LAND PRICES AS AFFECTED BY LOCATION, JACKSON COUNTY, OKLAHOMA

By

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CHAPTER I

INTRODUCTION

The Problem

It is often stated that a part of the consideration paid in a transfer of farm real estate is based on the location of the farm in question. By specific definition, location means the relationship of the farm to other things; for example, the distance from an urban or rural market, the type of road upon which the farm is located, and the distance from roads of various types.

It appears that a study which would determine, as nearly as possible, the amount in dollars or the proportion of the consideration which might be attributed to location would be of assistance to farmers, tax assessors, farm credit appraisers, and highway departments in their efforts to place a value on land.

Such factors as productivity of the soil, and in Oklahoma possibilities of sub-surface development, have a great influence on land value. It is impossible to entirely control these factors and therefore the results will be limited by the extent to which they can be controlled. Even so, it should be possible to obtain results which will indicate the relative importance of location in land prices.

History

No work on this particular problem or of its nature has been done in Oklahoma. Studies have been made in other states of the effect of road type and distance to market on land values, and significant relationships have been shown. Most of the studies in other states, however, have been parts of a larger and broader study and the methods used entirely subjective in that value difference were based on farmer opinion rather than selling price.

Charles L. Stewart,[1] in a summary of previous studies in various states, upon the value of location to rural land shows varying results from the various states depending largely upon the type of farming conducted in the area. Where a large percentage of the crops grown were of a perishable nature the effect of a good location greatly enhanced the value of the farm. Stewart reports that in one such study made in New York, a study which included the whole state, Dr. W. M. Curtiss of Cornell University found that the added valuation to the land of a hard surfaced road was between 43-51 percent of the average per acre value. The actual dollar increase was between 16 and 24 dollars per acre. This extremely high proportion seems definitely to reflect the type or frequency of use of the roads in this area.

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[1]Charles L. Stewart, "Farm land values as affected by road type and distance," Journal of Farm Economics, Volume XVIII, No. 4, November, 1936.

In another such study on "Factors Affecting Farmers' Earnings in Southeastern Pennslyvania,"[2] Dr. M. S. B. Ezekiel reported the results of farm organization and practice among dairy farmers of the Piedmont Plateau region of the Atlantic Coast.

Types of roads were designated according to a "code" as follows: (1) "State" road, concrete or asphalt; (2) Macadam road; (3) broken stone, gravel or slog, water bound; and (4) dirt road. He concluded that on the average for each increase of one unit of road type index there was a decrease of $6.73 in farm value per acre, and for each increase of a mile in distance from town a decrease of $5.47 per acre. All of his changes in value were in units of dollars rather than percentage changes. The change in value for various road types and miles from town were given also as a variation from an average of all land with other factors being the same and was shown as follows:

Concrete, asphalt, or macadam	Plus $24.50
Broken stone or gravel	Plus 8.00
Dirt	Minus 6.90

Deviations from average value per acre, other factors being the same, were shown to be as follows for the various miles distant from town: 0, plus $8.11; 1, plus $5.20; 2, plus $4.00; 3, minus $4.40; 4, minus $11.70; and 4, minus $13.20.

Dr. C. L. Jordan reposted on, "Factors Affecting the Selling Price of Farm Land With Special Reference to Champaign County,

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[2]U. S. Department of Agricultural Bulletin, 1400, April, 1926.

Illinois, 1913-1927."[3] He sought to isolate the influence of the following factors on 100 farms: Value of buildings per acre, type of land, crop yield, distance from market, size of adjacent city or village, and type of road upon which located. Farms on paved roads showed an average selling price of $18.73 an acre more than those on dirt roads. This was for relatively high priced grain land and only constituted a 7.6 percent differential. Those on oiled roads showed a differential of $11.36 over dirt roads, a 4.6 percent gain.

The foregoing studies show what has been done in various states and demonstrate that the value of locations depends, at least to some extent, upon the type of farming carried on.

Procedure

The Oklahoma Agricultural Experiment Station files already contained data on all bona fide land transfers in Jackson County for the years 1941-49. These data were taken from the official records of the County Clerks Office at the County Court House at Altus, Oklahoma. The data included acreage transferred, total stated consideration, cash paid, mortgage balance, the federal revenue stamp, the proportion of mineral rights transferred, and the legal description of the farm. In instances when the consideration was not given, and the sale apparently was a bona fide transaction, the consideration was estimated from the revenue stamp.

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[3]M. S. thesis, unpublished. University of Illinois, 1928.

The above information together with the type of road upon which the farm is located and the distances to be used was coded and punched on cards used with International Business Machines for machine sorting and calculation. Road type, distances, and other data not already included in the original data were taken from an Oklahoma State Highway Department county map. Soil boundaries were then drawn in on this map so that when a farm was located on the map only a little time was needed to determine the quality, road type, and distances of each farm from good roads and markets.

An irrigation project which starts just north of the Jackson County line and extends south into the county affects about 1/5 of the entire data and transfers within this area were removed from the study. These sales were excluded because of the likelihood that land located in the irrigated area would be relatively high in value irrespective of some of the other factors. This is a case where any one of the factors related to value may offset the other by having great emphasis placed on it. For this reason all farms within the irrigated area were excluded from the study. For this reason too, those sales transferring less than fifty percent of the mineral rights with the land were excluded.

The possibilities of oil and gas development in a given area will have an influence on the price paid for a particular tract of land. Agricultural values may become relatively unimportant when there is some likelihood of "oil play" in the area. Previous

studies[4] have shown that in areas where oil and gas development is underway, a high proportion of the mineral rights are more apt to be separated than in an area of little oil and gas activity. Jackson County has a very low proportion of separation which indicates little speculation in mineral rights. A study published in 1944[5] indicates that, quality considered, about a dollar less per acre was paid for land in Jackson County with half the minerals than was paid when all minerals were intact. It would seem logical to assume that if only those sales were used which had at least 50 percent of the mineral rights included in the transfer one of the factors affecting land prices would be greatly minimized. Those transfers with 50 percent or more of the mineral rights transferred were used in this study. The scarcity of data for smaller fractional parts prevented an analysis of this type of sale.

The reason for using only those sales where 50 percent or more of the mineral rights were transferred is that in an area with high potentialities for sub-surface resources the mineral rights transferred with the land are likely to be some fractional part of the mineral fee. If all of the effects from oil and gas development could be eliminated the results would be more representative of agricultural values, and bring out the location value.

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[4]Oliver E. Davis, M. S. thesis, unpublished, Oklahoma A & M College, 1950.

[5]R. D. Davidson and L. A. Parcher, The Influence of Mineral Rights on Transfers of Farm Real Estate in Oklahoma, Okla. Agri. Exp. Station, Bul. No. B-278, Feb. 1944.

From the same line of thinking, if a seller considers the possibility of receiving very little income from leasing or actual production from the sub-surface, he will be inclined to transfer all of the mineral rights. On the other hand, there is always the question of what may happen in regard to sub-surface development. Therefore, if the buyer and seller can either secure or retain, whichever the case may be, fifty percent of the mineral rights, it frequently is considered a "break even" point. That is, the seller feels that if he retains half the minerals he will not regret having sold the farm if oil should ever be discovered on it, and the buyer feels that he has enough of the mineral rights to protect him in case of discovery.

Soil quality, one of the greatest factors affecting agricultural land value, is the most difficult to control. It was first believed that if farm sales were distributed over the county at a fairly uniform rate, the quality factor would tend to cancel itself out because there would be approximately an equal number of farms sold on various soil qualities. In other words, there would be as many farms for each road type on the good soil as were on medium or poor soil. However, preliminary calculations showed this assumption to be false and an attempt was made to classify the soil on each farm.

A soil classification map for Jackson county was obtained from the Soil Conservation Service and each type of soil was interpreted by a soils analyst for relative quality. From the listed types of soil the land was divided into three quality

groups; good, medium, and poor. In most of the tables the land sold will appear under one of these classifications. By placing the land sold for each farm transfer into one of these groupings it is believed that quality differences will largely be controlled. The soil types as designated by the Soil Conservation Service were transferred to the county road map in order that land quality for each farm could be coded at the time other information was being obtained.

