

in production, use, or prices they might otherwise have to make in response to fluctuations in the world market. However, it would become an increasingly costly role for the United States over time in terms of the budget outlays necessary to build up and maintain large-scale CCC stocks as well as lost export market share.

On the other hand, eliminating supports would signal U.S. unwillingness to continue supporting trade prices and underwriting operation of the world market. U.S. prices would automatically fall or rise to the levels necessary to clear the domestic U.S. market and, in turn, the world market.

These differences in trade prices and the trade policy environment between scenarios would have a twofold impact. A change in trade prices would initially affect demand in the major importing countries. If continued over any length of time, changes in trade prices would also affect production in both the importing and competing exporting countries. For example, higher prices under permanent legislation would initially reduce world import demand and, if continued, encourage producers in the importing and other exporting countries to expand output to displace high-priced U.S. products. Increased export availabilities in the competitor countries, combined with dampened demand in the importing countries, would reduce both U.S. exports and the U.S. share of the world market.

Conversely, the lower prices likely with supports eliminated, reinforced by the changes in U.S. trade policy they imply, would work in the short term to strengthen world import demand. If continued for any length of time, they would also discourage growth in production in the importing countries and encourage greater dependence on low-priced imported U.S. products. The lower prices and riskier market environment would also discourage production for export in the competing exporting countries. Both developments would boost U.S. exports and the U.S. share of a growing world market.

U.S. Exports Under the Permanent Legislation and No-Support Scenarios

Differences in U.S. exports between scenarios were estimated using the price elasticities of export demand summarized in table 31 and detailed in Appendix II.

The results shown in tables 31 and 32 suggest that permanent legislation's parity-linked loan rates would raise world market prices enough to slow growth in world import demand by one-third or more by 1990. Farmers in the other exporting countries would increase production for sale abroad in competition with the United States as much as 50 percent faster than the pace likely without permanent legislation's support umbrella. Displaced U.S. exports would account for as much as one-third of the surpluses accumulated by the CCC in its efforts to support farm prices.

With supports eliminated, growth in import demand could accelerate 25 percent or more while growth in supply in the other exporting countries could lag at possibly two-thirds the pace likely with high price supports. U.S. export volume under permanent legislation would grow less than 1 percent per year and lag below record 1979-81 levels until early in the 1990's (table 32). The U.S. volume share of the world market would drop from a peak of 40 percent at the start of the 1980's and 37 percent currently to 30-32 percent by 1990. Moreover, U.S. export levels could also become more variable from year to year as the United States became even more of a residual world supplier, particularly for commodities such as wheat, rice, and cotton.

While not provided for in the permanent statutes, the P.L. 480 and export credit programs were assumed to continue in operation at recent funding levels of approximately \$6 billion. These programs would become increasingly critical as the decade progressed in keeping U.S. export performance from weakening further. Without these export enhancement programs in place, the U.S. share of the world market would drop even further to possibly 25 to 27 percent. There would undoubtedly be considerable pressure to increase funding of export credit programs and to use export subsidies to dump commodities on foreign markets to ease permanent legislation's surplus problems.

Under the no-support scenario, lower trade prices would work to expand world import demand at half-again the pace likely with supports in place. Equally important from a U.S. perspective, the incentive for competing exporters to expand production for sale abroad would be lessened considerably. With no supports, U.S. export volume could grow 4 to 6 percent per year and break the volume record set in 1979-81 by 1987. This combination of faster growth in world import demand and a more competitive U.S. position in the market could increase the U.S. share of world agricultural trade to possibly 42 to 44 percent by 1990.

The U.S. trade outlook under the two alternative scenarios differs somewhat if measured in terms of export value rather than export volume. Higher export prices under permanent legislation offset much of the scenario's slower growth in export volume. As a result, the value of exports under permanent legislation would be only \$2 to \$3 billion below that with supports eliminated, which would reflect lower export prices but higher export quantities.

From the standpoint of economic activity and employment, however, the volume of products moving into export is more important than export prices and export value. As noted earlier, economic activity and employment is particularly

Table 31--Price elasticities of foreign demand for U.S. farm exports 1/

Crop	: U.S. export demand
Wheat:	:
Permanent legislation	: 0.9 to 1.1
No supports	: .7 to .8
	:
Coarse grains:	:
Permanent legislation	: .8 to 1.0
No supports	: .7 to .9
	:
Soybeans and meal:	:
Permanent legislation	: .8 to 1.0
No supports	: .7 to .9
	:
Cotton:	:
Permanent legislation	: .6 to .7
No supports	: .4 to .5
	:

1/ See Appendix II for sources and supplementary information.

Table 32--Alternative U.S. agricultural export volume and value under the permanent legislation and no-support scenarios

Item and unit	1983	1984	1985	1986	1987	1988	1989	1990	1986-90 average
Export volume									
Permanent legislation:									
Wheat (bil.bu.)	1,429	1,525	1,400	1,175	1,260	1,350	1,400	1,470	1,330
Corn (bil.bu.)	1,866	2,025	2,035	2,020	2,115	2,100	2,165	2,250	2,130
Soybeans (bil.bu.):	740	800	860	840	865	900	915	925	889
Cotton (mil.bales):	6.8	6.5	6.0	4.6	4.5	4.1	3.6	3.1	3.7
Rice (mil.cwt)	70.3	68	70	45	43	41	39	37	41
Tobacco (mil.lbs.):	620	600	605	605	610	615	615	605	610
No supports:									
Wheat (bil.bu.)	1,429	1,525	1,400	1,600	1,650	1,675	1,700	1,780	1,680
Corn (bil.bu.)	1,866	2,025	2,035	2,300	2,400	2,500	2,625	2,850	2,535
Soybeans (bil.bu.):	740	800	860	925	965	1,000	1,025	1,060	995
Cotton (mil.bales):	6.8	6.5	6.0	5.9	6.1	6.3	6.3	6.5	6.3
Rice (mil.cwt)	70.3	68	70	76	82	90	96	101	89
Tobacco (mil.lbs.):	620	600	605	730	760	770	730	760	750
Export value									
Permanent legislation (bil. dol.)	38.0	37.5	39.0	41.5	44.0	46.5	49.0	51.5	46.5
No supports (bil. dol.)	38.0	37.5	39.0	41.0	44.5	48.0	51.5	55.5	48.1

