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LEON A. MEARS*

THE POLITICAL ECONOMY OF RICE IN THE UNITED STATES†

The striking contrasts between the rice economies of Asian countries and that of the United States are quickly evident even to a casual observer. A sample of these contrasts is shown in Table 1. Not only are objectives apt to differ in these two areas but also priorities given to objectives within the rice economies will be of an entirely different order. Further, policies will vary because constraints vary.

This paper will emphasize the relationship of the political environment to important developments in the American rice economy. However, the terms of reference must include the world and particularly the Asian rice economy. The United States' share of world rice production is only slightly more than 1 percent, but its exports frequently exceed those of any other country.

The economic and political parameters, including objectives and constraints, will be related within the programming framework suggested by C. P. Timmer and W. P. Falcon (*47*). This approach assumes that policy-makers select from a set of feasible policies in order to maximize a rice-welfare objective function. Such a nexus is subject to many constraints. The interrelationships and the participants involved will be clarified in the following discussion. First, the economic scene is described. A discussion follows of the evolution of rice policy in the United States. The paper concludes with an evaluation of the impact of American rice policy on desired goals and of its efficiency in achieving these goals.

* The author is Visiting Professor, University of Wisconsin and University of Indonesia.

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TABLE 1.—SELECTED CONTRASTS BETWEEN THE RICE ECONOMY OF THE UNITED STATES AND THOSE OF SOUTH AND SOUTHEAST ASIA

United States	Parameter	South and Southeast Asia
Rural producer	Politically vocal participants	Urban consumer
10 to 15,000	Number of farm operators	Millions
2 percent	Rice weight in consumer price index	10 to 30 percent
3 to 4 kilograms	Annual per capita consumption milled rice	75 to 150 kilograms
40 to 50	Number of rice mills	Hundreds to thousands
2.5 to 65 tons/hour	Rough rice capacity of rice mills	Generally average less than 1 ton/hour
Low percent broken	Milling output	High percent broken
50 to 60 percent	Export surplus as percent of production	Thailand 10 to 15 percent China 1 to 2 percent
5 tons	Average yields rough rice per hectare	1.5 to 5 tons
Mechanical	Rough rice drying	Sun (generally)
Highly capital intensive	Mechanization	Simple
75 to 175 hectares	Average farm size	⅓ to 5 hectares
Negative	Income elasticity of demand	Positive

THE U.S. RICE ECONOMY

Production

U.S. rice production is now concentrated mainly in five states (see Table 2). Compared to Asia, where rice cultivation has been practiced for millennia, rice production is relatively new in the U.S. Rice production flourished on a small scale in South Carolina for 150 years before the middle of the nineteenth century. Thereafter, the center of rice cultivation was shifted to Louisiana. Provided with irrigation water from small, newly-organized canal companies, production spread rapidly in Louisiana and in Texas. Production became important in Arkansas around 1910, in California around 1918, and in Mississippi after 1950. Within these states rice farming is concentrated on land with clay or silt loam soils and a gentle slope suitable for irrigated rice production.

The rice industry in the United States is a small part of American agriculture. Rice occupies only slightly over 1 million hectares, or less than 1 percent of the 125 million hectares planted to crops annually. For the country as a whole, cash receipts from seven other crops[1] exceeded those of rice in 1973. However, at the state level, the situation was very different. For example, rice was the top income producer of all crops in Louisiana; it was second in Arkansas, and third in Texas. In some congressional districts, incomes from rice are very important, and strong representation for rice legislation favorable to producers can be expected from congressmen from these areas (*54*). Historically, powerful legislators have represented these districts, and rice legislation often has received special preference (*45*, p. 10).

All current rice production is irrigated, and expansion of production is limited by availability of water to the 4 million hectares with suitable soil texture and surface slope. It is limited further by practical crop rotation requirements.[2] Given these constraints, potential rice area is limited to approximately 2 million hectares or to double that utilized in 1974 (*33*).[3] Irrigation, intensive fertilization, and fully mechanized operations require heavy capital investments. In contrast to the manual planting, fertilizing and spraying, weeding, harvesting, and drying commonly found in Asia, American rice farmers generally use airplanes for planting, fertilizing, and spraying and huge tractors for leveling and land

[1] In order of importance in 1973, these other crops were: soybeans, corn, wheat, cotton lint, tobacco, grain sorghum, and greenhouse or nursery crops.

[2] There is evidence in the southern states of a yield reduction trend where rice is planted annually on the same land. However, major reasons for rotation are to reduce weeds, which affect yields, and the red grain varieties that lower product value in the market (*9, 50*). Rotation alternatives vary from grasses for cattle grazing in Texas and southwestern Louisiana to soybeans, oats, and cotton elsewhere in the southern states. An additional advantage comes where soybeans are rotated with rice because of their complementarity in weed control. Rice helps to eliminate non-water-tolerant weed grasses. Soybeans are not flooded for cultivation and help to eliminate water-tolerant grasses. Grain sorghum, oats, safflower, and beans are well adapted for rotation in California, but their use is not general. Soil nutrient depletion has not yet proved a limiting factor in California, and no serious diseases have forced a rigid rotation pattern. In the mid-1970s, environmentalists objected to smoke resulting from straw burning after harvest in California. Regulations of the State Air Resources Board limiting daily total burning could affect crop yields and might even force reduced plantings. Burning during the fall before the rains start is desired to help control stem rot disease (*24*) and to avoid the necessity of yield-depleting late plantings.

[3] In addition, economics of production and marketing can keep this potential from being realized in rice production. Moreover, a price support program restricted to a limited hectarage (one hectare equals about 2.47 acres) can be influential. These economic constraints are discussed in more detail below.

TABLE 2.—MAJOR U.S. RICE-PRODUCING STATES, 1974*

States	Area harvested (*thousand hectares*)	Area allotments[a] (*thousand hectares*)	Rough rice production (*thousand metric tons*)	Average yield (*tons/hectare*)	Maximum potential annual rice land (*thousand hectares*)	Average rice planting on individual farms, 1969 (*hectares*)
Arkansas	302	205	1,558	5.2	328[b]	61
California	189	154	1,121	5.9	204	139
Louisiana	272	244	1,121	4.1	363[b]	83
Mississippi River Delta[b]	44	24	247	5.6	600[b]	119
Texas	228	217	1,146	5.0	282	157
Total, U.S.[c]	1,035	848	5,193	5.0	1,777	94

* Data from U.S. Dept. Agr., Stat. Rept. Serv., *Crop Production: 1974 Annual Summary* (Jan. 16, 1975); Troy Mullins et al., *Resource Use Adjustments in Major U.S. Rice Areas, Part III: Tenure, Supply, Demand* (*33*); and U.S. Dept. Comm., Soc. and Stat. Admin., Bur. Census, Part 48, California, Section 1, *Summary Data, Volume I Area Reports* (1969), pp. 292ff. All estimates shown are preliminary.

[a] Acreage allotments are the specific acreage limits assigned to producers and cannot be exceeded if price support is to be obtained. These allotments are made to farmers on a basis of their historical production. The purpose is to limit supplies of rice so as to raise its farm price.

[b] Mississippi River Delta includes the Delta land in Arkansas and Louisiana not included in individual state totals, plus all potential riceland in Mississippi. Individual Arkansas and Louisiana totals include only the Grand Prairie and northeast Arkansas and southwest Louisiana areas (see *33* for definitions of these areas). The Delta is listed separately as rice cultivation there is relatively new and only minimal allotments have been provided.

[c] Excludes approximately 13,000 hectares harvested in Arizona, Florida, Illinois, Missouri, North Carolina, Oklahoma, South Carolina, and Tennessee.

preparation.[4] Large self-propelled combines are employed for simultaneous harvesting and threshing. The grain is dried mechanically, using heat which is often supplemented with aeration.

Different areas tend to specialize in producing rice of different grain lengths. Grain length is related in part to the market areas served. It also is associated with the economics of the use of specific seed varieties developed for the different locations. Texas and Arkansas lead in producing long-grain rice for a number of specialized markets around the world. California is practically the only producer of short-grain rice for the Puerto Rican and Western Pacific markets, a demand that has declined appreciably since Japan became self-sufficient. Louisiana leads in the production of medium-grain rice, with California a close second. Medium grain rice is sold in both domestic and export markets.

Given increasing mechanization and reduced labor requirements, individual operators can readily realize the scale economies associated with increased farm size. In 1973 American rice farms annually required an average of 17.8 man-hours of labor per hectare (*30*). By contrast, in many Asian countries employment ranged from 900 to 2,000 man-hours per hectare.[5] In 1969 the average area planted in rice per farm ranged from 60 hectares in Arkansas to 160 hectares in Texas. On a typical rice farm in Arkansas one-third of the crop land was planted to rice and the remainder to soybeans. Minimum cost per unit of output was obtained with 600 hectares of total crop land. Most potential scale economies could be realized with 500 hectares (*19*).

Many farmers have increased the hectarage planted to rice by leasing additional land.[6] In 1969 the typical tenure pattern was a mixture of ownership and leasing arrangements (*33*). While tenants leasing all of the land they farmed were in the majority in central Arkansas (55 percent) and Texas (68 percent), land owners who had increased their rice lands by leasing predominated in northeastern Arkansas (43 percent), southwest Louisiana (58 percent), and California (56 percent). Land may be leased for cash, but agreements are more frequently on a crop-sharing basis related to the share of inputs supplied by each party. As both parties are of approximately equal bargaining power—the farmer's investment in farm tools may be $100,000 or more—leasing agreements tend to be much freer of bias than might be expected with Asian tenant farming. Finally, while most rice farmers grow some other crops, over 80 percent of them (90 percent in Texas) consider rice as their principal enterprise (*56*).

Marketing and Processing

Like production, rice marketing in the United States differs appreciably from that in Asia, to a large extent reflecting factor costs. In the United States, rough

[4] Seeding by airplane is currently limited to California, Texas, and the Mississippi River Delta. Elsewhere, seeds are broadcast or drilled. Transplanting, which is common in Asia, is not practiced in the United States (*50*).

[5] In a 1969 study on Java, it was found that the typical three-quarter-hectare farm averaged about 680 man-hours of labor per hectare for the wet season crop, excluding labor required for land preparation and harvesting (*42*).

[6] In its attempt to control rice production, the government price support is restricted to production from a limited total hectarage. Allocation to farmers is made in accordance with the area they planted to rice in previous years. Allotments are often too small to permit full realization of scale economies, and owners may prefer to lease their land or allotment rights to other rice producers. However, many rice producers prefer to use their limited capital to invest in additional equipment rather than in land needed to obtain scale economies. Allotment procedures are discussed in more detail on p. 340.

rice generally is harvested at 18 to 26 percent moisture content, too high for safe storage. Over the past 30 years, field drying has been replaced by artificial drying. Most of the unhusked grain is trucked from the field to off-farm commercial dryers for drying and storage; only about 10 percent goes to on-farm dryers. Title to the grain does not always change hands even when commercial dryers are used.

