Farm Price Supports at Cost of Production

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ANY people are concerned that the costs of production in a number of key industries, such as agriculture, will exceed the price of the product, thus destroying entire sectors of the nation's economy. This concern has been the basis for numerous public policy actions, including tariffs and import quotas to protect domestic producers from foreign competition and Government guaranteed minimum prices to producers of farm commodities.

Arguments for maintaining the prices for farm commodities at levels sufficient to cover production costs have been found among those who have had influence on farm legislation since the early 1920s. Such proponents include various Secretaries of Agriculture, major farm organizations, and a number of professional economists.[1]

The voice of proponents of such price supports has not gone unheeded. The parity price concept established in the 1933 Agricultural Adjustment Act was in itself an attempt to relate the Government guaranteed support prices on farm commodities to average costs. It provided for a higher support base if farm production costs, including interest, taxes on real estate, and commodities bought by farmers, rose. The Act, as amended in 1949, included wages paid to farm labor in the parity index for agricultural price supports.

The artificially high prices resulting from these programs led to major surplus accumulation, which in turn created demands for new legislation to control production, enhance food consumption, and provide for surplus disposal through export (subsidy) schemes. Despite major efforts to reduce surpluses through international and domestic surplus disposal programs, and the massive efforts to prevent stock accumulations through production restrictions, the value of Government owned surplus commodities exceeded $6 billion or about 20 percent of total farm product sales in the late 1950's. Furthermore, total carryover stocks, largely under CCC loan or owned outright by the CCC, of cotton, wheat and sorghum grain often exceed annual production. In the early 1970s the price for farm products rose sharply, but the support prices were not increased much. Consequently, Government stocks of farm commodities were largely liquidated and most farm production controls were removed.

More recently, however, the argument for farm price supports based on cost of production has been revised. The Food and Agriculture Act of 1977 provided for a support price (target price) for feed grains for the years 1979 through 1981 at the 1978 level of supports, adjusted for changes in costs of production. Costs of production for this purpose were defined as variable costs, machinery costs, and general overhead costs allotted to the crops involved on the basis of their proportion of the total value of production.[2]

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[1] In 1922, Secretary of Agriculture, Henry C. Wallace, wrote, "There is overproduction, so far as the producer is concerned, whenever the quantity produced cannot be marketed at a price which will cover the production costs . . ." He contended that such overproduction will drive the less efficient producers out of business, and that both farmers and consumers would benefit from more stable farm prices. See U.S. Department of Agriculture, *Yearbook 1922*, p. 4. In 1934, his son, Secretary of Agriculture, Henry A. Wallace, stated, "Agriculture must be maintained; and to maintain it the prices paid for farm products must cover the costs." Like his father, he also argued that both producers and consumers would gain in the long run from such supports. See U.S. Department of Agriculture, *Yearbook 1935*, p. 4. In the 1920s, a bill was introduced in the Senate to create a Federal export corporation which was designed to keep farm commodity prices at least up to cost of production levels. See Dan F. Hadwiger, *Federal Wheat Commodity Programs* (Ames: The Iowa State University Press, 1970), p. 100. Additional arguments for supporting farm prices at or near costs of production are found in: Orville Merton Kile, *The Farm Bureau Through Three Decades* (Baltimore: The Waverly Press, 1948), p. 199; J. A. Baker, "Supply Control: Farmers Union View," *Journal of Farm Economics* (December 1960), p. 1180; Geoffrey Shepherd, "What Should Go Into the Parity Price Formula," *Journal of Farm Economics* (May 1953), p. 171; and Rainer Schickele, *Agricultural Policy* (New York: McGraw-Hill Book Company, Inc., 1954), p. 298. Numerous proponents of price supports contend that they are necessary in order to maintain a viable industry. Such arguments imply that the level of price supports should be determined by some measure of cost of production. See, for example, John C. White, Deputy Secretary of Agriculture, "A Gamble That Has to Be Encouraged," *New York Times*, September 13, 1977. He stated: ". . . If we continue all out production of commodities in large world oversupply, the odds are against success and survival for U.S. farmers . . . ."

[2] *Food and Agricultural Act of 1977*, Conference Report, 95th Congress, 1st Session, Report No. 95-418, p. 19.

Which Cost of Production?

