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Economic Aspects of Revenue-Based Commodity Support

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Traditional commodity support, in the form of countercyclical payments and marketing loan benefits, pays producers when prices fall below specified levels, but does not compensate them for yield losses. Congress provides disaster assistance, or compensation for shortfalls in yield, only on an ad hoc basis. Providing price and yield compensation in separate programs means that producers may receive support when they do not need it, or not receive support when they do need it. An alternative to separate price- and yield-based support programs would be to determine a national or regional payment rate based on shortfalls in revenue from an expected or target revenue.

What Is the Issue?

Using revenue as the basis for commodity program payments may be more efficient than a price- or yield-based program in reducing financial risk because of the inverse correlation between yields and prices. For example, a farmer who suffers a complete yield loss will not receive a payment under a price-based program. Widespread yield losses can boost prices above price program trigger levels, providing little or no assistance when producers have little production to market. Conversely, high yields, by increasing supply, can cause crop prices to fall, triggering payments to producers even though production and, potentially, revenue are high. Interest in revenue-based commodity support is evident in the Food, Conservation and Energy Act of 2008 (the 2008 Farm Bill), which offers eligible producers the option to participate in the Average Crop Revenue Election (ACRE) program.

What Did the Study Find?

To investigate the policy implications of revenue support programs, this report compares the distribution of support payments for corn under a traditional-style program scenario (price-based payments and yield-based disaster payments) versus two theoretical revenue-based program scenarios, one based on revenue shortfalls with respect to a target revenue and one based on shortfalls with respect to an expected market revenue.

Under traditional price-based programs—market loan benefits or countercyclical payments—payments are triggered when market prices fall below statutory price floor (loan rates and target prices). These prices are fixed for the life of the Farm Act legislation. The target revenue scenario extends this approach whereby the revenue floor is expected yield times a fixed statutory price. In contrast, the revenue floor in the market revenue program is expected yield times the expected price at harvest time, where the expected price changes from year to year as dictated by market conditions.

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For the computer simulations, commodity program parameters were chosen so that the expected value of total national payments is the same across price- and revenue-based programs. Hence, from a national perspective (e.g., the taxpayer), the programs differ only in the variability (or volatility) of payments and in differing probabilities of making any particular level of payments.

Both types of revenue-based program scenarios offer the potential for less variable payment outlays from year to year (benefiting the government) and less variability in farm revenue (benefiting the producer) than current approaches. Computer simulations also suggest that both revenue-based schemes result in a lower likelihood of high payments or overcompensation. These results suggest that revenue-based support would reduce budgetary uncertainty for the Federal Government and better ensure that agricultural support outlays stay below a predetermined ceiling, as required under some multilateral trade commitments.

In addition, the computer simulations suggest that variability of corn revenue (the coefficient of variation) is lower in almost all corn producing counties under the revenue-based alternatives than under the traditional price-based approaches. The reduction in revenue volatility was most pronounced in the Corn Belt counties.

Finally, whether farmers prefer one type of support program over another depends on its impact on mean revenue and the variability of revenue. While revenue-based support scenarios generally reduced the downside risk of farming more than did current-style support, farmer preferences for type of support would depend on their preferences for increasing mean returns versus decreasing the variability of returns.

How Was the Study Conducted?

To investigate the policy implications of revenue support programs, this report compares the statistical distribution of payments from hypothetical revenue-based programs to those from a suite of programs similar to the traditional set of commodity support programs. While probability-based program analysis, as used in legally required government cost estimates, summarizes the distribution of program costs into mean estimates, other summary statistics—such as the variance and skewness (shape) of the distribution—are useful too. The estimated payment distributions have implications both for government policy and for farm-level benefits. Actual program payments are sensitive to a broad array of program provisions, and seemingly small changes in these can cause large changes in payment levels. Hence, to make the support programs comparable, the study's program scenarios were designed to differ only in the fundamental program provisions.