UNFREEZING PROGRAM PAYMENT YIELDS:
Consequences and Alternatives

by Thomas W. Hertel,
Marinos E. Tsigas,
and Paul V. Preckel

“A Program” yields for individual farmers are utilized in determining the amount of deficiency payments individual farmers receive. They have been frozen since the 1985 Food Security Act (FSA). However, some farm groups are pressing for unfreezing these yields so that actual yields could be substituted for the program yields when the actual yields are higher. This change would indeed lead to higher deficiency payments. However, it would also stimulate increased fertilizer and pesticide use ultimately resulting in lower net returns to producers. A preferable approach would be to index upward all producer program yields by the same amount.

A critical question for agricultural policymakers is whether current yields of grains and cotton should be utilized to adjust program payment yields, and hence the amount of deficiency payments which producers receive. To many, this may sound like a small detail which should be left to the discretion of those who draft the 1990 Farm Bill. On the contrary, it is too important to be decided behind closed doors—or in last-minute negotiations. In fact, how this question is resolved will have important impacts on pesticide and fertilizer use on farms, environmental quality, farm production and U.S. farm exports, and ultimately, on net incomes of farmers.

The sheer size of deficiency payments in recent years has led many economists to hypothesize that these payments cause “distorted” patterns of production, whereby farmers produce for the government programs instead of for the marketplace. These distortions enter in two ways: (a) through the misallocation of acreage, and (b) through the excessive levels of variable input usage. The Administration’s proposed 1990 Farm Bill would remove the first distortion by introducing planting “flexibility” whereby the deficiency payments are made independently of the program crop produced. The second type of potential distortion caused by deficiency payments however, depends critically on the way in which program yields are adjusted over time.

Variable Input Use and Program Yields

Prior to the 1985 Food Security Act, program payment yields were systematically adjusted to reflect actual yields. In particular, program yields were calculated as the average of proven yields over the last five years, omitting the high and low years. (Producers who did not “prove” yields were assigned a yield for their farm based on the county average in that year.) Thus, there was incentive for many farmers to boost variable input usage, establish higher ASCS yields and hence raise future deficiency payments. The magnitude of this incentive depended, of course, on the size of the discrepancy between target and market prices. As expected deficiency payments rose, so did the tendency to produce for the government instead of for the market.

In an attempt to sever this link between variable input use and deficiency payments (as well as reduce future budgetary exposure), the Food Security Act of 1985 froze program payment yields at their 1981-85 average. This freeze was temporary (2 years). However, the Secretary of Agriculture chose to leave it in place for the remainder of the FSA 1985. Furthermore, the Administration has proposed to make this freeze a permanent feature of the 1990 legislation. By contrast, many farm groups have expressed an interest in unfreezing program yields under the new farm bill, so that farmers can individually demonstrate (where profitable) that they have higher yields and that therefore their deficiency payments should be higher.

The problem with unfreezing program payment yields is that this change would reestablish the link between target price and variable input usage. Depending on the expected discrepancy between the target and market prices, this effect can be quite significant. For example, based on a hypothetical 1991 crop year for wheat, with an expected deficiency payment of $0.90/bushel, we estimate that the permanent unfreezing of program yields would raise overall variable input usage by 8 percent (table). This increase in use of fertilizer and other inputs in turn increases production by 4 percent, and lowers market prices.

The remarkable thing is that net returns fall, both for participants and for nonparticipants! In their effort to prove higher yields, participants as a group raise variable expenses more than the sum of deficiency payments and market revenues, thus causing net returns to fall. Nonparticipants suffer from the lower market prices which are a direct result of participants’ attempts to prove higher yields. In short, unfreezing program yields may not be as attractive an option as producer groups perceive it to be.

Alternatives to the Freeze

Are there preferable alternatives for adjusting program yields, should Congress choose to do so? (It should be pointed out that if program yields are increased, regardless of how this is accomplished, it may be necessary to lower target prices in order to stay within the constraints of the overall farm program budget.)

Because the intensification problem stems from altering farmers’ perceived incentive price, a preferable alternative would be one which preserves the market price as the relevant decision variable for program participants. What if the frozen, 1981-85 yields were simply adjusted upwards (indexed) by a common factor based on independent estimates of the intervening increase in potential yields at either the national, state or county level? In this situation, relative levels of program yields remain frozen, and individual producers have nothing to gain by proving yields that are higher than would be justified by the market price. Thus, participants’ variable expenses do not increase and the market price is not depressed by actions of farmers to increase yields in order to receive higher deficiency payments.

In order to compare this indexation alternative with the unfreezing option, we have placed the two on an “equal deficiency payments” basis. That is, program yields are indexed upwards to achieve the same change in deficiency payments as occurred when yields were unfrozen. The difference between the effects of these alternatives is striking. Indexation results in variable input...
usage which is 8 percent lower and net returns which are 16 percent higher than in the unfreezing case. Output and exports are also lower (-4 percent and -6 percent) under the indexation alternative.

The indexation concept could even be extended to address concerns about the horizontal inequities caused by the current pattern of frozen yields. While nationwide program yields could be raised by 10 percent, for example, the distribution of this increase across individual farms could be adjusted in an attempt to equalize yields for farms of equal capacity. However, such adjustments must be based on characteristics beyond the farmer’s control, such as soil characteristics. Otherwise one risks reestablishing the link between deficiency payments and variable input use. That would rapidly dilute the benefits to be gained from indexation.

In sum, there is little doubt that, should Congress seek to raise program yields, the indexation alternative is preferable from the point of view of producers. Added to this are the environmental benefits from lower rates of fertilizer and pesticide application. Finally, the indexation alternative permits program yields to be adjusted without increasing exports of grains. This is an important consideration at this juncture in the international trade negotiations. Any sign of the U.S. reestablishing a close link between deficiency payments and output could be viewed as an indication that we are not really serious about reforming world agricultural trade.

Effects of unanticipated, permanent unfreezing of program payment yields for wheat.

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<thead>
<tr>
<th>Effect</th>
<th>Effect</th>
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<tbody>
<tr>
<td>Fertilizer and chemical use on wheat</td>
<td>up +8 percent</td>
</tr>
<tr>
<td>Wheat production</td>
<td>up +4 percent</td>
</tr>
<tr>
<td>Wheat exports</td>
<td>up +6 percent</td>
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<tr>
<td>Wheat producer returns net of variable costs</td>
<td>down -12 percent</td>
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For more information the reader is referred to “An Economic Analysis of the Freeze on Program Yields,” by Thomas Hertel, Marinos Tsigas, and Paul Preckel, Staff Paper, Resources and Technology Division, ERS, USDA.

The Perfect Fit!


EVENT: AAEA Annual Meeting – Vancouver
       University of British Columbia Conference Centre
DATES: August 4 12:00 p.m. – 5:00 p.m.
       August 5-7 8:00 a.m. – 5:00 p.m.
       August 8 8:00 a.m. – noon