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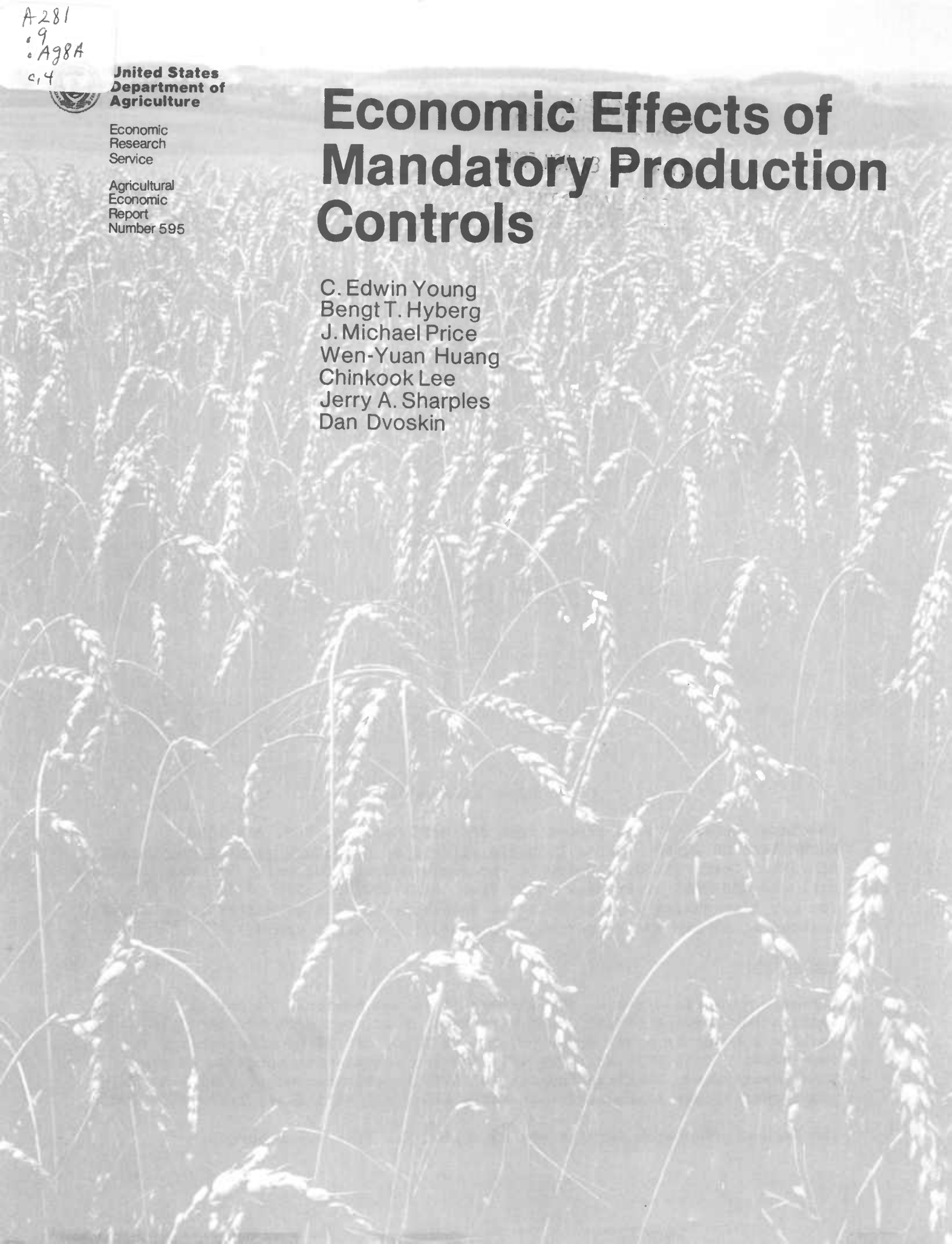
Economic Effects of Mandatory Production Controls

C. Edwin Young
Bengt T. Hyberg
J. Michael Price
Wen-Yuan Huang
Chinkook Lee
Jerry A. Sharples
Dan Dvoskin



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Abstract

Mandatory restrictions on agricultural production continue to be advocated as an alternative policy for increasing farm income while reducing farm program costs. Although farm income might rise in the short run, such programs would be costly to consumers and possibly to the Federal Treasury. An export subsidy would be needed to maintain current agricultural export levels if a mandatory production control program were used to raise prices. The cost of such a subsidy could exceed savings from eliminating Government income support programs. The program would affect agribusinesses by reducing the need for farm supplies and by reducing the amount of product handled beyond the farm gate. More generally, programs that idle productive resources to maintain higher prices may lead to production inefficiencies and to capitalization of program benefits that are captured by current landowners.

Keywords: Agricultural policy, mandatory controls, acreage allotments, marketing quotas.

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Summary

Mandatory restrictions on agricultural production continue to be considered as an alternative policy for increasing farm income while reducing farm program costs. Although farm income may increase in the short run, such programs would increase costs to consumers and possibly raise Federal outlays. An export subsidy would be needed to maintain current agricultural export levels if a mandatory production control program were used to raise prices. The costs of such a subsidy could exceed savings from eliminating Government income support programs. A mandatory production control program (MPCP) would affect the agribusiness sector by reducing the need for inputs and by reducing the amount of product handled beyond the farm gate. Programs that idle productive resources to maintain higher prices may lead to production inefficiencies and the capitalization of program benefits into land values.

This study indicates that a mandatory production control program using acreage allotments that increase commodity prices to 80 percent of parity will increase aggregate net farm income by slightly less than $80 billion over a 5-year period while raising consumer costs by approximately $80 billion (over current trends). Federal outlays would increase roughly $12 billion. Thirteen percent less land would be used for crop production. That would reduce soil erosion and provide an increase in environmental benefits. But an acreage allotment provides incentives to farmers to intensify the use of inputs, such as fertilizer and pesticides, on acreage in production. The intensified use of these inputs could cause environmental damage, such as ground water degradation, to increase in some areas.

Mandatory controls employing a marketing quota system, with the same objectives as acreage allotments, would increase net farm income slightly more than $84 billion, consumer expenditures $80 billion, and Federal outlays roughly $12 billion. Under such an alternative, less land would be idled (10 percent) because there would be less incentive to increase crop yields through more intensive use of inputs. There would be a smaller reduction in soil erosion.

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Introduction

The claim that mandatory restrictions on agricultural production can simultaneously increase farm income and reduce farm program costs has appeal. Policymakers considered mandatory production controls during the policy debate that culminated in the Food Security Act of 1985 (FSA). They generally agreed during the debate that mandatory production controls, coupled with minimum price supports, could immediately increase farm income and prevent further increases in surpluses and farm program costs.

They were, however, concerned over the effects of such controls on food costs, input industries, export markets, import levels, and the livestock sector. The conventional wisdom was that the direction of these effects would be generally negative.

The concept of mandatory controls is often advanced as a means to reduce production to draw down surplus stocks, thereby placing upward pressure on commodity prices. Mandatory controls are seen by some as a fair way to reduce production because each producer is required to share in the production reductions. Production control programs also have a price objective because limiting the supply of a good directly affects its price in the market. Farmers would be able to sell less of their production, but could possibly have a higher net income. Inelastic demand for food (that is, consumers demand almost the same quantity of a food even if the price increases) will lead to higher farm revenues as market prices rise even though production is reduced. If the Government sanctions mandatory production controls, commodity production could be reduced by an amount sufficient to significantly raise prices of the controlled commodity or commodities. Under these conditions, mandatory controls would create an artificial scarcity because removal of the controls would result in an immediate increase in production.

As prices rise, consumers alter their consumption patterns: substitute less expensive foods for the regulated commodities and forego purchases of some nonagricultural goods. Because consumers revise their consumption of all goods when a price change occurs for a particular good, a program that affects

* The authors are agricultural economists, Economic Research Service, U.S. Department of Agriculture.

the price of some agricultural products will affect the consumption of those goods and also the consumption of other agricultural commodities and nonagricultural goods.

Under the 1985 Act, there have been record commodity program outlays and continued growth of some crop surpluses. However, there has been an improvement in farm financial conditions and an upturn in agricultural exports.[1] Nevertheless, interest continues in different farm policy approaches, including mandatory production controls. Mandatory production controls would require all farmers currently producing program crops to proportionally reduce production of program crops that are in surplus. This analysis assumes that it would be illegal for any farmer to produce and/or market crops outside of such a program.