sensitive to volume of products moving through the transportation, processing, and marketing industries to export. For example, the employment and economic activity lost when farm exports fell from 164 million tons in 19881 to 141 million tons in 1984 would not be recovered until the 1990's with the permanent support programs in place, but would be recouped by 1987 under the no-support scenario.

Differences in export volume and value between the permanent legislation and no-support scenarios would be most pronounced for wheat, rice, and cotton. However, they would also be significant for feed grains, soybeans, and soybean products.

In the case of wheat, the United States faces a particularly price elastic market. Permanent legislation's high support prices would encourage large-scale expansion in production for export in countries such as Canada, Australia, Argentina, and the EC. These countries have traditionally marketed aggressively to maximize their exports and expand their share of the world market. Permanent legislation's higher trade prices would also slow growth in wheat import demand in the price-sensitive developing countries that dominate the import market.

The current depressed state of the world wheat market would also tend to strengthen the reaction to a reversion to permanent legislation. Growth in wheat import demand has slowed over the last several years due to macroeconomic and financial problems in many of the developing countries. Wheat production in several of the largest importing and exporting countries has also continued to grow. Aggressive competitor marketing and the rising value of the dollar have worked to weaken the U.S.'s competitive edge and dropped the U.S. share of world trade from a peak of 48 percent in the late 1970's to 38 percent currently. The wheat market's pronounced price sensitivity could combine with the depressed state of the market to keep U.S. exports as much as 350 million bushels lower in 1990 under the permanent legislation scenario than under the no-support scenario.

While the elasticities involved are lower, the change in cotton prices between scenarios is large enough to generate an even greater difference in export volumes. Under permanent legislation, U.S. cotton exports could drop to 3 million bales by 1990, or less than 15 percent of the bales traded worldwide, from 6.8 million bales and 36 percent of the market in the early 1980's. Under the no-support scenario, exports by 1990 could total 6.5 million bales and continue to account for approximately 35 percent of the world market.

Demand for U.S. feed grains, oilseeds, and oilseed products is less sensitive to price changes than wheat but more so than cotton. U.S. corn exports in 1990 could reach 2.3 billion bushels under permanent legislation compared with nearly 3 billion bushels under the no-support scenario. The U.S. position as the dominant supplier, rather than one of many suppliers as in the case of wheat, would minimize the change in U.S. market share between scenarios. The U.S. market share would range a few percentage points above and below 60 percent under the two scenarios. Exports of soybeans and soybean products by 1990 would be the equivalent of 1.1 billion bushels (50 percent of the world market) under permanent legislation but as much as 1.3 billion bushels (55 percent of the world market) under the no-support scenario.

U.S. Import Restrictions and Permanent Legislation Trade Levels

U.S. imports of farm products would not differ substantially between scenarios, but for very different reasons. Under the no-support scenario, domestic U.S. prices would be low enough to discourage imports of all the major program commodities with the possible exception of sugar. Under the permanent legislation scenario, trade restrictions would have to be used to prevent large-scale imports from displacing U.S. products and increasing CCC stocks and program expenditures.

It was assumed for this study that the import restrictions authorized under Section 22 of the Agricultural Adjustment Act, the Meat Import Law, and the General Agreement on Tariffs and Trade (GATT) would be pursued as vigorously as possible. The import restrictions necessary to minimize imports under the permanent support scenario would essentially close off the U.S. market. With support prices high, foreign suppliers could otherwise underprice U.S. producers without resorting to illegal trading practices.

This assumption of tightened U.S. import controls could work to slow growth in world agricultural trade and trade in nonfarm products. The countries affected by tightened U.S. import restrictions would undoubtedly seek redress under the General Agreement on Trade and Tariffs (GATT). GATT-awarded compensation could take the form of retaliation against U.S. farm products or nonagricultural exports. Equally important from a broader trade policy perspective, U.S. use of import restrictions of the magnitude likely under the permanent legislation scenario would weaken the postwar trade liberalization movement, possibly beyond recovery. The United States would find itself in a weak position to oppose similar moves by other countries (such as the EC) to limit imports of farm products from the United States to ease their own domestic agricultural problems. Given the experience of the 1930's, the dramatic tightening in U.S. import restrictions needed to make the permanent support programs operational could well lead to a generalized trade war.

GOVERNMENT EXPENDITURES, FOOD COSTS, AND ECONOMIC ACTIVITY

The effects of the support program decisions made in 1985 would quickly spread beyond the agribusiness sector to affect the operation of the general economy. This section of the report traces out the impacts alternative support programs would have on key macroeconomic indicators including Government expenditures, food prices and food consumption expenditures, and economic activity and employment.

Government Expenditures

Permanent Legislation Program Costs

The most pronounced differences between the permanent legislation and no-support scenarios analyzed in this report are in the Government expenditures area.