Because of the condensed harvest season and the need for prompt drying, drying capacity must be capable of handling peak daily tonnage of from 3 to 4 percent of annual production (*16*).[7] The purpose of drying is to reduce the moisture content to 12 to 13 percent, a safe level for long-term storage. In the southern states it is common to dry the rice to this level within 24 hours; elsewhere the rice is heat-dried to a moisture content of 17 percent, then aerated in warehouses over time until the 12 to 13 percent level is reached. The latter practice is increasingly common in California. Because efficient artificial drying costs from 6 to 7 percent of the rough rice price at the farm, there is understandable reluctance to increase capacity to meet production increases not expected to be permanent. Thus, shortage of drying capacity can be a major short-run production constraint. Cooperative rice dryers account for a significant share of commercial rice drying and storage capacity in California and Arkansas.

The number of commercial rice dryers has remained almost constant at around 200 since 1965, but a significant number have been increased in capacity. Because the harvesting cycle limits peak volume operation to a very short period, the diseconomies resulting from less than full utilization generally overshadow potential economies of size. Thus, average annual per-ton costs generally are lowest in the smallest plant capable of handling the peak volume (*40*).[8]

Rice is milled by both independent firms and farmer cooperatives. Millers may perform both the drying and storage functions or may purchase the rough rice after it has been dried. The cooperative mills handle 80 percent of the production in California and 60 percent in Arkansas. In Texas and Louisiana, cooperatives mill about 15 percent of the rice produced and have not been as effectively integrated with the dryers and growers as mills in Arkansas and California (*13*).[9]

The capacities of some rice mills also have been increased and many small mills have discontinued operations (*12, 38*). The total number of mills declined from 58 in 1965 to 40 in 1972. Economies of scale are appreciable in milling with unit costs, especially of small mills, rising rapidly as rates of operation decline (*17*). Firms that can develop market outlets sufficient to permit near-capacity operation year-round clearly enjoy an advantage. The mill restructuring has left four major milling centers: Stuttgart, Arkansas; Sacramento, California; Crowley, Louisiana; and Houston, Texas. By 1971 this concentration resulted in more than two-thirds of the rice being milled by ten firms, including cooperatives.

[7] In 1975, the record crop in Arkansas so taxed the capacity of existing dryers that drying facilities were rationed and harvesting patterns upset.

[8] This conclusion could be modified where it is practical to use the dryers for other crops before or after the peak of the rice harvest. However, little drying was needed on alternate crops planted in rice areas in 1975.

[9] In mid-1975 there was evidence that Louisiana and Texas may follow Arkansas and California toward more fully integrated processing and marketing cooperative organizations.

TABLE 3.—PRODUCTION/MILLING BALANCE 1974*

State	Rough rice production (*thousand metric tons*)	Milling capacity (*tons/hour*)	No. of 24-hour days required to mill total production
California	1,121	245	191
Louisiana	1,121	212	220
Arkansas	1,558	227	287
Mississippi and Tennessee	247	17	—
Texas	1,146	281	170
Total	5,193	982	220

* Based on J. C. Eiland and T. F. Moriak, *Rice Milling Costs in the United States, 1971–72* (*10*), for southern mills. Survey by author for California mills.

Total milling capacity was adequate for the record crop of 1974, but only because milling could be spread throughout the year (see Table 3). An uneven demand pattern could cause delivery delays in some areas as processors normally set milling schedules on the basis of actual sales commitments. Milled rice is more risky to store than rough rice because it is more perishable. Milled rice storage also increases financing requirements and limits sales flexibility to consumers having different quality and packaging requirements.

In 1972 rice millers accounted for about 90 percent of rice shipments to all domestic outlets combined, including civilian direct food use, food processors, and brewers (*55*). Repackagers and the government accounted for the balance. Except where repackagers or the government were involved, mill distribution was direct to wholesalers, retailers, institutional outlets, food processors, or brewers. White milled rice accounts for over 99 percent of the rice merchandised for direct food use.[10] About 10 percent is parboiled and a somewhat smaller amount precooked before sale. Almost 50 percent is enriched by adding thiamin, niacin, and iron. Calcium, riboflavin, and vitamin D also are added to a small group of specialty brands. Almost half the rice distributed for direct food use comes in packages of 5 pounds or less.

Rough rice is transported from dryers to mills in bulk carriers. Generally, trucks are used for shorter distances with rail used otherwise. Rail predominates for milled rice shipment except to nearby markets and ports.[11] Shipments from mills may be either bulk, packaged, or sacked (100 pounds), depending on the market and marketing programs.

The Rice Growers Association of California has captured a major portion of the Puerto Rican import trade by its means of a unique shipping method plus its own packaging facilities in Puerto Rico. Using a specially designed ship-barge combination to handle bulk rice, port and shipping costs can be held to a minimum.[12]

Concentration of rice exports in few hands is characteristic. While from 75

[10] A small amount is sold as brown rice, and less than 100 additional tons has special flavors added.

[11] Shipping by water is an alternative where possible.

[12] For a more complete description and evaluation of these arrangements see (*21*).

TABLE 4.—U.S. MILLED RICE DISTRIBUTION*

Year beginning August 1	Government distribution: schools, institutions, welfare agencies[a]	Dept. of Defense	Domestic food consumption: Direct[b]	Domestic food consumption: Processed: Breakfast cereal	Domestic food consumption: Processed: Other	Use by brewers	Shipments to Puerto Rico and U.S. territories	Exports[d]	Total
				(thousand metric tons)					
1956–57	26	c	369	57	14	126	137	1,163	1,892
1961–62	53	c	459	90	13	135	139	945	1,834
1966–67	35	c	468	114	21	143	163	1,698	2,642
1971–72	36	7	546	95	61	185	185	1,883	2,998
1972–73	30	10	574	108	36	207	180	1,788	2,933
				(percent)[a]					
1956–57	1	c	20	3	1	7	7	61	100
1961–62	3	c	25	5	1	7	8	52	100
1966–67	1	c	18	4	1	5	6	64	100
1971–72	1	d	18	3	2	6	6	63	100
1972–73	1	d	19	4	1	7	6	60	100

* All values except exports from U.S. Dept. Agr., Econ. Res. Serv., *U.S. Rice Distribution Patterns, 1956/57–1972/73* (*55*). Does not include imports or account for stock changes. Government distribution purchases from Commodity Credit Corporation, and excludes distribution to territories. Data for exports from U.S. Dept. Agr. Econ. Res. Serv., *Rice Situation*, RS25 (1975).

[a] Totals may not add due to rounding.

[b] Not including government distributions.

[c] Figures not available.

[d] Less than 1/2 of 1 percent.

TABLE 5.—MILLED RICE: MAJOR PER CAPITA DIRECT CONSUMERS IN THE UNITED STATES, 1972/73*

	Annual total consumption (*thousand metric tons*)	Annual per capita consumption (*kilograms*)
Hawaii	24	31.5
Louisiana	40	10.7
New Jersey	52	7.1
South Carolina	20	7.6
Guam	6	80.1
Puerto Rican Commonwealth	169	60.1
Virgin Islands	2	29.6

* Based on data from U.S. Dept. Agr., Econ. Res. Serv., *U.S. Rice Distribution Patterns, 1972/73*, ERS 567 (*55*).

to 100 firms may participate at times in commercial exports, less than 10 often account for over 90 percent of the business. Commercial exporters include mills as well as merchant traders who often sell under their own trademark. Concessional exports are even more concentrated. Over 95 percent of these exports are handled by three traders: Connell Rice and Sugar Company, Continental Grain Company, and Cargill (*53*). Other exporters do not participate in concessional exports apparently because of the risks associated with political and market uncertainties.[13]

Consumption

The general structure of the market for U.S. rice is indicated in Table 4. During the past twenty years, total domestic consumption—excluding shipments to Puerto Rico and U.S. territories—has ranged between 30 and 40 percent of production, and consumption as milled rice has rarely accounted for less than one-third. In the United States, starchy staple foods[14] provide only 25 percent of the total caloric intake of the average consumer (compared to two-thirds or more in many Asian countries). Rice accounts for only about 4 percent of the calories from starchy staples (*5, 6*). In contrast, rice alone accounted for approximately 50 percent of the total caloric intake of the average consumer in Indonesia in 1963 (*28*). In the United States wheat is the predominant source of calories from starchy staple foods, followed at a much lower level by potatoes and corn, with rice trailing in fourth place.

Within the United States and Puerto Rico, and U.S. territories, there are population concentrations whose direct per capita consumption of milled rice appreciably exceeds the national average of 3.3 kilograms. The largest per capita consumers among these political units are shown in Table 5. In addition, heavy per

[13] An important risk relates to the fact that traders cannot receive payment until they present the bill of lading. Thus, any delay of ship arrival or loading can mean important added costs, including financing, storage, and, possibly, fumigation. Concessional contracts also call for delivery within short time periods that can result in accumulation problems.

[14] Including wheat, white and sweet potatoes, corn, tapioca (cassava), rice, rye, oats, buckwheat and barley, and their processed food products.

TABLE 6.—U.S. RICE CONSUMPTION BY INCOME GROUP*
(*pounds per week per capita*)

Annual household income range (*dollars*)	Consumption 1955	Consumption 1965
Under 1,000	.17	.27
1,000–1,999	.18	.27
2,000–2,999	.15	.23
3,000–3,999	.10	.23
4,000–4,999	.08	.17
5,000–5,999	.07	.16
6,000–7,999	.08	.14
8,000–9,999	.08	.11
10,000 or more	.09	.12

* Based on data from U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation*, RS-15, March 1970.

capita consumption of rice is found in New York City, Chicago, San Francisco, and Los Angeles—areas containing large concentrations of Puerto Rican, Filipino, and Japanese populations. Political resistance to high rice prices is exerted directly when groups of these people are effectively organized.

The domestic demand for rice is estimated to be very price inelastic, between −0.15 and −0.20 (*7, 14, 23*). It provides grounds for understanding the frequent preference of rice farmers for higher prices and restricted output. However, the export price elasticity of demand for the United States is high—it was estimated by W. R. Grant in 1966 to be about −8.0 (*14*)—and the United States could increase its rice export receipts by allowing its export price to fall. The difficulties in successfully implementing such a general policy are evident, considering the oligopolistic nature of the world market plus the fact that larger export subsidies would be required if American export prices were lowered below the world price.[15]

U.S. studies have consistently estimated a positive domestic income elasticity of demand for rice (see *29, 65*). However, cross-section studies in 1955 and 1965 (Table 6) yielded negative coefficients. The strong indication of a negative income elasticity for rice suggests that early researchers mistook changes in taste over time for a positive response of demand to increasing incomes. Per capita rice consumption has increased materially since 1950 (Table 7). Nevertheless, increasing incomes cannot be counted upon to absorb additional production.