Several papers have examined the effects from adopting a mandatory production control program (3, 8, 9,).[2] These investigations found that a mandatory production control program will increase net farm revenues in the short run, decrease agricultural production, decrease Government expenditures on agricultural programs, and raise consumer costs when compared with effects from the 1985 Food Security Act.

This report analyzes the tradeoffs of implementing a mandatory production control program (MPCP) and illustrates sector adjustments and effects over a 5-year period. Results of the simulation are compared with conditions simulated under the 1985 Food Security Act.

MPCP Tradeoffs

Implementation of any new farm program, such as an MPCP, involves economic tradeoffs. Certain sectors of the economy will be better off, while other sectors will be adversely affected (see box on general effects). Although the magnitude of the tradeoffs will depend on how the MPCP is implemented, the direction of the effects can be described in a qualitative manner.

- **The Federal Treasury**. The effects of an MPCP on the Treasury are indeterminate. An MPCP designed to raise farm commodity prices will raise aggregate farm income and could eliminate the need for income support programs for producers of program crops. Eliminating direct income support payments would result in savings to the Federal Treasury. However, higher commodity prices will create a need for an export subsidy to maintain the competitiveness of U.S. agricultural exports. This subsidy would reflect the difference between the domestic price resulting from the production control programs and world market prices. Subsidy costs that are paid directly or indirectly from the Treasury could offset the savings generated by eliminating price and income support programs.

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[1]The baseline FSA conditions simulated for this analysis were computed prior to the 1988 drought. Therefore, this analysis does not incorporate the production and price effects that arose from the drought.

[2]Underscored numbers in parentheses refer to literature cited in the References section.

- **Farmers**. An MPCP with provisions to maintain current export levels could raise aggregate farm income. The extent of the gain would depend on the increase in domestic commodity prices and the subsidies provided for exports. If exports are not subsidized, markets for U.S. commodities will shrink and net income could actually be reduced. Livestock production costs will rise because grain is an input, and domestic feed grain prices will increase. Profitability of livestock production will almost certainly decline in the long run. However, the profitability could improve after

General Effects of a Mandatory Production Control Program (9)

Effects on:	*Positive effects*	*Negative effects*
Farmers:		
Crop producers	Land prices rise	Per-unit production costs rise New entrants have more difficulty Program benefits largely go to existing landowners
Livestock producers	Net income rises Red meat and poultry prices may rise, especially if livestock production is controlled	Feed costs rise
Natural resources:		
Erosion/ productivity	Erosion declines	Per-acre erosion rises with acreage allotment
Water quality	Delivery of nonpoint pollutants falls	Local problems may intensify with acreage allotment
Consumers		Food costs rise Inflation may rise
Agribusiness:		
Food processors and distributors		Volume of farm products transported, processed, and marketed falls Employment falls Production facilities underused
Input suppliers		Use of manufactured inputs falls Employment falls Production facilities underused
Federal Treasury:		
Price supports	Savings from elimination of programs Storage costs fall	
Exports		Export markets lost Bargaining power to eliminate protectionist policies lost Export enhancement program may be needed

several years as livestock prices increase in response to reductions in herd sizes due to higher feed costs.

- **Natural resources**. Production levels are constrained, so less land will be used for farming. The idling of agricultural land will decrease total erosion, maintain soil productivity, and reduce off-farm damage to rivers and lakes. The potential for ground water contamination will increase if farmers increase the per-acre use of fertilizers and pesticides. In addition, erosion and runoff from individual fields remaining in use may increase, especially if the MPCP uses acreage restrictions to control production. This could intensify environmental degradation in some areas.

- **Consumers**. Food costs will rise as crop and livestock prices rise. Import quotas will be needed to maintain higher commodity prices. The rise in food costs poses particular concern for low-income households because they spend a relatively large portion of their income for food. Individuals relying on food assistance programs will not escape the effects of an MPCP because they must supplement the food assistance with their own funds. Even if the food assistance programs expand in response to increased food prices, the portion of recipients' limited resources spent on food may increase. Rising food prices will increase Federal expenditures on food assistance programs if the same nutritional level of assistance is to be maintained.

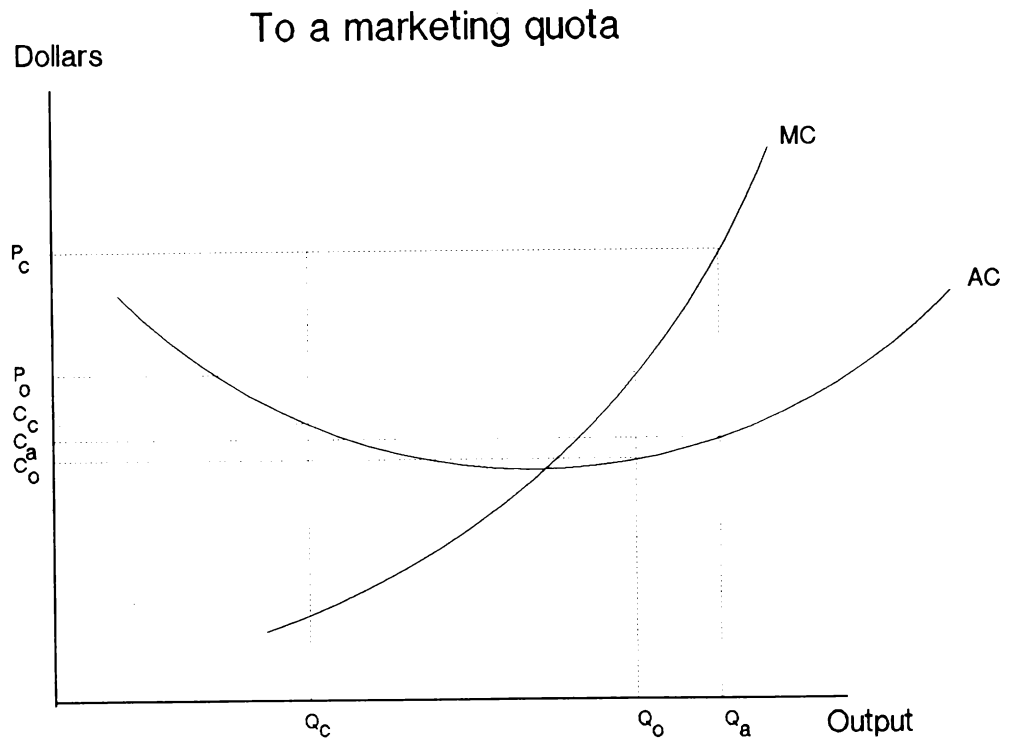
- **Agribusiness**. Employment and income in the agribusiness sector will decline because production volume is reduced. Fewer inputs, such as fertilizers and pesticides, will be needed for the lower production. In addition, higher food prices will depress food consumption, especially of meat products. If exports decline, the economic activity associated with transporting, handling, and merchandising would decline even further.

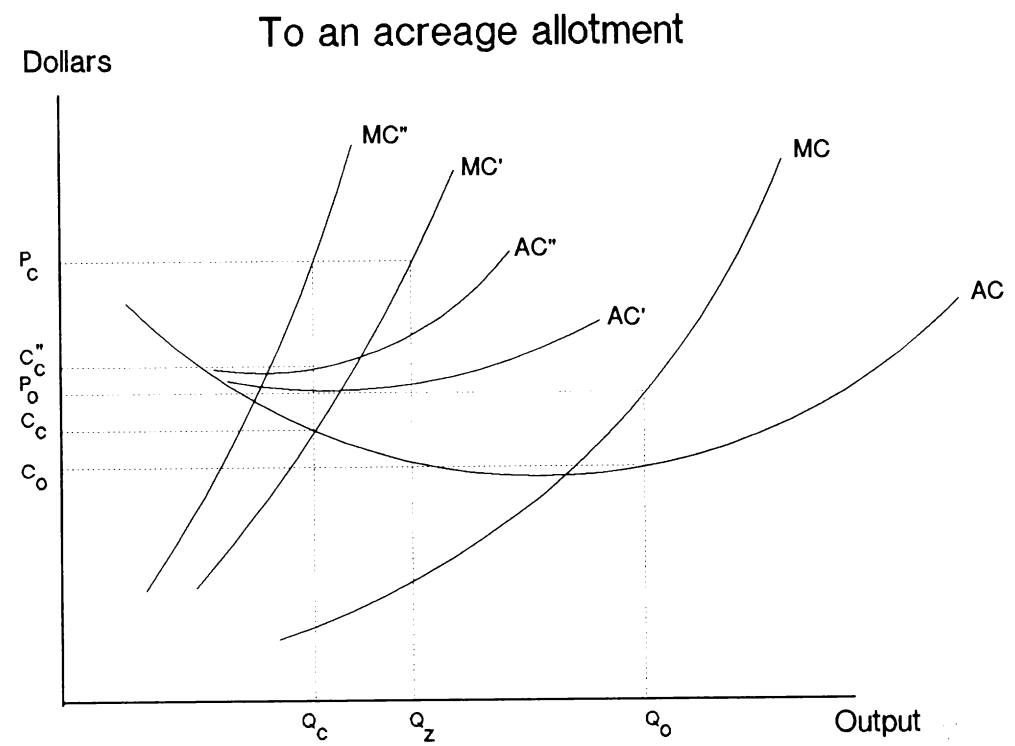
The overall success of an MPCP hinges on the ability of the Government to control production and simultaneously maintain the resulting increases in farm product prices. If the Government correctly predicts the reactions of domestic and foreign consumers and/or commodity production levels, then anticipated price and income responses will be accurate. Otherwise, either farm income will increase by a lower amount, or a Government price support and storage program will be needed to maintain prices.