The data for farm sales were available for the years 1941-49, but because of extreme changes in land value from the year 1946 through 1949 price and location relationships for these years will not be shown. Farm sales during this period not only were affected by changing land values but preliminary analysis showed that much greater emphasis was placed on the productivity of the soil due to very high prices of farm products. Had these factors remained in a constant ratio on the various road types the effect would not be harmful to the results of the study. However, this was not the case and buyers were paying, in the years 1946-49, prices for land on the better soil that were unheard of in Jackson county. Therefore, data for the years 1946-49 were removed from the study on the basis of the following conclusion: When great emphasis is placed on any one factor affecting land values the other factors included in this value tend to become less important and perhaps of little importance in determining that value.

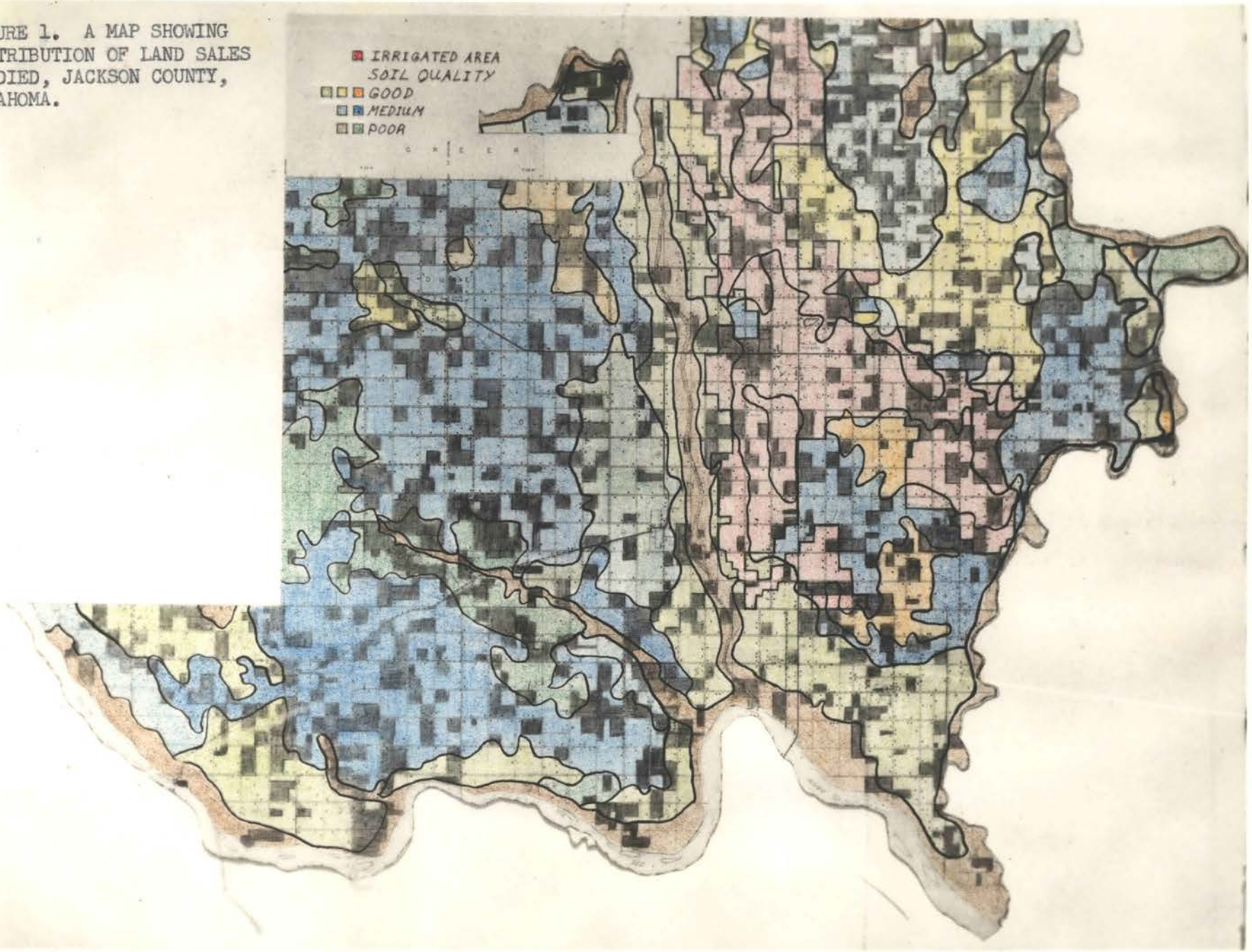
The various types of road were grouped into three classifications - all weather, improved dirt and unimproved dirt. The

all weather roads included pavement, bituminous and gravel. The improved dirt would be a good road in fair weather, but may or may not be passable in rainy seasons. The unimproved dirt road should be considered as the unkept or unattended. These undoubtedly are passable in fair weather but very rough, and in disagreeable weather probably impassable.

After the map to be used had been prepared, each sale was located from the legal description given and all of the desired information placed on a coding sheet. From this coding sheet, the data were punched on I.B.M. cards so that assortments and controls could be had for any desired combination of land sales in various categories; according to road types, distance to two markets, mineral rights transferred and the year of the sale. The cards were then run through the type 407 I.B.M. machine and the desired information for the particular run tabulated or listed.

The various qualities of soils are outlined on the map of Jackson county shown on page ten in order to show distribution throughout the county. Each land transfer used in the study is also designated on the map showing the distribution of the sample for the county and on each soil type.

FIGURE 1. A MAP SHOWING DISTRIBUTION OF LAND SALES STUDIED, JACKSON COUNTY, OKLAHOMA.



CHAPTER II

The Relationship of Road Type and Land Price Per Acre

There were 564 usable sales of farms in Jackson County during the period 1941-45 involving some 535,000 acres of land. Table I shows the relationship of the per acre selling price of land to the type of road upon which the farm is located with the factor of land quality controlled or at least partially controlled.

During the period studied, there were 193 sales of farms of the best quality[1] of which 37 or 19.1 percent were located on an all weather road. The 37 sales included 4,412 acres for a total consideration of $197,400 or an average price paid of $44.72 per acre. Most of the sales of good quality land were farms on an improved dirt road. In 112 sales some 16,281 acres brought $636,024 with an average price paid of $39.07 per acre. Farms with good quality soil sold for an average of $32.12 per acre when on an unimproved dirt road.

The decline in price paid for the good quality land, between the three road types is fairly consistent with a somewhat larger decrease from the improved dirt road to the unimproved dirt road. The fact that there is a greater decrease from improved dirt to unimproved dirt road rather than from all weather roads to

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[1] When relative quality of a farm is designated in the following analysis, it refers to soil quality alone.

Table I. Relation of Road Type and Land Price Per Acre, by Relative Soil Quality Jackson County, Oklahoma, Years 1941-45

Road Type

Soil Quality	All Weather				
	No.	Acres	Size Unit	Consideration Dollars	Ave. Per Acre
Good	37	4,412	119	197,400	44.74
Medium	58	8,800	151	282,410	32.09
Poor	4	797	199	21,940	27.53
Total	99	14,009	142	501,750	35.82

Soil Quality	Improved Dirt				
	No.	Acres	Size Unit	Consideration Dollars	Ave. Per Acre
Good	112	16,281	145	636,024	39.07
Medium	171	25,312	148	741,574	29.30
Poor	20	3,997	199	52,575	13.15
Total	303	45,590	150	1,430,173	31.37

Soil Quality	Unimproved Dirt				
	No.	Acres	Size Unit	Consideration Dollars	Ave. Per Acre
Good	44	5,258	119	168,875	32.12
Medium	91	11,006	121	269,582	24.49
Poor	27	3,240	120	41,750	12.89
Total	162	19,504	120	480,207	24.62

to improved dirt roads can be explained partially by the type of farming carried on in this particular area. Had this been a dairy region where daily travel was necessary, rather than primarily cotton and wheat, the greater decrease might well have been from the all weather road. That is to say, where daily use of a road is necessary it is likely that much more emphasis will be placed on the all weather road than where the use of the road will be concentrated at a particular season of the year. The above relationship points toward greater inconveniences of traveling over an exceptionally rough road in any kind of weather.

