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Under the Rice Marketing Loan

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Introduction

The 1985 farm bill contained many new provisions designed to help American agriculture regain a competitive position in international markets. One of the most ambitious of these provisions was the marketing loan for cotton and rice. Under this new policy rice and cotton are available for use at or near world market price levels as defined by the USDA. As a result, cotton and rice exports are expected to increase providing a much needed decline in carryover stocks. As stocks decline market prices are expected to gradually increase to the benefit of producers in the form of higher receipts and government in the form of reduced program costs.

Recently much concern has surfaced regarding the success of the current farm program. In a attempt to answer questions about the likely impact of continuing the marketing loan provisons analyst have made projections regarding the expected performance of the U.S. rice industry through 1990 (Abel, FAPRI). These reports have focused on the aggregate impact of the program on the rice industry and related government costs. They have not addressed the possible adjustments in regional rice production that may occur as a result of the program provisions. Shifts in production could be expected due to substantial differences in production costs across regions. The purpose of this paper is to estimate the changes in regional rice production that can be expected from continuation of the marketing loan program for rice. A brief discussion of the rice marketing loan and background surrounding its` implementation is presented first. A discussion

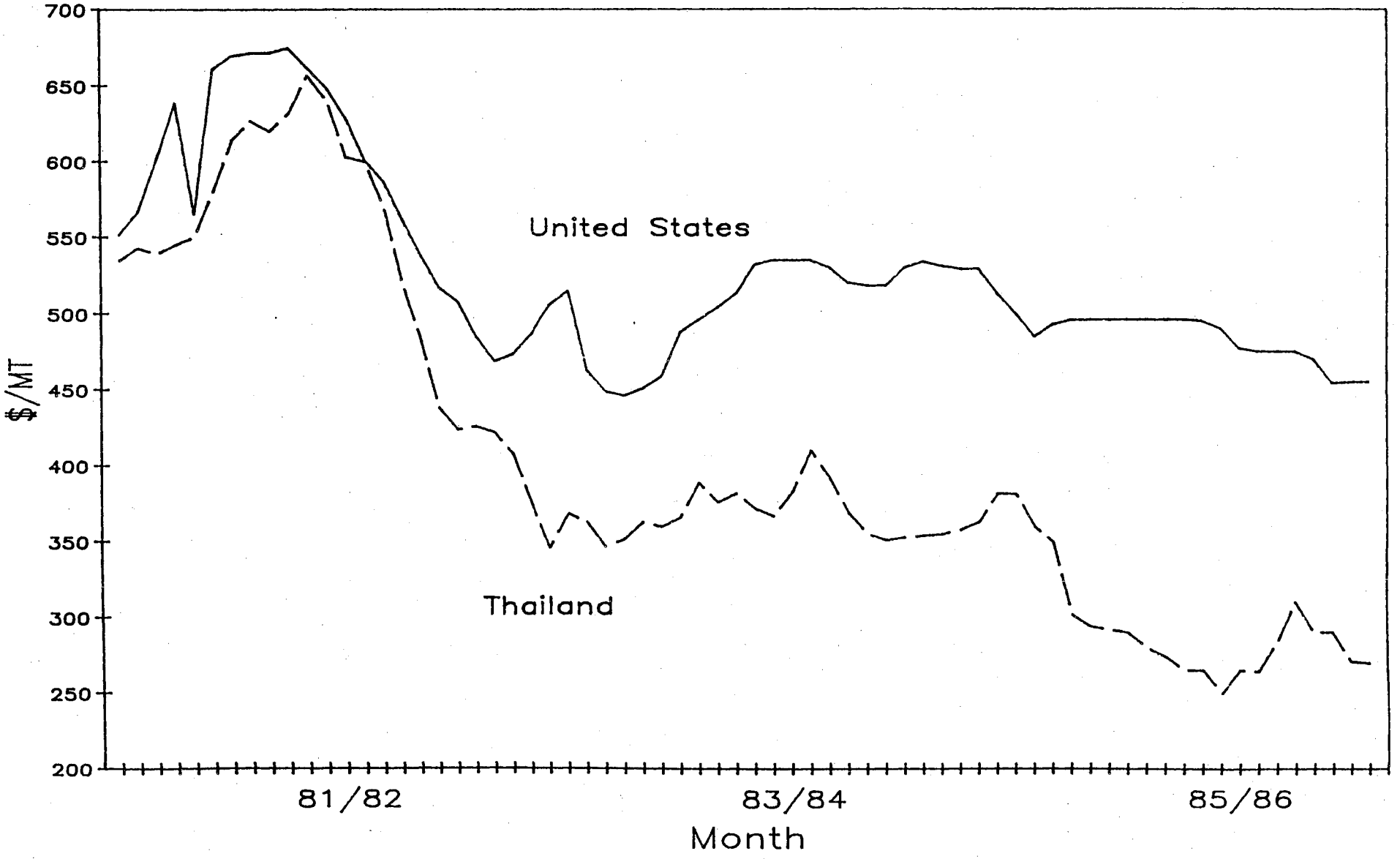
of the short-run effects of the program is then provided. Next a description of the model used to analyze the regional production patterns is given. Finally the aggregate impacts and regional production adjustment projections resulting from the marketing loan from this analysis are discussed.

