracted much more easily and quickly than the production of farm products.* In farming, the vagaries of the weather may upset the best laid production plans, so far as any one year is concerned. But there are other and even more important reasons why it is difficult to adjust agricultural production to prices. The proportion of fixed to variable expense is exceptionally large. When the manufacturer reduces output, he also reduces his labor, power, and materials expense, which are relatively large items. The farmer, on the other hand, cannot greatly reduce his costs by reducing output, because the most important items of expense, such as interest, taxes, and family labor, are fixed. If the farm is heavily mortgaged,

the farmer may be compelled even to increase his output, in order to keep out of the hands of the sheriff, even though his returns are less than his total fixed and variable costs.

"4. If the price of some manufactured product should fall far below the costs of production of individual manufacturers, the latter would be driven out of business very quickly, thus decreasing supply and tending to raise prices. It is a difficult matter, however, to drive the farmer out of business, because of his ability to get along over a long period of below-cost prices by gradually using up his capital investment and reducing his standard of living. The difference between farmers and manufacturers in this respect is shown in Table 18. Even if the farmer were forced to relinquish his farm,

TABLE 18

DIFFERENCE IN EFFECT ON FARM AND MANUFACTURING ENTERPRISES OF A 10 PER CENT ANNUAL OPERATING LOSS

	Manufacturing Enterprise	Farm
Capital invested.....	\$ 25,000	\$25,000
Annual volume of business.....	\$200,000	\$ 4,000
Annual loss as percentage of volume.....	10	10
Actual operating loss.....	\$ 20,000	\$ 400
Number of years required to drive from business	1	20 to 35

some one else would quickly replace him. Falling prices breed idle factories but not idle farms."<sup>1</sup>

#### DIFFICULTY OF DETERMINING THE COST OF PRODUCTION

The cost-of-production approach is weak in another important respect. Some practical difficulties stand in the way of even determining the cost of producing a farm product, let alone setting a price that will cover it.

#### DIFFICULTY OF DETERMINING JOINT COSTS OF PRODUCTION

When two products are produced jointly and inseparably, for instance wool and mutton, what is the cost of producing each one?

What Marshall calls the "supply price" for one product may be derived by subtracting the "demand price" for all the other products from the "supply price" of the two or more products that are jointly produced.<sup>2</sup>

<sup>1</sup> F. L. Thomsen, *Agricultural Prices*, McGraw-Hill, 1936, pp. 78-80.

<sup>2</sup> Alfred Marshall, *Principles of Economics*, Macmillan, 1922, pp. 388-91.

This, however, makes the "supply price" (the price at which a given quantity will be produced for market) partly dependent on the "demand price" (the price at which a given quantity will be bought). If the demand price is low, that lowers the supply price. That is the sort of thing that farmers who want cost of production are trying to get away from.

The problem is still more difficult in the case of many farms that produce more than two products. What are the separate costs of producing corn, oats, clover, hogs, and beef cattle on Cornbelt farms? That problem is practically insoluble.

#### WHOSE COST OF PRODUCTION?

Even in the simplest case of a single product (produced on farms that produce no other products), almost insuperable practical difficulties arise.

The cost of producing corn in Palo Alto County, Iowa, for example, was computed separately for 14 producers in 1928.<sup>3</sup> The results are shown diagrammatically in Figure 48. The cost for the most efficient producer was 28 cents a bushel. The cost for the least efficient producer was \$1.18. What was the cost of producing corn in that county?

If the price were to be set at 28 cents, most of the producers in that county would go broke. If it were set at \$1.18, that would be such an attractive price for most farmers that they would expand their production beyond the quantity that could be sold at that price.

A compromise solution would be no more satisfactory. If the price were set at the average for all 14 producers, that would have been 49 cents. (This is lower than the average of the extreme low and high costs, because it takes all 14 producers' costs into account, and most of those costs were close to the lower extreme.) At that price about half the producers would have difficulty making ends meet, and the quantity produced might be more, or less, than the quantity that could be sold at that price. And what price should be set in Van Buren County, where the average cost was 77 cents—28 cents higher than the average cost in Palo Alto County?

