Land Prices

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FACTORS AFFECTING LAND PRICE DECLINE:

WHERE TO FROM HERE?

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John T. Scott, Jr., Ph.D., C.R.A.

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John T. Scott, Jr., Ph.D., C.R.A.[1]

Department of Agricultural Economics
University of Illinois at Urbana-Champaign

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[1] Professor of Agricultural Economics at the University of Illinois at Urbana-Champaign. C.R.A. is Certified Review Appraiser designed by the National Society of Review Appraisers.

Factors Affecting Land Price Decline:

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Introduction

Over the last 50 years land prices generally have been increasing. Only two times (60 to 61 and 69 to 70) in those 50 years has the USDA index of farmland prices declined on a year-to-year basis and then only one percent in either year (Farm Real Estate Market Development). Now a third time has occurred. There was a general decline from 1981 to 1982. In most of these years the land price increased at least as much or more than the cost of living. Land has given a reasonable although less than market current rate of return and has been a good hedge against inflation. From 1959 through 1969 land prices in Illinois increased at 4.2% compounded while the Consumer Price Index increased 2.3% compounded. From 1970 to 1978 land prices increased at 13% compounded, while the CPI increased at 5.8% compounded.

Land prices reached a peak near the end of 1980 in some parts of the cash grain area of the midwest. During 1981 there was a fluctuation of prices from one quarter to the next with a general decline in the fourth quarter (Miller, 1982) which resulted in a compounded change for the full year of down 4% to up 5% depending on the state. A survey of farm managers and rural appraisers (about 90) at the annual meeting of the Illinois Society of Farm Managers and Rural Appraisers on February 19, 1982 indicated a decline of 12 1/2% in land prices in Illinois from the previous year. The range reported by individual respondents was no change to 30% lower[2]. This decline and its magnitude was predicted in September of 1981 (Scott, Sept.,

1981). The spring '82 USDA report was behind schedule, but showed a 9% decline from '81 to '82 for Illinois and comparable declines in other Corn Belt states.

Factors Affecting Land Prices

Of course, there are many factors which affect land prices. The discussion here will concentrate on a few selected factors which seem to have been most important over the last few years and which appear to be having the greatest effect on the current downturn in land prices.

The rate of return to land on a current account basis (current income/current price) has ranged from 3 to 5 percent with the long run average closer to 3 than 5 percent. There have been a few unusual periods of not more than a year or so that the current return was substantially outside that range. One of those was in 1973 when grain prices took a quantum leap due to sales to Russia, but farmers and other land investors viewed this as a price aberation and did not bid up land prices commensurate with incomes. Then in the mid 70's when commodity prices appeared to be on a more permanent higher level, land prices began to increase rapidly. Thus we see that in addition to the current rate of return, expectations of future returns and values have an important effect on land prices (Scott, 1978).

Another factor which has had an effect, particularly on expectations, is the increasing rate of inflation since the late 1960's. For about 15 years prior to this time the rate of inflation as measured by the change in the consumer price index ranged from about 1.5 to 2.5% per year. Beginning in about 1968 the economy began experiencing larger rates of inflation. Many began to assume after a number of years of large inflation rates that

high inflation had become endemic to our economy. This was reinforced by the popular press and television, agricultural economists, and professional forecasters such as Kiplinger who is still forecasting a continuing rise in farmland prices (Kiplinger, 1982). There has also been publicity about world hunger, the ever increasing need for food in the world, world population increase, and the consequent growing demand for food.

The development of larger machinery and the economics of the declining cost curve related to size have provided stimuli to farmers to gain control of additional acreages and to accept the associated risks. The competition for land to enlarge existing farms has contributed to higher bid prices and to the parcel character of farmland markets (Reynolds and Timmons).

Some of the fundamental economic factors which must finally determine value over the long run, however, appear either to have been ignored or thought to be outmoded because of the inflationary, expansionary expectations of recent land purchasers. Market participants either did not study economic history carefully or do not recollect earlier negative economic events causing risks to be underestimated. For example good Illinois farmland sold for $600 per acre in 1927. However, by the early 1930's comparable land would not bring $85 per acre and it was not until the 1960's that land values again reached the $600 level. Recent observations and experiences for many is good corn belt land increasing in value from around $700 an acre to over $3,000 per acre during the 1970's. The longer such increases persisted, the more people want to get in on the "bonanza". With favorable rates of interest and increasing net returns to land from 1965 through 1978, higher land prices seemed economically justifiable.

However, some subtle things have been occurring in the economic variables which influence land value. Disequilibrium has been the result.

