Where Are Farmland Prices Headed?
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The value of farmland in the Eighth District, after adjusting for inflation, was the same in 1990 as it was in 1970. But to think that farmland prices were fixed during the intervening 20 years is to miss the whole story. What happened is that the substantial increases in District farmland values in the 1970s were offset by corresponding declines in the 1980s. Though not quite as pronounced, farmland values nationally exhibited similar movements.

After providing details on U.S. and District farmland values, this article examines some of the factors that have contributed to these changes in land values. In addition, some of the factors likely to affect future land values are identified.

Land Values Since 1970

Figure 1 illustrates the behavior of real farmland values at the District and national levels since 1970.1 After declining slightly in 1970, Eighth District real land values increased by 106 percent from 1971 to their subsequent peak in 1981. National land prices show a similar movement: from 1971 to 1981, U.S. real land prices rose by 91 percent. Since 1981, however, real land values have fallen significantly. District land prices have fallen by over 50 percent and at the national level by about 42 percent. Since 1987, real land prices have remained virtually unchanged.

Underlying the general movement in District farmland values is substantial variation across states. The decline in farmland values shown in figure 2 was most severe in Illinois, Indiana and Missouri as land prices in real terms declined by 59 percent, 58 percent and 51 percent, respectively. Slightly less severe declines occurred in the Delta states of Arkansas and Mississippi. In each of these states, prices in real terms declined by approximately 50 percent. The remaining two states in the District—Kentucky and Tennessee—experienced smaller declines of 37 percent and 36 percent, respectively.2

States with the largest declines in the 1980s were also those with the largest gains in the 1970s. For example, as table 1 shows, Illinois and Indiana had both the largest increases in farmland prices and the largest decline in land values. As of January 1, 1991, prices in both states were less than one-half their peak value in inflation-adjusted terms. On the other hand, those states that exhibited the smallest increases in farmland values—Kentucky and Tennessee—also have retained the greatest percentage of their peak values.

Interestingly enough, some states may not have hit bottom in land values yet. As of January 1, Kentucky, Missouri and Tennessee have recorded their lowest values since their peak year. Moreover, although Arkansas and Mississippi reached their lowest values in 1990, the rise in land prices over the past year was only 0.2 percent in Arkansas and 1 percent in Mississippi. Only two states seem to be rebounding, albeit at a slow pace: since their trough in 1987, real land values have risen 9 percent in Illinois and 5 percent in Indiana.

What Determines Land Values?

The present value of an acre of farmland is determined by the amount of income it can generate now and in the future and the expected interest rate for converting the value of future income flows to the present.3 In a highly simplified world, if an asset like land yields the same expected flow of income forever, then its present value is expressed by the following equation:

\[ P = \frac{E}{r} \]

where \( P \) equals the price of land, \( E \) is the expected earnings component and \( r \) is the discount rate.4 Thus, if the expected earnings from an acre of farmland are $100 and the discount rate is 10 percent, then the price of land would equal $1000. Accordingly, the price of land will increase if expected earnings increase or the interest rate decreases.

The expected earnings component depends on those factors that influence the expected revenues and costs associated with agricultural production. Thus, any factor that affects the demand for or supply of agricultural production can affect land prices.

Determinants Of The Recent Movements Of Land Prices

Several reasons are usually given for the rise and fall of U.S. land prices over the past two decades. A significant factor accounting for the rise in the 1970s was the increase in U.S. agricul-
tural exports. The primary reason for the surge in exports was the substantial demand by the Soviet Union for U.S. farm products beginning in 1972. Other factors that contributed to rising land values were low real interest rates and certain tax advantages that encouraged the holding of farmland as an investment.

The early 1980s saw a reversal of these conditions: significantly higher real interest rates, a strong dollar and a generally weak world economy, which caused U.S. exports of farm products to fall by almost 40 percent from 1981 to 1986. Weakness in the agricultural sector had direct effects on many farmers who purchased additional land or equipment based on what in hindsight were inflated equity values. In turn, agricultural banks were harmed.

Before the 1980s, agricultural bank failures were rare, as farmers enjoyed relative prosperity. In 1982, however, a total of 11 agricultural banks failed; this number jumped to 32 in 1984, before more than doubling to 68 in 1985, then peaking at 69 in 1987. The number of agricultural banks that failed in 1990 dropped to 17.

Conditions in the farm sector have improved somewhat in recent years. Since 1986, agricultural exports, spurred on by a declining dollar, have increased by 53 percent. This increase has effectively tripled the agricultural trade balance, rising from $5.4 billion in 1986 to $17.7 billion in 1990. This favorable movement in agricultural exports has also contributed to the upward trend in real net farm income, which reached a 15-year high in 1990.

Undoubtedly, the preceding developments affected the movement of land values at the District level; however, the question of what explains the substantial differences in the movement of land prices across District states remains. A simplistic explanation may be found in the type of commodities produced in each state.

With the exception of Illinois and Indiana, every state in the District derives the majority of its cash receipts from livestock and livestock products. Accordingly, when livestock prices rise faster than crop prices, farm income—and thus farmland values—in those states more dependent on livestock than crops should rise. Although livestock prices received by farmers increased an average of 7.1 percent per year from 1970 to 1981, crop prices increased even more, rising an average of 9 percent per year. It is not surprising then that the rise in farmland values in Illinois and Indiana should have outpaced those of other District states.

During the period of falling land prices, the opposite occurred. Farmland values in crop-producing states fell relatively more than in the livestock-producing states, as livestock prices over the period 1982-90 increased an average of 2.1 percent per year vs. the less than 1 percent per year for crop prices.5

Future Land Prices

What does the future hold? Over time, several factors are likely to affect farmland prices.6 Forecasting the quantitative impact of these factors is not possible; it is possible, however, to identify three factors that are likely to have substantial affects on farmland prices: government policies, the
international trading environment and environmental concerns.

