THE EFFECT OF POPULATION CHANGE
ON SELECTED TYPES OF BUSINESSES IN SOUTHEAST KANSAS BY 1972

by

JANE LYNNE SEARS

B. S., Kansas State University, 1960

————————————

A MASTER'S THESIS

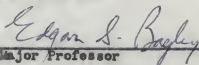submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Department of Economics and Sociology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1964

Approved by:

Major Professor

LD
2608
T4
1969
343
c.2
Document

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS IN APPENDICES

INTRODUCTION

Many rural areas of the United States are declining in population. Some of these areas have economic problems which are both a cause and an effect of population decline. Businesses dealing primarily with the residents of the area tend to suffer from the loss of people from the area. One area such as this is located in the southeastern corner of Kansas. An attempt is made in this study to determine the effect that changes in population by 1972 will have on the number of units and the trade areas for certain types of businesses for different sized cites in this area. The types of business considered are food stores, clothing stores, farm machinery stores, and banks. The area studied, shown in Figure 1, includes Allen, Bourbon, Cherokee, Crawford, Labette, Montgomery, Neosho, Woodson, and Wilson counties.

This section of the state is the southern part of a 15-county area which is one of the twelve homogenous areas delineated by the Area Development project for research purposes. The criteria used by the Area Development project in defining these areas were population density, number of people over 65, educational level, income level, number of towns under 1,000, land use, number of livestock, males over fourteen employed in agriculture, persons employed in manufacturing,

Fig. 1.—Kansas, with the southeast area shaded.

and the level of living index.[1] The southern nine-county section was chosen for intensive study (as it was by the Area Development project) because it was smaller and even more homogenous than the larger area. The cities in the area were divided into three groups by population: cities under 1,000, cities 1,000-4,999, and cities 5,000 and over. The number of units of each type of business was enumerated for each city size group. The populations of the trade areas for each size category were projected to 1972, and the population per retail unit was figured. The 1972 figures were examined, and the likely changes in number of units and size of trade areas were stated. The changes from 1957 to 1962 were used as a comparison.

The limitations of this study are many. Most important is that retail trade and the number of retail units are not dependent upon population alone. This is especially true of the farm input items. Changes in income and income distribution, transportation, education, tastes, and innumerable other factors can cause changes in retailing patterns. Changes in the structure and operation of retailing, such as the increased importance of the discount house, mail order establishments, and larger units in general, combined with lower profit margins on sales have been and will continue to be a great influence on the number of units and size of trade areas. Farm input items depend to a large extent upon the amount of land farmed, as well as upon the number of farmers. But for this study, the effects of changing population or number of farms was the focal point of the analysis.

---

[1]Ralph E. Dakin (ed.), Area Development: An Interdisciplinary Approach to Research (Kansas Agricultural Experiment Station Bulletin 440; Manhattan, Kansas: Kansas State University, 1961), p. 10.

Other influences were considered too, where trends could be seen.

Another limitation is with the population projections themselves. No matter how much care is taken with the statistics, a projection into the future cannot be much better than an educated guess.

Even with these limitations it is hoped that some insights can be gained from this study. A look into the future is always "through a glass, darkly," but seeing even this distorted image is better than not attempting to look at all.

CHAPTER II

THE PAST AND PRESENT OF SOUTHEAST KANSAS

The nine-county southeast Kansas area is generally considered
at present to be a low-income or depressed area of Kansas. The area
is generally hilly and rocky with a profusion of brush and small trees.
It is in the foothills of the Ozark Mountains and its terrain resem-
bles that area.

This part of the state was one of the earliest settled, with the
first white settler coming in about 1840 to Labette county,[1] although
there is record of an Indian trading post in Neosho county started in
1837.[2] Three of the counties were organized in 1855, the year after
Kansas was organized as a territory, and the others in the 1860's.
In the 1860's and 1870's settlers began coming in larger numbers.

The first settlers depended upon agriculture for their existence,
but before long mining came to be an important economic factor in the
area. This territory was the center of a large coal, zinc, and lead
mining area. The main deep shaft coal field was in Crawford, Cherokee,
and parts of Labette and Bourbon counties. Strip mining was important
in Bourbon county also.

The first coal mine of commercial importance was located at Fort

---

[1]Kansas State Board of Agriculture, State Board of Agriculture
Report: 1877-1878 (First Biennial Report), p. 258.

[2]Ibid., p. 336.

5

Scott in 1865. Pittsburg and Weir City became the leading coal towns of the state.

Coal mining increased in importance during the latter part of the 19th century and the first part of the 20th reaching a peak in 1918 with over seven million tons produced. From that year it dropped off fairly rapidly as the richer veins were depleted and the competition of petroleum, gas and coal from other states made the extraction of the remaining ore less feasible economically. By 1931 production had dropped to two million tons and has remained at that level except during the war years.[1]

The southeast corner of the state was also part of the tri-state lead and zinc district. Zinc was first discovered near Galena in 1870 and lead in 1876 near Baxter Springs. Pittsburg, Iola and Cherryvale became centers for the smelting industry. In fact, in 1900 Cherryvale had the largest smelter in the United States. The peak year for zinc production was 1925 and for lead 1926. Production of both metals has dropped off considerably since, although it is still of some importance. Most of the high-grade lead ore is exhausted however. Zinc smelting has ceased altogether because of the depletion of the gas wells near the zinc area which are necessary to the smelting process.[2]

Also very important to the area was oil production. The first continuously producing oil well in Kansas was located near Neodesha. In 1897 the Forest Oil Company (a subdivision of Standard Oil) established a refinery at Neodesha. About 1900 a big oil field was

---

[1]William Frank Zornow, Kansas: A History of the Jayhawk State (Norman, Oklahoma: University of Oklahoma Press, 1957), pp. 288-300.

[2]Ibid.

discovered near Chanute; that area was the oil center of Kansas for several years. During this period more than half the state's oil output was from Neosho county.[1]

Gas production was important also. Kansas' first commercial gas well was located in Allen county beginning operation in 1873. Many others soon followed. The towns of Iola, Cherryvale, Chanute, Fort Scott, Neodesha, Chetopa, Erie, and Independence all prospered from gas production.[2] Oil and gas are still produced, especially in the western counties of the area, but the major fields have been depleted.

Other extractive industries in southeast Kansas of importance were cement, brick, and tile production. As early as 1868, a natural cement plant was established at Fort Scott, but it didn't last long. In 1899, a cement plant was located at Iola. Coffeyville led the state in brick and tile production in 1900. Chanute, Independence and Cherryvale were important in this field too. Cement production is still economically important.[3]

This discussion of the early economic history of the area is included to point out some of the factors which led to the decline of this area. Mining and industries related to it were extremely important economically in this area up until about 1925. The depletion of the rich coal, lead, and zinc veins, and oil and gas wells was an economic blow to the area for which it was unprepared. No satisfactory alternative economic activity has been found and the area has been one of decline.

---

[1]Ibid.   [2]Ibid.   [3]Ibid.

A recent shock to the economy was sustained in 1957 when the Missouri, Kansas, and Texas Railroad moved their general offices from Parsons to Texas.

The population of this area responded as would be expected to the changes in economic activity. From a total of 12,287 in 1860, it grew steadily till it reached a peak in 1909 at 298,681. After that it stayed between 270,000 and 290,000 till the late 1920's when it began to drop. Since its peak in 1909, southeast Kansas has lost about one-third of its population.[1]

Many individual towns have boomed and busted since the settlement of this area. In fact, since 1900, 38 towns which were once in existence as incorporated towns, have become unincorporated. Several of these had attained populations of over 1,000 at one time, but none could hold their own and so declined.[2] Most of these were "boom and bust" or "boom and give up slowly" mining towns.

However, this is not characteristic of southeast Kansas alone, as the state as a whole lost more than half its towns, villages, and post offices during the first half of the twentieth century. "It is reasonable to assume that we have not seen the last of the Kansas town failures as these same forces continue to effect their changes."[3] We have likely not seen the last of it in southeast Kansas either.

---

[1]These and all future population figures were taken from Kansas State Board of Agriculture, State Board of Agriculture Reports: 1877-1878 to 1960-1961 (1st to 44th Reports), and by letter from the State Board of Agriculture.

[2]Ibid.

[3]Charles C. Howes, This Place Called Kansas (Norman, Oklahoma: University of Oklahoma Press, 1952), p. 50.

The population of the area was 207,520 in 1960, which was about 9.7% of the total Kansas population. Its population density was 39.2 persons per square mile compared to 26.0 for Kansas. There are seven cities in the area with a population of 5,000 or more. Pittsburg, the largest, had a population of 19,273 in 1960. Six of the counties contain at least one city of 5,000 or more, and all contain a city of over 2,000.

Although the area has more larger cities than do most parts of Kansas, it also has a greater proportion of its population living in rural areas than does Kansas as a whole. This is because of the pattern of small farms and the large number of people living in the open country, but not farming, as well as the large number of towns under 2,500 (included in the census definition of "rural".) In 1960, 14.7% of the Kansas population was "rural farm" compared to 17.7% for the southeast Kansas area. Twenty-four and three tenths per cent of the Kansas people were "rural nonfarm" while 26.5% of those in southeast Kansas were in this category.[1] There are a great many persons in the southeast area who were farmers in the past, but were "squeezed out" and forced to give up farming. Many of these families continue to live in the country and work in nearby towns or are retired.

The age-sex distribution in southeast Kansas is not conducive to growth and economic development. Figure 2 shows the "population pyramids" for southeast Kansas and for the state. The notable differences are the smaller proportion in the 20 to 39 age group and the larger proportion in the 65 and over age group in southeast Kansas.

---

[1]U. S. Bureau of the Census, United States Census of Population: General Social and Economic Characteristics (Kansas; 1960), pp. 165-166.
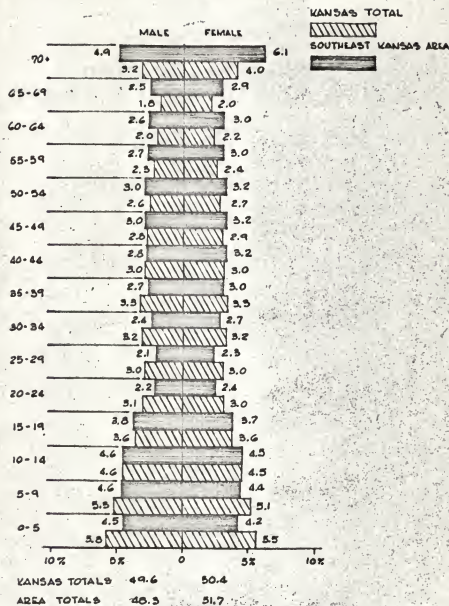
Fig. 2.--Age-sex distribution for Kansas and southeast Kansas*

---

*U. S. Bureau of the Census, United States Census of Population:
General Population Characteristics (Kansas, 1960), pp. 40-41 and
107-133.

It should be noted that the 20 to 39 age group is the most productive while those 65 and over are among the most dependent. The percentages of persons 65 and over are 11.0% for Kansas and 16.4% for southeast Kansas.[1] It should be noted that even the age-sex distribution for Kansas as a whole is somewhat less than ideal. The ideal situation considering current birth and death rates is generally considered to be a "Christmas tree" shape of the population pyramid.

