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Marketing Loan Rates and Acreage Responses

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Commodity loans are one of the major domestic farm support programs in the United States. They have existed in various forms since the 1930s. Primarily covering major field crops, these programs have addressed different policy goals over time, including price and income support, price stability, and short-term financing.

Beginning in the mid-1980s, commodity loan programs for major field crops added marketing loans to existing nonrecourse loan provisions. Marketing loans began in 1986 for rice and cotton, in 1991 for soybeans and other oilseeds, and in 1993 for wheat and feed grains. Marketing loans no longer provide price support or price stability; however, the loan program continues to provide short-term liquidity to farmers and income support when market prices are low.

This article analyzes potential effects on commodity markets of fixing loan rates in the 2002 Farm Act compared to basing loan rates on past market prices. The marketing loan program is first summarized, followed by discussion of an acreage response model that includes marketing loan benefits when applicable. Simulated plantings of major field crops then are presented under alternative loan rate scenarios.

Overview of Marketing Loans

The 2002 Farm Act governs U.S. agricultural programs through 2007. Marketing loan provisions were continued under the new law. However, in contrast to previous legislation, commodity loan rates for each year are specified in the 2002 Farm Act, thereby eliminating discretionary authority provided to the Secretary of Agriculture by the 1996 Farm Act and earlier legislation for setting loan rates using market-price-based formulas.

Discretionary authority in setting loan rates was used during 1986-95. Market-price-based formulas were used under the 1996 Farm Act only in setting the 1996 loan rate for soybeans. Eliminating discretionary authority for setting loan rates is potentially important if commodity prices fall to low levels during the years covered by the 2002 Farm Act. Zulauf and Wright (2001) noted for 2000 and 2001—years when formula loan rates were not used—that "the marketing loan rate structure is beginning to drive planting decisions. The result is policy-induced inefficiency." They indicate that "inflexible policies only heighten problems by delaying needed adjustments," and conclude "annual adjustment of marketing loan rates based on changes in market prices... could address this problem."

Loan rates in the 2002 Farm Act were established annually through 2007 at designated levels. Rates were raised for most crops covered under the previous legislation, except for reduced rates on soybeans and unchanged rates for rice. New marketing loan provisions were included for peanuts, wool, mohair, dry edible peas, lentils, and small chickpeas. Additionally, the U.S. Department of Agriculture (USDA) introduced different loan rates for five classes of wheat.

These loans benefit producers of eligible commodities through loan deficiency payments and marketing loan gains when market prices are low. Marketing loans also reduce revenue risk due to price variability.

Farmers may receive a loan from the government at a commodity-specific loan rate by pledging as collateral their production of the commodity. They may repay the loan at a lower repayment rate during the loan period whenever market prices are

Acreage Response Modeling System

To assess the implications of fixing loan rates in the 2002 Farm Act, a USDA-ERS model was used to simulate planting choices of farmers under the loan rate alternatives. The model covers eight major field crops and uses expected net returns to estimate acreage allocations among crops.

The model incorporates a modified version of the estimated elasticities from Lin et al. (2000). According to that study, full planting flexibility under the 1996 Farm Act and subsequent farm legislation allowed a greater responsiveness of plantings to market prices than in the past. Nonetheless, despite the increases in own-price and cross-price responsiveness of planting decisions, individual responses have partly offsetting effects on aggregate acreage responsiveness, keeping it relatively small.

Marketing loans add to farmers' returns in the acreage response model when crop prices are low. Historically, marketing loans have enabled farmers, on average, to attain per-unit revenues above the loan rate. Many farmers use a two-step marketing procedure: They receive program benefits when prices are seasonally low and then sell their crop later when prices have risen (Westcott & Price, 2001). The resulting "marketing loan bonus" increased average revenues for corn to about $0.20 a bushel above the loan rate in 2000 and 2001. Marketing loans thus provide a floor for farmers' expectations of per-unit revenues in subsequent years that exceeds the loan rate. This policy effect is represented in the model by defining the producer incentive price as the higher of the lagged market price or the current loan rate augmented by the additional marketing-loan-facilitated per-unit revenue.

below the loan rate, resulting in a marketing loan gain to farmers. Alternatively, farmers of commodities covered by the loan programs (except extra-long staple cotton) may choose to receive marketing loan benefits through direct loan deficiency payments (LDP). The LDP rate is equivalent to the marketing loan gain that farmers could obtain for production placed under loan (Westcott & Price, 2001).

Marketing loans are available on all current production of eligible commodities, with benefits depending on market prices. These links of program benefits to output and prices make marketing loans a fully coupled agricultural program.