Total consumption will continue to increase slowly with population growth. This rice-consumption effect of population increase will be slightly biased on the high side by the one-time influx of 120,000 Vietnamese plus the annual large immigration of Filipinos and Puerto Ricans. Further per capita consumption

[15] In fact, a two-price system (generally referred to as "dumping") has existed for many years. This subsidy to exports has come from general tax revenues.

A congressional study of a variety of alternative systems was made in 1955. Emphasis was given to one that theoretically could increase producers' returns by increasing domestic consumer prices sufficiently to offset lowered farm income from the reduced American export price (*65*).

TABLE 7.—U.S. PER CAPITA CONSUMPTION OF RICE AND COMPETING FOODS*
(*pounds per year per capita*)

Year	Milled rice	White potatoes[a]	Wheat flour	Corn[b]
1910	8.3	198	214	—[c]
1920	6.2	140	179	6.7
1930	5.3	132	171	8.3
1940	5.9	123	155	10.6
1950	5.1	106	135	13.1
1955	5.5	109	123	14.0
1960	6.1	108	118	14.4
1965	7.6	107	113	14.6
1970	6.7	118	110	14.7
1972	7.0	119	109	15.8
1973[d]	7.3	117	109	15.9

* Based on U.S. Dept. Agr., Econ. Res. Serv., *Food Consumption, Prices, Expenditures*, Economic Report No. 138, July 1968 and annual supplements.
[a] Farm weight basis; fresh equivalent.
[b] Farm weight basis; fresh, canned, and frozen.
[c] Figures not available.
[d] Preliminary.

growth will depend upon the ingenuity of food processors and the effectiveness of rice promotional activities in inducing additional taste changes.[16]

The only other category of domestic demand that evidenced a distinct increasing trend was rice consumption in beer manufacture. And while that rate of increase was almost 3 percent a year, the additional consumption could be provided for by increasing plantings on 1,600 hectares or by only .15 of 1 percent annually. Three large brewers[17] continued to base their product on rice because of a taste difference. Most other manufacturers used barley or corn as a base; in 1974 these products were reported to be only about one-third the price of broken rice.[18]

The critical consumption category is export demand, the structure of which is shown in Tables 8, 9, and 10. Exports have grown rapidly since the early 1940s. As recently as 1960, the volumes of rice exports of Burma, Thailand, and China each exceeded those of the United States. In contrast, the United States was the largest rice exporter in six of the eight years after 1966, and American exports rose from 10 percent of world exports in 1955 to 30 percent in 1974.

This growth in exports is no small accomplishment. However, a large portion of it was in the form of government-subsidized and concessionary sales, and it remains to be seen whether this volume can be maintained. Commercial exports expanded from 1960 to 1962 despite the loss of a major customer, Cuba. It is true that this growth was assisted by government subsidies designed to offset the difference between U.S. and world prices.[19] Commercial exports declined

[16] There appears to be evidence that the increased advertising and other promotional activity which the rice industry has sponsored in recent years could have raised the status of rice consumption. This effect could account in part for the increased per capita consumption by all income groups between 1955 and 1965 (see Table 6).
[17] Anheuser-Busch, Coors, and Olympia.
[18] See testimony of August A. Busch, President of Anheuser-Busch (*71*).
[19] For long-grain rice, this subsidy reached a high of over $60 per metric ton in 1972.

TABLE 8.—U.S. MILLED RICE EXPORTS BY TYPE OF SALE, UNDER GOVERNMENT PROGRAMS*
(*million metric tons*)

Year beginning July 1	Commercial[a]	Title I PL 480	Other programs[b]	Total[c]	Commercial as percent of total
1955	0.3	0.1	0.2	0.6	49
1960	0.3	0.5	0.1	1.0	33
1961	0.5	0.4	[d]	0.9	55
1962	0.5	0.6	[d]	1.1	43
1963	0.7	0.7	[d]	1.4	50
1964	0.7	0.6	[d]	1.3	56
1965	0.9	0.4	0.1	1.5	67
1966	1.0	0.8	—	1.8	53
1967	1.1	0.7	[d]	1.9	59
1968	0.7	1.0	[d]	1.7	43
1969	0.8	0.9	[d]	1.8	47
1970	0.6	0.9	—	1.7	36
1971	0.5	0.8	[d]	1.7	29
1972	0.8	1.0	—	1.9	42
1973[e]	1.0	0.6	—	1.6	62

* Based on U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation*, RS14 (1969) and RS25 (1975).
[a] Includes barter sales, 1959, of 80,000 tons and 1960 of 14,000 tons.
[b] Includes G to G, World Food Aid, Voluntary Relief, and Mutual Security Aid.
[c] Totals may not add due to rounding.
[d] Less than 100,000 tons.
[e] Preliminary.

sharply after 1967 when Japan withdrew from the market. During 1967–72 world prices declined below the American support price but subsidies were limited by budgetary considerations, and American commercial export prices were not always fully competitive. In 1972–73 American commercial exports began to rise again, when poor crops in Asia caused world prices to rise above the U.S. support price. Congress may be reluctant to reinstate the subsidy if world prices fall, in view of the strong popular reaction in 1973 against the subsidized wheat shipments to Russia.

The United States has been able to maintain and even increase its commercial shipments to the European Economic Community (EEC) in spite of its 1967 increase in import levies from $44 to $202 per ton (*11*).[20] The consistently high quality of American long-grain rice is one explanation for this export growth. And, in 1974–75, Iran's purchases of over 400,000 tons of high-quality American rice suggested that newly generated surpluses from oil revenues may have opened up a lucrative market. Even though its population is small compared to that of Asia, the Middle East is a relatively large consumer of quality long-grain rice. Further, it is possible that Cuba might again become an important customer.

Equally critical questions can be raised about the future of PL 480 exports.[21] Military conflicts caused two traditional exporters—South Vietnam and Cam-

[20] Since 1967 the import levies have varied considerably. For long-grain rice, they declined to zero in August 1973, rising again to a high of over $150 per ton in June 1975 (*25*).

[21] Public Law 480 in 1954 authorized concessional or grant shipments of surplus agricultural commodities, including rice, to friendly nations.

TABLE 9.—MAJOR U.S. EXPORTS UNDER GOVERNMENT PROGRAMS BY COUNTRIES OF DESTINATION*
(*thousand metric tons*)

Year beginning July 1	Bangladesh[a]	Guinea	India	Indonesia	Korea	Philippines	South Vietnam[b]	Zaire	Total
1956	239	—	197	269	108	—	—	—	822
1957	162	—	—	—	29	17	—	—	231
1958	41	—	—	37	—	25	—	—	171
1959	15	—	171	149	—	—	—	—	448
1960	129	—	272	121	—	—	—	—	539
1961	—	13	138	151	—	—	42	12	374
1962	—	25	271	257	—	—	—	14	579
1963	—	42	364	91	—	18	—	30	620
1964	—	16	327	—	—	94	25	32	523
1965	—	19	10	4	—	37	199	41	354
1966	—	7	—	95	—	—	686	22	828
1967	—	—	—	148	—	—	564	8	735
1968	—	13	60	327	340	—	230	—	973
1969	—	2	39	350	143	—	405	—	950
1970	—	15	—	323	477	—	255	—	1,075
1971	145	18	96	346	402	—	127	—	1,204
1972	4	—	—	155	427	75	455	—	1,120
1973[c]	—	—	—	—	7	—	604	—	610

* Based on U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation*, RS4 (1960), RS6 (1962), RS14 (1969), RS18 (1971), and RS25 (1975). Includes PL 480 Titles I and II, plus Mutual Security Aid.

[a] Includes shipments to Pakistan.

[b] Including 73,000 tons in 1972 and 285,000 tons in 1973 for Cambodia.

[c] Preliminary.

TABLE 10.—U.S. MILLED RICE EXPORTS TO SELECTED COMMERCIAL CONSUMERS*
(*thousand metric tons*)

Year beginning August 1	Belgium, Luxemburg, Netherlands	Canada	Cuba	Japan and Okinawa	Liberia	Saudi Arabia	South Africa	United Kingdom	West Germany
1956	31	17	184	[a]	11	[a]	[a]	—	[a]
1960	40	9	10	15	21	6	45	26	47
1965[b]	23	53	—	390	34	46	68	40	35
1970[b]	39	53	—	31	53	63	67	54	45
1971[b]	23	59	—	17	34	53	82	51	42
1972[b]	28	69	—	—	36	79	98	51	45
1973[b]	49	75	—	—	27	70	80	37	55

* Based on U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation*, RS6 (1962) and RS10 (1966); U.S. Dept. Agr., For. Agr. Serv., *Review of World Rice Markets and Major Suppliers*, FAS-M-246, August 1972; and U.S. Dept. Agr., Econ. Res. Serv., 1971/73 unpublished report.

[a] Less than 1,000 tons.

[b] Calendar year.

bodia—to become dependent on concessional imports related to American policies of national security. In 1975, with the end of the war, they presumably were lost as customers of the United States, and it is quite possible that they will soon re-enter the export market. Indonesia, which received as much as 38 percent of the PL 480 exports as recently as 1972, is considered ineligible for "soft-financing" in 1975 because of its growing oil revenues and membership in the Organization of Petroleum-Exporting Countries (OPEC). Indonesia is unlikely to continue to import rice from the United States unless prices and financing terms are advantageous. India and Bangladesh have a large potential demand, but both may have difficulties in paying for large quantities of rice. And if the wheat price remains lower than that of rice, they may prefer to maximize calorie imports from their limited resources by buying wheat.

Prices and Price Relationships

Between 1948, when price supports for rice were initiated, and 1972, rice prices in the United States had generally been determined by the level of the price support. In 1972, when world rice prices rose above the U.S. support levels, the American price began to be determined by the level of world prices (see Chart 1).[22] American farm and wholesale prices—of which the farm and Houston mill prices shown on Chart 1 can be considered typical—followed this same general pattern.[23] Retail rice prices followed an intermediate pattern since retail price determinants include both farm and non-farm parameters.[24]

Farm prices are in general determined as indicated above. The prominence of cooperatives in the marketing and processing of rice precludes precise farm price determination in cooperative channels directly by traditional market forces. The cooperatives give the producers a "blend" price prorated after taking into account the marketing and processing performance of the cooperative, including packaging and retailing when integration is carried that far.

