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The Comparative Cost of Price Supports and Direct Payments

Would a direct-payment program cost more, or less, than price supports?

In answering this question, we need to consider:

1. The cost to the government of the payments it makes for price-supporting purposes or for direct payments to farmers. These payments come sooner or later out of taxes.
2. The cost to consumers of the product.
3. What do consumers get for their money?

We will consider these three items in turn.

ANALYSIS OF COST DISTRIBUTION

Cost to Government

With a given size crop (i.e., with the supply fixed) the only way to support the price above open-market levels is to increase the demand for the crop. Something can be done along these lines by advertising, merchandising, etc., but not much. The results are limited by the fundamental inelasticity of the human stomach, plus the inelasticity of the human pocketbook. If we eat more cranberries, we eat less of some other fruit; if we eat more potatoes, we eat less bread and rice, and so on.

Beyond those rather narrow limits, the government can step in and increase the demand by buying up enough of the product to raise the price to the support level. Then the government has to decide how to dispose of its purchases without sending the price down below support levels again. It can give the product away
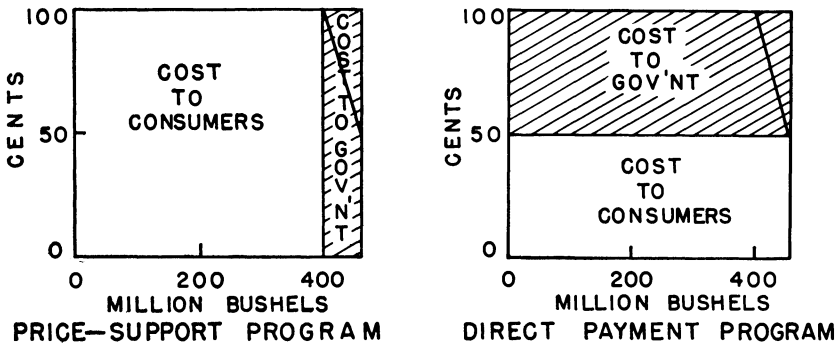
Fig. 16.1 — Costs of a price-support program and of a direct-payment program.

(provided it can figure out how to do this without weakening the demand for the rest of the product on the regular market), or divert it to lower uses, or destroy it.

Our discussion will be most clear cut if we take one or two crops as specific illustrations. Potatoes are one good example. We will use round numbers and the simplest arithmetic, so we can follow it easily.

We will take 400 million bushels as the basic or average potato production, and $1 per bushel as the basic or average farm price. The average crop at the average price, then, would be worth $400 million.

COST OF PRICE SUPPORTS

A price-support program would require the USDA to buy up the excess over average. For a crop 15 per cent over average, the excess would be 60 million bushels. That would cost $60 million of tax money. This is shown in the left-hand section of Figure 16.1.

The USDA can destroy most of its potatoes, or divert most of them to lower uses, as it did when it bought nearly 30 per cent of the big 1948 crop. The costs of diversion were so great that the government lost 87 per cent of the gross cost of the potatoes.[1]

COST OF DIRECT PAYMENTS

Now we can compute the cost of direct payments. The figure needed here is the elasticity of the demand for potatoes — the responsiveness of potato consumption to changes in price. Statistical

[1] "Irish Potatoes Price Support and Related Operations," CCC and Section 32 Funds, Jan. 1, 1943 — Dec. 31, 1949, PMS — Fiscal Branch, Financial Analysis Division, USDA, PMA, p. 18.

analysis shows that this elasticity of the demand for potatoes is about 0.3. That is, in percentage terms, the price changes about 3⅓ as much as the production changes. A 15 per cent larger-than-average crop, therefore, would push the price of potatoes down to 50 cents, as shown in the right-hand section of Figure 16.1.

The USDA then would make up the difference—50 cents—by direct payments on the whole crop. That would cost $230 million of taxpayers' money—$170 million more than the $60 million cost of the price-support program.

Cost of Potatoes to Consumers

But this is only the first step. The cost of potatoes to consumers must also be taken into account. What would the cost of potatoes be under the two programs?

We will figure this out the simplest way first, for clarity, leaving out the cost of distribution. Then we will bring in the costs of distribution, for completeness.

With the price-support program, consumers would buy 400 million bushels of potatoes at $1 a bushel — a cost of $400 million. The government would buy 60 million bushels, also at $1 a bushel, which would cost $60 million of taxpayers' money. The total cost therefore would be $400 million plus $60 million, amounting to a total of $460 million. This is shown in the left-hand section of Figure 16.1.

