The Minnesota Rural Real Estate Market in 1984

Including Special Studies of:

The Red River Valley
Southwestern Minnesota
A Comparison with the U.S. Census of Agriculture
Deflated Farmland Values

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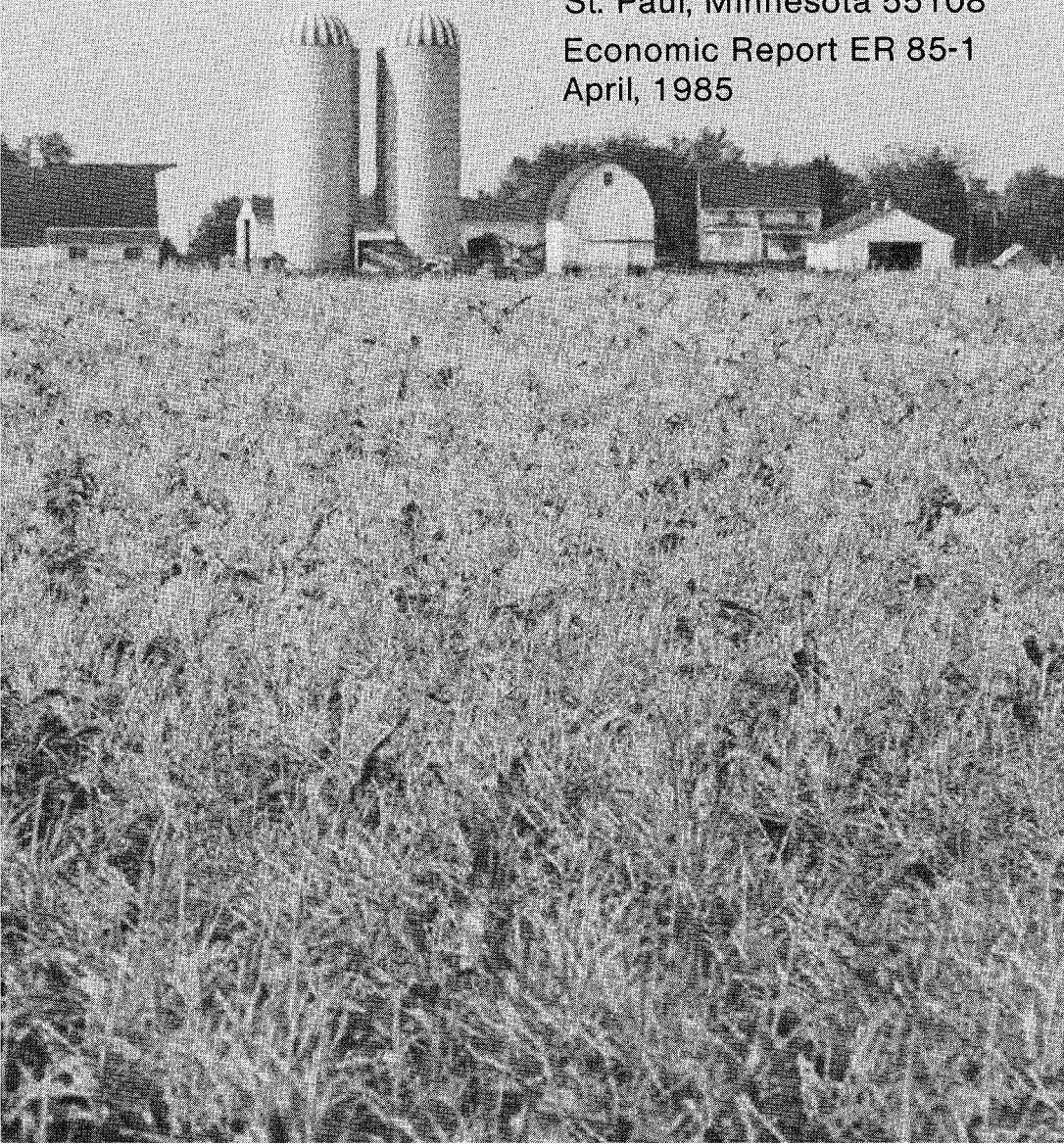

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SUMMARY

The Minnesota Rural Real Estate Market in 1984

The decline in Minnesota rural real estate values in 1984 represents the third consecutive annual decline in average estimated values and average reported sales prices. The decline statewide was 13 percent for average estimated value and 8 percent for average (adjusted) reported sales price, from July 1983 to July 1984. The average estimated value in 1984 was $927 per acre. By districts, the declines in estimated value in 1984 were the greatest in the Southwest (16 percent) and the Southeast (14 percent). The West Central and Northwest districts declined 11 percent while the East Central district declined 10 percent and the Northeast district increased 6 percent from 1983 levels. The decline in Minnesota's estimated value from the peak in 1981 to 1984 was 29 percent, bringing nominal value down to the level of estimated value in 1978.

The unadjusted average statewide sales price in 1984 was $1263 per acre, a decline of 2 percent from 1983. Adjusting the sales price data in 1984 to take account of the shift from year to year in the geographic distribution of reported farmland sales yields a decline of 8 percent in sales price, closer to the reported 13 percent decline in estimated value. The estimated value showed a greater decline in 1984 than in 1983 while the decline in adjusted sales price was smaller in 1984 than in 1983. The decline from 1981 to 1984 in adjusted sales price was 19 percent, substantially less than the 29 percent reported for estimated value.

The changes in adjusted sales prices at the district level followed a similar pattern to those for estimated values, except in the East Central and Northeast districts. The East Central district in 1984 had a 10 percent decline in estimated value while the adjusted sales price increased by 6 per cent. This increase in adjusted sales price reflects the influence of the Twin Cities on surrounding rural land values. Interpreting the differences between the changes in estimated values and adjusted sales prices in the Northeast district is difficult because of the small number of farmland sales reported for this area.

Activity in the Minnesota rural real estate market increased slightly in 1984. The number of sales reported in 1984 increased by 27 percent from the low in 1982. The major participants in the market were expansion buyers who represented 79 percent of reported sales statewide in 1984. In the Southwest district the expansion buyers participated in 92 percent of the sales. The East Central and Northeast districts reported a higher proportion of sole-tract buyers than in the western districts, at 34 and 38 percent, respectively.

For the first time in over a decade retirement was replaced as the most frequent reason for sale by sales "to reduce size of operation". This reason, to reduce size of operation, was added to the Minnesota survey in 1982 and represented 25 percent of reported sales in 1984. The increase in the proportion of sales for this reason in 1984 suggests that a number of sellers were in financial trouble.

The Minnesota rural real estate market continued to be local in nature, with 59 percent of reported sales made to buyers living less than 5 miles from the tract purchased, and 80 percent of reported sales made to buyers living less than 10 miles away. The only district with a significant number of sales to buyers living more than 10 miles away was the Northeast district, with 49 percent of its sales to buyers living 10 to 49 miles away. The median statewide distance of buyer from tract purchased was 3 miles, down from 4 miles in 1983.

The method of finance most frequently used in 1984 continued to be contracts for deed (50 percent). Reported sales that were cash financed represented 26 percent of the total and mortgage financing represented 24 percent. Contracts for deed are used most frequently in the eastern districts, with a high of 75 percent in the Northeast district. In the western districts, sale financing continued to be dominated by contracts for deed, but a significant proportion of sales involved cash and mortgage financing. Statewide, those buyers using contracts for deed paid the highest price of $1282 per acre, mortgage financed sales averaged $1268 per acre, and cash financing $1253 per acre.

It should be kept in mind that the data collected in this survey, during July and August of 1984, represent sales occuring between January 1, and July 1, 1984. Sales activity since mid-1984 will be reflected in the 1985 Minnesota survey.

Note:

This study, Economic Report 85-1, should also be used as a reference for 1983 data on the Minnesota Rural Real Estate Market since a separate comprehensive report for 1983 was not published. This study, Economic Report 85-1, also includes summary data for 1984 previously published in the February 1985 issue of the Minnesota Agricultural Economist, University of Minnesota.

PROCEDURE

The data for this report were obtained, during July and August of 1984, from 1335 surveys mailed to real estate brokers, county officials, agricultural loan representatives, bank officials, and others well informed on the agricultual land market in their areas in Minnesota. Two types of data were reported by the 747 individuals who responded in 1984: the reporters' estimates of farmland values in their areas, and data on actual sales of which the reporters have knowledge.

The portion of the survey reporting estimated values asked respondents to estimate the average value per acre of farmland of high, medium, and low quality; trends in the number of sales, and the frequency of participation of real estate brokers in the market. Percentage changes from the previous year were found by: (1) weighting the value estimates given by acres of farmland in the respective counties, as reported by the U.S. Census of Agriculture for 1982, (2) summing these weighted values by county and by district, (3) taking the total weighted value by district and dividing it by the total acres of farmland in that district. This total weighted average for 1984 was then compared to a similarly weighted average computed from 1983 data, to obtain the percentage change in average estimated value. The statewide change was obtained in a similar manner. This process utilized estimated values from reporters who have provided estimates for at least two consecutive years. The restrictive nature of this procedure resulted in 331 usable responses in 1984.

The data for actual sales prices are subject to greater variability from year to year than are the data on estimated values. This results from wide differences in land and building quality, location characteristics of a particular tract, and the greater impact that unusually high or low prices in individual sales can have on the average sales prices.

In determining what factors do affect sales prices the survey collects information on location, sales price, tract size, land quality, building quality, reason for sale, type of buyer, method of finance, and distance of buyer from tract, for the period from January 1 to July 1, 1984. Sales between close relatives were not included. In 1984 there were 1230 usable sales reported.

Three types of buyers are identified:

(1) Sole-tract operators: Buyers who intend to operate the tract purchased themselves, as a complete farm.

(2) Expansion buyers: Farmers or landlords who are purchasing land to add to existing farmland holdings:

(3) Agricultural investors: Buyers who purchase farmland with the intention of renting it out, or operating the land through a manager.

The quality of land and buildings involved in specific sales is based on the judgment of the respondent and thus not standardized across the state.

The analysis presented in this report is made possible by the prompt and conscientious replies of hundreds of reporters, some of whom have been providing information annually for many years. Their cooperation is gratefully acknowledged.

PART I.

The Minnesota Rural Real Estate Market in 1984

A. Land Market Trends

Reporters' Estimates

The average estimated statewide value of Minnesota farmland was $927 per acre for the first six months of 1984, a drop of 13 percent or $138 since 1983 (Tables 1 and 2). This is the third consecutive annual decline in average estimated farmland value and is the greatest annual decline since the peak in Minnesota's average estimated value of $1310 per acre in 1981. With the exception of small declines of $2 per acre in 1941, 1953, and 1960, these are the first declines reported since 1934-35. Through 1981, the state had experienced almost continuously rising land values for 37 years.

Average estimated values declined in five of the state's six districts in 1984. In four districts, comprising the major agricultural areas of southern and western Minnesota, the declines of 11 to 16 percent were greater than in 1983 (Table 2 and Figure 1).

The decline of 10 percent in average estimated values in the East Central district was the smallest for the five districts reporting declines. The influences of recreation, residential land uses, and livestock agriculture explain some of the diversity between this area and the major agricultural areas of the state. The East Central district represents a transitional agricultural area with strong urban influences.

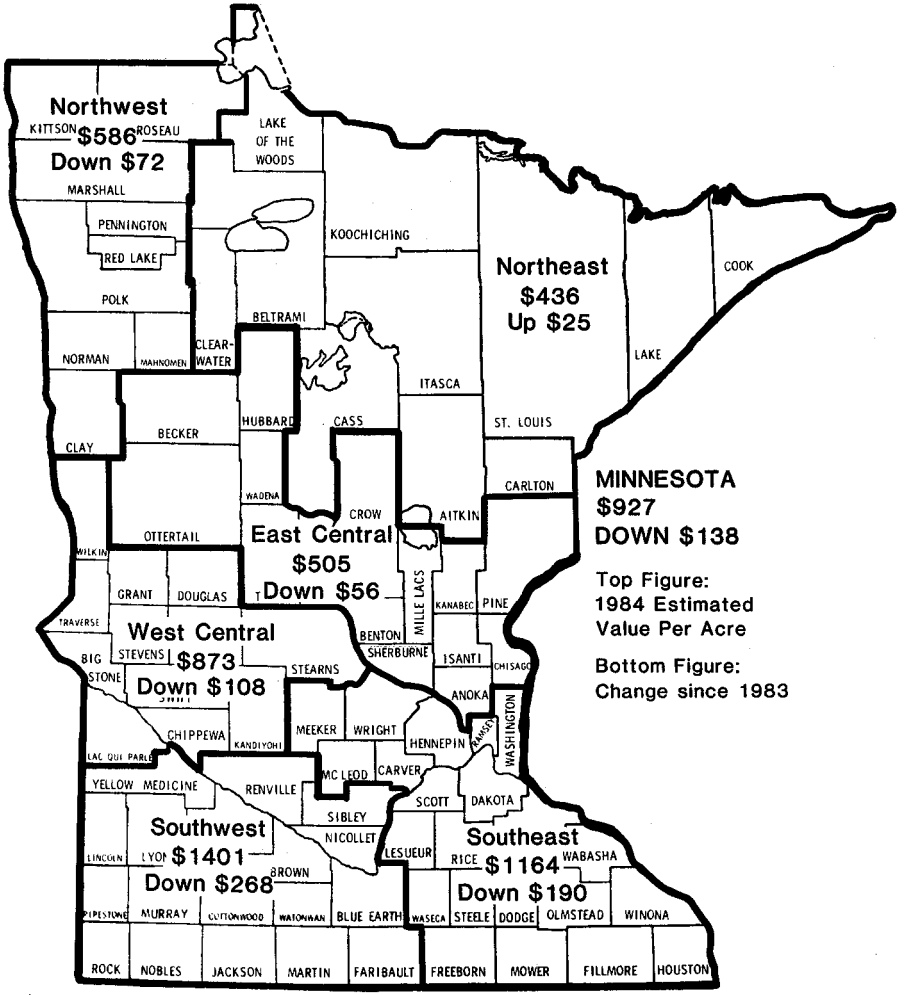
In dollar terms, the state's most valuable farmland is still in the Southwest district, with an average estimated value of $1,401 per acre. The Southeastern district had the second highest average estimated value of $1,164 per acre followed by West Central ($873), Northwest ($586), East Central ($505), and Northeast ($436) districts. This order of farmland real estate values by districts has been quite stable since 1975 except for the fluctuation between the East Central and Northwest districts.

When the average estimated values are deflated by the GNP Implicit Price Deflator for Personal Consumption Expenditures (PCE) or by the Consumer Price Index (CPI), the 1984 deflated average estimated value is about the same as the deflated value in 1975. In comparison, the non-deflated (nominal) average estimated value of $927 per acre in 1984 is about the same as the nominal estimated value in 1978. The deflated series showed relatively little change from the middle 1950's to the early 1970's, but from 1972 to 1981 real values increased 161 percent using the GNP deflator and 142 percent using the CPI.

Actual Sales

Data were collected by the Minnesota Rural Real Estate Market Survey on 1,230 reported sales occuring between January 1, 1984, and July 1, 1984.

