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A SIMULATION ANALYSIS OF ALTERNATIVE TARGET PRICE AND LOAN RATE COMBINATIONS*

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INTRODUCTION AND PURPOSE

During the first 4 months of 1975, Congress considered a number of amendments to the Agricultural and Consumer Protection Act of 1973. The amendments were principally directed toward raising loan rates and target prices for major U.S. crops and support rates for dairy. Pressure for raising target prices and loan rates was largely due to substantial increases in input prices occurring since the enactment of the August, 1973 Act. Between July of 1973 and December of 1974, the index of prices paid for production items, interest, taxes and wage rates increased by 22 percent. Farmers and farm leaders expressed fear that high yields, coupled with the full production stance of the Administration, could throw the crop sector into a cost-price squeeze, depressing farm income. Given these circumstances, proponents of the amendments argued that target prices and loan rates under the Act of 1973 gave farmers inadequate protection from low prices.

Consideration of these bills raised many questions among farmers, consumers, legislators and government officials. The questions focus on effects of the legislative proposals on farm income, government costs, food costs, exports and production and price of individual farm commodities. Comparisons of the bills rest on answers to these questions. Providing timely answers is difficult, due to the number of alternative proposals under consideration. The broadness of the questions and the limited time available for pro-

viding answers often necessitates a staff or team research approach. Using a simulation model designed to estimate the impact of policy changes, this paper presents results of analyses of target price and loan rate alternatives.

The simulation model used in the analysis was POLYSIM, a model initially developed at Oklahoma State University in 1972 and since expanded and refined under cooperative agreements with the Commodity Economics Division, ERS, USDA. Space prevents a presentation of the model. A complete discussion of the POLYSIM model can be obtained from the authors and [1,2].

ALTERNATIVES TO BE ANALYZED

Six target price and loan rate combinations are analyzed. The alternatives were selected on the basis of proposals made by legislators and other policy advocates during the first months of 1975.

The time frame for the analysis is the five-year period 1975-79. Results are not predictions, but estimates are representative of absolute levels, given the specification of underlying conditions and assumptions.

Base Alternative

The base alternative, not simulated by POLYSIM, represents a continuation of the Act of 1973 as passed in August of 1973, except the provisions are assumed to continue through 1979

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instead of expiring in 1977 as stated in the legislation. The base situation is of interest by itself and also provides the foundation data that POLYSIM uses for estimating impacts for other alternatives. Base conditions used for this set of analyses were developed at Oklahoma State University using available supply and utilization projections from USDA (Table 1). The following assumptions underlie the base projections.

- No production control provisions in use during the 1975-79 period.
- Target price adjustments as specified by the 1973 Act start in 1976 and continue through 1979 (two years beyond 1977, the presently legislated expiration date) based on changes in the index of prices paid for production items, interest, taxes and wage rates and changes in yields. The index of prices paid for production items, interest, taxes and wage rates increases 55 percent between 1973 and 1979.

- Crop yields increase at historical rates.
- Domestic demand for farm production based on projected growth in population and disposable personal income; 1980 population of 224.1 million persons and annual growth in real disposable personal income of 4.1 percent.
- Crop Allotments reflect acreages needed to meet domestic and export demands.
- Initial export levels for 1975 set at 42.2 million tons of feed grains, 1,125 million bushels of wheat, 500 million bushels of soybeans, and 4.0 million bales of cotton with feed grain exports increasing by 36.7 percent between 1975 and 1979, wheat exports increasing by 13.3 percent, soybean exports increasing by 25.0 percent and cotton exports increasing by 20 percent.