These differences in age-sex distributions manifest themselves in the median age, which is 29.9 for Kansas and varies from 34.8 to 41.4 in the counties of southeast Kansas.[2]

The population is made up of relatively long-time residents. The 1960 census classifies only 14.5% of the population five years of age and older as migrant[3] compared to 21.5% for Kansas.[4] This is undoubtedly related to the median age. The younger people move out; the older ones stay; few move in.

This population structure itself is enough to accentuate a downward trend in the economy or retard an upward trend. With a smaller proportion of the population at a productive age, less can be produced per capita. This reduces the tax base while at the same time creating the need for more tax-supported services, such as homes for the aged and welfare services. In turn, the economy of the area contributes

---

[1] U. S. Bureau of the Census, United States Census of Population: General Population Characteristics (Kansas; 1960), pp. 36-37.

[2] Ibid., pp. 107-133 and 40.

[3] Persons who lived in different counties in the U. S. in 1955 and 1960.

[4] U. S. Bureau of the Census, U. S. Census of Population: General Social and Economic Characteristics, op. cit., pp. 185-166.

to the make-up of the population. Young, potentially productive persons move out of the area because of greater opportunities elsewhere, leaving an unbalanced age distribution. Thus the forces explained by Myrdal's "theory of circular causation"[1] become important in the economy of the area.

As might be expected, the median income of families in the area is less than that for Kansas as a whole. This is true for each of the nine counties, as is shown in Table 1. Table 2 gives the income distribution for Kansas and for southeast Kansas. It can be seen that southeast Kansas has a greater proportion of persons in each income class under $4,000 and a lesser proportion in each class of $4,000 or more. This not only reduces the buying power, but also reduces surplus funds that could be available for investment in the area.

One of the major industries in the area is agriculture, as it is in the rest of Kansas. The farms are small, averaging 256.8 acres compared to 480.6 acres for Kansas.[2] The average value of farm products sold per farm is $6,215, compared to $10,667 for Kansas as a whole.[3] Livestock and crops are both important, with crops contributing about 40% and livestock about 60% to the value of farm products sold.[4]

The farms are not as prosperous as those in the state as a whole. The farm-operator family level of living index is lower in each county than for Kansas, ranging from 90 to 102, compared to 117 for the

---

[1]Gunnar Myrdal, Rich Lands and Poor; The Road to World Prosperity (New York: Harper & Brothers, 1957), pp. 11-22.

[2]U. S. Bureau of the Census, United States Census of Agriculture (Kansas; 1959), pp. 118-126.

[3]Ibid., pp. 160-169.   [4]Ibid., pp. 118-126.

TABLE 1

MEDIAN FAMILY INCOME IN 1959*

County or state	Income
Allen county	$4,086
Bourbon county	3,511
Cherokee county	4,077
Crawford county	4,157
Labette county	3,856
Montgomery county	4,759
Neosho county	4,245
Wilson county	4,028
Woodson county	3,466
Kansas	5,295

*U. S. Bureau of the Census, United States Census of Population: General Social and Economic Characteristics (Kansas; 1960), pp. 167-168.

TABLE 2

FAMILY INCOME DISTRIBUTION IN 1959*

Income group	% families in southeast Kansas	% families in Kansas
Under $ 1,000	7.0	4.8
$1,000- 1,999	13.0	8.1
2,000- 2,999	12.7	9.4
3,000- 3,999	12.8	11.1
4,000- 4,999	12.2	12.7
5,000- 5,999	11.6	13.4
6,000- 6,999	8.2	10.6
7,000- 7,999	5.5	7.9
8,000- 8,999	3.6	5.9
9,000- 9,999	2.2	4.1
10,000-14,999	4.2	8.3
15,000-24,999	1.4	2.6
25,000 and over	0.5	1.1

*U. S. Bureau of the Census, United States Census of Population: General Social and Economic Characteristics (Kansas; 1960), pp. 189 and 266-274.

state.[1]

Many farmers in the area supplement their income with work off
the farm. Although only a slightly larger proportion work off the
farm than for Kansas as a whole, the off-farm work constitutes a more
important part of their livelihood than it does for farmers in Kansas
as a whole. This can be seen in Table 3. Those who work off the
farm do so for more days and this work provides a greater proportion
of their income. There is also a greater proportion of part-time
and part-retirement[2] farms in southeast Kansas than in the state as
a whole.

TABLE 3

PART-TIME FARMS AND FARM OPERATORS WORKING OFF THE FARM: 1959[*]

	Southeast Kansas	Kansas
% farm operators working off farm	45.8	43.2
% farm operators working off the farm 100 days or more	30.1	23.9
% with other income of family exceeding value of farm products sold	35.9	23.8
% part-time farms	20.8	11.7
% part-retirement farms	13.8	8.4

[*]U. S. Bureau of the Census, United States Census of Agriculture (Kansas; 1959), pp. 160-169.

---

[1]U. S. Bureau of the Census, County and City Data Book (a statistical abstract supplement; 1962), pp. 131-151.

[2]Part-time farms are those with sales of farm products from $50
to $2,499 with operators under 65 who work off-farm 100 days or more
or have income from nonfarm sources greater than the value of farm
products sold. Part-retirement farms are those with sales of farm
products from $50 to $2,499 and operators over 65.

Agriculture accounts directly for 13.8% of the employment in southeast Kansas, which is only slightly higher than that for Kansas (13.3%).[1] More persons are employed in both manufacturing and retail trade than in agriculture, just as they are for Kansas. Table 4 gives the percentages employed in each industry group for southeast Kansas and the state and shows little difference in the distribution of employment among the various industries.

The unemployment problem is more serious in the southeast area than for the state. Kansas had 3.7% of the civilian labor force unemployed in 1960 while southeast Kansas had 5.0%.[2]

The unemployment problem is aggravated by the low educational level of people in the area. Table 5 gives the median years of school completed for persons 25 years of age and older. This is a result to some extent to the high median age, but nevertheless, low levels of education make it more difficult to alleviate an unemployment problem.

To summarize, the area is one of declining population, low income, low education, high median age with concentration in the older age groups, and relatively serious unemployment. Deserted by its old economic standby, mining, the area depends primarily upon agriculture and manufacturing for its basic employment. Population growth and decline is directly related to the growth and decline of this basic employment.[3] So far these pursuits have not taken up the slack

---

[1] U. S. Bureau of the Census, U. S. Census of Population: General Social and Economic Characteristics, op. cit., pp. 257-265 and 188.

[2] Ibid., pp. 167 and 239-247.

[3] Richard L. Nelson, The Selection of Retail Locations (New York: F. W. Dodge Corporation, 1958), p. 5.

created by the decline of mining. The stage seems to be set for
further decline.

TABLE 4

DISTRIBUTION OF EMPLOYED PERSONS AMONG INDUSTRY GROUPS: 1960*

Industry Group	Southeast Kansas	Kansas
Agriculture	13.8	13.3
Forestry and Fisheries	0.0	0.01
Mining	2.1	1.9
Construction	5.7	6.2
Manufacturing	18.1	16.6
Transportation, communications,		
and other utilities	9.4	8.6
Wholesale trade	3.0	3.6
Retail trade	17.1	16.3
Finance, insurance, real estate	3.3	3.8
Business services	0.3	0.6
Repair services	1.6	1.5
Private households	2.5	2.5
Other personal services	3.0	2.9
Entertainment and recreation	0.6	0.7
Hospitals	2.6	3.1
Education, government and private	6.1	6.6
Welfare, religious, and non-profit		
membership organizations	1.4	1.5
Other professional		
and related services	2.1	2.5
Public administration	4.7	4.7
Industry not reported	2.8	3.1

*U. S. Bureau of the Census, United States Census of Population:
General Social and Economic Characteristics (Kansas; 1960), pp. 257-
265 and 188.

TABLE 5

MEDIAN SCHOOL YEARS COMPLETED
PERSONS 25 YEARS OLD AND OVER*

County or state	Years of school
Allen county	9.8
Bourbon county	9.2
Cherokee county	9.0
Crawford county	9.6
Labette county	10.0
Montgomery county	10.4
Neosho county	10.2
Wilson county	9.9
Woodson county	9.2
Kansas	11.7

*U. S. Bureau of the Census, United
States Census of Population: General
Social and Economic Characteristics
(Kansas; 1960), pp. 155-166.

CHAPTER III

SURVEY OF RELATED LITERATURE

A considerable amount of research has been undertaken on subjects related in one way or another to that presented here. None have been found, however, which used an identical method, or which attempted to find the answer to exactly the same problem.

A study which seemed at first to be very similar was undertaken at the University of Wichita.[1] One of the objectives of this study was to project changes in population, income, and retail sales to 1965 and 1970 for Kansas and Oklahoma counties. The Wichita study differed, however, in several ways: (1) it did not attempt to project numbers of retail units, (2) it did not predict the future behavior of specific types of retail units, (3) it did not include breakdowns by town size, and (4) its predictive methods were less reliable and likely to give less accurate results.

The authors of the Wichita study assumed a constant percentage change using 1950 to 1960 as a base to determine the trend in all their projections to 1965 and 1970. From their projections they predict a total 1970 population of the nine-county southeast Kansas area of

---

[1]Verne A. Bunn and Donald C. Christenson, Population, Income, and Retail Sales in Kansas and Oklahoma for 1950-1960 with Projections for 1965 and 1970 (The Center for Business Management Services, College of Business Administration; Wichita, Kansas: University of Wichita, November, 1962).

184,685.[1] They predict that the area will decline from 9.25% of the Kansas population in 1960 to 6.91% in 1970.[2] Kansas will grow while this area will decline.

Neither is the area expected to grow economically as fast as the rest of the state. The total effective buying income (equivalent to disposable personal income) of Kansas is expected to grow 69.2% from 1960 to 1970, while in the nine southeast Kansas counties the increase is expected to be only 32.2%.[3] Not all of this difference in increase in total income can be attributed to the expected differences in population change. They computed an "effective buying income quality index", which is equal to the county percentage of state total income divided by the county percentage of state total population. The aggregate effective buying income quality index for the nine-county southeast Kansas area is expected to decline from .82 in 1960 to .72 in 1970.[4]

The increase in retail sales is not expected to keep up with that for Kansas as a whole, either. Kansas retail sales are expected to increase 49.1% from 1960 to 1970, compared to 31.0% for southeast Kansas.[5] These predictions were made by assuming that between 1960 and 1970 these factors will change in the same proportions as from 1950 to 1960.

Another study of Kansas counties was conducted by William Korbel at Kansas University.[6] The purpose of this study was to learn about

---

[1] Ibid., pp. 15-17.   [2] Ibid., pp. 21-23.   [3] Ibid., pp. 36-37.

[4] Ibid., pp. 51-53.   [5] Ibid., pp. 89-91.

[6] William Korbel, Turnover of Retail Firms in Kansas (School of Business, Bureau of Business Research; Lawrence, Kansas: University of Kansas, March, 1955).

ownership turnover and births and deaths of retail establishments in Kansas. The source of data was records collected by the Sales Tax Division of the Kansas State Commission of Revenue and Taxation covering the period of July 1, 1952 to June 30, 1953. These records include a list of business births and deaths and the number of businesses by county and type of business and by how the business was started (i. e., new business or change of ownership). Korbel divided the state into six "economic regions" for purposes of the study. The southeast Kansas region was identical to the area discussed in this thesis.