Two broad MPCP strategies for controlling agricultural production have been suggested: an acreage allotment program and a marketing quota system. Under an acreage allotment program, farmers would be constrained to planting only a portion of their acreage. Each farmer's allotment would be determined by past cropping history. With a marketing quota system, farmers would be able to sell a specified amount of agricultural commodities. Again, the amount would be determined by the farmer's past agricultural marketings.

The reactions of farm operators will differ between marketing quota and acreage allotment programs. This can be illustrated by examining how a farmer's production volume and costs adjust to a price change. A farmer is assumed to produce at the point where marginal costs (MC) equal marginal revenue or price (P). This point of production corresponds to output level Qo at a cost of Co and price of Po (fig. 1). If prices rise to Pc, the farmer will expand production to the point where MC equals Pc, or Qa, with average cost (AC) of Ca.

Figure 1. Farm-level adjustments in crop production





If marketing quotas are implemented at Qc and prices rise to Pc, farmers will attempt to produce at the minimum cost (Cc) (fig. 1). Average costs then rise since fixed costs must be spread over a smaller total output. Depending on the constraints placed on the farmer, the resources that were formerly used to produce Qo - Qc can be diverted to produce other commodities not affected by the quota system. But this additional production may depress prices in these other markets.

With an acreage allotment, farmers will attempt to increase output per acre on the cropland that remains in use up to the point where MC equals Pc. Since land use is restricted, the cost structure will increase to reflect the input constraint (fig. 1). If the Government restricts acreage to a level consistent with previous average yields and the constrained production level (Qc), farmers will increase production on their remaining land until the new marginal costs of production (MC) equal Pc. Total output will be Qz as farmers increase the use of inputs such as fertilizers, pesticides, and seeds on their allotted cropland. Thus, production will exceed targeted levels by the amount Qz - Qc. The unexpected program slippage from Qz to Qc will cause Government price supports and storage costs to rise or commodity prices to fall below the price targets. If the Government correctly anticipates production increases and accordingly reduces planted acreage, the cost structure will shift to AC" and MC" and Government costs will be unaffected. However, farm income will be somewhat lower because average costs increase to Cc".

An MPCP will affect livestock producers differently than crop producers because the program is designed to raise grain prices but not livestock prices. As grain prices rise, production costs increase for livestock producers. This will induce producers to sell their breeding stock and to reduce overall herd sizes. This liquidation will depress livestock prices. The combined effect of increased production costs and depressed prices will lead to declines in the profitability of livestock production. Livestock prices will increase in the long run after herds are liquidated. Assuming that sufficient grain is not available to support larger herd sizes, livestock prices will remain at the higher levels. Total revenue from livestock sales will increase because the demand for livestock products is inelastic. Net income from livestock production may increase, depending on the relative changes in production costs (higher grain prices but smaller herds) and total revenue.

The MPCP Evaluation

The analysis of the MPCP highlights the effects on producer income and consumer expenditures, national well-being, and stability of production, prices, and income. This analysis also highlights interindustry effects, regional and national resource adjustments, adjustments in the derived demands for manufactured inputs, and structural implications of the MPCP. To evaluate changes that would occur under the MPCP, we examined four MPCP options: (1) an acreage allotment (AA) program with an 80 percent of parity price objective, (2) a marketing quota (MQ) program with an 80 percent of parity price objective, (3) an acreage allotment designed to raise market prices to current target prices (TP), and (4) an acreage allotment with an 80 percent of parity price objective with no export subsidy (see the box on program options for details).

The Program Options

We measured the effect of mandatory production controls by first estimating the performance of agriculture under current farm legislation for 1986 through 1990. The projections were based on conditions prior to the 1988 drought. Estimates of 1986–90 agricultural production, Government costs, and farm income were used as a base to evaluate the MPCP scenarios.

The Food Security Act (FSA) contains provisions requiring farmers participating in commodity programs to set aside a portion of their crop base for conserving uses. Farmers agreeing to set aside these acres receive deficiency payments and support prices.

Option 1, acreage allotment, price target 80 percent of parity (AA). Production of commodities was constrained to the point where market prices equaled 80 percent of parity using acreage allotments. Historical planting patterns were used to assign acreage allotments. Land removed from production was placed into conservation uses. Current export shares were maintained by subsidizing exports.

Option 2, marketing quotas, price target 80 percent of parity (MQ). Production was constrained to the point where market prices equaled 80 percent of parity by limiting the quantity producers can sell. Excess land was assumed to be placed in conserving uses. Current export shares were maintained by subsidizing exports.

Option 3, acreage allotment, target prices set equal to current target prices (TP). Acreage allotments were used to reduce commodity production to the point where market prices equaled the current loan rates. This is option 1 with a lower price objective.

Option 4, acreage allotment, option 1 without an export subsidy (NES). Production was constrained to the point where market prices equaled 80 percent of parity by limiting the quantity of land that producers can plant.

Summary of program options

Item	AA	MQ	TP	NES	FSA
Acreage restrictions	X		X	X	
Acreage setaside requirements					X
Marketing limits		X			
Price objective:					
80 percent of parity	X	X		X	
Current target prices			X		
Support prices					X
Export subsidy	X	X	X		
Conservation Reserve Program	X	X	X	X	X

Implementation of the MPCP is assumed to establish production controls on barley, corn, oats, sorghum, soybeans, and wheat. Our analysis restricted commodity production so that the markets for the controlled crops would clear at the price objective, and surplus commodity stocks would be reduced to 80 percent of their 1985 levels by 1990. A price objective of 80 percent of parity increased prices 100-125 percent over 1986 loan rates (table 1). The alternative price objective to raise commodity prices to the current target prices increased prices 80 percent over current market prices. Farm exports were maintained at current levels, requiring the Government to subsidize the difference between domestic and world market prices. Imports of all controlled commodities were prohibited in order to maintain the price objectives. If imports were not restricted, processors and consumers would substitute imported commodities for the domestic products, and domestic commodity prices would not rise to the desired level. All other programs implemented under the 1985 Food Security Act and not replaced by the MPCP, such as the Conservation Reserve Program, remained in place.

The MPCP outlined above is a major departure from previous commodity programs. Existing economic models and their underlying data, while providing reliable projections for major trends, will likely provide only relative magnitude and direction of any MPCP effects.