In net terms, supply and utilization projec-

Table 1. BASE SUPPLY AND DEMAND CONDITIONS USED IN ANALYSES, ACTUAL 1971-74, PROJECTED 1975-79^a

Item	Unit	Year						
		1971-73 Average	1974	1975	1976	1977	1978	1979
Production:								
Feed grains	mil. tons	204.2	165.1	216.9	230.4	236.0	240.9	247.4
Wheat	mil. bu.	1,624.7	1,793.3	2,126.0	2,168.0	2,147.0	2,123.0	2,160.0
Soybeans	mil. bu.	1,337.7	1,233.4	1,500.0	1,500.0	1,485.0	1,510.0	1,610.0
Cotton	mil. net bales	12.4	11.7	9.8	9.9	9.9	12.0	10.4
Cattle	mil. lbs. (CW)	22,296.0	23,437.0	25,300.0	27,000.0	27,000.0	27,800.0	27,700.0
Pork	mil. lbs. (CW)	13,717.0	13,655.0	11,800.0	11,600.0	13,300.0	14,702.0	14,976.0
Sheep	mil. lbs. (CW)	537.0	472.0	420.0	415.0	410.0	406.0	398.0
Chicken	mil. lbs. (RTE)	8,913.0	8,640.0	8,470.0	8,890.0	9,150.0	9,400.0	9,650.0
Turkeys	mil. lbs. (RTE)	1,904.0	2,040.0	1,820.0	1,950.0	2,020.0	2,080.0	2,105.0
Eggs	mil. doz.	5,728.0	5,460.0	5,275.0	5,440.0	5,600.0	5,720.0	5,830.0
Milk	mil. lbs.	1,180.0	1,154.0	1,155.0	1,170.0	1,180.0	1,190.0	1,200.0
Total Supply:								
Feed grains	mil. tons	242.6	187.8	231.8	258.4	274.4	286.0	295.5
Wheat	mil. bu.	2,304.4	2,042.0	2,377.0	2,615.0	2,722.0	2,778.0	2,811.0
Soybeans	mil. bu.	1,414.5	1,404.0	1,635.0	1,780.0	1,765.0	1,715.0	1,715.0
Cotton	mil. net bales	16.3	15.4	16.0	15.7	15.1	15.6	15.5
Total Utilization:								
Feed grains	mil. tons	208.1	173.4	204.1	220.3	229.6	238.2	246.6
Wheat	mil. bu.	1,787.7	1,792.0	1,931.0	2,041.0	2,080.0	2,116.0	2,152.0
Soybeans	mil. bu.	1,307.3	1,269.0	1,355.0	1,500.0	1,560.0	1,610.0	1,645.0
Cotton	mil. net bales	12.75	9.2	10.2	10.5	11.5	10.5	11.1

^aThe base situation was developed in April 1975 to reported conditions for 1975 crop prospects.

tions in Table 1 show that cotton stocks would remain near 5 million bales while carryover of feed grains, wheat and soybeans would increase over the period. Baseline prices weaken and net farm income declines.

The simulated alternatives examine effects of changing policy provisions. The objective is to show the effect of alternative target prices and loan rates on farm income, government cost and consumer expenditures that are consistent with the base values.

Alternatives A, B

Although many bills were introduced in the first session of the 94th Congress, the conference version of House Bill H.R. 4296 was finally passed by both houses. H.R. 4296, which was vetoed by the President, was for 1975 only. Target prices and loan rates from H.R. 4296 were used here as the 1975 target price and loan rate levels for both the A and B alternatives. Target prices for the 1976-79 period for Alternative A were set by applying the target price adjustment procedure from the Act of 1973 to the 1975 target prices.

Alternative B is identical to Alternative A except target prices were adjusted for annual changes in the prices paid index only instead of changes in both yields and prices paid as in the case of Alternative A. Comparison of results from Alternatives A and B indicate how sensitive target prices and deficiency payments are to change in the adjustment procedure.

Alternatives C, D, and E

Potential costs to the government, in using target prices and loan rates as policy instruments, are related to the range between the two as well as the absolute level of market price. Other things equal, deficiency payments can be decreased by raising loan rates. However, the government may incur additional costs for holding and disposing of additional stocks that may be acquired because of higher loan rates. Under provisions of the 1973 Act, loan rates provide a greater incentive for a farmer to increase production than does a target price of equal level — loan price applies to all production while target price applies only to production on allotments.

For Alternative C, loan rates for wheat and feed grains were set equal to Alternative A target prices specified in H.R. 4296 (Table 2). In this situation, deficiency payments were not possible

in 1975 by definition but were possible in the 1976-79 period.

In Alternative D, loan rates for wheat and feed grains were set equal to Alternative A target prices for each of the five years. This rules out deficiency payments but does so at the lowest loan rate possible for each year.