With the direct-payment program, consumers would buy 460 million bushels of potatoes at 50 cents a bushel, that would cost $230 million. The government would make direct payments of 50 cents a bushel. That would cost $230 million. The total cost therefore would be $230 million plus $230 million, amounting to $460 million. This is shown in the right-hand section of Figure 16.1. The whole thing is summarized in Table 16.1.

TABLE 16.1
Costs of Price Supports and Direct Payments*

	Price Supports	Direct Payments
Cost to government.........	60 bu. @ $1 = $ 60	460 bu. @ 50c = $230
Cost to consumers.........	400 bu. @ $1 = 400	460 bu. @ 50c = 230
Total cost...............	$460	$460

* Data are expressed in millions.

The total areas in the two sections of Figure 16.1 are the same. Potato growers get $460 million in either case. They get more of their money from taxpayers, and less from pototo consumers, under the direct-payment program than under the price-support program. But the two plans cost the same. And this is true, as a general rule, whatever the elasticity of the demand.

A further general rule follows: For any crop where the demand is less elastic than 1.0, the tax cost for the direct-payment program is more than for the price-support program. The opposite is true for crops where the demand is more elastic than 1.0. But in all cases the total cost—taxes plus cost of potatoes—is the same under one plan as under the other.

There is, however, some difference in who would foot the bill. Our income taxes are progressive. Wealthy people pay a larger slice of their income as taxes than poor people. We have seen that more of the cost of a direct-payment program comes out of tax money than with a price-support program. Thus, the upper-income group of people would pay a larger share of the $230 million under a direct-payment program than if we had a price-support program.

What Consumers Get for Their Money

This is not the whole of the matter, yet. A third item must be considered—what consumers get for their money.

Under the direct-payment program, consumers would have 60 million bushels of potatoes to eat which they would not have under the price-support program. Now, 60 million bushels of 50-cent potatoes come to $30 million. This would be a net benefit, a clear gain, above what they would get under the price-support program. For the more goods and services we consume, the higher is our standard of living. In terms of the general welfare, then, the country would be $30 million better off under a direct-payment program than under a price-support program.

The producers of other foods than potatoes, however, would be harmed to some extent. As consumers ate 60 million bushels more potatoes, that would reduce their demand for other foods. The prices of those other foods would decline.

This decline in prices would reduce the gross and net incomes of the producers of those foods, because the demand for food is inelastic; the decline in prices would be greater, in percentage terms, than the increase in quantity of food consumed.

TABLE 16.2
Costs of Price Supports and Direct Payments*

	Price Supports	Direct Payments
Cost to government........	60 bu. @ $1 = $ 60	460 bu. @ $0.50 = $230
Cost to consumers.........	400 bu. @ $2 = 300	460 bu. @ $1.50 = 690
Total cost...............	$860	$920

* Data are expressed in millions.

COSTS OF DISTRIBUTION

When the costs of distribution are brought into account, the results come out the same as above, if we assume that costs of distribution remain unchanged.

On the average, potato producers get only half of the consumer's dollar. The distributor gets the other half.

The consumer, therefore, when the farm price of potatoes was $1 a bushel, would be paying $2 a bushel. That means that under the price-support program, consumers would pay $800 million for the 400 million bushels they could buy.

Under the direct-payment program, consumers would pay $1.50 a bushel (50 cents plus the costs of distribution, which would remain practically constant from year to year at $1 a bushel). The comparative cost of the two programs then would be as shown in Table 16.2.

The direct-payment plan would therefore cost $920 — $860 = $60 million more than the price-support program. This extra $60 million goes to the distributors for handling the 60 million bushels of potatoes.

In effect, consumers get 60 million bushels of potatoes for their $60 million. These 60 million bushels are worth $1.50 a bushel. Their total value is $90 million. But the direct-support program costs $60 million more than the price-support program. The net gain to the country as a whole therefore would be $90 million — $60 million = $30 million.[2] This figure is the same as the one

[2] Actually, the costs of distribution vary to some extent with the level of prices, since some of the mosts (the markups, for instance) run in percentage terms. To the extent that the costs of distribution vary, consumers gain somewhat more than they do in the illustration given above. But we don't know just how much more they would gain. Until we do know, for simplicity and definiteness we will stick to our $30 million as the monetary measure of the net gain to consumers from the direct-payment program.

obtained above, before the costs of distribution were taken into account.