Similar variations were found in the costs of producing cattle. The lowest cost was \$45 per steer. The highest cost was over \$200. The same sort of thing was true of hogs. Their costs ranged from

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<sup>3</sup> H. L. Thomas and John A. Hopkins, *Costs and Utilization of Corn in Seven Iowa Counties*, Iowa Agr. Exp. Sta. Bul. No. 289, 1932, pp. 20-22.

\$8 to \$15 per 100 pounds. What was "the" cost of production in these cases?

Another illustration is the cost of production estimates that are published annually for three crops—corn, wheat, and oats—by the

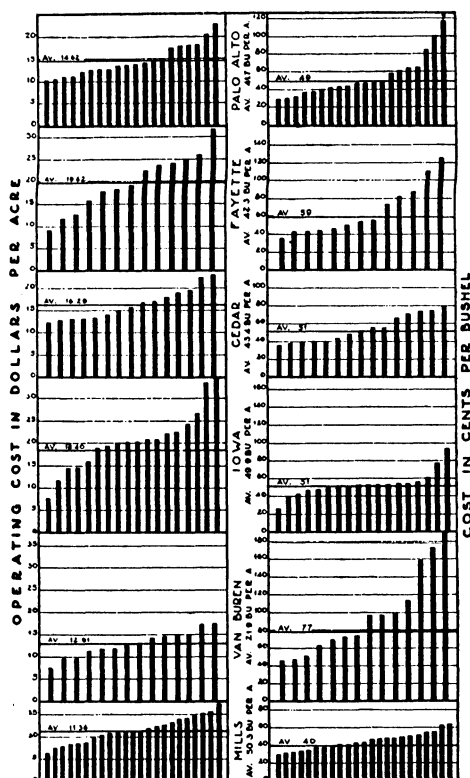


FIG. 48.—The variation in costs per acre and per bushel between fields by Iowa counties, 1928.

BAE. These estimates are published separately by groups of states and for the United States as a whole.

The estimates usually show a range from low to high such that the cost in the high group of states is more than twice as great as the cost in the low group. The annual data from 1934 to 1942 are shown in Table 19. The range in costs shown in this table is much wider than the range of prices that usually exists in the market, by groups of states. If the costs of production for the different

TABLE 19  
CORN (FOR GRAIN): ESTIMATED COST OF PRODUCTION, BY SELECTED STATES AND GROUPS OF STATES, 1934-42\*

State or Group	Net Cost per Bushel, Including Rent								
	1934	1935	1936	1937	1938	1939	1940	1941	1942
Eastern:									
North.....	\$ .73	\$ .84	\$ .92	\$ .81	\$ .77	\$ .83	\$ .83	\$ .86	\$1.00
South.....	1.01	1.15	1.22	1.12	1.08	1.30	1.21	1.18	1.44
Ohio, Indiana, Michigan, Wisconsin, and Minnesota.....	.72	.57	.79	.58	.59	.52	.65	.62	.67
Illinois and Iowa.....	.71	.49	.82	.47	.47	.43	.47	.48	.53
Missouri and Nebraska.....	4.48	.92	3.18	.83	.71	.73	.67	.63	.62
Kansas, South Dakota, and North Dakota.....	6.90	.96	7.95	.90	.73	.76	.74	.66	.62
Southwestern.....	1.49	.83	1.09	.84	.82	.90	.73	.97	1.18
Western.....	1.91	.90	1.05	1.10	.86	.98	.86	.77	.93
United States.....	.95	.70	1.02	.66	.65	.63	.67	.68	.73

\* Source: *Agricultural Statistics 1944*, USDA, Table 51, p. 46.

groups of states were used as the basis for setting prices for those groups, most of the corn would promptly be drained from the low cost (and price) areas to the high cost and price areas. Feeders and industrial users in the low cost and price areas would not be able to obtain supplies at all.

If the cost for the United States were used all over the United States, instead of the separate costs by groups of states, opposite difficulties would arise. Corn then would all stay in the low cost surplus producing areas, for the price would be the same all over the United States and there would be no price incentive to ship it anywhere.