Figure 1: Estimated Land Values per Acre
(Excluding Hennepin and Ramsey Counties)



*Based on reported estimates of average value per acre of farmland for the first six months of 1984.

Table 1: Estimated Average Value Per Acre of Farmland, by District, Minnesota, 1972-84.

Years	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
1972	370	379	208	163	117	76	248
1973	433	459	247	194	146	115	298
1974	576	675	378	279	199	144	423
1975	674	844	503	296	295	163	525
1976	856	1106	624	349	378	210	667
1977	1027	1316	730	415	427	279	794
1978	1191	1421	803	498	483	304	889
1979	1453	1620	883	573	599	368	1040
1980	1526	1750	962	596	683	390	1120
1981	1709	2083	1135	679	813	460	1310
1983	1504	1875	1044	584	748	483	1179
1983	1354	1669	981	561	658	411	1065
1984	1164	1401	873	505	586	436	927

Based on these reports, the average sales price per acre of Minnesota farmland in 1984 was $1,263 per acre (Table 3). This value represents a nominal decline of 2 percent from the 1983 average sales price per acre of $1,291. This decline of only 2 percent reflects an increase in frequency of sales of higher valued land in the East Central district and relatively little change in the Southeast. An increase in the frequency of sales of lower valued land occurred in the Southwest, West Central, Northwest, and Northeast districts.

To take into account these shifts in market activity, adjusted average sales prices were computed. The adjusted sales price is determined for each district on a county by county basis. Within each district the average sales price for each county in 1984 is multiplied by the county's respective percentage of the total farmland reported sold in that district in 1983. These products for the counties within a district are then summed to obtain the adjusted average sales price for that district in 1984. The adjusted average sales price for the whole state is similarly computed by multiplying the average sales price for each of the six districts in 1984 by the district's respective percentage share of total farmland reported sold statewide in 1983. These products of the six districts are then summed to obtain the statewide average adjusted sales price in 1984.

Table 2: Annual Percentage Changes in Estimated Farmland Value per Acre, by Districts, Minnesota, 1972-84.

Years July-July	South-east	South-west	West-Central	East Central	North-west	North-east	Minnesota
1972-73	17	21	19	19	25	51	20
1973-74	33	47	53	44	36	25	42
1974-75	17	25	33	6	48	13	24
1975-76	27	31	24	18	28	29	27
1976-77	20	19	17	19	13	33	19
1977-78	16	8	10	20	13	9	12
1978-79	22	14	10	15	24	21	17
1979-80	5	8	9	4	14	6	8
1980-81	12	19	18	14	19	18	17
1981-82	-12	-10	-8	-14	-8	5	-10
1982-83	-10	-11	-6	-4	-12	-15	-10
1983-84	-14	-16	-11	-10	-11	6	-13

The adjusted average sales price computed for 1984 represents a decline of 8 percent from 1983 (Table 4). This 8 percent decline in prices received in actual sales is smaller than the decline of 13 percent reported for the average estimated value in 1984. In comparing the annual percentage changes in average adjusted sales prices (Table 4) to those in average estimated values (Table 2), there were similar declines in the Southwest district but much greater declines in estimated values for the Southeast, West Central, and Northwest districts.

Four of the districts showed smaller declines than in 1983, for both the adjusted and unadjusted sales prices. The exceptions were the Southwest, and the large decrease in the Northeast. Adjusted sales prices in the Northwest district fell only 4 percent in 1984, in contrast to the big decline of 20 percent in 1983. The East Central district showed an increase of 6 percent in adjusted sales price. This is in sharp contrast with the 10 percent decline in estimated value for that district in 1984. The West Central district showed a decrease of 3 percent in adjusted sales price in 1984, considerably less than the 11 percent decline in estimated value for the same year.

Table 3: Average Reported Sales Price per Acre of Farmland, by District, Minnesota, 1972-84 (Unadjusted)

Years	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
1972	389	366	222	145	107	76	293
1973	444	410	223	178	120	122	298
1974	598	630	340	243	204	144	450
1975	792	844	493	299	353	159	607
1976	937	1116	644	321	377	210	735
1977	1216	1340	709	446	432	198	859
1978	1352	1321	908	554	504	256	980
1979	1675	1680	949	618	612	411	1140
1980	1837	1868	1095	603	759	394	1318
1981	1965	2005	1171	680	919	483	1367
1982	1749	2022	1168	746	887	406	1360
1983	1470	1872	1068	679	711	328	1291
1984	1386	1665	1062	644	700	223	1263
% Change 1983-84	-6	-11	-1	-5	-2	-32	-2

Table 4 also shows the real declines in sales price when taking into account the increase in the Consumer Price Index (CPI) and the GNP implicit deflator for Personal Consumption Expenditures (PCE). Combining the adjusted average sales price with the CPI gives a real adjusted sales price decline of over 12 percent from 1983 to 1984. When using the PCE index, the real adjusted sales price decline is just over 11 percent. Over the four year period since the 1981 peak in Minnesota rural land values there has been a real decline in adjusted sales price of 28 percent, using the CPI, and a real decline of 25 percent using the PCE index (Table 5). In comparison, the real declines in estimated values from 1981 to 1984

Table 4: Annual Percentage Changes in Adjusted Sales Price per Acre, by District, Minnesota, and CPI and GNP Implicit Price Deflator, 1975-84.

District	1975 -76	1976 -77	1977 -78	1978 -79	1979 -80	1980 -81	1981 -82	1982 -83	1983 -84
	Percentage Change in Adjusted Sales Price								
Southeast	23	23	13	13	6	6	-8	-14	-7
Southwest	33	20	2	22	12	15	-8	-11	-13
West Central	32	8	18	4	9	13	-9	-9	-3
East Central	6	32	37	16	0	19	4	-7	6
Northwest	10	10	12	44	18	18	-14	-20	-4
Northeast	21	8	-24	47	-27	-4	-18	-17	-44
Minnesota	26	18	10	17	9	11	-8	-12	-8
CPI[1]	6.2	6.4	6.8	10.3	14.3	10.5	7.2	3.5	4.4
GNP Implicit[1,2] Deflator for Personal Consumption Expenditure	5.5	5.7	6.3	8.7	10.1	9.2	6.6	4.0	3.2

[1] The changes in price indexes were calculated by comparing the average prices for the first six months of the year with the average prices for the first six months of the previous year.

[2] Economists often contend that the gross national product (GNP) implicit price deflator for Personal Consumption Expenditures is a better indicator of price changes than the consumer price index (CPI). The CPI measures prices for a specified collection of goods and services which are typically purchased by urban consumers. The GNP implicit price deflator indicates the price changes of all goods and services acquired through personal consumption expenditures.

Table 5: Minnesota Average Estimated Value and Average Adjusted Sales Price - Real Values - Deflated by the GNP Implicit Price Deflator for Personal Consumption Expenditure 1970-1984

Year	GNP Implicit Price Deflator for Personal Consumption Expenditure (PCE) (1972 = 1.0)	Minnesota Deflated Estimated Average Land Value Per Acre (PCE)	Minnesota Deflated Average Adjusted Sales Price Per Acre (PCE)
1970	.913	249	N/A
1971	.962	241	253
1972	1.00	248	294
1973	1.038	287	347
1974	1.154	366	364
1975	1.322	397	367
1976	1.386	481	551
1977	1.463	543	593
1978	1.572	565	601
1979	1.708	609	671
1980	1.822	601	682
1981	2.022	648	723
1982	2.095	563	600
1983	2.136	499	560
1984	2.186	424	543

were 38 percent, using the CPI, and a real decline of 35 percent using the PCE index.

Alternative analysis of the Minnesota Rural Real Estate Market by the 13 Economic Development Regions provides a more detailed perspective on trends in land sales prices and possible causal influences (Figure 2).

Region 9, a predominantly cash-crop area, continued to have the highest average sales price of $1,964 per acre in 1984, despite an 8 percent drop from 1983 (Tables 6 and 7). After adjusting for inflation by either the CPI or the PCE indexes, the real price declined by 11 to 12 percent from 1983.

In percentage terms, the largest nominal decline in sales prices accured in Region 8, in the southwest. The 19 percent decrease in prices in current dollars becomes a decrease of 22 or 23 percent in real purchasing power, July 1983 to July 1984. Region 4 in West Central Minnesota showed an increase in deflated sales prices in 1984 while there was little change in real (deflated) sales prices in adjacent Region 6-W.

Figure 2: Minnesota Economic Development Regions

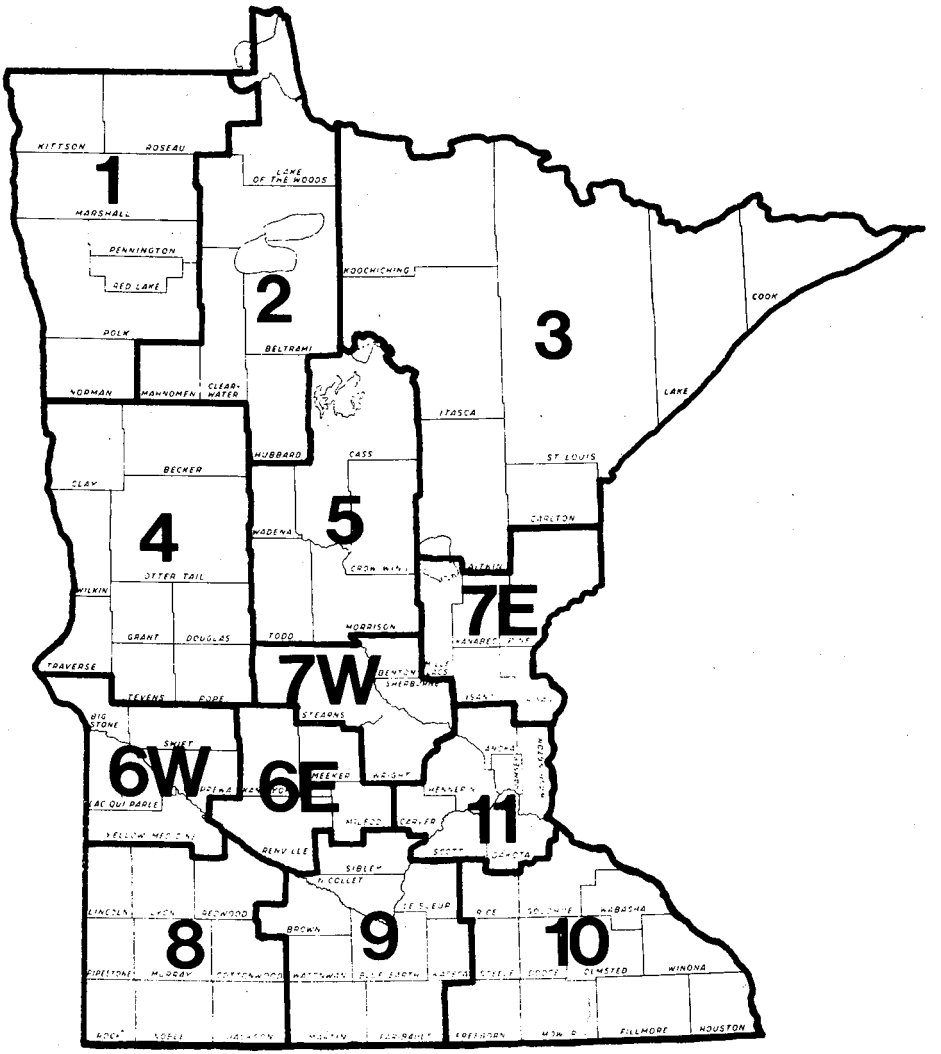


Table 6: Average Reported Sales Price per Acre of Farmland, by Economic Development Regions, Minnesota, 1974-84.

Economic Development Region	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
	Dollars per Acre										
1	199	344	300	367	433	560	732	888	806	671	636
2	141	206	250	277	321	520	452	645	459	515	460
3	148	157	162	179	280	310	271	386	325	141	256
4	317	446	542	558	853	828	868	973	987	874	955
5	197	259	235	297	478	483	506	695	556	605	502
6W	341	537	696	746	906	960	1051	1303	1259	1090	1098
6E	569	691	923	1027	1171	1528	1735	1949	1876	1589	1391
7W	430	472	596	778	927	1112	1056	1300	1240	1187	1123
7E	254	316	455	473	575	768	741	790	873	780	828
8	534	710	906	1058	1199	1574	1674	1646	1701	1743	1405
9	829	1115	1464	1835	1682	2111	2320	2865	2484	2139	1964
10	565	753	915	1197	1373	1645	1864	1941	1713	1395	1337
11	882	1035	1150	1437	1396	1799	1778	1830	1711	1878	1642
Minnesota	450	607	735	859	980	1140	1318	1367	1360	1291	1263

The erratic movements of sales prices in the northeast Regions 2, 3, and 5 must be interpreted with care due to the history of volatile fluctuations in sales prices from year to year. These fluctuations result primarily from the small number of land sales that can be classified as farmland in these regions.

A mixture of urban-type land uses, livestock agriculture, and cash-crop farming is pronounced in Regions 7W, 7E, 11, and 10 in east central and Southeast Minnesota. Although Region 11, the Twin Cities Metropolitan area, had the second highest average sales price of all Regions in 1984 at $1,642 per acre, its decline of 12 percent from 1983 levels was among the largest in the state. Region 10, known for its livestock, dairy, and cash-crops also had a high average sales price of $1,337 per acre. The decrease of 4 percent from 1983 was a much smaller decline than in 1982 and 1983 in this region. Region 7W, heavily influenced by livestock agriculture, showed a decrease in average sales price of 5 percent from 1983, while nominal sales prices in Region 7E increased 6 percent in 1984. A more comprehensive discussion of

Table 7: Annual Percentage Change in Sales Price per Acre, by Economic Development Regions, Minnesota, and the CPI and GNP Implicit Price Deflator, 1974-84.

Economic Development Region	% Change in Sales Price 1974 -75	1975 -76	1976 -77	1977 -78	1978 -79	1979 -80	1980 -81	1981 -82	1982 -83	1983 -84
1	73	-4	11	18	29	31	21	-9	-17	-5
2	46	21	11	16	62	-13	43	-29	12	-11
3	6	3	10	56	11	-13	42	-16	-56	44
4	41	22	3	53	-3	5	12	1	-11	8
5	31	-9	26	61	1	5	37	-20	9	-17
6W	57	30	7	21	6	9	24	-3	-13	1
6E	21	34	11	14	30	14	12	-4	-15	-12
7W	10	26	31	19	20	-5	23	-5	-4	-5
7E	24	44	4	22	34	-4	7	11	-11	6
8	33	28	17	13	31	6	-2	3	2	-19
9	35	31	25	-8	26	10	24	-13	-14	-8
10	33	22	31	15	20	13	4	-12	-19	-4
11	17	11	25	-3	29	-1	3	-7	10	-12
Minnesota	35	21	17	14	16	16	4	-1	-5	-2
CPI	10.4	6.2	6.4	6.8	10.3	14.3	10.5	7.2	3.5	4.4
GNP Implicit Price Deflator for Personal Consumption Expenditures	8.5	5.5	5.7	6.3	8.7	10.1	9.2	6.6	4.0	3.2

the rural real estate market in the Greater Twin Cities Metropolitan Area, region 11 and its bordering counties, is found in the Minnesota Agricultural Economist, February 1985.