The greatest amount of land transferred consisted of the medium soil group, the dominant quality group in the county. On all weather roads, there were 58 sales transferring 8,300 acres for a total consideration of $282,410. Again, a majority of the sales were on an improved dirt road with 25,312 acres selling for a consideration totaling $741,574. The average price paid on all weather roads was $32.09 per acre and on improved dirt roads the average was $29.30 per acre. The 91 sales on unimproved dirt roads averaged $24.49 per acre with $269,502 paid for 11,006 acres. Here again the greatest decrease was from the improved dirt road rather than from the all weather road.

The number of sales on the poor soils were so few that any conclusions drawn may be worthless. There were only four sales of poor quality land on all weather roads in which 737 acres sold for $21,940 for an average price per acre of $27.53.

The sale of 3,997 acres on improved dirt roads brought $52,575 for an average price of $13.15 per acre. A total of 3,240 acres

on unimproved dirt roads sold for $41,750, an average price of $12.89 per acre; twenty-six cents per acre less than the value of land on improved dirt roads. As mentioned earlies, the $27.53 paid for the poor land on all weather roads is not reliable because of having only four sales in the sample. One farm with exceptionally good improvements could raise the average per acre value of all four farms enough to make the results higher than if there had been a larger number of sales.

The small difference in the price per acre of poor quality land on improved dirt roads and unimproved dirt roads, relative to the tremendous decrease from the all weather road, leads to the belief that poor quality farms may command a relatively high price only if located on an all weather road simply because of this location factor. That is to say, the poor quality land located on the dirt roads have reached a minimum price and location becomes an important factor in the selling price only if the land is on the best type of road. If the land is low in productivity, most of the emphasis may be placed on its location.

The average acreage size of the unit sold does not vary greatly on the various types of roads or soils (Table I). It was first thought that the average size of farms might be smaller on the better roads, but actual computation shows this to be false. On the good soil, the average size is the same on the all weather roads and on the unimproved dirt roads with 119 acres. Farms on improved dirt roads averaged 145 acres in size. For the medium quality group, the farms on unimproved roads actually had fewer acres, 121, than did those on all weather roads with 151 acres.

Table II. Deviations From Average Price Paid on Improved Dirt Road

Soil Quality	All Weather			Improved Dirt		Unimproved Dirt		
	Ave. Per Acre	Deviation From Improved Dirt	Index	Ave. Per Acre	Index	Ave. Per Acre	Deviation From Improved Dirt	Index
Good	44.74	-5.67	115	39.07	100	32.12	-6.95	82
Medium	32.09	-2.79	110	29.30	100	24.49	-4.81	84
Poor	27.53	-14.38	209	13.15	100	12.89	- .26	98
Average	35.82	-4.45	114	31.37	100	24.62	-6.75	78

This does not conform with the idea sometimes advanced that the average size of tracts are smaller on the better roads and that the smaller the unit the higher the average price per acre.

Most farms sold during the period were located on an improved dirt road; 54 percent of the sales and 57 percent of the land. Disregarding quality of the land and based on the average price per acre paid in these sales, the data indicate that on the average a premium of $4.45 per acre was paid for land on an all weather road, table II. On the average, land on an unimproved dirt road was discounted $6.75 per acre. Using the average price paid per acre of the model group, (farms on improved dirt roads) as a base index of 100, land on an all weather road had an index of 114. On the unimproved dirt roads the index declined to a low of 78.

The data show that more is paid for land in each quality group when it is on an all weather road. Good land on an all weather road sold for $5.67 per acre above the average for good land on improved dirt roads. The index, using again the average price paid for land on an improved dirt road as 100, increased to 115. If the sale of good land was on an unimproved dirt road it brought $6.95 less than the average for good land on the improved dirt road. The index decrease to 82 indicates that the disadvantage of an unimproved road is greater that the advantage of an all weather road when the improved dirt is used as a standard. The apparent advantage of an all weather road over an unimproved dirt road for the good quality farms is $12.62 per acre.

Farms of medium soil quality sold for an average of $29.30 per acre on improved dirt roads and, being most numerous, are used

as a standard for comparison. Farms on all weather roads sold for an average of $2.79 per acre more than those on improved dirt roads or about 10 percent above this model group. The decline from the standard index to the unimproved road was greater than the premium paid for location on an all weather road. The decrease was $4.81 or a decline in the index to 84. The apparent advantage of all weather roads over unimproved dirt roads is $7.60 per acre for medium quality farms.

The average selling price per acre for the poor quality farms on improved dirt roads was $14.15. This figure is used as a standard. Farms of this quality on an all weather road sold for $27.53 per acre or $14.38 above the standard. Poor quality farms on an unimproved road sold for only twenty-six cents per acre below the standard. The apparent advantage of an all weather road was $14.64 per acre over an unimproved dirt road. The deviation from the index of 100 on the improved dirt to the unimproved dirt road is hardly noticeable declining to only 98. However, the index increased to 209 moving to the all weather road.

While the reliability of sale prices of poor quality farms on the all weather roads may be limited because of the scarcity of sales, there is some evidence, at least, that location as to road type is more important for the poor quality farms than for those of higher quality. The data show that in the case of the two groups of higher quality farms, those located on unimproved roads sold for about three-fourths as much per acre as those located on all weather roads. In the case of the poor quality farms, those located on either improved or unimproved dirt roads sold for less than half as much per acre as those on an all weather road.

One basic weakness of the foregoing figures lies in the fact that the data can be cross classified in only two ways; price per acre of each quality group by road type on which it is located. For instance, there is no way of knowing the distance to a better road ofthose farms located on an unimproved dirt road. As will be shown later, the price paid for a farm varies with its distance to an all weather road or more specifically to a hard surfaced road. It might be that numerous farms on the dirt roads are located within, perhaps, two or three tenths of a mile of an all weather road. The data as shown in tables I and II do not, therefore, show the exact signigicance of location as to the type of road on which it is found. It is felt, however, that the volume of sales is great enough that the averages and relationships arrived at are reliable.

CHAPTER III

Land Prices and Distance to Pavement

In testing the location factor on the value of land by distance to pavement only those farms located on improved dirt roads were used. The number of farms located on the unimproved dirt roads was so small and since the majority of these farms were more than four miles from pavement they were omitted. Had they been used, the average price for land under four miles of pavement would not have been lowered substantially.

The general relationships of the price of land per acre at varying distances from pavement can be seen in table III. The number of farms in each distance group is substantial and at the same time the variation in the average size of farms as you move farther away from the pavement probably is not great enough to influence price. It is believed, therefore, that differences in price shown reflect the value placed on location in relation to pavement.

The decline in the average price per acre for land as you move away from the pavement can be seen better with the use of an index number. The model group includes those farms located 2 - 3.9 miles from pavement and is used as the base. Moving from the base to a greater distance from pavement there is a very low rate of decrease in the average price per acre. What decrease there is probably can be at least partially, attributed to the fact that as one moves farther away from the pavement he often is also

moving farther away from other things which influence price. From the farms located at the model distance to the farms 9 - 11.9 miles from pavement the index decreased only 10 points. There was another 10 point decline for the last class intervals, but here the drop probably is due to the open end class; that is those farms that are 12 miles or more may include many farms that are as far as 15 or 16 miles from pavement.

For those farms less than one mile from pavement the average price per acre was $44.77 with a price index of 134. The price index for the second class interval was 109 with an average price paid of $36.50 per acre. In moving away from the pavement down to the model group, which was a total of four miles or three class intervals, there was a decline of 34 index points or $11.27 average per acre. This would give an average decrease of $2.80 per acre per mile within a distance of four miles if the decrease had been constant. However, when average decline per acre per mile is calculated between each class interval the largest decrease is found in moving from the first class interval to the second. Here there is a reduction of 25 index points which means about 74 percent of the decrease found within the first four miles occurs within the first two miles. The data indicates that the effect on price of location of land in relation to pavement probably is confined to within about four miles and that the greatest influence is within two miles of pavement. The relationship of price and distance to pavement for farms of the two top soil qualities follows closely these general relationships. Farms with poor quality soil were not analyzed since there were only 20 farms on improved dirt roads

Table III Relationship of Price Per Acre and Distance to Pavement of Land On Improved Dirt Road, 1941-45

Distance -miles	No.	Acres	Consideration -dollars-	Ave. Per Acre -dollars-	Index	Average size of Unit
Under 1	15	1,823	81,609	44.77	134	122
1-1.9	40	5,122	186,960	36.50	109	128
2-3.9	77	12,224	409,567	33.50	100	159
4-5.9	36	4,678	148,815	31.81	95	130
6-8.9	46	6,501	201,204	30.95	92	141
9-11.9	46	5,160	155,620	30.16	90	112
12 or more	28	3,909	105,200	26.91	80	140

falling into this category. These farms were so scattered that only two or three farms were included in each distance group. Half of all the poor quality farms were more than five miles from pavement.