**Government Policies**

Since land prices respond to current and expected future earnings, government policies designed to support farm income likely influence farmland values. This occurs because government payments to existing landholders become capitalized into higher asset (land) values. The recent farm bill attempts to reduce government involvement in agriculture by mandating cuts in farm subsidies of $13.6 billion. Moreover, its five-year cost is projected to be approximately one-half of the previous farm bill’s final cost.7

In the Eighth District, government payments as a percentage of gross farm income (GFI) vary substantially. For the past four years, three states have derived an average of over 10 percent of their GFI from government payments: Illinois, 14 percent; Indiana, 10.5 percent; and Mississippi, 10.5 percent. Two states depend on government monies for nearly 10 percent of their GFI: Arkansas at 9.1 percent and Missouri at 9.2 percent. Kentucky and Tennessee depend much less on government support payments, with averages of 4.5 percent and 5.8 percent, respectively. It is reasonable to anticipate that farmland values in states with relatively more government support in the past are likely to be the most adversely affected by the reduction in this support.

**International Trading Environment**

Related to the effects of government policies are the effects of trade policies. Currently, the U.S. government is proposing large cuts in world-

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Movements in Real Farmland Values</th>
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<tbody>
<tr>
<td>Category</td>
<td>Arkansas</td>
</tr>
<tr>
<td>Percent Change, 1971 to Peak</td>
<td>96</td>
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<tr>
<td>Current Percent of Peak Value</td>
<td>51</td>
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SOURCE: U.S. Department of Agriculture.
wide farm and export subsidies at the General Agreement on Tariffs and Trade (GATT) negotiations in Uruguay. If successful, the so-called Uruguay Round could have substantial implications for farm incomes and farmland prices.

Research, however, is inconclusive about how liberalized trading agreements will affect farm income. One study predicts that by 1995—assuming complete trade liberalization—annual real farm income in the United States will be $3.1 billion larger than if no trade liberalization occurred. Another study, conducted by the U.S. Department of Agriculture (USDA), paints a different picture. The USDA predicts that free trade in agricultural commodities would actually lower farm income by almost $10 billion annually. Although no one expects the complete elimination of farm subsidies and price supports in the near future, the prevailing trend seems to be toward less government support for agriculture. The precise consequences of these changes internationally on U.S. farmland prices remain to be seen.

Environmental Concerns

Concerns about the environment and the effects of agriculture production on soil and water quality are becoming increasingly commonplace. Although environmental policies are ostensibly designed to protect the productivity of farmland and ensure a safe and reliable source of food and fiber, they also affect farm income and thus the price of farmland. One such policy is the Conservation Reserve Program (CRP). The CRP attempts to retire, for at least 10 years, those lands subject to erosion, usable as a wildlife habitat or which contribute to surplus production of agricultural commodities.

Although CRP land tends to be marginally productive in the first place, the effective reduction in the supply of land puts a premium on the most productive land left out of the program, thereby raising the average price of farmland near CRP concentrations. In the Eighth District CRP enrollment varies. Mississippi has had the greatest percentage of its farmland enrolled (5.8 percent), followed by Missouri (5.1 percent), Tennessee (3.6 percent) and Kentucky (3.0 percent). The remaining states have less than 3 percent of their farmland enrolled in the program.

Conclusion

After posting large gains in the 1970s, U.S. and Eighth District land values in real terms have declined for most of the 1980s. The future course of land prices remains nebulous because of numerous and conflicting policy-induced pressures on farm income. Among these influences is the pressure to reduce government intervention in agriculture, increased trade liberalization and policies designed to enhance environmental concerns.

FOOTNOTES

1 Land prices are defined as the average value per acre of the 48-state average. From 1970 to 1975, land prices are measured as of March 1; from 1976 to 1981 and 1986 to 1988, February 1; from 1982 to 1985, April 1; from 1989 on, January 1. Real land values are constructed by deflating nominal land values by the annual average of the GNP deflator. The January 1, 1991, real land value uses the first quarter 1991 deflator.

2 In nominal terms, the highest and lowest average farmland values in each of the District states since 1980 are as follows: Arkansas, $1096 and $724; Illinois, $2188 and $1149; Indiana, $2031 and $1061; Kentucky, $1058 and $978; Mississippi, $1034 and $685; Missouri, $990 and $504; Tennessee, $1070 and $935.

3 This future income is referred to as its capitalized value or the present discounted value of all future earnings. See Bruce L. Gardner, The Economics of Agricultural Policies (Macmillan, 1987) for a more formal discussion.

4 The expected earnings component and the discount rate do not have to be constant over time, and in all likelihood they will not.

5 Prices received by farmers are the compounded annual growth rate of the Index of Crop Prices Received by Farmers and the Index of Livestock Prices Received by Farmers over the periods indicated.

6 The U.S. Department of Agriculture (USDA) recently forecasted nominal land values to increase next year by about 1 percent to 3 percent, but an expected inflation rate in the 4 percent to 5 percent range will necessarily offset any gains in real terms. See Roger Hexem, “Farmland Value Change Varies Regionally,” Agricultural Outlook, U.S. Department of Agriculture (June 1991), pp. 21-22.


8 The studies cited here are summarized in Alan Barkema, David Henneman and Mark Drabonstott, “Agriculture and the GATT: A Time for Change,” Economic Review, Federal Reserve Bank of Kansas City (February 1989), pp. 21-42. In general, those countries who have relatively low-cost, low-subsidized agricultural economies (for example, the United States or Australia) will inevitably reap larger benefits than those nations who subsidize their agriculture sector heavily because of its relatively high-cost nature (for example, Japan and the European Community).