Taking inflation into account, sales prices in the regions experiencing the strongest urban influences declined less than in the cash-crop regions of the state.

Table 8. Number of Reported Sales, Acreage of Land Sold and Average Acres Per Sale, by District, Minnesota, Jan.-July 1 1982-1984.

District	No. of Sales*			Acres Sold			Acres/Sale		
	1982	1983	1984	1982	1983	1984	1982	1983	1984
Southeast	275	336	365	34,978	40,878	45,520	127	122	125
Southwest	287	395	468	36,283	50,127	52,855	126	127	113
West Central	165	187	208	25,718	31,190	34,771	156	167	167
East Central	111	158	112	19,662	20,421	15,599	177	129	139
Northwest	92	105	69	21,527	24,211	15,023	234	231	218
Northeast	39	23	8	10,994	3,007	1,346	282	131	168
Minnesota	969	1204	1230	149,162	169,834	165,114	154	141	134

*These sales should not be interpreted as a record of total farm land transactions for the years indicated. The majority of farm land sales are completed in the first half of the calendar year, which explains the choice of the Jan. 1-July 1 reporting period. Some sales do occur in the latter half of the year, but they are not included in the data reported.

Activity in the Rural Real Estate Market

Turnover in the Minnesota Rural Real Estate market reached its lowest level of the past 20 years in 1982 when only 969 sales were reported for the period January-June by survey respondents. This was 33 percent below the annual average number of 1434 reported sales for the first six months of the years from 1965 to 1984, and was less than half of the 2001 sales reported in the peak year of 1973. In 1983 and 1984 the declining trend of the past decade was reversed for both the number of reported sales and acres reported sold. The number of sales increased to 1204 in 1983 and 1230 in 1984 (Table 8). The numbers of acres reported sold in 1983 and 1984 were well below half of the 375,338 acres reported sold in 1973, but represent increases of 14 and 10 percent above the number of acres reported sold in 1982, respectively.

In contrast to the increases in the number of sales and acres reported sold in 1983 and 1984, the average size of tracts sold continued to decline to 141 and 134 acres per sale, respectively. These tract sizes for 1983 and 1984 were 19 and 22 percent below the average of 172 acres per sale during the past 20 years.

Table 9. Estimated Proportion of Farm Land Sales in which Brokers or Dealers Participate, Minnesota, by District, 1972-1984.

Year	Sales with Brokers' Services						
	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
1972	59	52	56	54	40	50	52
1973	58	51	54	58	40	46	51
1974	61	54	53	55	40	58	54
1975	58	47	52	60	34	54	51
1976	58	48	50	56	37	57	51
1977	57	48	50	59	42	57	52
1978	60	48	51	60	43	61	54
1979	55	44	52	59	40	55	51
1980	57	48	50	60	41	56	52
1981	60	51	56	63	44	58	55
1982	61	55	59	65	45	64	58
1983	64	58	63	60	43	67	59
1984	61	54	58	57	37	52	53

There has been a decline in the acres per sale during the 1980's. From 1973 to 1979 the average size of tract sold was relatively constant, varying from 179 to 188 acres. The reduction in acres per sale during the 1980's is consistent with the increasing predominance of expansion buyers during this period. Expansion buyers tend to purchase parts of farms rather than entire farms and thus reduce the average acres per sale. In the three western districts of Minnesota, where expansion buyers have accounted for 80 to 92 percent of all sales since 1979, there were declines in acres per sale during the 1980's of 26 percent in the Southwest district, 21 percent in the West Central district, and 26 percent in the Northwest district. All of the six districts showed declines from 1982 to 1983 in acres per sale. However, in 1984 only the Southwest and Northwest districts continued to report declines in acres per sale from 1983.

As estimated by survey respondents, the number of sales in which brokers participated declined in 1984. The decrease from 59 percent in 1983 to 53 percent in 1984 was the first decline since 1979 (Table 9). The decline in the proportion of broker participation was greater in the western districts than in the eastern districts.

Table 10: Annual Percentage Change in Reason For Selling Land, Minnesota, 1970-1984.

	Reason for Sale						
Year	Death	Retirement	Left Farming	Moved, Still Farming	Divorce*	Reduce* Size of Operation	Other
1970	20	39	22	6			13
1971	21	38	19	8			14
1972	19	38	19	8			16
1973	15	42	18	6			20
1974	15	46	12	10			18
1975	17	40	15	7			21
1976	16	41	14	9			19
1977	15	38	15	9			23
1978	14	39	16	10			21
1979	18	41	15	10			17
1980	16	39	12	10			23
1981	17	36	16	9			22
1982	17	32	11	3	2	23	11
1983	14	29	12	2	1	23	20
1984	16	22	13	2	2	25	20

* These reasons were added to the survey in 1982.

The greater decline in broker participation in the western districts has been associated with the large proportion of expansion buyers in these districts. Expansion buyers who are familiar with the availability of neighboring land presumably have less need for brokerage services. It is noteworthy that brokers participated in only 37 percent of the sales in the Northwest district, in contrast to 61 percent in the Southeast.

B. Analysis of Reported Sales

Reason for Sale

For over a decade the single most frequently reported reason for selling land has been retirement, accounting for 36 to 46 percent of all sales from 1970 to 1981 (Table 10). This percentage has declined from 41 percent in 1979 to 22 percent in 1984. In contrast, there has been a sharp increase in sales triggered by decisions to "reduce size of operation." In 1984, this reason was given for 25 percent of all sales, exceeding the percentage of sales occasioned by retirement for the first time since reduced size was included in the survey. In an additional 9 percent of all sales, financial difficulties or foreclosures were explicitly given as the reason for the sale. Thus, over one-third of all sales in 1984 were a reflection of financial difficulties or of decisions to reduce the scale of farm operations.

Table 11. Price Differential Between Improved and Unimproved Land Sold, Minnesota 1970-1984

Year	Improved Land	Unimproved Land	Difference	Price of Unimproved Land as a Percent of Price of Improved Land
	dollars/acre			Percent
1970	254	200	54	79
1971	271	207	64	76
1972	308	236	72	77
1973	317	234	83	74
1974	454	438	16	96
1975	605	613	-8	101
1976	729	753	-24	103
1977	899	782	117	87
1978	1026	888	138	87
1979	1169	1088	81	93
1980	1327	1302	25	98
1981	1337	1417	-80	106
1982	1306	1428	-122	109
1983	1299	1282	17	99
1984	1202	1313	-111	109

To reduce the size of operation was the reason most often used in the southern and western districts where expansion buying was also the heaviest. In the less agricultural areas, where purchases by agricultural investors and sole-tract buyers were more frequent, the reasons for selling farmland were usually to leave farming entirely.

Improved and Unimproved Farmland

From 1959 to 1984 there were only five years in which statewide average sales prices of improved land (with buildings) were lower than the statewide average sales prices of unimproved land (without buildings); 1975, 1976, 1981, 1982, and now 1984 (Table 11). In 1984 the statewide average sales price for improved land dropped 7 percent from 1983 levels, to $1202 per acre, and increased 2 percent to $1313 per acre for unimproved land. These statewide average sales prices represent a difference of $111 per acre between improved and unimproved farmland prices in 1984.

The downturn in statewide average sales prices of unimproved land in 1983 was the first decrease in the price of unimproved land since 1968. In contrast, the statewide average sales price for improved land declined by 10 percent from its peak in 1981 to 1984. The peak in statewide average sales price for unimproved land was in 1982 at $1428 per acre. The increase in the proportion of expansion buyers statewide from 72 percent in 1981 to 79 percent in 1984 provides one explanation for the higher price paid for unimproved land during the 1980's. Expansion buyers usually have adequate buildings on their original holdings and have little need for additional tracts with buildings (improved land).

Table 12. Proportion of Sales and Average Sales Price Per Acre of Improved and Unimproved Farmland, By District, Minnesota, 1983-84

	Improved				Unimproved				Price of Unimproved Land as a Percent of Price of Improved	
	1983		1984		1983		1984		1983	1984
District	%	$	%	$	%	$	%	$	%	%
Southeast	53	1490	45	1409	47	1442	55	1361	97	97
Southwest	44	1893	28	1562	56	1849	72	1712	98	110
W. Central	50	1064	33	1102	50	1074	67	1037	101	94
E. Central	63	693	64	648	37	642	36	633	93	98
Northwest	27	745	25	597	73	688	75	747	92	125
Northeast	48	380	75	233	52	281	25	121	74	52
Minnesota	48	1299	37	1202	52	1282	63	1313	99	109

Table 13. Proportion of Tracts Purchased and Average Sales Price Per Acre by Type of Buyer, by District, Minnesota, 1983 and 1984.

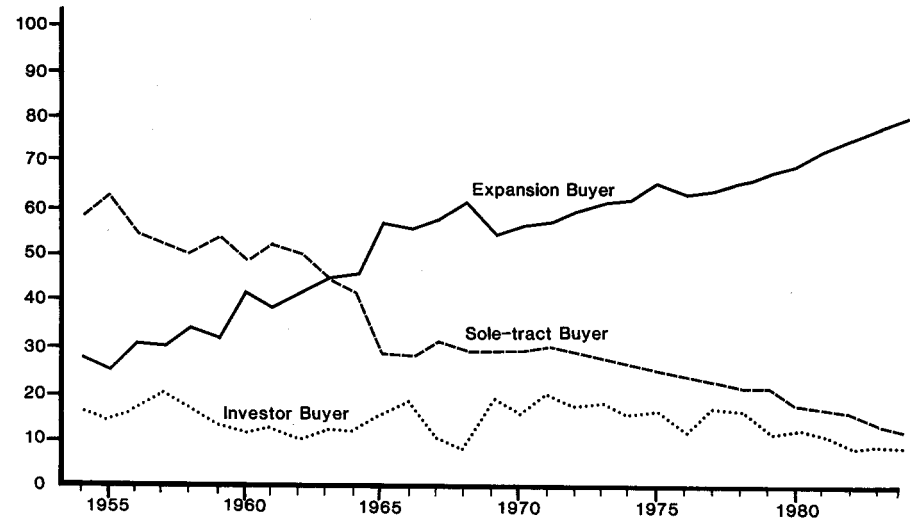
	Sole-Tract Operator				Expansion Buyer				Investor Buyer (AG)			
	1983		1984		1983		1984		1983		1984	
District	%	$	%	$	%	$	%	$	%	$	%	$
Southeast	11	1354	17	1323	78	1507	69	1442	11	1303	14	1213
Southwest	6	1581	3	1492	88	1893	92	1681	6	1782	5	1338
W. Central	14	1072	10	1129	78	1085	85	1051	8	1062	5	1120
E. Central	36	754	34	680	51	716	51	664	13	497	15	521
Northwest	7	605	8	445	87	734	91	757	6	379	1	350
Northeast	35	421	38	358	48	264	37	190	17	419	25	197
Minnesota	13	1016	12	1043	78	1358	79	1319	9	1083	9	1069

Reported sales involving improved land comprised 37 percent of total sales in 1984 (Table 12). This proportion of improved land sold is at its lowest level since data for this characteristic were first collected in 1953. There were larger declines from 1983 to 1984 in the proportion of improved land sold in the western districts than in the eastern districts. In the Southwest the decline was from 44 percent in 1983 to 28 percent in 1984; in the West Central district the decline was from 50 percent in 1983 to 33 percent in 1984. These large declines are consistent with the dominance of expansion buyers in the western districts and their preference for unimproved land.

The proportion of unimproved land reported sold has been increasing steadily since 1970 and reached its highest level of 63 percent in 1984. At the district level the greatest increases in the proportion of sales of improved land from 1983 to 1984 were in the Southwest district with an increase from 56 percent to 72 percent, and in the West Central district where the increase was from 50 percent to 67 percent. The proportion of unimproved sales in the Northwestern district remained fairly constant from 1983 to 1984 at 73 to 75 percent.

The smaller proportion of unimproved land sales in the eastern districts is consistent with the greater activity of sole-tract buyers in the eastern part of the state. In the eastern districts the average sales price for improved land is greater than the average sales price for unimproved land, while the reverse is true in most of the western districts.

Figure 3: Minnesota: Percent of Farmland Sales by Type of Buyer, 1954-1984



Type of Buyer

This survey distinguishes among three types of buyers. Expansion buyers are land owners who purchase farmland to add to their existing holding. Agricultural investors are those who purchase with the intention to rent out the land or operate it through a manager. Sole-tract operators are those who intend to farm the land themselves and are not using their purchase to expand existing holdings. Analysis of the types of buyer active in the market has been one of the most useful survey responses to help explain trends in Minnesota rural land values, as shown in Figure 3.

Expansion buyers continued to dominate the market in the first half of 1984, purchasing 79 percent of all tracts reported sold in the state (Table 13). In the three western districts, expansion buyers purchased from 85 to 92 percent of all tracts reported sold in these districts during 1984. The proportion purchased by expansion buyers in the Southeast district was slightly less, at 69 percent of the market. In other words, expansion buyers dominated the market in the agricultural areas of higher valued land.

Purchases by sole-tract operators represented over 60 percent of the market in the early 1950's but their share has steadily declined to a record low of 12 percent of the market in 1984. Only in the East Central and Northeast districts have sole-tract operators in 1984 continued to represent a significant proportion of the market, at 34 and 38 percent, respectively. The proportion of purchases by investor buyers has remained fairly constant since the early 1950's and has represented 9 percent of the market since 1982.

Expansion buyers in 1984 continued to pay the highest average sales prices for their purchases statewide at $1319 per acre, with sole-tract

operators paying $1043 per acre, and investor buyers paying $1069 per acre. Sole-tract operators in 1984 paid the highest average sales prices in the East Central, Northeast, and West Central districts. Expansion buyers paid the highest average sales prices in 1984 in the Southwest, Northwest, and Southeast districts.

It is noteworthy that the Southwest district, with the highest average sales price per acre in 1984 (Table 13), reported only three percent of the sales to sole-tract buyers. In the 1950's, the principal function of the land market was to transfer intact farm units to new operators. In the 1980's, and in the primary agricultural areas, its principal function has been associated with an expansion in the size of holdings.

Land and Building Quality

The changes in the statewide average sales prices by quality of land in 1984 were a decrease of 3 percent to $1477 per acre for "good" land, a slight decrease to $1197 per acre for "average" land, and a decrease of 13 percent to $723 per acre for "poor" land (Table 14). The statewide change in average sales price has to be interpreted carefully because classification by quality differs widely across the state. More significant conclusions can be drawn from the type of buyer associated with particular qualities of land.

Table 14: Proportion of Purchases and Price Paid Per Acre by Type of Buyer For Land of Various Quality, Minnesota, 1983 and 1984

Type of Buyer	LAND QUALITY: Good 1983 %	Good 1983 $	Good 1984 %	Good 1984 $	Average 1983 %	Average 1983 $	Average 1984 %	Average 1984 $	Poor 1983 %	Poor 1983 $	Poor 1984 %	Poor 1984 $
Sole-Tract Operator	39	1110	32	1281	47	996	53	978	14	809	15	739
Expansion Buyer	42	1572	43	1512	47	1257	47	1238	11	887	9	774
Agricultural Investor	22	1540	40	1356	47	1142	35	1129	31	667	25	569
All	40	1516	42	1477	47	1212	47	1197	13	829	11	723

Table 15. Proportion of Purchases and Prices Paid Per Acre by Type of Buyer for Land with Various Quality of Buildings, Minnesota, 1984.