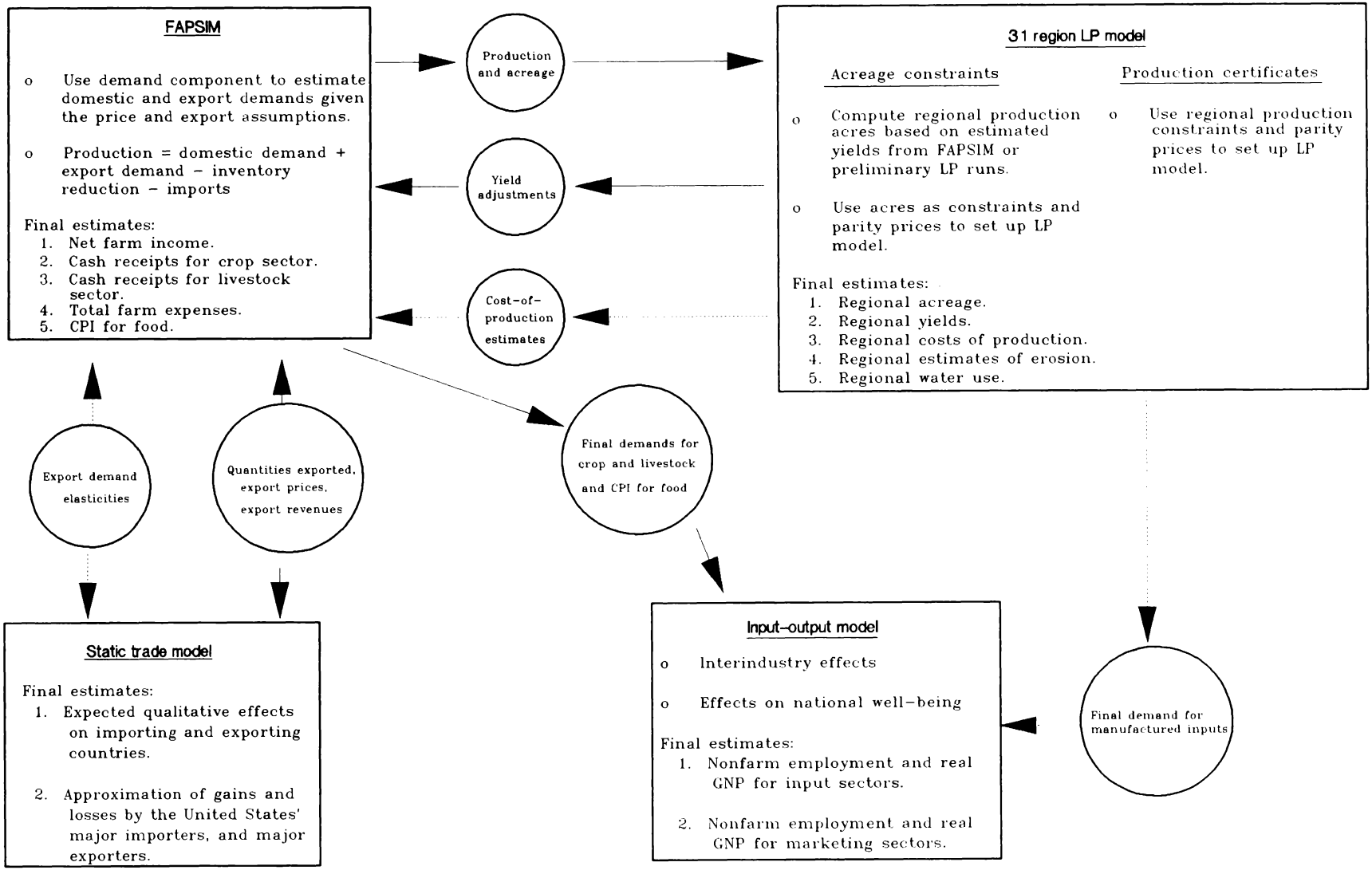
We used an integrated modeling approach to improve the accuracy of the estimated effects (fig. 2). An econometric forecasting model (FAPSIM) helped simulate the national aggregate effects of the MPCP on the agricultural sector over the 5-year period (6). A national/regional linear programming model (LP) helped evaluate shifts in resource use resulting from the MPCP (2). The econometric model provides estimates of program effects over time, while the linear programming model allocates production and resource use effects on a spatial basis. Because of these differences, the models were run interactively to generate consistent estimates. By using the results from one model as input data for another and iterating, we obtained a more precise analysis of the shifts that occur with an MPCP.

Although these models are highly sophisticated and include many aspects of the agricultural sector, the models cannot fully capture all of the potential actions open to individual farmers. For example, the linear programming

Table 1--Percentage increase in commodity prices to 80 percent of parity

Commodity	1986	1987	1988	1989	1990
			Percent		
Barley	116	120	124	138	150
Corn	108	107	110	122	121
Oats	135	134	138	153	165
Sorghum	115	110	118	130	129
Soybeans	97	84	67	58	58
Wheat	126	136	139	133	124

Figure 2. Modeling scheme for mandatory supply study



techniques used to measure the shifts in input use do not fully capture the wealth of input- and crop-substitution opportunities available to farmers. Therefore, changes in crop and livestock production must be viewed as approximations. We used an input-output (I.O.) model to estimate the effects on agribusinesses, such as food processors and input suppliers. The trade effects of the MPCP were evaluated using a static trade model (5).

Option 1: Acreage Allotment

This section evaluates the general effects of using an acreage allotment (AA) to allocate production. Effects that the models were unable to capture are discussed in the last section of this report.

Effects on Farmers

A major purpose of implementing an MPCP is to raise net farm income. If an acreage allotment designed to raise market prices to 80 percent of parity is instituted and exports are maintained at current levels using a subsidy program, net farm income increases 36 percent over FSA (Food Security Act of 1985) levels in the first year (table 2) and doubles (a $29-billion increase) after 5 years. The land used for agricultural production declines 17 percent from FSA projections in the first year and 8 percent in the fifth year. Total supply of the controlled commodities is reduced with the MPCP (table 3). Total supply declines as stocks are reduced throughout the program and as planted acreage is restricted. Since we assumed that exports are subsidized at their current level, the reduction in land use represents the decrease in production necessary to meet domestic demand at higher prices, while meeting the goal of reducing surplus commodity stocks.

Farmers will tend to remove their least profitable land from production under an acreage allotment program. Because these fields are generally associated

Table 2--Changes from FSA levels under option 1 1/

Item	Unit	1986	1987	1988	1989	1990	Total
Net farm income	$ billion	8.3	9.2	12.8	18.3	29.4	77.9
Crop income	$ billion	8.4	16.9	14.5	14.4	15.0	69.3
Livestock income	$ billion	-.1	-7.8	-1.7	3.9	14.4	8.7
Land in production (for eight major crops)	Mil. acres	-43.5	-44.6	-34.8	-27.3	-20.4	-170.6
Consumer costs	$ billion	0	10.9	16.0	21.4	32.0	80.5
Export subsidy	$ billion	4.8	12.5	12.8	12.8	13.3	56.2
Support payments	$ billion	-4.2	-10.3	-10.9	-10.1	-8.8	-44.3
Government costs	$ billion	0.6	2.2	1.9	2.7	4.5	11.9
Total costs	$ billion	-7.7	3.9	5.1	5.9	7.3	14.5

1/ Option 1 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

Table 3--Change in total supply from FSA levels under option 1 1/

Crop	1986	1987	1988	1989	1990
			Percent		
Wheat:					
Beginning stocks	0.3	0.5	-7.4	-10.7	-5.8
Production	-1.8	-10.3	-6.7	1.1	4.6
Total supply	-.8	-5.7	-6.9	-3.9	.4
Corn:					
Beginning stocks	.2	-17.0	-25.5	-28.0	-25.2
Production	-18.7	-17.9	-14.5	-11.7	-8.4
Total supply	-12.3	-17.6	-18.7	-18.1	-14.6
Sorghum:					
Beginning stocks	.3	-3.3	-17.3	-19.3	-12.6
Production	-25.8	-37.1	-32.3	-32.4	-32.2
Total supply	-16.2	-25.1	-26.5	-27.3	-25.3
Barley:					
Beginning stock	1.2	-23.4	-31.4	-35.7	-38.6
Production	-17.9	-10.7	-7.0	-5.2	-4.0
Total supply	-10.8	-16.3	-18.3	-19.5	-20.2
Oats:					
Beginning stocks	8.1	-10.7	-11.3	-8.7	-4.6
Production	-48.0	-37.6	-32.5	-26.8	-28.7
Total supply	-31.9	-29.0	-25.7	-21.4	-20.5
Soybeans:					
Beginning stocks	.4	1.1	39.9	102.8	96.3
Production	-3.4	2.4	1.3	-3.4	-5.2
Total supply	-2.6	2.2	6.8	6.6	4.0

1/ Option 1 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

with the lowest crop yields, the average quality of land used for production will rise as the total amount of land used for production declines. For production to be restricted to the point where the commodity markets clear at 80 percent of the parity price, the percentage of land removed from crop production will have to exceed the percentage decrease in crop production.

