Statistical analysis indicates a very small response in food demand for rice based on changes in retail prices: about a 0.07-percent change in demand for a 1-percent change in the retail price. Thus, based on the above relationship between farm and retail prices, a 4-percent increase in farm prices would increase retail prices by perhaps 4 percent, but consumption might decline by only 1 percent. For consumers to decrease their consumption of rice by 10 percent, retail prices would have to nearly triple, reflecting a 36-percent increase in farm prices.

The effect of deficiency payments on consumer prices is less than certain. Although deficiency payments are a taxpayer burden, in essence consumers pay higher than market price for rice through tax liabilities. Without deficiency payments, farm prices may have to be raised to maintain supplies and consumer prices would therefore increase. However, when deficiency payments are tied to compliance with acreage reduction provisions, consumers lose most of the benefits of larger supplies and lower farm prices that might have occurred with a larger supply of rice if no acreage reduction had been required.

Consumer prices are also affected when the loan rate prevents farm prices from falling. When the world market price is below the U.S. market price or loan rate, then U.S. consumers pay more for rice than foreign consumers who can purchase rice for less elsewhere. However, under the marketing loan, the world price can be paid for domestic supplies and some of this price depressing effect is passed on to consumers, especially institutional and bulk buyers.

Domestic consumers are also affected by Government expenditures for exports of rice. When the Government disposes of rice through export programs (or removes rice from the market under a loan program), free stocks are reduced, supplies decline, and farm prices (hence, 15 percent of the retail price) for rice are supported above market-clearing levels.

The U.S. rice program has added inefficiency and higher cost to production. Smaller acreage, reduced farm size due to payment limitations, and support of inefficient producers have all raised average cost of production. However, although consumers pay the cost of subsidizing the rice industry during periods of weak prices, they can benefit from stable supplies and expansion of the industry due to technology and Government support.

Consumers (both domestic and foreign) and processors are the primary beneficiaries from the rice marketing loan. An ERS study shows that the program reduced the rough rice farm prices from $7.00 per cwt level without a marketing loan to $3.80 in 1986/87 (Lin, 1988). To the extent that this price drop might have been passed on, consumers stood to gain $224 million from the marketing loan.

Resources

Sustained, sizable Government program expenditures aimed at supporting or enhancing income often translate into rigid resource constraints. That is, dampening price signals through the use of price and income support can slow or prevent the resource adjustments that would take place in an unencumbered market free of supports. Those resource adjustments may be undesirable if the price signals are short term, largely disruptive in nature. But over the long run, muted price signals generally only prolong adjustments at taxpayers' cost. Inefficient use of resources occurs: marginal land is kept in production, average

costs rise, and barriers to entry and exit are erected. Overcapacity, stock accumulation, and low prices result, which increase the need for support.

Since rice production is relatively capital-intensive, resources would tend to be more fixed than for other crops even with absence of support programs. Irrigation systems, land leveling, the construction of levees in and around fields, and harvesting equipment are costly items with few alternative uses. This may explain the traditionally high program participation rates of rice producers. The sector's high, capital-intensive cost structure implies that price protection is needed during periods of weak demand. Producers, in effect, can find themselves locked-in to programs and continue to expand acreage and production despite the signal that demand has fallen. That signal is muted when the deficiency payment rate is equivalent to a third of the season average price for rice. Thus, as much as 5 to 10 percent more of the sector's resources are probably devoted to rice production than would be without a rice program.

Exports

When the loan rate is set high enough to become a price floor, U.S. competitors benefit. They increase production and export the surplus, or they undercut U.S. prices and increase market share, or both. The United States has lost a good portion of its market share to Thailand since 1980 due largely to this phenomenon. Thailand has abandoned many of its previous controls on exports and production has increased. Thailand's rice is comparable in quality to U.S. rice. This was not always the case. But the price gap between Thai and U.S. rice, once justified on quality differences, grew significantly in the early 1980's. And the effect on U.S. exports became very evident.

The implementation of the marketing loan, however, enhanced U.S. competitiveness in world rice markets by breaking the link between the loan rate and U.S. export price. The marketing loan program made more U.S. rice available for export and narrowed export price differentials between the United States and other exporters. As a result of the marketing loan, the export price differential between the United States and Thailand declined drastically from as high as $260 per metric ton in early 1985 between U.S. number 2 milled rice (4 percent broken) and Thailand 100 percent grade B rice to less than $105 by late April 1986, and below $53 by August 1986. However, as the world rice price approached the U.S. loan rate in late 1988, the marketing loan was not needed.

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Glossary

Acreage allotment -- An individual farm's share of the national acreage that the Secretary of Agriculture determines is needed to produce sufficient supplies of a particular crop. The farm's share is based on its previous production.

Acreage reduction program (ARP) -- A voluntary land retirement system in which participating farmers idle a prescribed portion of their crop acreage base of wheat, feed grains, cotton, or rice. The base is the average of the acreage planted for harvest and considered to be planted for harvest. Acreage considered to be planted includes any acreage not planted because of acreage reduction and diversion programs during a period specified by law. Farmers are not given a direct payment for ARP participation, although they must participate to be eligible for benefits such as Commodity Credit Corporation loans and deficiency payments. Participating producers are sometimes offered the option of idling additional land under a paid land diversion program, which gives them a specific payment for each idled acre.

Acreage slippage -- A measure of the effectiveness of acreage reduction programs. Slippage occurs when harvested acres change by less than the change in idled acres.

Advance deficiency payments -- The Secretary is required to make advance deficiency payments to producers of crops when an acreage limitation program is in effect and deficiency payments are expected to be paid. Advance deficiency payments can range from 30 to 50 percent of expected payments.