Type of Buyer	Building Quality: Good %	Good $	Average %	Average $	Poor %	Poor $	None %	None $
Sole-Tract Operator	34	1146	36	977	13	883	17	1106
Expansion Buyer	5	1503	12	1327	12	1146	71	1339
Agricultural Investor	15	1591	10	776	26	791	49	1099
All	10	1384	14	1208	13	1059	63	1318

The expansion buyers purchased the highest percentage of sales of "good" land in 1984 (43 percent), but only slightly above the agricultural investors proportion (40 percent). Land of "average" quality was predominately purchased by sole-tract buyers (53 percent) and "poor" land was purchased mainly by agricultural investors (25 percent) in 1984.

As explained in the section on improved and unimproved land characteristics, the expansion buyers tend to purchase land without buildings or with buildings of "poor" quality (Table 15). In 1984, expansion buyers made 71 percent of their purchases for tracts without buildings and 12 percent of their purchases for tracts with "poor" quality buildings. The statewide proportion of reported sales represented by tracts without buildings was 63 percent.

The sole-tract buyers' highest proportion of purchases was for tracts with "average" quality buildings (36 percent) and for investor buyers' the highest proportion of purchases was for tracts without buildings (49 percent). The different interests in building quality between the sole-tract buyer and the expansion buyer is evident by the low proportion of sole-tract buyers purchasing tracts without buildings (17 percent) and the low proportion of expansion buyers purchasing tracts with "good" quality buildings (5 percent).

Method of Finance

Statewide, in 1984, contracts for deed were used in 50 percent of the sales, cash financing was next with 26 percent, and 24 percent

involved mortgage financing (Table 16). The proportion of reported sales using contracts for deed was slightly below the level reported in 1983. However, this decrease was not enough to threaten the dominance of contracts for deed in the market that they have maintained throughout the 1970's and early 1980's.

Contracts for deed represented more than 50 percent of the reported sales in 1984 in the eastern districts, with a high of 75 percent in the Northeast district. In the western districts, the proportions represented by contracts for deed in 1984 were slightly lower at 43 percent for the Southwest district, 49 percent for the West Central district, and 36 percent for the Northwest district. In the western districts, cash and mortgage financing was more frequently reported than in the eastern districts.

Table 16. Proportion of Farm Sales by Method of Financing, By District, Minnesota, 1965, 1970, 1975, 1980-84.

Method of Financing	South-East	South-West	West Central	East Central	North-West	North-East	Minnesota
	percent						
Cash							
1965	17	15	22	21	29	29	19
1970	15	13	14	19	20	31	16
1975	12	16	13	15	18	30	15
1980	14	22	11	16	31	33	18
1981	17	20	17	9	16	10	16
1982	20	24	20	15	28	9	21
1983	25	27	22	10	25	22	23
1984	23	32	23	19	25	13	26
Mortgage							
1965	33	39	41	30	27	3	35
1970	19	23	28	28	40	26	25
1975	28	27	24	36	30	25	28
1980	21	24	25	12	19	12	20
1981	20	22	19	28	27	32	23
1982	17	22	17	13	22	23	19
1983	25	26	25	19	38	17	26
1984	18	25	28	22	39	12	24
Contract For Deed							
1965	50	45	37	49	44	68	46
1970	66	64	58	53	40	43	59
1975	60	58	63	49	52	45	57
1980	65	54	63	72	50	55	61
1981	63	58	63	63	57	58	61
1982	63	54	62	72	50	69	60
1983	50	47	53	71	37	61	51
1984	59	43	49	59	36	75	50

Table 17: Average Sales Price per Acre of Farmland by Method of Financing, by District, Minnesota 1980-84.

Method of Financing	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
	Dollars per Acre						
Cash							
1980	1774	1945	1109	694	877	319	1346
1981	2091	2058	1251	758	1084	397	1613
1982	1490	1992	1014	792	772	407	1326
1983	1367	1723	1058	476	825	328	1315
1984	1312	1520	1046	700	686	100	1253
Mortgage							
1980	1798	2066	914	610	720	443	1470
1981	1900	2021	1115	494	1039	514	1295
1982	1553	1909	1119	772	1240	379	1416
1983	1464	1932	1108	650	808	205	1332
1984	1375	1628	1041	761	797	185	1268
Contract for Deed							
1980	1883	1746	1144	594	717	415	1290
1981	1947	1910	1174	843	851	478	1318
1982	1879	2008	1223	790	834	413	1358
1983	1536	1907	1077	724	632	400	1263
1984	1417	1747	1118	605	648	229	1282

In sales transactions using contracts for deed in 1984, buyers paid the highest statewide average sales price of $1282 per acre. Those using mortgage financing paid $1268 per acre, and cash sales averaged $1253 per acre (Table 17). These differences are small, and it is difficult to conclude that the method of financing had any appreciable effect on sales prices. At the district level the average sales prices paid when using contracts for deed were highest in all districts with the exception of the East Central and Northwest districts.

There is difficulty in interpreting the influence of financing methods on the price of farmland. Contracts for deed are typically used in transfers of higher priced lands, and of lands that are rated average or good in quality (Table 18). The use of contracts for deed in financing transfers of higher priced lands makes questionable any conclusion that contracts for deed inflate sales prices. Contracts for deed are attractive both to buyers and sellers; the buyer benefits from a smaller down payment and the seller can often make more advantageous use of preferential capital gains tax treatment. In a period of declining land values it is not clear that contracts for deed lead to inflated land prices.

Distance of Buyer From Tract Purchased

In 1984 the median distance of buyers from tracts purchased was 3 miles, a decrease of one mile from 1983 (Table 19). This is the lowest figure ever reported. The Minnesota rural real estate market has historically been local in nature, with approximately 50 percent of buyers living within 5 miles of the tracts purchased. This distance included 59 percent of all buyers in 1984. Purchases made by buyers in 1984 who lived less than 10 miles away represented 80 percent of the market.

The local nature of the farmland market is augmented by the prevalence of expansion buyers in the western districts. Buyers living under 10 miles from their purchases in 1984 were 86 percent of the market in the Southwest district, 81 percent in the West Central district, and 87 percent in the Northwest district. These percentages were lower in the eastern districts, at 77 percent in the Southeast district, 63 percent in the East Central district, and 38 percent in the Northeast district. The

Table 18: Price Paid per Acre and Proportion of Sales, by Method of Financing and Quality of Land, Minnesota, 1983 and 1984

Land Quality Class	Method of Financing							
	Cash		Mortgage		Contract for Deed		All Sales	
	1983	1984	1983	1984	1983	1984	1983	1984
Good								
$ per Acre	1505	1441	1564	1463	1511	1506	1517	1481
% of Sales	33	40	42	39	39	43	39	41
Average								
$ per Acre	1360	1228	1190	1223	1155	1191	1204	1207
% of Sales	50	45	47	49	48	47	48	48
Poor								
$ per Acre	844	785	802	799	835	718	818	719
% of Sales	17	15	11	12	13	10	13	11
All Grades								
$ per Acre	1320	1247	1304	1266	1252	1279	1275	1266
% of Sales	100	100	100	100	100	100	100	100

Table 19: Classification of Farm Land Sales by Distance of Buyer's Residence from Tract, by District, Minnesota, 1981, 1982, 1983, and 1984

Distance of Buyer's Residence from Tract Purchased	South-east	South-west	West Central	East Central	North-west	North-east	MN
	percent						
Less than 2 Miles							
1981	24	27	17	13	15	13	21
1982	23	17	25	17	24	14	21
1983	22	17	18	28	15	29	20
1984	20	18	21	23	24	13	20
2-4 Miles							
1981	31	37	29	18	27	13	30
1982	40	42	36	11	41	6	35
1983	34	44	30	14	46	19	35
1984	38	46	40	21	32	0	39
5-9 Miles							
1981	20	18	24	8	26	10	19
1982	16	27	19	17	13	3	19
1983	23	23	27	16	14	5	22
1984	19	22	20	19	31	25	21
10-49 Miles							
1981	18	12	16	25	17	10	17
1982	15	9	13	25	13	19	14
1983	16	13	19	28	15	19	17
1984	18	11	15	23	8	49	15
50-299 Miles							
1981	6	4	14	26	8	32	10
1982	5	5	6	21	5	33	8
1983	3	2	6	12	5	19	5
1984	4	3	3	12	5	13	4
300 Miles and Over							
1981	1	3	1	9	8	23	4
1982	1	0	1	8	6	25	3
1983	0	1	0	2	3	10	1
1984	1	0	1	2	0	0	1
Median distance in Miles							
1981	4	3	5	15	5	55	4
1982	3	4	4	10	3	70	4
1983	4	3	5	6	3	5	4
1984	3	3	3	5	4	11	3

Northeast district was the only district to differ significantly from the statewide local nature of the farmland market, with 49 percent of the purchases made by those living 10 to 49 miles away.

These data emphasize the fact that local buyers dominate the market in the principal agricultural areas of the state. This local market intensified the rapid increase in farmland values in the decade to 1981, and has undoubtedly played a major role in the sharp declines since 1981. In predominantly agricultural areas of the state, farmland prices in the current market depend largely upon what the neighbors will pay.

PART II.

Farmland Sales Prices in the Red River Valley

The decrease in farmland sales prices in the northwest in 1984 was fairly consistent with the decrease in sales prices statewide. This similar decrease in 1984 follows the northwest's greater increase during the 1970's and its greater decrease from 1981 to 1983, when compared to statewide trends. Two distinct areas in the northwest region are used in this analysis, the Red River Valley and a Non-Valley Comparison area. The Red River Valley is defined as the former glacial lake plain and has fertile soils. The Non-Valley Comparison area lies within the Red River drainage basin but has less fertile soils and thus has lower land values (Figure 4).

The distinction between these two areas, based on land market characteristics, was less prominent in 1984 than in past years. Reported sales prices still differ sharply, with a Red River Valley average sales price of $939 per acre and a Non-Valley Comparison area sales price of $524 per acre in 1984. The difference is not as great as in previous years (Table 20). These sales prices represent declines of 6 percent and 7 percent respectively from 1983 levels. This similarity in price declines between the two areas differs from the pattern of the 1970's, when one area or the other typically showed a stronger land market. From 1973 through 1976 sales price increases in the Red River Valley equalled or exceeded price increases in the Non-Valley Comparison area. In contrast, from 1977 through 1981 the largest percentage increases were in the Non-Valley Comparison Area.

The peak in sales prices in the Red River Valley occured in 1982. The nominal change from 1982 to 1984 in the Red River Valley was a decrease of 24 percent. In the Non-Valley Comparison area the peak was in 1981, and the decrease to 1984 was 34 percent. The change in real prices (taking inflation into account) from the respective peaks to 1984, using the GNP implicit price deflator for Personal Consumption Expenditure (PCE), was a decrease of 28 percent in the Red River Valley and a decrease of 38 percent in the Non-Valley Comparison area; deflating with the Consumer Price Index (CPI) the decrease was 30 percent for the Red River Valley and 41 percent for the Non-Valley Comparison area.

The real sales price in 1984 (deflated by the CPI) for the Red River Valley was at about the same level as its real sales price was in 1975. In the Non-Valley Comparison area its real sales price (deflated by the CPI) in 1984 was approximately the same as its 1977 real sales price, two years later than the Red River Valley. Similarly there is a two year difference between the area's real sales price peaks, which were in 1979 for the Red River Valley and in 1981 for the Non-Valley Comparison area. The nominal and real sales price peaks in the Non-Valley Comparison area were both in 1981, but the nominal sales price peak for the Red River Valley was four years later than its peak in real sales price in 1979.

The number of sales reported has shown more stability since 1970 in the Red River Valley than in the Non-Valley Comparison area (Table 20).

Figure 4: The Red River Valley and Comparison Area

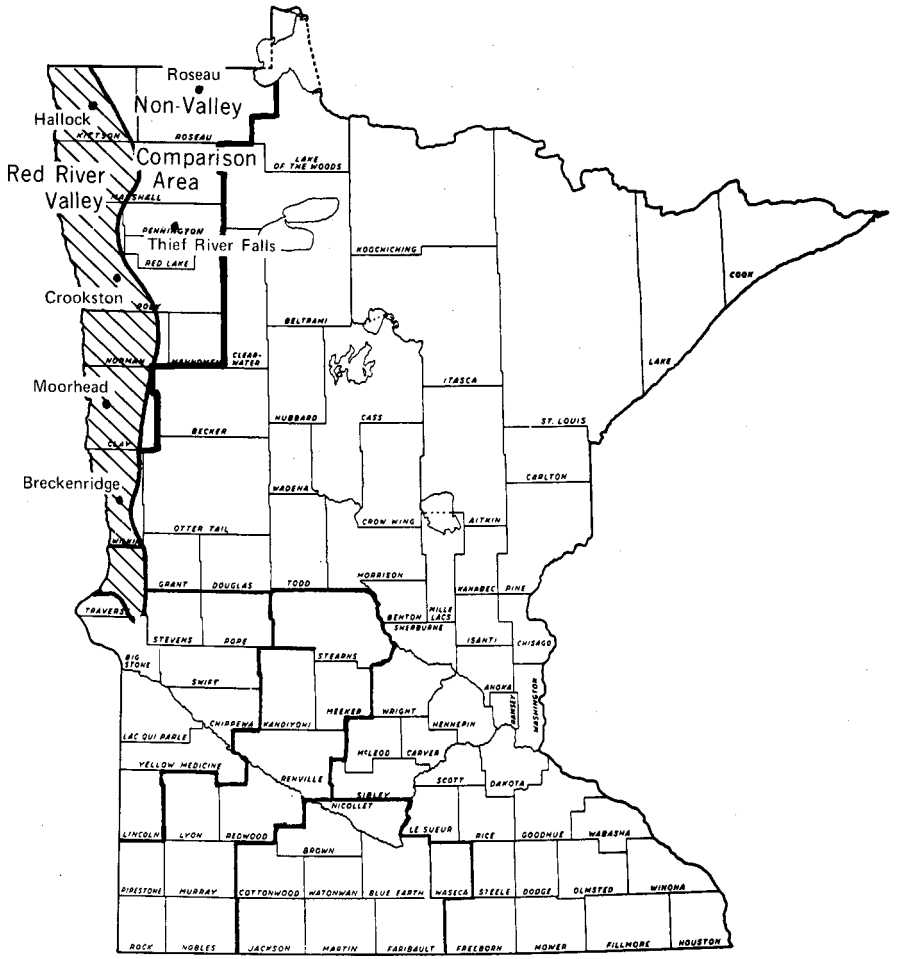


Table 20. Farm Land Sales Prices, Red River Valley and Comparison Area, 1970-1984

Year	Price Per Acre	Percent Change	No. of Sales	Average Size of Tract Sold
	Red River Valley			
	dollars	%	No.	Acres
1970	194	9	70	238
1971	166	-14	50	255
1972	151	-9	53	316
1973	201	33	76	252
1974	359	79	47	231
1975	535	49	63	219
1976	733	37	54	216
1977	780	6	37	284
1978	849	9	65	270
1979	993	17	56	257
1980	1,112	12	56	204
1981	1,195	7	55	281
1982	1,239	4	56	164
1983	998	-19	55	190
1984	939	-6	52	186
	Non-Valley Comparison Area			
1970	69	-34	52	340
1971	66	-4	67	255
1972	78	18	53	260
1973	90	15	77	358
1974	152	69	86	337
1975	227	49	76	270
1976	279	23	88	325
1977	306	10	75	287
1978	385	26	77	290
1979	461	20	84	321
1980	638	38	64	317
1981	788	24	82	284
1982	629	-20	40	287
1983	561	-11	57	249
1984	524	-7	30	248

The coefficient of variation for the number of sales reported from 1970 to 1984 was 16.67 for the Red River Valley and 26.04 for the Non-Valley Comparison area.* One cause of the greater coefficient of variation in the Non-Valley Comparison area is the large drop in the number of sales reported in 1984.