Marketing margins generally are high compared with those in Asian countries. For example, farmers in Luzon in the Philippines received between 75 and 80 percent of the retail price in the 1970s (*27*), while farmers in the United States averaged only between 40 and 45 percent in the 1950s (*46*). Some of the difference results from fancy packaging of small lots for the American consumer compared with frequent bulk purchases by the Asian consumer. But the major difference arises from much higher wholesaling and retailing costs in the United States (from 25 to 30 percent of farm price) compared with Asia (6 percent of farm price in the Philippines).[25]

Futures markets for rice have been attempted in the United States several

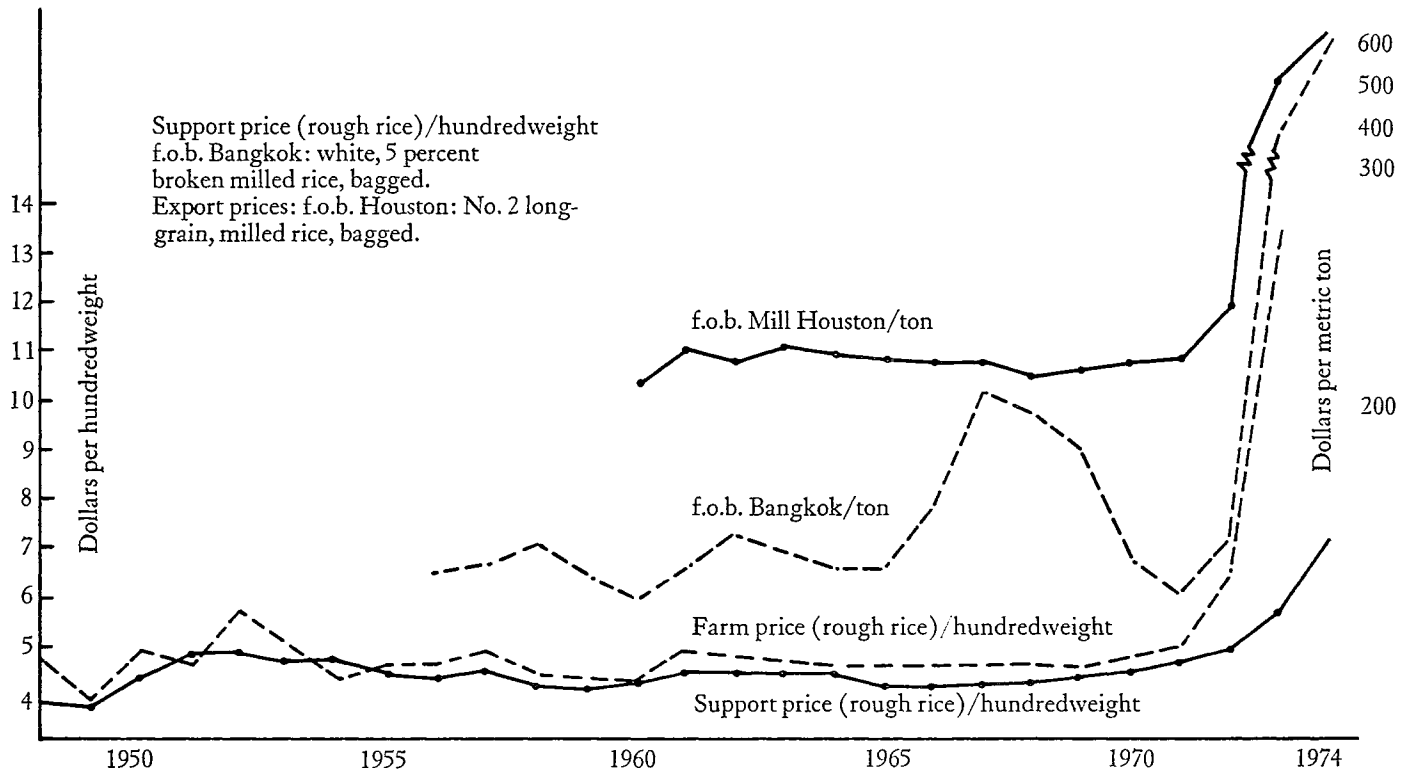
[22] See below for a more detailed discussion of price supports. Separation of rice prices in the United States from the American market is indicated by the fact that the consumer price index (CPI) rose over 50 percent from 1950/51 to 1969/70 while rice prices at the farm level remained practically constant. Between 1969/70 and 1973/74 the CPI rose only 24 percent, but the farm rice price rose over 175 percent.

[23] The wholesale price f.o.b. mill approximates the U.S. export price because the mills in Houston are near the port. For a precise export price—f.a.s. (freight alongside ship) Houston—$5.50 per ton must be added to cover transport and wharfage charges.

[24] Farm, wholesale, and retail prices have been generalized in this condensed discussion. In fact, there is a structure of prices at all levels, depending on quality and variety.

[25] Research is needed to determine why the margin is relatively so high in the United States.

CHART 1.—DOMESTIC ROUGH RICE AND EXPORT MILLED RICE PRICES*



* Based on U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation*, various issues. The Houston and farm price curves lead the Bangkok curve by five months. The Bangkok price is a calendar-year average while the others are crop-year averages (August 1 to July 31).

times in the past 25 years, but none has been successful (*20*). The few large cooperatives that are integrated from grower members to the wholesale market control an important portion of the total rice trade. Their need for a futures market is minimal because their control of supply from grower members is relatively assured.[26] Only a few mills process the balance of the crop. This combination of cooperative and commercial processors provides an oligopolistic structure in a market where government support has kept prices high and relatively stable over the past 25 years (until 1972). The climate that would induce speculative trading in a futures market cannot be created while these conditions last.[27]

THE PARTICIPANTS IN POLICY FORMATION

In the United States, policies take formal shape within laws passed by federal and state legislatures. For rice, legislation takes place predominantly in the Congress. The Executive Branch also influences policy by presenting the programs for legislative consideration and through its power to veto laws passed by the legislature. Influence also arises through discretionary authority allowed in implementation of the laws as well as from numerous other executive responsibilities such as budget formulation, foreign policy direction, and the powers of appointment. Legislation is further influenced by the business community, farm organizations, organized consumer groups, and political parties. Specific impact depends upon the effectiveness of various groups, acting individually or in collusion with others.

The Department of Agriculture has a strong voice in the formulation and execution of federal rice policy. Its leaders reflect political party objectives. Its programs are in turn influenced by farmers and related business interests. This influence is facilitated by the department's extended activities that reach down to local levels through a bureaucracy of over 75,000 full-time employees (*15, 35*). Since this large group includes specialists in each phase of agriculture, the Secretary of Agriculture has a material advantage in program analysis and formulation over the Senate or House agriculture committees which have staffs of only about ten people each. The Department of Agriculture also influences public opinion in its supervisory and advisory relationships with some 3,000 county agricultural committees whose members are elected by farmers. Farm and agro-business points of view are communicated upward through this network, which also provides a ready means for the administration's views on rice policy to be communicated downward. Moreover, the fact that the activities of the Department of Agriculture are organized on a commodity basis gives leverage to special commodity programs.

Rice farmers, processors, and traders have formed their own specialized organizations. In addition, many belong to more general farm organizations such as the American Farm Bureau Federation, the National Grange, and the National Farmers Union. All of these groups attempt to communicate their interests

[26] Trade rumors suggest that Louisiana and Texas may follow Arkansas and California toward a fully integrated farmers' coperative processing and marketing system.

[27] Given the concentration of international rice marketing in the Asian area, a viable futures market might be established in Hong Kong or Singapore to serve regional requirements.

and to gain support at as many points as possible within the channels of policy-formation.

Depending upon membership interests, these organizations may take opposite sides on specific issues, or two organizations may support the same legislation but for different reasons. For example, in 1974 the leadership of the Arkansas Rice Growers Cooperative Association and the Rice Growers Association of California, both vertically integrated farmer cooperatives, supported conflicting policy positions at the Congressional hearings for new rice legislation (*71*). Because California has very little land suited for expansion of rice production the California organization favored strong protection by provision of allotments for traditional producers only. Arkansas has considerable additional farmland suitable for rice cultivation; in addition, the cooperative membership includes many soybean producers desirous of initiating or expanding rice production. The Arkansas association therefore supported legislation that would discriminate less against new producers, would permit increased scale economies through expanded hectarage for existing rice producers, and would allow production to shift to more efficient producing areas. In Louisiana, the American Rice Growers Cooperative Association opted for strong protection of vested farm interests, fearing a weakening of the market for their medium-grain rice if PL 480 exports declined (*70*).

In recent years the national farm organizations have had little influence on rice policy formation (*15, 71*). They continue to take positions, although their motives often relate more to general organizational issues than to specific objectives of the rice industry. For example, in 1974 the American Farm Bureau Federation, which generally favors free private enterprise with minimum government participation, opposed rice policy changes that would have reduced the government's role. They gave as a reason their opposition to the compensatory payments to farmers in the proposed policy change. At the same time, the Arkansas Farm Bureau joined the Arkansas cooperatives in favoring the change. Their stated objective was to permit greater flexibility for the farmer in production and marketing (*71*). In the same year, the National Farmers Union and the National Farmers Organization, each with only nominal strength in rice-growing areas but with more aggressive interest in government intervention, supported the vested farm interests and recommended against easing of government controls.

Many other interest groups found their own reasons to support the position of the Arkansas Rice Growers cooperative. Independent rice-grain dryers and millers generally favored allowing greater freedom for producers to respond to the market. This position was motivated, at least partially, by their need for increased production in order to reduce risks arising from their desired capital expansion. Brewers favored the less restrictive legislation, hoping for lower prices and larger supplies of brewers' rice. These small broken grains and polishings had actually been in short supply owing to the exceptional efficiency of the American processing industry. Marketing firms, such as Uncle Ben's, looked toward the opportunities for expanded sales that increased production and declining prices would provide. These last objectives also could be read into statements made by the large U.S. grain traders. They participate extensively in domestic sales as well as in commercial and PL 480 exports (*70, 71*). Ability to compete in world markets would be improved as domestic prices declined.

Members of the related business community also are vocal. The capital-intensive chemical or equipment firms tend to favor legislation that would lead to expanded markets which would absorb a share of high overhead costs. In 1974 bankers favored new legislation that would protect rice producers against serious price declines while simultaneously increasing opportunities for new producers. The bankers were interested in maintaining security for rice production and equipment loans while providing inducement for their expansion.

Consumers' interests in low rice prices usually command prime consideration in Asia, where a large part of the consumer budget is spent on rice.[28] As might be expected, rice consumers generally have been given much less attention in the United States. In 1973 alarm over rising beef prices and the general inflation resulted in the formation of a National Consumers Congress, which retained enough vitality in 1974 to give nominal support to new rice legislation that offered a potential of lower prices. Ethnic organizations representing heavy rice-consuming populations, such as the Japanese-American Citizens League, the Chinese-American Restaurant Association, the Harlem Consumer Education Council, and the Department of Consumer Affairs in Puerto Rico, supported these policy changes. Legislative evidence strongly suggests that the influence of such rice consumers on policy continues to be much weaker than that of producers and related business interests.