Advance recourse loans -- Price-support loans made early in a marketing year to enable farmers to hold their crops for later sale. Farmers must repay the recourse loan with interest and reclaim the crops used as collateral.

Basic commodities -- Six crops (corn, cotton, peanuts, rice, tobacco, and wheat) declared by legislation as price-supported commodities.

Blended credit -- A form of export subsidy which combines direct government export credit and credit guarantees to reduce the effective interest rate.

Carryover -- Existing supplies of a farm commodity at the beginning of a new harvest.

Cereals -- Generic name for certain grasses that produce edible seeds; includes wheat, oats, barley, rye, rice, millet, corn, and sorghum grain.

Coarse grains -- Includes corn, barley, oats, grain sorghum, and rye. Millet is also included in the statistics of some foreign nations.

Commodity Credit Corporation (CCC) -- A federally owned and operated corporation within the U.S. Department of Agriculture created to stabilize, support, and protect farm income and prices through loans, purchases, payments, and other operations. All money transactions for agricultural price and income support and related programs are handled through the CCC; the CCC also helps maintain balanced, adequate supplies of agricultural commodities and helps in their orderly distribution.

Common Agricultural Policy (CAP) -- A set of regulations by which member states of the European Community (EC) seek to merge their individual agricultural programs into a unified effort to promote regional agricultural development and achieve other goals. The variable levy and export subsidies are the two main elements of the CAP.

Concessional sales -- Credit sales of a commodity in which the buyer is allowed more favorable payment terms than those on the open market (such as low-interest, long-term credit).

Cost of production -- An amount, measured in dollars, of all purchased inputs, allowances for management, and rent, that is necessary to produce farm products.

Crop acreage base -- A farm's average acreage of wheat, feed grains, cotton, or rice planted for harvest, plus land not planted because of acreage reduction or diversion programs during a period specified by law. Crop acreage bases are permanently reduced by the portion of land placed in the conservation reserve program.

Crop year -- The year in which a crop is planted; used interchangeably with marketing year.

Cross compliance (full or strict) -- A requirement that a farmer participating in a program for one crop must also meet the program provisions for other major program crops which the farmer grows. Strict cross-compliance provisions have not been enforced since the 1960's.

Cross compliance (limited) -- A producer participating in one commodity program must not plant in excess of the crop acreage base on that farm for any of the other program commodities for which an acreage reduction program is in effect. Limited cross-compliance authority was implemented in the late 1970's and remains in effect under the Food Security Act of 1985.

Decoupling -- A farm policy concept which, by separating farm program payments from the amount of production, would represent an alternative to current policies. Farmers would make planting decisions based on market prices but receive income-support payments independent of production and marketing decisions.

Deficiency payment -- A Government payment made to farmers who participate in wheat, feed grain, rice, or cotton programs. The payment rate is per bushel, pound, or hundredweight, based on the difference between the price level established by law (target price) and the higher of the market price during a period specified by law or the price per unit at which the Government will provide loans to farmers to enable them to hold their crops for later sale (loan rate). The payment is equal to the payment rate multiplied by the acreage planted for harvest and then by the program yield established for the particular farm.

Developing countries -- Countries whose economies are mostly dependent on agriculture and primary resources and do not have a strong industrial base.

Direct payments -- Payments in the form of cash or commodity certificates made directly to producers for such purposes as deficiency payments, annual land diversion, or conservation reserve payments.

Disaster payments -- Federal aid provided to farmers for feed grain, wheat, rice, and upland cotton who have crop insurance (when available), when either planting is prevented or crop yields are abnormally low because of adverse weather and related conditions. Payments also may be made under special legislation enacted after an extensive natural disaster.

European Community (EC) -- Established by the Treaty of Rome in 1957, also known as the European Economic Community and the Common Market. Originally composed of six European nations, it has expanded to 12. The EC attempts to unify and integrate member economies by establishing a customs union and common economic policies, including the Common Agricultural Policy (CAP).

Export Credit Guarantee Program (GSM-102) -- The largest U.S. agricultural export promotion program, functioning since 1982; guarantees repayment of private, short-term credit for up to 3 years.

Export enhancement program (EEP) -- Begun in May 1985 under a Commodity Credit Corporation charter to help U.S. exporters meet competitors' prices in subsidized markets. Under the EEP, exporters are awarded bonus certificates which are redeemable for CCC-owned commodities, enabling them to sell certain commodities to specified countries at prices below those of the U.S. market.

Export subsidies -- Special incentives, such as cash payments, tax exemptions, preferential exchange rates, and special contracts, extended by governments to encourage increased foreign sales; often used when a nation's domestic price for a good is artificially raised above world market prices.

Farm acreage base -- The annual total of the crop acreage bases (wheat, feed grains, upland cotton, and rice) on a farm, the average acreage planted to soybeans, peanuts, and other approved nonprogram crops, and the average acreage devoted to conserving uses. Conserving uses include all uses of cropland except crop acreage bases, acreage devoted to nonprogram crops, acreage enrolled in annual acreage reduction or limitation programs, and acreage in the conservation reserve program.

Farm value -- A measure of the return or payment received by farmers calculated by multiplying farm prices by the quantities of farm products equivalent to food sold at retail.

Food grains -- Cereal seeds used for human food, chiefly wheat and rice.

Food Security Act of 1985 (PL 99-198) -- The omnibus food and agriculture legislation signed into law on December 23, 1985, that provides a 5-year framework for the Secretary of Agriculture to administer various agricultural and food programs.

Free market -- The reliance on the market forces of supply and demand to determine prices and allocate available supplies.