The decreasing trends in the average tract size sold in the Red River Valley and the Non-Valley Comparison area are similar (Table 20). The decrease in the size of tract from 1970 to 1984 was 22 percent for the Red River Valley and 27 percent for the Non-Valley Comparison area. The average tract size in 1984 was 186 acres for the Red River Valley and 248 acres for the Non-Valley Comparison area. Throughout the 15 year period, 1970 to 1984, the Non-Valley Comparison area's average tract sizes were consistently greater than the average tract sizes in the Red River Valley. The similar declines in the average tract sizes of the areas began in the years in which sales prices had their first substantial increase, 1973 for the Red River Valley and 1974 for the Non-Valley Comparison area. For the Red River Valley there was a 26 percent decrease in average tract size from 1973 to 1984. In the Non-Valley Comparison area there was a 26 percent decrease in tract size from 1974 to 1984. A similar decreasing trend in average tract size also occurred in the southwestern part of the state.

Table 21. Proportion of Sales by Type of Buyer, Red River Valley and Non-Valley Comparison Area, 1981-1984

Type of Buyer	Red River Valley				Non-Valley Area			
	1981	1982	1983	1984	1981	1982	1983	1984
Sole-Tract Operator	4	3	2	2	15	26	11	17
Expansion Buyer	90	95	98	98	77	69	81	80
Investor	6	2	0	0	8	5	8	3

Table 22: Average Sales Price Per Acre by Type of Buyer in the Red River Valley and Non-Valley Comparison Areas,1981-1984.

Type of Buyer	Red River Valley				Non-Valley Area			
	1981	1982	1983	1984	1981	1982	1983	1984
Sole-Tract Buyer	1,126	579	1,150	1,250	814	638	646	445
Expansion Buyer	1,276	1,254	995	1,005	792	625	561	544
Investor Buyer	669	1,400	NR	NR	703	613	399	350

NR = None reported

Expansion buyers dominated the land market in both areas in 1984. Purchases by expansion buyers in 1984 accounted for 98 percent of all sales in the Red River Valley and 80 percent in the Non-Valley Comparison area (Tables 21 and 22). In the Non-Valley Comparison area the sole-tract buyer still represented one sixth of the land market in 1984 while the investor buyer's share continued to decline to 3 percent. The proportion of expansion buyers in the Red River Valley in 1983 and 1984 was at its highest level since 1970.

Further impacts of the dominance of expansion buyers in the northwest land market can be observed in the respective percentages and prices paid for improved land (with buildings) and unimproved land. Consistent with the assumption that expansion buyers are usually interested in unimproved land, the data for the Red River Valley showed unimproved land sales representing 85 percent of the sales and improved land sales representing 15 percent of sales in the area (Table 23). In the Non-Valley Comparison area, where expansion buyers were less dominant in the land market in 1984, unimproved land sales represented 60 percent and improved land sales represented 40 percent of sales.

Analysis of these two areas by method of financing shows that the Red River Valley has no distinct preference for either cash financing (27 percent), mortgage financing (38 percent), or contracts for deed financing (35 percent) (Table 24). This lack of preference in the Red River Valley is in contrast to the popularity of contracts for deed and mortgage financing in the 1970's. The Non-Valley Comparison area still

*Coefficient of Variation = (Standard Deviation) / (Mean) x 100.

Table 23. Proportion of Sales and Average Sales Price Per Acre of Improved and Unimproved Land in the Red River Valley and Non-Valley Comparison Area, 1981-1984

Area and Year	Percentage of Sales		Price Per Acre		Price of Unimproved Land as a % of Price of Improved Land
	Improved	Unimproved	Improved	Unimproved	
	%	%	$	$	%
Red River Valley					
1981	25	75	1,083	1,293	119
1982	29	71	1,358	1,187	87
1983	25	75	959	1,027	107
1984	15	85	1,051	918	87
Non-Valley Area					
1981	39	61	886	677	76
1982	42	57	663	596	90
1983	28	72	618	523	85
1984	40	60	485	561	116

Table 24. Proportion of Sales and Price Paid Per Acre by Method of Finance, Red River Valley and Non-Valley Comparison Area, 1983-1984

Method of Finance	Red River Valley				Non-Valley Area			
	1983		1984		1983		1984	
	%	$	%	%	%	$	%	$
Cash	33	1,021	27	911	17	533	21	550
Mortgage	40	1,019	38	1,008	38	627	38	551
Contract for Deed	27	965	35	1,037	45	537	41	485

reports contracts for deed as the most popular method of finance but this method has lost some of its popularity of the 1970's. Mortgage financing and cash financing both increased in the Non-Valley area, reflecting the decline in use of contracts for deed.

PART III.

The Farmland Market in Southwest Minnesota

The southwestern area of the state has been divided into three areas based on climatic factors and crop yield functions to analyze the influence of these factors on land values (Figure 5). The Low-Risk area is characterized by the highest land values and historically lower climatic fluctuations. The High-Risk area has the lowest land values of the three areas and the greatest climatic fluctuations, while the Transitional area falls in between.

In the analysis of these three areas in 1984 it would not have been surprising to find changes from 1983 in the land value characteristics of the High-Risk and Transitional areas induced by the 1983 drought. Based on crop yield fluctuations and precipitation levels, the area that seems to have been affected most by the 1983 drought was the Transitional area. These physical variables are reinforced by the changes in land value characteristics of the Transitional area from 1983 to 1984, a decrease in average sales price of 15 percent, a decrease in the number of purchases made by investor buyers, and a decrease in the proportion of purchases of high quality land (Table 25). In comparison, the average sales price in 1984 for the Low-Risk area decreased by 9 percent, while the High-Risk area decreased only 1 percent from 1983 levels. The proportion of sales to expansion buyers was exceptionally high in all three areas, ranging from 83 to 95 percent of all sales in 1984 (Table 26).

The changes in nominal sales prices in these three areas from 1981 to 1984 represented an decrease of 14 percent in the High-Risk area, a decrease of 19 percent in the Transitional area, and a decrease of 29 percent in the Low-Risk area. In real terms (taking inflation into account) the changes in sales value from 1981 to 1984 were a decrease of 20 percent in the High-Risk area, a decrease of 25 percent in the Transitional area, and a decrease of 34 percent in the Low-Risk area, using the GNP implicit price deflator for Personal Consumption Expenditure (PCE). The large decrease in deflated (real) sales prices in the Low-Risk area is particularly significant since this area contains some of Minnesota's best farmland. This large decrease also suggests that the impact of the general weakness in farmland values in the Low-Risk area has outweighed any climatic influences on recent land prices.

The Low-Risk area contains the highest valued land in the state with an average sales price of $1954 per acre in 1984. However, the differences in value among the Low-Risk, Transitional and High-Risk areas are narrowing. In all three areas the average size of tract reported sold has been decreasing since the 1970's. In addition to this decrease in tract size was the increase in the number of sales reported in 1984 in the Low-Risk and Transitional areas, and a decrease in the number of sales reported in the High-Risk area.

Consistent with the trend for the state as a whole, there has been an increase in the proportion of expansion buyers at the expense of sole-tract buyers in all three areas (Table 26). In comparing the percentage of sales

Figure 5 High-Risk, Low-Risk and Transitional Areas of Southwest Minnesota

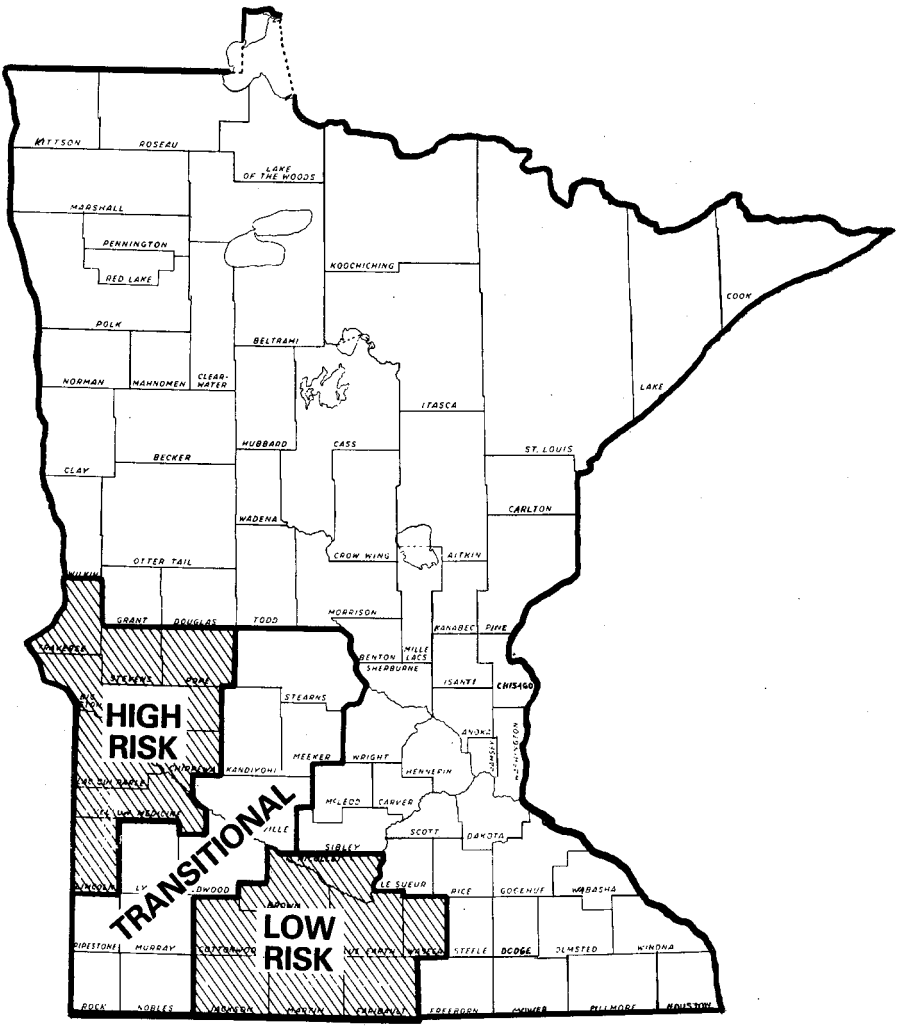


Table 25: Analysis of Reported Farm Sales, High Risk, Transitional, and Low Risk Areas, S.W. Minnesota, 1981-1984.

Item	1981	1982	1983	1984
		High Risk Area		
Number of Sales (Jan.-June)	167	114	118	109
Average Size Tract (acres)	191	158	162	167
Average Sales Price Per Acre (Dollars)	1159	1140	1016	1001
Changes in Sales Price Over Preceding Year	22	-2	-11	-1
		Transition Area		
Number of Sales (Jan.-June)	226	180	231	281
Average Size Tract (Acres)	156	136	150	127
Average Sales Price Per Acre (Dollars)	1680	1698	1590	1356
Changes in Sales Price Over Preceding Year	8	1	-6	-15
		Low Risk Area		
Number of Sales (Jan.-June)	153	136	200	253
Average Size Tract (Acres)	111	110	110	101
Average Sales Price Per Acre (Dollars)	2760	2529	2145	1954
Changes in Sales Price Over Preceding Year	19	-8	-15	-9

made to expansion buyers in 1974 and 1984, there has been an increase from 57 to 83 percent of all sales in the High-Risk area, an increase from 64 to 85 percent in the Transitional area, and an increase from 84 to 95 percent in the Low-Risk area. The dominance of expansion buyers in the Low-Risk area is especially important, since they exercise a major influence on land values in the areas of highest priced land in the state. Expansion buyers accounted for 240 out of a total of 252 reported sales in the Low-Risk area for the first six months of 1984.

Table 26. Proportion of Sales and Average Price Per Acre, by Type of Buyer in the High Risk, Transitional, and Low Risk Areas, S.W. Minnesota, 1981-84.

Type of Buyer and Year	High Risk Area		Transitional Area		Low Risk Area	
	%	$	%	$	%	$
Operating Farmer						
1981	5	1165	13	1557	3	2763
1982	6	1246	11	1733	2	2447
1983	7	994	14	1249	4	1875
1984	6	1207	10	1190	2	1699
Expansion Buyer						
1981	88	1171	76	1752	93	2790
1982	83	1135	81	1742	94	2569
1983	85	1026	79	1678	92	2183
1984	83	996	85	1373	95	1979
Investor Buyer						
1981	6	1172	10	1405	4	2765
1982	11	1127	8	1302	4	1617
1983	7	1052	8	1368	4	2368
1984	11	895	5	1330	3	2098

Table 27. Proportion of Sales and Price Paid Per Acre, by Method of Finance, in the High Risk, Transitional and Low Risk Areas, Minnesota, 1981-84

Method of Financing	High Risk Area		Transitional Area		Low Risk Area	
	%	$	%	$	%	$
Cash						
1981	14	1335	19	1646	28	2893
1982	23	1085	25	1675	19	2502
1983	30	984	23	1497	26	2078
1984	30	1002	24	1085	35	1901
Mortgage						
1981	24	1042	19	1842	24	2583
1982	16	1160	21	1576	26	2546
1983	24	1106	19	1604	34	2226
1984	26	1010	25	1286	25	1941
Contract for Deed						
1981	62	1165	63	1626	47	2680
1982	61	1149	54	1758	55	2495
1983	46	1002	58	1598	40	2175
1984	44	1051	51	1476	40	2029

The methods of finance preferred in all three areas were contracts for deed; 44 percent in the High-Risk area, 51 percent in the Transitional area, and 40 percent in the Low-Risk area (Table 27). However, a significant proportion of the Low-Risk area's reported sales, 35 percent, used cash financing. These proportions in 1984 continued the trend away from contract for deed financing and towards cash financing. In all three areas the proportion of reported sales using cash financing has approximately doubled from 1974 to 1984. The proportion of mortgage financing has decreased slightly while the proportion of contracts for deed has decreased by a fifth during this 10 year period. The highest prices paid in 1984 were for sales financed with contracts for deed in the Low-Risk area, averaging $2029 per acre. Sales prices (classified by method of finance) in 1984 declined in the Low-Rise and Transitional areas but reported small increases over cash and contract for deed financing in the High-Risk area.