For Alternative E, wheat and feed grain loan rates are set at the 1977 adjusted target price levels from Alternative A (the year of highest target prices) which also eliminates deficiency payments in all years, but loan rates will be further above target prices in comparison with Alternative D (Table 2).

For each of the last three alternatives, the loan rate for cotton was set at the 1975 level as specified in H.R. 4296 and then at base levels for the four years 1976-79. Under the Act of 1973, the Secretary of Agriculture has discretion in setting loan rates for wheat and feed grains, but that rate for cotton is based on a fixed formula where the cotton loan rate is set at 90 percent of the previous 3 year average world market price, unless the current world price is lower.

Alternatives C, D, and E are representative of the possibility in which a Secretary of Agriculture could increase price support through authority already available without new legislation.

RESULTS

The following sections summarize the simulation results for alternative policies selected for analysis. The results of the alternative policies are discussed according to their effects on farm income, consumer expenditures, crop carryover CCC inventories.

Farm Income

For the base situation, it is assumed that the Act of 1973 continues unchanged. Under the specified assumptions, including normalized yield and export trends, carryovers increase and prices decrease. For assumed base conditions, realized farm income in 1975 is calculated to be \$19.9 billion and is below \$18 billion from 1976 to 1979 (Table 3). Under base conditions income support is nearly nonexistent. Cotton, the only crop receiving deficiency payments, receives \$115 million in 1976 and \$47 million in 1978 (Table 4). Net realized income could decline by 50 percent from the 1973 high of \$32.2 billion without triggering income supports as provided by the Act of 1973.

Table 2. TARGET PRICES AND LOAN LEVELS FOR SPECIFIED ALTERNATIVES, 1975-79

Alternatives ^a	Target Price					Loan Levels				
	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979
Corn - Dollars Per Bushel										
Base	1.38	1.58	1.61	1.48	1.50	1.10	1.10	1.10	1.10	1.10
A	2.25	2.54	2.55	2.37	2.41	1.87	1.87	1.87	1.87	1.87
B	2.25	2.53	2.64	2.72	2.85	1.87	1.87	1.87	1.87	1.87
C ^b	2.25	2.54	2.55	2.35	2.36	2.25	2.25	2.25	2.25	2.25
D ^b	2.25	2.54	2.54	2.31	2.29	2.25	2.54	2.55	2.37	2.41
E ^b	2.25	2.54	2.54	2.30	2.29	2.55	2.55	2.55	2.55	2.55
Wheat - Dollars Per Bushel										
Base	2.05	2.31	2.38	2.29	2.30	1.37	1.37	1.37	1.37	1.37
A	3.10	3.53	3.63	3.51	3.58	2.50	2.50	2.50	2.50	2.50
B	3.10	3.49	3.64	3.75	3.93	2.50	2.50	2.50	2.50	2.50
C ^b	3.10	3.53	3.63	3.49	3.52	3.10	3.10	3.10	3.10	3.10
D ^b	3.10	3.53	3.62	3.45	3.44	3.10	3.53	3.63	3.51	3.58
E ^b	3.10	3.53	3.61	3.44	3.43	3.63	3.63	3.63	3.63	3.63
Cotton - Dollars Per Pound										
Base	.38	.43	.46	.46	.48	.34	.37	.40	.41	.42
A	.45	.51	.54	.53	.56	.38	.38	.38	.38	.38
B	.45	.51	.53	.54	.57	.38	.38	.38	.38	.38
C	.45	.51	.54	.53	.56	.38	.37	.40	.41	.42
D	.45	.51	.54	.53	.56	.38	.37	.40	.41	.42
E	.45	.51	.54	.53	.56	.38	.37	.40	.41	.42

^aBase continuation of 1973 Act through 1979 using 1974 loan levels; A - 1975 target prices and loan rates based on H.R. 4296, target prices 1976-79 adjusted from 1975 levels based on target price adjustment provisions in the Act of 1973; B - same as A except the yield component was not included in target price adjustments; C - 1975-79 loan rates for wheat and feed grains set equal to 1975 alternative A target prices; D - 1975-79 wheat and feed grain loan levels set equal to 1975-79 alternative A target prices; and E - 1975-79 wheat and feed grain loan levels set equal to 1977 alternative A target prices.