Eventually, a correction in land prices has to occur as the market moves towards equilibrium. Table 1 tracks some of these economic variables for Illinois over the 1959-81 period. Column one lists the year, column two reports the net return per acre to land on a 50-50 crop share lease (Scott, Nov., 1981, Reiss, 1960-1980), and the third column is the price for land carrying a basic soil rating in the 86-100 range. This is the most productive land for corn and soybeans in IIlinois. These prices are the average of typical sales for this quality of land for selected years with interperiod adjustment using the USDA land price index. The remaining columns list: 1) the price/earnings ratio, 2) the Federal Land Bank interest rate on new mortgages, 3) the number of dollars per thousand needed to amortize a 30 year loan at the current rate of interest, 4) the amount of money per year needed for debt service if the full price of land was amortized, 5) the percent of the debt service that could be paid by current income, 6) the percent cash down needed if the mortgage balance is to be supported by current land income, 7) the current rate of return on land, 8) the difference between the current return and the current rate of interest on FLB mortgages, 9) the average price for corn per bushel, 10) the average corn yield reported for this quality of land.

Net rent increased from 1959 through 1969 at a slower rate (5.8%) than from 1970 through 1979 (12.0%). Yet farm earnings increased over this whole 20 year period at a rate that was increasing faster than the CPI which increased 2.3% from 1959 through 1969 and 5.8% from 1970 to 1979. This affected expectations of farmers and land prices rose at a steady and increasing rate. The land price increase was commensurate with increases in net rent at least up to 1974. Since 1974, net rents have been essentially flat while farmland prices have continued to rise through 1981 independent

of net rent. In real terms, land rent has declined since 1974. During this whole period, interest rates were relatively low, ranging from 5.5 to 9%. The real rate of interest ranged from a negative value in a few years to never more than 4%.

Farmland prices can be explained on the basis of expectation of continuing increases in net returns to land and expectation of continuing increase of land prices. The market capitalization rate for land (R = Current Income/Market Price) has remained fairly low - within its historic range of 3 to 5%. Subtracting this market capitalization rate from the mortgage interest rate or from the federal bond interest rate (a good opportunity return) gives the current return deficit (CRD). As interest rates have climbed CRD has grown and now exceeds 10%. The price level of land needs to increase at a rate at least equal to or greater than the CRD in order to make land a good investment. Price appreciation in combination with annual returns then makes land a competitive investment opportunity.

If income taxes are taken into account and interest is being paid on a mortgage, then higher CRDs can be tolerated. The additional amount, of course, depends on the tax bracket. Also, there is a tax advantage due to capital gains treatment which affects the amount of CRD which would be acceptable to an individual purchaser who plans on selling the property. However, the present value of the capital gains advantage clearly declines the longer the property is held. This rate of current return deficit may be a fair proxy for the aggregate judgment on expectation of land price increase held by current land purchasers.

The price-earnings ratio is commonly quoted in the stock market as an indicator of expectations about appreciation in price of a stock. Price earnings ratios of 30 or higher are usually found on stocks which have had a

growth history and are expected to continue to have large per share price increases. For Illinois farmland, we find that the price earnings ratio since 1959 has ranged from a low of 12 in 73-74 (when farmers were unsure of the persistence of export demand) to a high of 39 in 1981. In the years prior to 1976, there were only 2 years when the P/E was over 27. Most years prior to 1976, would fall in the range of 20 to 26. In these same years the income to land would have paid for the debt service if about one third to one half of the purchase price had been covered by a cash down payment. Typically farmers have usually been willing to buy additional land whenever they could do so with income from the land they bought along with income from an equal amount already owned. Since 1976, however, income to land would pay for the debt service only if about two thirds to three fourths cash had been paid down and the income from 3 to 4 acres was required to purchase an additional acre.

Land income has been essentially flat since 1974. With declining grain prices and large grain carryovers, expectations about increasing income from land have been dampened. Higher interest rates and an increasing real rate of interest have adversely affected the ability of most purchasers to finance land. Figure 1 shows the stark reality of land financing over the past few years. Compared are the net rent to land in current dollars and the current dollar amount required to amortize the full purchase price of land. The data covers the period from 1959 to the present. Clearly since about 1976 the relationship has exploded. The cash down payment needed so land income can support the debt service increased rapidly from 48% in 1975 to 80% in 1981. Since land income has been essentially flat, this increase is mainly due to the continuing increase in land prices and interest rates. Adjusting the quoted rate of interest for a major lender to the effective

rate raises the down payment required to support the mortgage with current income to over 80%. It is now also clear that because of the bond structure of the major lender interest rates could rise further before they decline. They could reach an effective rate of 15% or more especially if interest rates in the general economy continue to hold at or near their present level. When and if interest rates decline, the mortgage rate decline will lag behind the general decline just as it has lagged behind on the upside because of the distribution of interest rates on their bond portfolio. The change from fixed to variable interest rates has affected expectations as interest rates have gone up by increasing the consciousness of the risk involved in variable rates. These factors have had a negative influence on current farmland prices.