In the first section of table IV where the soil quality of the farms is good there is a tremendous decrease in the price per acre for the first mile from pavement. The seven sales under 1 mile from pavement sold at an average of $50.20 per acre compared with $40.75 per acre paid in some 20 sales at a distance between 1 and 1.9 miles from pavement. This was an average reduction in price of $9.45 per acre or a decline of nearly one-fifth. The decrease from the first to the second class interval is almost three times the amount of decline between any other of the class intervals on the good soil. The decreases after the first sharp break are comparatively small and relatively constant throughout the range of the data. Only once did the average price per acre fail to decrease in moving from one class to another class farther from the pavement. The average price of those farms 6 to 9 miles from pavement was $34.24 per acre and the next class which include those 9 to 12 miles from pavement was $34.70 per acre. This would seem to indicate that after a certain distance is reached there tends to be little if any relationship between price and distance to pavement. However, after a certain distance from the pavement is reached the probability is much greater of having a poorer location in rel tion to other factors such as an urban market. It is believed, therefore, that the tendency for land prices to continue decreasing as distance from the pavement increases may not be due

entirely to being further from the pavement but may also be an indicator of a poorer location in regard to markets. In other words, say within 3 or 4 miles of pavement, most, if not all, of the decrease in price probably can be attributed to the increasing distance from pavement. Beyond this distance the continued decrease in price might well be increasingly attributed to the increasing distance to either an urban or a rural market.

On the medium quality soil the same general price relationship pattern is followed as that of the good soil. The one deviation is the large decrease found moving from the farms in the 9 to 11.9 mile distance interval to those 12 miles and over from pavement. The decline here was 15.7 per cent or $4.50 per acre. The explanation for this is that the majority of the sales in the highest distance category were considerably more than 12 miles from pavement. This large decline on the medium soil farms at such a great distance from pavement is not shown on the farms of good soil quality. It may be that for farms with less productive soil buyers give more attention to location and pay a much lower price per acre for the poorly located farms. Why the drop is so sharp on the medium soil and not on the good soil cannot be explained outside of the productive possibilities of the soil. This idea has been suggested by other research in the field.[1]

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[1]Charles L. Stewart, "Farm Land Values as Affected by Road Type and Distance," Journal of Farm Economics, Volume XVIII, No. 4, November, 1936.

Table IV. Relationship of Price Per Acre and Distance to Pavement of Good and Medium Quality Land on Improved Dirt Road, 1941-45

Distance -miles-	Good Quality					Medium Quality				
	No.	Acres	Consideration -dollars-	Ave. Per Acre	Index	No.	Acres	Consideration -dollars-	Ave. Per Acre	Index
Under 1	7	1,033	51,859	$50.20	132	8	790	29,750	37.66	122
1-1.9	20	2,442	99,500	40.75	107	20	2,680	87,460	32.63	106
2-3.9	34	4,612	175,200	37.99	100	43	7,612	234,367	30.79	100
4-5.9	16	1,980	72,700	36.72	97	20	2,698	76,115	28.21	92
6-8.9	15	2,271	77,750	34.24	90	31	4,230	123,454	29.19	95
9-11.9	13	1,206	41,850	34.70	91	33	3,954	113,770	28.92	94
12 or more	14	1,116	37,100	33.24	87	14	2,793	68,100	24.38	79

The same large decrease in price paid in moving from farms less than a mile to those between one and two miles from pavement are present for the medium soil as they were for those farms on good soil. The decline was $5.02 per acre or 13.4 per cent which is comparable to the 18.9 per cent on the good soil. It is not as large, but it is large enough to indicate the same preference. The decrease between the following class intervals declined until no decrease was present between the 4 to 5.9 miles from the pavement group and the following distance interval. This is two miles nearer the pavement than was the virtually stationary price recorded for farms on the good soil. The decline in price between those farms located 6 to 9 miles and those 9 to 12 miles from pavement was very small. After this came the very large decrease previously described.

In comparing the percentage decreases in price between farms of the two types of soil and moving by class intervals away from the pavement it may be said that they apparently are following the same trend. Both have a very large decrease immediately after the first mile from the pavement. This seems logical as a buyer may reason that if he must travel less than a mile on a dirt road it is of course a great disadvantage, but if he has to travel two miles on a dirt road it is not a much greater inconvenience to travel three miles. In other words, the farther he travels on a dirt road, the more he becomesindifferent to the inconvenience of travelling a mile farther to get to pavement. Then after a certain distance from the pavement is reached, varying somewhat between

the soil types, he is almost entirely indifferent toward travelling a few miles farther. The rate of decrease then appears to start increasing very rapidly on the medium soil, not necessarily due to the distance from pavement but the distance to other things. In other words, in this particular county if you are located 12 miles or more from the pavement you are several miles from any type of trading center.

A price of $37.99 per acre was paid for those farms on good quality soil located 2 to 3.9 miles from pavement. The concentration of farms here made it the logical place for the base index. This distance also contained the greatest number of farm sales on the medium soil and was used for the base index. The three class intervals located the greatest distance from the pavement on the good soil had indexes of 90, 91, and 87 respectively. This shows that among these farms located over six miles from pavement the price per acre did not change appreciably with a change in distance. The same trend was present for those farms on medium soil over 4 miles from pavement but under 12 miles. However, there was a decline in price of those farms with medium quality soil over 12 miles from pavement to an index of 79.

Moving nearer the pavement on the good soil from the index standard of 100, farms less than one mile from pavement had a price index of 132. More than three-fourths of this 32 point increase in the price index was between those farms 1 to 1.9 mile of pavement and those under one mile. In the over-all spread in price paid for those farms over 12 miles and those

less than one mile from pavement, 55 percent of the spread was between those farms under one mile and those 1 to 1.9 mile off pavement.

The increase in price of farms on the medium soil moving nearer the pavement from the price used as a standard followed the same pattern as those on the good soil. Of the 22 point increase of the index, only a little less than three-fourths of the difference occurred in moving from the farms one mile from pavement to those less than one mile of pavement. While this is not quite as large percentage-wise as on the good soil, it still seems to indicate that those farms located within two miles of pavement are influenced more by the pavement than those a greater distance than this from the pavement.

CHAPTER IV

Land Values and Distance to Urban Market

This chapter will show the relationships existing between the average price per acre of land and the distance to an urban market. The urban market in nearly all cases is the county seat of Altus. The few exceptions are those farms located in the extreme southwestern corner of the County which are, in general, nearer to Quanah, Texas, a town similar in size to Altus.

The chapter is broken down into five distinct division in an effort to determine the effect of various factors. Shown first, in Table V, is the relation of distance to urban market and land value per acre for all road types and all soil types combined. Second, in Table VI, is shown the relation of distance to an urban market and land price per acre for all road types for only those farms located on good quality soil. The third section is an analysis of all road types but using only the farms with medium quality soil. Section four and five, Tables VIII and IX, show the relation of distance to urban market and land prices per acre by road type, also controlling the quality of the soil.