^bTarget prices may differ from alternative A target prices because of the yield effect due to higher loan rates. Higher yields have a negative effect on target prices.

Table 3. BASE AND SIMULATED NET REALIZED FARM INCOME FOR SPECIFIED ALTERNATIVES, 1975-79

Alternatives	1975	1976	1977	1978	1979
Billion Dollars					
Base	19.9	17.0	16.1	16.8	17.7
A	20.3	22.7	23.2	23.0	24.4
B	20.3	22.7	23.9	26.4	28.6
C	20.3	21.5	23.4	23.6	25.3
D	20.3	20.0	24.4	25.6	26.0
E	21.6	22.4	24.0	26.4	28.3

Table 4. BASE AND SIMULATION DEFICIENCY PAYMENTS TO FEED GRAINS, WHEAT, AND COTTON PRODUCERS FOR SPECIFIED ALTERNATIVES, 1975-79^a

Alternatives	1975	1976	1977	1978	1979
Feed Grains - Million Dollars					
Base	0	0	0	0	0
A	0	3,810	4,843	3,779	4,035
B	0	3,801	5,515	6,545	7,452
C	0	2,019	2,238	768	875
D	0	0	0	0	0
E	0	0	0	0	0
Wheat - Million Dollars					
Base	0	0	0	0	0
A	0	1,505	2,229	2,020	2,178
B	0	1,427	2,245	2,502	2,893
C	0	827	1,050	788	857
D	0	0	0	0	0
E	0	0	0	0	0
Cotton - Million Dollars					
Base	0	115	0	47	0
A	323	529	0	444	324
B	323	518	0	511	378
C	323	529	0	407	273
D	323	517	0	372	245
E	323	516	0	373	238
Total Deficiency Payments - Million Dollars					
Base	0	115	0	47	0
A	323	5,844	7,072	6,243	6,538
B	323	5,746	7,759	9,557	10,724
C	323	3,374	3,288	1,963	2,005
D	323	517	0	372	245
E	323	516	0	373	238

^aPayments are not adjusted for the \$20,000 per person payment limit in effect under the act of 1973. It is judged that savings of up to four percent for less than \$4.0 billion deficiency payments, eight percent savings at the \$7.0 billion level and fifteen percent savings at the \$10.0 billion deficiency payment level are possible under the payment limitation clause.

Net realized farm income is improved considerably under Alternative A conditions which uses H.R. 4296 target prices and loan rates for 1975 and assumes target prices are adjusted for 1976-1979, using the procedure written into the 1973 Act. Net income is calculated to be \$20.3 billion in 1975 (Table 3) and trends upward through 1979 as target prices are increased through the adjustment procedure. Deficiency payments of \$5 to \$7 billion per year are required during the 1976-1979 period. H.R. 4296 would support farm income, but at considerable cost to the U.S. treasury.

Alternative B is the same as Alternative A, except percentage change in the three-year moving average of yields is not considered in the adjustment mechanism. The yield factor has a noticeable impact on adjusted target price levels and translates into a considerable effect on the level of deficiency payments (Tables 2, 4). Increasing yields lead to a negative effect on target prices and vice-versa. Low 1974 yields cause slightly higher target prices in 1976 in Alternative A compared with Alternative B. However, in the remaining years, low 1974 yields, in conjunction with increasing yields afterwards, cause target prices in Alternative A to be well below targets in Alternative B, which ignores the yield component. With the yield component included, as in Alternative A, target prices actually decline between 1977 and 1978 because the positive percentage change in the three year average yield, which has a negative effect on the adjustment coefficient, is greater than the change in prices paid. By 1979, there is roughly a \$.40 difference in feed grain and wheat target prices between Alternatives A and B (Table 2). This results in a \$4.2 billion increase in deficiency payments in 1979 (Table 4) and a like increase in net realized income. The components of automatic adjustment procedures written into agricultural legislation should be studied carefully, that changes in future target price levels are consistent with the intent of legislation.

One alternative farm program analyzed but not presented here assumed loan rates for 1975-79 were equal to 1975 target prices under the 1973 Act. The results of this simulation showed no changes in prices, deficiency payments or farm income compared to the baseline alternative, because market prices in all years are above 1975 target price levels.

