

Federal Reserve Bank of Dallas November 1986

Government Programs Buoy Eleventh District Agriculture

The Federal Government's spending on agricultural programs has increased dramatically as a result of farm legislation passed in 1985 and falling commodity prices. The growth in outlays comes at a time when greater attention is being focused on the federal budget deficit. Plans to reduce federal spending invariably focus attention on agricultural programs. Farmers in the Eleventh District, especially in Texas, receive a large share of government payments and are likely to suffer disproportionately if funding for agricultural programs is reduced.

Government Programs Raise Agricultural Incomes

Agricultural programs of the Federal Government increase farm incomes through direct payments and commodity loans. Direct payments are made to farmers either to protect their income or as an inducement to adopt certain practices, such as reducing production. The major commodities in these programs are dairy products, wheat, feed grains, rice, and cotton. Commodity loans are made by the Commodity Credit Corporation (CCC). Participating farmers pledge their crops as collateral for the loan. The value of the crop is determined by the loan rate—a value per unit that the CCC places on crops offered as collateral. If the market price falls below the loan rate, the farmer can satisfy the debt by surrendering the crops to the CCC. During times of weak markets and bountiful production, the loan rate can serve as the effective floor for prices in the United States, allowing

farmers to earn more than if crops were sold at the world market price.

Program Costs Increase

In 1985, world agricultural commodity prices slipped well below domestic levels, slashing U.S. exports and increasing U.S. surpluses. To regain foreign markets, Congress enacted the Food Security Act last December, which cut the loan rate for commodities. At the same time, additional income protection was provided to farmers. Generous payments were included for rice and cotton, crops for which the Eleventh District states, particularly Texas, are major producers.

As a consequence, the cost of the programs during fiscal year 1986 could be as high as \$28 billion, up from approximately \$18 billion in 1985. The size of the agricultural support programs makes them an attractive target for budget cutters.

Budget cuts in agricultural programs are likely to have an adverse effect on farming in the Eleventh District states, especially Texas. Farmers in Texas receive a large share of government payments in comparison with farmers in other major agricultural states (Chart 1). Because of recent changes in the rice and cotton support programs, *(Continued on back page)*

Agricultural Land Values: How Low Will They Go?

Farmland values have declined in major agricultural areas in the nation since 1981. Movements in land values respond to agricultural supply and demand forces, local economic conditions, and national and international macroeconomic forces. Although the bottom of the land market cannot be predicted with certainty, models of land valuation show that farmland values may have completed much of the eventual decline.

Expectations Determine Land Values

The value of land comes from the returns it offers as a productive asset in agriculture, mineral extraction, recreation, and real estate. A mathematical model can be used to get an estimate of the land's value, based on the future stream of net income from

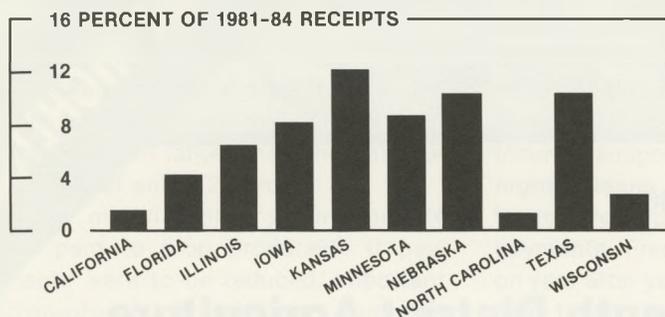
these activities. The model assumes that the future is known with certainty; thus, it yields theoretical indicators of value.

In the 1970s, U.S. farmland values rose rapidly. Despite short-run gyrations in income, long-term growth in future returns may have seemed assured because of assumed future growth in agricultural exports. Exports grew steadily during the 1970s, reinforcing the expectation that growth was an enduring phenomenon.

Farmland Values Peaked in 1981

The agricultural boom of the 1970s drove farmland values to their peak in 1981. After 1981, new expectations about agricultural income had to be formed in an environment of greatly in- *(Continued on back page)*

Chart 1
GOVERNMENT PAYMENTS TO AGRICULTURE
IN RELATION TO CASH RECEIPTS



SOURCES: U.S. Department of Agriculture.
 Federal Reserve Bank of Dallas.