Given the commodity supply, demand, and price projections discussed earlier, the Federal Government could be spending as much as \$50 billion per year by 1990 under the permanent legislation scenario to support commodity prices and farm incomes at parity-linked levels. Roughly two-thirds of this total--\$34 billion--would be spent to finance USDA nonrecourse loan and storage activities (table 33). The cost of financing the \$150 to \$160 billion in

added Federal debt that would accumulate by 1990, assuming permanent legislation's programs were financed through borrowing, could reach \$17 billion. The increased costs involved in operating the food stamp program and other public assistance and entitlement programs with higher food prices could add \$3 to \$4 billion more to Government costs by 1990. As a result, the direct and indirect costs associated with reverting to permanent legislation could reach \$55 to \$60 billion per year by the start of the 1990's.

To put this cost estimate into perspective, expenditures in 1986 would be more than twice the cost of operating price and income supports over the 1970's, and costs by 1990 would be roughly twice the level projected for 1986. Expenditures

Table 33--Selected Government expenditures under the permanent legislation and no-support scenarios 1/

Item	1986	1987	1988	1989	1990	1986-90 avg.
Permanent legislation:						
CCC loan and purchase activity <u>2/</u>	18,500	17,400	20,100	23,200	27,000	21,250
Grains	11,800	10,000	10,900	11,300	13,400	11,500
Cotton	1,000	1,400	2,200	3,500	4,800	5,100
Dairy	3,050	4,400	5,300	5,900	6,500	2,600
Oilseeds	2,000	950	800	1,200	900	1,200
CCC storage costs	1,200	2,550	3,800	5,400	7,000	4,000
Subtotal	19,700	19,950	23,900	28,600	34,000	25,250
Accumulated interest costs <u>3/</u>	1,300	3,700	6,200	10,500	16,800	7,700
Total	21,000	23,650	30,100	39,100	50,800	33,000
No supports:						
Storage costs	770	740	705	640	485	665
Returns on stock sales	0	295	355	865	1,710	645
Accumulated interest costs <u>3/</u>	50	125	170	190	85	125
Total	820	570	520	-35	-1,140	145

1/ Includes only costs related to price and income support; does not include other costs such as P.L. 480, export credit, or food stamps.

2/ Total includes items not represented in the four subcategories.

3/ Assumes support program costs are deficit-financed at interest rates of 12.9 percent, 12 percent, 11 percent, 11.8 percent, and 12.8 percent, respectively, for 1986 through 1990. Accumulated interest was calculated as the current year's interest rate times one-half of the current year's net outlays plus previous years' net outlays and interest charges.

Note: Negative signs denote net revenues.

of this magnitude would be equal to more than a quarter of the sector's gross farm income and over half of the gross income of program commodity producers. Equally important, only a small portion of the \$55- to \$60-billion expenditures in question would ultimately accrue to farmers as net income after rising production expenses are taken into account. Program commodity producers could ultimately retain less than \$1 of every \$4 in direct and indirect Government costs associated with permanent legislation.

The high cost of the permanent support programs relates both to the link between parity and support prices and the use of nonrecourse loan or direct purchase programs. The permanent programs work to support prices by removing enough of the commodity in question from the market to tighten supplies sufficiently to boost producer returns. With support prices high and rising and output increasing each year, the volume of products that has to be taken off the market in order to support parity-linked prices would expand regularly--both in absolute terms and relative to total output. By 1990, the CCC could become the residual outlet for more than one-fourth of program commodity output.

Permanent legislation's loan, storage, and interest costs are theoretically recoverable. CCC would be empowered to sell any excess stock it accumulated as a result of support activities if market prices moved a predetermined percentage (generally 115 percent) above the support rate. However, the likelihood of CCC disposing of enough stock to recover any significant portion of its costs by 1990 is minimal. With large and growing stocks overhanging the market and support rates moving up each year, the probability of market prices rising high enough to trigger CCC sales would be small.

Year-to-year fluctuations in weather could raise or lower yields and in turn raise or lower the stocks CCC acquired in any one year. But yield variability would quite likely balance out over the period analyzed. As a result, while CCC stocks and program costs might vary in any one year from the estimates shown in table 33, the 1986-90 average is unlikely to change significantly and most CCC costs would effectively be nonrecoverable.

No-Support Program Costs

Government expenditures under the no-support scenario would be limited to funding USDA's disposal of the CCC stocks and farmer-owned reserves on hand at the end of the 1985 marketing year. Holding these stocks as a transition reserve until they could be disposed of without depressing market prices would involve outlays, including administrative costs and interest expenses, of less than \$1 billion annually early in the period. By the middle of the period, however, receipts from the sale of reserve grain and cotton could exceed the cost of operating the reserve and yield net revenues. The cost for the 5-year period analyzed here would be less than \$150 million per year, and as much as \$3 to \$3.5 billion in revenue could be generated by the 1990's as remaining stocks were sold off.

Food Prices and Food Consumption Expenditures

Differences in food prices and food consumer expenditures between scenarios would also be significant, particularly for milk, meat, and sugar. Data on food prices under the permanent legislation and the no-support scenarios (tables 34 and 35) suggest as much as a 1- to 3-percentage-point difference

between programs. This would translate into a \$15- to \$20-billion difference in food consumption expenditures by 1990. ^{6/}

Under the permanent legislation scenario, higher commodity prices and wider marketing margins would combine with higher prices for imported foodstuffs to generate a 4- to 6-percent average annual increase in retail food prices from 1986 through 1990. Growth in retail prices at this pace--fractionally faster than the general rate of inflation--would push food consumption expenditures up to \$420 billion by 1990 compared with \$300 billion in the early 1980's. This higher 1990 food bill would represent a double tax on most consumers who would also have financed the support programs that contributed to higher retail food prices.