The net effect of the "Tax Recovery Act of 1981" is to cause disinvestment in land for those who had capital gains as an important factor in holding land. The reduction of the tax rates makes the value of current income higher and the present value of capital gains lower relative to current income. This reduces the incentive to hold land for capital gain while taking a low current return (Scott, Oct., 1981). The "capital recovery" of investment in buildings also shifts investment opportunity in real estate away from farmland toward urban property because of the lower ratio of buildings to land on farmland. The more favorable treatment of farmland in "agricultural use" estates could prolong the holding of some farmland that might otherwise have been sold.

Other negative factors in the farmland market include the change in exchange rates, increasing unemployment in Western Europe which imports some of our agricultural products, the declining financial ability of the Soviet Union and Eastern block countries to pay for imports, the ineffective food

demand of "hungry countries", and continuing unemployment in this country. There is a strong demand for food in third world countries, but thus far that demand has had little effect because personal income is not high enough to make this an "effective" demand. If personal income rise, then this could become a positive force in the market.

From 1975 through 1980 there was a significant demand for farmland by foreign buyers -- especially western Europeans. This demand practically dried up in 1981, partly because of the change in currency exchange rates. The dollar began to increase relative to European currencies and the Japanese Yen in 1980; and by the spring of 1981 the dollar was from 25 to 35% more valuable relative to most other currencies than it was in the '70's. In fact, the dollar is now worth as much as it was in 1971 relative to our major trading partners. Even though the dollar price of land remained about the same to Americans, it increased substantially to foreigners in their currency. The change in exchange rates also adversely affects our exports of grain.

We have a coalescing of a number of economic factors all having a downward effect or a less supporting effect on farmland prices. Farmland prices in the midwest have already declined from their peak which occurred in some areas as early as 1978. Other areas probably peaked in late 1980 with some waffling in 1981. The Federal Reserve Bank of Chicago showed an increase of one percent in farmland prices in 1981 for the seventh district, but with a range of from -4% to +5%, depending on the state. The Central Illinois cash grain area was reported as down 6%. Substantial deterioration of farmland prices has occurred in the first quarter of 1982 according to farmland appraisers, insurance company loan officers, farmland brokers and auctioneers.

Where To From Here?

Stock analysts and commodity brokers like to talk about support levels when markets are declining. They try to analyze the market with respect to fundamentals to estimate the bottom or support levels in the market. A support level or a bottom is defined as the market price that would be the lowest price expected if all the foreseeable negative factors came into play at once. A support level would be the price where the most conservative and prudent investors would be expected to come back into the market and begin buying. This buying would then provide sufficient demand to keep the market from going significantly lower.

Applying the concept of "support levels" to land prices, several potential scenarios for a decline in land values can be set forth to see where logical support levels for land prices might lie. Because some variables considered in a support level analysis are greatly affected by inflationary expectations, it is assumed that inflationary expectations have in fact been broken. There is some evidence to believe that this is in fact beginning. For example, many labor unions are accepting lower wages, de facto prices of most real estate are lower than observed prices because of favorable seller financing, and auto companies are giving large cash rebates on sales of new cars. Second, a corn price at about $2.40 per bushel and a yield of 135 bushels per acre on high quality land are assumed. This puts net return to land at about $100 per acre. The Landlord and Tenant Shares Report for 1981 will actually show net returns at $93 per acre.

The support level or bottom price of land can be estimated by looking at several variables. First, if expectations of inflation have fallen, then

the more normal P/E ratio for land (20-25) is likely to persist. Accordingly, a net land income of $100 per acre suggests a support level of $2,000 to $2,500 per acre for the best corn belt land -- land that recently sold for $3,600 per acre or more. (A few sales were $4,000 per acre or higher.) This would be a return to 1976 prices levels.

Alternatively, suppose farmers decide no longer to offer bid prices where the income from 3 or 4 already owned acres is required to buy one more acre. Suppose only one acre's income is offered for each additional acre. This would be a more normal state of affairs, particularly in the period of time when inflation in land values was running about 5% rather than 10 or 12%. This would provide $200 per acre to amortize the full purchase price. Selecting an inteerest rate and amortization factors will provide an estimate of the support level or bottom price using the $200. Employing a range of rates from 8 to 12% and a 30 year amortization period yields an expected range for the support level -- 8% rate, .089 factor and a $2,247 per acre price to 12% rate, .124 factor and a $1,612 per acre price. This implies that the support level could drop below $2,000 per acre. The 1975 price level was about $1,610 an acre for this quality of farmland. For 1975, Table 1 lists net rent to land around $100 per acre and the interest rate between 8 and 9 percent. Sixteen hundred dollars per acre could then be a support level for land that has recently sold for around $3,600 per acre.