Farmers will increase profits by increasing yields until the costs of marginal production equal the value of the additional production. As prices rise, due to the limit on planted acreage, farmers can be expected to increase the intensity of use of inputs such as fertilizers, pesticides, high-quality seed, and water as they switch to more intensive cultivation practices to increase yields. Table 4 presents the estimated changes in average input use that would likely result when an AA program (option 1) is substituted for the

Table 4--Changes in input use, yield, and production costs from FSA levels under option 1 1/

Item	Corn	Soybeans	Wheat
		Percent	
Input use per acre:			
Nitrogen (pounds)	26.44	6.08	20.34
Phosphate (pounds)	5.64	.25	11.65
Potassium (pounds)	14.63	.45	21.93
Pesticides (pounds)	4.75	.14	4.41
Labor (dollars per hour)	-5.66	2.14	.25
Machinery (dollars per hour)	-4.84	1.38	-.24
Machinery energy (diesel gallons)	-4.08	.33	.26
Yield (bushels per acre)	14.51	1.26	11.25
Production costs (dollars per acre)	6.63	2.14	8.33

1/ Option 1 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

current legislation. Application rates for fertilizer increase substantially for corn and wheat production. Nitrogen application rates increase over 20 percent for corn and wheat, while the rates increase 6 percent for soybeans. Per-acre machinery costs are relatively constant for soybeans and wheat but decline almost 5 percent for corn. The changes in input use coupled with the removal of less productive land from production increase yields for corn, wheat, and soybeans, 14.4, 11.3, and 1.3 percent, respectively. Increased input use raises per-acre production costs for corn, wheat, and soybeans by 6.6, 8.3, and 2.1 percent, respectively.

Estimating the yield response is critical in implementing an MPCP. If the yield response is underestimated, production will exceed the target level and either dampen the price increase if marketed domestically or raise Government costs if stored or marketed abroad.

Crop Producers

Producers of commodities controlled by an MPCP will benefit more from higher prices than would other farmers. But the gains vary across production regions. The Northern Plains and Corn Belt, where the production of program crops is concentrated, realize a much larger percentage of the increase in returns than elsewhere. Farmers who can increase crop yield by applying more fertilizer or by rotating fields to use more productive land will gain relative to other farmers.

Livestock Producers

An immediate rise in grain prices substantially reduces the profitability of livestock production during the early years of the AA program (table 2).

Total feed expenditures increase 40 percent over FSA feed costs. Livestock producers initially react to higher feed costs and lower expected profitability by reducing livestock numbers. Beef production shifts from grain-fed to nongrain-fed finishing. Over the 5-year period, a 17.4-billion pound decrease in fed beef production is offset by a 10.3-billion pound increase in nonfed beef production, a 7.1-billion pound net decrease in beef production. The reduction in pork and poultry production is 4.4 and 3.2 billion pounds. Production of fluid milk is reduced over 35 billion pounds.

Livestock prices increase dramatically as livestock production declines. By 1990, beef prices increase 30-40 percent, pork prices 80 percent, and poultry prices more than 50 percent. Since grain production is restricted, livestock producers will be unable to expand herd sizes, and the higher prices for livestock will be maintained. The net result of these changes in the livestock sector is that net returns from livestock are drastically lower during the first 2 years of the MPCP as producers reduce livestock inventories to adjust to the higher cost structure. As livestock prices rise, net returns rise to a point where the profitability of livestock production is greater with the MPCP on grains than without the control program.

The dynamic nature of livestock production makes it difficult to model producer responses to the higher grain prices associated with an MPCP. It is unlikely that these results represent an equilibrium solution. They do, however, reliably represent the trends likely to occur if an MPCP is implemented.

Effects on Other Sectors of the Economy

In the short run, many farmers gain from implementation of an MPCP. Livestock producers are hurt in the first 2 years, but are better off by 1990. However, the MPCP will also result in adjustments in other related sectors of the economy. Agribusiness income will fall and consumers will spend more money for food, while environmental quality will generally improve. The effect of an MPCP on Federal expenditures could increase or decrease. But, Government costs will almost certainly rise if export subsidies are used.

Agribusiness

An MPCP will affect industries that supply agricultural inputs, process food for consumers, or are involved with agricultural exports. The AA program is designed to restrict feed grain production. The most important secondary effect of this reduced grain production is a drop in red meat and poultry consumption, which will reduce the economic activity associated with processing, transporting, and selling red meat and poultry. Red meat and poultry consumption would have likely declined about 1.7 billion pounds, or 6 percent from the FSA, in 1987. By 1990, the shift from the FSA to an AA program would result in the food-processing sector losing $234 million, the transportation sector $66 million, and the marketing sector $453 million. The decreased activity in these sectors will increase unused production capacity, an aggregate loss throughout the economy of $1.7 billion and a displacement of 65,000 jobs.

An MPCP will reduce sales of fertilizers, pesticides, and farm machinery. Total acreage in crop production would have declined up to 17 percent under the AA program, with crop acreages for corn, wheat, and soybeans declining 26,

12, and 2 percent, respectively, in 1986. Almost 60 percent of all fertilizers are applied to MPCP-controlled crops, so the fertilizer industry could lose a significant amount of its market. The more intensive use of fertilizers and pesticides with an acreage allotment partially offsets the reduced demand for inputs attributable to the acreage reduction. Total fertilizer use declines about 5 percent for nitrogen and up to 20 percent for phosphorus applied to corn. Machinery and pesticide use decline by approximately 19 percent. The reduction in machinery use could further depress farm implement industries. Overall, it is estimated that input industries would be relatively unaffected if the AA program were implemented, and fewer than 1,000 jobs would be displaced.

Federal Treasury

An MPCP, like most agricultural programs, results in tradeoffs between Government program costs and increases in farm income. The income support that an AA program provides to farmers was discussed earlier. Instituting an acreage allotment would reduce or eliminate Government expenditures associated with current income support programs. The Federal Treasury will realize cost savings from eliminating deficiency payments and storage costs for surplus commodities. Government income support costs would decline approximately $10 billion per year during the initial years of an AA program (table 5). The decreased production of dairy products from higher feed grain costs results in savings of $0.2 to $0.8 billion in the dairy program.

The MPCP illustrated here was designed to raise the domestic prices of the controlled commodities to 80 percent of parity prices. A rise in domestic commodity prices to this level will create a situation where domestic prices are higher than world market prices. Without Government intervention, the quantity of U.S. farm commodities demanded for export will decline dramatically because U.S. exports will not be competitive in world markets.

Export subsidies are one way to maintain the U.S. share of the world agricultural market. Under the conditions simulated, a subsidy of $2 per

Table 5--Changes in Government costs from FSA levels under option 1 1/

Item	1986	1987	1988	1989	1990
			Billion dollars		
Export subsidy	4.8	12.5	12.8	12.8	13.3
Commodity Credit Corporation storage	0	.6	.7	.4	.3
Farmer-Owned Reserve storage	0	-.7	-.6	-.5	-.3
Deficiency payments	-4.2	-9.3	-10.3	-9.7	-8.5
Dairy payments	0	-.8	-.6	-.3	-.2
Total	.6	2.2	1.9	2.7	4.5

1/ Option 1 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

bushel of corn and a subsidy of $3 per bushel of wheat are required to maintain exports at their current levels. Subsidies of this magnitude would cost the Federal Government $12-13 billion per year, or $56 billion over the 5-year study period (table 5). Subsidizing exports raises the possibility that grain-exporting competitors would retaliate, leading to even higher subsidy costs over time.

The costs of the export subsidy program exceed the savings from eliminating current programs. Over the 5-year period, the total Federal costs of the AA program are projected to increase $12 billion over the costs of the FSA.

Consumers

A program designed to increase prices received by farmers will increase consumer food costs. The increase in food costs (3-10 percent per year) under an AA program will be less than the increase in farm income (36-100 percent per year). However, total food expenditures will rise by more than total farm income because food costs are distributed over all consumers and because farm commodities represent a small portion of retail food costs (currently about 30 percent). Over 5 years, consumer costs due to higher food prices would be roughly $80 billion more under the AA program than under current FSA legislation (table 2). This increase is equivalent to the $78 billion increase in net farm income.

Consumers with a fixed budget will reduce their purchases of other items to offset higher food costs. If the formula used to determine support prices under an MPCP accounts for inflation, a spiral effect could result in which higher inflation rates lead to higher agricultural prices which, in turn, will affect all general prices, as reflected in the Consumer Price Index (CPI). Rising food costs would raise the CPI which, in turn, would raise the cost of many Government programs, such as Social Security, that are tied to changes in the CPI.

Using higher prices to increase farm income would have the same effect as a regressive consumer tax, such as a sales tax on food, because low-income families spend a larger share of their income on food than higher income families. Therefore, under an MPCP, low-income individuals would pay a greater share of program costs than if other revenue sources, such as income taxes, were used to raise farm income.

Natural Resources

Land use changes when an AA program is instituted. The amount of land used for crop production declines 20 percent in 1990 from the acreage associated with the current legislation. The average quality of land used for crop production increases as farmers remove their least profitable land from production. This analysis assumes that retired land will be placed in a soil-conserving use such as planting grasses.

