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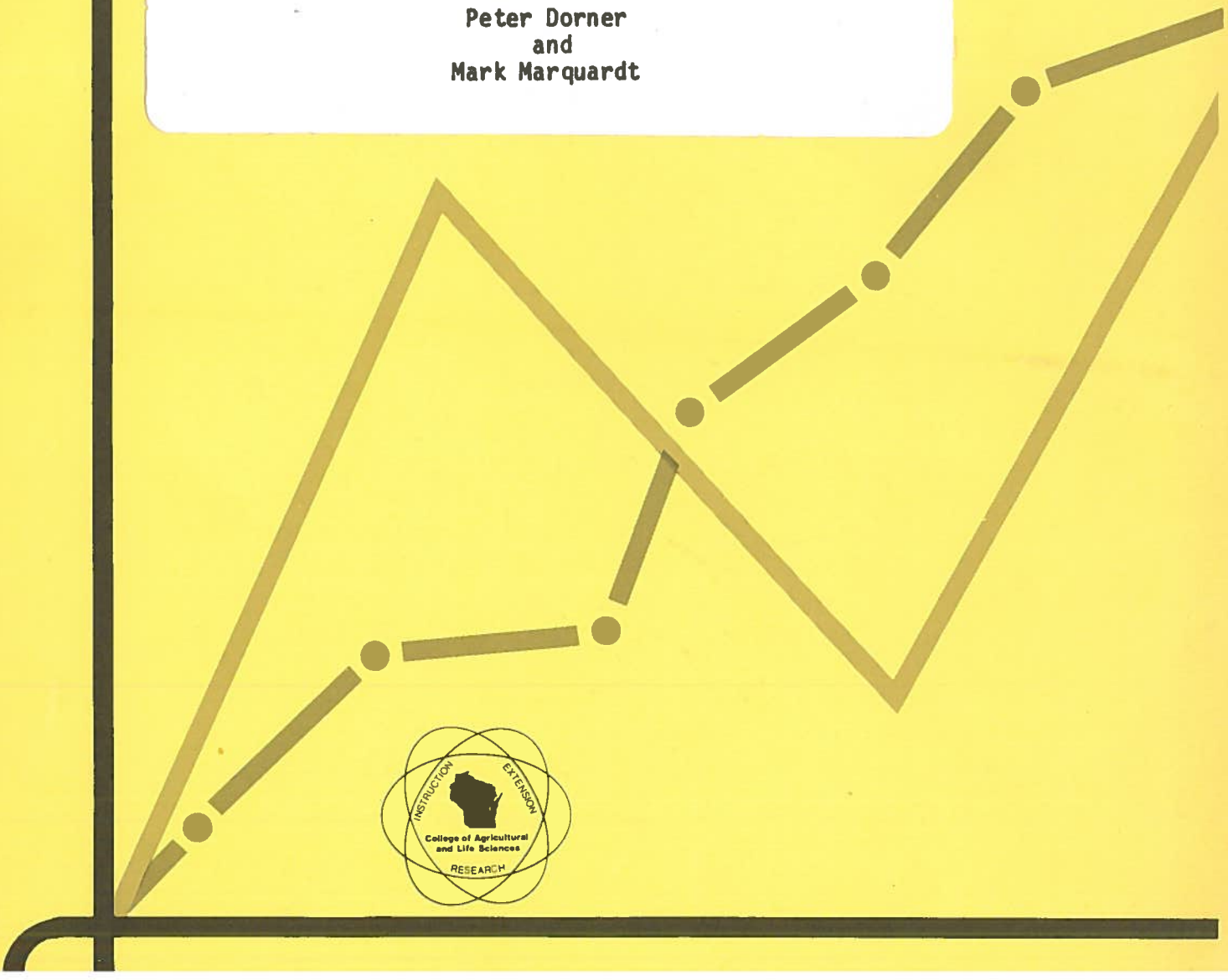

LAND TRANSFERS AND FUNDS NEEDED TO START FARMING: A SAMPLE OF WISCONSIN FARMS 1950-1975*

by

Peter Dorner
and
Mark Marquardt**

This is the second report based on a sample survey of Wisconsin farms over the period of 1950-1975. An earlier report provided descriptive information on the sample ("Economic Changes on a Sample of Wisconsin Farms: 1950-1975", by Dorner and Marquardt, Agricultural Economics Staff Paper No. 135, November 1977). To provide the reader of the present report with the necessary background information, several pages of the earlier report are here reproduced.

The Sample

"This study reports some findings resulting from interviews with farmers in 1951, in 1961, and again in 1976. In the summer of 1951, over 1,600 farmers throughout Wisconsin were interviewed for a study concerning the utilization of manpower on Wisconsin farms. This 1951 sample was based on the master sample developed by the U.S. Department of Agriculture, which

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** Respectively Professor and Research Assistant, Department of Agricultural Economics, College of Agricultural and Life Sciences, University of Wisconsin-Madison. Although any errors or misinterpretations of the data in this report remain the responsibility of the authors, we have received helpful comments from our colleagues, Professors Don Kanel, Aaron Johnson, Rueben Buse, David Moyer, John Schmidt and Robert Luening.

delineates the state into area segments. The test for inclusion of a farm within a segment is the location of the headquarters--where the operating family lives. If the headquarters is within the segment boundaries, the farmer is interviewed even if most of his land lies outside the segment boundaries. Likewise, a farmer whose headquarters lies outside the segment is excluded even though most of his land is within the segment boundaries. The 1951 interviews obtained farm and family information pertaining to the calendar year 1950.