Among the findings of interest were that the southeast and north-central regions had the highest median age for all businesses (60 months, compared to 55 months for the lowest). The southeast region had the highest median age for food stores, and second highest for clothing stores.[1] The author attributed a high median age to lack of opportunity for new businesses, rather than to longevity of existing businesses.

He found that the southeast region had a rate of 153.2 starts and 176.9 quits per thousand businesses for apparel stores. For food it was 297.2 starts and 312.6 quits per thousand.[2] This means that the southeast Kansas area had a net loss of 2.37% of its clothing stores and 1.54% of its food stores in that one year.

A study completed at Kansas State University[3] reported on changes

[1]Ibid., p. 21.   [2]Ibid., p. 80.

[3]Mildred R. Buzenberg, The Interrelationships of Region, Population Change, and Change in Number of Retail Firms in Selected Areas of Nonmetropolitan Kansas (Contribution No. 8, Department of Economics and Sociology, Kansas Agricultural Experiment Station; Manhattan, Kansas: Kansas State University, 1963).

in the number of retail stores between 1957 and 1962 in 57 Kansas towns under 1,000 population and 20 Kansas towns between 1,000 and 5,000. Data on eight types of retail businesses (farm machinery, general stores, gasoline service stations, food stores, eating and drinking places, clothing stores, furniture and equipment stores, and drug stores) were compiled from Dun and Bradstreet Reference Books.

It was found that towns under 1,000 decreased in number of businesses in all eight types. Towns 1,000 and over lost businesses in three groups, gained in four and had no change in one.[1]

When the towns were analyzed according to population change between 1950 and 1960, it was found that towns with decreasing population lost stores regardless of size.[2] Those with less than a 5% change in population lost businesses also, but lost a smaller proportion. Towns under 1,000 with a population increase lost 14.7% of their businesses—almost as great a loss as towns of that size which lost population. Only towns over 1,000 which had experienced a population increase gained in number of businesses.[3]

A study of retail businesses in Nebraska towns[4] also used the Dun and Bradstreet Reference Book as a source of data. This study was an attempt to determine what effect changing population has on the number of businesses in a town. Will a town decreasing in population have more or fewer facilities than a growing town of the same size? One theory states that it will have fewer and that this is one of the

---

[1]Ibid., pp. 5-6. [2]Ibid., p. 11. [3]Ibid., p. 13.

[4]Leonard Tobkin and Edgar Z. Palmer, Types of Business in Nebraska Towns (Business Research Bulletin No. 57, College of Business Administration; Lincoln, Nebraska: University of Nebraska, 1954).

causes of the population decrease or that businessmen see the decline
and do not start new businesses. Another theory holds that it will
have more because it is equipped for the larger population of the
past. The first theory assumes that business moves ahead of popula-
tion change, anticipating it and acting accordingly. The second theory
assumes a lag between population change and changes in the business
structure.

They found considerable support for the first theory, enough to
lead them to state that businesses may move ahead of population and
offer fewer facilities when a decline is evident. For 83 out of 86
types of business, there were more firms in growing than in declining
towns of equal size. In 71 of these cases, the relationship was signi-
ficant at the 2% level.[1]

Another finding, which was not surprising, was that although the
number of businesses increased with increasing town size, the per capita
number of businesses decreased.[2]

Several studies on related subjects were carried out at the Uni-
versity of Wisconsin. One of these compared the service orientation
of Wisconsin rural people in three periods, 1911-1913, 1929-1930, and
1947-1948.[3] The information concerning the first two periods was
based on previous University of Wisconsin studies. Data was collected
by means of a questionnaire asking rural people what towns they pat-
ronized for various goods and services.

---

[1]Ibid., p. 66.   [2]Ibid., p. 6.

[3]John H. Kolb and Leroy J. Day, Interdependence in Town and
Country Relations in Rural Society (Research Bulletin 172, Agricultural
Experiment Station; Madison, Wisconsin: University of Wisconsin,
December, 1950).

Among the findings were that open-country people tend to divide their service orientation among towns more than in the past, and that rural-customer oriented service centers are becoming increasingly specialized.

A later Wisconsin University study[1] pursues this theory further pointing out that distance is not as important as it was in past decades, making rural people increasingly more willing to "shop around" for their services. Typically they patronize several different towns. This study reached the following conclusions: (1) rural residents no longer "belong" to a single community as defined by their trade patterns, (2) trade areas for some specialized services are surprisingly large, (3) neighborhood centers are no longer important, and (4) centers offering similar services must compete to attract rural trade.[2]

Some observations concerning the distribution of specific services were made. Banking seemed to be determined by the distance to the nearest center, indicating a minimum of "shopping around." A large proportion of the open-country people tended to buy groceries in nearby towns also, although a high proportion divided their purchases among two or more centers. The data on clothing purchases indicated a great deal of shopping around and willingness to travel a considerable distance. A large proportion bought clothing in more than one town and would often by-pass a closer town in order to patronize a more distant center.[3]

---

[1] Jon Doerflinger, "Service Orientation of Open-Country People in Price County" (unpublished report, Rural Sociology Department, University of Wisconsin, May, 1958).

[2] Ibid., p. 2.   [3] Ibid., p. 7.

A later publication by the same author[1] also expressed this idea, and went on to state that "the picture of the isolated, self-sufficient community does not exist at present."[2]

Several related studies have been made at the University of Kentucky during the past twelve years. One of these[3] involved personal interviews with a random sample of families in a small Kentucky town asking them where they bought various goods and why. They found (1) small town families were more likely to buy fashion goods out of town than convenience or service goods, (2) the higher their income, the more likely families were to buy in Lexington (the major city of the area), and (3) most of those who purchased goods in Lexington gave "larger selection" for the main reason for buying there.[4]

A more comprehensive publication by the same authors included a chapter on "Retail Trade and Market Analysis."[5] This was an analysis of the retail trade of two primary and two secondary trading centers in western Kentucky. Trade areas were defined through a combination of a mathematical formula (similar to Reilly's "Law of Retail

---

[1]Jon A. Doerflinger and D. G. Marshall, The Story of Price County, Wisconsin: Population Research in a Rural Development County (Research Bulletin 220, Agricultural Experiment Station and Agricultural Extension Service; Madison, Wisconsin: University of Wisconsin, June, 1960).

[2]Ibid., p. 3.

[3]Frank G. Coolsen and Will S. Myers, Jr., "Survey of Buying Habits--Paris, Kentucky and Nearby Towns" (unpublished preliminary report, Bureau of Business Research, College of Commerce, University of Kentucky, January 10, 1952).

[4]Ibid., p. 4.

[5]Frank Coolsen, Will S. Myers, and James W. Martin, Paducah and Western Kentucky Income, Labor, and Retail Trade Patterns (Bulletin No. 24, Bureau of Business Research, College of Commerce; Frankfort, Kentucky: University of Kentucky, August, 1952), pp. 34-53.

Gravitation") and personal interviews with businessmen and consumers.
They found that large trading centers attracted a larger proportion
of the fashion goods trade of the area than they did other types of
trade. People would travel further to purchase fashion goods than
convenience or service goods.

In an economic study of an eight-county area of northern Kentucky[1]
an attempt was made to determine what proportions of the purchases of
fashion and other goods were made outside the area. The average income
in this area was about the same as the Kentucky average, so it was
assumed that the ratio of retail expenditures to income would be about
the same as for Kentucky as a whole. The lower ratio of retail sales
to income for the eight-county area then, was attributed to buying out-
side the area. (A balance was assumed between residents of Kentucky
buying outside the state and non-residents buying in Kentucky.) By
this method it was found that residents of the eight-county area bought
44% of their fashion goods and 9% of all other retail purchases outside
the area.[2]

Research on changes in Minnesota rural trade centers during
depression (1929-1933) and post-depression (1933-1937) years[3] measured
the effect of the depression on businesses in different sized towns.
Towns were divided into three categories; major independent, minor
independent, and dependent; depending on the presence or absence of

---

[1]John L. Johnson and Elan Greene, The Economy of Northern Ken-
tucky (Bureau of Business Research, College of Commerce, No. 29;
Frankfort, Kentucky: University of Kentucky, May, 1954), pp. 33-37.

[2]Ibid., pp. 36-37.

[3]Lowry Nelson and Ernst T. Jacobson, "Recent Changes in Farm
Trade Centers of Minnesota," Rural Sociology, VI, No. 2 (June, 1941),
pp. 99-106.

certain services and the number of business units. The number of
business units in each category was determined from Dun and Bradstreet
Reference Books for each year. It was found that from 1929 to 1933,
major independent centers gained 1% in number of businesses while
minor independent and dependent lost 2.6% and 7.5% respectively.
From 1933 to 1937, major independent centers gained 17.0%, minor inde-
pendent gained 8.8% and dependent gained 7.2%.[1] Restaurants, beer
parlors and filling stations (relatively short-lived establishments
requiring little capital) were found to account for a large proportion
of the gains, especially in the dependent centers.

It was also found that recovery in number of business units was
greater in towns farther from major trade centers.[2]

The authors concluded that the depression and period of recovery
accelerated the differential growth rate of large and small towns, at
the expense of the small ones.[3]

Another study traced trends in sales volume and number of stores
in Illinois towns of under 2,500 from 1938 to 1950.[4] Dun and Brad-
street Reference Books were used as a source of data. The total number
of stores in all towns changed only 0.5% during this period, although
the totals for different types of businesses changed considerably.[5]

Findings of studies of the area covering the period of 1913 to
1938 were compared to the 1938-1950 study. During the earlier periods

---

[1]Ibid., pp. 101-102.   [2]Ibid., p. 106.   [3]Ibid., p. 106.

[4]Donald W. Scotton, Trends in Rural Retailing in Two Illinois
Districts: 1938 to 1950 (Bulletin 76, College of Commerce and Busi-
ness Administration, Bureau of Economic and Business Research; Urbana,
Illinois: University of Illinois, 1953).

[5]Ibid., p. 17.

there were declines in sales volume in these small towns because of the automobile, the decrease in number of farms, and decreasing farm income. The 1938 to 1950 study showed a large increase in sales volume because of higher prices and the increased income of farm and village people. When these factors were eliminated, however, this study agreed with the earlier ones and pointed to a continuing movement of trade to bigger centers.[1]

City directories were used as a source of data in a study of the business history of Norristown, Pennsylvania (population 38,000) from 1900 to 1950.[2] The number of businesses by type of business were tabulated for the years 1900, 1910, 1920, 1930, 1940, and 1950. For the years from 1920 to 1950 the tabulation was done for every year the city directory was published (about every two years). New firms were traced and firms entering and leaving were noted.

It was found that the number of businesses grew from 712 in 1900 to 1,341 in 1950. During that time 2,997 new firms were established and 2,368 went out of business. Only 60 firms were present in both 1900 and 1950. The overall birth rate was about 100 per 1,000 and the death rate 90 per 1,000.[3]

An interesting finding was that the decade of 1940 to 1950 was the only one in which business births exceeded deaths. This is particularly significant because during this decade the city sustained a

---

[1] Ibid., p. 51.

[2] Sidney Goldstein and Kurt Mayer, "Patterns of Business Growth and Survival in a Medium-Sized City," The Journal of Economic History, XVII, No. 2 (June, 1957), pp. 193-206.