As indicated above, these pressures from farmers, processors, merchants, the general business community, and related organizations funnel up through the Department of Agriculture to the legislative committees of Congress where the formal policy is determined.[29] Interest groups exert pressure all along the legislative path. Occasionally politicians may even refer in muted terms to party platforms. And, while the level of economic understanding of congressmen is often considerably above that of the average constituent, it is understandable that legislation that is too far ahead of the voters in terms of economic appeal is apt to die before it reaches the end of this path.

EVOLUTION OF U.S. RICE POLICY

World War I and the agricultural depressions of the 1920s and 1930s brought about a marked change in the attitude of Americans toward the federal government's dealings with farm commodity problems. It would oversimplify to say that the government did not intervene in commodity marketing before 1929 when it legislated and attempted to implement the Agricultural Marketing Act (AMA).[30] However, earlier farm programs including such services as extension education, agricultural research, and crop and price reporting were generally more

[28] Asian consumers are not organized in any formal institutional sense, but political authorities recognize the importance of low rice prices to political and monetary stability. This message comes through effectively without formal organizations.

[29] See R. B. Talbot (*44*) for more detailed comments on the importance of congressional committees. See also Luther Tweeten (*49*) on the changing orientation and power of the agricultural committee as urban-industrial representation increases relative to that of rural agriculture. More recently, changing committee membership suggests a reduced effectiveness in promoting agricultural interests (*37*).

[30] The AMA attempted (unsuccessfully) to keep farm prices (not including rice) from falling but with a grossly undercapitalized stabilization fund. However, the AMA fostered farm support primarily through a better marketing system organized along cooperative lines (*2*). Rice cooperatives received some loans under this program.

in the nature of aids to be used or ignored as farmers might choose. At intervals during the previous century, farmers had experienced bad times, but until the 1920s their response generally had been to call for government action only against threats by non-farm economic power (*4, 35*).[81]

Change took place after World War I. Agricultural prices had practically doubled during the war. Post-war farm prices fell much more rapidly than the prices farmers paid, and farmers remained at a disadvantage while much of the rest of the economy prospered.

Rice prices followed this general pattern. Prices received by rice farmers fell 60 percent between 1919 and 1921, while the prices they paid actually rose slightly. The retail price of rice dropped only about 35 percent over these two years, materially increasing the farm-retail rice price margin. During the decade of the 1920s, the consumer price index declined only slightly over 10 percent compared to a 50 percent fall in prices received by the rice farmer. At the bottom of the depression in 1932/33, consumer prices had dropped 30 percent, retail rice prices 56 percent, and rough rice prices at the farm almost 75 percent compared with price levels at the start of the 1920s.

The agricultural sector experienced declining incomes, an increasing price squeeze, and a drastic decline of farm real estate values. The unsuccessful attempt in 1929 at direct government intervention to meet this crisis was followed by a succession of more positive government actions with the objective of increasing the purchasing power of the farmer by raising prices of farm products. Seeking this same objective, farmers increasingly approved of farm price and production controls.

At the start, this change was concentrated on the basic agricultural commodities, including wheat, cotton, and corn.[82] Rice was of less importance in terms of volume, but its price had declined drastically and the rice farmers had developed strong political support that carried them along in the swift current of change. This focus on commodities eventually led to greater individual treatment for rice, but for the time being rice farmers benefited from the general prescription.

The next major step came with passage of the Agricultural Adjustment Act of 1933 (*58*). Its price support concept was defined in terms of "parity," reestablishing a "normal" relationship between the prices received by the farmer and those paid by him. This concept was stated in the legislation as follows (*58*):

> To establish and maintain such balance between production and consumption of agricultural commodities, and such marketing conditions therefore, as will reestablish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities of the base period. The base period . . . shall be the prewar period, August 1909–July 1914 . . . to protect the consumers' interest by readjusting farm production at such level as will not increase the percentage of the consumers' retail expenditures for agricultural commodities.

[81] For example, farmers pressed for action against the "grain trust" to whose manipulations they attributed low grain prices and against the railroads who were accused of maintaining unnecessarily high freight rates (*4*).

[82] Basic agricultural commodities were defined by the Agricultural Adjustment Act of 1933 (*58*) to mean wheat, cotton, field corn, hogs, rice, tobacco, and milk.

The exact formula for calculating the parity price has been more precisely defined and frequently changed over the years, generally in attempts to raise its level.[83] Throughout, the original concept has been maintained of reestablishing a "normal" relationship between the prices paid and received by the farmer. The index has frequently been criticized on the grounds that the base period prices and costs were no longer representative. However, it was not until 1974 that a strong effort was made to replace the parity concept of a price support level by a cost-of-production measure (*71*, p. 2ff).[84]

Over the years, many policy devices aimed at raising prices have been utilized to realize the government's farm income objectives for rice farmers. In general terms these can be classified as government crop loans and purchases, production limitations, marketing quotas, and surplus disposal. Other government objectives include improved consumer welfare, foreign policy support, budgeting constraint, and the increase of foreign exchange earnings.

The Agricultural Adjustment Act of 1938 replaced and broadened the scope of farm policy after portions of the 1933 act had been declared unconstitutional. The new act included provision for most of the policy devices subsequently used to help raise prices of farm products. However, many of these were not needed for rice until later. This 1938 legislation continued to form the basis for American rice policy in 1975.

Prior to 1938, efforts to raise prices were concentrated on limiting production. Limitations were first attempted by marketing agreements under which farmers were reimbursed for crop reduction by funds raised through processing taxes. Export subsidies entered the scene as a means of surplus disposal by refund of the processing tax on exports (*4*). These efforts met with mixed success[85] and were replaced in 1936 by land conservation payments when rice lands were planted in other crops. When stocks accumulated, the Federal Surplus Relief Corporation initiated a surplus disposal program by making substantial purchases from the market (*2*).

Between 1938 and 1941, rice prices gradually increased—although remaining below levels of the 1920s—aided by production limitation compensated for by substantial conservation and parity payments; the latter were dependent upon farmer compliance by reduced rice plantings that did not exceed allotments (*61*).

The price of rice rose rapidly after 1940 with production and export of major

[83] As implemented in 1975, the parity concept follows definitions legislated in 1948 and 1949 (*62, 63*), in general terms as follows:

"A. The 'parity price' for any agricultural commodity . . . shall be determined by multiplying the adjusted base price . . . by the parity index.

"B. The 'adjusted base price' . . . shall be (i) the average of the prices received by farmers for such commodity . . . divided by (ii) the ratio of the general level of prices received by farmers for agricultural commodities during the period January 1910 to December 1914, inclusive.

"C. The 'parity index' . . . shall be the ratio of (i) the general level of prices for articles and services that the farmers buy, wages paid hired farm labor, interest of farm indebtedness secured by farm real estate, and taxes on farm real estate . . . to (ii) the general level of such prices, wages, rates, and taxes during the period January 1910 to December 1914, inclusive."

[84] In December 1975 this change was still under consideration by the Senate Agriculture and Forestry Committee.

[85] Marketing agreements were more successful in California where strong cooperatives facilitated control than in the southern states where control of individual farmers was difficult to organize. The practice of subsidizing exports disappeared for the time being with the demise of the processing tax in 1936.

Asian producing countries constrained during and immediately after World War II. As prices rose, American rice surpluses disappeared and production rose rapidly. Area planted to rice increased 70 percent between 1940 and 1948, and production increased almost as much. Producers and processors invested heavily to support this volume and formed strong interest groups that later pressed for renewed government assistance when traditional exporters returned to the market in force. Compared to the prewar period, problems relating to export marketing became more difficult to solve because U.S. rice exports—as a percentage of total U.S. rice production—climbed from around 20 to over 40 percent between 1940 and 1948.

By 1948 surpluses began to accumulate in private hands even after a 20 percent decline in rough rice prices at the farm. In that year farm prices of rice fell below loan levels for the first time since the loan support program was made available for rice in 1941. Some farmers availed themselves of this government price support by obtaining non-recourse crop loans at 90 percent of parity from the Commodity Credit Corporation (CCC).[36] The CCC also supported prices by concluding purchase agreements with farmers. After 1949, the situation was eased by price increases which accompanied the Korean War.

By 1952, the situation had changed markedly again as world supplies became more abundant. Exceptionally favorable growing conditions and expanded rice area, in both importing and exporting countries, led to this increase. In the following year both U.S. and world prices moved downward, with further declines in 1954. When American production increased to record levels in 1954, 20 percent higher than in the previous year, the CCC was forced to acquire, through loan defaults and purchases, over 1 million tons of rough rice to support the market price at 90 percent of parity.

The time had come for implementation of stronger controls and for expansion of policy to facilitate surplus disposal. This situation was met by congressional passage of the Agricultural Trade and Development Assistance Act of 1954, commonly known as Public Law (PL) 480. This Act (*64*) authorized the export of surplus agricultural commodities as a grant or on concessional terms, to

> expand international trade among the United States and friendly nations to facilitate the convertibility of currency, to promote economic stability of American agriculture and the national welfare, to make maximum use of surplus agricultural commodities in furtherance of the foreign policy of the United States, and to stimulate and facilitate the foreign trade in agricultural commodities produced in the United States by providing a means whereby surplus agricultural commodities in excess of the usual marketings of such commodities may be sold through private trade channels, and foreign currencies accepted in payment thereof. It is further the policy to use foreign currencies which accrue to the United States under this Act to expand international trade, to encourage economic development....

Starting in 1955, production limitations were strengthened materially. Allotments were imposed, limiting the area that producers could plant if they wished to be eligible for price support. In addition, if the total supply was estimated to

[36] "Non-recourse" means that delivery of the rice pledged for a loan constitutes payment of the loan in full, regardless of the current market value of the rice.

be greater than the normal supply, marketing quotas were proclaimed and became effective upon approval of two-thirds of the eligible farmers voting.[37] When marketing quotas are in effect, compliance with the area allotment is required to avoid assessment of a heavy marketing quota penalty.[38] The Agricultural Act of 1956 took into account the vested interests of allotment holders specifying a minimum total allotted area in rice of not less than the national allotment for 1956, which was 669,000 hectares (1.61 million acres). This compulsory minimum partially frustrated the workability of the policy to control production and maintain a minimum floor price.

This conflict between minimum allotment and minimum floor price was relieved by reducing the floor price. Beginning in 1954, the political climate was conducive to gradual reduction in the price-support level (through supporting prices at a lower percentage of parity). On the one hand, the administration came under increasing criticism because of the high levels of stocks (rice and other grains) in CCC hands. At the same time, there had been increases in rice yields, averaging 3.5 percent yearly from 1950 to 1970, and farmers were more agreeable to reduction of the price-support level when per-unit costs had declined. As a consequence, the support level fell from 91 percent of parity in 1954 to the legal minimum of 65 percent of parity in 1969 (see Table 11).

Support of producer prices at 65 percent of parity continued through crop loans and purchases by the CCC. CCC-acquired stocks could be sold commercially in domestic markets at no less than 5 percent above the current support price (plus carrying charges) while sales for export could be made at any time.[39] CCC purchases and dispositions of rice between 1948 and 1973 are shown in Table 12.