Food prices would rise less quickly under the no-support scenario. The 1986-90 increase would average 2.5 to 4.5 percent per year and implies food consumption expenditures of \$400 billion per year by the end of the decade. Over the 5-year period, consumers would pay \$70 billion less with supports eliminated than with the permanent support programs in place. The percentage of income spent on food would also drop slightly by 1990 with supports eliminated while it would continue at 16 to 17 percent under permanent legislation. Moreover, food consumption levels would also be fractionally higher under the no-support scenario by 1990 because of the scenario's generally lower prices.

Table 34--Annual increases in retail food prices under the permanent legislation and no-support scenarios

Item	: 1984	: 1985	: 1986	: 1987	: 1988	: 1989	: 1990	:1986-90 average
	<u>Percent</u>							
Permanent legislation	: 4.5	: 4.2	: 5.9	: 4.5	: 4.7	: 4.7	: 4.8	: 4.9
No supports	: 4.5	: 4.0	: 2.7	: 4.4	: 4.2	: 2.4	: 3.9	: 3.6

Table 35--Food consumption expenditures under the permanent legislation and no-support scenarios

Item	: 1984	: 1985	: 1986	: 1987	: 1988	: 1989	: 1990	:1986-90 average
	<u>Billion dollars</u>							
Permanent legislation	: 320	: 335	: 355	: 370	: 385	: 405	: 420	: 385
No Supports	: 320	: 335	: 345	: 360	: 375	: 385	: 400	: 370

^{6/} The projections shown are based on commodity price data drawn from the crop and livestock sections of this report and on marketing margin estimates tied to the general macroeconomic indicators.

Economic Activity

The impacts of adopting either of the support programs analyzed here would ultimately be strong enough to affect the operation of the general economy. Many of these impacts--including changes in food prices and food consumption expenditures, increased competition for resources between the agricultural and nonagricultural sectors, and differences in employment and economic activity within the agribusiness sector--have already been highlighted. However, the larger or smaller Federal deficit and the different financial environments likely depending on the support program adopted would also have a significant impact on how the general economy performed.

As table 36 suggests, support programs would have a significant impact on the size of the Federal deficit. By 1990, the difference in farm program expenditures between the permanent legislation and no-support scenarios could exceed \$50 billion annually while the cumulative difference in spending from 1986 through 1990 could exceed \$160 billion. Depending on how this added deficit was financed, the rest of the economy could experience faster inflation rates or slower economic growth with a reversion to the permanent support programs and slower inflation or higher growth as a result of a no-support decision.

The interest rate and inflation measures in table 36 provide an indication of potential macroeconomic impacts. Should the Federal Reserve Board choose to monetize the added debt generated as a result of reverting to permanent

Table 36--Changes in Federal deficits and related indicators under the permanent legislation and no-support scenarios 1/

Item	:	:	:	:	:	:Cumulative
:	: 1986	: 1987	: 1988	: 1989	: 1990	: 1986-90
:						
Impacts on the						
Federal deficit: <u>2/</u> :						<u>Billion dollars</u>
Permanent						
legislation	+12	+15	+20	+28	+39	+114
No supports	-8	-8	-10	-11	-12	-49
:						
Interest rate: <u>3/</u>						<u>Percent</u>
Permanent						
legislation	13.2	12.4	11.6	12.4	13.8	--
No supports	12.7	11.8	10.8	11.5	12.5	--
:						
Inflation rate: <u>4/</u>						
Permanent						
legislation	6.7	5.7	4.7	6.9	6.1	<u>5/</u> 30
No supports	5.9	5.1	4.7	5.7	4.5	29
:						

-- = Not applicable.

1/ See table 3 for basic macroeconomic and Federal deficit assumptions.

2/ Measured from a base scenario assuming farm program costs would average \$10 to \$12 billion per year through 1990.

3/ Assumes added deficit is financed through borrowing.

4/ Assumes added deficit is monetized.

5/ Cumulative increase in inflation.

legislation, the results would be inflationary. The cumulative increase in inflation could be as much as 3 to 5 percentage points by 1990. The stronger food price inflation likely with parity-linked commodity prices and monetized Federal deficits could amount to a 5- to 6-percentage point difference in the consumer price index by 1990.

Should the Federal Reserve Board choose not to monetize the permanent legislation deficit and borrow on the open market, the added money demand could raise interest rates 0.5 to 1.5 percentage points by 1990. This would dampen economic activity in interest-sensitive sectors such as housing, consumer durables, and business-fixed investment. Moreover, assuming longrun bond price purchasing power in the foreign exchange market, the higher U.S. interest rate could raise the value of the dollar 5 to 15 percent. This would in turn dampen economic activity in export-oriented and import-competing sectors. Conversely, a no-support decision would ease pressure on the Federal deficit and ultimately reduce inflation rates or interest rates and help accelerate economic growth.

The macroeconomic effects of permanent legislation's misallocation of resources to agriculture that could be used more profitably elsewhere would also be significant by 1990. The less than optimal resource allocation involved could lower overall growth in the gross national product--although not to the same extent as permanent legislation's substantially larger Federal deficits. On balance, the loss by 1990 associated with permanent legislation's higher food prices and consumption expenditures, higher inflation rates and interest rates, and resource misallocation could be as high as \$75 to \$150 billion per year (roughly 1 percent of the GNP). It also could reduce employment by up to 1 percent.