[3] Ibid., p. 199.

population loss.[1] In spite of this, the authors did not find business
turnover to be primarily a function of the business cycle. Rather,
they concluded that long-run changes were related mainly to growth or
decline in the city's population.[2]

Nine non-growing cities and nine moderately growing cities be-
tween 100,000 and 900,000 in population were compared in another study
of the effect of population change on retail business.[3] This study
compared the 1929 and 1939 Census of Business figures on number of re-
tail establishments, retail sales, and retail employment. It was found
that retail sales in the nine non-growing cities was 23.3% less in 1939
than in 1929, while in growing cities it declined only 7.2%.[4] The
number of retail establishments increased 4% in non-growing cities and
12% in growing cities. Retail employment increased 12% in the growing
cities and decreased 9% in the others. Sales per establishment decreased
17% in the growing cities and 26% in the non-growing cities.[5] It can
be seen that retail business in the growing cities did not suffer as
much from the depression as it did in non-growing cities.

A study of types of retail stores present as related to popula-
tion change was made in 351 towns in southern Minnesota.[6] Dun and
Bradstreet Reference Books were used to determine which of seven types

---

[1]Ibid., p. 201.   [2]Ibid., p. 201.

[3]Victor Roterus, "Effects of Population Growth and Non-Growth on
the Well-Being of Cities," American Sociological Review, XI, No. 1
(February, 1946), pp. 90-97.

[4]Ibid., p. 92.   [5]Ibid., p. 93.

[6]Edward Hassinger, "The Relationship of Retail-Service Patterns
to Trade Center Population Change," Rural Sociology, XXII, No. 3
(September, 1957), pp. 235-240.

of retail stores were present in each town. They were then given a
score for 1939 and 1951 from a Guttman-type scale indicating the highest
type of retail store present in that year.

It was determined that as the score increased there was more
tendency for the town to gain population. This supported the hypo-
thesis that centers offering more specialized services would show greater
tendency to increase in population.[1] Over two thirds of the towns
gaining in retail service types also gained in population, and two thirds
of those losing retail-service types lost population.[2]

The studies summarized so far have indicated that population
growth is "good" for the retail business of a city. A somewhat contrary
conclusion was made by other researchers.[3] They found that the length
of life of business units was related to local population growth.
Cities with relatively stable populations had a longer average length
of life for their business units than places with rapidly growing popu-
lation. They concluded that a rapid increase in population stimulates
a too rapid growth of business while a relatively stable population
discourages new business. Therefore, the more stable the population,
the more stable the businesses because of the lack of overoptimism.[4]

A study of factors associated with differences in retail sales
among cities was made using Illinois cities over 10,000 (excluding

[1]Ibid., p. 238.   [2]Ibid., p. 239.

[3]Ruth Gillette Hutchinson, Arthur R. Hutchinson, and Mabel
Newcomer, "A Study in Business Mortality," American Economic Review,
XXVIII, No. 3 (September, 1938), pp. 497-514.

[4]Ibid., p. 511.

Chicago) for comparison purposes.[1] Regression equations were constructed and an attempt was made to determine which of several factors were correlated with variations in (1) total sales, and (2) per capita sales among cities.

An r^2 of .91 was obtained in a simple correlation of total income and total sales. This was considered high, but not as high as the r^2 of .95 usually obtained in correlations of individual income and expenditures.[2] Multiple regression equations were set up with total income, population, percentage of families with income over $4,000, percentage of families with income over $7,000, distance to the nearest larger city, ratio of the number of stores in the given city to the number in the nearest larger city, and the distance to St. Louis or Chicago as the independent variables. From these, only population and distance to the nearest larger city were statistically significant in relation to the dependent variable, total retail sales. These two variables had an r^2 of .949. Population was eight times as important as distance.[3]

A regression equation was also set up with per capita sales as the dependent variable. Per capita income, number of stores per 10,000 population, and distance to the nearest larger city were statistically significant with a total regression of $r^2 = .64$.[4]

For smaller towns such as many of those in the southeast Kansas area, the selection of goods for sale in the town has an effect on consumer purchasing habits. Research into this problem was conducted

[1]Robert Ferber, "Variations in Retail Sales Between Cities," Journal of Marketing, XXII, No. 3 (January, 1958), pp. 295-303.

[2]Ibid., p. 295.   [3]Ibid., p. 298.   [4]Ibid., p. 300.

comparing Utah towns and cities in three size categories.[1] Personal
interviews were conducted with housewives in 29 small rural towns with
populations of 100 to 685, seven larger rural towns of 841 to 1,525,
and four cities of 3,584 to 5,641. The data were compiled by town
size and by income and occupation groups.

Seven and eight-tenths per cent of the housewives interviewed
in the two smaller town categories reported there was an inadequate
selection of dry-grocery items. Scarcely any in the largest town
category reported this deficiency. Forty-nine per cent in the two
smaller town categories reported high prices for groceries compared
to 17.5% in the larger towns. Grocery prices were found to actually
be higher in the smaller towns; in some cases 15 to 20% higher. The
closer the small towns were to larger cities, the less was the dif-
ference in food prices.[2]

Housewives interviewed in the two smaller town categories gen-
erally reported inadequate selection and availability of clothing and
dry goods. All items of this type were usually purchased out of town
by well over half the small town interviewees. The reasons given for
this were lack of availability, limited selection, and higher prices
in their home towns.[3]

A report published by the Federal Reserve Bank dealt with the
effect of the declining number of farmers and the changes in farming
methods on businesses selling to farmers.[4]

[1]David E. Faville, Dix M. Jones, and Richard B. Sonne, Merchan-
dise Availability in Utah (Stanford, California: Stanford University
Press, 1942).

[2]Ibid., p. 17.   [3]Ibid., p. 18.

[4]"Agricultural Growth and the Rural Economy," Monthly Review,
Federal Reserve Bank of Kansas City (June, 1960), pp. 3-8.

A relatively large increase in production expenses has caused total net farm income to decline while total gross farm income has increased since World War II. This means that the total sales volume of consumption goods and services to farmers has declined while the sale of production goods has expanded. If the number of businesses providing consumer goods to farmers has not declined as much proportionally as has total net farm income, then those businesses must depend upon nonfarm sources of customers or have a lower volume of business.

The total purchasing power of farmers has increased slightly since World War II, but a substantially larger proportion has been spent on production goods. Production expenditures have increased faster than has total gross farm income.[1] The per capita net purchasing power of farmers has stayed about the same because of the decrease in the number of farms and the increase in the nonfarm income of farmers.

The changes in farm inputs from the 1947-49 period to the 1956-58 period have significance for farm-related businesses. Between those periods total inputs increased only 1%, but labor (a non-purchased input) decreased 26% while the total of purchased inputs increased 27%. From this increase of only 1% in inputs, a 30% increase in farm production was made, thus increasing productivity substantially.[2]

Even though the number of farms decreased between these two periods, farm production expenses increased by 50%, so business firms selling production goods to farmers should be doing a larger volume

[1]Ibid., p. 3.   [2]Ibid., p. 4.

of business with fewer customers.[1] Firms selling a larger volume
to fewer customers should be able to cut selling and handling costs and
sell at lower prices, or give better service than when selling a
smaller volume to more farmers. As the aggressive firms get more big
customers, they can cut costs and prices more, thus attracting more
customers and so on. Smaller firms will find it increasingly more
difficult to compete, so it is probable that in the future there
will be a declining number of firms selling an increased volume of
production goods to farmers.[2]

---

[1]Ibid., p. 6.   [2]Ibid., pp. 6-7.

CHAPTER IV

METHODS AND SOURCES OF DATA

Several sources of data were utilized in this study. Some
material had been developed previously by the Area Development pro-
ject, including trade area maps for each commodity. Results from the
Area Development questionnaires administered in Neosho county and the
townships bordering on that county were also used.

The Dun and Bradstreet Reference Books for 1957 and 1962[1] were
used to enumerate the retail units. These were supplemented by a
list of chain stores and by letters to individual store managers.
The Dun and Bradstreet Reference Books list all businesses except the
individual outlets of chain stores. They are assumed to be fairly
reliable and accurate. Quite a few research studies have used these
books and its predecessor, Bradstreet's Commercial Ratings, as a
source of data, setting a precedent for their use in research.[2]

_____

[1]Dun and Bradstreet, Reference Book (New York: Dun and Brad-
street Co., 1957 and 1962), Vols. 406, Book 2 and 411, Book 1.

[2]Douglas Chittick, Growth and Decline of South Dakota Trade
Centers, 1901-51 (Agricultural Experiment Station Bulletin 448; Brook-
ings, South Dakota: South Dakota State College, May, 1955), p. 6.
Eusenberg, op. cit., p. 4. Tobkin and Palmer, op. cit., p. 5. Nelson
and Jacobson, op. cit., p. 99. C. C. Zimmerman, Farm Trade Centers
in Minnesota, 1905-1929 (Minnesota Agricultural Experiment Station
Bulletin 269; Duluth, Minnesota: University of Minnesota, September,
1930), p. 8. C. E. Lively, Growth and Decline of Farm Trade Centers
in Minnesota, 1905-1930 (Minnesota Agricultural Experiment Station
Bulletin 287; Duluth, Minnesota: University of Minnesota, July, 1932),
p. 3. T. Lynn Smith, Farm Trade Centers in Louisiana, 1901-1933
(Louisiana Agricultural Experiment Station Bulletin 234; Baton Rouge,
Louisiana: Louisiana State University, January, 1933), p. 7. Paul

All population figures except the population of unincorporated
towns were taken from State Board of Agriculture Reports[1] and from
the State Board of Agriculture upon request by letter. The population
of unincorporated towns were obtained by letter from county clerks,
county agricultural agents, and persons living in the towns.

The Farm Management Annual Reports[2] were used in an analysis
of trends in expenditures for farm machinery.

The Censuses of Business, Population, and Agriculture for Kan-
sas were used for background and supporting data, as was the County-
City Data Book published by the U. S. Census Bureau.

Seven population groups were analyzed separately: cities of
5,000 and over, cities of 1,000 to 4,999, incorporated cities under
1,000, townships containing a city of 5,000 or over, townships con-
taining a city of 1,000-4,999, townships containing an incorporated
city of less than 1,000, and townships containing no incorporated
cities. The township population did not include the population of
incorporated cities it contained. If a township contained more than
one city, the largest city was used to determine its classification.

R. Landis, Washington Farm Trade Centers, 1900-1935 (Washington Agri-
cultural Experiment Station Bulletin 380; Pullman, Washington: State
College of Washington, July, 1938), p. 6. Paul H. Landis, The Growth
and Decline of South Dakota Trade Centers, 1901-1933 (South Dakota
Agricultural Experiment Station Bulletin 279; Brookings, South Dakota:
South Dakota State College of Agriculture, April, 1933), p. 5. Scot-
ton, op. cit., p. 12. Hassinger, op. cit., p. 236.

[1]Kansas State Board of Agriculture, State Board of Agriculture
Reports; 1909-1910 to 1960-1961 (17th to 44th Reports).

[2]Farm Management Summary and Analysis Report (1955, 1957, 1958,
1959, 1960, 1961, 1962 Reports, Extension Service; Manhattan, Kansas:
Kansas State University, 1955 to 1962).

Rural population[1] was divided into these four groups because it was
determined that the population density was very different in the area
immediately surrounding cities from that in areas not near a city.

Yearly population figures were obtained for each of these groups
from 1910 to 1960[2] and the populations were projected to 1972 using
linear regression. The number of farms in the area was obtained in
four to ten year intervals from 1900 to 1959[3] and this also was pro-
jected to 1972.