Any relationship between the average size of the farm and distance to market does not seem to be great enough to account for all the difference in price paid per acre. It may, however, be a contributing factor. Another possible contributing factor is that there were no poor quality farms sold that were under 12 miles from

Table V. Relationship of Distance to Urban Market and Land Price Per Acre For All Road and Soil Types, 1941-45

Distance -Miles	No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre	Dollar Decrease Interval	Dollar Decrease Total	Index
Under 6	14	1,774	127	91,642	51.66			155
6-8	44	4,838	110	224,539	46.41	-5.25	5.25	139
9-11	100	11,420	114	446,925	39.14	-7.27	12.52	117
12-14	170	23,528	138	785,250	33.38	-5.76	18.28	100
15-17	118	16,797	142	447,970	26.67	-6.71	24.99	80
18 or more	124	19,666	158	423,817	21.55	-5.12	30.11	65

an urban market. A majority of the poor quality farms sold was 18 miles or more from an urban market. This greater incidence of poor quality farms in the greater distance groups undoubtedly caused the average per acre price as shown in Table V to be somewhat misleading but not invalid.

ALL FARMS

In order to study the relationship of land prices to location with respect to an urban market, all sales of farms were first divided according to distance to such a market without regard to quality of soil or road type on which the farms were located. The dollar decrease in price paid moving away from the urban market is relatively constant between the various class distances. (Table V.) This indicates that location value may be in dollars rather than in percentage of total value. The figures show that, percentage-wise, the rate of decrease becomes greater as the distance to market increases. To illustrate, the decrease in price paid for farms less than six miles from market and those farms six to eight miles from market amounted to about 10 percent. The decrease in price between those farms 15 to 17 miles from market and those over 18 miles from market amounted to about 19 percent in spite of the fact that the dollar decrease was virtually the same.

For practical work in the field of land evaluation it would seem that the dollar decrease would mean more than the percentage decrease. That is, if it were indicated that a particularly located tract of land was worth so much more than the average, stated in dollars, it would offer something tangible with which to work.

The weighted average prices per acre shown in Table V are influenced directly by the number of sales on various soil types or their ratio to one another. For example, the average price per acre of the farms six to eight miles from market is higher than if it were a simple average, because the greater number of sales of higher quality farms. The rather constant decline shown in Table V is caused to some extent by variations in the number of sales of farms of different soil types at varying distances from the market. The effect is to give a decline in price somewhat more uniform than is shown for a particular soil quality group alone. These deviations at various distance by different soil types are shown in Tables VI and VII.

There are no farms nearer than three miles to an urban market because of the irrigation area surrounding Altus. Therefore, the first class interval might be considered as being three to six miles from the market. (Table V.) Taking the average price paid here and subtracting from it the average price paid per acre for those farms fifteen to seventeen miles from town, the total decline over the range could be obtained. The reason for using those farms fifteen to seventeen miles instead of those over eighteen miles is to allow a definite outside distance. The widest spread in distance from market would be fourteen miles. The difference in price per acre paid for farms less than six miles as compared with those 15 to 17 miles from the market is $24.99 per acre. Dividing this $24.99 by the distance of fourteen miles it shows the average dollar decline, without consideration of soil type or road type to be a $1.78 decrease per acre for each added mile of distance. Because

of variations in the average decrease for different road and soil types this figure is useful only as a generalization.

The combination of the various soil types and road types " causes the index numbers to decline in a rather uniform fashion moving away from the market. The uniformity, while it may be somewhat misleading probably is not invalid. A more valid relationship probably is that shown in Tables VI, VII, VIII, and IX where the data shown in Table V are broken down into the various soil groups and road types. The uniformity of the price decline largely disappears when the data are broken down into soil types.

The model group is those farms 12 to 14 miles from an urban market and they sold for an average weighted price of $33.38 per acre. The average price paid for this group of farms is used as a standard with an index of 100. Farms 18 miles or more from the market reached a low with an index of 65, while the farms nearest to market have an index of 155.

GOOD SOIL QUALITY FARMS

The relationship of distance to urban market and land price per acre for the good quality farms on all types of roads combined is shown in Table VI. The average price paid per acre decreased constantly moving away from the market but at varying rates. This is to be contrasted to the more uniform rate of decrease shown in Table V. The highest per acre value was the group under 6 miles distance to an urban market and decreased to a low of $32.33 per acre at the class interval 15 to 17 miles from an urban market. The decrease from the first class interval

Table VI. Relationship of Distance to Urban Market and Price Per Acre For Good Quality Land, 1941-45

Distance -miles-	No.	Acres	Size of Unit	Consideration -dollars-	Ave. Per Acre	Dollar Decrease Interval	Dollar Decrease Total	Index
Under 6	7	769	110	43,250	56.24			155
6-8	27	2,991	111	158,175	52.88	-3.36	3.36	146
9-11	37	4,592	124	206,659	45.00	-7.88	11.24	124
12-14	60	8,593	143	311,870	36.29	-8.71	19.95	100
15-17	45	5,530	118	172,300	32.33	-3.96	23.91	89
18 or more	27	3,767	140	129,635	34.41	-2.08*	21.83	95

*Increase

was less pronounced than from the second to the third class interval. The greatest dollar decrease between distance intervals was $8.71. This decrease is found between 9 to 11 miles and 12 to 14 miles from an urban market. In contrast those farms of medium quality soil show the greatest dollar decrease between the first class interval, those farms under six miles of urban market, and the second class interval 6 to 8 miles from an urban market.

The smallest dollar decrease for farms with good soil was $3.36 per acre between the interval under six miles and the interval six to eight miles from market. There was an actual increase in the average per acre price moving from the 15 to 17 mile interval to the 18 mile and over interval.

The variation in price paid for farms with good soils at stated intervals from market is unlike that shown for all soils combined. From approximately 8 miles to an urban market to about 12 miles the price of land had its greatest per acre value decrease. It had the least per acre value decrease under 8 miles of an urban market. This would indicate that within a certain distance of an urban market, in this case under 8 miles, that the buyers of good quality land do not show great preference since they were willing to pay only a small price differential for land within this range. As you move from 8 miles to approximately 12 to 14 miles from an urban market the maximum disadvantage of location is shown by the price paid. After a distance of about 17 miles from an urban market was reached other factors apparently caused the per acre value to increase. The one particular factor might be the nearness

to a rural market. After a certain distance is reached from an urban market a number of the sales may be very near the smaller rural markets, which would tend to have an offsetting effect upon the decreasing per acre value of land in moving away from the urban market. This would seem to be the logical explanation for this sudden increase in land values after following somewhat of a pattern. Apparently after 14 miles from an urban market is reached, the distance factor begins to lose importance but up to that distance it becomes increasingly important.

There was a total decrease in price paid for land on the good soils of nearly $24.00 per acre in moving from those farms under 6 miles from an urban market to those 15 to 17 miles away. Since there were no farms located nearer than three miles from an urban market the decrease of $24.00 per acre occurred within a 14 mile range. On the average, then, prices for good quality land decreased about $1.70 per acre for each mile increase in distance to an urban market.

Using the average price paid for land located 12 to 14 miles distance from an urban market, the model group, as a standard for comparison some relations may be more clearly shown. The average price paid per acre for farms in this group was $36.29. Moving closer to the market the index rises, not at a constant rate, however, until a high of 155 is reached at those farms less than six miles of an urban market. This index reached the same level as that found for all soils combined. Those farms 15 to 17 miles from the urban market had the lowest index, 89. The increase in price paid per acre from here to the farms over 18 miles or more

from market caused the index to raise to 95. Both of the latter index figures are considerably above that found for all soil groups combined. This is a strong indication that prices for farms with good quality soils are not so subject to the influence of location.

MEDIUM SOIL QUALITY FARMS

The decrease of the per acre value of land on a medium soil moving away from an urban market for all road types combined is shown in Table VII. The relationships here conform closely to those farms located on good soil shown in Table VI. One of the exceptions being that after a certain distance from market is reached on the farms of good quality the price per acre increased moderately, whereas on medium quality farms the price per acre continued to decrease throughout the whole range of distance.

The greatest decrease in price per acre on medium soil was from those farms under 6 miles of the urban market to the second class interval, farms 6 to 8 miles from the market. The decrease in price per acre here was $12.22. It will be remembered that on the farms of good quality soil at this same distance was shown the smallest decrease per acre. This is a further indication that on the better soils the price per acre of land holds up for a greater distance from the urban market than does land of medium soil quality. Whether this is due to the soil quality itself is difficult to say. It may reflect a combination of the type of farming carried on and the production characteristics of the soil types. In other words, a buyer will be willing to pay more per

acre, relatively speaking, for a farm located on the good soil at a greater distance from the urban market than for farms located like distances on the medium quality soils because of the advantage of having land with a greater range of possibilities. If a buyer purchases a farm of medium soil he apparently places more emphasis on nearness to an urban market, within a certain range, because of a limitation in alternative uses to which the farm can be put.