CONCLUDING NOTE

This study's analysis of the impact of reverting to permanent legislation or operating without supports led to both the scenario-specific conclusions presented earlier in the report and to conclusions regarding farm support programs in general. The most important of the scenario-specific conclusions have been discussed in the text; the more general conclusions are highlighted below.

Designing Effective Support Programs for a Changing Agriculture

The agriculture of the 1980's bears little resemblance to the agriculture in place when price and income support programs were first enacted in the 1930's. The changing structure of agriculture, its linkages to the rest of the economy, and the importance of exports have all worked to change--generally to weaken--the role that price and income supports play in determining the economic well-being of the sector.

The structure of American agriculture has changed almost beyond recognition since the 1930's. The agriculture that has emerged is increasingly diverse with more complex, less clearly defined price and income problems and goals. For example, the sector is now made up of at least three very different groups of farms--a large group of small farmers, many of whom farm part time and look to off-farm sources for much or most of their income; an intermediate group of medium-sized farms most comparable to the traditional family farm referred to in much of the support legislation; and a small group of large, generally corporate farms.

Their roles in the sector differ dramatically as do their price and income concerns. For example, over half of agriculture's output comes from the less than 10 percent of producers who make up the third group. Conversely, the 60 percent of producers who fall into the first group account for less than a tenth of agriculture's output. While the small operators' net farm incomes are generally low or negative, their off-farm incomes are often high enough to make their total incomes greater than the median income for both farm and nonfarm families. The larger operators, particularly those owner-operators falling into the second group, generally have higher net farm incomes but little or no off-farm income. As a result, their total incomes in many cases are below small operator levels.

This heterogeneous environment is quite different from the more homogeneous setting of the 1930's. When the original support programs were passed, the large majority of operators worked relatively small farms and depended on agriculture for most or all of their income. With this homogeneity gone, it is increasingly difficult to design a single set of farm programs--particularly commodity support programs--to solve the different problems of each of these groups.

The farm sector's strengthening ties to the rest of the economy also make it difficult to design and implement effective price and income support programs. Two-thirds of agriculture's inputs are now purchased from outside the sector, compared with less than half in the 1960's, in direct competition with other sectors of the economy. Farmers have also grown increasingly dependent on capital borrowed on the open market in competition with the rest of the economy. These linkages make macroeconomic policies affecting interest rates and inflation as or more important in determining farm returns than commodity price and farm income support programs.

The growing importance of exports has also added to the difficulty of designing and operating supports. Exports now account for a third of agriculture's output and an even larger share of growth and year-to-year swings in demand for U.S. farm products. This export dependence ties U.S. agriculture into weather, macroeconomic and financial, and agricultural and trade policy developments around the world and further limits the effectiveness of domestic support programs.

While program provisions have been modified over time to take these structural, macroeconomic, and trade changes into account, adjustments have generally lagged and in the process weakened or confounded support efforts. In short, the effectiveness of price and income programs has tended to weaken over time in large part because of a rapidly changing environment. This changing environment has led many program analysts to advocate a sharp increase or decrease in Government involvement in the market and has left few analysts supporting the programs currently in place.

The Rising Cost of Public Support

The cost of public intervention to stabilize farm prices and incomes or hold them above market-clearing levels has also increased dramatically over the last 2 decades. This is due in part to the mode of intervention and in part to increased market volatility. Intervention to support incomes using nonrecourse loans or direct purchases to manipulate market prices tends to be less efficient than direct payments to producers. Direct payments save the public the cost of acquiring, storing, and ultimately disposing of troublesome

surpluses. They also save farmers the cost of producing surplus products and as a result have a far greater impact, dollar for dollar, on net farm incomes.

The rising cost of public intervention also relates to widening swings in the market that would work in the absence of supports to move commodity prices and farm incomes up or down dramatically from year to year. In the increasingly volatile setting of the 1970's and the 1980's to date, stabilizing prices and incomes has become far more costly than in the less volatile 1960's.

Market Responses to Price and Income Supports

Support programs that set commodity prices and producer returns above market-clearing levels risk touching off counterproductive supply, demand, and trade adjustments. The longrun elasticity of supply is large enough--possibly above .5--that supporting prices above market-clearing levels will generate a sharp increase in output the market will not absorb. The longrun price elasticity of demand is also large enough--possibly above .5--that high prices will reduce use, particularly exports. These two adjustments combined can result in a serious surplus problem that eventually overshadows the original price and income problem being dealt with.

Support provisions other than price are also critical in determining program impacts. For example, the virtual elimination of producer risk under the permanent support programs and the dramatic increase in risk likely with no supports are as important in influencing producer response as price levels. The residual supplier role for the United States implied in a nonrecourse loan program is as important in determining trade impacts as changes in export prices.

Longer Term Impacts

The longer term effects of adopting either of the two scenarios analyzed here could prove more significant than the short- and medium-term impacts cited in the main body of the text.

After 5 years of permanent legislation and the changes in farm structure likely to accompany it, the agricultural sector would find it difficult to operate without continued large-scale public support. Program commodity producers would depend on supports, directly or indirectly, for as much as one-third of their gross incomes and over one-half of their net incomes. Their asset and equity positions would depend even more heavily on continued Government support and the capitalization of program benefits into land and other farm assets.