As Alternatives C, D, and E indicate, farm income can be supported by combining the use

of loan rates and target prices or by using only loan rates. Loan rates for wheat and feed grains in Alternative C were set equal to the 1975 Alternative A target prices for all five years (Table 2). Net farm income under Alternative C was comparable with net farm income under A, but deficiency payments were decreased by 58 percent over the five-year period (Table 4). Deficiency payments can be decreased further by raising loan rates either in a lock step with target prices, as in Alternative D, or by setting loan rates at a level equal to the highest anticipated target price, as in Alternative E. Alternatives D and E both show additional increases in net realized farm income, (Table 3).

A loan rate that is equal to the target price results in higher net income, other factors equal; because all production on participating farms is eligible for a loan, while target price support is based only on allotment production. Allotment production is typically less than 100 percent of total production.

Superficially, Alternatives C, D, and E look attractive because they provide as much or more income support than A or B, but with lower deficiency payments. However, other factors, such as consumer expenditures for food and treasury costs for acquiring and storing government stocks, must be considered.

Consumer Expenditures

POLYSIM provides an estimate of consumer expenditures based on farm to retail margins. Changes in target prices and loan rates among the base and Alternatives A and B had little effect on consumer expenditures (Table 5). Loan rates were higher under Alternatives A and B than for the base but were still below market prices except for corn in 1978 (Table 6). Farm income support was from the U.S. Treasury rather than through the market.

Table 5. BASE AND SIMULATED CONSUMER EXPENDITURES FOR SPECIFIED ALTERNATIVES, 1975-79

Alternatives	1975	1976	1977	1978	1979
	Billion Dollars				
Base	158.1	169.0	178.3	188.1	198.3
A	158.1	169.0	178.3	188.1	198.6
B	158.1	169.0	178.3	188.1	198.6
C	158.1	169.1	181.0	191.7	202.8
D	158.1	169.1	183.9	194.3	203.6
E	158.1	171.6	183.4	194.5	205.7

Table 6. BASE AND SIMULATED MARKET PRICES FOR CORN, WHEAT AND COTTON UNDER SPECIFIED ALTERNATIVES, 1975-79

Alternatives	1975	1976	1977	1978	1979
Corn - Dollars Per Bushel					
Base	2.25	2.00	1.90	1.85 ^a	1.90
A	2.25	2.00	1.90	1.87 ^a	1.90
B	2.25	2.00	1.90	1.87 ^a	1.90
C	2.25	2.25 ^a	2.25 ^a	2.25 ^a	2.25 ^a
D	2.25	2.54 ^a	2.55 ^a	2.37 ^a	2.41 ^a
E	2.55 ^a	2.55 ^a	2.55 ^a	2.55 ^a	2.55 ^a
Wheat - Dollars Per Bushel					
Base	3.15	2.75	2.50	2.50	2.50
A	3.15	2.75	2.50	2.50	2.50
B	3.15	2.75	2.50	2.50	2.50
C	3.15	3.10 ^a	3.10 ^a	3.10 ^a	3.10 ^a
D	3.15	3.53 ^a	3.63 ^a	3.51 ^a	3.58 ^a
E	3.63 ^a	3.63 ^a	3.63 ^a	3.63 ^a	3.63 ^a
Cotton - Dollars Per Pound					
Base	.39	.41	.55	.45	.50
A	.39	.41	.55	.45	.50
B	.39	.41	.55	.45	.50
C	.39	.41	.55	.46	.51
D	.38	.41	.56	.46	.51
E	.39	.41	.56	.46	.52

^aLoan Rates.

When loan rates were increased under Alternatives C, D, and E the situation changed. Consumer expenditures increased because the loan rate increased market prices. Consumer expenditures were from \$4.2 to \$7.1 billion greater in 1979 (Table 5). The incidence of the cost of the program was transferred to some degree from the taxpayer to the consumer of food. The Commodity Credit Corporation (CCC) was also back in business under high loan rate situations. Costs associated with CCC operations fall on the taxpayer, so net reduction in the taxpayer's burden if any, was less than the total reduction in the deficiency payments shown in Table 4.