Free trade -- Exchange of goods between countries with no trade barriers or restrictions such as tariffs or import quotas.

General Agreement on Tariffs and Trade (GATT) -- An agreement originally negotiated in Geneva, Switzerland, in 1947 among 23 countries, including the United States, to increase international trade by reducing tariffs and other trade barriers. The agreement provides a code of conduct for international commerce and a framework for periodic multilateral negotiations on trade liberalization and expansion.

Generic commodity certificates -- Negotiable certificates, which do not specify a certain commodity, that are issued by USDA in lieu of cash payments to commodity program participants and sellers of agricultural products. The certificates, frequently referred to as payment-in-kind (PIK) certificates, can be used to acquire stocks held as collateral on Government loans or owned by the Commodity Credit Corporation.

Gramm-Rudman-Hollings Deficit Reduction Act -- Common name for The Balanced Budget and Emergency Deficit Control Act of 1985 (PL 99-177). The law mandates annual reductions in the Federal budget deficit to eliminate it by 1991. If Congress and the President cannot agree on a targeted budget package for any specific fiscal year, automatic cuts occur for almost all Federal programs.

Gross farm income -- Income which farm operators realize from farming; includes cash receipts from the sale of farm products, Government payments, value of food and fuel produced and consumed on farms where grown, and other items.

Harvested acres -- Acres actually harvested for a particular crop. Usually somewhat smaller at the national level than planted acres because of abandonment due to weather damage or other disasters or market prices too low to cover harvesting costs.

Import barriers -- Quotas, tariffs, embargoes, and restrictive licensing used by a country to restrict the quantity or value of a good that may enter that country.

Import quota -- The maximum quantity or value of a commodity allowed to enter a country during a specified time period.

Intermediate Export Credit Guarantee Program (GSM-103) -- Established by the Food Security Act of 1985, this program complements GSM (General Sales Manager)-102 but guarantees repayment of private credit for 3-10 years.

International commodity agreements -- Agreements by a group of countries that contain substantive economic provisions aimed at stabilizing world trade, supplies, and prices, such as quotas, buffer stocks, and so forth.

International trade barriers -- Regulations imposed by governments to restrict imports from, and exports to, other countries, including tariffs, embargoes, and import quotas.

Inventory (CCC) -- The quantity of a commodity owned by the Commodity Credit Corporation (CCC) at any specified time.

Inventory reduction program -- Introduced in the Food Security Act of 1985, these discretionary programs provide producers with payments-in-kind (PIK) if they reduce acreage by half the required reduction and agree to forego loans and

deficiency payments. Inventory reduction programs have not been implemented to date.

Loan deficiency payments -- A provision of the Food Security Act of 1985 giving the Secretary of Agriculture the discretion to provide producers who, although eligible to obtain loans, agree not to obtain loans for 1986-90 crops of wheat, feed grains, upland cotton, and rice. This program has not been implemented to date.

Loan rate -- The price per unit (bushel, bale, or pound) at which the Government will provide loans to farmers to enable them to hold their crops for later sale.

Marketing certificate -- A certificate which may be redeemed for a specified amount of Commodity Credit Corporation commodities. Such certificates may be generic or for a specific commodity.

Marketing loan program -- A program authorized by the Food Security Act of 1985 that allows producers to repay nonrecourse price support loans at less than the announced loan rates whenever the world price for the commodity is less than the loan rate. Under the act, the programs are mandatory for upland cotton and rice, and discretionary for wheat, feed grains, and soybeans. To date, the discretionary programs have not been implemented.

Marketing quota -- Marketing quotas are used to regulate the marketing of some commodities when supplies are excessive. When marketing quotas are in effect, growers who produce more of a commodity than their farm acreage allotments should yield are subject to marketing penalties on the "excess" production and are ineligible for Government price-support loans.

Marketing year -- Generally, the period from the beginning of a new harvest through marketing the following year.

Multilateral trade negotiations -- Discussions of trade issues involving three or more countries.

National farm program acreage -- The number of harvested acres of feed grains, wheat, upland cotton, and rice needed nationally to meet domestic and export use and to accomplish any desired increase or decrease in carryover levels.

Net cash-flow -- A financial indicator that measures cash available to farm operators and landlords in a given year; indicates the ability to meet current obligations and provide for family living expenses, and to undertake investments.
Net cash income -- An income measure based on actual receipts and expenses in a given year, regardless of the year in which the marketed output was produced; indicates the availability of funds to cover cash operating costs, finance capital investment and savings, service debts, maintain living standards, and pay taxes.

Net farm income -- Measures the profit or loss associated with a given year's production; approximates the net value of agricultural production regardless of whether the commodities were sold, fed, or placed in inventory during the year.

Nonfarm income -- Includes all income from nonfarm sources (excluding money earned from working for other farmers) received by owner-operator families residing on a farm and by hired farm labor residing on a farm.

Nonprogram crop -- Crops, such as potatoes, vegetables, fruits, and hay that are not included in Federal price support programs.

Nonrecourse loans -- The major price support instrument used by the Commodity Credit Corporation (CCC) to support the price of wheat, rice, feed grains, cotton, peanuts, and tobacco. Farmers who agree to comply with all commodity program provisions may pledge a quantity of a commodity as collateral and obtain a loan from the CCC. The borrower may elect either to repay the loan with interest within a specified period and regain control of the collateral commodity or default on the loan. In case of a default, the borrower forfeits without penalty the collateral commodity to the CCC.

Nontariff trade barriers -- Regulations used by governments to restrict imports from, and exports to, other countries, including embargoes and import quotas.