Withdrawal of the support provided for in permanent legislation after 1990 would result in a sharp resource contraction in the sector and touch off even greater financial adjustments than the 1986-90 adjustments likely under the no-support scenario. Continuing permanent legislation support, however, would lead to even greater dependence on the Federal Government as the 1990's progressed. The sector's competitive position in the world market would deteriorate further and domestic demand for high-priced farm products would stagnate. As a result, farmers would look to the CCC as the outlet for an increasingly large share of their products--products produced in many cases at higher unit costs that weaken any improvement in income. Program costs would also rise at an increasing pace and possibly double from 1990 levels before mid-1990's.

After 5 years of no price and income supports, the farm sector would have contracted significantly. Many of its less efficient and highly leveraged operators would have been forced out of business and possibly 30 million acres of land would have been abandoned. However, return on new investment in lower priced assets would approach, and possibly exceed, returns under permanent legislation. The sector would also have shifted to a lower cost structure. This lower cost structure, combined with stronger growth in demand for lower priced farm products here and abroad, would narrow differences in net farm incomes between scenarios significantly by the mid-1990's. In short, the farm sector would be in a stronger position to compete with other sectors in the domestic market for resources and with other exporters internationally for a growing world market.

The Probability of Reverting to Permanent Legislation
or Eliminating Price and Income Supports

The likelihood of reverting to permanent legislation or operating without price and income supports is quite small. Support programs have been in effect in the United States for the past 50 years and have served as an important safety net for farmers. Congress has also chosen consistently since the 1950's to pass new, temporary legislation every 4 years rather than revert to the permanent support programs.

A reversion to permanent legislation has obvious drawbacks. First, the cost of such action would be substantial and come at a time when the cost of Government programs in general has come under close scrutiny. Secondly, reverting to permanent legislation would essentially isolate the sector from market forces both here and abroad. Domestically, this would eventually result in a less productive and eventually less profitable agriculture. Internationally, reverting to the permanent support programs would underwrite the other exporters as they squeezed the United States out of the world market.

Similarly, operating without price and income support programs would have serious drawbacks. A decision to eliminate supports would be enormously disruptive in its early stages as producers adjusted and prices and supplies moved up and down dramatically from year to year in response to changing domestic and international market conditions. The market and the sector would eventually adjust to this new environment, but only after a painful and extended adjustment process.

Thus, while this study does not describe likely policy outcomes for 1985-90, its value lies in its identification of the general direction and approximate magnitude of the changes likely throughout the economy with more or less Government intervention in farm prices and incomes.

APPENDIX I. PERMANENT LEGISLATION AND NO-SUPPORT IMPACTS
ASSUMING VARIABLE YIELDS AND EXPORTS

The permanent legislation and no-support scenarios reported on in the main body of this report assumed that the United States would experience normal weather and regular growth in export demand over the remainder of the decade. These simplifying assumptions were made in order to focus as clearly as possible on the different support programs considered and to avoid the problem of forecasting year-to-year fluctuations in yields and exports.

But as the experience of the last decade demonstrates, year-to-year fluctuations in weather and exports have become increasingly important determinants of the state of U.S. agriculture. As appendix table 1 indicates, swings in U.S. output due to fluctuations in yields have more than doubled since 1960 and have become a major source of widening price and income movements. Widening swings in foreign production as well, combined with changing trade policies and an increasingly unstable international economic environment, have also worked to increase year-to-year swings in U.S. exports dramatically. Hence, the results reported on so far overlook a critical consideration--how the permanent support and no-support programs would perform with variable yields and exports.

This appendix reports on changes in the farm and nonfarm indicators cited in the text using the same permanent legislation and no-support program provisions and economic assumptions, but allowing yields and exports to fluctuate. Alternative permanent legislation and no-legislation scenarios were analyzed assuming good weather, bad weather, strong export demand, weak export demand, good weather plus weak export demand, and bad weather plus strong export demand.

The year-to-year fluctuations in yields assumed in the weather scenarios were estimated using an all-crop yield trend for the 1960-83 period to identify the 5-year periods within these 24 years with the largest deviations above and below trend. Deviations from trend for the individual crops for the two 5-year periods identified in this manner were then superimposed on the normalized yields described in the main body of the report. For the good weather

Appendix table 1--Interannual fluctuations in
agricultural production, selected
countries and regions ^{1/}

Country or region	1961-71	1972-83
	<u>Percent</u>	
United States	1.5	3.5
EC-10	2.1	3.2
Australia	4.1	5.5
USSR	5.0	6.1
Mexico/Central America	1.1	3.0
North Africa/Middle East	2.9	3.9
East Asia	4.4	7.1

^{1/} Measured as the coefficient of variation from best-fit linear or curvilinear time trends.

scenario, the year-to-year swings in wheat, feed grain, soybean, and cotton yields experienced during the 1960-64 period were superimposed on the normalized 1986-90 yields (appendix table 2). For the bad weather scenario, the unusually poor 1974-78 yield pattern was superimposed on the same normalized yields.

Since the good and bad weather cases were based on trend analysis of an all-crop yield series, not all the individual crops in a given year have higher or lower than normal yields. For example, in the first year of the good weather scenario, wheat and soybean yields were somewhat above trend while corn and cotton yields were below trend. This approach made it possible to estimate scenario probabilities (roughly 5 percent for the weather scenarios and 2 to 3 percent for the combined weather and export demand scenarios) and avoid the bias likely if individual crop yields were analyzed and no provision was made for tradeoffs between above- and below-trend yields in different commodities in the same season.

Year-to-year swings in export demand were estimated using the same procedure (appendix table 3). The strong export demand scenario superimposed 1978-82's unusually favorable export demand deviations from trend on the normalized exports used in the main body of the study. The weak export demand scenario superimposed the unfavorable 1968-72 pattern on the normalized exports.