Table 1
INDICATORS OF AGRICULTURAL LAND VALUES

Annual percent change in returns	Number of years of initial change				
	2	4	6	8	10
Initial	Land values, as percent of peak, resulting from periods of initial change in returns followed by trend				
Trend					
6.2 ^a	100	100	100	100	100
2.0	62	62	62	62	62
-2.0	50	49	48	47	46
-6.0	47	43	41	39	38
-2.0	44	44	44	44	44
-6.0	42	40	38	37	36
-6.0	38	37	36	36	35
-10.0	35	33	31	30	30

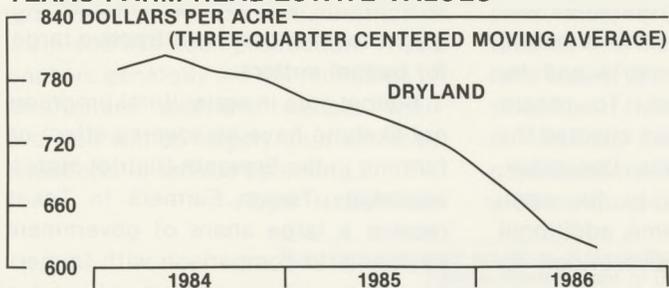
a. Historical 1950-79 value; includes government payments.
 NOTE: The capitalization formula used is

$$V = \frac{R}{1+i} + \frac{R(1+g)}{(1+i)^2} + \frac{R(1+g)^2}{(1+i)^3} + \dots + \frac{R(1+g)^{n-1}}{(1+i)^n}$$

where V is the value of an acre of land, R is the per-acre returns to land, g is the growth rate in returns, i is the discount rate and can be thought of as the mortgage interest rate, and n is 50 years.

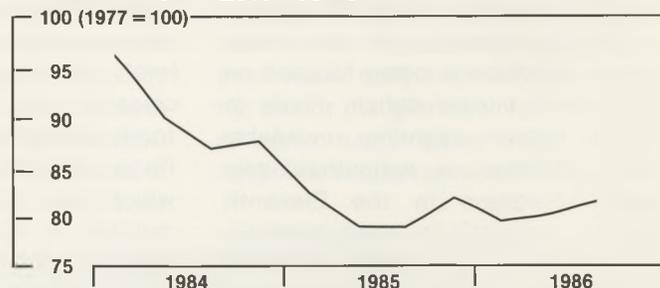
SELECTED INDICATORS OF THE TEXAS AGRICULTURAL ECONOMY

TEXAS FARM REAL ESTATE VALUES



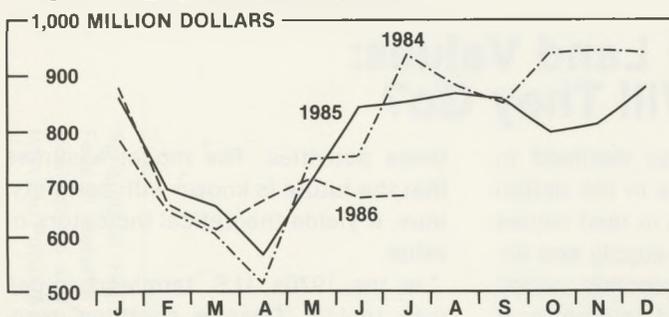
SOURCE: Quarterly Survey of Agricultural Credit Conditions,
 Federal Reserve Bank of Dallas.

PRICES RECEIVED/PRICES PAID



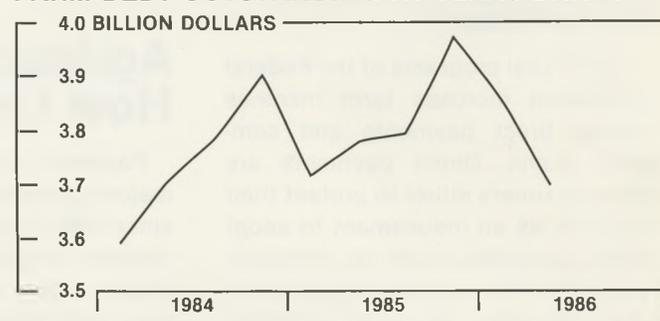
NOTE: Index is constructed by dividing prices received by farmers in Texas by prices paid by farmers nationwide. (No separate series exists for prices paid in Texas.)
 SOURCES: U.S. Department of Agriculture.
 Federal Reserve Bank of Dallas.

TEXAS CASH RECEIPTS FROM LIVESTOCK AND CROPS



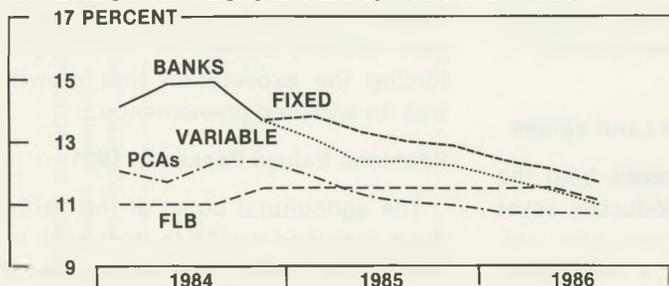
SOURCE: U.S. Department of Agriculture.