"In the summer of 1961 a new questionnaire was prepared which incorporated most of the questions of the 1951 questionnaires. All farmers in a select group of counties from whom information had been obtained in 1951 were again visited and interviewed. The 1961 interviews obtained farm and family information pertaining to the calendar year 1960. The select group of counties consisted of three in eastern Wisconsin--Calument, Manitowoc, and Sheboygan--and three in western Wisconsin--Barron, Pierce, and St. Croix.

"The 1951 sample in these six counties included 262 operating farms. Only 189 of the 262 were being operated as farms in 1961. The remaining 73 (28 percent) had gone out of operation as complete farm units. Of the 189 operating farms in 1961, 147 were being operated by the same operator as in 1951, while 42 farms had new operators. Following is the distribution of the 262 farms according to the 1961 situation.

(1) 262 farms in 1951
    (a) 150 (57 percent) in the eastern counties
    (b) 112 (43 percent) in the western counties

(2) -73 no longer operated as farms in 1961
    (a) 39 (53 percent) in the eastern counties
    (b) 34 (47 percent) in the western counties

(3) 189 farms in 1961
    (a) 111 (59 percent) in the eastern counties
    (b) 78 (41 percent) in the western counties

(4) -147 same family operating the farm as in 1951
    (a) 87 (59 percent) in the eastern counties
    (b) 60 (41 percent) in the western counties

(5) 42 different families operating the farm than in 1951
    (a) 24 (57 percent) in the eastern counties
    (b) 18 (43 percent) in the western counties

"The number of operating farms declined sharply over the 1951-1961 period--almost 28 percent. The drop-out rate was slightly higher in the western counties (30 percent) than in the eastern counties (26 percent). Slightly over one-fifth (42 of the 189 or 22 percent) of the 1961 farms were being operated by families other than the ones that were operating these farms in 1951. No fundamental difference appeared between eastern and western counties in terms of the proportion of new operators. Of the farms being operated in 1961, 22 percent in the eastern counties and 23 percent in the western counties had changed operators. Analysis of the 1950 and 1960 data for these farms and families is reported in a number of publications.[1/]

"In the summer of 1976, a new questionnaire was prepared. Most of the key questions asked in 1951 and in 1961 were again included. However, since the number of farm operating units had continued to decline as a result of farm combination and enlargement, the sample size was augmented. This was done under contract with the Statistical Laboratory and the

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1/ Peter Dorner and Carmen Sandretto, Resource Adjustments, Income Growth and Tenure: Their Interaction on Farms in Two Wisconsin Dairy Areas, 1950-1960, Ag. Exp. Sta. Research Bulletin 242, University of Wisconsin, May 1963. Peter Dorner and Kenneth Hock, Adjustments on the Farm and Transition Out of Farming in Two Wisconsin Dairy Areas, 1950-1960, Ag. Exp. Sta. Research Bulletin 264, University of Wisconsin, December 1965. A.M. Weisblat, Impact of Family Structure on Wisconsin Farming, 1940-1960, Unpublished Ph.D. thesis, Department of Agricultural Economics, 1963, University of Wisconsin, Madison, Wisconsin. Myo Nyunt, Farm Size, Farm Enlargement and Related Socio-Economic Factors on Wisconsin Dairy Farms, 1950-1960, Unpublished Ph.D. thesis, Department of Agricultural Economics, 1966, University of Wisconsin, Madison, Wisconsin. Peter Dorner and Abraham Weisblat, "The Father-Son Dilemma", Better Farming Methods, Central Edition (February 1963).

Department of Statistics, Iowa State University, Ames, Iowa. This laboratory has the original U.S. Department of Agriculture master sample and thus was able randomly to select new sample segments to augment our original sampling. As a result of increasing the number of area segments, the number of operating farmers interviewed in 1976 (with data for the calendar year 1975) was 254. Following is the distribution of the 254 farms according to the 1976 situation.

(1) 254 farms in 1976
    (a) 155 (61 percent) in the eastern counties
    (b) 99 (39 percent) in the western counties

(2) Of which 98 were farms with the same headquarters as in 1951
    (a) 61 (62 percent) in the eastern counties
    (b) 37 (38 percent) in the western counties
    And 48 of these 98 farms were operated by the same operator in all three years (the remaining 50 had changed operators one or more times over this period)

(3) And 156 farms from the new sample segments
    (a) 94 (60 percent) in the eastern counties
    (b) 62 (40 percent) in the western counties

(4) While 91 of the 189 farms (48 percent) operated in 1961 had gone out of business by 1976 and were no longer operated as independent farming units (189 - 91 = 98 shown in 2 above)
    (a) 50 (55 percent) in the eastern counties
    (b) 41 (45 percent) in the western counties"

The earlier report dealt only with information from operating farms in each period. However, rural residents and nonfarmers living within the sample segments were also interviewed. Thus while the data obtained from rural residents and nonfarmers were not included in the earlier report, data on land transactions reported by these people are included in the present report. In other words, all interviewees in 1976 were asked whether or not they had bought or sold any land since 1960 (just as all interviewees in 1961 were asked whether or not they had bought or sold any land since 1950). If they answered yes, a land transfer (purchase or sale) schedule was completed.

Several complications need to be noted. As is evident, land trans-

actions occurring in 1961 could have been reported in both the 1961 and the 1976 interviews. There were indeed two 1961 land transactions that were reported in both the 1961 and the 1976 interviews. Also, the number of transactions is larger than the number of farmers (or rural residents) reporting such transactions since some interviewees reported more than one purchase (or sale). Some had 2 or 3 purchases during this period, others reported both a purchase and a sale or several of one and one of the other, etc.