Background

A major portion of the debate surrounding development of the 1985 farm bill concerned ways to restore competitiveness to the agricultural export sector. Although their were probably as many ideas of how this should be done as their were definitions of what competitiveness is, policymakers concerned with cotton and rice supported the idea that prices were the central problem. Our price support levels placed a floor under the price at which U.S. exporters could acquire rice for processing and sales in overseas markets. At the same time our support prices provided a clear signal of the price ceiling under which our competitors could reasonably expect to market their rice. Much the same conditions existed for cotton. As illustrated in Figure 1, the price difference between U.S. and Thailand rice delivered to Rotterdam provides one example of the pricing problem facing rice exporters.

The result of the farm program prior to 1985 was the accumulation of huge stocks, projected to reach 62% of total use by the end of 1985/86 (USDA, 1987). These stock levels, coupled with relatively high prices made worse by an overvalued dollar and seriously depressed markets in traditional importing countries, led to a bleak outlook for the U.S. rice industry. This was

Figure 1. U.S. vs Thai Rice Prices C&F Rotterdam ($/MT)



ɔurce: Rice Situation and Outlook Report, USDA, ERS, RS#48, Sept.

especially distressing since just five years prior, 1980/81, U.S. rice exports were at a record level of 91.4 million cwts., and producers enjoyed an average price of $12.80 per cwt (USDA,1986).

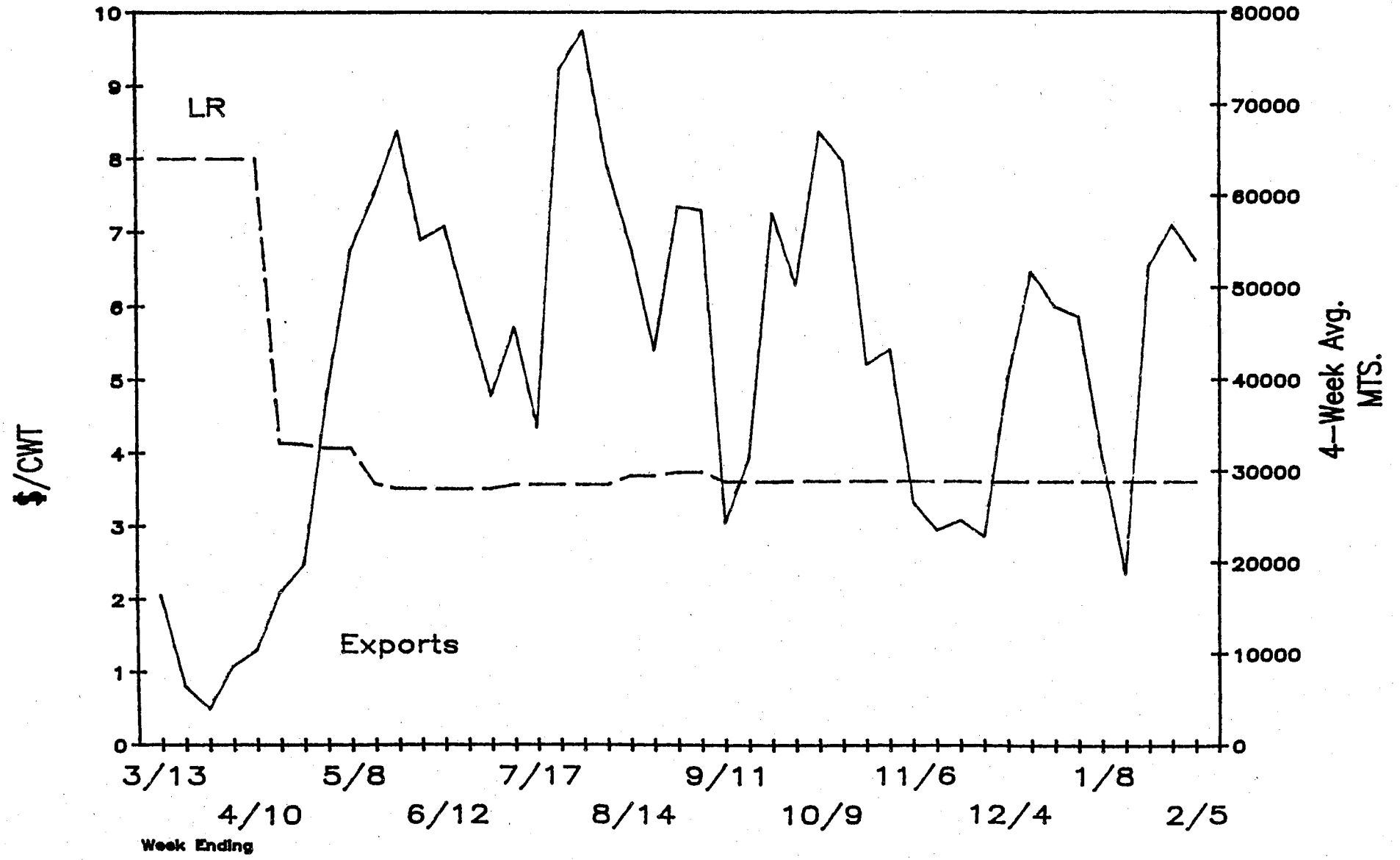
Within this environment the marketing loan provisions of the 1985 farm bill were born. The program was to allow rice and cotton to become price competitive in world markets while maintaining some degree of income support for producers. Producers receive the loan rate for their rice and then buy it back at the loan repayment. The incentive for redeeming the rice being a premium above the loan repayment level offered by buyers. In the Texas rice belt this premium has been running around 25-65 cents per cwt. As a result rice producers who are in compliance with the program provisions are entitled to their deficiency payment, loan rate payment, and the premium above the loan repayment rate they receive if they redeem their rice from the loan. Additional support is available in the value of generic commodity certificates issued if the world price is below the statutory minimum loan repayment rate, roughly half the regular loan rate.