The choice of linear regression as the best means to use in
predicting population in this case was made after studying several
alternative methods, examining the scatter diagrams, and examining
the population structure at present, together with knowledge of the
past and present social and economic forces in the area and their
likely effect on the area's future.

The alternative methods studied were arithmetic projection
(the method used), geometric projection, the analogy method, the ratio
method, the analytic method, correlation of annual data on city popu-
lation and economic variables, the multiple factor curve, and logis-
tics curves. It was soon determined that the ones which could be
applied to the problem of predicting the population of an area and
groups of cities rather than a single city were arithmetic and

---

[1]"Rural" shall be defined as "outside incorporated cities"
except when queting U. S. Census figures, when the census definition
will prevail.

[2]Kansas State Board of Agriculture, State Board of Agriculture
Reports; 1909-1910 to 1960-1961, loc. cit.

[3]U. S. Bureau of the Census, United States Census of Agricul-
ture (Kansas, 1900 to 1959).

geometric projection, the ratio method, and the analytic method. Arithmetic projection simply projects past numerical changes into the future; geometric projection projects percentage changes. The ratio method involves projecting the population of one or more larger areas, such as the state or nation, of which the area being projected is a part. Then the proportion this area will be of the larger area must be determined and applied to the projected figure for the larger area. The analytic method involves separate analyses of birth, death, and migration rates.

The ratio method was rejected because of the inability to arrive at reasonably accurate figures for the future ratios of the population of southeast Kansas to that of larger areas. It could by no means be assumed that it would remain constant for ten years.

The analytic method might well have been the best choice, but the element of time caused it to be ruled out in favor of a simpler method.

The choice between arithmetic and geometric projection was made on the basis of the form of past population change in the area and because some comparisons have proven it to be the more accurate of the two.[1]

Arithmetic projection has been found to tend to overestimate[2]

[1] Robert C. Schmitt and Albert H. Crosetti, "Short-Cut Methods of Forecasting City Population," Journal of Marketing, XVII, No. 4 (April, 1953), p. 422.

[2] O. C. Houser, "How Accurately Can Engineers Predict Future Population Growth of Cities?," The American City, XXXIX, No. 3 (September, 1928), pp. 124-126.

future population by some and underestimate[1] it by others. Most would agree, however, that the method used must fit the particular situation, and that one method might be best in one case and a different method in another.[2]

The density of farms throughout the area was assumed constant, as it was determined that the number of farms per square mile is approximately the same regardless of the proximity of a city, except in townships containing a city of 5,000 or more. The farm density there is somewhat higher, but these areas do not contain a large enough proportion of the farms in the area to make an adjustment necessary.

After the populations of the township groups were projected, the population of unincorporated towns in each group were subtracted from the 1963 totals and a proportionate amount subtracted from the 1972 estimates. (Population change in unincorporated towns was assumed to be at the same rate as that of the township groups of which they were a part.) This actually added four more population groups: unincorporated cities in townships containing a city of 5,000 or more, unincorporated cities in townships containing a city of 1,000-4,999, unincorporated cities in townships containing a city under 1,000, and unincorporated cities in townships containing no incorporated cities.

Names were given to these population groups to avoid the

---

[1]Planning Advisory Service, Population Forecasting (No. 17: Chicago: American Society of Planning Officials, 1950), p. 4.

[2]Harlin G. Loomer, "Accuracy of the Ratio Method for Forecasting City Population: A Reply," Land Economics, XXVIII, No. 2 (May, 1952), p. 180. Schmitt and Crosetti, "Short-Cut . . . ," op. cit., p. 423-424.

necessity of using their lengthy descriptions each time they were
mentioned:

```
Cities of 5,000 or more . . . . . . . . . . . . . . Class A cities
Cities of 1,000-4,999 . . . . . . . . . . . . . . . Class B cities
Cities under 1,000 (incorporated) . . . . . . . . Class C cities

Townships containing a city of 5,000 or more  . . Class A townships[1]
Townships containing a city of 1,000-4,999  . . . Class B townships
Townships containing an incorporated city
   under 1,000 . . . . . . . . . . . . . . . . . . Class C townships
Townships containing no incorporated cities . . . Class D townships

Unincorporated towns in class A townships . . . . Class A unincor-
                                                     porated towns
Unincorporated towns in class B townships . . . . Class B unincor-
                                                     porated towns
Unincorporated towns in class C townships . . . . Class C unincor-
                                                     porated towns
Unincorporated towns in class D townships . . . . Class D unincor-
                                                     porated towns
```

The rural population per square mile was then computed for each
township class for 1957, 1962, and 1972. The number of farms per
square mile was computed for these years also. The 1972 population
of unincorporated cities was estimated by assuming they would be in
the same ratio to the total population of their class as they were
in 1963.

Trade area maps for each of the four types of business had
already been constructed by the Area Development project.[2] These
are included in Appendix A. The method of trade area delineation is
described in Appendix B. All complete or nearly complete trade areas
(those not extending for some distance outside the southeast Kansas
area) were measured with a planimeter and the units converted to

---

[1]The township classes do not include the population of either
incorporated or unincorporated towns within the township boundaries.

[2]John W. Knox, Survey of Trade Areas in Southeast Kansas (MF-115,
Extension Service; Manhattan, Kansas: Kansas State University, Jan-
uary, 1963).

square miles. For farm machinery, the trade areas for each city were
measured as a whole, since the goal was to estimate the number of
farms in each trade area and farm density was assumed to be constant.
For food, clothing and banking, however, the trade areas were marked
off by township and each township class measured separately, since
the total population of each trade area was desired. The approximate
population in each trade area could be easily determined by multiply-
ing the number of square miles in each township class times the den-
sity of that class and adding these to the population of all towns
and cities in the trade area. If an area or town was within the
trade area boundaries of two or more cities, its population was di-
vided equally among those cities.

The populations of the trade areas were then aggregated by city
class.

The Dun and Bradstreet Reference Books for 1957 and 1962 were
used to count the number of each of the four types of business in each
city. These were then aggregated by city class for all cities whose
trade area had been measured. The financial strength (net worth)
of each unit was noted also, and averages were computed for each type
of unit by city size. All figures were converted to a constant price
level for comparison purposes. Where financial strength was not
given, it was assumed to be equal to the average for that city class.

Chain stores are not listed separately so a list was obtained[1]
and these were added to the others. The financial strength was

_____

[1]1962 list of chain stores in Kansas obtained from Sykes E.
Trieb, Assistant Professor, Extension Marketing; Kansas State Uni-
versity; Manhattan, Kansas.

obtained by writing to the individual store and/or the chain head-quarters. From these two sources excellent cooperation was received, except for one chain whose financial strength had to be estimated from that of the others.

At this point, the number of retail units, total and average financial strength, and population of the trade areas for each city class and each type of retail business had been computed. From this, the population per retail unit and the financial strength per person could be computed for 1957, 1962, and 1972, assuming present trade area boundaries, and assuming for 1972 the 1962 number of outlets and financial strength.

Changes from 1957 to 1962 were examined and likely changes in number of units, financial strength, and trade area boundaries by 1972 were predicted. Trends in population per unit, sales per unit and per capita sales were traced from Census of Business data and used in predicting 1972 figures.

Since farm machinery is probably more closely related to the amount of land farmed than number of farms, special analysis was necessary for this type of business. An attempt was made to determine trends in machinery investment per crop acre through the years, and the relation of this to size of farm. It was hypothesized that smaller farms tend to have a greater machinery investment per acre than larger ones, thus tying the retail outlets for machinery to number of farms to some degree.

CHAPTER V

RESULTS OF POPULATION PROJECTIONS

The population of each city and township class and the number
of farms were extrapolated to 1972 using linear regression. The
year was the independent variable (X) and population the dependent
variable (Y). The population of township and unincorporated town
classes were projected together; then unincorporated town population
was subtracted in all years at 1963 proportions. Graphs of the popu-
lation of each group from 1910 to 1960 or 1962 and the best fitting
regression line are presented in Appendix C.

Extremely high r^2 values were obtained in every case indicating
a good fit to the regression line for the years used. The value r^2,
the correlation coefficient squared, is a measure of the amount of
variation in Y associated with a concomitant variation in X. In
these cases, a very large proportion of "population" was shown to
be related to "year".

In spite of these high r^2 values, fairly wide confidence inter-
vals were obtained for the extrapolated values of $\hat{Y}$ (population).
This is definitely one of the limitations of the analysis. The point
estimate of $\hat{Y}$=1972 population will be used, however, as it is the best
approximation we have of the actual figure.

In all cases, β was found to be significantly different from
0 at the .001 level.

Table 6 gives the b, r^2, and $\hat{Y}$=1972 values and the .05 confidence intervals on $\hat{Y}$ for all city and township classes and for the number of farms.

TABLE 6

STATISTICAL RESULTS OF PROJECTION OF POPULATION AND NUMBER OF FARMS

Class	x_1*	b	r^2	$\hat{Y}$=1972	.05 confidence intervals on $\hat{Y}$=1972
Class A cities	1953	-753.3	.994	79,744.2	78,156.1≤µ≤81,332.3
Class B cities	1954	-211.6	.986	37,468.8	36,706.1≤µ≤38,231.5
Class C cities	1955	-235.0	.971	12,228.7	11,445.3≤µ≤13,012.1
Class A twp. & uninc. towns	1954	-168.8	.928	10,459.4	9,812.3≤µ≤11,106.5
Class B twp. & uninc. towns	1954	-252.0	.940	9,299.4	8,385.6≤µ≤10,213.2
Class C twp. & uninc. towns	1910	-533.1	.992	11,362.0	9,732.1≤µ≤12,991.8
Class D twp. & uninc. towns	1948	-586.4	.979	14,034.9	12,558.9≤µ≤15,510.9
Number of farms	1935	-354.1	.956	8,076.4	4,562.0≤µ≤11,590.8

*First year of base period

The extrapolations to 1972 seem reasonable in the light of what is known about the area. One extrapolated figure, that of number of farms, was supported by data from the Area Development questionnaires. A random sample of farmers were asked if they would like to have more land, and if so how much. Fifty-four and seven-tenths per cent answered "yes", and they wanted an average of 242 additional acres. This makes an average of 152 additional acres for each farm, or 58.6% of their present acreage (260 acres). If this rate of increase in farm size was realized, there would be 7,554 farms in the area in 1972 averaging 405.9 acres per farm. This compared with 8,076.4 farms

with an average size of 379.6 acres from the extrapolation.

The se same farmers were asked to estimate the number of farms in their county in 1970. They predicted that there would be 73.6% as many farms as there were at that time (1961). This would make 8,861 farms in 1970 which is remarkably close to the extrapolated figure for 1970 of 8,784.6. There is less than a 1% difference between these figures.

Managers of agriculturally related businesses were asked the same question and predicted 71.6% as many farmers in 1970 as then. This would make 8,572, a difference of only 2.4% from the extrapolated figure.

The 1957, 1962, and 1972 populations in each class are given in Table 7. These are the years used in the analysis to follow.