Marketing Loan Impacts Under Alternative Loan Rates

Under the 1996 Farm Act, loan rates for corn, wheat, soybeans, and upland cotton could be set using 85% of a five-year "olympic" average of farm-level prices (omitting the highest price and the lowest price from the average). Legislated maximums were specified for these crops, with minimums specified for upland cotton and soybeans. The acreage effects of this price-averaging method of setting loan rates can be compared to those of the fixed-rate approach.

Table 1. Alternative loan rate assumptions, 2001 market conditions.

Crop	2002 act loan rates for 2002 & 2003 ($/bu)	Loan rates using 1996 act formulas[a] ($/bu)	Loan rates using unconstrained 1996 act formulas[b] ($/bu)
Wheat	2.80	2.43	2.43
Corn	1.98	1.76	1.76
Soybeans	5.00	4.92	4.62

[a] Soybean loan rate at 1996 farm act legislative floor.
[b] Assumes no floor for soybean loan rate.
Other assumptions in the model include a "marketing loan bonus" of 20 cents a bushel for corn, 25 cents a bushel for soybeans, and 35 cents a bushel for wheat above their respective loan rates, based on 2000 and 2001 crop-year results.

Alternative Loan Rate Scenarios

To illustrate the potential market impacts of having preset, fixed loan rates under the 2002 Farm Act, acreage impacts from the ERS model are derived for alternative loan specifications in a low-price market setting. The analysis is conducted for 2001 planting decisions, using a plausible set of assumptions for yields, costs, and plantings for 2001, and lagged (2000) market prices from the USDA's February 2001 baseline (United States Department of Agriculture Office of the Chief Economist, 2001).

Three scenarios are defined. The base scenario for fixed loan rates at 2002 and 2003 levels is shown in Table 1 (first column) for corn, wheat, and soybeans. The second scenario assumes that loan rates for 2001 crops were based on the formulas in the 1996 Farm Act, yielding a legislative floor rate for soybeans of $4.92 per bushel. In the third scenario, the soybean loan rate floor under the 1996 Farm Act is relaxed, resulting in a formula-based rate of $4.62 a bushel.

Loan Rate Impacts on Plantings

The simulation results in Table 2 reflect the relationship between marketing loans and planting decisions using scenario 1 as the base. In scenario 2, with formula-based loan rates and the minimum rate for soybeans under the 1996 Farm Act of $4.92

Table 2. Supply response effects: Planted acreage estimates with alternative loan rates, 2001 market conditions.

Crop	2002 act loan rates for 2002 & 2003 (million acres)	Loan rates using 1996 act formulas (million acres)	Loan rates using unconstrained 1996 act formulas (million acres)
Wheat	63.1	61.4 (-1.7)	61.5 (-1.6)
Corn	79.5	78.0 (-1.5)	78.5 (-1.0)
Soybeans	73.5	74.7 (1.2)	73.8 (0.3)
3-crop total	216.1	214.1 (-2.0)	213.7 (-2.4)
8-crop total	254.7	251.9 (-2.8)	251.5 (-3.2)

Numbers in parentheses are differences from the 2002 farm act fixed loan rate scenario. The acreage estimates for the 2002 farm act scenario were derived as an alternative to the projected 2001 plantings in the 2001 USDA baseline.

a bushel, total plantings for the eight major field crops are reduced by 2.8 million acres. Importantly, the loan rate floor for soybeans keeps the change in that loan rate relatively small compared to those for competing crops, such as corn. Consequently, soybean acreage increases by about 1.2 million acres, reflecting a cross-commodity shift away from relatively lower return crops.

In scenario 3, removing the soybean rate floor reduces the soybean loan rate by an additional $0.30 per bushel, while loan rates for other crops are unchanged. Compared to scenario 2, soybean plantings fall by 0.9 million acres, with some of that acreage switching to other crops. Corn plantings, for example, increase 0.5 million acres over scenario 2 levels. Overall marketing loan benefits are lower in this scenario, so aggregate plantings are 0.4 million acres less than in scenario 2, with the 8-crop total now reduced by about 3.2 million acres.

Policy Implications

Commodity loan rates affect producers' acreage decisions, because the income support provided through marketing loans is based on current production and prices. The 2002 Farm Act eliminated discretionary authority for the Secretary of Agriculture to lower loan rates based on historical market prices. Analysis of planting decisions under alternative loan rate scenarios shows that fixed loan rates could influence overall plantings and acreage allocations if commodity markets return to a low price environment.

These results indicate that fixing loan rates above market-price-based, formula loan rates could retain marginal land in production and alter cropping mixes, resulting in "policy-induced inefficiency." Although formula loan rates may also distort production choices if they prevent market price signals from being transmitted to producers, commodity loan rates that reflect past market prices would be economically more efficient in farmers' planting decisions and acreage allocations.

For More Information

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