Initial Results

The marketing loan was made applicable to the sales of 1985 crop rice in April of 1986 and is in effect for the 1986/87 crop. The administration has also announced the 1987/88 program provisions which include the marking loan. Any change to the existing program, would therefore, not apply before the 1988 crop.

Soon after the program went into effect the export market began to respond. As indicated in Figure 2, rice sales,(measured

Figure 2. U.S. RICE EXPORT SALES AND LOAN REPAYMENT LEVELS 1986–1987



Source:US Export Sales, USDA, FAS, various issues.

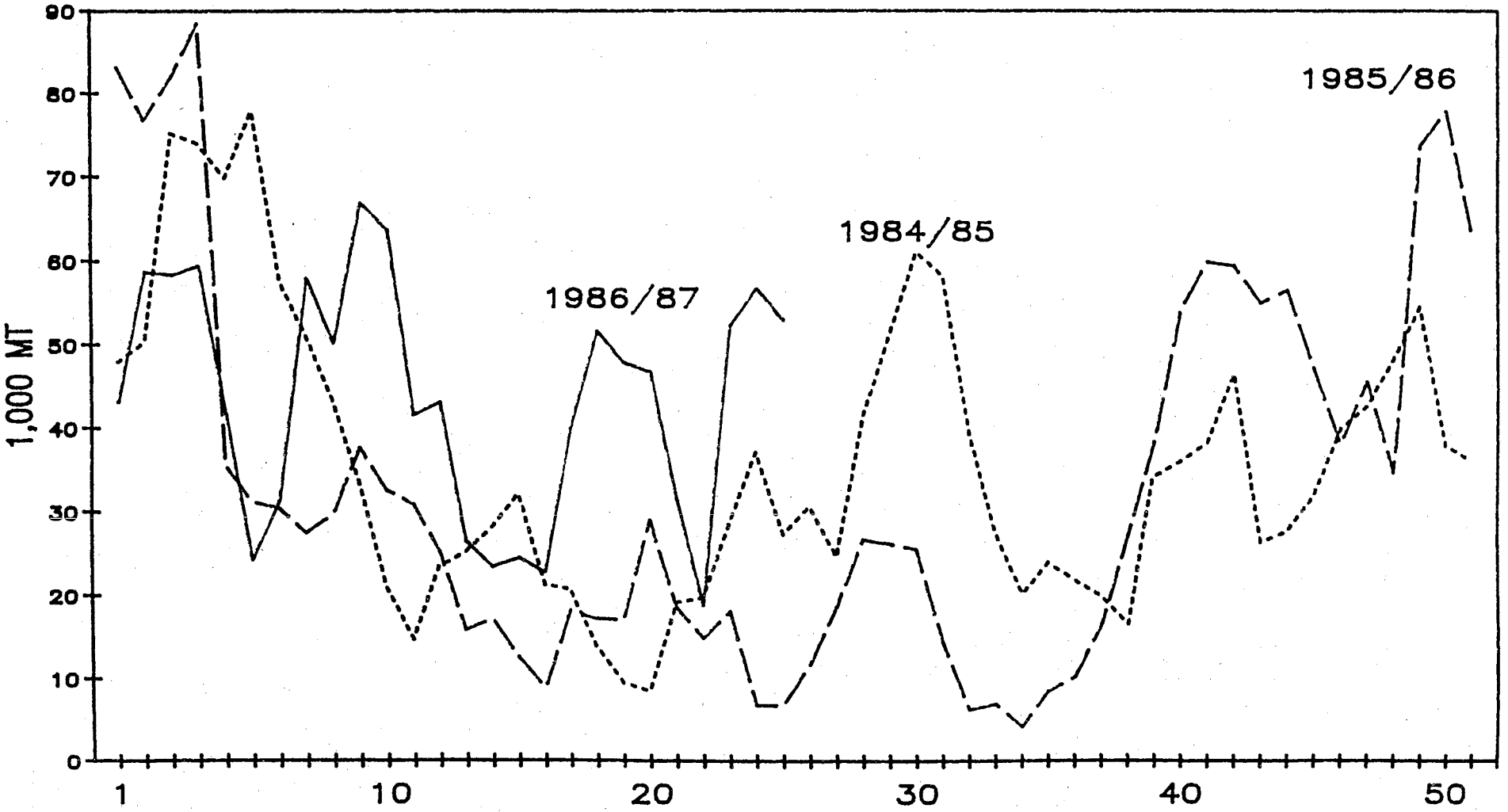
as a 4-week moving average), began to pick up. Within a month export sales of rice were up five times from the previous 4-week average. Prices fell dramatically, in line with the new repayment levels. As the initial flurry subsided, sales began to level off but stayed above levels for the same period in previous years, Figure 3.

Not surprisingly much optimism began to surface in response to what appeared to be a much needed success in the area of farm policy. The marketing loan was accomplishing what it was designed to do, increase the movement of US rice stocks into export markets. Despite the boost provided by the marketing loan, 1985/86 rice exports just did reach USDA early projection levels and carryover stocks for the 1986/87 marketing year increased by 19 percent.

Methods and Assumptions

To analyze the potential effects of the marketing loan an updated version of a previously developed econometric model of the U.S. rice industry was used (Grant,Beach, and Lin). The model was updated to include recent production costs estimates and technological adaptation rates for newly developed rice varieties which are having significant impacts on yields across regions. The time period was 1950 through 1985 with dummy variables employed to depict changes in farm programs during this period. The supply section of the model consists of a recursive model for each producing State and, therefore, ordinary least squares was used to