RELATIVE SIZE OF GOVERNMENT PAYMENTS

Figure 16.1 shows that a moderately large crop, 15 per cent over average size, is enough to depress prices 50 per cent below average levels. The government payments then would be as great as the market value of the entire crop. This is a big order.

It makes two things clear. First, the "support" level (the level of prices below which payments will be made) should be set no higher than the level that would move an average crop into consumption. If it were set higher than this, the goverment payments would be greater than the market value of the entire crop. In terms of our example, if it were set say at $1.50, the government payments would be twice as great as the market value of the entire crop.

Second, it would be better all around to let the "support" level vary inversely and proportionately with the size of the crop. This would stabilize potato producers' gross returns. It would also reduce the size of the government payments in big crop years. In terms of our example, it would reduce them from 50 cents a bushel to 33.3 cents, a reduction of one-third.

GENERAL PRINCIPLES REVEALED

Several principles, therefore, may now be stated:
1. The cost to the government for purchases to support prices is less than the cost to the government for direct payments to producers, when the demand is less elastic than 1.0. The opposite is true when the demand is more elastic than 1.0.
2. The total cost (the cost of the product to consumers plus the cost of the government purchases or payments) always comes out exactly the same under one plan as under the other, no matter what the elasticity of demand.
3. The price-support program is regressive in two ways, when the demand is less elastic than unity. Less of the total cost is paid out of taxes (chiefly income taxes, which are progressive) and more is paid by consumers, at prices which proportionately (in relation to incomes) are regressive.
4. Under the price-support program, some of the product is diverted to lower uses, or destroyed, in order to keep prices up. Under the direct-payment program, all the crop is consumed. This adds to our standard of living.

DIRECT EFFECT ON TOTAL GROSS FARM INCOME

Under the direct-payment program, consumers get to eat all the potatoes. They eat the 60 million bushels that would be destroyed under the price-support program. What effect would that have on the demand for other food and therefore on total farm incomes?

One might suppose that most consumers in the United States eat about all they can, all the time. If that supposition were correct, the per capita consumption of food would remain constant from year to year; and when consumers ate more potatoes, they would eat correspondingly less of other foods.

But the supposition is not correct. Consumption statistics show that the per capita consumption of food varies considerably from year to year. The index of the per capita consumption of food in the United States (base 1950 = 100) varied from 98.2 in 1951 to 104.1 in 1967.[3]

This variation in consumption is closely associated with variation in income. Apparently, consumers eat more when they have more money to spend. But this is not a complete statement. Consumers can eat no more food than farmers produce, no matter how much money they have; and farmers sell no less than they produce, except when receipts will not cover even the direct harvesting and shipping costs. These cases are exceptional; otherwise farmers would not incur the overhead costs and costs of planting and cultivating the crop in the first place.[4]

In a direct sense, therefore, income does not determine average per capita consumption: production determines consumption.

A more complete statement requires two or three steps:

1. Income determines how much consumers will pay for food.
2. That payment is one thing that determines how much food farmers will produce.
3. That production determines how much food consumers can eat.

Food production varies in response to weather as well as to consumers' income. With a given national income, when we have good weather and good crops and therefore an abundant supply of food, we eat it all, the same as when we have a higher national income. But we do so at a lower price.

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[3] "Handbook of Agricultural Charts, 1967," Agr. Handbook No. 348, Oct., 1967, p. 30.

[4] In the short run, this applies only to perishable crops; but in the long run, all crops are perishable.

The price elasticity of the demand for food at retail (based on food prices in relation to nonfood prices) appears to be about —0.3.[5]

The corresponding elasticity of the demand for food at the farm (based on farm prices) must be less than this, because of the relative inflexibility of distributors' margins. If distributors' margins were absolutely inflexible, and the margins took half of the consumers' dollar, the corresponding elasticity of the demand for food at the farm would be just half the elasticity at retail given above, namely —0.15. If distributors' margins were as flexible as retail prices, the elasticity at the farm would be the same as at retail, namely —0.3. Actually, distributors' margins are about half-way between these two degrees of flexibility,[6] so the elasticity of the demand for food at the farm would be about halfway between —0.15 and —0.3, namely about —0.2.