Those who advocate a Government guaranteed farm commodity price support program based on costs of production are first faced with the problem of determining a cost of production measure that has meaning for any specific farm or commodity. There are a number of different concepts of costs: total, average, marginal, fixed, variable, short-run, long-run, and various combinations.

While none of the proposals for basing support price levels on costs of production state the specific concept to be used, average cost would apparently be applied, given the objective of raising farm income through price supports. The difference between the price per unit sold and the average cost measures the current profit (or loss) per unit of output for the farm. Profit (or loss) per unit multiplied by the number of units sold yields the total annual profit (or loss) for the farmer. Thus, price supports based on average cost could be related to the objectives of the policymakers of increasing current farm incomes. Nevertheless, Government guaranteed prices based on any cost of production concept lead to major problems in the longer run if guaranteed prices are maintained above free market prices.

Whose Cost of Production?

A second problem encountered in basing support prices on costs of production is the question of whose cost of production is appropriate. In 1976 there were about 2.8 million farms in the United States, each having a different cost structure. While income and cost data are not available for individual farms, average realized net income to farm operators in the various sales classes indicates the diversity of production cost. For example, in the largest size category, with sales of commodities of $100,000 and over per farm, realized net income averaged $55,700 per farm operator. But, for those farms having sales of $2,500 to $4,999, average realized net income per farm operator was only $1,725.[3] It is apparent that many farms in the latter category realize little or no net income once opportunity costs (highest valued alternative use for resources) are deducted for the operator's labor and use of capital.[4] However, many farms in the larger size group apparently yield sizable returns to all re-

sources. Hence, cost of production per unit of output on larger farms is well below that of most farms in the smaller size group.

The short-run average cost of production on farms will no doubt decline as the size of farms in the smaller farm size groups increase. However, as the size of farms in the larger size groups increase, management is spread over wider areas, and the costs per unit of output will tend to level off and may even begin to increase.

The variation in the short-run average cost of production for farms results from a number of factors such as quantity and quality of various inputs, including land, labor, operating capital items, and the quality of management. For example, the quantity of land and/or equipment will vary among farms, and if there are major returns to scale, as is often the case in agriculture, the larger farm will have lower average costs than will the smaller farm.

Some Prices Profitable for Some Farms and Not Profitable for Others

Given the fact that some farms are more efficient than other farms and that the more efficient farms have lower average production costs than the less efficient, Government price supports sufficient to cover such costs on the more efficient farms might be set at relatively low levels. For example, some of the more efficient farms may be able to produce corn profitably at a price as low as $1.25 per bushel, whereas other less efficient farms may require a price of $2.50 or more to produce corn profitably. At these cost of production levels, price supports set at $1.25 will be sufficient to guarantee the profitability of corn production only on the most efficient farms.

Alternatively, price supports which guarantee a profit for the marginal producers (*no* farm failures) will guarantee above normal profits for the more efficient producers. For example, assume that the market price for corn is $1.75 per bushel and the support price is set at $2.50 per bushel, a level sufficient to cover production cost on the least efficient farm. Those farms which can produce corn profitably at $1.25 per bushel will realize profits relative to free market levels (about $1.25 per bushel), at the expense of the taxpayers and consumers. Production on these efficient farms will also tend to rise, since they now have an incentive to increase output until marginal cost rises to the new price level. Their marginal cost will increase as a result of their increased use of vari-

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[3]U.S. Department of Agriculture, *Farm Income Statistics,* Statistical Bulletin No. 576, July 1977, p. 54.

[4]The U.S. Department of Agriculture net income data represent returns to the operator's labor and equity capital. Hence, the value of these resources in alternative uses must be deducted in order to determine the profitability of the farm.

able productive factors such as fertilizer. It will pay these farmers to increase the use of such resources until marginal cost (cost of producing an additional bushel) rises to the support price level of $2.50 per bushel. Nevertheless, despite the increase in marginal costs, these farms will realize a major gain in total profits. The Government, in turn, would be faced with disposing of an even larger "surplus."

High Price Supports Lead to Greater Production, But Less Sales Than Market Prices

In addition to the fact that support prices based on cost of production can guarantee large profits to some farmers while others may still incur losses, the level of the support price has a major impact on the volume of farm production. Continuing adjustments in resources and production are made by farmers in response to price changes.