In 1984 the majority of sales represented "average" quality land in the High-Risk and Transitional areas and "good" quality in the Low-Risk area (Table 28). From 1974 to 1984, the distribution of sales by quality of land for the three areas showed a decrease in sales of "poor" quality land and an increase in sales of "good" quality land. The sales prices per acre by quality of land continued to decline in all three areas, the third consecutive decline since 1982. The highest price paid was for "good" quality land in the Low-Risk area, $2150 per acre, a decline of 13 percent from 1983. Sales prices in 1984 were significantly higher in the Low-Risk area than the High-Risk area or the Transitional area for all three qualities of land. The sale price declines from 1983 to 1984 in the High-Risk area were 11 percent for "good" quality land, 6 percent for "average" quality land, and 20 percent for "poor" quality land.

Table 28: Proportion of Sales and Price Paid Per Acre, By Quality of Land in the High Risk, Transitional, and Low Risk Areas, Minnesota, 1981-1984

Quality of Land and Year	High Risk Area		Transitional Area		Low Risk Area	
	%	$	%	$	%	$
Good						
1981	47	1342	36	2034	47	3153
1982	47	1329	46	1968	42	2708
1983	43	1258	46	1732	45	2447
1984	43	1126	39	1557	48	2150
Average						
1981	37	1112	48	1641	43	2592
1982	45	1031	37	1616	47	2568
1983	39	1018	44	1536	45	2035
1984	49	960	51	1286	43	1934
Poor						
1981	16	620	16	1091	11	1841
1982	8	716	17	1142	11	1890
1983	18	613	10	1042	10	1600
1984	8	488	10	868	10	1261

PART IV.

Comparison of Land Value Data from the U.S. Census of Agriculture and the Minnesota Survey

In addition to sales prices and estimated values obtained from the Minnesota Rural Real Estate Market Survey, the U.S. Census of Agriculture also reports county and statewide values of farmland. The figures reported by these two sources should only be compared in general magnitude because different methods were used in collection of the data. Beginning with the 1978 census a farm is defined to be a place selling (or under normal conditions would have sold) $1000 or more of agriculture products during the census year. Using this definition, a sample of approximately twenty percent of self-reporting farmers provide the data on county and statewide farmland values for the Census of Agriculture. These self-reported land values are thus obtained from a different source than that used in the annual Minnesota survey of brokers, bankers, farm managers, rural appraisers, and local officials. The latter are knowledgeable in their local land market and are asked for their estimates of land values and reports of actual sales transactions in their areas.

Comparison of county data from these three sources (Census, Estimated Values, and Actual Sales) is useful in revealing any pattern of systematic discrepancies, and their possible causes. Tables 30a and 30b show county data from the U.S. Census of Agriculture and the Minnesota survey for the years 1978 and 1982. The data are presented pictorially in Figure 6, showing the counties in which the U.S. Census of Agriculture land value figures were higher or lower than those reported by the Minnesota survey for the census years 1969, 1974, 1978, and 1982. Keeping in mind that the census data are self-reported, Figure 6 shows a tendency for holders of lower valued land in the northeast to overvalue their land in contrast to undervaluation by the holders of higher valued land in the south and west.

The comparison of land value data from the U.S. Census of Agriculture and the Minnesota survey in 1982 reveals a pattern similar to that shown for the 1969 comparison of these two land value reports. In both 1969 and 1982, the self-reporters in 45 counties undervalued their land while only a small number overvalued their land (Table 29) . Those counties that undervalued their land in 1982 had an average estimated value of $1595 per acre and those that overvalued their land had an average estimated value of $731 per acre.

The number of counties in which the self-reporters overvalued (17 and 10 counties) or undervalued (27 and 36 counties) their land in the 1974 and 1978 U.S. Agricultural Census years were similar, but significantly different from the 1969 and 1982 levels. The similarity between the number of over or undervalued counties in 1974 and 1978 may reflect the buoyant attitude of self-reporters during the 1973 to 1981 land boom. The 1969 and 1982 resemblance, in number of over and undervalued counties, may be explained by a similarity in reporters' attitudes before and after the 1973 to 1981 land boom.

Figure 6: Alternate Measures of Land Value: The U.S. Census of Agriculture and the survey.

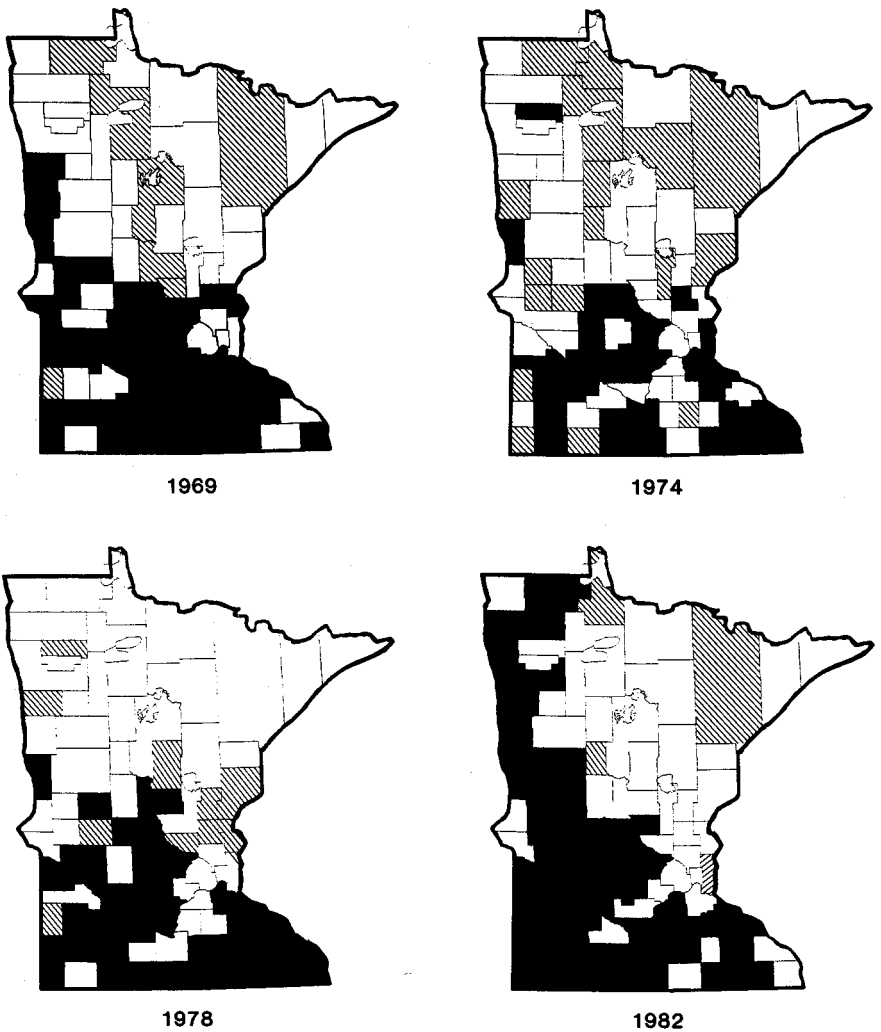


Table 30a: Comparison of Dollar Value Per Acre According to Three Different Sources, by Counties, Minnesota, 1978

County	Reporters' Estimates 1978	U.S. Census of Agriculture 1978	Reported Sales 1978
	dollars per acre		
REGION 1			
Kittson	--	441	198
Marshall	567	524	372
Norman	700	766	676
Pennington	417	442	394
Polk	767	644	574
Red Lake	400[a]	574	416
Roseau	417	406	382
REGION 2			
Beltrami	283	355	358[b]
Clearwater	350	285	214
Hubbard	--	329	225
Lake of the Woods	300[a]	322	--
Mahnomen	500[a]	448	470
REGION 3			
Aitken	250[a]	343	--
Carlton	325[a]	368	282
Cook	--	426	--
Itasca	367	379	--
Koochiching	250[a]	284	399[b]
Lake	150	417	--
St. Louis	479	523	170[b]
REGION 4			
Becker	450	460	664
Clay	1050	831	799
Douglas	720	653	906
Grant	950[a]	816	1158
Otter Tail	541	563	688
Pope	629	659	512
Stevens	925	854	831[b]
Traverse	900[a]	649	954
Wilkin	1044	858	1046
REGION 5			
Cass	317	284	262
Crow Wing	285	374	332
Morrison	575	474	512
Todd	450	552	566
Wadena	284[a]	416	422

(continued)

Table 30a: Comparison of Dollar Value Per Acre According to Three Different Sources, by Counties, Minnesota, 1978 (continued)

County	Reporters' Estimates 1978	U.S. Census of Agriculture 1978	Reported Sales 1978
	dollars per acre		
REGION 6W			
Big Stone	650	676	688
Chippewa	1208	976	1207
Lac Qui Parle	852	764	796
Swift	813	787	940
Yellow Medicine	1036	914	900
REGION 6E			
Kandiyohi	1100	946	912
McLeod	1325	1249	1303
Meeker	1113	933	1065
Renville	1557	1340	1443
REGION 7W			
Benton	---	736	758
Sherburne	650	819	628
Stearns	799	714	796
Wright	1281	1128	1144
REGION 7E			
Chisago	850	871	770
Isanti	688	775	579
Kanabec	400	544	371
Mille Lacs	470	593	907
Pine	403	449	378
REGION 8			
Cottonwood	1556	1427	1447
Jackson	1750	1488	1682
Lincoln	717	767	757
Lyon	1158	921	999
Murray	1225	1113	1167
Nobles	1543	1335	1213
Pipestone	1014	950	994
Redwood	1456	1107	1357
Rock	1214	1149	1178
REGION 9			
Blue Earth	1835	1512	1482
Brown	1750	1278	1370
Faribault	2125	1640	2099
Le Sueur	1583	1237	1217
Martin	2167	1753	2080

(continued)

Table 30a: Comparison of Dollar Value Per Acre According to Three Different Sources, by Counties, Minnesota, 1978 (continued)

County	Reporters' Estimates 1978	U.S. Census of Agriculture 1978	Reported Sales 1978
	dollars per acre		
REGION 9 (cont)			
Nicollet	1594	1398	1559
Sibley	1504	1292	1532
Waseca	1538	1492	1672
Watonwan	1915	1658	1912
REGION 10			
Dodge	1521	1393	1594
Fillmore	1126	938	1176
Freeborn	1642	1383	1492
Goodhue	1250	1099	1208
Houston	1138	743	932
Mower	1372	1297	1466
Olmstead	1380	1240	1478
Rice	1413	1289	1268
Steele	1525	1381	1804
Wabasha	1020	1000	1127
Winona	1367	915	1425
REGION 11			
Anoka	1000[a/]	944	1500[b/]
Carver	1508	1318	1313
Dakota	1506	1291	1558
Hennepin	--	1726	1990[b/]
Ramsey	--	3300	--
Scott	1563	1378	1296
Washington	1567	1541	1450
Minnesota	899	901	980

a/ Less than 3 estimates given in 1978.
b/ Less than 3 sales reported in 1978.

Table 30b. Comparison of Dollar Value Per Acre According to Three Different Sources, by Counties, Minnesota, 1982

County	Reporters' Estimates 1982	U.S. Census of Agriculture 1982	Reported Sales 1982
	dollars per acre		
REGION 1			
Kittson	--	580	220[b]
Marshall	1000	694	735
Norman	1033	970	1012
Pennington	765[a]	656	839[b]
Polk	1045	852	972
Red Lake	700[a]	712	868
Roseau	633	595	655
REGION 2			
Beltrami	325[a]	442	431
Clearwater	550[a]	535	423
Hubbard	325	453	--
Lake of the Woods	467	504	441
Mahnomen	863[a]	742	669
REGION 3			
Aitken	500[a]	511	278[b]
Carlton	500[a]	579	375
Cook	--	659	--
Itasca	--	494	--
Koochiching	300[a]	414	192[b]
Lake	--	734	--
St. Louis	366	546	244
REGION 4			
Becker	1000[a]	766	--
Clay	1203	1047	1428
Douglas	898	769	804
Grant	1153	1063	1069
Otter Tail	833	677	710
Pope	1006	877	966
Stevens	1217	1124	1162
Traverse	--	908	1477
Wilkin	1233	1054	1283
REGION 5			
Cass	--	491	349[b]
Crow Wing	388	563	300[b]
Morrison	755	679	438
Todd	717	743	805
Wadena	525	572	446

(continued)

Table 30b. Comparison of Dollar Value Per Acre According to Three Different Sources, by Counties, Minnesota, 1982 (continued)

County	Reporters' Estimates 1982	U.S. Census of Agriculture 1982	Reported Sales 1982
	dollars per acre		
REGION 6W:			
Big Stone	820	868	1062
Chippewa	1456	1218	1630
Lac Qui Parle	1075	996	1180
Swift	1130	1056	1165
Yellow Medicine	1280	1038	1338
REGION 6E:			
Kandiyohi	1672	1272	1585
McLeod	1907	1604	2225
Meeker	1530	1418	1325
Renville	2259	1595	2483
REGION 7W:			
Benton	1000	906	988
Sherburne	700[a/]	1162	1324
Stearns	1193	1073	1232
Wright	1756	1642	1909
REGION 7E:			
Chisago	1000	1001	1270
Isanti	875	1084	845[b/]
Kanabec	600[a/]	708	783
Mille Lacs	1200[a/]	831	975
Pine	850[a/]	645	375
REGION 8:			
Cottonwood	2188	1674	2190
Jackson	2419	1991	2429
Lincoln	900	870	925
Lyon	1368	1141	1316
Murray	1613	1244	1536
Nobles	2061	1462	2079
Pipestone	1310	1084	1242
Redwood	2114	1630	2018
Rock	1607	1383	1490

(continued)

Table 30b. Comparison of Dollar Value Per Acre According to Three Different Sources, by Counties, Minnesota, 1982 (continued)

County	Reporters' Estimates 1982	U.S. Census of Agriculture 1982	Reported Sales 1982
	dollars per acre		
REGION 9:			
Blue Earth	2617 a/	1963	2604
Brown	2400 a/	1877	2450
Faribault	2480	1959	2673
LeSueur	2089	1737	1740
Martin	2727	2103	2744
Nicollet	2283 a/	1854	2335
Sibley	2000 a/	1847	2365
Waseca	2100	1938	2692
Watonwan	2475	1868	2555
REGION 10:			
Dodge	2400 a/	1626	2201
Fillmore	1316	1104	1486
Freeborn	1733	1795	1854
Goodhue	1650	1428	1729
Houston	963	963	1209
Mower	1736	1631	1766
Olmsted	1711	1418	2514
Rice	1689	1636	1703
Steele	2014	1654	1876
Wabasha	1250 a/	1087	1447 b/
Winona	1450 a/	1190	1581 b/
REGION 11:			
Anoka	1450 a/	1728	1000 b/
Carver	1730	1853	2463
Dakota	2338	1659	1588
Hennepin	--	2448	--
Ramsey	--	4795	--
Scott	2100	1756	1813
Washington	1567	2051	1349
Minnesota	1179	1165	1360

a/ Less than 3 estimates given in 1982.
b/ Less than 3 sales given in 1982.