It is interesting further to compare the annual figures for the

TABLE 20  
CORN: ESTIMATES OF COST OF PRODUCTION, INCLUDING RENT,  
AND MARKET PRICE, 1934-42\*  
(cents per bushel)

Year	Cost	Price †	Price Minus Cost
1932.....	49	31.6	-17.4
1933.....	57	52.2	- 4.8
1934.....	95	81.5	-13.5
1935.....	70	65.5	- 4.5
1936.....	102	104.4	+ 2.4
1937.....	66	51.8	-14.2
1938.....	65	48.6	-16.4
1939.....	63	56.8	- 6.2
1940.....	67	61.8	- 5.2
1941.....	68	75.1	+ 7.1
1942.....	73	91.7	+18.7

\* Source: *Agricultural Statistics, USDA, 1943*, pp. 37, 46, and 1942, p. 60.

† Season average price received by farmers.

United States with the annual prices for corn that existed in the market place. This comparison for the years 1932 to 1942 is shown in Table 20.

The table shows that, with the exception of the two war years when prices were rising rapidly, the price received was lower than the estimated cost of production every year but one (the drouth-and-business-recovery year 1936). The average price over the nine years 1932-1940 was 9 cents lower than the average cost. The cost and price data for wheat and oats show similar conditions for those crops.

Similar results are shown by studies of other crop costs and



prices. The estimated costs of producing butterfat in the Los Angeles County marketing area for eighty-one producers ranged from 46 cents to 67 cents in 1939, and from 87 cents to \$1.36 in 1943.<sup>4</sup> The blend price of milk was high enough to cover the cost of less than 35 per cent of the producers in both years. Yet the area had an abundance of milk during 1939 and 1940, and the quantity produced increased constantly up to 1943.

Farmers are inclined to say "There. That proves it. We told you prices aren't high enough to cover cost of production. Prices ought to be set higher, so we could cover our costs."

But if prices had been set higher, so as to cover the average cost of production, half the producers still would have had higher than average costs; those costs would not have been covered by the price. And the higher price would have reduced consumption and increased production, so that the program sooner or later would have broken down under a flood of surplus production.

For the reasons given above, "the" cost of production has continued to be a fruitful source of controversy, but has not been found adequate or workable as a basis for agricultural prices.

#### RAISING WAGES AND RAISING PRICES

A final problem remains: Labor unions consistently strive to raise wages and get more money for labor; and except when they go to extremes, their efforts in this direction are approved by most economists. Yet when farm organizations try to do the same thing, and raise the price of farm products so as to get more money for farmers, practically all economists unite in pointing out how bad this is and what serious adverse consequences will follow.

Why is this? Why is sauce for the goose not sauce for the gander? If raising wages is good, why is raising prices bad?

#### HOURLY RATES VS. PIECE RATES

The answer to this question involves two things: First, wages are hourly or daily wages to laborers, but prices are *piece-wages* to farmers. Real wages depend fundamentally upon production per worker, and production per worker increased about 3 per cent per year from 1910-14 to 1940, and faster than that during World War II, as shown in Figure 49. Industrial real wages therefore should in-

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<sup>4</sup>G. M. Beal, *Economic Factors Affecting the Production of Fluid Milk in the Los Angeles County Marketing Area*, Bureau of Market Enforcement, California State Printing Office, Sacramento, March, 1944, pp. 14-17.

crease at about the same rate. That is the reason that most economists approve of increases in labor's wages; wages should increase with increasing production.

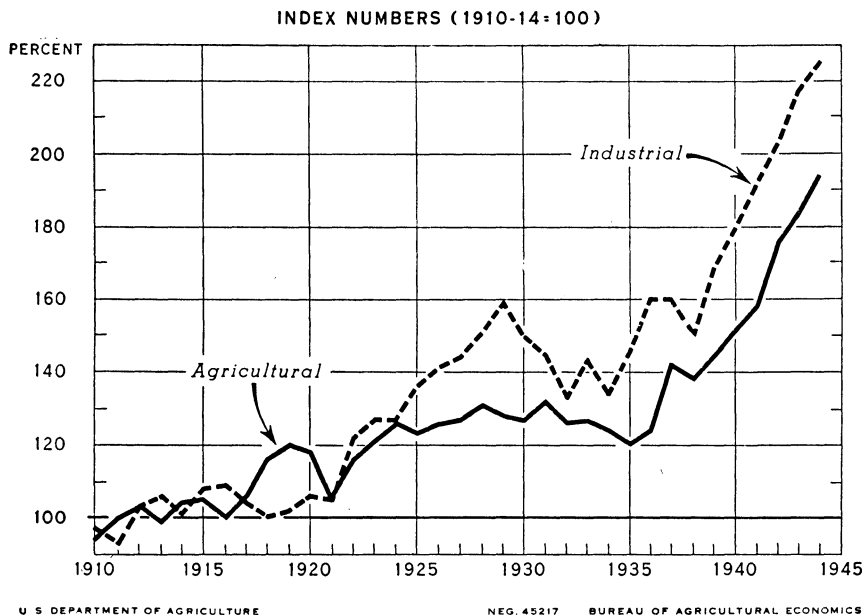


FIG. 49.—Production per worker: agricultural and industrial, United States, 1910-44.