Changes in land use induced by the acreage allotment produce benefits to society by reducing soil erosion, maintaining soil productivity, and reducing the damage to water quality from sediment and nutrients. Strohbehn outlined procedures for estimating these benefits (7). Total cropland erosion decreases 10 percent. Implementing the AA program results in national onsite (productivity) and offsite (water quality) benefits to society of almost $0.2

Table 6--Changes in soil productivity and water quality benefits from FSA levels under option 1 1/

Region	Erosion reduction	Productivity benefits	Water quality benefits	Total benefits
	Million tons	---------- $ 1,000 ----------		
Northeast	5.5	4.6	8.2	12.8
Appalachia	1.3	.6	.7	1.3
Southeast	-5.7	-1.8	-4.5	-6.3
Delta	-24.7	-8.1	-26.9	-35.0
Corn Belt	138.5	106.6	40.2	146.8
Lake States	20.5	19.1	28.3	47.4
Northern Plains	106.8	34.2	29.9	64.1
Southern Plains	-22.8	-6.4	-13.0	-19.4
Mountain	11.3	2.3	5.1	7.4
Pacific	13.5	4.0	10.4	14.4
Total	244.1	155.2	78.4	233.5

1/ Option 1 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

million per year (table 6). However, total erosion in the Southeast, Delta, and Southern Plains regions actually increases due to shifts in land use. The increased erosion may cause higher levels of environmental damage in these regions.

The more intensive use of fertilizers and pesticides on land remaining in production under the AA program raises the potential for ground water contamination and increases per-acre losses of soil and agricultural chemicals. Conservation and water quality problems may increase in some areas with the acreage allotment program. In addition, our simulations indicate irrigation of controlled commodities will be expanded. This increase would occur mainly in the Northern and Southern Plains regions, where the main source of water for irrigation is the Ogallala aquifer. Given the current trends in ground water depletion in these regions, increased irrigation could further damage the ground water resource and strain the water supply for other economic sectors in these regions.

Option 2: Marketing Quota

A marketing quota (MQ) can also be used as a method for mandatory production controls. The reactions of farmers will differ with a marketing quota compared with an acreage allotment because the controls are placed on the final product rather than on the land.

Since the MQ is designed to raise crop prices to 80 percent of parity (see box), the level of desired crop production is identical to the AA program (tables 1, 3). The difference between these approaches is how the crops are produced. This section highlights this difference.

Effects on Farmers

The MQ differs from the AA program in that the MQ's incentive is to minimize the costs of producing a fixed amount of the controlled crops, rather than to maximize profits from crops grown subject to a limit on the land available for production. Farmers have more flexibility in the selection of production technologies because input (land) use is not restricted under the MQ program (fig. 1). More land is used for crop production under an MQ program than under an AA program because this flexibility in choosing production intensity enables farmers to use more land less intensively. Under an MQ program, land used for crop production in 1986 would have been over 10 percent less than with the FSA (table 7). In comparison, the AA program would have reduced planted acreage by less than 20 percent.

Farmers would have incentive to decrease the intensity of input use with an MQ program because a producer will tend to choose the least-cost means of producing a crop. Per-acre use of inputs under an MQ program is similar to per-acre use of inputs under the FSA (table 8). Total input use falls in proportion with the decrease in acreage used. Lower per-acre input use leads to a lower average cost of production with the MQ program than with the AA program. Net farm income is greater with an MQ program than with an AA program because the MQ's costs are lower and gross revenue is the same for both programs. Net farm income increases $7 billion over 5 years compared with an acreage allotment (tables 2 and 7).

The effects of a marketing quota for grain production on livestock producers are similar to the effects with an acreage allotment. Grain prices will rise

Table 7--Changes from FSA levels under option 2 1/

Item	Unit	1986	1987	1988	1989	1990	Total
Net farm income	$billion	9.4	11.5	14.2	19.2	30.0	84.3
Crop income	$billion	9.5	19.2	16.0	15.3	15.6	75.6
Livestock income	$billion	-.1	-7.8	-1.7	3.9	14.4	8.7
Land in production (for eight major crops)	Mil. acres	-30.2	-30.3	-24.7	-20.7	-16.5	-122.4
Consumer costs	$billion	0	10.9	16.0	21.4	32.2	80.5
Export subsidy	$billion	4.8	12.5	12.8	12.8	13.3	56.2
Support payments	$billion	-4.2	-10.3	-10.9	-10.1	-8.8	-44.3
Government costs	$billion	.6	2.2	1.9	2.7	4.5	11.9
Total costs	$billion	-8.8	1.6	3.7	5.0	6.7	8.2

1/ Option 2 is a marketing quota MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

to 80 percent of parity, and the same adjustments in livestock production are induced.

Effects on Other Sectors of the Economy

An MQ program affects consumers and the Federal Treasury in a manner similar to the AA program. These effects are determined by changes in final product prices and adjustments in stocks of surplus commodities. The effects on agribusiness and natural resources differ between the programs because the AA program constrains land use and increases crop yields.

Agribusiness

The effects of an MQ program on firms that transport, process, and distribute food products will be similar to the effects of an AA program, but the effects on input supply firms differ. Input use under the MQ program declines in comparison with the FSA and AA programs (table 8). Total nitrogen use falls over 14 percent from the levels used under the FSA, whereas the decrease under the AA program is only 5 percent. Conversely, machinery costs decline 11 percent from FSA levels, compared with a 19-percent decline with an AA program.

Natural Resources

Because a marketing quota does not restrict crop acreage, more land is used for crop production than under an AA program. Total erosion increases relative to the AA program, but the amount is less than with the FSA. Less intensive land use lowers the average erosion rates from cropland. Total fertilizer and pesticide use is less than with an AA program, so surface runoff and percolation into ground water has a lower concentration of nutrients and agricultural chemicals. In comparison with the FSA, the lower

Table 8--Changes in input use, crop yield, and production costs from FSA levels under option 2 1/

Item	Corn	Soybeans	Wheat
		Percent	
Input use per acre:			
Nitrogen (pounds)	-.21	1.96	3.68
Phosphate (pounds)	-.70	-1.15	2.67
Potassium (pounds)	-.61	.86	3.53
Pesticides (pounds)	.77	.06	2.04
Labor (dollars per hour)	-.99	-.80	-.96
Machinery (dollars per hour)	-1.01	-1.97	-.38
Machinery energy (diesel gallons)	-.95	-1.29	-.76
Yield (bushels per acre)	-.21	-.54	2.60
Production costs (dollars per acre)	.39	.23	2.53

1/ Option 2 is a marketing quota MPCP designed to raise prices to 80 percent of parity, with an export subsidy.

concentration of agricultural chemicals combines with a lower erosion rate to result in a net social gain. Irrigated acreage increases 10 percent over the FSA (less than the increase under the AA program).

Alternative Implementation Approaches

Two additional acreage allotment scenarios were examined, one with a less ambitious price objective (TP) and the other with no export subsidy (NES) (see box). If we were to substitute a marketing quota for the acreage allotment in options 3 and 4, the general direction of change would be similar to those for options 1 and 2.

Option 3: Lower Price Objective

An acreage allotment was used to raise prices to a level equivalent to current target prices. The effects of this TP program are illustrated in tables 9 and 10. An export subsidy is assumed to remain in effect. Loan rates are set at current target price levels, raising prices by up to 80 percent of current market prices (the AA and MQ programs raise commodity prices 125 percent over current market rates). The effects of the MPCP are reduced as a result of the lower price goal. Demand for the regulated commodities increases under the TP program because market prices are lower than for the AA and MQ programs. The higher demand results in a smaller reduction in crop production and more land in crop production.

Effects on Farmers

Over the 5-year period analyzed, farm income increases $40 billion over the FSA program, only about half of the increase of the AA program. The increase in farm income is substantially lower for this alternative than under the options where grain prices increase to 80 percent of parity.

Farmers have an incentive to slightly increase yields on the land remaining in production. But, these incentives are not great because commodity prices are lower than with the AA program.

Table 9--Changes from FSA levels under option 3 1/

Item	Unit	1986	1987	1988	1989	1990	Total
Net farm income	$ billion	5.4	3.4	5.6	10.1	15.4	39.9
Land in production (for eight major crops)	Mil. acres	-34.0	-32.2	-22.9	-15.3	-8.6	-113.0
Consumer costs	$ billion	0	7.7	12.0	16.3	21.0	57.0
Export subsidy	$ billion	2.9	7.3	7.7	7.4	6.8	32.1
Support payments	$ billion	-4.2	-10.2	-11.0	-10.1	-8.8	-44.2
Government costs	$ billion	-1.4	-2.9	-3.3	-2.6	-2.0	-12.1
Total costs	$ billion	-6.8	1.4	3.1	3.6	3.6	5.0

1/ Option 3 is an acreage allotment MPCP designed to raise prices to current target prices, with an export subsidy.