TABLE 7

POPULATION BY CLASS: 1957, 1962, AND 1972
LINEAR REGRESSION ESTIMATES

Class	Population		
	1957	1962	1972
Class A cities	91,044	87,277	79,744
Class B cities	40,643	39,585	37,469
Class C cities	15,753	14,579	12,229
Class A townships	12,551	11,569	9,918
Class B townships	11,658	10,604	8,357
Class C townships	18,715	16,600	11,006
Class D townships	21,336	18,596	13,116
Class A uninc. towns	685	632	575
Class B uninc. towns	1,314	1,196	942
Class C uninc. towns	606	538	356
Class D uninc. towns	1,495	1,303	919

SELECTED BUSINESS TRENDS

Before setting forth the predictions for the future, a brief summary of the position of retail trade in southeast Kansas today is presented below. Comparisons with the state of Kansas as a whole are meaningful also.

The ratio of population to the number of retail establishments is meaningful, for it gives an indication of whether the retail pattern is following the national trend of increasing size of the units with each serving a larger population. Sales per unit and sales per capita are important also when used to compare two areas. Table 8 gives these three ratios for the southeast Kansas area and for Kansas for the years 1939, 1948, 1954, and 1958. Comparisons of the trends through the years are particularly interesting. The figures are given for all retail establishments and for food and clothing. Data for farm machinery is combined with hardware, lumber, and building materials in the Census of Business, and no data is given for banks.

It is readily apparent that the figures for all three of these ratios increased through the years for both Kansas and southeast Kansas. Exceptions to this are the 1954 and 1958 per capita sales of all establishments and of clothing for Kansas. The slight decrease in 1958 was probably due to the general recession that year. It is interesting that southeast Kansas did not experience a decline in per

TABLE 8

RATIO OF POPULATION TO NUMBER OF ESTABLISHMENTS, SALES PER
ESTABLISHMENT, AND PER CAPITA SALES FOR SOUTHEAST
KANSAS AND KANSAS, 1939 to 1958[*]

	1939	1948	1954	1958
All establishments				
Pop. / no. estab.				
Southeast Kansas	65.7	68.3	70.2	70.3
Kansas	65.7	73.2	78.9	84.1
Sales per estab.				
Southeast Kansas	31,557	59,482	70,119	70,981
Kansas	35,518	78,707	92,795	97,298
Per capita sales				
Southeast Kansas	480.4	871.4	998.9	1,010.4
Kansas	540.1	1,076.2	1,175.1	1,157.3
Food stores				
Pop. / no. estab.				
Southeast Kansas	256.4	300.0	348.4	429.9
Kansas	291.7	372.8	498.1	636.0
Sales per estab.				
Southeast Kansas	34,037	65,100	86,650	113,318
Kansas	38,377	83,907	127,470	170,724
Per capita sales				
Southeast Kansas	132.7	217.0	248.7	263.6
Kansas	131.5	225.2	255.8	268.4
Apparel and accessories				
Pop. / no. estab.				
Southeast Kansas	1,190.9	1,218.3	1,202.7	1,117.8
Kansas	1,496.2	1,568.1	1,476.7	1,591.4
Sales per estab.				
Southeast Kansas	33,673	57,823	59,274	63,647
Kansas	41,813	88,056	80,041	86,136
Per capita sales				
Southeast Kansas	28.3	47.5	49.3	56.9
Kansas	27.9	56.2	54.2	54.1

[*]Compiled from U. S. Bureau of the Census, United States Census
of Business: Retail Trade (1939, 1948, 1954, 1958), and Kansas State
Board of Agriculture, State Board of Agriculture Reports for 1939, 1948,
1954, and 1958. All dollar figures were converted to a constant price
ratio.

capita sales between those census periods. In fact per capita clothing sales had increased enough to surpass the Kansas figures for that year. Other exceptions were in the population per establishment for clothing. There seems to be no definite trend here. The only other exception was a manifestation of the "post-war boom" with a high figure for both sales per establishment and per capita sales of clothing for Kansas in 1948.

Otherwise the trends are clear; the average establishment is making higher sales to more persons; the average person is buying more through the years.

The main purpose in presenting this material is to point out that southeast Kansas has been lagging behind the rest of the state. Figures for southeast Kansas are lower than those for Kansas in almost every case. Whether this is due simply to the differences in population density and dispersion or to a more sluggish economy, it is not clear, but from other knowledge of the area, the latter would be suspected to be the case. More research would be needed to confirm this hypothesis, however.

It is apparent that the average size of most types of retail units has been increasing through the years. This trend has certainly been taking place in southeast Kansas as it has in the rest of the nation, although the data above indicate that the process may be occurring more slowly in this area. If this is true, it is probably also true that this area has further to go before the trend runs its course. This makes the projection of trends somewhat "safer" than usual.

Some selected findings from interviews in this area by the Area

Development project help to point out trends in the retail structure.
These interviews were conducted in Neosho county and the townships
bordering on that county, but are presumed to be representative of
the southeast Kansas area in general.

Businessmen in the area were asked to name the business giving
them the most competition from other towns. The size of town they
gave is given for each city class of the respondents in Table 9. The

TABLE 9

SIZE OF TOWN WHERE BUSINESS GIVING THE MOST COMPETITION
FROM OTHER TOWNS IS LOCATED

City class of respondent	City class of "most competition"											Total
	Class A		Class B		Class C		Uninc. town		No comp.		No answer	
	N	%	N	%	N	%	N	%	N	%	N	%	
Class A	13	21.0	27	43.5	7	11.3	3	4.8	2	3.2	10	16.1	62
Class B	8	61.6	1	7.7	1	7.7	0	0.0	2	15.4	1	7.7	13
Class C	17	39.5	11	25.6	10	23.3	3	7.0	2	4.7	0	0.0	43

smallest towns seem to give only each other competition, but the medium-
sized cities show up as being in a strong competitive position, espe-
cially with the larger cities. In fact, businesses in class B cities
were named as chief competitors almost as many times as were those in
class A cities.

These businessmen were asked how many businesses of their type
there were in their trade area now, and how many there should be now

and in 1972. This is given in Table 10. Businessmen in all city

TABLE 10

NUMBER OF BUSINESSES OF RESPONDENT'S TYPE IN HIS TRADE AREA: ARE NOW, SHOULD BE NOW, AND SHOULD BE IN FIVE TO TEN YEARS

City class of respondent	Are now		Should be now		Should be in 5-10 years		Total
	$\bar{x}$	NA*	$\bar{x}$	NA	$\bar{x}$	NA	
Class A	11.0	1	6.6	4	6.5	4	38
Class B	7.6	0	6.1	0	4.6	0	9
Class C	7.0	1	4.7	1	4.7	1	23

*No answer

sizes see the inevitable decrease in the number of businesses of their type. They know this must happen if any are to make a reasonable success of their business. They not only believe there should be fewer of their type of business by 1972, but also believe there should be fewer now.

Two questions asked of businessmen give their ideas about the future of their city and of their own business. Their answers are summarized in Table 11. It is interesting that businessmen in the medium-sized cities are the most optimistic. Table 9 indicated that class B cities are in a relatively good competitive position. One reason for this may be that they are gaining from the losses of the surrounding smaller towns.

Another question provides a contrast to those just given.

TABLE 11

FUTURE ECONOMIC AND GROWTH PROSPECTS
FOR RESPONDENT'S CITY AND BUSINESS

City class of respondent	City will:								Business will:						Total	
	Grow		Remain as is		Decline		No answer		Grow		Remain as is		Decline			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
Class A	21	55.3	11	28.9	5	13.2	1	2.6	26	68.4	7	18.4	5	13.2	38	
Class B	5	55.6	3	33.3	0	0.0	1	11.1	8	88.9	0	0.0	1	11.1	9	
Class C	2	8.7	11	47.8	10	43.5	0	0.0	12	52.2	8	34.8	3	13.0	23	

Businessmen were asked, "Do you hope to expand your trade area?" Here the medium-sized cities were more pessimistic as can be seen in Table 12. It is not clear whether they were pessimistic, or simply did not

TABLE 12

RESPONDENT'S DESIRE TO EXPAND TRADE AREA

City class of respondent	Yes		No		Total
	N	%	N	%	
Class A	16	42.1	22	57.9	38
Class B	2	22.2	7	77.8	9
Class C	14	60.9	9	39.1	23

want to go to the effort to expand their trade areas--"resting on their laurels"-- the relatively secure position indicated above. If

the latter is the case, businessmen in these towns should realize that
their greatest hope for growth is in the expansion of their trade areas
made possible by the weakening position of smaller towns. Those busi-
nesses in class A cities who also answered "no" should be aware of
this too.

It is interesting that a greater proportion of businessmen in
class C cities hope to expand their trade areas than in the other two
city classes. They are precisely the ones that would have the most
difficulty accomplishing it. They are no doubt aware of the small
and decreasing number of potential customers in the area they now
serve, and realize that their future existence depends upon enlarging
this number.

A summary of the data compiled from the Dun and Bradstreet
Reference Books will now be presented. Table 13 gives the changes
that occurred in the retail food structure between 1957 and 1962 by
city class and the changes in number of units and population per unit
that will take place by 1972 under certain assumptions stated later.
It can be seen that the number of units and the total financial
strength decreased between 1957 and 1962 for all town classes.

The average financial strength, however, has increased for all
but the smallest sized cities. The population per unit has increased
for all city sizes also. This is consistent with the national trend
in food retailing--fewer and larger units each serving a larger popu-
lation.

The figure which deviates from the others in this table is the
1957 to 1962 change in average financial strength for class C cities.
This has decreased while that of the larger sized cities has increased.

It should be noted, too, that the number of units in this city class has not decreased by as much as in the larger cities. This indicates that the number of units did not decrease fast enough to leave enough customers to support the remaining stores. In order for them all to remain in business, some of them had to actually decrease in size.

TABLE 13

CHANGES IN THE RETAIL FOOD STORE STRUCTURE,
1957-1962 AND 1962-1972

	Total financial strength	No. of units	Average fin. strength	Pop. of trade area	Per capita fin.stn	Pop. per unit
Class A cities						
1957	1,695,766	99	17,129	55,560	30.5	561.2
1962	1,441,888	72	20,026	52,043	27.7	722.8
1972	. . . . . .	38	. . . .	45,421	. .	1,199.1
57-62 % change	-15.0	-27.3	+16.9	- 6.3	- 9.2	+28.8
62-72 % change	. . . . . .	-47.2	. . . .	-12.7	. . .	+65.9
Class B cities						
1957	1,282,856	72	17,817	33,966	37.8	471.8
1962	1,275,236	51	25,004	31,969	39.9	626.8
1972	. . . . . .	26	. . . .	28,265	. . .	1,107.1
57-62 % change	- 0.6	-29.2	+40.3	- 5.9	+ 5.6	+32.9
62-72 % change	. . . . . .	-49.0	. . . .	-11.6	. . .	+76.6
Class C cities						
1957	813,401	55	14,789	12,673	64.2	230.4
1962	560,413	46	12,183	11,666	48.0	253.6
1972	. . . . . .	21	. . . .	6,532	. . .	307.4
57-62 % change	-31.1	-16.4	-17.6	- 7.9	-25.2	+10.1
62-72 % change	. . . . . .	-54.3	. . . .	-44.0	. . .	+21.2

An alternative possibility is that those which went out of business were larger stores. This does not seem plausible, although it would be possible. From the lists of stores and their financial strengths for individual towns in this class it was noted that the

stores which went out of business were, in almost every case, the very
small ones, and that in many cases individual stores actually decreased
in financial strength between 1957 and 1962.