FARM DEBT OUTSTANDING AT TEXAS BANKS



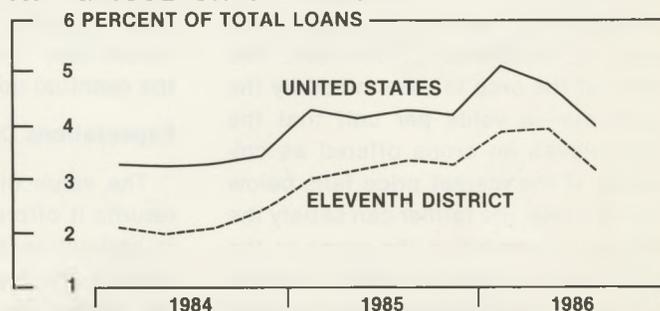
SOURCE: Board of Governors, Federal Reserve System.

INTEREST RATES ON TEXAS FARM LOANS



NOTE: Starting with the first quarter of 1985, bank rate is decomposed into fixed and variable rates for agricultural loans.
 PCA rate is for farm operating loans at production credit associations.
 FLB rate is for farm real estate loans at the Federal Land Bank.
 SOURCES: Farm Credit Banks of Texas.
 Quarterly Survey of Agricultural Credit Conditions,
 Federal Reserve Bank of Dallas.

NONPERFORMING LOANS AT AGRICULTURAL BANKS



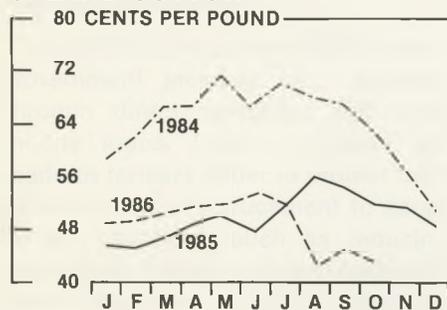
NOTE: Because of data limitations, renegotiated troubled debt is not included in nonperforming loans.
 SOURCES: Board of Governors, Federal Reserve System.
 Federal Reserve Bank of Dallas.

AGRICULTURAL BRIEFS

- The rate of decline in District agricultural land values slowed during the third quarter, although the 3.6-percent reduction was the third largest quarterly decline in the 1980s. During the first two quarters of 1986, however, dry cropland values were practically in a free-fall, dropping a total of 10.3 percent. Agricultural bankers attributed much of this drop to the cut in the value of mineral rights. Lower energy prices are likely to cause only a one-time drop in land values this year, since they should be fully incorporated into expectations of future returns to land.
- Agricultural bankers continue to pare marginal credits. A recent survey showed that, on average, District bankers are planning to discontinue credit lines in 1987 to 8.0 percent of their current farm borrowers, who account for 6.6 percent of the banks' agricultural loans. These figures are close to those for 1986 and larger than 1985 percentages, meaning that about one farm borrower in five has been refused further financing for the years 1985-87.
- With U.S. stocks of grains exceeding a whole year's production, the U.S. Department of Agriculture has announced a paid diversion program for feed grains. Under this plan, farmers will be offered the option of retiring 15 percent of their feed grain acreage program base in return for up to \$2 a bushel of production forgone. This would come on top of the 20-percent nonpaid reduction in acreage required as a condition of program participation.
- District cattle producers have benefited from lower feeding costs. Ranges have received ample rainfall, and feedlots' grain costs are lower this year than last. Given expected supplies of competing meats and the number of cattle currently in pasture and on feed, cattle prices may slide this coming winter. The price decline is expected to be modest, however, compared with the sharp price retreats of the previous two winters.

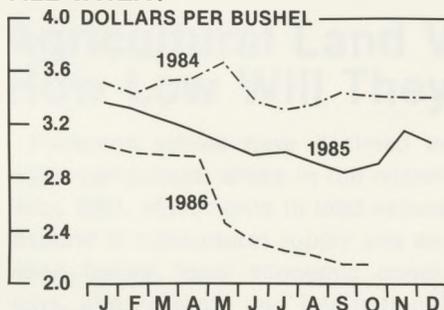
TEXAS COMMODITY MARKET PRICES

UPLAND COTTON



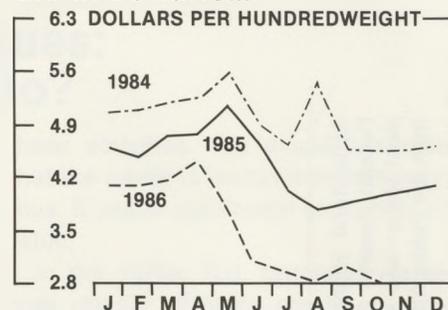
SOURCE: U.S. Department of Agriculture.