Table 10--Change in total supply from FSA levels under option 3 1/

Crop	1986	1987	1988	1989	1990
			Percent		
Wheat:					
Beginning stocks	0.4	0.5	-6.8	-9.8	-5.5
Production	-3.0	-9.6	-6.0	.6	4.6
Total supply	-1.4	-5.3	-6.3	-3.8	.5
Corn:					
Beginning stocks	.2	-17.0	-25.6	-28.0	-25.3
Production	-15.5	-14.0	-9.8	-6.0	-1.5
Total supply	-10.2	-15.1	-16.0	-14.6	-10.3
Sorghum:					
Beginning stocks	.2	-3.5	-16.9	-18.9	-12.8
Production	-18.4	-27.9	-23.0	-19.4	-15.3
Total supply	-11.5	-19.2	-20.6	-19.2	-14.4
Barley:					
Beginning stocks	1.1	-22.8	-31.5	-36.0	-38.8
Production	-15.7	-8.0	-4.2	-2.3	-1.5
Total supply	-9.5	-14.5	-16.8	-18.2	-19.0
Oats:					
Beginning stocks	3.7	3.2	-9.8	-10.0	5.4
Production	-17.3	-21.8	-17.6	-9.7	-10.4
Total supply	-11.3	-14.1	-15.0	-9.6	-6.5
Soybeans:					
Beginning stocks	.3	0	38.6	98.2	92.9
Production	-1.9	4.2	2.5	-1.9	-3.7
Total supply	-1.5	3.4	7.5	7.6	5.1

1/ Option 3 is an acreage allotment MPCP designed to raise prices to current target prices, with an export subsidy.

The effects on livestock production are reduced because feed grain prices do not rise as much as they would under the AA program. Adjustments in herd sizes will be lower, and subsequent increases in meat prices will be reduced.

Effects on Other Sectors of the Economy

With the TP option, directions of changes in economic activity in other sectors of the economy are similar to those in the AA option. However, the magnitudes of the changes are lower since the increase in prices is lower and more land is used for production.

Agribusiness. The TP reduces the negative effects on agribusiness. More meat products will be processed, reducing losses to meatpacking firms. Since more

land remains in production, total input use will be greater than under the AA program but still less than under FSA, which will reduce the effects on the input supply industry.

Federal Treasury. Federal outlays are sharply reduced under the TP program. Compared with the FSA, the TP program reduces Government costs $12 billion through 1990. These savings result from the elimination of deficiency payments and storage costs. An export subsidy is used to maintain exports at FSA levels. Because the price increases are lower than with the AA and MQ programs, the export subsidy (the difference between the new domestic price and the world price) is also less. Under the TP program, an export subsidy of $1.13 per bushel of corn is required, compared with a $2 subsidy per bushel with the AA and MQ programs. The subsidy for wheat falls from $3 to $2 per bushel. As a result of the lower subsidy expenditures, direct costs to the Federal Treasury are $24 billion lower than costs under the AA and MQ programs. The lower export subsidy will reduce, but not eliminate, the incentives for importing countries to retaliate against the United States.

Consumers. Consumer costs increase $57 billion over FSA costs over a 5-year period. The consumer costs are $23 billion lower than under the MQ and AA programs ($80 billion) because of the smaller increase in the domestic prices of the controlled crops. The increase in consumer costs is still substantial and falls disproportionately on poor consumers.

Natural Resources. The amount of land used for crop production declines 9 percent from FSA levels. The average yields of the controlled crops will increase, but the increase is less than the rise in average yields under the AA program. The effect on yields is smaller because less cropland is removed from production and the marginal revenue from additional production is less. Productivity and water quality benefits will increase over FSA levels. However, these benefits will be lower than under an AA program.

Option 4: No Export Subsidy

It is not necessary to subsidize exports with an MPCP. However, if exports are not subsidized, the export demand for the controlled crops will decline substantially because prevailing world market prices will be less than the domestic market prices. Stricter production controls can be instituted to balance the sum of foreign and domestic demand for U.S. production at the higher domestic prices.

The effects of an acreage allotment MPCP were simulated without an export subsidy (NES) in tables 11 and 12. Marketing loans were maintained at 80 percent of parity. Imports of the controlled crops were prohibited. Exports of the controlled commodities were assumed to occur only if foreign purchasers were willing to pay the supported price.

Effects on Farmers

Farmers face many of the same incentives under this NES scenario as under the AA scenario. Total production is lower relative to the AA because the quantity of crops demanded by export markets declines. Because total production is reduced while prices remain at 80 percent of parity, total net farm income is lower than for the AA program. Net farm income still increases $39 billion over FSA levels (table 11). The effects on livestock producers

Table 11--Changes from FSA levels under option 4 1/

Item	Unit	1986	1987	1988	1989	1990	Total
Net farm income	$ billion	7.5	5.0	6.5	11.2	22.4	52.6
Land in production (for eight major crops)	Mil. acres	-77.3	-90.8	-90.2	-89.3	-88.1	-435.8
Consumer costs	$ billion	0	11.0	15.6	21.0	32.1	79.7
Export subsidy	$ billion	0	0	0	0	0	0
Support payments	$ billion	-4.2	-10.3	-10.9	-10.1	-8.8	-44.4
Government costs	$ billion	-4.2	-10.3	-10.9	-10.1	-8.8	-44.4
Total costs	$ billion	-11.7	-4.3	-1.8	-.3	.9	-17.3

1/ Option 4 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with no export subsidy.

are identical to those in the AA program because the increase in feed grain costs is the same in both options.

Average crop yields increase because the additional land removed from production is the least profitable, and generally the least productive. Average yields increase 16 and 14 percent for corn and wheat.

Effects on Other Sectors of the Economy

Since total production is significantly lower under this option than under the other options, the negative effects on agribusiness and the positive effects on natural resources are greater. The effects on consumers are similar to the effects under options 1 and 2, while costs to the Federal Treasury are lower because exports are not subsidized.

Agribusiness. The effects on agribusiness can be divided into three groups: food-processing firms, export firms, and input supply firms. The effects on food-processing firms are similar to effects from an AA program. Meat-processing firms suffer as livestock production declines in response to the higher costs for feed grains.

Exports decline 40-60 percent (table 13), and firms that engage in the transporting, storing, and marketing of grain for export will lose a significant portion of their business. If U.S. exports are reduced by the magnitudes suggested in this analysis, world prices for these crops will increase. Foreign producers will gain from this price increase as competing exporters increase production and exports to take advantage of the higher world prices. After these countries have shifted their resources to increase their production capacity, it may be difficult for the United States to regain its current market share even if commodity prices fall.

Input supply firms will suffer their greatest losses under this scenario because, without export subsidies, less cropland is in production than under any other option.

Table 12--Change in total supply from FSA levels under option 4 1/

Crop	1986	1987	1988	1989	1990
			Percent		
Wheat:					
Beginning stocks	1.4	0.7	-6.7	-9.7	-5.6
Production	-22.7	-39.3	-42.2	-38.8	-36.5
Total supply	-11.5	-22.3	-26.9	-26.4	-23.9
Corn:					
Beginning stocks	.3	-17.0	-25.6	-28.3	-25.2
Production	-27.3	-30.3	-28.9	-28.2	-26.8
Total supply	-17.9	-25.4	-27.6	-28.2	-26.2
Sorghum:					
Beginning stocks	.3	-3.0	-18.1	-18.7	-12.9
Production	-36.5	-53.3	-50.7	-55.7	-55.6
Total supply	-22.9	-35.5	-38.1	-41.3	-40.6
Barley:					
Beginning stocks	1.2	-23.2	-31.3	-35.7	-38.6
Production	-17.7	-10.8	-7.2	-5.0	-3.8
Total supply	-10.7	-16.2	-18.3	-19.4	-20.1
Oats:					
Beginning stocks	8.1	-10.7	-12.2	10.4	4.9
Production	-48.0	-38.0	-32.9	-26.1	-28.8
Total supply	-31.9	-29.3	-26.2	-21.4	-20.5
Soybeans:					
Beginning stocks	2.9	.1	38.6	99.3	94.2
Production	-20.9	-21.6	-24.9	-28.9	-30.5
Total supply	-16.0	-17.4	-16.0	-16.7	-19.1

1/ Option 4 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with no export subsidy.