The population per unit in 1957 and 1962 for class C cities was
less than half that for class A and B cities. The per capita finan-
cial strength was higher for this city class, indicating a larger
investment per customer. These stores cannot stock the variety of
merchandise that larger stores can and probably have to sell at slightly
higher prices than do larger stores in order to make a suitable pro-
fit. Competition from larger cities will no doubt continue to con-
strict their trade areas in the future. This combined with the nearly
25% decline in customers expected by 1972 from population change alone
will almost certainly bring about a large decrease in the number of
stores in this city class.

Estimates of how many food stores there will be in 1972 in each
city class was made assuming that the population per unit will con-
tinue to change at the same rate as it did between 1957 and 1962.
Data computed from the Census of Business indicate that the population
per unit has been increasing at an increasing rate,[1] so this is actu-
ally a conservative assumption. The change in the number of units
will be due to three factors: change in the population of the trade
area, change in the population per unit, and changes in trade area
boundaries because of the last store in a town going out of business.

To compute the number of stores by city class in 1972 a formula

---

[1]Average yearly change in population per food store between
censuses for southeast Kansas was: 1939-1948-- +1.9%; 1948-1954--+2.7%;
1954-1958--+5.9%. A similar trend, but with larger percentage in-
creases, occurred for Kansas.

was devised:

$$X = \overline{B + 2CB + C^2B} \text{ which is derived from:}$$

$$X = \underline{A} \text{ and } Y = B + CB + C(B+CB)$$
$$Y$$

where:

X = Number of units in 1972
Y = 1972 population per unit
A = 1972 population of trade area (given)
B = 1962 population per unit (given)
C = 1957 to 1962 % change in population per unit (given)

The formula was applied to each city class computing the number of stores in 1972. It was found that class A cities would have 37 units, class B 25, and class C 29. This was later revised, however, because some towns would lose all their food stores and the surrounding towns would fall heir to their trade areas.

It was determined that class C cities were the only ones that could conceivably lose all the food stores in a town. Many of these cities contained only one store in 1962.

It was assumed that the stores that would be most likely to go out of business would be small ones with small populations in their trade areas. Using these criteria, those most likely to go out of business were chosen. Several of these were the last store in a particular town. This meant that class C as a whole lost 1972 population, and when the formula was applied again an even smaller number of units was indicated for 1972. More stores likely to go out of business were picked until the number left was equal to the number indicated by the formula at that point. The final estimate was 21 units remaining in class C towns in 1972.

The class C towns which were expected to lose their last store

gave up customers to class A and B cities. This population was added to the 1972 population of their trade areas and the formula was re-applied. A gain of one store apiece was registered leaving 38 stores in class A cities and 26 in class B.

One could question the large decrease expected in the number of units by contending that the reduction in number of stores because of the increasing size of each unit has already largely taken place; that this was a trend of the immediate past which has reached or nearly reached the saturation point. This can be countered by stating that of those class C units thought to be most likely to go out of business, all but three had a financial strength of $10,000 or less. Those three had financial strengths of between $10,000 and $20,000. In 1962 there were sixteen stores in class B cities with financial strengths under $10,000 and twelve more between $10,000 and $20,000. In class A cities there were 25 under $10,000 and seventeen between $10,000 and $20,000. The loss of these stores would more than account for the expected decrease by 1972. The small neighborhood store in the city and the small rural store have by no means disappeared.

In 1972, stores in class C cities will still be serving only about 300 customers apiece compared to 1,100 and 1,200 for class B and A respectively. This is quite a difference and suggests that the small town stores remaining will still have difficulty competing with those in nearby larger cities and the number will likely be constricted further after 1972.

Table 14 shows the changes in the retail clothing store structure between 1957 and 1962 and those expected to occur by 1972. The assumption that was used for food retailing (that the population per unit

TABLE 14

CHANGES IN THE RETAIL CLOTHING STORE
STRUCTURE, 1957-1962 AND 1962-1972

	Total financial strength	No. of units	Average fin. strength	Pop. of trade area	Per capita fin. str.	Pop. per unit
Class A cities						
1957	1,504,388	30	50,146	42,959	35.0	1,432.0
1962	1,126,972	25	45,078	40,026	28.2	1,601.0
1972	. . . . . .	21	. . . . .	33,928	. . .	1,601.0
57-62 % change	-25.1	-16.7	-10.1	- 6.8	-19.4	+11.8
62-72 % change	. . . . . .	-16.0	. . . .	-15.2	. . .	0.0
Class B cities						
1957	368,676	19	19,404	26,731	13.8	1,406.9
1962	411,094	18	22,839	25,250	16.3	1,402.8
1972	. . . . . .	16	. . . . .	22,105	. . .	1,402.8
57-62 % change	+11.5	- 5.3	+17.7	- 5.5	+18.1	- 0.3
62-72 % change	. . . . . .	-11.1	. . . .	-12.5	. . .	0.0
Class C cities						
1957	135,558	6	22,593	2,376	57.1	396.0
1962	254,468	6	42,412	2,173	117.1	382.2
1972	. . . . . .	5	. . . . .	1,743	. . .	362.2
57-62 % change	+87.7	0.0	+87.7	- 8.5	+105.1	- 8.5
62-72 % change	. . . . . .	-16.7	. . . .	-19.8	. . .	0.0

would change at the same rate between 1962 and 1972 as it did between
1957 and 1962) could not be used because change did not follow the same
pattern as it did for food. The change from 1957 to 1962 varied from
an 11.8% increase in the larger cities to no change in medium cities
to an 8.5% decrease in the smallest cities. This may seem inconsis-
tent, but the Census of Business shows that there is no obvious trend
in population per unit for clothing stores. The ratio has decreased
somewhat between census periods since 1948 for southeast Kansas and
increased for the state of Kansas between the 1954 and 1958 censuses.
Going back to the 1939 census, the direction is reversed for both

Kansas and southeast Kansas.

Therefore, for the analysis of the retail clothing structure, population per unit was held constant in 1972, this seeming to be a safer assumption than trying to predict a trend. The change in number of units was assumed to be directly proportional to change in the population of the trade area. This resulted in a loss of four stores in class A cities, two in class B, and one in class C. No changes in trade areas were made because in all cases, those stores most likely to go out of business were located in towns where there was at least one other store.

Several things should be pointed out in connection with the present structure of clothing retailing in this area. First, class C cities have a population per unit which is only about one third that of the two larger classes. This is the result of the fact that five of the six clothing stores in towns of this size are located in towns which have no clothing trade area of their own. They are located within the trade areas of other cities. The one store located in a town which had a clothing trade area had a population of its trade area of 1,220. This is much closer to the 1,400 to 1,600 of the larger cities and seems adequate to support a store. This leaves an average of about 190 persons in the trade areas of the other stores, which hardly seems sufficient to support a store. It would not be surprising, then, to see one store rather than five in towns of this size in 1972. It should be pointed out, though, that these stores have survived since 1957, and in fact, most of them have grown in financial strength, so perhaps they can stay in business under these seemingly impossible conditions.

It should be remembered, too, that rural families tend to di-
vide their clothing purchases among more than one town. They may list
Iola as the place where they buy their clothes, and still make minor
purchases in Bronson. So perhaps these stores with small populations
supporting them get considerable business from the surrounding area
from people whose major purchases are made in larger cities.

Banking presents an even different problem in trying to predict
the number of units in 1972. As can be seen in Table 15, no city class
lost a bank between 1957 and 1962. This was also true of the entire
southeast Kansas area.

TABLE 15

CHANGES IN THE BANKING STRUCTURE, 1957-1962 AND 1962-1972

	Total fin. str. (M)	No. of units	Avg. fin. str. (M)	Pop. of trade area	Per capita fin.str.	Pop. per unit
Class A cities						
1957	3,468	7	495.4	50,500	68.7	7,214.3
1962	4,278	7	611.2	47,563	89.9	6,794.7
1972	. . . .	7	. . .	41,643	. . .	5,949.0
57-62 % change	+25.4	0.0	+23.4	- 5.8	+30.9	- 5.8
62-72 % change	. . . .	0.0	. . .	-12.4	. . .	-12.4
Class B cities						
1957	2,914	13	224.2	42,260	69.0	3,250.8
1962	3,861	13	296.9	39,567	97.6	3,043.6
1972	. . . .	13	. . .	33,867	. . .	2,605.2
57-62 % change	+32.5	0.0	+32.4	- 6.4	+41.4	- 6.4
62-72 % change	. . . .	0.0	. . .	-14.4	. . .	-14.4
Class C cities						
1957	857	9	95.2	13,423	63.8	1,491.4
1962	1,014	9	112.7	12,065	84.0	1,340.6
1972	. . . .	9	. . .	9,050	. . .	1,005.6
57-62 % change	+18.3	0.0	+18.4	-10.1	+31.7	-10.1
62-72 % change	. . . .	0.0	. . .	-25.0	. . .	-25.0

Banks do not seem to depend so much on the number of customers as do standard retail businesses. The general prosperity of the nation and area, interest rates and the type and volume of business in the area would have a greater effect than number of customers. Although once in a while two or more banks will merge, they are much more stable than any type of retail store.

Table 15 shows that the financial strength (in this case, total assets or liabilities) of banks in all city sizes have increased (in constant dollars) despite a decrease in the population of the trade areas. The population per unit has, of course, decreased, making the per capita financial strength 30 to 40% higher in 1962 than in 1957.

It is interesting that banks in class B cities increased most in financial strength and per capita financial strength. These banks must be in relatively strong positions to grow at this rate.

Both the average financial strength and the population per unit is highest in class A cities; lowest in class C. The per capita financial strength differs very little, which was to be expected.

It would be safe to say that the banks in the larger towns are in a more secure position, but it would not be safe to say that any banks are likely to go out of business by 1972 even in the smaller towns. Although this may well happen, it cannot be predicted from the data at hand. Therefore, the number of units was assumed to remain as it is, and the population per unit computed on that basis. Note that class C cities will lose 25% of their bank trade area population. This may not leave enough to support all the banks in this class, but other factors might easily counteract this population loss.

The number of farm machinery dealers in the area remained the

same in class A and B cities between 1957 and 1962, and class C cities
gained one store. The total and average financial strength decreased
in the larger city classes, but increased in class C cities. Farm
machinery sales depend not upon population, but upon number of farms,
so number of farms was used in this analysis rather than population.
The number of farms in the trade area and the number of farms per unit
decreased for all three classes. Table 16 shows the changes that have
taken place since 1957 and those that will by 1972 under certain
assumptions stated below.

TABLE 16

CHANGES IN THE FARM MACHINERY RETAIL STRUCTURE, 1957-1962 AND 1962-1972

	Total financial strength	No. of units	Average fin. strength	No. of fms. in tr. area	Fin. str. per fm	No. fms. per unit
Class A cities						
1957	697,555	12	58,130	2,427.7	287.3	202.3
1962	590,446	12	49,204	2,106.4	280.3	175.5
1972	492,040	10	49,204	1,464.6	336.0	146.5
57-62 % change	-15.4	0.0	-15.4	-13.2	- 2.4	-13.2
62-72 % change	-16.7	-16.7	0.0	-30.5	+19.9	-16.5
Class B cities						
1957	1,421,230	20	71,061	2,687.3	528.9	134.4
1962	1,127,454	20	56,372	2,331.6	483.5	116.6
1972	958,324	17	56,372	1,621.2	591.1	95.4
57-62 % change	-20.7	0.0	-20.7	-13.2	- 8.6	-13.2
62-72 % change	-15.0	-15.0	0.0	-30.5	+22.3	-18.2
Class C cities						
1957	271,320	6	45,220	526.7	515.1	87.8
1962	333,752	7	47,679	467.0	730.4	65.3
1972	286,074	6	47,679	317.7	900.5	53.0
57-62 % change	+23.0	+16.7	+ 5.4	-13.2	+41.8	-25.6
62-72 % change	-14.3	-14.3	0.0	-30.5	+23.3	-18.8

The most interesting thing about the 1957 to 1962 changes is the decrease in average financial strength for stores in class A and B cities. This is contrary to the trend in retailing today, and must indicate a weakness in the present structure of farm machinery sales in the area. This trend is certainly unexpected, particularly for farm machinery dealers, as bigger and more expensive equipment is being used on farms. Perhaps the clue is in the failure of the number of units to contract, as might be warranted by the decreased number of farms.