One reason for the discrepancies in land value data between the U.S. Census of Agriculture and the Minnesota survey is that the census data are self-reported. This self-reporting of land values introduces a location bias leading to over or undervaluation in certain counties. These biases are not present in the Minnesota survey because the data are obtained from secondary sources, not from the owners of the land. However, biases do arise from the Minnesota survey's actual sales data. These biases may arise from the influence of the type of buyer or the type of financing on the sales transaction prices and thus may also be reflected in estimated land values.

Even though there are some large discrepancies between the U.S. Census of Agriculture and the Minnesota survey on a county by county basis, these two sources of land values are suprisingly close statewide. In 1982 the difference between the census figures and the estimated value from the Minnesota survey was less than 2 percent, as it was in 1978. The census data seem to give a reliable land value at the statewide level but are biased at the county level.

Table 29: Comparison of Number of Counties in the Minnesota Survey with Estimated Values Above or Below the U.S. Agricultural Census Values, 1969, 1974, 1978, and 1982.

	Number of Counties			
	Year			
	1969	1974	1978	1982
Census data below Minnesota Survey Estimated Values or Actual Sales Prices	45	27	36	45
Census data above Minnesota Survey Estimated Values or Actual Sales Prices	7	17	10	4

PART V.

Deflated Farmland Values

Historical Trends in Estimated Minnesota Farm Land Values, 1910-1984

OVERVIEW

Minnesota has experienced two land booms since 1910. The first, from 1910 to 1920, saw nominal farm land values increase more than two and one-half times, from $41 to $104 per acre. A steady decline after 1920 took values to a low of $40 in 1934. The 1920 level, in nominal dollars, was not reached again until the outbreak of the Korean war in 1951-52, or 31 years after the peak of the first boom.

From 1934 to 1972 farm land values rose slowly but steadily, interrupted only by small declines of $2 per acre in 1940, 1953, and 1960. By 1972, the average value per acre of Minnesota farm land had reached $248 per acre, over six times the level of 1934 and 2.3 times the level of 1952.

The second land boom lasted ten years, from 1972 to 1981, with nominal values rising from $248 to $1310 per acre, or 5.3 times. The decline from 1981 to 1984 has been rapid, to $927 per acre or 29 percent below the 1981 peak.

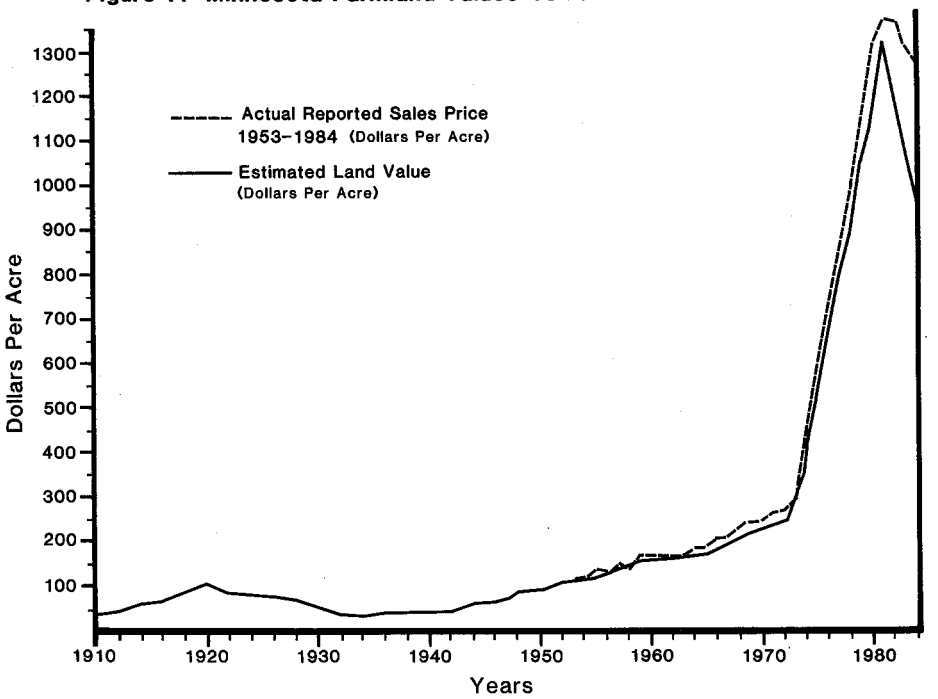
When nominal (current year) prices are deflated by the Consumer Price Index (CPI) or the GNP Implicit Deflator for Personal Consumption Expenditures (PCE), a somewhat different picture emerges. In terms of real value (real purchasing power), the peak in the first land boom was reached in 1914-16. Real values did not return to this level until 1973, deflated by the CPI, or until 1974 if deflated by the PCE index. In dollars of constant purchasing power, the peak in Minnesota farm land values associated with the First World War was not surpassed for almost sixty years.

During the second land boom, 1972-1981, real values increased 2.4 times, using the CPI deflator, or 2.7 times, using the PCE index. Since 1981, the decline in real values has been 38 percent, using either the CPI or the PCE deflators. Real values of Minnesota farm land in 1984 were back to the levels of 1974-75. They were still approximately 50 percent above the average level that had characterized the 5 years, 1968-72, immediately preceeding the start of the most recent boom.

An Analysis of Deflated Farmland Values

Minnesota's estimated rural land values (nominal) increased erratically from 1920 to 1972 with a period of decline in land values from 1922 to 1934 (Figure 7). Nominal average estimated land values and nominal average sales prices remained fairly close from 1953 to 1981. In 1953 the average sales price measure was first separately distinguished in this annual survey. Of the two measures, estimated land values and sales price, the sales price measure has usually been slightly higher. After the peak in land values in 1981, these two nominal measures diverged, with average estimated land values in 1984 falling to $927 per acre and average sales prices falling only to $1263 per acre.

Figure 7: Minnesota Farmland Values 1910-1984

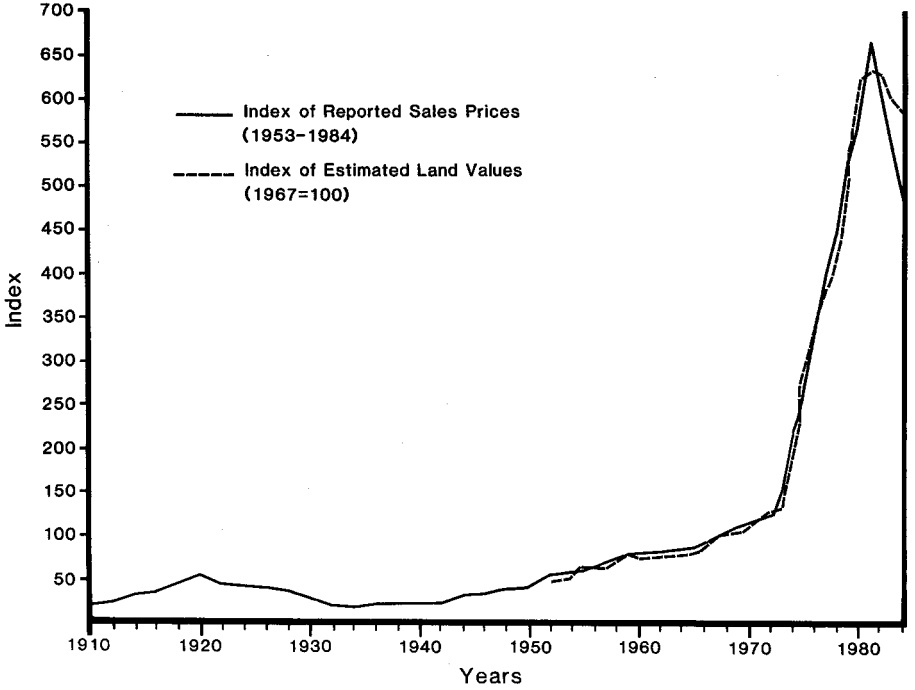


The coefficient of variation for the relatively nonvolatile period in nominal estimated land value fluctuations, 1934 to 1972, was 47.92 percent. The coefficient of variation is a measure of the relative variation in the observed data. Following this 39 year period came the rapid increase in estimated land values from 1973 to 1981 and the dramatic decline in land values from 1981 to 1984. The coefficient of variation for the nominal estimated land values from 1973 to 1984 was 37.26 percent. For the combined period 1934 to 1984 the coefficient of variation was 113.16 percent. This coefficient of variation, 113.16 percent, shows the impact of the volatility in nominal estimated land values during the past 12 years, 1973 to 1984.

A similar pattern of nonvolatility in nominal sales prices from 1953 to 1972 exists, as is exhibited by the relatively small coefficient of variation for this period of 26.28 percent. This 20 year period of fairly constant increases, 1953 to 1972, was followed by the rapid increase in nominal sales prices from 1973 to 1981 and the decrease from 1981 to 1984. The coefficient of variation in sales prices for this 12 year period, 1973 to 1984, was 38.85 percent. Further evidence of the volatility in nominal sales prices during the 1970's and 1980's is exhibited by the coefficient of variation for the combined period, 1953 to 1984, of 93.88 percent. Both of these measures, estimated land values and sales prices, have reported two distinct patterns in their data series, historical stability, and recent volatility.

The percentage change in nominal average estimated land values from 1920 to 1972 was 138 percent ($104 to $248) and from 1973 to 1984 was 211 percent ($298 to $927). The percentage change in nominal average sales

Figure 8: Minnesota Farmland Values 1910-1984



prices from 1953 to 1972 was 163 percent ($111 to $293) and from 1973 to 1984 was 324 percent ($298 to $1263). These percentage changes and the coefficients of variation for the nominal levels of average estimated land values and average sales prices show the dramatic change in land values from 1973 to 1984.

Indexes of sales prices and estimated land values:

This section analyzes the change in land values by converting the actual nominal sales prices and nominal estimated land values into indexes, with 1967=100. These indexed values will then be compared with various price indexes from 1928 to 1984. As seen in Figure 8, the effect of indexing the actual sales prices and estimated land values has brought the two measures quite close together, except for the period from 1981 to 1984. In this period, 1981 to 1984, the average sales price index was below the average estimated land values index, contrary to the relationship of the actual values. Some of the same trends still remain when the two measures are indexed: a relatively constant increases since 1920 (with a decrease from 1922 to 1934), a sharp increase from 1973 to 1981, and a sharp decline from 1981 to 1984.

The average estimated nominal land values index discussed above is the index that will be used for comparison with the Consumer Price Index (CPI). The estimated land value index is not affected by shifts in the location or number of high and low valued land sales, as are the average sales prices, and is thus a more consistent comparison figure. The average estimated land values index was also chosen for comparison because the data extend back to 1910 while the average sales prices data only extend back to 1953.

Table 31: Minnesota Average Estimated Value, Estimated Value Index, CPI 1910-1984.

Year	Minnesota Average Estimated Value Per Acre[1]	CPI Price Deflator (1967=100)[3]	Deflated Estimated Value by CPI (1967 dollars)[4]	Estimated Value Index (1967=100)[2]
1910	$41	28.0	$146	$21.1
1912	49	29.0	169	25.2
1914	58	30.1	193	29.9
1916	68	32.7	208	35.0
1918	82	45.1	182	42.2
1920	104	60.0	173	53.6
1922	85	50.2	169	43.8
1924	78	51.2	152	40.2
1926	76	53.0	143	39.2
1928	71	51.3	138	36.6
1930	60	50.0	120	30.9
1932	45	40.9	110	23.2
1934	40	40.1	100	20.6
1936	44	41.5	106	22.7
1938	45	42.2	107	23.2
1940	43	42.0	102	22.2
1942	48	48.8	98	24.7
1944	56	52.7	106	28.9
1946	65	58.5	111	33.5
1947	72	66.9	108	37.1
1948	79	72.1	109	40.7
1949	83	71.4	116	42.8
1950	85	72.1	118	43.8
1951	99	77.8	127	51.0
1952	107	79.5	135	55.1
1953	105	80.1	131	54.1
1954	113	80.5	140	58.2
1955	121	80.2	151	62.4
1956	126	81.4	155	64.9
1957	138	84.3	164	71.1
1958	147	86.6	170	75.8
1959	157	87.3	180	80.9
1960	155	88.7	175	79.9
1961	156	84.6	174	80.4
1962	159	90.6	175	82.0
1963	161	91.7	176	83.0
1964	166	92.9	179	85.6
1965	171	94.5	181	88.1
1966	183	97.2	188	94.3
1967	194	100	194	100

(continued)

Table 31: Minnesota Average Estimated Value, Estimated Value Index, CPI 1910-1984 (continued)

Year	Minnesota Average Estimated Value Per Acre 1/	CPI Price Deflator (1967=100) 3/	Deflated Estimated Value by CPI (1967 dollars) 4/	Estimated Value Index (1967=100) 2/
1968	211	104	203	108.8
1969	223	109	205	114.9
1970	227	116	196	117.0
1971	232	121	192	119.6
1972	248	125	198	127.8
1973	298	133	224	153.6
1974	423	147	286	218.0
1975	525	161.2	325	270.6
1976	667	170.5	391	343.8
1977	794	181.5	437	404.3
1978	889	195.4	455	458,2
1979	1040	217.5	478	536.1
1980	1120	246.8	454	577.3
1981	1310	272.4	481	675.3
1982	1179	289.1	407	607.7
1983	1065	297.9	357	549.0
1984	927	308.5	300	477.8

1/ Source: Minnesota Rural Real Estate Market, Univ. of Minn.

2/ $\frac{\text{Estimated Value Current Year}}{\text{Estimated Value 1967}}$ = Estimated Value Index (1967 = 100)

3/ USDA, Agr. Finance Data Book, Nov. 1979; Survey of Current Business, 1979-1984.

4/ $\frac{\text{Nominal Estimated Value}}{\text{CPI Deflator}}$ = 1967 dollars.

CPI:

There are many indexes that we can use to compare the index of average estimated land values. One such comparison index is the Consumer Price Index (CPI). The estimated value series, deflated by the CPI is presented in Table 31 for the period 1910 to 1984. The CPI (1967=100) increased from 60.0 in 1920 to 308.5 in 1984 while the increase in the estimated land values index was from 53.6 in 1920 to 477.8 in 1984. Most of this increase occured during the 1973 to 1981 period when the estimated land values index rose from 153.6 to 675.3 (339 percent) while the CPI for the same period rose only from 133 to 272 (104 percent). The decline in the index of estimated land values was from 675.3 in 1981 to 477.8 in 1984, while the CPI increased from 272 in 1981 to 308.5 in 1984.

Table 31a: Annual Growth Rate of Real Minnesota Estimated Land Values, Average Real U.S. Government Bond Yields, 1953-1960, 1961-1970, 1971-1980, and 1981-1984.