Another item to consider in conjunction with consumer expenditures is quantity of food produced. Wheat and livestock products are major consumables. Again the target price alternatives — the base and Alternatives A and B — show little difference in production (Table 7). The loan rate alternatives or C, D and E, which raised market prices for wheat and feed grains, altered the production mix. As would be expected, wheat and feed grain production increases relative to other crops (Table 7). Feed grains provide feed for livestock. Higher feed grain prices decrease feed grain consumption for the C, D and E alternatives. The production of each livestock class is decreased because of higher feed costs. Reduction in livestock production by 1979 under the highest loan rate

ranged from less than a tenth of one percent for milk to roughly 8 percent for pork and chicken. Under high loan rates, consumers pay a higher food bill and consume less livestock products.

Carryover and CCC Inventory

The ending year carryover totals in Table 8 illustrate effects on feed grain and wheat stocks under high supports and weakened effective demand. By 1979, carryover stocks of wheat and feed grains grow to very large levels under Alternatives D and E. The magnitude of the stocks can be attributed in part to the assumption that yields constantly increase each year over the study period. This does not allow for bad years. Wheat carryover is 1.2 to 1.3 times greater than annual production, while feed grain carryover is 70 to 80 percent of annual production. The cost of holding carryover levels of this magnitude, particularly the CCC inventories, must be included as a program cost. The incidence of the cost is to the taxpayer. We cannot ignore the fact, however, that stocks can be used to provide price stabilization which may provide positive benefits to society.

POLYSIM does not calculate costs of storage or net gains or losses from CCC transactions. Costing out carryover costs is difficult because of the inventory problem. Supposedly, CCC would acquire stocks when prices were low and would dispose of stocks when they were high, giving a possible net gain. CCC has no opportunity to dispose of stocks for the alternatives examined here. Costs to CCC for holding grain inventories over the study period would include interest on the value of stored commodities and cost of storage after farmers deliver commodities to CCC in fulfillment of their loan obligations.

A rough approximation of the accrued cost of storage from 1975 through 1979 follows:

	Wheat	Feed Grains	Total
	— Million Dollars —		
Alternative C	865.0	1,728.4	2,593.4
Alternative D	2,039.7	3,856.9	5,896.6
Alternative E	2,508.0	4,642.6	7,150.6

Table 7. BASE AND SIMULATED PRODUCTION LEVELS OF CROP AND LIVESTOCK CATEGORIES FOR SPECIFIED ALTERNATIVES, 1979

Items		Alternatives					
		Base	A	B	C	D	E
Feed Grains	(mil. tons)	247.4	248.1	248.1	265.2	275.8	280.5
Wheat	(mil. bu.)	2,160.0	2,159.3	2,159.3	2,304.8	2,448.3	2,454.0
Soybeans	(mil. bu.)	1,610.0	1,607.4	1,607.4	1,546.4	1,509.3	1,488.8
Cotton	(mil. bales)	10.4	10.4	10.4	10.3	10.3	10.3
Cattle	(bil. carc. wt. lbs.)	27.7	27.7	27.7	27.5	27.5	27.4
Pork	(bil. carc. wt. lbs.)	15.0	14.9	14.9	14.3	14.2	13.8
Sheep	(mil. carc. wt. lbs.)	398.0	398.0	398.0	397.2	396.7	396.4
Chickens	(mil. rte. lbs.)	9,650.0	9,627.1	9,627.1	9,221.7	9,106.2	8,901.9
Turkeys	(mil. rte. lbs.)	2,150.0	2,145.4	2,145.4	2,068.6	2,050.0	2,008.9
Eggs	(mil. doz.)	5,830.0	5,824.3	5,824.3	5,734.5	5,714.7	5,664.5
Milk	(bil. lbs.)	120.0	120.0	120.0	119.5	119.4	119.2

Table 8. BASE AND SIMULATED ENDING YEAR TOTAL CARRYOVER AND CCC INVENTORIES FOR FEED GRAINS AND WHEAT FOR SPECIFIED ALTERNATIVES, 1975-79