Permanent Legislation with Variable Yields and Exports

With support programs setting a price floor well above open-market levels, differences in commodity prices, farm incomes, and food prices between the normalized permanent legislation scenario and the scenarios providing for

Appendix table 2--Yield deviations assumed under the good weather and bad weather scenarios

Year 1/	Wheat	Corn	Soybeans	Cotton
<u>Percent deviation from normalized yields</u>				
Good weather scenario:				
1986 (1960)	8.3	-5.1	0.4	-0.7
1987 (1961)	-2.8	4.1	5.9	-3.1
1988 (1962)	-.3	4.0	.7	.5
1989 (1963)	-1.4	5.2	.2	13.1
1990 (1964)	-1.0	-5.9	-7.6	12.4
Bad weather scenario:				
1986 (1974)	-11.9	-20.0	-14.9	-9.1
1987 (1975)	-2.8	-6.2	2.6	-7.3
1988 (1976)	-5.2	-6.8	-8.3	-5.4
1989 (1977)	-5.4	-6.1	6.3	5.2
1990 (1978)	-4.7	2.0	1.0	-15.5

1/ The years shown in parentheses correspond to the year of the yield deviation used in the analysis.

variable yields and exports were small. Differences in the cost of operating support programs, however, proved quite large.

Commodity prices differed little, if at all, between the normalized and variable yield and export scenarios. Under the good weather scenario, the increased output resulting from higher yields accumulated as added CCC stocks acquired at the same loan rates as in effect under the normalized yield scenario. Permanent legislation's support levels were also high enough to rule out any significant increase in prices under the low yield scenario, under either the weak or strong export demand scenarios, and under the scenario combining good weather and weak exports. Only with an unusually bullish combination of poor weather and strong exports would commodity prices change significantly, possibly rising 10 to 30 percent above loan rate levels. Moreover, prices proved sensitive only if the shock of the poor weather and strong export scenario occurred early in the 5-year period, before enough stocks had accumulated to overhang the market.

Gross receipts and net farm income varied more widely between the normalized and variable yield and export scenarios, but differences remained small. With high loan rates ruling out commodity price movements, changes in farmers' receipts and income were due solely to changes in the volume of products put under loan. Individual commodity receipts increased 4 to 8 percent while net returns increased 20 to 30 percent with high yields; poor yields resulted in a

Appendix table 3--Export volume deviations assumed under the weak and strong export demand scenarios

Year 1/	:	Export volume 2/
	:	<u>Percent deviation from</u>
	:	<u>normalized exports</u>
Weak export scenario:	:	
1986 (1968)	:	-19
1987 (1969)	:	-32
1988 (1970)	:	-21
1989 (1971)	:	-31
1990 (1972)	:	-17
Strong export scenario:	:	
1986 (1968)	:	+8
1987 (1969)	:	+11
1988 (1970)	:	+17
1989 (1971)	:	+13
1990 (1972)	:	+2

1/ The years shown in parentheses correspond to the year of the export deviation used in the analysis.

2/ As in the yield case, an all-export index was used to identify the 5-year periods for which individual commodity deviations were calculated. For reference purposes, export volume over the 1980-83 period averaged 157 million tons.

comparable drop in returns. However, the mix of good and bad wheat, corn, soybean, and cotton yields in any one year kept gross receipts and net income for agriculture as a whole largely unchanged between scenarios. Receipts and income also did not change between the strong and weak export scenarios, again because any increase or decrease in demand here or abroad under permanent legislation would be reflected in adjustments in CCC stocks rather than in changes in production or prices.

Government costs, however, differed widely between the normalized scenario and the variable yield and export scenarios. Under the good weather scenario, loan placements and forfeitures rose significantly. Storage costs were \$2 to \$4 billion higher while "recoverable" CCC loan outlays were \$6 to \$8 billion higher for the 5-year period. Low yields, on the other hand, reduced combined loan and storage program costs \$10 to \$12 billion. The extremely bearish combination of weak exports and good yields generated an added \$15 to \$20 billion in CCC activity for the period as a whole. The equally improbable combination of poor yields and strong exports cut Government expenditures by one-half as market forces pushed prices and incomes above parity-linked levels and reduced the CCC's loan and storage activities sharply.

Food prices and food consumption expenditures did not differ significantly between the normalized and variable yield and export scenarios. Food prices increased significantly faster--1 to 2 percentage points per year--than in the normalized scenario only if the low yield and strong export combination happened early in the period before large CCC stocks accumulated to overhang the market. High loan rates acting as a commodity price floor prevented any significant slowing in food price increases even in the improbable case of good yields combined with low exports.

No-Support Impacts With Variable Yields and Exports

Changes in the price, income, and program cost indicators were significantly greater under the no-support scenario for a given swing in yields or exports than under permanent legislation. With no programs to support prices in periods of surplus or dampen prices during periods of tight supply, commodity prices were considerably more variable--variable enough to translate into significant swings in farm income and food prices.

Commodity prices under the poor weather scenario averaged 10 to 30 percent above prices under the normalized no-support scenario. The transition reserve dampened upward pressure on prices early in the 5-year period. However, no stock accumulation program was in place to replenish stocks drawn down during the first few years of the period. Results under the good weather scenario reflected this same set of factors. Without any reserve program to ease the price pressure generated by several years of good harvests, commodity prices fell significantly below the levels projected under the normalized no-support scenario.

Crop receipts and farm income under the no-support scenario tended to follow the general pattern associated with swings in yields and exports for commodities facing an inelastic market. When yields were low and prices rose, total receipts rose. Total receipts fell, however, with higher yields and lower prices. This pattern was reversed under permanent legislation; high support prices worked to reduce income in poor crop years and raise it in good crop years.