Normal crop acreage -- The acreage on a farm normally devoted to a group of designated crops. When a set-aside program is in effect, the total of the planted acreage of the designated crops and the set-aside acreage cannot exceed the normal crop acreage. Producers must comply to be eligible for commodity loan programs or deficiency payments.

Normal yield -- A term designating the average historical yield established for a particular farm or area.

Offsetting compliance -- Requires that a producer participating in a diversion or acreage reduction program must not offset that reduction by planting more than the acreage base for that crop on another farm under the same management control.

Paid land diversion -- If the Secretary of Agriculture determines that planted acres for a program crop should be reduced, producers may be offered a paid voluntary land diversion. Farmers are given a specific payment per acre to idle a percentage of their crop acreage base. The idled acreage is in addition to an acreage reduction program.

Parity price -- Originally defined as the price which gives a unit of a commodity the same purchasing power today as it had in the 1910-14 base period. In 1948, the base prices used in the calculation were made dependent on the most recent 10-year average price for commodities.

Parity ratio -- A measure of the relative purchasing power of farm products; the ratio between the index of prices received by farmers for all farm products and the index of prices paid by farmers for commodities and services used in farm production and family living.

Payment-in-kind (PIK) -- A payment made to eligible producers in the form of an equivalent amount of commodities owned by the Commodity Credit Corporation.

Payment limitation -- The maximum amount of commodity program benefits a person can receive. A $50,000 per person payment limitation was established in 1981 and applies to direct subsidy payments to wheat, feed grain, cotton, and rice producers. The law was amended in 1987 for the 1987 through 1990 crops to place a $250,000 limit on total program payments.

Permanent legislation -- Legislation that would be in force in the absence of all temporary amendments and temporarily suspended provisions. The Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949 serve as the principal laws authorizing the major commodity programs.

Permitted acreage -- The maximum acreage of a crop which may be planted for harvest. The permitted acreage is computed by multiplying the crop acreage base by the acreage reduction program requirement (announced by the Commodity Credit Corporation each year) minus the diversion acreage (if applicable). For example, if a farm has a crop acreage base of 100 acres and a 10-percent acreage reduction (ARP) is required, the permitted acreage is 90 acres.

PIK and roll -- A procedure by which producers attempt to profit from situations where certificate exchange values (posted county prices) are below nonrecourse loan rates. With this procedure, a producer places the eligible commodity under nonrecourse loan at the loan rate, and uses generic certificates to exchange the commodity out from under loan. If the posted county price is below the nonrecourse loan rate, then the producer is able to acquire the quantity placed under loan for less than the proceeds of the nonrecourse loan, in addition to saving interest and storage charges.

Price-support programs -- Government programs that aim to keep farm prices received by participating producers from falling below specific minimum prices.

Prices-paid index -- An indicator of changes in the prices farmers pay for goods and services (including interest, taxes, and farm wage rates) used for producing farm products and those needed for farm family living.

Prices-received index -- A measure computed on the basis of prices farmers received for their products at the point of the first sale.

Producer -- A person who, as owner, landlord, tenant, or sharecropper, is entitled to a share of the crops available for marketing from the farm or a share of the proceeds from the sale of those commodities.

Production expenses -- Total cash outlays for production. Capital expenses are figured on annual depreciation rather than on yearly cash outlays for capital items.

Production controls -- Any Government program or policy intended to limit production. These have included acreage allotments, acreage reduction, set aside, and diverted acreage.

Program costs -- No single definition is applicable to all uses. Program costs may be (1) gross or net CCC expenditures on a commodity or all commodities during a fiscal year or other period; (2) the realized loss on disposition of a commodity, plus other related net costs during a fiscal year or other period; or (3) the net costs attributed to a particular year's crop of a commodity during the marketing year for that commodity.

Program crops -- Federal support programs are available to producers of wheat, corn, barley, grain sorghum, oats, rye, extra long staple and upland cotton, rice, soybeans, tobacco, peanuts, and sugar.

Program yield -- The farm commodity yield of record determined by averaging the yield for the 1981-85 crops, dropping the high and low years. Program yields are constant for the 1986-90 crops. The farm program yield applied to eligible acreage determines the level of production eligible for direct payments to producers.

Protectionism -- A tariff or quota, for example, imposed by a country in response to foreign competition in order to protect domestic producers.

Public Law 480 (PL 480) -- Common name for the Agricultural Trade Development and Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries.

Section 32 -- A section of the Agricultural Act of 1935 (PL 320) which authorizes use of customs receipts funds to encourage increased consumption of agricultural commodities by means of purchase, export, and diversion programs.

Section 301 -- A provision of the U.S. Trade Act of 1974 that allows the President to take appropriate action to get a foreign government to remove any act, policy, or practice that violates an international agreement or that is unjustified, unreasonable, or discriminatory, and which burdens or restricts U.S. commerce.

Section 416 -- A section of the Agricultural Act of 1949 that permits donations of agricultural products through public and private nonprofit humanitarian organizations, foreign governments, and international organizations.

Set aside -- A voluntary program to limit production by restricting the use of land. When offered, producers must participate to be eligible for Federal loans, purchases, and other payments.

Subsidy -- A direct or indirect benefit granted by a government for the production or distribution of a good.

Supply control -- The policy of changing the amount of acreage permitted to be planted to a commodity or the quantity of a commodity allowed to be sold by a program participant; used to maintain a desired carryover or price level.

Target price -- A price level established by law for wheat, feed grains, rice, and cotton. Farmers participating in the Federal commodity programs receive the difference between the target price and the higher of the market price during a period prescribed by law or the unit price at which the Government will provide loans to farmers to enable them to hold their crops for later sale (the loan rate).