In the following analysis, "1961" interviews include those transactions occurring between the time of the 1951 interview and the 1961 interview, while "1976" interviews include those occurring between the time of the 1961 and the 1976 interviews. The 26 year period is divided into the following 5 year periods: 1951-55, 1956-61 (corresponding to the 1961 interview) and 1961-65, 1966-70, 1971-76 (corresponding to the 1976 interviews). It should be noted that the second and fifth periods include six years, while the other periods include only five years.

Number and Size of Purchase and Price Per Acre

The major analysis is in terms of the land purchases. While there were 293 individual purchases reported over the 26 year period, we have reports on only 105 sales. This is to be expected since the sellers of land were more likely to have moved out of the sample segment (some of course had died). Furthermore, the overwhelming majority of land purchases were reported by operating farmers. Some of these also reported land sales. But given the major farm size expansion during this period, it is quite understandable that many more should have engaged in land purchases than in land sales. Number of land purchases by years for eastern and western counties are shown in Table 1.

While there appears to be an acceleration in land purchases over

Table 1.

Land Purchases Reported in the 1961 and the 1976 Interviews

Years of Purchase	Number of Purchases			Percent of 1951-1976 Total
	East	West	Total	
1951 - 1955	17	10	27	9.2
1956 - 1961	35	28	63	21.5
1961 Interview Totals	(52)	(38)	(90)	(30.7)
1961 - 1965	34	19	53	18.1
1966 - 1970	33	22	55	18.8
1971 - 1976	49	46	95	32.4
1976 Interview Totals	(116)	(87)	(203)	(69.3)
1951 - 1976 Totals	168 (57.3%)	125 (42.7%)	293	100.0

this period, we should recall that the number of farmer interviewees was lower in 1961 (189) than in 1976 (254). Furthermore, the 1961 interviews covered a period of 11 years while the 1976 interviews spanned 16 years. There does seem to be an underreporting for the periods most distant from the interview date. Therefore it is quite likely that farmers (and others) may have failed to report some land transactions that occurred in these earlier periods. Table 2 shows the breakdown by farmer and other purchasers of land (aggregated by the two interview periods).

Taking into account the varying numbers of farmers and the varying number of years per interview period, we note in Table 2 a remarkable stability in terms of the number of land purchases per year over the entire 26 years. Slightly over 3 percent per year purchase land (68 of 189 farmers over an 11 year period and 130 of 254 farmers over a 16 year period). However, since some record more than one purchase, the number of purchases per year per farmer interviewed is .04 (that is to say, when farmer purchases are averaged over the entire sample, 4 percent on the average purchase some land in any given year). The number of purchases per year per farmer actually purchasing land declined slightly from .11 in the 1961 interview to .08 in the 1976 interview.

The number of acres per purchase also remains quite stable throughout the period (Table 3). The average per purchase was 95 acres for both the 1961 and the 1976 interviews (corresponding figures for only those purchases made by operating farmers were slightly larger at 96 and 101). Furthermore, the proportion of cropland was 70 percent in both periods for all purchases and 71 percent for purchases made by operating farmers. Acreage in pasture varied between 10-11 percent and other acreage between 18-20 percent.

In addition to size of purchase, table 3 shows the weighted average

Table 2.

Land Purchases by Farmers and Others* for the Two Interview Periods: 1951-1961 and 1961-1976

Interview Period	Total Number of Farmers Interviewed	No. of Farmers Reporting Land Purchases	Total Number of Land Purchases	Number of Purchases by Farmers	Number of Purchases Per Year Per Farmer Interviewed	Number of Purchases Per Year Per Farmer Purchasing Land	Number of Purchases by Non-Farmers
1951 - 1961 (11 years)	189	68 (36%)	90	81 (90%)	.04	.11	9 (10%)
1961 - 1976 (16 years)	254	130 (51%)	203	173 (85%)	.04	.08	30 (15%)
Total	XX	XX	293	254 (87%)	.04	X	39 (13%)

* The classification of farmers and "others" or non-farmers refers to their status at the time of the interview rather than at the time the land was actually purchased.

XX These are not additive. Actually 98 farmers (same headquarters) had land purchase experience of 26 years (98 x 26 = 2548 individual farmer years); 91 farms (drop-outs since 1961) reported on a total of 11 years (91 x 11 = 1001); and 156 (new segment farms) reported on 16 years (156 x 16 = 2496). Total number of farmer purchases (254) must therefore be divided by the sum of these individual farmer years (6045) to arrive at the .04 purchases per farm per year in the "total" line.

Table 3.

Size of Purchase and Weighted Average Price Per Acre of Land Purchased As Reported in the Two Interview Periods

Interview Period	Size of Purchase (Acres)		Cropland (Acres)		Weighted Average Price Per Acre		
	All Purchases	Farmer Purchases	All Purchases	Farmer Purchases	East	West*	Total
1951 - 1961	95	96	66	68	$133	$95	$114
1961 - 1976	95	101	66	72	342	235	289
Percentage Increase	--	5	--	6	157	147	154

* The lower price per acre in the western counties probably reflects lower land productivity and lower intensity of land use.

price per acre for all purchases. This is the average price for land both with and without buildings. We should recall that the prices reported here reflect purchases throughout the reporting period (i.e. 1961 interview prices include the price of land purchased from 1951 to and including part of 1961, and 1976 interview prices include the price of land purchased from 1961 to and including part of 1976).

Table 4 shows the number of land purchases and the weighted average price per acre for the years 1951-1976. The number of cases reported is very small for some years. It is evident, however, that the major land price increases came after 1960 and especially after 1970. To see how close the reported prices of our interviewees were to those reported by the state for all farm land in the respective counties, we show figures for selected years in Table 5. State data on the "full value" of land are consistently classified and reported starting with 1964. Therefore our comparison begins with that year. The three year averages smooth out some of the irregularities due to small numbers. As can be seen the price per acre reported by the interviewees corresponds rather closely with the

"full value" reported by the state for the respective years.