	1975		1976		1977		1978		1979	
	Total	CCC	Total	CCC	Total	CCC	Total	CCC	Total	CCC
Feed Grains - Million Tons										
Base	27.7	0	38.1	0	44.8	0	47.8	0	48.9	0
A	27.7	0	38.1	0	44.8	0	48.1	1.1	50.4	1.1
B	27.7	0	38.1	0	44.8	0	48.1	1.1	50.4	1.1
C	27.4	0	41.4	11.5	65.1	27.9	95.1	57.3	128.8	87.8
D	27.4	0	51.7	34.5	95.7	63.6	146.7	114.6	196.1	163.6
E	30.4	10.8	59.7	34.5	104.4	75.4	159.3	132.2	220.2	190.2
Wheat - Million Bushels										
Base	446	0	574	0	642	0	650	0	659	0
A	446	0	574	0	642	0	650	0	658	0
B	446	0	574	0	642	0	650	0	658	0
C	446	0	661	138	977	458	1,343	778	1,762	1,204
D	446	0	814	376	1,414	999	2,097	1,586	2,872	2,483
E	545	151	987	578	1,617	1,169	2,344	1,887	3,152	2,714

A storage cost of 16.4 cents per bushel per year for grains (storage charges do not start until the commodity is delivered to CCC) is assumed,

as well as an 8.0 percent interest charge on the value of outstanding loans and CCC inventory. The cost of keeping grain in condition is included

in the annual storage cost, which is for comingled grain. No costs are included for CCC administration or for building physical facilities, although inventories of the magnitude of Table 8 would likely require additional storage structures.

By 1979, CCC would have incurred storage related costs ranging from \$2.6 billion under Alternative C to \$7.2 billion for Alternative E. These do not include gains or losses that would be attributed to disposing of the stocks.

Results show that using loan rates to support farm income has different effects compared with using target prices.

CONCLUSIONS AND IMPLICATIONS

A policy simulation model (POLYSIM) was used to estimate impacts of alternative target price and loan rates combinations on key variables such as net realized farm income, consumer expenditures for food and stock holdings. The base alternative assumed continuation of 1974 loan rates through 1979 and target prices based on the provisions of the Agricultural and Consumer Protection Act of 1973. Net realized farm income, under study conditions for the base situation, was calculated to be below \$17 billion in 1977 and 1978 without triggering significant deficiency payments. Even if loan rates were set equal to 1973 Act target price levels, farm income protection would not be improved.

H.R. 4296, which was vetoed, would have raised target prices and loan rates for 1975, providing some income support in 1975 under the assumed yield and export demand conditions. For illustrative purposes, H.R. 4296 target prices were adjusted for the years 1976 to 1979 using the target price adjustment formula in the Act of 1973 (Alternative A). Annual deficiency payments and realized net farm incomes were 6 to 7 billion dollars above the base alternative, giving farmers considerably more income protection than under the Act of 1973.

The nature of the target price adjustment

procedure can have a large impact on farm income support and government cost. For both the base and Alternative A, target prices for wheat and feed grains in 1978 and 1979 are below 1977 levels, even though the assumed level for relevant prices paid index increased 7.9 percent between 1976 and 1978. Target price reductions can be attributed to the combination of low actual yields in 1974 and trend yield increases for 1975 and beyond. The result was a percentage increase in the three-year moving average yield series, which had a negative effect on the adjustment coefficient that was large enough to offset the positive percentage increase assumed for the prices paid index.

With the yield component removed from the target price adjustment procedure, 1978 and 1979 deficiency payments and net incomes under H.R. 4296 would be \$10 million above the base. When automatic adjustment provisions are being considered, it is important to trace through the possible outcomes under varying conditions so policymakers are aware of their implications. Simulation models are useful for providing insights into these kinds of provisions.

In Alternative C, D, and E the burden of income support under H.R. 4296 was increasingly shifted from target prices and deficiency payments to the loan program. Income support remained comparable to Alternative A and B, but with markedly lower deficiency payments. The reduction in taxpayer costs for decreasing payments was offset, however, by larger consumer expenditures for food. Under study conditions, quantity and storage costs of Commodity Credit Corporation inventories reach levels well above those of any previous time in history. Under such conditions acreage set-aside programs would undoubtedly be reinstated. Policy-makers would be interested in trade-offs among farm income, treasury cost, government stock holding and consumer prices for alternative combinations of set-aside, target prices and loan rates. POLYSIM could be used to evaluate such proposals as an aid in understanding the trade-offs.

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