Targeted export assistance program (TEA) -- Authorized by the Food Security Act of 1985, the program assists U.S. producer groups or regional organizations whose exports have been adversely affected by a foreign government's policies. TEA promotes exports of a specific American commodity in specified markets. Eligible participants receive generic certificates in payment for promotional activities.

Tariffs -- Taxes imposed on commodity imports by a government; may be either a fixed charge per unit of product imported (specific tariff) or a fixed percentage of value (ad valorem tariff).

Trade barriers -- Regulations used by governments to restrict imports from, and exports to, other countries including tariffs, embargoes, and import quotas.

Variable levies -- The difference between the price of a foreign product at the port and the official price at which competitive imports can be sold; levies are effectively a variable tax on imports or a variable subsidy to exports.

World price -- Often refers to the cost, insurance, and freight (c.i.f.) price of a commodity at the principal port of a major importing country or area.

0/92 -- An optional acreage diversion program that allows wheat and feed grain producers to devote all or a portion of their permitted acreage to conserving uses and receive deficiency payments on the acreage. The program will make deficiency payments for a maximum of 92 percent of a farm's permitted acreage.

50/92 -- Allows cotton and rice growers who plant at least 50 percent of their permitted acreage to receive 92 percent of their deficiency payments under certain conditions. The Farm Disaster Assistance Act of 1987 also authorized 50/92 for wheat, feed grain, cotton, and rice producers who were affected by a natural disaster in 1987 and met certain criteria stated in the law.

Appendix table 1--U.S. rice acreage, yield, and production, 1958-88

Crop year 1/	Planted	Harvested	Reduced	Yield	Production
	- - - - - 1,000 acres	- - - - -		Pounds	1,000 cwt
1958	1,440	1,415	---	3,164	44,760
1959	1,608	1,586	---	3,382	53,647
1960	1,614	1,595	---	3,423	54,591
1961	1,618	1,589	---	3,411	54,198
1962	1,796	1,773	---	3,726	66,045
1963	1,785	1,771	---	3,968	70,269
1964	1,797	1,786	---	4,098	73,166
1965	1,804	1,793	---	4,255	76,281
1966	1,980	1,967	---	4,326	85,020
1967	1,982	1,970	---	4,538	89,379
1968	2,367	2,353	---	4,424	104,075
1969	2,141	2,128	---	4,272	90,838
1970	1,826	1,815	---	4,617	83,754
1971	1,826	1,818	---	4,719	85,768
1972	1,824	1,818	---	4,697	85,439
1973	2,181	2,170	---	4,276	92,765
1974	2,550	2,531	---	4,440	112,394
1975	2,833	2,818	---	4,558	128,437
1976	2,489	2,480	---	4,663	115,648
1977	2,261	2,249	---	4,412	99,223
1978	2,993	2,970	---	4,484	133,170
1979	2,890	2,869	---	4,599	131,947
1980	3,380	3,312	---	4,413	146,150
1981	3,827	3,792	---	4,819	182,742
1982	3,295	3,262	422	4,710	153,588
1983	2,190	2,169	1,739	4,598	99,720
1984	2,830	2,802	785	4,954	138,810
1985	2,512	2,492	1,241	5,414	134,913
1986	2,381	2,360	1,479	5,651	133,356
1987	2,360	2,333	1,566	5,555	129,598
1988 2/	2,928	2,895	1,088	5,511	159,543

--- = Not applicable.
1/ The crop year for rice begins on August 1 and extends through July 31.
2/ Projected.
Source: U.S. Dept. of Agr., National Agricultural Statistics Service.

Appendix table 2--U.S. and State average rice yields per harvested acre, 1953-88

Crop year	United States	Arkansas	Louisiana	Mississippi	Texas	California
			Pounds			
1953	2,447	2,300	2,075	2,550	2,625	2,900
1954	2,517	2,500	2,350	2,625	2,675	2,550
1955	3,061	3,125	2,800	2,850	3,050	3,450
1956	3,151	3,200	2,700	2,850	2,900	4,200
1957	3,204	3,100	2,675	3,200	3,200	4,300
1958	3,164	2,950	2,650	2,800	3,100	4,450
1959	3,382	3,400	2,850	2,700	3,150	4,650
1960	3,423	3,525	2,850	2,950	3,075	4,775
1961	3,411	3,500	2,925	3,300	2,900	4,800
1962	3,726	3,850	3,050	3,200	3,550	4,950
1963	3,968	4,300	3,325	3,900	4,125	4,325
1964	4,098	4,300	4,300	3,800	4,150	5,050
1965	4,255	4,300	3,550	3,700	4,600	4,900
1966	4,326	4,300	3,700	4,300	4,200	5,500
1967	4,538	4,550	3,900	4,300	5,000	4,900
1968	4,424	4,350	3,900	4,300	4,600	5,325
1969	4,272	3,950	3,400	4,200	3,950	5,525
1970	4,617	4,900	3,900	4,400	4,450	5,700
1971	4,719	5,050	3,800	4,600	5,100	5,200
1972	4,697	4,975	3,825	4,559	4,727	5,614
1973	4,276	4,770	3,451	4,306	3,740	5,616
1974	4,440	4,535	3,650	4,180	4,494	5,380
1975	4,558	4,770	3,810	3,900	4,560	5,750
1976	4,663	4,230	3,910	4,200	4,810	5,520
1977	4,412	4,230	3,670	4,000	4,670	5,810
1978	4,484	4,450	3,820	4,250	4,700	5,220
1979	4,599	4,320	3,910	4,050	4,220	6,520
1980	4,413	4,110	3,550	3,840	4,230	6,440
1981	4,819	4,520	4,060	4,390	4,700	6,900
1982	4,710	4,290	4,160	4,120	4,690	6,700
1983	4,598	4,280	3,820	4,000	4,340	7,040
1984	4,954	4,600	4,150	4,350	4,940	7,120
1985	5,414	5,200	4,370	5,350	5,490	7,300
1986	5,651	5,300	4,550	5,400	6,250	7,700
1987	5,555	5,250	4,550	5,100	5,900	7,550
1988 1/	5,511	5,350	4,500	5,300	6,000	7,000

1/ Projected.
Source: U.S. Dept. Agr., National Agricultural Statistics Service.