Table 4.

Number of Purchases Per Year and
Weighted Average Price Per Acre of Land

Year	Eastern Counties		Western Counties	
	Number of Purchases	Price Per Acre	Number of Purchases	Price Per Acre
1951	2	$109	2	$59
1952	5	94	---	---
1953	---	---	2	109
1954	4	113	5	60
1955	5	115	1	112
1956	4	183	5	96
1957	8	152	6	98
1958	9	166	2	77
1959	4	166	5	58
1960	9	143	6	144
1961	13	226	5	131
1962	5	241	3	65
1963	2	230	3	89
1964	8	221	3	135
1965	5	296	7	111
1966	7	248	2	104
1967	5	276	2	112
1968	8	421	6	276
1969	9	309	3	245
1970	1	300	3	187
1971	4	391	4	296
1972	7	383	8	194
1973	13	417	9	333
1974	6	640	6	341
1975	7	635	7	412
1976	6	608	4	450

Table 5.

Weighted Average Price Per Acre of Land Purchases,
Sample and State Data*, Selected Years

Year	Eastern Counties			Western Counties			State of Wisconsin
	Sample Data		State Data	Sample Data		State Data	State Data
	Number of Purchases	Price Per Acre	Three County Average Price Per Acre	Number of Purchases	Price Per Acre	Three County Average Price Per Acre	State Average Price Per Acre
1964	8	$221	$219	3	$135	$112	$137
1965	5	296	207	7	111	116	140
1966	7	248	219	2	104	120	149
3 Year Average	20	244	214	12	113	116	142
1969	9	309	268	3	245	152	194
1970	1	300	299	3	187	170	213
1971	4	391	366	4	296	173	236
3 Year Average	14	334	311	10	254**	165	215
1974	6	640	554	6	341	333	381
1975	7	635	655	7	412	364	439
1976	6	608	731	4	450	436	519
3 Year Average	19	626	646	17	396	379	446

Source of State Data: Wisconsin Department of Revenue Property Tax, Annual Issues 1964-1976.

* Wisconsin State Data are "full value" estimates (not local assessed value). This is the Department of Revenue's estimate of "actual market values" of all property in each taxation district in Wisconsin.

** This includes two transactions with an exceptionally high price--one for 40 acres in 1969 at $500 per acre, and one for 41 acres in 1971 at $829 per acre.

In Table 6 land purchases are classified by interview period and the presence or absence of buildings. Eighteen (20 percent) of the purchases reported in 1961 were without buildings while 62 (31 percent) of those reported in 1976 were without buildings. Sixty-four (71 percent) and 120 (59 percent) had both a bouse and farm buildings in the two respective interview periods. Price per acre was greater on purchases with buildings ($118 vs. $69 and $305 vs. $235 in the two respective interview periods).

There is, however, an additional complication. Many of the land transfers took place among relatives. In fact 30 of the 85 purchases reported in 1961 (35%) were purchases from relatives, and all were in the immediate family. Forty-four of the 180 purchases reported in 1976 (24%) were from relatives, with 90 percent in the immediate family.[1/] This relationship was reported by many as influencing the price. For example, of the above noted 30, the price paid by the 12 who said that this influenced the price was $105 per acre, whereas the price paid by the 18 who said this did not influence the price was $128. Of the 44, the price paid by the 25 who said that the price was influenced was $182 per acre, whereas the price paid by the 19 who said this did not influence the price was $274.

A further complicating feature, which should work in the opposite direction is the fact that land transfers among relatives are much more likely to include buildings. In 1961 reported purchases, over 93 percent of transactions among relatives included buildings (94 percent in 1976),

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1/ Immediate family includes fathers/mothers, sons/daughters or in-laws. The number of purchases here reported is lower than that reported in Table 2 due to missing price information on some interviews.

Table 6.

Land Purchases
by Interview Period and
Whether or Not Land Included Buildings

Interview Period	Number of Purchases Reported				
	Total Purchases	No Buildings	Both House and Farm Buildings	House but no Farm Buildings	Farm Buildings but no House
1951 - 1961	90 (100)	18 (20)	64 (71)	2 (2)	6 (7)
1961 - 1971	203 (100)	62 (31)	120 (59)	2 (1)	19 (9)

Percentage Figures shown in parentheses

but only 71 percent of transactions among non-relatives included buildings (only 60 percent in 1976). Our sample size is too restricted to sub-classify by all the relevant variables. In order to get a more reliable measure of the influence of these and several other variables on price per acre, we used a multiple regression analysis.

Multiple Regression Relating Selected Variables to Price Per Acre

The variables included in this analysis are detailed below.

Price per Acre (Y) is the dependent variable. The purpose of the regression analysis is to explain variations in this price paid per acre of land purchased.

Eastern or Western Counties (X_1). If the county is from the Eastern group, the value of this variable is 1, while if the county is from the Western group its value is 0. We hypothesized that a purchase in the Eastern counties would add significantly to the price.

Year of Purchase (X_2). If the purchase was made in the period 1961-1970, the value of this variable is 1; it is 0 for all other years.

Year of Purchase (X_3). If the purchase was made in the period 1971-1976, the value of this variable is 1; it is 0 for all other years. We hypothesized that a purchase in either of these periods should add significantly to the price paid versus the price paid for land in the period 1951-1961 (both X_2 and X_3 would take on the value 0 for purchases made in that earlier period).