In addition, except as limited by budgetary considerations between 1968/69 and 1971/72, subsidies were provided to exporters when domestic prices exceeded world prices. This practice was discontinued after December 1972 when world prices began to surpass domestic prices, but the Secretary of Agriculture retains authority to reestablish export subsidies. A more indirect form of subsidization is involved in the concessional sales under PL 480 which have been a major outlet to help dispose of stock surpluses through regular commercial marketing channels without reducing prices to the farmer. Subsidization with these sales takes the form of more favorable terms than sales in the free market.

Since 1955 the farm price-support program for rice has continued in effect with

[37] For example, to determine the relationship between total and normal supply for the 1975 crop year (August 1, 1975, to July 31, 1976):

Total supply = carryover (as of August 1, 1975),
+ estimated production (during calendar year 1975),
+ estimated imports (August 1, 1975–July 31, 1976),

Normal supply = estimated domestic consumption (August 1, 1974–July 31, 1975),
+ estimated exports (August 1, 1975–July 31, 1976),
+ required carryover (10 percent of the sum of the above);

and eligible farmers are those producing rice the preceding year; marketing quotas are set at levels equal to the amount of rice normally produced on the acreage allotment.

[38] The penalty on any excess (with excess defined as the area planted in excess of allotment times the normal yield) is at a rate per pound equal to 65 percent (50 percent before 1958) of the parity price per pound. The 1938 AAA specified formulas for calculating the national allotment and apportioning individual allotments, such that the resulting rice production would make available a total supply not greater than the normal supply.

[39] To a maximum extent practical, the CCC is directed to utilize commercial channels in making sales (*66*).

TABLE 11.—ALLOTMENTS, AREA HARVESTED, YIELD, PRICE SUPPORT AND PRICES RECEIVED BY FARMERS, 1948–74*

Year beginning August 1	National hectarage allotment (*thousand hectares*)	Area harvested (*thousand hectares*)	Yield (*tons/ha rough rice*)	Annual average price received by farmers (*$/hundred pounds rough rice*)	National average support-price: rough rice		
					(*$/hundred pounds*)	(*$/metric ton*)	(*percent of parity*)
1948	—	730	2.38	4.88	4.08	90	90.0
1949	—	752	2.46	4.10	3.96	87	90.0
1950	644	663	2.66	5.09	4.56	101	90.0
1951	—	808	2.59	4.82	5.00	110	90.0
1952	—	809	2.70	5.87	5.04	111	90.0
1953	—	874	2.74	5.19	4.84	107	91.0
1954	—	1,032	2.82	4.57	4.92	108	91.0
1955	781	739	3.43	4.81	4.66	103	86.0
1956	669	635	3.53	4.86	4.57	101	82.5
1957	669	542	3.59	5.11	4.72	104	82.0
1958	669	573	3.54	4.68	4.42	97	75.0
1959	669	642	3.79	4.59	4.38	97	75.0
1960	669	646	3.83	4.55	4.48	99	75.0
1961	669	643	3.82	5.14	4.71	104	78.0
1962	736	718	4.17	5.04	4.71	104	75.7
1963	736	717	4.44	5.01	4.71	104	72.9
1964	736	723	4.59	4.90	4.71	104	74.4
1965	736	726	4.77	4.93	4.50	99	68.0
1966	810	796	4.84	4.95	4.50	99	65.7
1967	810	798	5.08	4.97	4.55	100	66.2
1968	972	953	4.96	5.00	4.60	101	65.5
1969	875	861	4.84	4.92	4.72	104	65.0
1970	743	734	5.17	5.17	4.86	107	65.0
1971	743	736	5.28	5.34	5.07	112	65.0
1972	743	736	5.26	6.73	5.27	116	65.0
1973	900	879	4.79	13.80	6.07	134	65.0
1974[a]	850	1,040	4.79	—	7.54	166	65.0
1975[a]	730	1,113	5.00				

* Data from U.S. Dept. Agr., *Agricultural Statistics*, various issues, and Econ. Res. Serv., *Rice Situation*, various issues.
[a] Preliminary.

TABLE 12.—COMMODITY CREDIT CORPORATION OPERATIONS, 1948–73*
(*thousand metric tons–rough rice equivalent*)

Crop	U.S. production[a]	Placed under price support		Delivered to CCC[a]	CCC-owned stocks, year-end July 31	Privately-held free stocks[c]	Placed under support as percent of production
		Loans	Purchases[b]				
1948	1,736	7	162	28	[d]	113	10
1949	1,849	85	28	138	21	127	6
1950	1,761	10	3	1	17	187	1
1951	2,091	182	84	23	10	82	13
1952	2,186	9	—	—	[d]	68	[e]
1953	2,397	82	121	144	42	288	8
1954	2,912	796	586	1,140	719	374	47
1955	2,536	706	485	1,065	1,228	329	47
1956	2,243	603	478	761	567	336	48
1957	1,948	316	299	499	544	279	32
1958	2,030	377	149	298	427	282	26
1959	2,433	425	133	319	311	239	23
1960	2,476	355	239	221	187	270	24
1961	2,458	195	94	2	14	227	12
1962	2,996	254	300	84	84	266	18
1963	3,187	267	187	35	65	277	14
1964	3,319	346	4	36	47	301	11
1965	3,460	445	8	18	28	346	13
1966	3,856	651	[d]	5	11	376	17
1967	4,054	742	[d]	2	4	304	18
1968	4,724	1,072	29	287	287	448	23
1969	4,169	1,029	84	136	291	455	27
1970	3,801	943	33	160	429	416	26
1971	3,890	1,417	5	55	125	394	37
1972	3,875	1,040	—	[d]	7	226	27
1973	4,208	868	—	—	—	356	21
1974[f]	5,175						
1975[f]	5,560						

* Data from U.S. Dept. Agr., Econ. Res. Serv., *Rice Situation*, RS10 (1966), RS14 (1969), RS18 (1971), and RS25 (1975).
[a] Year beginning August 1.
[b] Includes purchase agreements through 1963 marketing year and direct purchases thereafter.
[c] Total carryover less CCC stocks and loans outstanding.
[d] Less than one thousand metric tons.
[e] Less than one-half of 1 percent.
[f] Preliminary.

little change. Both allotments and marketing quotas were utilized continually from 1955 through 1973. World-wide rice shortages enabled stock reductions to the point where marketing quotas were not required in 1974 and 1975. Area allotments were raised 10 percent in both 1962 and 1966 and by 20 percent in 1968. The 1966 and 1968 increases were to facilitate implementation of the Food for Peace Act (*67*) which amended PL 480. Because surpluses were at a low level, the original emphasis of PL 480 on disposition of surplus stocks was deleted and the new policy declared to be "to expand international trade; to develop and expand export markets for United States agricultural commodities; to use the abundant agricultural productivity of the United States to combat hunger and malnutrition and to encourage economic development in the developing countries. . . ." The new law also specified that sales for foreign currency should be phased out by 1970. Concessionary terms, however, were maintained.

Over the years, the national allotment has been raised and lowered as reserve stocks declined or increased. In 1974 it still remained 27 percent above the legal minimum.

Allotment allocation takes two forms. In California, Texas, and portions of Louisiana, the allotment is tied to the producer. It can therefore be readily transferred from one piece of land to another, facilitating larger operations where greater economies of scale can be realized. Elsewhere the allotment is tied to the land.

The spectacular 25 percent increase in area planted in rice and in total production between 1972 and 1974, after the withdrawal of marketing quotas, gives evidence of a high supply elasticity. Growers were free to plant as much rice as they wanted, and prices were high. Some of the increase came from existing rice farmers whose equipment could easily be used to farm larger areas than allowed by their limited allotment. However, increases also came from new rice producers, many in the Mississippi River Delta area, who were without allotments and would have been heavily penalized if they had grown rice while marketing quotas were in effect. They considered rice potentially more profitable than their previous crops. The new investments they made in specialized farm tools, principally harvesters, created vested interests for maintaining the high 1974 level of plantings and production.

Under the above set of conditions, and fully aware that disposition of approximately 60 percent of current production depends upon export sales, the administration in 1975 is proposing a move toward increased freedom of the market.

EVALUATION OF THE RICE POLICY

Objectives

Table 13 lists and weights the objectives, as judged by rice experts, considered most important by the government when establishing policies to maximize a total rice welfare function in the United States, assuming conditions existing in mid-1975. These weights may have varied slightly over the post–World War II years, but throughout this period farm income has always held top priority.

By comparing this list of weighted objectives with similar lists for Asian countries, it is possible to identify major differences in priorities (see *1*, *26*, *31*, *41*, *47*).

TABLE 13.—ESTIMATE OF RELATIVE IMPORTANCE GIVEN TO SPECIFIC OBJECTIVES BY GOVERNMENT IN U.S. RICE POLICY FORMULATION IN 1975

Objectives[a]	Judgment weights (*percent*)		
		By rice experts[b]	
	By author	Range	Mean
Farm income (producer welfare)	35	5–60	33
Foreign policy, including relieving world hunger and fostering economic development of less developed countries	20	5–50	20
Government budget, minimizing costs	15	0–30	13
Consumer welfare, including anti-inflation	10	0–35	12
Processor and merchant welfare[c]	7.5	0–25	8
Legislative or administration interests[d]	7.5	0–20	8
Foreign exchange	5	0–15	6

[a] Objectives shown are not necessarily mutually exclusive.
[b] From interviews by the author with 20 key specialists in rice production, processing, trade, legislation, program administration, and research.
[c] Processor and merchant welfare specifically relates to the desire for a growing volume of total trade to permit business expansion. Processors who are part of vertically integrated cooperatives owned by farmers will cast their interests with those of the producers.
[d] Legislative or administration interests will vary over time, relating in part to the political "trade-offs" necessary to obtain legislative approval of general agricultural programs or of specific policy changes affecting the electorates of individual congressmen.

In Asia, the highest priority generally is reserved for consumer welfare, including anti-inflationary goals. This pattern is in sharp contrast to the United States where top priority is given to farm income. A much heavier emphasis is given in Asia to the earning or saving of foreign exchange; there, its shortage is often a serious constraint for development. The budgetary emphasis is present in both areas, but the interests of processors and merchants are apt to be given much less emphasis in Asia.

While rice policy is usually an important parameter in internal development plans of Asian countries, in the United States it is much more closely tied to foreign policy goals including the feeding of hungry people and the provision of food supplies that will free funds of the less developed countries for development. American world-wide interests and responsibilities have led to concessionary shipments to Indochina, Indonesia, Korea, and the Philippines.

The objective characterized in the Philippines, Indonesia, Korea, and Taiwan as political stability, may refer in part to one implication of the objective in the American list. Administration interests are similar in all these countries to the extent that they imply the objective of maintaining or improving the political position of powerful groups. If the legislative role is important, as in the United States, legislators' interests also must be taken into account.