Appendix table 3--Proportional distribution of rice production, by type of grain, United States, 1953-88

Crop year	Long grain	Medium grain	Short grain	Total production
	- - - - - - - Percent - - - - - - -			1,000 cwt
1953	43.5	33.0	23.5	52,834
1954	45.5	35.6	18.9	64,193
1955	50.4	27.7	21.9	55,902
1956	57.1	20.5	23.1	49,459
1957	56.4	20.5	23.1	42,935
1958	55.7	21.2	23.1	44,760
1959	50.5	29.1	20.4	53,647
1960	48.2	35.2	16.6	54,591
1961	45.3	38.4	16.3	54,198
1962	43.7	41.8	14.5	66,045
1963	36.8	48.7	14.5	70,269
1964	37.5	50.2	12.3	73,166
1965	43.0	45.6	11.4	76,281
1966	41.6	46.5	11.9	85,020
1967	48.5	42.3	9.2	89,379
1968	46.8	42.1	11.1	104,075
1969	49.0	40.3	10.7	90,838
1970	49.3	40.4	10.3	83,754
1971	52.6	37.2	10.2	85,768
1972	50.2	39.7	10.1	85,439
1973	46.2	42.9	10.9	92,765
1974	49.8	41.0	9.2	112,394
1975	52.9	38.4	8.7	128,437
1976	60.6	31.8	7.6	115,648
1977	62.7	26.5	10.8	99,223
1978	63.7	27.4	8.9	133,170
1979	61.2	30.6	8.2	131,947
1980	59.4	35.2	5.4	146,150
1981	60.4	33.7	5.9	182,742
1982	60.8	33.4	5.8	153,637
1983	65.2	26.7	8.1	99,720
1984	69.2	25.4	5.4	138,810
1985	74.4	21.1	4.5	134,913
1986	72.8	24.0	3.2	133,356
1987	68.7	29.1	2.2	127,725
1988 1/	74.4	23.6	2.0	159,543

1/ Projected.
Source: U.S. Dept. Agr., National Agricultural Statistics Service.

Appendix table 4--Use and ending stocks for rice, 1953-88

Crop year	Food 1/	Seed	Brewer	Exports	Total use 2/	Ending stocks	Stocks-to-use ratio
	- - - - - - - - - - -			1,000 cwt	- - - - - - - - - -		Percent
1953	17.3	3.1	4.6	22.7	47.2	7.5	16.0
1954	18.7	2.2	5.6	14.3	45.1	26.7	59.2
1955	19.1	2.0	6.0	18.7	48.2	34.7	71.9
1956	19.2	1.7	5.1	37.5	64.5	20.0	30.9
1957	19.0	1.8	4.8	18.3	45.0	18.2	40.4
1958	18.8	2.1	4.7	19.8	47.4	15.7	33.0
1959	20.7	2.1	5.0	29.2	58.0	12.1	21.0
1960	19.9	2.1	4.9	29.5	56.9	10.1	17.7
1961	22.6	2.4	4.7	29.2	59.3	5.3	9.0
1962	21.5	2.4	4.1	35.5	63.7	7.7	12.1
1963	22.5	2.5	3.8	41.8	70.5	7.5	10.7
1964	24.3	2.5	4.3	42.5	73.5	7.7	10.4
1965	23.4	2.7	4.7	43.3	76.4	8.2	10.8
1966	24.0	2.7	5.3	51.6	84.8	8.5	10.0
1967	25.0	3.2	5.4	56.9	91.1	6.8	7.4
1968	27.0	2.9	5.8	56.1	94.7	16.2	17.1
1969	23.5	2.5	7.1	56.9	90.8	16.4	18.1
1970	25.1	2.5	6.8	46.5	83.1	18.6	22.4
1971	25.5	2.5	7.4	56.9	94.1	11.4	12.2
1972	25.1	3.0	7.7	54.0	92.3	5.1	5.6
1973	26.1	3.6	8.1	49.7	90.2	7.8	8.7
1974	28.6	4.0	8.4	69.5	113.2	7.1	6.2
1975	27.7	3.5	9.1	56.5	98.7	36.9	37.4
1976	29.2	3.2	10.3	65.6	112.1	40.5	36.1
1977	23.5	4.3	9.9	72.8	112.4	27.4	24.4
1978	33.7	4.3	11.2	75.7	129.1	31.6	24.5
1979	33.2	4.8	11.2	82.6	137.9	25.7	18.6
1980	38.4	5.1	11.0	91.4	155.6	16.5	10.6
1981	42.5	4.4	12.7	82.0	150.6	49.0	32.5
1982	37.2	3.2	13.5	68.9	131.8	71.5	54.0
1983	33.2	3.3	12.8	70.3	125.2	46.9	37.5
1984	35.8	2.8	13.9	62.1	122.6	64.7	52.8
1985	45.6	2.6	14.1	58.7	124.5	77.3	62.1
1986	53.1	2.6	14.8	84.2	161.9	51.4	31.7
1987	55.3	3.2	15.4	72.2	152.6	31.4	20.6
1988 3/	58.0	3.2	16.0	76.0	162.2	32.4	20.0

1/ Food use includes shipments to U.S. territories.
2/ Includes residual.
3/ Estimated.
Source: U.S. Dept. Agr., National Agricultural Statistics Service.