Number of Acres Purchased (X_4). We hypothesized that the price per acre would decrease (i.e. be negatively related) as the size of purchase increased.

Buildings (X_5). If the land purchased contained buildings the value of this variable is 1, while it is 0 if there are no buildings associated with the land purchased. A positive relation is hypothesized.

Seller Relation (X_6). If the seller was not related to the buyer the value of this variable is 1, while it is 0 if the seller is related. A positive relation is hypothesized.

Farming Land Purchased (X_7). If the individual being interviewed was actually farming the land the value of this variable is 1, while it is 0 if the purchaser was not farming the land. No particular relationship is hypothesized, but we were interested in knowing whether or not the purchase of land by those who later did not farm the land had any influence on the price paid.

Borrowed to Finance the Land Purchase (X_8). If the purchaser borrowed money to finance the purchase the value of this variable is 1, while it is 0 if no borrowing was involved. Again no specific relationship

is hypothesized, but we were intersted in knowing whether or not borrowing money had any discernable influence on the price paid.

Age of Purchaser (X_9). We hypothesized that older, established operators would be able to pay more for land and thus expect a positive relation with age.

Percentage Crop Acres (X_{10}). We hypothesized that the greater the proportion of crop land, the higher would be the price per acre.

Farmer Purchaser (X_{11}). If the purchaser was a farmer at the time of purchase, the value of this variable is 1, while it is 0 if the purchaser was not a farmer at the time of purchase. We hypothesized a negative relationship on the assumption that farmers would value the land in terms of its productive value in farming whereas additional value might be attributed to the land by non-farmer purchasers.

Table 7 (Column 2) shows the results of this regression analysis.

Although less than 30 percent of the variation in price per acre is explained (R^2) by these independent variables, the F ratio is highly significant indicating a statistically significant relationship (at the .01 level) between the dependent and the independent variables taken as a group. Variables X_3 through X_6 are the significant explanatory variables. Price per acre is significantly and positively influenced by purchases after 1970 (X_3) vs purchases in the 1950's. The number of acres purchased (X_4) is significantly but negatively related to price per acre. This undoubtedly reflects the higher prices paid for small parcels, many of which may have been for "country homes". The existence of buildings (X_5) adds significantly to the price. Finally, if the seller is not a relative (X_6) it adds significantly to the price per acre.

None of the other variables were significant at the .10 level. However, X_7 and X_{11} had t ratios approaching those acceptable at the .10 level. The major surprise and seeming inconsistency is the negative (though not statistically significant) coefficient of X_{10} - crop acres as a percent of total acres purchased. Although we can not test this with our data, it does appear that some "rough" land (non-cropland) was sold

Table 7.

Regression Coefficients and Standard Errors of Variables Related to Price Paid Per Acre of Land, 1951-1976

Dependent Variable: Price Per Acre (N = 247)		
Independent Variables	Regression Coefficients (Standard Error in Parentheses)	Regression Coefficients (Standard Error in Parentheses) (Reduced Model)
X_1 County (East or West)	54.98 (53.0)	
X_2 Year of Purchase 1961-70	41.72 (58.8)	
X_3 Year of Purchase 1971-76	387.20 (62.2)***	362.01 (52.3)***
X_4 No. of Acres Purchased	-1.87 (0.47)***	-1.93 (0.45)***
X_5 Buildings	240.70 (62.9)***	260.50 (61.0)***
X_6 Seller Non-Relative	135.90 (56.6)**	128.80 (56.1)**
X_7 Now Farming Land Purchased	148.70 (90.9)	179.30 (89.1)*
X_8 Borrowed to Finance	20.21 (71.6)	
X_9 Age of Purchaser	.46 (1.1)	
X_{10} Percentage Crop Acres	-3.29 (2.5)	
X_{11} Purchaser a Farmer	-100.30 (64.2)	-122.30 (61.8)*
Constant	59.60 (177.0)	20.31 (112.0)
F-Ratio	9.123*** (12,235)	15.957***(7,240)
Unadjusted R^2	29.9	28.5
Adjusted for d.f. R^2	26.6	26.7

* Significant at the .10 level
** Significant at the .05 level
*** Significant at the .01 level

in smaller lots for country homes, while some partial farms (mainly cropland) were purchased without buildings. These influences might be responsible for this negative coefficient.

A subsequent model was used in which variables X_1 (county); X_2 (year purchased 61-70); X_8 (borrowed to finance); X_9 (age); and X_{10} (percent crop acres) were eliminated.[2/] Table 7 (Column 3) shows the results of this reduced model.

The variables X_3, X_4 and X_5 remain significant at the .01 level, and X_6, as before, is significant at the .05 level. The variables X_7 and X_{11} become significant at the .10 level.

The opposite signs for the X_7 and X_{11} coefficients is somewhat puzzling. Since X_7 includes buyers who were not established farmers (while X_{11} includes only established farmers), it seems that being an established farmer in the community provides some advantage in terms of a lower price paid for land. However, here again other complicating features must be introduced.

The transfer of complete farm units has declined over the period. The 1961 interviews showed that 60 purchases (67 percent) involved complete farm transfers, while the 1976 interviews had 111 (54 percent). The remaining transfers were parcels representing part of a farm or land not in farms. This decline in complete farm transfers is reflected in the increased number of non-farmers who bought land in the latter period. In the 1961 interviews, 87 percent of the purchasers were farming at the time they bought the land. By 1976, only 68 percent of all purchasers were farming at the time of purchase. Of the non-farmer buyers of land, 54 percent (1961 interviews) and 59 percent (1976 interviews) were non-farm laborers. The

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[2/] An additional model including X_{10} did not change the results shown for this model and X_{10} remained negative but non-significant.

latter period also showed a substantial increase in land purchases by professional and technical workers (from 9 to 18 percent). Other categories of buyers of lessor numerical importance included farm laborers, non-farm self employed, and others.