Table 13--Change in exports from FSA levels under option 4 1/

Commodity	1986	1987	1988	1989	1990
			Percent		
Corn	-36	-50	-58	-63	-64
Sorghum	-35	-54	-60	-64	-65
Soybeans	-31	-44	-49	-50	-51
Wheat	-38	-57	-62	-63	-62

1/ Option 4 is an acreage allotment MPCP designed to raise prices to 80 percent of parity, with no export subsidy.

Federal Treasury. The NES program is the least costly MPCP option. FSA deficiency payments do not occur under the NES program, and storage costs are eliminated as surpluses are depleted. The removal of export subsidies results in a Federal cost savings of $44 billion.

Consumers. The only difference between the NES and the AA options is the removal of the export subsidy. Because an export subsidy does not affect domestic consumption, the consumer effect will be the same as under the AA program.

Natural Resources. The reduced demand for crop production caused by the elimination of the export subsidy translates into the idling of an additional 80-90 million acres over the land removed from crop production under the FSA program. This additional idling reduces total erosion and increases the soil productivity and water quality benefits that result from implementing an MPCP.

Other Effects

Several other effects of the MPCP include longrun effects on efficiency of production, capitalization of program benefits, and administration and enforcement of the program. Although this analysis does not quantify these effects, the likely direction of these effects is briefly discussed.

Production Efficiency

An MPCP will affect production efficiency in several ways. Freedom of choice in farm operations is constrained and is a major consideration of farmers when comparing a mandatory control program against other policies. The rigid production controls will increase production costs by reducing market incentives that signal inefficient producers to quit production and efficient producers to expand. Agricultural efficiency also will be reduced because farmers may receive artificial incentives to produce crops for which they have no comparative advantage. Land, labor, and farm resources will be idled as an MPCP restricts grain production. If these idle resources are diverted to producing other unregulated commodities, such as vegetables, prices for these crops will be reduced.

If an MPCP applies only to off-farm sales, farmers will have an incentive to combine crop and livestock production into a single operation as a means to circumvent production constraints. Feed grain producers could acquire livestock to consume excess production, while livestock producers could acquire land to produce feed grains for onfarm consumption. These resource reorganizations would reduce the effectiveness of an MPCP. One alternative could be more stringent control on producers who have the option to raise livestock. An MPCP permitting shifts between crop production and livestock operations might also induce more livestock production, reducing the profitability of the livestock sector. Such adjustments would significantly reduce the economic advantages of specialized commercial feedlots. Our empirical analysis assumed that the combining of crop and livestock production in this manner was prohibited.

Capitalization of Program Benefits

An MPCP restricts production by limiting an individual's right to produce and market agricultural commodities. Because farm income will rise under an MPCP, the right to sell or produce a product will become valuable. Individuals wishing to enter agriculture or expand operations will have to acquire production rights to produce controlled commodities, perhaps in a manner similar to the tobacco program. Government regulations will be needed to allocate these production rights. The right to produce agricultural commodities is generally based on production history, either by quantities produced or acreage planted. The Government could retain the authority to reallocate future rights to produce. This would require a set of rules and regulations to determine who possesses production rights.

A more realistic alternative is to allocate production rights to current producers at the beginning of an MPCP. These production rights could then be sold to other producers in the future. If the right to produce commodities is tied to land, cropland rental rates and/or purchase prices will rise to reflect the value of the acreage allotment. Rental rates, primarily reflecting share leases, are expected to triple under an acreage allotment program. Individuals or landowners initially awarded quotas will receive the benefits. Future producers will have to pay for the right to produce agricultural commodities. Thus, assignment of production rights to current farmers will have little economic benefit to future farmers, but will award an economic gain or rent to current producers. Dvoskin estimates that elimination of quotas in the U.S tobacco industry would cost current U.S. quota owners $400 million per year in lost quota rents (1). In Canada, the cost of a production quota for a new dairy operation represents about 30 percent of the total initial investment (1). Most purchases of dairy quotas in Ontario are made by existing producers. This leads to further concentration of the dairy industry.

Since MPCP quotas have an economic value, holders of the quotas have a strong incentive to ensure that the quotas remain in place over time. Thus, once an MPCP has been implemented, political pressure can be expected from owners of production rights for the retention of the program. In Australia, attempts to eliminate mandatory controls of the egg industry failed because doing so would reduce the current egg producers' wealth. These producers succeeded in preventing passage of the legislation. In a study of mandatory control programs throughout the world, Dvoskin found that "quotas have apparently become a permanent part of the agricultural sector" (1).

Administration and Enforcement

An MPCP could have additional administrative costs. Agricultural authorities will have to expand their budgets to administer and enforce the program. An MPCP increases the profitability of crop production and raises feed grain prices to livestock producers and, therefore, creates strong incentives to bypass the marketplace. Crop producers would be tempted to illegally sell feed grains produced in excess of the controlled quantity for a slightly lower price, providing livestock producers with lower cost feed. In both Australia and Israel, enforcement of production controls on eggs have had little effect. Illicit egg markets in those countries account for approximately 20 percent of total egg sales.

Monitoring and enforcing an MPCP could be expensive in view of these incentives. The Canadian Government spends Can.$4,600 to $6,000 per producer per year for the enforcement and inspection of the production control program for the Canadian egg industry (1).

Comparison of MPCP Options

The manner in which an MPCP is implemented will influence the aggregate effects of the program. This analysis covers the potential tradeoffs between farm income, consumer costs, and Government costs that could result from implementing an MPCP (table 14). The effects of the MPCP depend on the level of controls placed on agriculture and the willingness of the Federal Government to maintain an export subsidy enhancement program.

Each of the MPCP options raises net farm income. The MQ raises net income the most because it has a high price target and permits farmers to have more flexibility in organizing farm operations. The AA results in a slightly smaller increase in net farm income because the AA creates incentives for farmers to maximize output per acre, which leads to higher production costs. The two other options provide about a 50-percent smaller increase in net farm income. The TP option increases commodity prices by a smaller amount. Exports decline when export subsidies are eliminated (table 13), and total production must be decreased to eliminate the buildup of surplus stocks.

The decline in land used for agriculture ranges from 9 percent with the target price MPCP to over 34 percent when export subsidies are eliminated. These shifts in land use have secondary effects on the input supply industries and on environmental quality. Environmental quality improves when farmers use less land and fewer inputs. However, the income of input suppliers also declines. Per-acre use of inputs is greater with all of the acreage allotment options than with the MQ option.

Consumers are better off under the TP option, when price increases are the lowest (when prices increase to the target rate). The three options that raise commodity prices to 80 percent of parity have similar effects on consumer costs: a 3.5-percent increase over FSA levels.

Table 14--Aggregate effects of MPCP options over 5 years

Item	Unit	Option 1: Acreage allotment	Option 2: Marketing quota	Option 3: Loan rates	Option 4: No export subsidy
Net farm income	$ billion	77.9	84.2	39.0	52.6
Land in production (for eight major crops)	Mil. acres	-170.6	-122.4	-113.0	-435.8
Consumer costs	$ billion	80.5	80.5	57.0	79.7
Export subsidy	$ billion	56.2	56.2	32.1	0
Support payments	$ billion	-44.3	-44.3	-44.2	-44.4
Government costs	$ billion	11.9	11.9	-12.1	-44.4
Total cost	$ billion	4.5	8.2	5.0	-17.3

Reducing Government costs for agricultural programs is a primary reason for advocating mandatory controls. This analysis found that an MPCP may not reduce Government costs if exports are subsidized to maintain current shares of world markets. Total Government costs increase for the AA and MQ options when prices are raised to 80 percent of parity and exports are subsidized. The $44-billion decline in program costs for deficiency payments and storage of surplus production is offset by the $56 billion required for the export subsidy. Total Government costs decline under the two other options. When domestic prices are raised to a level consistent with the FSA loan rates, the export subsidy declines $24 billion, resulting in a net savings to the Government of $12 billion. If exports are not subsidized, the Government realizes the full savings of $44 billion resulting from eliminating current programs. The tradeoff of this savings to the Government is a much smaller agricultural sector.

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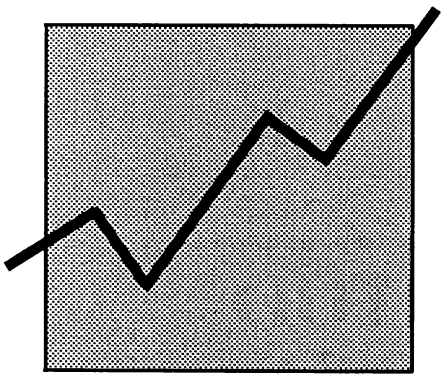

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