FIGURE 3. RICE SALES 4-WEEK MOVING AVERAGE 1984/85, 1985/86, 1986/87 (MARKETING YEAR AUGUST-JULY)



Source: USDA Export Sales

estimate the parameters. The demand section is a simultaneous-equation model with the parameters for the various demand equations estimated using three-stage least squares. Appropriate identities were included to close the system. The model was used to simulated the effects of a continuation of the marketing loan provision through 1990/91. The assumptions regarding primary policy variables such as set aside acreage percentages, loan rates, etc. are presented in Table 1. A major factor influencing the effects of the marketing loan on acreage across states is the relative production costs among states. The production costs used in this analysis are taken from those presented in Table 2. In addition, a technological adoption function was applied to each states yield estimates to account for the use of new semi-dwarf varieties which typically have higher yields than the traditional varieties grown during most of the historical data period.

Results and Conclusions

The aggregate impacts of the marketing loan projected by the model are presented in Table 3. The results indicate that the marketing loan in combination with the acreage set aside and related support prices will have two primary effects. First, the level of stocks is projected to decline to below the 30 million cwt. target set in the 1985 farm bill. This stock decline results from increased use, primarily exports, and decreased production levels. Second, in response to the decreased stocks and increased use, the farm price received is projected to increase. In 1989 and 1990 farm price is projected to be above the statutory loan rate.

Table 1. Assumptions For Rice Marketing Loan Analysis 1987 - 1990.