Furthermore, non-farmer buyers purchased smaller parcels but paid a higher price per acre. In the 1961 interviews (purchases during the years 1951-1961) the purchases of non-farmer buyers averaged 61 acres at a price per acre of $197, while those of farmer buyers averaged 97 acres and $106. In the 1976 interviews (purchases during the years 1961-1976) the non-farmer buyers averaged 73 acres and $342 and the farmer buyers averaged 102 acres and $274. (These are averages for purchases with and without buildings). This would seem consistent with a positive X_7 and a negative X_{11}.

Using the reduced model equation, we can calculate some hypothetical prices for different sized parcels of land while varying or keeping other factors constant. For example, the price per acre of land (Y) is equal to $20.31 (constant) + $362.01 ($X_3$ or a 1971-1976 purchase) - $1.93 ($X_4$ or a reduction of this amount for each acre increase in size) + $260.50 ($X_5$ or an addition of this amount per acre if the land includes buildings) + $128.80 ($X_6$ or an addition of this amount if the seller is not related to the buyer) + $179.30 ($X_7$ or an addition of this amount if the purchaser is now farming the land) - $122.30 ($X_{11}$ or a reduction of this amount if the purchaser was a farmer at the time of purchase). Table 8 and 9 give some estimated land values for different sized parcels and other variables. The reader is again cautioned that these are average estimated values for 1971-1976 purchases, and average estimated values for parcels of land with the characteristics shown.

Table 8.

Estimated Land Price Per Acre
Assuming a 1971-1976 Purchase, A Farmer Purchaser,
and the Purchaser Now Farming the Land Purchased

Acres Purchased	Seller Relative With Buildings	Seller Non-Relative With Buildings	Seller Relative Without Buildings	Seller Non-Relativ Without Buildings
40	$623	$751	$362	$491
80	546	674	285	414
120	468	597	208	337

Table 9.

Estimated Land Price Per Acre
Assuming a 1971-1976 Purchase, A Non-Farmer Purchaser,
and the Purchaser Now Farming the Land Purchased

Acres Purchased	Seller Relative With Buildings	Seller Non-Relative With Buildings	Seller Relative Without Buildings	Seller Non-Relati Without Building
40	$745	$874	$484	$613
80	668	797	407	536
120	591	720	330	459

Tenure Status and Reasons for Purchasing Land

Several additional descriptive features may be of interest. Table 10 gives the tenure status of farmers who purchased land within the periods covered by the interviews. As shown in Table 10, land purchases by owners and part owners increased while purchases by tenants declined. This is consistent with the overall decline in tenancy among sample farmers as reported in Staff Paper 135. It is also consistent with sample data showing that 42 percent of all land purchases in both interview periods were for the purpose of farm enlargement while purchases involving a shift from tenant to owner declined from 30 percent (1961 interviews) to 11 percent (1976 interviews).

Other reasons given for land purchase by farmer and non-farmer purchasers were "future residence", "investment", "keeping the land in the family", for "control", or a general category "other". Purchasing land as an investment was not reported in 1961, (though it was included as a possible category) but was reported by 32 (16 percent) of the purchasers in 1976. The 1961 interview schedule did not include the categories future residence or control. Combining these with the general "other" category shows 20 (22 percent) in 1961 and 48 (24 percent) in 1976. Seventeen percent in the latter period claimed their purchase was for residential purposes.

Table 10.

Number of Land Purchases by Tenure Status at Time of Purchase for Farmers Who Purchased Land Within the Two Interview Periods

Tenure	Interview Period 1951 - 1961 Number	1951 - 1961 Percent	1961 - 1976 Number	1961 - 1976 Percent
Owner	19	25	53	38
Part Owner	22	28	50	36
Tenant	27	35	16	11.5
Family Arrangement and Other	9	12	20	14.5
Total	77	100	139	100

Financing Land Purchases and Source of Funds

We turn now to the financing of land purchases and the source of funds. The number of respondents is somewhat variable with respect to these questions since some interviewees would not (or could not) provide responses. When asked whether or not they borrowed money to finance their land purchase, 87 of the 90 (1961 respondents) and 200 of the 203 (1976 respondents) provided an answer. Of the 1961 respondents, 72 (83 percent) said they borrowed money to finance their land purchase while 162 (81 percent) of the 1976 respondents replied in the affirmative. Seventy-one of the 1961 respondents reported borrowing an average of $10,200 per land purchase transaction during the decade 1950-1961; 137 of the 1976 respondents reported borrowing an average of $24,600 per land purchase transaction during the period 1961-1976.

There have been some shifts in methods and sources of financing as shown in Tables 11 and 12. Mortgages on the land purchased have declined (especially in the western counties) while land contracts (again particularly in the western counties) and "other" means have grown in importance. FHA,

Land Bank and PCA financing declined (all in the West) whereas commercial bank and seller financing have increased (the latter decreased in the eastern counties but increased sharply in the western counties).

Table 11.

Methods of Financing Land Purchases
With Borrowed Funds Within the Two Interview Periods

	Interview Period			
	1951 - 1961		1961 - 1976	
Methods of Financing	Number	Percent	Number	Percent
Personal Note	7	10	15	9
Mortgage on Land Purchased	44	61	64	40
Mortgage on Other Land	4	6	9	6
Land Contract	14	19	56	34
Combination and Other	3	4	18	11
Total	72	100	162	100

When asked whether financing their land purchase was a problem, 90 percent (1961 respondents) and 95 percent (1976 respondents) said it was no problem. However, this fact needs to be interpreted with caution. The many potential buyers who may have wanted to buy land but for whom financing may have been a problem were, of course, not interviewed. Our interviews were with those who had succeeded in buying land. Nevertheless, a very large majority reported no problem with financing their land purchase which seems to indicate that credit institutions (and individual lenders) are functioning reasonably well.