Interaction among objectives is at times conflicting and at other times reinforcing. For example, if the demand for rice is inelastic, farm income will tend to increase as output falls or the floor support price is raised, but consumer welfare will fall. In contrast, if U.S. foreign policy leads to increased exports, this action also benefits processors and merchants, and if the increased exports are made on commercial terms, they will earn foreign exchange.

Policies

An overview of the impact of major rice policies on specific objectives is provided in Table 14. All major rice-related policies tend in the short run to contribute favorably to farm income. Production-oriented policies tend to favor farmers who grew rice before 1956 and so belong to the select caste of farmers who acquired rights to an allotment.[40] The allotment assures these favored farmers a fixed minimum for their crop as long as plantings do not exceed the area allotted. Allotment on an historical basis limits entry—and thus income—of potential producers who otherwise might be able to produce rice more cheaply and on land more suitable than that of many traditional allotment holders. This constraint has affected most unfavorably the farmers on potential rice lands in the Mississippi River Delta region where very little rice had been planted before 1956. Such a restrictive allotment policy can also cause fields to be of less than economic size on farms with small allotments.

Further examination of Table 14 indicates that the uniformly positive effect on farm incomes of allotment holders is in contrast to the policy influences on other objectives. For example, all major policies exert an unfavorable influence on government budgets, and most have a similar effect on consumer welfare.

As generally implemented, political determination of the floor support-price results in a market price that is above the competitive level. The higher price tends to reduce unsubsidized exports, consumer welfare, total rice sales, and investment in processing plants. Foreign-policy–motivated termination of concessionary sales to Indochina and Indonesia also appears likely to reduce rice exports. If control of planted hectarage is tied to soil conservation measures and less productive land is rehabilitated, social welfare may increase in the longer term, although the short-term welfare of consumers taxed to support the program will be lowered.

In December 1975, legislation was being considered in Congress to eliminate marketing quotas and thus to stop penalizing farmers whose plantings exceed allotments. Price control as proposed would substitute cost of production (called target price) for the traditional parity basis. The floor price–support and loan level would apply only to allotment molders and then only for production on allotted areas. For the 1975 crop year, a floor price–support level for rough rice of $176.37 a ton has been proposed, to be adjusted to reflect any changes in the cost-of-production index occurring during the crop year. Support would be by direct payment to the farmer to the extent the support price exceeds an average market price received by American rice farmers between August and December of the crop year. Loans would be available at $132.28 a ton, also adjusted to reflect changes in the cost-of-production index.[41]

Lower market prices that might result from this added degree of production

[40] No more than 3 percent of each state's rice area allotment may be apportioned annually to new rice farmers (*60*, Sec. 353b). Prior to 1975, this decision rested in the hands of the State Agricultural Stabilization and Conservation Service (ASCS). According to reports from field workers in Arkansas, there were several years when no allocations were made to new rice farmers. For the crop year 1974/75, the Secretary of Agriculture specified that 3 percent of each state's allotment must be allocated to new growers (*52*). Other allotments have changed hands through sale or death.

[41] If the average market price drops below the loan level, the loan level limits the floor support base.

TABLE 14.—INFLUENCE OF MAJOR RICE POLICIES ON IMPORTANT U.S. GOVERNMENT OBJECTIVES

Policies \ Objectives	Farm income[a] (producer welfare)	Foreign policy	Government budget (minimizing costs)	Consumer welfare	Processor and merchant welfare	Foreign exchange
Production-oriented (current)						
Allotments	±	−	−	−	−	−
Marketing quotas	±	−	−	−	−	−
Soil conservation	+	−	−	−	−	0
Price-support—parity-based						
Non-recourse loans	+	−	−	−	−	−
Government purchases	+	−	−	−	−	−
Production-oriented (proposed)						
Target price purchases	+	+	−	+	+	+
No marketing quota	+	+	−	+	+	+
Foreign trade						
Concessional export	+	+	−	−	+	+
Export subsidies	+	+	−	−	+	+
Food for Peace, etc.	+	±	−	−	+	±
Import duties	+	−	−	−	−	0
Consumer subsidies						
Government institutions and welfare agencies	+	0	−	±	+	0

[a] Production-oriented policies can be favorable or unfavorable to farm income, depending upon whether or not the farmers considered have allotments.

Key to influence of policies on individual objectives: + = favorable
− = unfavorable
± = both favorable and unfavorable
0 = neutral

freedom could still be profitable if lower prices were to increase sales on the international market where the demand for American rice is price elastic. In areas in which additional land can be cultivated without increasing the number of trailers and combines, cost could fall appreciably.

The potential of lower prices and increased output offered by the proposed legislation is attractive to consumers, processors, and merchants. Allotment-holding producers in California, Texas, and parts of Louisiana, where land or water supplies limit production, tend to see the new legislation as a step toward increased competition and a threat to their entrenched position. Their willingness to go along with the change, however, reflects their compromise with others pressing for even greater reliance on market forces. In the Mississippi River Delta region, where irrigable lands could be taken out of less productive soybean or cotton production, both traditional and new rice farmers are attracted by the current legislative proposal. The Republican Administration finds the proposal consistent with its ideological objective of less government control, increased free enterprise, greater productive efficiency, and reduced budgetary drain.

Existing foreign trade policies tend to support a rather broad group of objectives. Export-oriented policies, if continued, could lead to more business for exporters and increased production that appeals to farmers and processors, but with a potential of budgetary support.[42] Taxes to pay for export subsidies, concessional exports, and food for peace would involve budgetary costs and meet with usual consumer disfavor, but political impact from this source is slight. Import duties are relatively high—$55.20 per metric ton for milled rice—with proportional duties on rough and brown rice. They protect farm prices, but at the expense of the consumer and probably the government budget.[43] If the duties prove inadequate, the Secretary of Agriculture has authority to impose an import quota. These import restrictions are of long standing but could run counter to other U.S. policies to minimize restraints on international trade.

Constraints

Political and economic constraints can be highlighted within the framework of a frequently used simplification of American rice policy objectives, namely "to balance demand with supply while maintaining an equitable farm income."[44] Between 1953 and 1972, productive capacity generally far exceeded the effective demand at support prices. Budgetary support is required to equate demand with supply at a politically determined price level. Attempts to reduce supply to equate effective demand failed. Vested producer groups were reluctant to shift to lower-yielding alternatives while processing groups pressed for maintaining or increasing production to permit amortization of investments in rice-specific structures and equipment. Political pressures to reduce production were also weakened by

[42] World rice stocks were at such a low level in early 1975 that any major interference with the flow of production (typhoon, drought, or other catastrophe) could cause world rice prices to remain high or even climb, thereby reducing or eliminating the need for budgetary support. Since the American rice crop is entirely irrigated and is protected against most pests and diseases, the farmer faces less risk than do most Asian farmers. However, the American yields still vary with temperature and cloud-cover.

[43] As this duty is imposed to eliminate imports, it is unlikely that the government will receive much, if any, revenue benefit.

[44] See, for example, *14*, p. 2.

the humanitarian argument that American surpluses should be used to "feed the hungry," and the political argument that concessionary exports release scarce resources that our "friends" can use to contribute to their own defense.

Rice farmers in the United States and Asia both face many constraints on production. However, the policy focus in the two areas differs because rice production in America is relatively an unimportant component of national income. Rice policy is influenced by major production constraints such as the limited water supply in Texas and parts of Louisiana and the special cropping pattern requirements throughout the South.

In the United States great emphasis is placed upon marketing constraints. Considering the relatively slow growth of domestic demand, marketing attention in the United States centers on the maintenance of a high level of rice exports. Unless the farm price level can be lowered or a two-price system implemented to take advantage of the different domestic and export price elasticities of demand (by discriminating against domestic consumers), scarce budgetary finance stands out as a major constraint (*65*).

To balance demand with supply could require reinstatement of export subsidies and renewed concessional exports plus expanded financing of "food for the hungry" so that low income populations will not shift from rice to less preferred but cheaper cereals and starchy rivals. Some steps in these directions are apparent even in the tight world market of 1975. Shipments of wheat on concessional terms to Bangladesh were negotiated on the basis of their also accepting rice shipments, and Korea was persuaded to make large purchases of brown rice on commercial terms by the offer of an equal amount on concessional terms.

The Foreign Assistance Act of 1974 (*69*) specified that "not more than 30 percent of concessional food aid should be allocated to countries other than those that are most seriously affected by current food shortages, unless the President demonstrates . . . that the use of such food assistance is solely for humanitarian food purposes." The 1974 legislation expired on June 30, 1975, but the same directive was included in the 1975 Assistance Act debated in Congress in August 1975. The list of 32 countries[45] specified as most seriously affected by food shortages as of May 12, 1975 excludes such recent recipients of large concessional shipments as South Korea, Indonesia, and the Philippines. It does include India and Bangladesh, both with large rice deficits but for whom any shipments would require long-term financing. Interestingly, the list includes three important rice exporters—Burma, Egypt, and Pakistan:

Afghanistan	Dahomey	India
Bangladesh	Egypt	Ivory Coast
Burma	El Salvador	Kenya
Burundi	Ethiopia	Laos
Cambodia	Ghana	Lesotho
Cape Verde Islands	Guinea	Malagasy Republic
Central African Republic	Guyana	Mali
	Haiti	Mauritania
Chad	Honduras	Mozambique

[45] From an unpublished report by U.S. Department of Agriculture, Foreign Agricultural Service.

Niger	Sri Lanka	Western Samoa
Pakistan	Sudan	Yemen (Arab Republic)
Senegal	Tanzania	Yemen (Peoples Democratic Republic)
Sierra Leone	Uganda	
Somalia	Upper Volta	

The support program for rice costs only about one-tenth that for wheat, and consumer expenditures are much less for rice than for wheat. Less limelight therefore is cast on rice-policy considerations. Consequently, finance allocations for rice programs are apt to attract less opposition in terms of budgeting than do wheat or other larger farm-program allocations, and consumer reaction to higher rice prices is not nearly as great as it would be for wheat.

Efficiency of Rice Policy

The policies implemented since 1948 have been reasonably effective in balancing demand with supply and in maintaining farm prices.[46] Rice stocks built up in the late 1950s and again in the late 1960s were held by the Commodity Credit Corporation until disposition was possible without upsetting domestic price objectives. In the process, stocks were siphoned off in support of government foreign policy. Whether concessionary shipments and food aid grants enabled the economies of developing countries to grow more rapidly than otherwise has been the subject of many essays. Most students of the question conclude in the affirmative (*36, 39*). At the least, hunger was relieved in many instances. Whether shipments to Cambodia fostered American foreign policy or whether shipments to Indonesia and South Korea will lead to regular commercial purchases in the future are questions that cannot be answered at this time. With changing world conditions, foreign policies relating to rice are likely to be redirected also.[47]

Some objectives have been achieved, but what can be said about the cost of these policies? A basis for accounting, reported in government research documents, is reproduced in Table 15. The losses shown for price support and commodity export subsidies represent net costs. The other two items are part costs and part loans, a portion of which will be repaid. Export credit sales cover short-term credits at near market interest rates. Most of these amounts will probably be recovered. In contrast, PL 480 loans include a large proportion of concessionary long-term loans, some in terms of foreign currency. Even if these loans were repaid in full, the present value of such repayments would show an appreciable discount from face value. That loss is in addition to any losses suffered from devaluations, defaults, or loan cancellations.