Appendix table 5--Prices and ending stocks for rice, 1953-88

Crop year	Ending stocks CCC 1/	Ending stocks Free	Ending stocks Total	Farm price	Loan rate	Target price	Direct payment
	- - - 1,000 cwt - - -			- - - - Dollars per cwt - - - -			
1953	1.2	6.3	7.5	4.93	4.84	---	---
1954	18.4	8.3	26.7	4.25	4.92	---	---
1955	27.4	7.2	34.6	5.00	4.66	---	---
1956	12.6	7.4	20.0	4.93	4.57	---	---
1957	12.0	6.2	18.2	5.16	4.72	---	---
1958	9.5	6.2	15.7	4.96	4.48	---	---
1959	6.9	5.3	12.1	4.60	4.38	---	---
1960	4.1	5.9	10.1	4.41	4.42	---	---
1961	.3	5.0	5.3	5.20	4.71	---	---
1962	1.9	5.9	7.7	5.10	4.71	---	---
1963	1.4	6.1	7.5	4.92	4.71	---	---
1964	1.0	6.6	7.7	4.87	4.71	---	---
1965	.6	7.6	8.2	4.98	4.50	---	---
1966	.2	8.3	8.5	4.80	4.50	---	---
1967	0	6.7	6.8	5.12	4.55	---	---
1968	6.3	9.9	16.2	4.90	4.60	---	---
1969	6.4	10.0	16.4	5.32	4.72	---	---
1970	9.5	9.2	18.6	5.41	4.86	---	---
1971	2.7	8.7	11.4	5.62	5.07	---	---
1972	.1	5.0	5.1	7.20	5.27	---	---
1973	0	7.8	7.8	15.30	6.07	---	---
1974	0	7.1	7.1	11.40	7.54	---	---
1975	19.2	17.1	36.9	8.35	8.52	---	---
1976	18.7	21.8	40.5	7.02	6.19	8.25	0
1977	10.8	16.6	27.4	9.49	6.19	8.25	0
1978	8.3	23.2	31.6	8.16	6.40	8.53	0.78
1979	1.7	24.0	25.7	10.50	6.79	9.05	0
1980	0	16.5	16.5	12.80	7.12	9.49	0
1981	17.5	31.5	49.0	9.05	8.01	10.68	.28
1982	22.3	49.2	71.5	7.91	8.14	10.85	2.71
1983	25.0	21.9	46.9	8.57	8.14	11.40	2.77
1984	44.3	20.4	64.7	8.04	8.00	11.90	3.76
1985	43.6	33.7	77.3	6.53	8.00	11.90	3.90
1986	8.7	42.7	51.4	3.75	7.20	11.90	4.70
1987	.1	31.3	31.4	7.27	6.84	11.66	4.82
1988 2/	0	32.4	32.4	6.75	6.63	11.15	4.31

--- = Not applicable.
1/ Commodity Credit Corporation.
2/ Estimated.
Sources: U.S. Dept. Agr., Agricultural Stabilization and Conservation Service.

Appendix table 6--Farm-related program costs for rice, 1961-88

Fiscal year	Direct income payments and price support	Disaster	Commodity export payments	Loan operations: Outlays	Loan operations: Repayments	Miscellaneous outlays and receipts	Net price support and related outlays 1/	PL 480 outlays	Total
				Million dollars					
1961	---	---	18.6	67.0	26.7	-29.4	29.5	109.8	139.3
1962	---	---	30.1	42.3	21.8	-22.9	27.7	88.8	116.5
1963	---	---	24.1	39.8	20.5	-.7	44.1	123.4	167.5
1964	---	---	38.8	43.3	25.9	-3.8	52.4	116.7	169.1
1965	---	---	38.3	51.2	34.7	-39.8	49.7	95.2	144.9
1966	---	---	42.4	61.6	47.4	-5.0	51.6	112.0	163.6
1967	---	---	22.0	79.9	69.7	-2.7	29.5	140.2	169.8
1968	---	---	1.9	90.0	80.6	-.1	11.2	133.8	145.0
1969	---	---	3.2	128.4	85.6	-.2	45.8	170.9	216.7
1970	---	---	13.7	132.5	107.2	-.4	38.6	167.6	206.2
1971	---	---	17.8	110.0	90.7	4.5	41.6	167.8	209.4
1972	---	---	24.8	190.3	159.4	-50.3	5.4	214.5	219.9
1973	---	---	21.8	138.3	127.2	-11.3	21.6	244.4	266.0
1974	---	---	3/	136.8	122.0	-.1	14.7	317.3	332.0
1975	---	---	---	75.6	73.0	-2.6	3/	285.3	285.3
1976 2/	---	3/	---	225.9	35.7	15.5	205.7	242.2	447.9
1977	128.3	0.7	---	156.6	146.0	5.0	144.6	164.2	308.8
1978	.1	3.7	---	127.6	122.2	-75.3	-66.1	148.8	82.7
1979	58.0	.7	---	177.0	171.6	-14.4	49.5	136.0	185.5
1980	0	1.4	---	169.4	180.0	-66.6	-75.8	193.7	117.9
1981	0	2.4	---	253.3	174.6	-57.1	24.0	168.9	192.9
1982	21.5	.1	---	360.3	210.1	-8.3	163.5	116.5	280.0
1983	397.1	12.0	---	538.6	302.8	19.5	664.4	130.0	794.4
1984	102.9	10.9	---	563.3	325.9	18.3	332.9	128.9	461.8
1985	571.9	78.1	---	546.0	204.7	-1.7	989.6	172.0	1,161.5
1986	324.1	13.7	---	806.6	449.0	251.6	947.0	85.7	1,032.7
1987	375.7	-.3	---	961.0	834.0	403.5	905.9	84.0	989.9
1988 4/	57.9	3/	---	803.8	848.5	175.8	189.0	48.7	237.7

--- = Not applicable.