Nine in the earlier and 11 in the latter period indicated that they did experience some or considerable difficulty in obtaining funds. Of the 9

(1961 respondents) who had problems financing their land purchase, 4 were farmers shifting from tenant to owner, two were farmers purchasing land for farm enlargemnt, one was purchasing land to replace other land he had sold, and 2 were non-farm laborers. Six of the 9 used a mortgage and 2 used a land contract for financing their purchase (one is unreported).

Of the 11 (1976 respondents) who had problems financing their land purchase, 5 were farmers purchasing land for farm enlargement, 6 were non-farm laborers--three of whom purchased land to begin farming while the remaining three purchased theirs for residential purposes. Six of the 11 used a mortgage, two used personal notes, and three are unreported.

Table 12.

Sources of Funds for Financing Land Purchases
With Borrowed Funds Within the Two Interview Periods

	Interview Period			
	1951 - 1961		1961 - 1976	
Source of Funds	Number	Percent	Number	Percent
Farmers Home Administration, Federal Land Bank, Production Credit Association	13	19	20	12
Commercial Bank	19	26	58	36
Land Owner/Seller	32	44	76	47
Combination and Other	8	11	8	5
Total	72	100	162	100

Multiple Regression Relating Selected Variables to the Proportion of Funds Borrowed

In an attempt to get a clearer picture of the factors influencing the proportion of the land purchase price that was borrowed, we have completed a multiple regression analysis. The results are shown in Table 13. As noted there, the R^2 is very low. Ten percent or less of the variation

in the proportion of funds borrowed for purchasing land is explained by the variables included in the equation. Despite this, several of the variables are statistically significant.

Table 13.

Regression Coefficients and Standard Errors of Variables Related to Proportion of Funds Borrowed for Purchasing Land, 1951-1976

Dependent Variable: Proportion of Purchase Price Borrowed (N=173)	
Independent Variables	Regression Coefficients (Standard Error in Parentheses)
X_1 County (East or West)	-1.14 (3.32)
X_2 Year of Purchase 1961-70	3.97 (3.83)
X_3 Year of Purchase 1971-76	7.06 (4.80)*
X_4 Number of Acres Purchased	.01 (0.033)
X_5 Seller Non-Relative	1.78 (3.75)
X_6 Purchaser a Farmer	8.85 (3.78)***
X_7 Age of Purchaser	-.25 (0.151)*
X_8 Total Purchase Price	-.02 (0.010)**
X_9 Source of Finance--Commercial	-8.80 (4.60)**
X_{10} Source of Finance--Seller	-7.51 (4.26)**
Constant	92.33 (8.99)***
F-Ratio	1.85**(11,162)
Unadjusted R^2	10.3
Adjusted for d.f. R^2	4.7

* Significant at the .10 level
** Significant at the .05 level
*** Significant at the .01 level

We experimented with several different combinations of variables, but the results were not appreciably different from those shown in Table 13.

The low explanatory value of these variables is not too surprising. The basic problem was that we did not have information on the financial status of buyers at the time of purchase. It should again be recalled that land purchases occurred every year from 1951 through 1976. Yet, even on the farmers interviewed, we had farm income, investment and debt information only for the three years (1950, 1960, and 1975). On the non-farmers in the sample we did not even have such information for the three specific years. Information on such variables (income, existing debt, etc.) would presumably have been important in explaining the proportion of funds borrowed for purchasing land.

The 173 purchaser-borrowers included 129 operating farmers and 44 non-farmers (as defined at the time of the interview). When the analysis is restricted to operating farmers, age of purchaser is always negative and significant (at the .01 or .05 level). This, not surprisingly, means that older farm operators borrow a smaller proportion of the purchase price than do younger operators. In all cases where both farmers and non-farmers are included in the analysis, the variable defining the purchaser as a farmer is positive and significant at the .01 level. In other words, farmers borrow a larger percentage of the purchase price than do non-farmers. The other variables that are consistently significant are the two defining sources of finance. The base of comparison is borrowing from the Farmers Home Administration, the Federal Land Bank, the Production Credit Association and others (which includes several Veteran Administration and credit union loans). The negative relationship means, as hypothesized, that these sources (FHA, etc.) generally lend a higher proportion of the purchase price than do either commercial banks or land owner/sellers. Year of purchase was always positive (meaning that the proportion borrowed increased over time) but it was never significant at the .05 level, although it was significant at the .10 level. This continued to hold true when "year of

purchase" was entered as a continuous variable rather than as a discrete dummy variable as used in the equation depicted in Table 13. Finally, the total purchase price was always negatively related to the proportion borrowed and, as noted in Table 13, significant at the .05 level. This means that purchasers borrowed a lower proportion of the purchase price as that price increased. This seems inconsistent with the positive relationship between the proportion borrowed and year of purchase since land values also were increasing over time. We have no way of explaining this apparent inconsistency, but we do know that the relationship is much more evident for farmer purchases than for non-farmer purchases. When only non-farmers are included in the analysis, the relationship between the proportion borrowed and the purchase price is practically nil. On the other hand, for farmer purchasers it is highly significant at the .01 level. In other words, farmer purchasers borrowed a larger proportion of the purchase price in the latter years of the period, but the proportion borrowed tended to be smaller the larger and more costly the purchase.