The total decrease in price paid for farms with medium quality soils was about $22.50 per acre in moving from those farms under six miles from an urban market to those 15 to 17 miles from market. In the 14 mile range, the average decrease per mile was about $1.60 per acre. Over the entire range the average decrease per acre per mile of increase in distance actually was lower than for the good quality soils. However, over half the total decrease in price occurred between the first two distance intervals. It is for that reason that location appears to be more important for those farms with medium soils.

Lo king at the farms on medium quality soil by the way of an index, the model group again appears at those farms 12 to 14 miles from market. Using this group as a standard from which to compare, it is found that 103 sales were made at an average value of $32.60 per acre. This group was given an index of 100. Moving farther away from the urban market the index declines to 79 at farms 15 to 17 miles distance and reaches a low of 62 at farms over 18 miles from the market. Moving toward the market, from the model group, the increase is gradual until those farms under 6 miles are

Table VII. Relationship of Distance to Urban Market and Price Per Acre for Medium Quality Land, 1941-45

Distance -miles	No.	Acres	Size of Unit	Consideration -dollars-	Ave. Per Acre -dollars-	Dollar Decrease Interval	Dollar Decrease Total	Index
Under 6	7	1,005	144	48,392	48.15			148
6-8	17	1,847	109	66,364	35.93	-12.22	12.22	110
9-11	63	6,828	108	240,266	35.19	- .74	12.96	108
12-14	103	13,991	136	456,130	32.60	- 2.59	15.55	100
15-17	67	10,187	152	260,970	25.62	- 6.98	22.53	79
18 or More	63	10,613	168	214,357	20.20	- 5.42	27.95	62

reached. Here the index jumps to 148 from an index of 110 on those farms 6 to 8 miles of the urban market. This 38 point difference in the index numbers of these two groups on the medium soil is much more pronounced than for the like distances on the good soil. While the index for those farms on medium soil failed by only seven index points to show a percentage increase as great as those on good quality soil, they dropped to a very low index for the farms most distantly located from market. The index declined 38 index points between those farms 12 to 14 miles from market to those farms over 18 miles from market. For this same distance on the good quality soil the index moved from 100 down to 95.

It can be seen that the price per acre on the two different soil qualities move, generally in the same direction, but the rates are far from uniform. The indications as shown here are, that in general, the location factor as related to an urban market the size of the one used, has greater influence on the medium soil farms that on the good soil farms conforms with the findings in an earlier study by german economists.[1] The German Agricultural Council had been keeping financial and management records for individual farms for varying terms of years, 1927-29. Records for these farms were analyzed for the purpose of ascertaining economic characteristics of farms located at various distances from town. An analysis by quality of soil indicates that for soils of medium and poor quality the rate of reduction in net receipts for each

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[1]Stewart, Charles L. OP. Cit.

unit of distance from town was higher than for good soil.

ANALYSIS OF ROAD TYPES

In tables VI and VII, land prices as affected by distance from an urban market on different quality farms were shown. Tables VIII and IX show how land prices are affected not only by distance of farms with various soil qualities, but also those on different road types. The breakdown in distance are for those under 10 miles to market, from 10 to 19 miles, and those over 20 miles to market. More exact relationships could have been shown if smaller class intervals could have been used, but to have done so would have given such a small number of sales in each group that averages would have had little lignificance.

No attempt will be made to compare the data within a given distance from towns between the particular road types upon which the farms are located, because the data, as compiled, do not lend themselves to this type of comparison. That is, while it is known on what type of road the farm is located, it is not known the number of miles one must travel over dirt or any other type of road to reach amarket from each farm. For those farms 10 to 19 miles from an urban market, there is a definite relationship indicated between road types and price, but the relationship shown probably cannot be relied upon because of not knowing the distance traveled on any particular type road, (table V).

A farm located on an all-weather road in all probability will have an all weather road the entire distance traveled since the good roads nearly always lead to a town. It is reasonable to

believe, therefore, that all operators of farms on all-weather roads would travel over a road of uniform goodness that could be travelled under any weather conditions. For this reason, it would seem that the number of miles from market would show less significance on sale prices on farms on an all-weather road than would distance on any other type of road. That is, the price paid for a farm 15 miles from the urban market on an all-weather road probably not decrease as much per acre per mile as a like farm 15 miles from an urban market on an improved dirt road, particularly if one had to travel a large portion of the distance on a dirt road. A similar relationship tends to hold true in favor of improved dirt roads over unimproved dirt roads. The following discussion deals with the change in selling price between farms under 10 miles from an urban market and those 10 to 19 miles from the market on each particular type of road.

There was an average price per acre of $54.73 paid for good quality land located on an all-weather road less than 10 miles from an urban market. At a distance 10 to 19 miles from an urban market 27 sales were recorded averaging $44.60 per acre. This is a decrease of $10.13 or about 20 percent moving from those farms less than 10 miles to those 10 to 19 miles from an urban market.

Nearly 50 percent more was paid for good quality land on improved dirt roads under 10 miles from an urban market compared to the average price paid for those farms 10 to 19 miles from market on the same road type. The difference in the average price was nearly $18.00 per acre. The percentage decline for each mile

Table VIII. Relationship of Distance to Urban Market and Land Price Per Acre by ROAD TYPE, Good Quality Land, 1941-45

ROAD TYPE

Distance -miles-	All Weather No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre -dollars-
Under 10	10	1,078	108	59,000	54.73
10-19	27	3,542	131	157,990	44.60
Over 20					

Distance -miles-	Improved Dirt No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre -dollars-
Under 10	28	3,147	112	171,750	54.58
10-19	88	12,334	140	451,624	36.62
Over 20	6	800	133	13,250	16.56

Distance -miles-	Unimproved Dirt No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre -dollars-
Under 10	9	914	101	44,323	48.49
10-19	27	3,360	124	100,350	29.87
Over 20	8	984	123	24,200	24.59

increase in distance could not be obtained because of lack of data, but can be estimated. Taking the outer limits of the class intervals, a spread of 19 miles is possible, that is, within the first two class intervals. Within this 19 miles, land values per acre decreased $18.00 making an average decrease of about 95 cents per acre per mile.[2]

On the all-weather road the decrease for the 19 mile range totals $10.13 per acre or about 53 cents per acre decrease in price for each mile increase in distance.

As would be expected the decrease per mile on an all-weather road is smaller than the decrease on an improved dirt road. If one is located 15 miles from an urban market on an all-weather road, the disadvantage of traveling this distance is not as great as one traveling a like distance with at least part of that distance on an improved dirt road.

The same relationships exists for the unimproved roads with 62 percent more per acre being paid for farms under 10 miles from urban market than those 10 to 19 miles from the market. This represents an average decrease in value per mile as you move away from the urban market of 98 cents per acre. This figure is only a little greater than that found on the improved dirt roads. The reason for this could be due to the fact that perhaps only a relatively short distance is travelled before farmers located on

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[2]It is realized that this assumes a constant rate of decrease which may be false. It does indicate a relationship.

unimproved roads reach an improved dirt road or an all-weather road.

For distances of 20 miles or over from an urban market the data show that less than a third as much per acre was paid for land as was paid on improved dirt roads under 10 miles from an urban market. On unimproved dirt roads the price difference was not so great as about half as much was paid for land 20 miles or more from an urban market are all within a mile or so of an all-weather road. In chapter III it was shown that distance to pavement had a strong influence on the price paid for land.

From the results obtained it would appear that land prices not only decrease as one moves away from an urban market but at an increasing rate depending on the type of road that must be traveled in reaching the market. That is, on all-weather roads, the average price paid for land decreased by an average of one percent per mile; on improved dirt, 1.7 percent per mile; and on unimproved dirt 2.0 percent per mile if distances of 20 miles or more from market are not considered.