In the short run, the way in which such adjustments are made can be explained by the law of diminishing returns. This economic law states that as more units of a variable factor of production (fertilizer, for example) are applied to a fixed amount of other resources (for example, land), the *additional* production per unit of fertilizer added will eventually decline. This decline in the additional production for each additional unit of fertilizer means that the cost per *additional* unit of crop produced (i.e., marginal cost) rises.

The marginal cost and the expected price of a product determine the most profitable rate of production. For example, if the expected market price of corn is $1.75 per bushel and a farmer can produce an additional bushel of corn by adding $1.50 worth of fertilizer, he will add the additional fertilizer. He will continue to add fertilizer as long as he can increase his profit by doing so, i.e. until the cost of the fertilizer added equals the value of the additional corn produced. On the other hand, no additional fertilizer will be added once the point is reached where $1.75 worth of additional fertilizer is required to produce an additional bushel of corn. The farm's most profitable short-run production occurs at that rate of output where the marginal cost of production equals the price received for the commodity. This maximizes the farmer's total profit, since before that point is reached any additional unit produced adds to profits, and after that point any additional output is produced at a loss. Consequently, when prices are increased as a result of price support

programs, marginal revenue rises above marginal cost and farmers always find it profitable to increase production.

In addition to the effect of increasing production, support prices set above current market prices tend to reduce the quantity of products demanded *from farmers*. In general, the result is an increase in the amount of farm products supplied to the market and a decrease in the amount demanded. This difference will emerge as a "surplus" of current farm products, which the Government must absorb and store or dispose of.

But of greater consideration is the longer-run impact of support prices on exports. Higher prices faced by agricultural producers in those nations which import from the United States, and by such producers in other nations, provide incentive for increased production and decreased importation of farm products from the United States.[5] Hence, stocks of farm commodities, unwanted at the support price, will tend to build up. The United States Government can alleviate this situation by "dumping" farm products in the world market; that is, the Government can sell farm products in foreign markets at below domestic costs of production and prohibit the importing of these commodities through import quotas or tariff barriers. Some foreign governments allegedly follow such practices with respect to some nonfarm products. Several commodities, such as steel and textiles, are allegedly "dumped" on the United States market.

The market price is the only price which equates production and sales of all goods and services. While domestic production restraints, such as acreage controls, may tend to reduce the commodity accumulations which result from price supports, such controls have in the past had only limited effectiveness. Furthermore, in those cases where controls are relatively effective (for example, tobacco production), the incentive to produce larger quantities leads to overall inefficiencies in national resource use.

Higher Prices Increase Size of Farm Sector . . .

Prices which are artificially set above market prices have an important impact on national resource use.

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[5] The new farm bill contains an escape clause, similar to those in most tariff laws, which authorizes the Secretary of Agriculture to lower the loan rates when United States farm products are being priced out of world markets. However, any price support level which is above the equilibrium market price will reduce exports, to some extent, and the higher the support price is maintained, the greater will be the reduction.

Average returns to all resources used for farm production will rise as farmers bid for additional resources. More of the variable cost items will be brought into agriculture. For example, it will be profitable for farmers (in the short run at least) to increase the use of chemical fertilizer, pest and weed control agents, and improved seeds, and intensify crop cultivation.

In the longer run, farmers make continuous adjustments of all resources in response to higher prices. There is neither a unique size of farm, a unique amount of labor or machinery on farms, nor a specific number of farms, nor a specific total acreage in farms. In other words, over a longer time period all resources are variable. If corn is selling below production cost for some farmers, they will make greater adjustments in the long run of five years than in the short run of a year or less. A farmer who is producing at a loss in the long run will attempt to sell his farm and go into another occupation, or he may develop his farm into a profitable one by purchasing land from another relatively inefficient farmer. Hence, without price supports, long-term adjustments in response to growth in farm technology result in fewer (but more efficient) farms, a smaller farm labor force, and lower food costs. In contrast, the artificially high prices resulting from farm price supports in the longer run will lead to a portion of the nation's scarce resources being employed, inefficiently, in agriculture. Higher prices, resulting from price supports, will tend to increase the farm labor force and other resources. Likewise, the number of farm consolidations will be slower among marginal farmers as such farmers will tend to remain in agriculture for a longer period rather than selling out. The more efficient farmers, however, will have the incentive to bid labor and other resources away from nonfarm uses and increase farm production capacity. *Excessive* resources will thus remain in agriculture. Acreage controls may be used to reduce the land allocated to crop production but they do not reduce the incentive for using land or other resources in the industry. The free market price is the only price which assures that no waste occurs in the use of scarce resources.