Now we can give an answer to the question we raised at the outset: What effect would the increased consumption of potatoes have on the demand for other foods and therefore on total farm income? It would reduce the demand for other foods. The effect on farm income can be computed as follows:

The per capita consumption of food at retail weights runs about 1,500 pounds a year.[7] The extra 60 million bushels of potatoes that consumers would eat, under the direct-payment plan, would amount to 3,600 million pounds, equal to 20 pounds per capita. If potatoes have about the same food value per pound as the average of other food, this 20 pounds of potatoes would amount to 1.3 per cent of the per capita total consumption of food. This addition of 1.3 per cent to the total supply would reduce prices at the farm

$$\frac{1.3}{0.2} = 6 \text{ per cent} — \text{that is, to 94 per cent of their previous level.}$$

If the previous production and price each are taken as 100, and the total value as $100 \times 100 = 10,000$, then the 101.3 per cent supply at the 94 per cent price would have a total value of 9,522. This is a reduction in total value of 4.8 per cent; for our purposes, this could be rounded off at 5 per cent, in order to keep the arithmetic simple enough so that it can be followed easily.

The total cash agricultural income in the United States in re-

[5] Willard W. Cochrane, "Farm Price Gyrations — An Aggregative Hypothesis," *Journal of Farm Economics*, Vol. 29, No. 2, pp. 383–408.

[6] Richard O. Been, "Price Spreads Between Farmers and Consumers," USDA Agr. Inf. Bul. 4, Nov., 1949, p. 7.

[7] "Supplement for 1960 to Consumption of Food in the United States, 1909–52," ERS, USDA, 1961, p. 452.

cent years has run close to $40 billion. Not all of this, of course, comes from the sale of food. About $2.5 billion comes from the sale of cotton and wool, another $3 billion from the sale of feed crops, $1 billion from tobacco, and about $1.5 billion from that part of the oil-bearing crops not used for food, plus miscellaneous crops. That leaves about $32 billion as income from the sale of food.

A reduction of 5 per cent of this $32 billion would amount to $1.6 billion. The extra consumption of 60 million bushels of potatoes, therefore, would reduce total farm income about $1.6 billion, if potatoes have the same food value per pound as the value of other food.

If potatoes have less value than this, the reduction in farm income would be less. For example, if potatoes had only two-thirds as much food value per pound as other food, the reduction in farm income would be $1.2 billion. Thus, under either of these rough but reasonable assumptions, the reduction would be more than a billion dollars. This reduction results from the inelasticity of the demand for food.

Thus the direct-payments plan for potatoes would increase gross incomes (from sales plus direct payments) for potato producers, but decrease the gross incomes of other producers, because the entire potato crop would be consumed and the total supply of potatoes would be included along with other farm products in the total supply of farm products. This would depress the prices of farm products, thus decreasing gross farm income, because the demand for farm products is inelastic.

The point needs to be emphasized, however, that these are the effects of direct payments compared with supporting prices *and destroying the quantities that cannot be sold at the supported prices.* This policy actually was followed with potatoes by the USDA in 1948. But the public revulsion against producing potatoes and then destroying them was so great that the whole program was abandoned, and has not been tried since. It is not likely to be tried again in the future.

If some use is made of the portion of the crop that is withheld in a price-support program, such as storage and return to the market in a later year when the crop is short, then the effects of the program are more nearly similar to the effects of a direct-payment program. The difference then is that market supplies are smoothed out, and the government foots the bill for storage.

ADVANTAGES AND DISADVANTAGES OF DIRECT PAYMENTS

The great *advantage* of direct commodity payments is that they leave prices to seek their own equilibrium level in the market place. This has three effects:

1. It keeps products moving through into consumption. This frees the federal government from the costs involved in trying to support prices by purchase and storage operations.
2. It reduces food costs to consumers.
3. It reduces or eliminates the need for costly subsidies designed to move exports into foreign markets—subsidies which in many cases are offset by countervailing duties imposed by foreign governments, so that our subsidies in effect are simply piped from our treasury into theirs.

In these respects, direct payments make more economic sense than purchase and storage operations.

The great *disadvantage* of direct payments is that they only "cure" the symptoms; they leave the basic disease to run on unchecked, or actually made worse. If the low incomes are caused by an excessive number of farmers dividing up the total income pie, then direct payments to farmers will not reduce the numbers of farmers; they are more likely to increase them. When the basic disease is a maladjustment of productive resources, direct payments tend to perpetuate the disease, not to cure it. In this respect direct payments are no better than price supports.

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ANALYSIS OF PARITY PRICES