ALL WHEAT



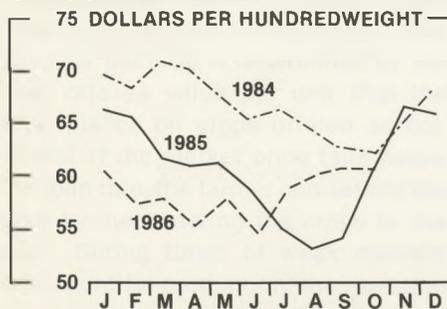
SOURCE: U.S. Department of Agriculture.

GRAIN SORGHUM



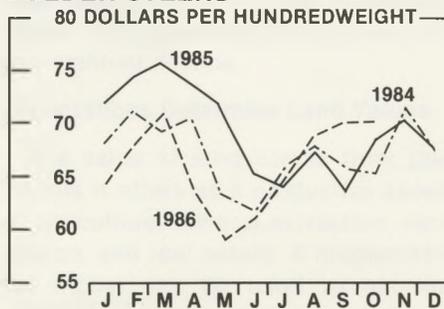
SOURCE: U.S. Department of Agriculture.

SLAUGHTER STEERS



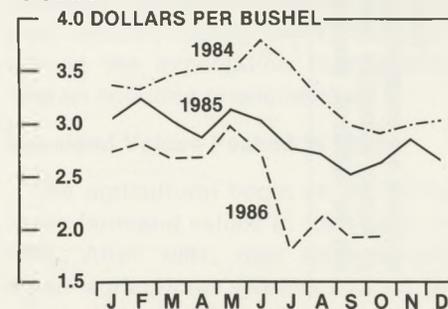
SOURCES: Texas Department of Agriculture.
Federal Reserve Bank of Dallas.

FEEDER STEERS



SOURCES: Texas Department of Agriculture.
Federal Reserve Bank of Dallas.

CORN



SOURCE: U.S. Department of Agriculture.

Programs (cont.)

the Texas proportion will probably be even greater than shown in the chart. Compared with Texas, the share of government payments is lower for Louisiana and New Mexico—7.4 percent and 5.6 percent, respectively—but both are still larger than the national average of only 2.2 percent.

The majority of program benefits are paid to crop producers. If payments were to be reduced, important crop-producing regions, such as the Southern High Plains, would be hard hit. The already-high levels of financial stress among farmers in that region would be exacerbated. On the other hand, the dominant form of agriculture in the Eleventh District is cattle and livestock production. These ranchers generally are not recipients of government support; hence, their revenues will be largely unaffected by reductions in federal spending.

—Roger H. Dunstan

Land Values (cont.)

creased uncertainty. With government payments excluded, growth in nominal net agricultural asset income fell from the 1950–79 average of 6.4 percent to none for the 1981–85 period. Exports plummeted. While current government income support has reached record highs, clearly the program direction is toward significant reductions in payments. Fresh bad news has piled on year after year, and farmland values have fallen steadily.

Finding the Bottom of the Land Market

Table 1 uses a 50-year model to estimate the theoretical bottom for land values (in terms of percentage of peak value) for different sets of expectations. The first row of figures puts land values at 100, which is where they would be if the 1950–79 rate of growth in returns (including government payments) had continued unabated. If a below-trend 2-percent growth in net

income were now expected, farmland values would stabilize at 62 percent of peak. Alternatively, if expectations are that agriculture is in the midst of a prolonged decline, then land values could shrink to 30 percent of peak. Choosing an alternative between the extremes suggests that land values would bottom out in the 40–50 percent range.

In West Texas, some cropland values are now 60 percent of their peak value. For midwestern states, farmland values average around 55 percent of their peak. Given the differences in crop mix, farm size, and dependence on government income support, there is little reason to expect land values in different regions of the country to bottom out at the same percentage of peak value. Still, it would appear that for all but the grimmest assessments of agriculture's future, most of the decline in values has already occurred.

—Hilary H. Smith

The views expressed are those of the authors and do not necessarily reflect the positions of the Federal Reserve Bank of Dallas or the Federal Reserve System.