Characteristics of Sellers of Land

A few characteristics of sellers of land (as reported by buyers) may be of interest. Farmer-sellers (occupation at time of sale) were predominant in both interview periods: 61 (68%) of the 1961 interviewees and 123 (61%) of the 1976 interviewees. Other categories included (1961 and 1976 respectively) non-farmers 17 (19%) and 43 (21%); retired 10 (11%) and 18 (14%); and housewife or other 2 (2%) and 7 (4%).

When the purchaser was asked why the seller sold the land, the most important reason attributed to the seller was health, age and death related--50% in 1961 and 52% in 1976. The next most important reason was "other", 18% in 1961 and 22% in 1976. Most frequently mentioned were sons left home, family problems, needed the money, and foreclosure. Other less numeri-

cally significant reasons were because of non-farm work, to reduce farming operations, to move to another farm, trouble with tenants, and a combination of these reasons. The sellers' current status or occupation (i.e. at time of interview) was reported as follows (for 1961 and 1976 respectively): deceased 25 and 26 percent; retired 31 and 36 percent; non-farm work 25 and 20 percent; still farming 16 and 11 percent; and unknown 3 and 7 percent.

Source of Funds for Starting Farming

Finally, we include some information on sources and amounts of funds needed to get started in farming. Although this is a topic of great interest to many who contemplate starting farming on their own, we have relatively little information on this important subject. We wish to remind the reader that the previous analysis included non-farmer purchases (and sellers) of land whereas the information that follows is for operating farmers only.

Both the 1961 and the 1976 interviews included a question asking for total amount of funds (from whatever source) which they had when they first started farming on their own. In 1961 this was restricted to those starting since 1950 and in 1976 to those starting since 1960. It was our judgement that recall of such information would not be possible (or would be quite inaccurate) if more than 10-15 years had passed since they started farming. Even then a number of interviewees could not provide the information.

In the 1961 interview, 25 responded to this question (these 25 started farming on their own sometime between 1950-1961). Nineteen respondents in the eastern counties averaged $11,330 and 6 in the western counties averaged $14,030 for an overall average of $11,980 (Table 14).

In the 1976 interview, 67 responded to this question (these 67 started farming on their own sometime between 1961-1976). Forty-eight in the eastern counties averaged $40,460 and 19 in the western counties averaged $27,680 for an overall weighted average of $36,835 (Table 14). It is again to be

recalled that these averages cover amounts needed for years throughout these periods. The funds needed to get started as of 1976 are undoubtedly much greater than the average for the latter period--given the especially sharp increases in land values since the early 1970s.

Table 14.

Amount of Funds (All Sources) Available to Start Farming

	For Those Starting Farming in:					
	1950 - 1961			1961 - 1976		
Total Funds Available	East	West	Total	East	West	Total
Number Reporting	19	6	25	48	19	67
Average Amount	$11,300	$14,030	$11,980	$40,460	$27,680	$36,835

Several other questions were asked concerning not dollar amounts of funds needed to get started in farming on their own, but ranking the most important sources. We were interested in determining whether there had been any basic shift in these sources (Table 15).

In the 1961 interview, for those starting farming on their own before 1940, personal savings were listed as the most important source (35 of 80 respondents or 44%). Borrowing from the family was listed as the most important source by 16 (20%) of the respondents, and borrowing from commercial sources by 13 (16%). Inheritance or gift, sale of other property, and "other" were listed as the most important source by the remaining 20%. For those starting between 1940 and 1950, the same three as above were listed as the main source, but the importance of savings had declined (21 of 66 respondents or 32%) while both borrowing from the family and from commercial sources had increased (26 and 27% respectively). For those starting between 1951 and 1961, family borrowing was listed most frequently (14 of

Table 15.

Most Important Source of Funds Needed to Start Farming

Source	Year Started Farming.							
	Before 1940		1940 - 1950		1951 - 1961		1961 - 1976	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Personal Savings	35	44	21	32	8	22	12	15
Borrow from Family	16	20	17	26	14	39	15	18.75
Borrow from Commercial Sources	13	16	18	27	9	25	38	47.5
Other (inheritance, gift, property sale, etc.)	16	20	10	15	5	14	15	18.75
Total	80	100	66	100	86	100	80	100

36 respondents or 39%) while borrowing from commercial sources and savings were reported as the main source by 25 and 22% respectively. Thus savings declined in importance and commercial borrowing and borrowing from the family increased in importance. The latter would also include most within family transfers. The concept of the agricultural ladder whereby a young man would work as a hired hand, then become a tenant, and finally purchase a farm (using accumulated savings as the down-payment) seemed to hold before 1940, but this became less significant in the decade of the 1940s and especially in the 1950s. Family arrangements and commercial borrowing became much more important in the latter decades of this period.

The same questions were asked of the 1976 interviewees. Eighty of the 247 farmer interviewees responding to these questions made their first start in farming on their own since 1960. The most important source of funds for starting on their own was borrowing from commercial sources (38 out of 80 or 47.5%). Fifteen farmers (19%) listed family borrowing as their main source. However, this is somewhat understated since 9 of those listing "other" said that they worked their way into the business with their father. Shifting these 9 would mean 30 percent borrowed from the family in the latter period. Only 12 (15%) listed savings as their main source.

Given the large capital requirements for an efficient farming operation (over $200,000 in 1975 for the dairy farms in the sample as reported in Staff Paper 135) most young people do not have the required savings to get started in farming. Increasingly since 1950 commercial borrowing and transfer arrangements within the family have provided the major source of funds for getting started in farming in these six Wisconsin counties.