	1987/88	1988/89	1989/90	1990/91
Target Price	11.66	11.30	10.95	10.71
Loan Rate	6.84	6.50	6.50	6.50
Min. Repayment Rate	3.42	3.90	4.55	4.55
Acreage Limitation	35%	35%	35%	35%
Participation Rate	92%	92%	92%	92%
Acreage Base	4,199	4,199	4,199	4,199
Harvested Acreage	2,216	2,140	2,070	2,003
Actual Yield	5,814	5,960	6,090	6,178
Program Yield	4,800	4,800	4,800	4,800

Table 2. Variable and Fixed Rough Rice Production Cost by State, 1981-86.

State	1981	1982	1983	1984	1985	1986
	Dollars/Cwt.					
Variable Cost:						
Arkansas	6.01	6.19	5.92	5.70	4.89	4.78
California	4.56	4.79	4.49	4.59	4.28	4.10
Louisiana	5.63	5.44	6.02	5.83	5.45	5.13
Mississippi	6.15	6.29	6.23	5.81	5.02	4.66
Texas, Up Co	8.03	8.33	9.34	7.98	6.77	6.12
Texas, Lo Co	7.80	8.24	8.46	8.23	7.33	6.19
United States	5.92	6.07	6.10	5.83	5.11	4.96
Total Cost:						
Arkansas	10.22	9.53	9.77	9.28	8.47	8.27
California	8.63	8.31	8.31	8.22	7.46	7.16
Louisiana	10.03	8.73	9.62	9.27	8.85	8.33
Mississippi	10.66	9.73	10.16	9.56	8.70	8.08
Texas, Up Co	12.52	11.66	13.19	11.52	10.38	9.38
Texas, Lo Co	12.06	11.19	11.84	11.27	10.55	8.91
United States	9.82	9.67	9.69	9.17	8.33	8.10

Compiled from ERS, USDA data.

These results are similar to those reported by other recent studies except for the level of farm price. Neither the Abel, Daft, and Early or FAPRI studies project prices to increase by as much as reported in Table 3 although both indicate an increase in farm price through 1990 of $5.50 and $5.62 per cwt. respectively. The projected stock reductions are in line with the Abel, Daft and Early results. However FAPRI projects a return to stock accumulation in 1988 and beyond.

The adjustments in production projected by this analysis are broken down by state in Table 4. As indicated the greatest change in acreage planted to rice is projected to occur in Arkansas with a 12 percent decrease. Texas follows closely behind with a decrease of 10 percent projected from the 1986 level. California is projected to decrease acreage by 9 percent and Mississippi and Louisiana experience a decline of 6% each. The adjustments outlined in Table 4 represent a combination of effects leading to decreased rice acreage. The declines attributable to each state are not based solely on cost of production differences. The modest declines in acreage in Mississippi and Louisiana can be attributed to a lack of alternative use for the land currently devoted to rice. The change in California acreage, given its low cost production , can be attributed to the availability of alternative crops. Texas acreage reductions are primarily a result of higher production costs with increased yields preventing the declines from being projected at larger levels. Arkansas suffers the greatest loss in acreage as a result of poor adoption rates for higher yielding varieties and alternative crops such as soybeans coming into production on current rice acreage.

Table 3. Projected Rice Industry Performance Under Marketing Loan 1987 -1990.

	1987/88	1988/89	1989/90	1990/91
Production (rough)	128,697	127,455	126,016	123,668
Domestic Use (rough)	78,519	77,780	77,111	76,593
Exports (milled)	61,512	57,542	54,400	51,725
Carry Over Stocks (rough)	47,690	39,249	33,187	27,958
Farm Price	5.01	6.03	7.25	7.88
Pgm Cost (mill)	1,015	906	689	580

Table 4. State Planted Rice Acreage Under Marketing Loan 1987 - 1990. (1000 acres)

	1987	1988	1989	1990
Mississippi	189.9	186.7	182.6	177.9
Texas	247.8	237.3	229.9	223.5
California	330.3	319.2	309.6	300.7
Arkansas	983.7	942.3	902.7	863.5
Louisiana	445.4	436.4	428.0	419.7

In summary, the future of the U.S. rice industry is uncertain and what course it will follow will depend to a large extent on the farm program provisions the industry has to work under. The current marketing loan program holds promise for reducing carryover stocks by increasing exports above levels of the past few years. If the program is maintained in its present form it is projected to lead to some price enhancement at the farm level, resulting in a reduction in government costs. The problem facing policy makers now is to determine if other policy alternatives would lead to a better industry performance.

The results of this analysis indicate that evaluation of alternative programs should take into account the distribution of program benefits across regions as well as total expected benefits associated with the various program alternatives. Because of the diversity of production costs and opportunities for other enterprises the benefits and costs of any program may occur disproportionately among States.

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