Figure 49 shows that production per worker in agriculture has been increasing also, although at a slower rate than in industry. The rate from 1910-14 to 1940 was about 2 per cent per year. Farm "wages" (income) therefore, should have increased at the same rate—2 per cent per year.

This means that the real prices of farm products should have been maintained at a constant level, not increased. Constant real prices would have increased farmers' real wages in line with their increasing production per man.

#### RELATIVELY SLOW-MOVING AND INELASTIC DEMAND

If that were all that was involved, parity prices for farm products as a group would be a reasonable goal. That goal would insure that farmers' wages increased in line with their production.

But that is only half the picture. In determining wages, the demand for the product is as important as the supply. The physical quantities produced are only one of the factors that determine wages; the prices at which those quantities will sell are equally important.

Those prices depend upon two things—the relative increase of supply and demand (relative shifts in the supply and demand curves) for the product, and the elasticity of the demand.

Up to 1920, the demand curve for farm products in terms of population growth had been shifting to the right at about the same rate as agricultural supply in terms of production, as shown early in this book in Figure 3. The increasing income per person therefore showed up as an increasing demand for farm products, and the relative prices of those products rose, as shown in Figure 2.

Since 1920, however, except for World War II, the demand curve has been moving to the right and upwards at a slower rate than the supply curve, and relative (real) agricultural prices have been declining. And the prospects are that this relative slowing down of the demand curve will continue and become more marked in the future, for reasons given in the text accompanying Figure 3.

This relative decline in demand will have pronounced effects on agricultural prices, because of the relative inelasticity of the demand for farm products. The income elasticity for food in terms of quantities of food is only about 0.2, and in terms of expenditures for food, about 0.4. The price elasticities must be greater than these, but are probably well below unity. Thus a relative decline in the demand for farm products of  $x$  per cent will depress the prices of farm products more than  $x$  per cent, and therefore decrease total returns.

Programs designed to hold the relative prices of farm products up merely by price fixing which does not alter the fundamental conditions which cause the prices of farm products to decline, therefore, are unlikely to be successful. Their progress is limited by the fundamental inelasticity of the human stomach.

This analysis shows, however, how programs to maintain relative agricultural prices can succeed. The solution is to reduce the supply of farmers in line with the relatively slow growth of the demand for farm products, so that the total agricultural income pie will be cut into fewer pieces, and therefore into larger pieces per farmer.

This solution calls for measures which range far from the starting point—direct action to raise prices. It requires recognition of the

fundamental fact that birth rates in agriculture are nearly 50 per cent higher than necessary to maintain a stationary farm population.<sup>5</sup> The more difficult it is to move this continuing excess population off farms, and the more farmers there are on farms, the lower will income per farmer decline.

The first fundamental requisite for high income per person in agriculture, therefore, is a group of measures that will facilitate the continuous transfer of people out of agriculture and into other lines of work. This calls for equalizing educational opportunities on and off farms; for training some farm boys and girls for urban occupations; for adequate employment services, and so on. These measures will reduce the friction that retards the flow of people out of agriculture. The closer this flow can be made frictionless, the closer will per capita income on farms rise to equality or parity with per capita incomes for equal ability elsewhere in the country.

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<sup>5</sup> The net reproduction rate (a measure which indicates the extent to which a population is potentially able to reproduce itself) tells the story. In 1940, the urban net reproduction rate in the United States was 74 (a rate of 100 is required to maintain a stationary population if birth and death rates remain unchanged). The rural nonfarm rate was 114. The rural farm rate was 144. See: "Population Net Reproduction Rates by States (Preliminary)," *Sixteenth Census of the United States*, Series P-5, No. 13, 1940, p. 2.