Period	Annual Growth Rate Real Estimated Land Values	Average Real USGBY
	- - - - - - - - Percentage - - - - - - - -	
1953-1960 (8 years)	3.686	3.960
1961-1970	1.197	5.000
1971-1980	8.987	4.700
1981-1984 (4 years)	-11.130	4.330

U.S. Government Bond Yields Index:

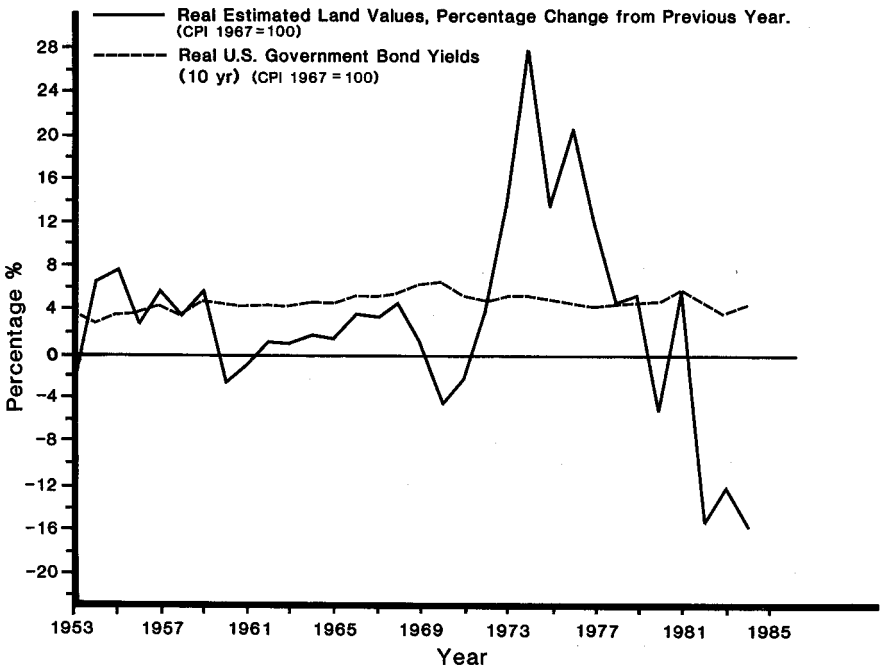
U.S. Government Bond Yields (10 year) are another measure against which the estimated land values index can be compared. A comparison provides one possible indication as to when it was better to invest in U.S. Government Bonds and when it was better to invest in rural land. After deflating both measures by the CPI (1967=100), Figure 9 shows that during the 1950's and 1960's investors chose between the slow constant increase in real U.S. Government Bond Yields (USGBY) and an erratic trend in real estimated land values. If a rate of return to farming, for instance 4 percent, is added to the percentage changes (from the previous year) in real estimated land values, from 1953 to 1984, the positive percentage changes in real estimated land values are greater than the real USGBY except for the years 1959-1961, 1968-1971, 1979-1980, and 1981 to 1984. This suggest that from 1953 to 1981 the return to farmland and farming was an attractive investment during most years.

In 1969-1970 the two measures (percentage change in real estimated land values and real USGBY) diverged with real USGBY continuing to increase while nominal estimated land values decreased by 4.4 percent. The two measures diverged again in 1972-1973 when real estimated land values increased by 13.1 percent and real USGBY increased by only 5.1 percent. Increases in real estimated land values continued to be larger than the increases in real USGBY until 1977 through 1979, when the two measures increased at approximately the same rate of 5 percent. In 1979-1980 real USGBY continued to increase while real estimated land values declined by 5.1 percent. At this time, 1979-1980, investors should have begun to question continued investment in farmland versus U.S.

Government Bonds. This signal to consider switching investments came two years before the decline in land values in 1981-1982.

An additional analysis of real USGBY (10 year) and real estimated land values can be made by comparing annual growth rates of real estimated land values with the real USGBY. Comparisons of these two measures for the periods 1953-1960, 1961-1970, 1971-1980, and 1981-1984 are shown in Table 31a. As seen in Table 31a the annual growth rates of real estimated land values and real USGBY were close during the period 1953-1960. However, during the 1961-1970 period the real USGBY was more than two times greater than the annual growth rate of real estimated land values. This reversed for the 1971-1980 period when the annual growth rate for real estimated land values was two times greater than real USGBY for the same period. The growth rate of real estimated land values greater than that for real USGBY was consistent with the strong land market during the 1970's. During the most recent period, 1981-1984, the growth rate for real estimated land values was negative and thus considerably less than the growth rate of 4.33 percent for real USGBY for this period.

Figure 9: Percentage Change in Minnesota Estimated Land Values, Real U.S. Government Bond Yields (10 year), 1953-1984.



STATISTICAL APPENDIX

One disadvantage of the use of average prices based upon actual sales is that the averages do not indicate the degree of variation in the data. Quality of land varies greatly in any one county or district, for example, but it is not possible to derive an accurate measure of land quality from this survey. Over time, the quality of land involved in the sales from year to year may also vary.

One measure of this variability in prices is indicated in Table 34. The standard deviation represents the dollar range from the average within which approxiamtely two-third of the reported sales fall. For example, in 1984 the Southwest district had an average of $1658 per acre with a standard deviation of $586. This means that approximately two-thirds of the sales in that district fell between $1072 and $2244 per acre. The coefficient of variation is the standard deviation divided by the average sales price, and multiplied by 100 to convert it to a percentage form. In the above example the coefficient of variation is 35.3 percent. Wider variations in sales price above and below the average create larger coefficients of variation.

Table 32. Average Estimated Value Per Acre of Farm Real Estate in Minnesota by Districts, 1910-11 through 1944-45, by Two-Year Periods, and Annually, 1946 through 1984

Years	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
1910-11	58	54	39	24	24	11	41
1912-13	69	69	46	29	29	13	49
1914-15	82	84	56	34	32	14	58
1916-17	92	100	67	41	37	15	68
1918-19	117	118	78	50	40	18	82
1920-21	141	152	98	68	57	24	104
1922-23	114	119	82	56	44	23	85
1924-25	104	110	74	49	44	22	78
1926-27	106	109	72	49	36	22	76
1928-29	100	102	67	44	33	21	71
1930-31	88	88	51	36	22	18	60
1932-33	64	65	42	27	20	14	45
1934-35	52	58	38	26	22	15	40
1936-37	59	64	38	29	22	24	44
1938-39	60	68	37	28	22	25	45
1940-41	59	68	36	26	22	24	43
1942-43	65	76	40	29	24	25	48
1944-45	78	90	48	35	29	28	56
1946	88	104	56	39	33	32	65
1947	96	116	62	43	37	35	72
1948	104	129	69	47	41	38	79
1949	107	136	73	49	44	39	83
1950	109	141	76	50	46	40	85
1951	125	166	89	59	54	46	99
1952	131	175	96	65	68	42	107
1953	130	175	95	62	64	40	105
1954	139	187	99	66	72	40	113
1955	150	205	103	68	73	45	121
1956	156	214	107	70	76	42	126
1957	165	230	122	77	86	49	138
1958	179	242	123	84	90	65	147
1959	191	255	134	89	103	58	157
1960	188	248	133	94	99	64	155
1961	189	247	133	95	100	64	156
1962	192	250	138	99	104	69	159

Table 32. Average Estimated Value Per Acre of Farm Real Estate in Minnesota by Districts, 1910-11 through 1944-45 by Two-Year Periods, and Annually, 1946 through 1984. (con't).

Years	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
1963	194	246	142	103	114	68	161
1964	206	252	145	111	115	59	166
1965	219	261	146	112	113	51	171
1966	242	277	153	122	112	58	183
1967	262	303	163	128	108	62	194
1968	286	333	181	134	122	57	211
1969	308	350	196	146	120	54	223
1970	317	347	198	161	120	62	227
1971	333	351	204	155	119	63	232
1972	370	379	208	163	117	76	248
1973	433	459	247	194	146	115	298
1974	576	675	378	279	199	144	423
1975	674	844	503	296	295	163	525
1976	856	1106	624	349	378	210	667
1977	1027	1316	730	415	427	279	794
1978	1191	1421	803	498	483	304	889
1979	1453	1620	883	573	599	368	1040
1980	1526	1750	962	596	683	390	1120
1981	1709	2083	1135	679	813	460	1310
1982	1504	1875	1044	584	748	483	1179
1983	1354	1669	981	561	658	411	1065
1984	1164	1401	873	505	586	436	927

Table 33. Annual Percentage Change in Estimated Farm Land Values Per Acre, Minnesota, 1946-1984.

Years	Percent	Years	Percent
1945-46	16.1	1965-66	7.0
1946-47	10.8	1966-67	6.0
1947-48	9.7	1967-68	8.8
1948-49	5.1	1968-69	5.7
1949-50	2.4	1969-70	1.8
1950-51	16.5	1970-71	2.2
1951-52	8.1	1971-72	6.9
1952-53	-1.9	1972-73	20.2
1953-54	7.6	1973-74	41.9
1954-55	7.1	1974-75	24.1
1955-56	4.1	1975-76	27.0
1956-57	9.5	1976-77	19.0
1957-58	6.5	1977-78	12.0
1958-59	6.8	1978-79	17.0
1959-60	-1.3	1979-80	7.7
1960-61	0.6	1980-81	17.0
1961-62	1.9	1981-82	-10.0
1962-63	1.3	1982-83	-10.0
1963-64	3.1	1983-84	-13.0
1964-65	3.0		

Table 34. Average Price Per Acre of Reported Farm Sales, Standard Deviation and Coefficient of Variation, by District, Minnesota 1961-1984.*

Years	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
			(Average Price Per Acre (Dollars)				
1961	189.1	255.8	130.3	89.0	92.0	37.9	165.2
1962	195.7	228.5	140.5	76.3	73.9	30.3	161.1
1963	214.1	221.9	136.2	86.2	108.8	47.6	168.1
1964	213.3	234.3	150.3	86.3	103.6	51.6	178.1
1965	202.0	232.7	133.2	95.8	106.2	39.7	178.0
1966	253.4	260.4	164.3	113.0	103.4	30.6	203.4
1967	272.4	306.1	178.6	92.9	116.6	51.2	214.8
1968	316.0	329.0	186.0	104.0	90.0	47.0	232.0
1969	340.7	334.1	193.6	129.7	120.8	50.7	238.3
1970	346.0	340.0	206.0	141.0	113.0	45.0	243.0
1971	343.6	343.0	204.5	150.3	100.1	43.7	259.0
1972	389.4	365.7	221.7	145.1	107.2	76.4	293.3
1973	443.5	410.1	223.0	178.1	119.7	121.7	298.4
1974	598.4	630.1	339.8	242.7	204.0	144.4	450.1
1975	791.8	843.9	492.9	298.5	352.8	159.3	607.0
1976	937.2	1115.7	663.7	321.3	377.0	209.7	735.2
1977	1216.0	1340.4	708.6	445.7	431.7	197.9	858.8
1978	1351.7	1320.7	907.6	554.0	504.4	256.3	979.6
1979	1674.6	1679.5	949.3	618.1	612.2	410.9	1139.9
1980	1837.1	1868.2	1095.3	603.0	758.8	394.5	1318.5
1981	1965.3	2004.6	1170.6	680.1	918.7	482.8	1367.1
1982	1748.5	2022.3	1167.9	745.7	886.8	405.7	1359.5
1983	1470.0	1872.0	1068.4	678.5	711.1	327.6	1291.0
1984	1386.1	1658.1	1062.2	644.4	700.0	223.2	1263.0
			Standard Deviation				
1961	83.5	71.9	40.0	47.8	54.1	20.1	86.8
1962	80.7	68.6	45.1	39.1	57.2	29.7	88.5
1963	79.4	77.1	50.8	43.7	69.4	26.1	88.6
1964	91.6	77.3	70.1	52.4	89.9	39.0	97.2
1965	96.3	87.0	82.1	63.5	91.1	31.7	98.1
1966	142.7	95.3	56.7	66.5	65.7	32.2	199.4
1967	115.3	106.2	62.8	67.6	85.4	29.8	127.6
1968	179.0	124.2	77.5	108.5	70.5	41.6	160.7
1969	228.6	123.4	64.5	104.2	83.9	45.0	174.0
1970	189.7	129.6	75.4	105.6	89.5	29.3	162.5

Table 34. Average Price Per Acre of Reported Farm Sales, Standard Deviation and Coefficient of Variation, by District, Minnesota 1961-84*(con't)

Years	South-east	South-west	West Central	East Central	North-west	North-east	Minnesota
1971	154.3	128.1	66.6	100.7	66.9	28.9	157.4
1972	154.9	136.4	79.0	96.7	70.0	38.8	164.4
1973	183.3	164.1	94.0	97.2	76.8	86.6	188.9
1974	265.2	290.0	147.2	153.0	127.5	60.6	287.7
1975	291.3	373.8	225.0	142.5	220.8	72.2	360.4
1976	359.0	501.4	243.0	176.2	273.2	100.6	457.8
1977	476.9	606.8	305.2	244.1	294.3	99.4	599.0
1978	454.4	496.9	329.2	304.0	260.9	100.5	539.7
1979	850.3	833.3	361.4	357.2	354.7	228.3	791.6
1980	639.5	746.7	487.2	298.1	337.2	152.9	780.1
1981	675.8	891.3	426.9	624.5	332.2	157.0	826.6
1982	615.9	758.5	423.5	360.8	405.0	127.4	774.3
1983	501.2	593.0	355.4	369.9	293.1	160.5	665.67
1984	452.8	585.6	311.1	334.0	328.4	105.5	586.1
			Coefficient of Variation (Percent)				
1961	44.2	31.8	30.7	53.7	58.7	53.1	52.6
1962	41.2	30.0	32.2	51.2	77.3	98.0	54.9
1963	37.1	34.8	37.3	40.7	63.8	54.8	52.7
1964	42.9	33.0	46.6	60.8	86.7	75.5	54.6
1965	47.6	37.4	61.6	66.2	85.8	79.8	55.1
1966	56.4	36.7	32.6	58.9	63.8	105.4	58.7
1967	42.3	34.7	35.2	72.8	73.2	58.2	59.4
1968	56.6	37.3	41.6	103.8	78.3	88.5	69.2
1969	67.1	36.9	33.3	80.4	69.5	88.9	73.0
1970	54.8	38.1	36.6	74.9	79.2	65.1	66.9
1971	44.9	37.4	32.6	67.0	66.8	66.1	60.8
1972	39.8	37.3	35.6	66.6	65.3	50.8	56.1
1973	41.3	40.0	42.2	54.6	64.2	71.2	63.3
1974	44.3	46.0	43.3	63.0	62.5	42.0	63.9
1975	36.8	44.3	45.7	47.7	62.6	45.3	59.4
1976	38.3	44.9	36.6	54.8	72.5	48.0	62.3
1977	39.2	45.3	43.1	54.8	68.2	50.2	69.7
1978	33.6	37.6	36.3	54.9	51.7	39.2	55.1
1979	50.8	49.6	38.1	57.8	57.9	55.6	69.4
1980	34.8	40.0	44.5	49.4	44.4	38.8	59.2
1981	34.4	44.5	36.5	91.8	36.2	32.5	60.5
1982	35.2	37.5	36.3	48.4	45.7	31.4	57.0
1983	34.1	31.7	33.3	54.5	41.2	48.9	51.6
1984	32.6	35.3	29.3	51.8	46.9	47.3	46.4

*Each acre is treated as a unit in calculating standard deviations and coefficients of variation.