In terms of dollar price per acre the same relation held true. There was a decrease of 54 cents per acre per mile as one moved away from an urban market on an all-weather road. On an improved dirt road the average decrease was 95 cents per acre for each mile increase in distance. On an unimproved dirt road the average decrease was 98 cents per mile for each mile increase in distance.

The same price relationships are present for the medium soil farms as those on good soil, (Table IX). There were 13 sales of land under 10 miles from an urban market on the all-weather road for a consideration of $79,091 for 2,017 acres. The average price

Table IX. Relationship of Distance to Urban Market and Land Price Per Acre by ROAD TYPE, Medium Quality Land, 1941-45

ROAD TYPE

Distance -miles-	All Weather No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre -dollars-
Under 10	13	2,017	155	79,091	39.21
10-19	36	4,948	137	152,569	30.83
20 or more	7	1,700	242	42,750	25.15

Distance -miles-	Improved Dirt No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre -dollars-
Under 10	15	1,920	128	64,006	33.34
10-19	132	19,967	151	598,210	29.96
20 or more	22	3,225	147	80,550	24.98

Distance -miles-	Unimproved Dirt No.	Acres	Size Unit	Consideration -dollars-	Ave. Per Acre -dollars-
Under 10	7	388	55	11,250	28.99
10-19	63	9,159	145	239,062	26.10
20 or more	6	1,039	173	12,250	11.79

per acre was $39.21 compared to $30.83 per acre for land in 36 sales on the same type of road 10 to 19 miles from an urban market. For those farms over 20 miles from an urban market an average price per acre of $25.15 was paid. Only 7 sales were in this category totaling 1700 acres, an average of over 240 acres per sale.

The higher average price of $8.38 per acre for farms under 10 miles as compared to those 10 to 19 miles from an urban market is greater percentage wise that the decrease on the good soil. The percentage decline on the all-weather road for medium soil is 21.4, whereas, the decline on the good soil was 19 percent. The dollar decrease is greater on the good soil having a reduction of $10.13 per acre compared to the $8.38 per acre on the medium soil. If location value is thought of as being a certain percent of the total value, it should be kept in mind that the dollar decline for the higher quality land could be greater than for the poorer quality land even though the percentage decrease in the price is less. Therefore, percentage differences must be used with caution.

The medium quality land located on improved dirt roads and under 10 miles of an urban market sold for $33.34 per acre, as compared to $29.96 per acre for land 10 to 19 miles from an urban market and with 132 sales. The dollar decrease, $3.38 per acre, is less here in moving away from the urban market than on an all-weather road and also smaller from a percentage standpoint. The percentage decrease was only 10.1 moving from the first class interval to the second. As previously explained, the reliability of this is not to great as there is no way of knowing the number of miles travelled on the improved dirt road before reaching an

all-weather road which in most cases goes to the urban market.

A price of $28.99 per acre was paid for land on unimproved dirt roads less than 10 miles from an urban market. For those farms 10 to 19 miles from an urban market on unimproved dirt roads the average price per acre was $26.10. This is a decline of $2.89 or 9.9 percent, which is about the same percentage decrease as was found on the improved dirt roads.

The farms sold at a greater distance than 20 miles from an urban market are insufficient in number, on most road types, to place much confidence in the results. However, on the improved dirt roads where the number of farm sales was sufficient to be of some use, the data show that land over 20 miles from the urban market sold for $3.98 less per acre than those farms 10 to 19 miles from market, and $8.36 less than those located within 10 miles of the urban market. This is a decrease in price per acre of 16.7 percent from those farms 10 to 19 miles from market to those over 20 miles from an urban market.

The data indicate that the same relationships are present on the medium soil as were present on the farms of good soil. However, in moving away from the urban market on the good soil a relationship was shown in the amount of percentage decrease in the value of land depending upon the type of road on which the farm was located. In other words, the sale on the good soil showed that in moving away from the urban market the greatest decrease in price per acre was for those farms on the poorer roads and the least decrease on the better roads. The sales on the medium soil, shown in table VI, do not show this relationship of an increasing rate of decrease in going from the farms on better roads to the

farms on poorer roads. The explanation for this must lie with the quality of the soil or inadequacy of the data. No other explanation is apparent.

As was stated earlier, relationships between the price per acre and type roads probably should not be compared because of the limitation of data. Even so, there is an indication of such a relationship. In tables VI and VII the indications are that under 10 miles of an urban market there is little attention given to type of road on which the farm is located or else those farms on dirt roads are very near to an all-weather road. As one goes beyond 10 miles from an urban market there appears to be a distinct relationship between prices paid and road types. This confirms the findings in Chapter II but also indicates that if farms are fairly well located, in regard to an urban market, the road type may not be so important. If poorly located, over 10 miles from an urban market, road type is more important.

CHAPTER V

Land Values and Distance to Rural Market

An examination of the price paid for land at varying distances from a rural market, shows relationships similar to those found for an urban market. In the analysis of price paid for land by distance to rural market only those farms on improved dirt roads were studied as one finds but few of the better roads surrounding most of the towns considered as rural markets. Any type of buying point important enought to be shown on a highway map was considered a rural market. Only those farmsof the two higher soil quality groups are considered as land sales on improved dirt roads of poor quality farms are too few to allow valid conclusions.

The general relationships of land price per acre by distance to a rural market are shown in table X. The model group of farms are those 3 to 4.9 miles from the market. At this distance the average price paid for land was $34.78 per acre, which is used as a base. From this class interval to those farms under one mile of a rural market the index increased to 143 and the average price per acre increased $15.05. This increase occurred within 5 miles of a rural market, so in moving away from the market to the base, the price paid for land decreased, on the average, at a rate of $3.01 per acre per mile. Of this $15.05 decrease in moving away from the market 85 percent of the decrease occurred between the first and second class interval or under 2 milesof the market. Therefore, for those farms located two miles up to five miles

from a rural market the price decreased only 15 percent of the total. It appears from these data that if a farm is over two miles but under five miles from a rural market distance means but little to the purchaser. A distance above five miles apparently is considered undesirable by most purchasers as the index dropped to 72 for the 5 to 6.9 mile interval and to 53 for land seven miles or more from market.

There are certain weaknesses, however, in this generalization. These weaknesses lie in the variation in the relationships shown in price paid for farms of different soil quality around a rural market.

Table XI shows the number of farms, the total acres, the consideration, and the average price per acre of land located on the three types of soil. The class intervals are much smaller than the class intervals used for the analysis of distance to an urban market. The reason for this being that most farms are not over 6 or 7 miles from a rural market.

On the good soil the land under 1 mile of town sold for $54.44 per acre, while those farms 1 to 1.9 mile from town sold for only $44.94 per acre. This is a decrease of $9.50 per acre. After the first interval, decreases between the class intervals are relatively small until the farms located over 7 miles from a rural market are approached. Sales of farms over 7 miles cannot be too reliable as a guide to relative values because of the open end distribution. In fact, of the 5 sales in the group three of them were 10 miles or more from the rural market. The percentage decrease here,

Table X. Relationships of Land Price Per Acre by Distance to Rural Market, 1941-45

Distance -miles-	No.	Acres	Consideration -dollars-	Ave. Per Acre -dollars-	Index
Under 1	18	1,856	92,489	49.83	143
1-1.9	26	3,142	116,390	37.04	106
2-2.9	52	7,318	251,585	34.38	99
3-4.9	120	17,926	623,561	34.78	100
5-6.9	67	10,804	269,390	24.93	72
7 or more	34	5,757	106,850	18.56	53

Table XI. Relationship of Land Price Per Acre by Distance to Rural Market on an Improved Dirt Road by Land Qualities, 1941-45

Distance -miles-	Good Quality: No.	Acres	Consideration -dollars-	Ave. Per Acre -dollars-	Index
Under 1	11	1,192	64,894	54.44	140
1-1.99	10	1,072	48,180	44.94	116
2-2.99	13	1,629	65,850	4042	104
3-4.99	35	4,203	162,950	38.77	110
5-6.99	19	2,718	98,350	36.18	93
7 or more	5	498	13,700	27.51	71

Distance -miles-	Medium Quality: No.	Acres	Consideration -dollars	Ave. Per Acre -dollars	Index
Under 1	5	404	20,770	51.41	150
1-1.99	16	2,070	68,210	32.95	96
2-2.99	37	5,449	181,735	33.35	98
3-4.99	82	13,143	451,361	34.34	100
5-6.99	43	6,966	160,890	23.10	67
7 or more	20	3,382	69,050	20.42	59

Distance -miles-	Poor Quality: No.	Acres	Consideration -dollars-	Ave. Per Acre -dollars-	Index
Under 1	2	260	6,825	26.23	204

(Table XI. cont. on page 53

Table XI. Continued

Distance: -miles-	Poor Quality				
	No.	Acres	Consideration -dollars-	Ave. Per Acre -dollars-	Index
1-1.99					
2-2.99	2	240	4,000	16.67	130
3-4.99	3	580	9,250	15.95	124
5-6.99	5	1,120	10,150	9.06	71
7 or more	9	1,877	24,100	12.84	100

between those farms 5 and 6 miles of rural market and those over 7 miles, was 26.7 per cent. It should be emphasized that this drop of nearly 27 percent in selling price did not occur in a two or three mile interval but was spread over at least a four to six mile interval.