Finally, suppose the export demand for U.S. agricultural commodities weakens further and grain prices decline from the assumed $2.40 for corn to the point where corn is $2.20 a bushel with other prices accordingly adjusted. Prices at these levels may bring goverment acreage programs on line. A $2.20 corn price results in net income to land of $80 per acre. Continuing with the assumptions of the previous two scenarios, $80 per acre land

income would result in land support prices about 20% lower than the foregoing scenarios or about $1,800 in the first case and from $1,280 to $1,797 for the second case.

In summary, these scenarios suggest a support level or bottom price range of $1,800 to $2,200 per acre for the best quality land in the corn belt. In the short run with distress situations such as sheriffs' sales following foreclosure or tax collections, some land might be transferred at prices as low as $1,200 to $1,600 per acre.

However, all the predictable negative effects may not coalesce. For example, interest rates may decline substantially, reducing the carrying costs of land. Expectation for general inflation may not fall which would provide additional upward pressure on support levels. Farmers may begin more soil conservation programs or the goverment may develop grain acreage restriction programs which would reduce grain supplies, strengthen commodity prices and positively effect land prices.

The analysis presented here certainly does not warrant the prediction of a decline in land values from recent levels of 3,000 or better down to $1,200 or $1,600 per acre. What it does suggest is that if the current economic situation continues and demand prospects dim on the basis of current outlook the economic variables reviewed here do herald a <u>potential</u> decline of 40 to 50% in land values.

Clearly such an occurrence would have widespread implications for land debtors, the equities of land holders, farmers borrowing capacity, and lenders' portfolios. It would increase the rate of reversion to prior owner of seller financed land and the rate of foreclosure by mortgage companies.

It would also have great implications for non-farm businesses associated with agriculture and rural community well-being. The effects on some people and their families would be severe and others would be greatly stressed. There are also strong implications for agricultural extension programs, taxing authorities, and legislators. The coalescence of all negatives may well never come to pass, but it may pay to be alert to the possibility.

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Footnotes

1. The author appreciates the review and suggestions made by David L. Chicoine, Assistant Professor of Agricultural Economics at the University of Illinois in Urbana, Illinois.
2. A survey of land prices conducted by the author.

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Table 1. Illinois Land Prices and Returns with Associated Economic Variables

Year	Net Rent	Land Value	P/E	Int. Rate	Debt Rate	Service Amt.	% Pd. by Income	% Down Needed So Income Will Cover Debt Service	Rate of Return	Current Return Deficit	Ave. Price of Corn	Ave. Corn Yield
1959	17	550	31	5.5	68	37	36	64	3.0	2.5	1.10	80
1960	21	550	26	6.0	72	39	54	46	3.8	2.2	1.03	86
1961	23	535	22	5.6	69	37	64	36	4.3	1.3	1.01	89
1962	26	550	21	5.6	69	38	69	31	4.7	.9	.98	105
1963	29	580	20	5.6	69	40	72	28	5.0	.6	1.11	104
1964	27	605	22	5.6	69	42	68	32	4.5	1.1	1.12	72
1965	30	650	21	5.6	69	45	67	33	4.6	1.0	1.15	100
1966	33	730	22	5.8	71	51	65	35	4.5	1.3	1.23	83
1967	29	775	26	6.0	72	56	52	48	3.7	2.3	1.17	125
1968	24	805	33	6.8	78	63	38	62	3.0	3.8	1.02	83
1969	30	830	27	7.8	87	72	42	58	3.6	4.2	1.14	108
1970	33	820	24	8.7	94	77	43	57	4.0	4.7	1.26	71
1971	34	825	24	7.9	87	72	42	58	4.1	3.8	1.27	108
1972	48	895	18	7.4	83	75	65	35	5.4	2.0	1.16	102
1973	85	995	12	7.5	84	84	100	0	8.5	-1.0	2.00	105
1974	107	1,335	12	8.1	89	119	90	10	8.0	.1	3.00	89
1975	80	1,610	20	8.7	94	152	52	48	5.0	3.7	2.73	126
1976	103	2,005	19	8.7	94	189	54	46	5.1	3.6	2.55	127
1977	89	2,720	31	8.5	93	253	35	65	3.3	5.2	2.07	122
1978	95	3,010	32	8.5	93	280	36	64	3.2	5.3	2.13	130
1979	110	3,400	31	9.2	99	336	32	68	3.2	6.0	2.50	141
1980	108	3,500	32	11.0	115	403	27	73	3.0	8.0	2.78	98
1981	93	3,605	39	12.8	132	476	20	80	2.6	10.2	2.98	145
1982	90	3,280	36	13.5[1]	140	459	20	80	2.7	10.8	2.50	140

Sources of data include the Farm Real Estate Market, Landlord Tenant Shares, Federal Reserve Bank Publications, and comparable sales data from appraisals.

[1] Interest rate has increase due to points at closing.

Figure 1. Net return on land with basic soil pprductivity rating 85-100, all tillable, and amortization of full land price.