But Returns to Farm Workers Unchanged

Since labor and capital can move from one sector of the economy to another, higher returns to farm labor through price support programs cannot be maintained indefinitely. If price supports are set sufficiently high to cover labor cost (opportunity cost for farm labor) on the less efficient farms, the more efficient farms will find returns from hiring extra labor increased and will employ additional workers until the value of the output produced by the last worker hired equals the cost of hiring the worker. However, once complete, this process insures that costs of farm labor (wages) will remain about the same as the cost of labor (wages) of the same quality employed elsewhere in the economy. Otherwise, further shifts in labor between the farm and nonfarm sectors would occur as workers search for those jobs which are expected to maximize their own income. Also new entries into the labor force will tend to select those occupations where their own well being is maximized, thereby tending to equalize returns to labor of equivalent quality in all sectors. Consequently, in a community where workers can move freely among the various occupations, there can be no permanent disparity in returns to workers having similar abilities.

Only by limiting employment can labor income in agriculture be maintained for a long period of time at above equilibrium levels. However, such rigid controls lead to major inefficiencies in overall resource use throughout the economy and, in addition, are a massive infringement on freedom of choice in the selection of a vocation.

The Only Long-Run Gainers Are Current Landowners

As indicated earlier, over a longer-run period of perhaps five years or more, all resources in agriculture are variable. They can be increased or decreased depending on the expected rate of return in agriculture versus other industries. Labor can readily shift to or from farming. Capital invested in farm machinery, livestock, and other capital items can likewise shift between farm and nonfarm uses as the capital items are depreciated or marketed. Land, however, represents a somewhat different type of investment, being more of a fixed investment than either farm buildings, machinery, or livestock. Also, the quantity of land relative to other forms of capital in agriculture is greater than in most other industries. Returns to much of the nation's land (opportunity cost) is, thus, largely determined by its rental value for agricultural purposes. While the effective supply of land for agricultural purposes can be augmented somewhat through the use of fertilizer, irrigation, and limited changes in its use for other purposes, the quantity available for farming is still relatively inelastic (quantity changes only a small amount with relatively large changes in

land prices) even in the long run.[6] Hence, increases in land prices which result from *permanently* higher farm profits tend to be more permanent than the higher returns on other farm resources.[7] The higher returns to land as a result of price supports thus tend to remain permanent, whereas returns to other factors of production tend toward their previous levels, about equivalent to returns on similar resources used in the nonfarm sector of the economy.[8]

Price Supports Not Necessary to Prevent Massive Farm Failures

The observed adjustments to market forces made over the years by agriculture are not consistent with the view that all farmers will suddenly go bankrupt and domestic food production will cease unless costs of production are guaranteed by the Government on all existing farms. If there were only a few farmers with the same average cost of production, and farming in the nation was at a comparative disadvantage with that in the rest of the world, it would be possible for them to all fail at the same time. Then the nation would be forced to rely exclusively on imports for food. However, in this case, well-being would still be enhanced by importing food and exporting those goods in which the nation has a comparative advantage. Neither condition, however, is applicable to the United States. This nation has more than 2.7 million farms, each of which has a unique cost of production, and, as a whole, it has a comparative advantage over other nations in the production of farm commodities.

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[6]See John E. Floyd, "The Effects of Farm Price Supports on the Returns to Land and Labor in Agriculture," *Journal of Political Economy* (February-December 1965), pp. 152-55.

[7]A reduction in crop acreage resulting from Government acreage control programs will have a similar impact on returns to land since any reduction in acreage cropped will result in higher returns to the remaining acres.

[8]For a detailed discussion of this subject, see D. Gale Johnson, *Farm Commodity Programs: An Opportunity for Change* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1973), pp. 51-63. Johnson reports, "Since a very large fraction, if not all, of the net benefits from commodity programs go to land, the percentage of farm real estate that is owned by farm operators is of some interest . . . perhaps as much as 40 percent of net benefits accruing to land goes to landowners who do not farm the land they own."