The nearly 20 percent decrease in land prices for good quality soils within the first mile indicates the importance a buyer attaches to close proximity to a rural market. The second distance interval may be considered as the first sharp breaking point of land values due to added conveniences offered by these farms under one mile of a rural market. From the second class interval down to the fifth class interval a varying smaller decrease, both dollar and percentage-wise was present. Buyers were relatively indifferent when the farms were located from two to five miles from a rural market. However, if they must travel more than seven miles to a rural market it appears that they must be compensated by paying a much lower price per acre.

Farms located on a medium type soil show the same large decreases at approximately the same distances from the rural market. The decline within the first two miles is even greater here than on land of good quality. The decrease per acre was $18.46 or 35.9 percent. This again indicates that farms on medium soil have more emphasis placed on location than do those on good soil. This seems to be more particularly true for farms within one mile of a rural market. The value of location on medium soils is further emphasized by the fact that only slightly more per acre, $3.03, was paid for those farms on good soil which are less than one mile from the urban market than was paid for those farms on medium soil with the

same location. This makes it appear as if buyers are more interested in location than on the productivity of the soil within one mile of the market. The margin here, under one mile of a rural market, between the two soil types is smaller than at any other distance in the class intervals.

After the large decline from the first class interval on the medium soil, the price per acre showed no decrease at all until thedistance of five miles from the rural markets was reached. At distances of 2, 3, and 4 miles the indifference of buyers was present as it was on the good quality land. There was less than a dollars difference per acre of the three distances. If they have to travel 3 miles to a rural market one more mile is not significant within this range of indifference.

The second sharp decline in price paid per acre is evident at the class interval of farms located at 5 to 6.9 miles from a rural market or one class interval sooner than for farms on the good quality soil. The decline here in price per acre was 32.7 per cent. This is a somewhat smaller decline than was experienced at the class interval nearer the rural market.

The distance intervals showing the two sharpest declines in land price on the medium soil are comparable to those on the good soil, but are even more pronounced. However, in the final analysis land prices, regardless of soil type, seem to follow a more or less set pattern in relationship to distance. First there is a period, measured in miles, of sharply declining prices in the immediate surrounding land of a rural market. This is shown by the pronounced percentage decreases in price. Following this, with somewhat varying distances from 2 to 6 miles from the rural

market, is found an area of more or less indifference to location. It is within these distances that the buyer may feel that if he must travel 2 miles to market, he may as well travel 3 or 4 miles.

The second large break appears after a certain distance is reached, depending on the quality of the farm, where the inconvenience of traveling too far is reflected in the price buyers are willing to give. This final breaking point comes somewhat closer to the rural market on a medium soil as compared to the good soil. In other words, if he is buying good soil he may be willing to have the inconvenience of traveling just a little farther to a rural market.

The deviations from the model group of various distances from rural market are also shown in table XI. Average price of farms located 3 to 4.9 miles from town are used as a base. The price index of the better farms had its high, 140, on those farms less than one mile of town. The increase to 140 from 100 was a rather constant rise with the greatest spread of points between the first two class intervals. Comparing this to the medium soil change moving from the model group nearer the rural market in the index until reaching those farms less than one mile from town where a tremendous rise is shown. The index reached 150 for those farms under one mile of town which is higher by 10 points than the like sales on a good soil.

While the index on the medium soil increased to a higher level near the market than on the good soil, it also reached a lower point moving away from the standard. The index for the better farms reached a low of 71 at the same distance where the

Medium soil farms had an index low of 59. This wider spread in the index on the medium soil within the data range further indicates that farms on medium soil were more susceptible to the factor of location in determining land values.

On the poor soil the model group was the sales fartherest from the market. The low point on the index scale was at those farms 5 to 7.99 miles from town with an increase to 204 at those farms less than one mile of town. The sparse data on the poor soil makes it unwise, however, to place much reliability there, even though the trend was comparable to the other soil types.

CHAPTER VI

Summary and Conclusions

The study of location as a factor in determining land values is one not easily seperated from other price determining factors. Control over some of the more important factors, however, has allowed results which seem to have validity.

The relationship of land value and location was approached: first, as affected by the type of road upon which the land was located; second, the value of land as affected by the distance from a paved road; third, the value of land as affected by the distance from an urban market; fourth, the value of land as affected by the distance from a rural market. Positive relationships were found for each of the approaches. The following conclusions are based on this study of land transfers in Jackson County, Oklahoma:

1. Land located on an all-weather road sold on the average of $4.45 more per acre than land located on an improved dirt road. The land on an unimproved dirt road sold for an average of $6.75 less per acre than land on an improved dirt road and $11.20 less per acre than land on an all-weather road. The differences in the average prices paid for land on various road types also varied with the soil quality.

The greatest variation was on the poor quality land where $14.38 more per acre was paid for land on an all-weather roda than land on an improved dirt road. The difference between the prices

paid for poor quality land on an improved dirt road and an unimproved dirt road was very small. This indicates that poor quality land sells for the higher per acre price only when located on the better roads. The selling price of good quality farms deviated more than the price of medium quality farms in moving from the average to an all-weather road and also to an unimproved dirt road.

2. In the analysis of distance to paved roads, it was found that the price of land located within four miles of a pavement had an average decrease of $2.80 per acre with each additional mile distance. The relationship of price and distance to pavement for farms of the two top soil qualities closely follows these general relationships, but are somewhat larger on the good quality land than on the medium quality land within this range of four miles from pavement. However, the decrease on the medium quality land was greater when the entire range of data was considered.

Farms with poor quality soil were not analyzed since there were only 20 farms on improved dirt roads falling into this category. These farms were so scattered that only two or three farms were included in each distance group. Half of all the poor quality farms were more than five miles from pavement.

3. In moving away from an urban market, land decreased on the average at a rate of $1.78 per acre per mile within 17 miles of the urban market. The variation in the decrease here between soil qualities is not great, but

on the medium quality soil the decrease within the 17 mile range tends to be concentrated in the first class interval or on land that is under six miles of the market. The decrease in price per acre here was $12.22. The farms of good quality soil at this same distance show the smallest decrease per acre, $3.36. This is a further indication that on the better soils, the price per acre of land holds up for a greater distance from the urban market than does land of medium soil quality.

4. The per acre price of land decreased on the average of $3.01 per mile within a five mile distance of a rural market. The decrease per mile was greater on the medium quality land than on the good quality land, even though the entire decrease on the medium soil was within the first two miles of the five mile range. The good quality land tended to decrease at a more uniform rate between the various distances.

Another sharp decline in the price for land is evident at those farms 5 to 6.9 miles from a rural market. The reason for this decline is probably due to the fact that if a farm is this far from a rural market his location to other price determining factors is very bad.

5. The poorer the quality of land the greater the influence of a good location. In most of the analysis made there was an indication that location is not so important to the better quality land as compared to the medium and poor quality soils. The poor quality land in nearly

all instances pointed toward higher prices only with an exceptionally good location. The decline in prices of medium quality land was much sharper at the very close distances to markets and paved roads than they were on the good quality land.

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