Net farm income also followed a more predictable pattern under the no-support scenario. With low yields, net farm income averaged 75 percent above the levels projected under the high-yield scenario. In the final year of the simulation under the high yield scenario, net farm income dropped to close to zero, indicating the severe stress that could result from a combination of several years of high yields and low prices in the absence of support programs.

With public involvement in the sector minimal, changes in Government payments between the normalized and variable yield and export scenarios with supports eliminated were negligible. Differences in consumer prices were significant, however, reflecting the wide swings in prices possible in the absence of support programs. This was particularly true for the low probability scenarios combining high yields with low exports and low yields with high exports. Under the high and low yield scenarios, food prices could average 1 to 2 percentage points per year higher or lower than under the normalized scenario. Under the combined low yield/high export scenario or under the high-yield/low-export scenario, however, food price increases could average 3 to 5 percentage points higher or lower. A 1-percentage-point increase or decrease in food prices could translate by 1990 into a \$4 to \$5 billion change in food consumption expenditures.

Conclusions

Broadening the analysis to include variable yields and exports did not change the study's major findings. It did, however, serve to emphasize that the main study projections are subject to considerable year-to-year movement--even if the basic trends at play over the next 5 years have been properly identified. This is particularly true for Federal program costs under permanent legislation and farm income and food prices with supports eliminated.

With variable yields and exports, Government program costs could be substantially greater, but not much lower, than under the normalized permanent legislation scenario. Permanent legislation's program costs of \$50 billion in 1990 could reach \$70 to \$80 billion in 1990 with a combination of high yields and low exports. Given the experience of the last 20 years, this combination has a probability of 1 in 20. Program costs could be negligible and would not vary measurably under the no-support scenario despite yield and export shocks.

Farm incomes would not vary significantly under permanent legislation, despite export and yield variations. Income could become variable, however, with supports eliminated and could vary as much as \$10 to \$15 billion in any one year, from as high as \$30 billion to approaching zero. Food prices would not change much with yield and export variations from the results reported under the normalized permanent legislation scenario. However, food prices could rise or fall significantly from year to year under the no-support scenario, swinging food consumption expenditures \$10 billion or more.

APPENDIX II. EXPORT DEMAND ELASTICITIES

The impacts of adopting either of the support alternatives analyzed in the main body of this report depend heavily on the sensitivity of U.S. exports to changes in commodity prices. The export levels shown in table 32 assume that the price elasticity of export demand is approximately 1--that is, a 10-percent change in commodity prices would generate a 10-percent change in export volume. The individual commodity elasticities used in the study were:

Wheat	-0.8 to 1.0
Coarse grains	- .9 to 1.1
Soybeans	- .8 to 1.0
Cotton	- .5 to .7

These elasticities were taken from various sources ^{1/} and provide for two basic components:

- the responsiveness of import demand abroad to changes in U.S. export prices (including, in turn, the responsiveness of production and use in importing countries to changes in prices); and
- the responsiveness of export supply abroad to changes in U.S. export prices (including, in turn, the responsiveness of production and use in the competing exporting countries to changes in prices).

While the elasticities shown above do not differ greatly between commodities, their individual import demand and export supply components differ greatly. For example, world import demand is considerably more inelastic for wheat than for coarse grains. However, export supply in the competitor countries is considerably more elastic for wheat than for coarse grains. As a result, their overall export demand elasticities are comparable.

The price elasticities assumed in this study differ from the elasticities used in many other export demand studies. Some agricultural economists contend that the price elasticity of export demand is considerably greater, possibly twice the magnitude assumed here. Others, however, contend that exports are essentially insensitive to changes in trade prices.

The use of higher or lower export demand elasticities in keeping with other studies would have little or no effect on the main conclusions reached here. Use of higher export demand elasticities under the permanent legislation scenario would generate lower export volume, larger Government stocks, and greater Government expenditures. More inelastic export demand assumptions would mean more exports than shown in table 32 for the permanent legislation scenario, but only marginally lower stocks, Government expenditures, and no changes in commodity market prices.

^{1/} The elasticities were derived from a number of different sources including Alternative Futures for World Food in 1985, Volumes I-III, by Anthony Rojko and others, FAER-146, FAER-149, and FAER-151; Sources of Recent Changes in U.S. Agricultural Exports, Staff Report AGES831219, by John Dunmore and James Longmire; and A Strong Dollar Dampens Demand for U.S. Farm Exports, by James Longmire and Arthur Morey, FAER-193. All reports were published by the Economic Research Service, U.S. Department of Agriculture.

The opposite would occur under the no-support scenario. With lower elasticities, exports would expand more slowly, but leave the sector facing the same adjustment problems. With higher elasticities, exports would expand faster, but not fast enough to change major conclusions--unless the elasticities used were several times larger than the elasticities used in this study.

The elasticities shown in table 31 were modified somewhat before being used to calculate the export volume estimates shown in table 32. Individual commodity elasticities were raised or lowered fractionally--generally less than 10 to 20 percent--between years to take into account factors such as: biological lags in the expansion or contraction of animal numbers, the difference in shortrun supply responses with rising prices versus prices declining, political and "trading partner" affiliations, and lags in consumption changes with changing prices. Adjustments were also made to reflect differences between scenarios in factors other than price. For example, under the no-support scenario, U.S. trade policy would change dramatically and put the United States in a position to compete aggressively for market share rather than serve as the world's residual supplier.