Floyd found "that most of the benefits (from the price support and acreage control programs) will take the form of a windfall gain, either an increase in the value of land or the receipt of marketing certificates issued by the government and having a commercial value, and that the gain is once and for all." Floyd, p. 158.

Similar results were found in a study by Earl O. Heady, Edwin O. Haroldsen, Leo V. Mayer, and Luther G. Tweeten, in *Roots of the Farm Problem* (Ames, Iowa: The Iowa State University Press, 1965), p. 66.

Its relative advantage is indicated by the fact that about 30 percent of the nation's farm production is exported.

Since average cost of production per unit varies widely among the numerous farms in the nation, some farmers will be making profits in a free market setting, while others will take losses at all likely prices for farm products. Only the marginal (least profitable) ones will cease production in any year, however, and find other uses for their resources. As marginal producers leave the industry, the supply of farm products will tend to decline. The decline in supply will tend to increase the price and the profit level to the remaining producers. Consequently, the larger the number of failures in any given year the greater will be the profits in succeeding years for those producers remaining in agriculture. Hence, the system is self-adjusting *if left alone*. Consumers thus have no need to fear from the possibility of massive failure in farm production resulting from free market forces.

Some Failures — Expected in Growing Economy

Much of the support for Government farm programs no doubt reflects the benevolent concern of the American public for the relatively large number of low-income farm families. Failure in agriculture by such families is often envisioned as a catastrophe. No farm nor business failure is desirable for its own sake since it is associated with personal costs and losses. But, there is little that the commodity supply-control and price-support programs can do to prevent failures by the low-income farm group. They own little land and it is the existing landowners who receive the major benefits from farm price-support programs. Hence, the economic status of the low-income farm families is little improved.

Furthermore, there is a social cost in preventing failure that should be weighed against the losses from failure. As indicated earlier, farms, like other businesses, can misuse labor, land, capital, and other factor inputs. Unless some failures are permitted, such misuse will continue, and the resources will not be available to other sectors of the economy, where they could be used more efficiently.

The various sectors of the economy grow at different rates — some at a high rate, some more slowly and some not at all. If no failure is permitted by assuring market returns to all resources, growth in the faster growing sectors of the economy will be retarded because of lack of resources. Thus, programs which

tend to support farm prices at production cost and freeze the resources in farming at their current levels are not compatible with maximum economic growth or well-being. Hence, the cost to society of preventing failure may be much greater than the hardships of the relatively small number of failures which result from price competition in the market place; and if we wish to ameliorate the hardships, it can be done by more efficient means than by subsidies to all farms. Examples are Government grants and loans for retraining and relocation of farmers and farm workers.

SUMMARY

Arguments have been made for Government farm price supports based on cost of production. Some of the arguments are based on the alleged possibility of massive failure and loss of production in the industry. The arguments fail to specify which cost or whose cost of production should determine the level of supports.

There are several different concepts of cost of production. Possibly the most widely understood concept is average cost. But there are more than two million farms in the nation, each with a different average cost. Hence, any likely level of price support selected for a farm commodity will be above average cost for some farms and below average cost for all others.

Consequently, any farm price-support level which may be selected contains all the handicaps of all other price-support schemes. Any level of price supports which is above market levels for a commodity will tend to increase output and raise marginal costs of production. Hence, the price supports themselves, if effective in raising prices, stimulate the production of "surplus" commodities, and result in higher food costs, reduced farm commodity exports, and higher taxes to cover the higher Government outlays.

In addition, the supports cause inefficiencies in both the farm and the nonfarm sectors of the economy and fail to achieve the objectives of the program. They lead to excessive resources in agriculture which reduces the quantity of resources available to the nonfarm sector of the economy. Consequently, there is less production of nonfarm goods. But of greater importance, the higher prices are of little benefit to farm labor and low-income farm families, major objectives of the program. Most of the gains accrue to existing landowners.

Furthermore, the supports are not necessary to prevent massive failures. The system of market prices is self-correcting, as failures tend to reduce the overall supply, increase the price of farm products, and improve the profitability of the remaining farms. Some failures and some temporarily high profits are to be expected in a competitive economy. They indicate that resources are moving toward their most efficient uses.