1 / Direct price support or deficiency, disaster, and export payments plus Government expenditures for storage and handling, transportation, processing, and packaging, loan collateral settlements, loan purchases, and other expenses less sales proceeds, loan repayments, and other receipts. A negative sign indicates net receipts.

2/ Includes July-September 1976 to allow for shift from July/June to October/September fiscal year.

3/ Less than $50,000.

4/ Estimated.

Source: U.S. Dept. Agr., Agricultural Stabilization and Conservation Service.

Appendix table 7--Value comparisons for rice, 1953-88

Crop year	Loan value per acre		Market value per acre		Gross value of production	
	Nominal 1/	Real 2/	Nominal 1/	Real 2/	Nominal 1/	Real 2/
	Dollars				Million dollars	
1953	118	456	127	490	274	1,058
1954	124	471	115	437	294	1,118
1955	143	526	147	540	269	989
1956	144	512	153	544	240	854
1957	151	519	164	564	220	756
1958	140	471	148	498	209	704
1959	148	487	155	510	246	809
1960	153	495	156	505	248	803
1961	161	516	175	561	279	894
1962	175	549	188	589	333	1,044
1963	187	577	199	614	352	1,086
1964	193	587	201	611	359	1,091
1965	191	565	210	621	376	1,112
1966	194	555	214	611	421	1,203
1967	206	574	225	627	444	1,237
1968	203	538	221	586	521	1,382
1969	201	505	211	530	447	1,123
1970	224	533	239	569	433	1,031
1971	235	529	248	559	458	1,032
1972	248	533	316	680	575	1,237
1973	259	523	290	586	1,280	2,586
1974	334	619	496	919	1,261	2,335
1975	388	654	381	642	1,072	1,808
1976	289	458	327	518	811	1,285
1977	273	406	419	623	941	1,398
1978	287	398	366	507	1,087	1,506
1979	312	398	483	615	1,384	1,761
1980	314	366	565	659	1,873	2,186
1981	386	411	436	464	1,654	1,760
1982	383	383	373	373	1,246	1,246
1983	374	360	394	379	876	843
1984	394	368	398	370	1,119	1,039
1985	433	390	354	319	881	794
1986	407	357	212	186	500	439
1987	380	323	404	343	942	800
1988 3/	365	294	372	300	1,037	869

1/ Loan rate or average farm price times yield per harvested acre.
2/ Gross national product implicit price deflator, 1982 = 1.0, was used.
3/ Estimated.
Source: U.S. Dept. Agr., Agricultural Stabilization and Conservation Service.

Appendix table 8--World milled rice production, consumption, exports, and ending stocks, 1960-89

Crop year 1/	Production	Total use	Exports 2/	Ending stocks	Stocks-to-use ratio
	- - - 1,000 metric tons - - -			- - Percent - -	
1960/61	159.8	159.2	6.3	7.5	4.7
1961/62	147.3	149.2	6.3	8.5	5.7
1962/63	155.2	151.3	7.3	12.4	8.2
1963/64	169.1	165.2	7.7	16.2	9.8
1964/65	180.8	179.8	8.2	17.3	9.6
1965/66	173.3	172.6	7.9	18.0	10.4
1966/67	179.3	178.7	7.8	18.6	10.4
1967/68	189.4	187.1	7.2	20.9	11.2
1968/69	195.6	191.8	7.5	24.7	12.9
1969/70	201.6	200.2	8.2	26.1	13.1
1970/71	213.6	211.0	8.6	28.8	13.6
1971/72	216.4	216.8	8.7	28.4	13.1
1972/73	209.6	214.6	8.4	23.4	10.9
1973/74	228.0	222.9	7.7	28.5	12.8
1974/75	226.3	226.7	7.3	28.2	12.4
1975/76	244.0	233.3	8.4	38.9	16.7
1976/77	237.0	238.1	10.6	37.8	15.9
1977/78	251.7	245.6	9.6	43.9	17.9
1978/79	264.7	253.7	12.0	53.9	21.2
1979/80	258.0	259.4	12.7	52.4	20.2
1980/81	270.9	276.2	13.2	47.1	17.1
1981/82	280.3	285.9	11.8	43.3	15.2
1982/83	285.5	304.5	11.9	43.3	15.1
1983/84	307.9	310.6	12.4	46.6	15.3
1984/85	318.8	319.7	11.4	54.9	17.7
1985/86	318.8	323.1	12.6	54.0	16.9
1986/87	318.3	320.5	12.8	49.2	15.2
1987/88	313.2	319.4	11.8	44.0	13.8
1988/89 3/	328.7	326.3	13.4	46.4	14.2
1989/90 4/	329.9	330.5	12.7	46.0	13.9

1/ Based on aggregate of differing local marketing years.
2/ Calendar year of second year.
3/ Estimated.
4/ Projected.
Source: World Grain Situation and Outlook, U.S. Dept. Agr., Foreign Agricultural Service.