Two Additional Questions

American policy makers would be better able to make their political-economic policy decisions for rice if they knew the area planted to rice that would represent

[46] J. B. Hottel, within rather restrictive assumptions, compared producer income in Texas in 1970 with and without the price support program. He concluded that "the net returns for each farm size and tenure category are increased under the Government program . . ." but that sufficient information was not available "to measure the relative importance of the benefits from a rice program to the total income level of producer recipients" (*18*, p. 22ff).

[47] There is evidence in mid-1975 that congressional explorations of this nature have already begun.

TABLE 15.—LOSSES AS REPORTED BY THE COMMODITY CREDIT CORPORATION ON GOVERNMENT PROGRAMS AFFECTING THE RICE INDUSTRY, 1934–74*
(*millions of dollars*)

Fiscal year ending June 30	Price support	Commodity export subsidies[a]	PL 480[b]	Export credit sales[c]	Other	Total
1934–45	—	—	—	—	34.0	34.0
1946–54	0.9	—	—	—	—	0.9
1955[d]	(10.2)[d]	—	3.8	—	—	(6.4)[d]
1956	18.9	—	47.7	—	—	66.6
1957	65.4	—	198.8	—	—	264.2
1958	18.4	—	58.8	—	—	77.2
1959	31.5	4.5	35.5	—	—	71.5
1960	27.8	11.5	98.0	—	—	137.3
1961	32.1	18.6	109.3	—	—	160.0
1962	15.8	30.1	88.8	—	—	134.7
1963	12.4	24.1	123.4	—	—	159.9
1964	15.1	38.8	125.8	—	—	179.7
1965	13.2	38.4	103.3	—	—	154.9
1966	12.7	42.4	62.0	[e]	—	117.1
1967	10.0	22.0	143.9	[e]	—	175.9
1968	9.7	1.9	142.3	[e]	—	153.9
1969	11.2	3.2	187.3	[e]	—	201.7
1970	15.3	13.7	182.2	17.4	—	228.6
1971	17.1	17.8	175.8	26.5	—	237.2
1972	12.3	24.8	233.9	13.5	—	284.5
1973	16.2	21.8	259.4	14.5	—	311.9
1974	20.4	[f]	322.6	2.5	—	345.5
Total[g]	366.2	313.7	2,702.3	109.1	34.0	3,525.3

* Data from U.S. Dept. Agr., Agricultural Stabilization and Conservation Service, Commodity Credit Corporation, *Report of Financial Condition and Operations, Annual 1955–74*; J. B. Hottel and W. R. Grant, "The Government Program for Rice—An Assessment of Its Operation, Cost, Benefits and Effect on Income of Recipients," in *Policy-oriented Research for Rice, A Working Report of Meeting at University of California, Davis* (Dept. Agr. Econ., Calif. State and U.S. Dept. Agr. cooperating, Oct. 5–6, 1970).

[a] Includes export subsidies on PL 480 shipments.

[b] Includes sales value of commodities exported, plus ocean freight and other related costs but repayments have *not* been deducted. Commodity Credit Corporation administrative costs and export subsidies not included.

[c] These are credits with a maximum term of 36 months, authorized under PL 808, 89th Congress, Nov. 11, 1966.

[d] ( ) indicates grain.

[e] Figures not available.

[f] Less than $100,000.

[g] Figures have been rounded.

optimum resource allocation and the extent to which American rice can be competitive on the world market. Both questions are intimately related.

Troy Mullins and colleagues conducted a suggestive study in 1968 covering all major rice-producing areas of the United States (*33*). They estimated the extent to which rice area would expand at various market prices with an open economy and free market conditions if producer returns were optimized. Existing costs and returns, on the land suitable for rice and not constrained by lack of irrigation water, were assumed for major alternative crops or other activities, such as cattle grazing. At market equilibrium, with price 25 percent below the average

1968 farm rice price, returns would have been optimized if hectarage planted in rice had been about 50 percent greater than actual plantings that year. Production would have approached 7 million tons. At the actual average 1968 market price of $110 a ton for rough rice, all 1.87 million hectares then considered potentially suitable would have been planted to rice.[48] At 1968 yields, this planting would have meant a total production of 9.25 million tons of rough rice, or almost 80 percent above the record 1974 production of 5.18 million tons. If the 9.25 million tons of rice had been produced in 1968, almost 5 million tons of milled rice would have had to be exported in order to clear the market. Less than 2 million tons were exported, more than two-thirds of which was subsidized or sold on concessional terms.

An answer to the second question is suggested by William Morrison in a study of the Mississippi River Delta region in 1975 (*32*). This region has the largest potential for expansion of rice production in the United States. Using the May 1975 soybean price level of $5.25 a bushel (19¢/kg.),[49] most potential rice producers in the delta region would gain by planting rice up to the limit of optimum rotation if the price for rough rice were not below $175 a ton.[50] This figure is equivalent to an export price of approximately $315 a ton for No. 2 long-grain rice in sacks, f.a.s. Louisiana or Texas ports. For No. 5 long-grain PL 480 quality rice, the $175 a ton farm price would permit a low export price of about $295 a ton. These prices would allow a 9 percent return on capital after allowing for management costs. On other land in the United States which was potentially suitable for rice, where the best alternative was not soybeans, rice would be the most profitable crop on the largest portion of these other lands at a farm price for rough rice $175 a ton or above.

The question remains: will unsubsidized prices at these levels remain competitive on the world market? The higher quality No. 2 long-grain American rice, with its major export markets in Europe and the Middle East, tends to sell at a premium over its competitors, given its uniformly high quality. This quality probably could remain competitive in Europe without export subsidy if world prices dropped 25 percent below mid-1975 levels to around $300 a ton. The slight U.S. freight advantage over Asian suppliers in European markets and disadvantages against Asia in some Middle East markets dictates a different cut-off for the two areas.

PL 480 rice quality presents other questions. Customers eligible for concessional shipments of PL 480 rice are price conscious. They want to minimize the drain of scarce resources from economic development activities. Hence PL 480 rice must compete with lower qualities of Asian rice and in some areas with less desirable but lower priced wheat as well, taking into account that Asian suppliers have a considerable freight advantage in Asian markets. If Asian consumers are prepared to take bulk shipments, this freight difference can be

[48] According to discussions with T. Mullins and W. R. Grant, their informal revision in 1975 of the potentially suitable area raised original 1968 estimates by at least 5 percent, mainly in the Mississippi River Delta and northeast Arkansas. It must be kept in mind that any production increase of the order suggested in the text must be at a pace to permit orderly expansion of processing facilities.

[49] A bushel of soybeans equals approximately 27.2 kilograms.

[50] In 1975 soybeans were the most profitable alternative on delta lands. All costs are calculated at current 1975 estimates.

reduced slightly. Competitive Asian offerings sold for below $100 a ton in the early 1970s and were somewhat below $300 a ton in mid-1975. Considering the freight differential, American rice could be at a disadvantage in good-weather years in Asia unless this difference is offset by concessional terms or other special arrangements. Weakness of the U.S. dollar could be an advantage, but so far the currency of a major competitor, the Thailand baht, has remained in line with the dollar. Whether or not export subsidies and concessional terms will be granted if world prices decline depends importantly on political parameters.

In the near future, rice producers who own the necessary combines and tractors can be expected to continue to produce for export when they can cover out-of-pocket costs including a return for management. At 1975 farm costs, the break-even for No. 2 long-grain rice, f.a.s. southern or California ports, would correspond with an export price of around $185 a ton for California and Arkansas, $220 a ton for Louisiana, and $250 a ton for Texas farmers, with prices $10 to $20 a ton lower for PL 480 quality rice. These out-of-pocket, break-even export prices for milled rice correspond to farm prices for rough rice of $3.95 per 100 pounds in California, $4.30 in Arkansas, $5.10 in Louisiana, and $6.00 in Texas.

CONCLUSION

Internal and external economic calculations and political forces have influenced both policy formation and the priorities given to the individual objectives upon which rice policy makers have focused. A multitude of constraints, also from internal and external sources, have conditioned the effectiveness of these policies.

Low farm prices first aroused policy makers in the 1920s and 1930s. The program to raise prices included production limitations, price supports, and surplus disposal. Surpluses were purchased by the government and held until they could be disposed of without forcing domestic prices below desired levels. In the process, producers and processors acquired vested interests in handling an annual volume considerably in excess of domestic demand. During World War II they geared production to fill the gap left by reduced activity of traditional foreign producers. The situation was aggravated as the technological revolution of the 1950s and 1960s enabled American producers to double output on traditional land allocations. Large domestic surpluses have been disposed of either by subsidizing commercial exports or by concessional export terms rationalized on political grounds. The resulting budgetary strain has been heavy at times because other basic commodities also were included under this general policy umbrella.

Since 1972 high world prices have minimized the need for domestic price supports and export subsidies, although the world price structure has weakened since early 1974. During this time, concessionary exports have remained at high levels. They may now taper off as political support wanes, although strong pressures to find new recipients may develop if the record 1975 production cannot be sold through commercial and remaining concessionary channels.

Under these circumstances, policy makers have felt the present time appropriate for a review and possible revision of rice policies, following a pattern already implemented for many other basic commodities in 1973. The government is finding support for reduced budgetary drain and less restricted entry for

rice producers which could be associated with higher productivity and possible reduction in consumer prices. This support comes from the merchants, processors, input suppliers, consumer groups, and certain farmers who believe rice production to be a profitable alternative to their present crops.

Opposition arises from farmers constrained by technical factors from expanding planted area. They see no positive trade-off to balance feared loss of some of their protection on existing rice areas. They, in turn, receive support from their congressional representatives and from the integrated cooperatives to which they belong. Political compromise could result in a continued high level of support for present caste of allotment holders balanced by greater freedom of entry for new efficient producers.

Favorable worldwide crop conditions could mean a further decline in world prices. Policy makers in the United States would be left to choose between allowing lower farm price-support levels or reviving export stimulation and dumping on a large scale. Unless priorities change, the government can probably be expected to maintain high price supports for farmers with allotments, and to increase exports if stocks build up, while holding total allotments at the legal minimum. However, historical precedents may be misleading because farm support in Congress is being increasingly diluted.

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