Farm machinery sales are certainly not dependent only upon the number of farms. As the number of farms decreases, the average farm size increases, and approximately the same amount of land is under cultivation. One could hypothesize that as the size of the farm increases, farm machinery investment would increase more than proportionately as machinery is substituted for labor. This was undoubtedly true during the transition period when power machinery was coming into its own, but another hypothesis appears to have more merit at the present. That is that many small farms are over-equipped. That is, even their minimum machinery complement would be capable of handling more acreage than they have. When the farm acreage increases, it is not necessary to increase the machinery complement proportionately.

If this hypothesis is true, farm machinery sales, and thus farm machinery dealers, will depend to some extent upon the number of farms.

Evidence for this was sought in the Farm Management Annual Reports. The 1955 to 1961 summaries for the southeast Kansas association[1]

[1]The Southeast Kansas Farm Management Association consists of 21 counties, including the nine counties discussed herein.

gave average machinery investment per acre by number of crop acres.[1] The average machinery investment per crop acre is inversely related to average crop acres for every year. The 1962 summary does not give this data for the southeast association, but for every other association in the state, this relationship existed, except in one case where the figures for one quartile deviated. Furthermore, the machinery investment per crop acre tends to be substantially lower in the western part of the state where farm size is considerably larger.

There seems to be no clear trend in machinery investment per crop acre for the same size farm in the short period of 1955-1961 when the figures are adjusted to a constant price level. The evidence seems to say that machinery investment per crop acre does depend upon size of farm, and thus total machinery investment for an area would depend to some extent upon the number of farms.

The question remains; how much? Farm machinery sales would not be expected to remain constant with a decreasing number of farms, nor would it be expected to decrease proportionately. The evidence at hand proves nothing conclusively, but perhaps some insights can be gained.

Some computations were made from the Farm Management Reports for 1955 to 1961. The ratios of the average total machinery investment for different sized farms were compared to the ratio of the average number of crop acres for those size categories. These comparisons varied somewhat from year to year and among size categories, but the machinery ratios were usually between 40% and 60% of the farm size

---

[1] Farm Management Summary and Analysis Report, loc. cit.

ratios.

This means that, on the average, machinery investment increased about half as much as did farm size. Conversely, in the aggregate farm machinery investment would decrease about half as much as would the number of farms.

Using this as a rough guide, the changes that may take place by 1972 in the farm machinery retail pattern can be analyzed. It is hard to see how the average financial strength of the farm machinery outlets could decrease any more, especially while bigger and bigger machinery is being used on farms. It will be assumed, then, that average financial strength will hold constant until 1972 and is in direct proportion to sales. According to the hypothesis, then, the number of units will decrease about half as much as the number of farms.

Since farm density was assumed constant throughout the area, the number of farms in the trade areas of all city classes is expected to decrease by 30.5%. This will result in a 15.2% decrease in the number of farm machinery dealers, or six units from the entire area. There would be a decrease of two in class A cities, three in class B, and one in class C. Those most likely to go out of business were determined and there would be no trade area gains or losses for any city class.

For farm machinery dealers, as with the other retail outlets, the number of customers per unit varies directly with the city class size. The average size of the outlets, as measured by financial strength, is largest for the medium-sized cities, although the differences here are not too great. The number of potential customers per unit is expected to decrease further by 1972, as it did between 1957 and 1962.

This is possible with this type of retail outlet because of the increased size of the farms and the increasing use of bigger and more advanced farm equipment.

CHAPTER VII

SUMMARY AND CONCLUSIONS

By 1972, the southeast Kansas area is expected to lose about 15% of its population with the heaviest losses occurring in the small towns and the rural areas. This will be accompanied by an increase in the median age and a further concentration of the population in the older age groups.

The number of farms is expected to decrease by about 30%, with a concomitant increase in the average size of farm. Most likely some growth in the agricultural economy will take place. This is in line with state and national trends, however, while the population decrease is not.

Retail business in the area will suffer from the population decline, with losses in the number of units for food stores, clothing stores, and farm machinery stores. Food stores are likely to decrease in number more than proportionally to the population decrease, because of the added effect of the trend toward larger grocery stores. Clothing stores will probably decrease in number about in proportion to the population decline. The number of farm machinery stores will probably not decrease as much as the decrease in the number of farms, because the larger farms will require more equipment. They are likely to decrease somewhat, though.

In all cases, except possibly for farm machinery, the loss in

retail stores, like population, will be heaviest in the small towns.

The number of banks in the area may not change, this being a much more stable type of business. Their assets will probably grow, as per capita income in the area will grow with increasing national prosperity. The number of customers per bank will decline, however, and banks in this area certainly cannot be expected to grow as rapidly as banks in areas of increasing population.

An attempt has been made, where choices existed, to keep the predictions for 1972 conservative. It is the qualitative opinion of the author that the decreases in population and business units will be at least as great as the quantitative forecasts indicate. It would take a major economic impact upon the area to reverse the trend now underway. The Area Redevelopment program, the movement of a major industry or a large group of industries into the area, or extensive tourist development might turn the tide, but not quickly enough to make much of a difference by 1972. Of these three possibilities, the last two are unlikely, especially major industrial development. Some sort of extensive federal government economic aid will most likely be forthcoming in the next ten years, but the development process, if successful at all, will probably be just getting started by the early 1970's.

The natural tendency of the area seems to be contraction, both in population and economic activity. These movements reinforce one another, as stated earlier, and the entire complex picks up momentum. Perhaps if this is recognized, the results need not be all bad. It would seem that if a "balance sheet" for the area could be drawn up, realistically stating the social and economic assets and liabilities,

a plan could be developed for future action designed to take advantage of the assets and soften the effects of the liabilities. Further research would be necessary before such a plan could be rationally developed.
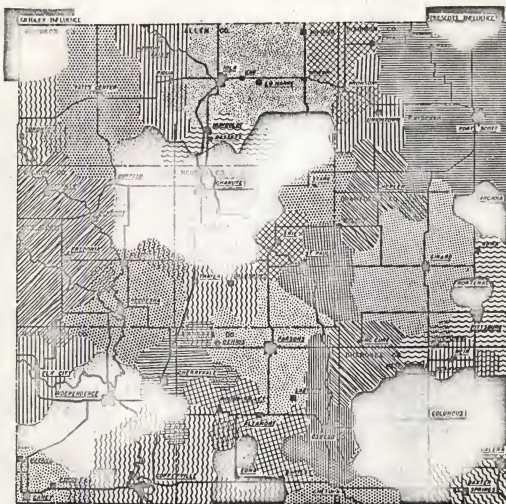
Fig. A-1.--Retail food trade areas

Fig. A-2.-- Retail clothing trade areas

Fig. A-3.--Banking trade areas

Fig. A-4.--Farm machinery trade areas

APPENDIX B

METHOD OF DELINEATING TRADE AREAS

The trade areas for the various commodities discussed had al-
ready been delineated by the Area Development project.

Several methods of defining retail trade areas have been employed
by researchers. Among these are the plotting of credit customers'
addresses, analysis of check clearances, analyses of traffic flow and
origin-destination of passenger cars, license tag checks, mathematical
formulae such as "Reilly's Law of Retail Gravitation,"[1] mailed or
personal consumer interviews, and a subjective examination of popu-
lation and its distribution. Use of five of the above methods (all
except license tag checks and consumer interviews) yielded similar
patterns for the general trade area of Charlottesville, North Caro-
lina.[2] The methods used did not differentiate different trade areas
for different types of business, however.

"Reilly's Law" has been tested many times and found to "work"
in some cases[3] and not in others.[4] In any case it was intended for

[1]William J. Reilly, The Law of Retail Gravitation (New York:
William J. Reilly Co., 1931).

[2]Edna Douglas, "Measuring the General Retail Trading Area—A
Case Study," Journal of Marketing, XIV, No. 1 (July, 1949), p. 60.

[3]Ibid., p. 60. Victor W. Bennett, "Consumer Buying Habits in a
Small Town Located Between Two Large Cities," Journal of Marketing,
VIII, No. 4 (April, 1944), pp. 405-416.

[4]Allen F. Jung, "Is Reilly's Law of Retail Gravitation Always

use for "shopping goods" only.

In a guide to the use of retail trade area studies, Fine concluded that either personal interviews or mailed questionnaires were the most accurate methods of analyzing retail trade areas.[1] The Area Development project leaders concurred and mailed questionnaires were used.

A one third random sample of rural households was drawn from the assessors' enumeration books. These were sent postcard questionnaires coded for identification purposes. The recipients were asked what town they patronized for each of about fifteen goods and services. When the postcards were returned the location of each person was plotted on a map with a code for the town in which the good or service was obtained. A map was made for each good or service.

The problem yet remained of determining trade area boundaries from the "scatter map". From studying the works of geographers, including Walter Christaller[2] and August Lösch,[3] the hexagon was decided to be best as the basic component shape of trade areas. The sides

---

True?," Journal of Marketing, XXIV, No. 2 (October, 1959), pp. 62-65. Robert B. Reynolds, "A Test of the Law of Retail Gravitation," Journal of Marketing, XVII, No. 3 (January, 1953), p. 275. Jane Sears, "A Test of a Method of Determining Trade Area Boundaries" (unpublished report), Department of Economics and Sociology, Kansas State University, 1963, p. 10.

[1]Isadore V. Fine, Retail Trade Area Analysis: A Guide to Effective Use of Retail Trade Area Studies (School of Commerce, Bureau of Business Research and Service, Wisconsin Commerce Papers, Vol. I, No. 6; Madison, Wisconsin: University of Wisconsin, January, 1954). p. 17.

[2]Harold M. Mayer and Clyde F. Kohn, Readings in Urban Geography (Chicago: University of Chicago Press, 1963), pp. 202-209.

[3]August Lösch, The Economics of Location (New Haven, Connecticut: Yale University Press, 1954), pp. 109-139.

of the basic hexagon were established as 2.5 miles for the southeast
Kansas area and were adjusted for the other areas considering rural
population density, percentage of households contacted, and percentage
response.

A latticework of hexagons was constructed and trade areas were
delineated by including a hexagon area in the trade area for a city
if (1) at least one third of the samples in the hexagon indicated pur-
chases in that city, and (2) the hexagon had at least one side con-
tiguous with a hexagon already defined as within the trade area.
Separate trade areas were delineated for each good or service.

This method brings into a trade area the concentration of that
city's customers without including customers isolated by distance from
the others. It allows for the overlapping of trade areas among towns.
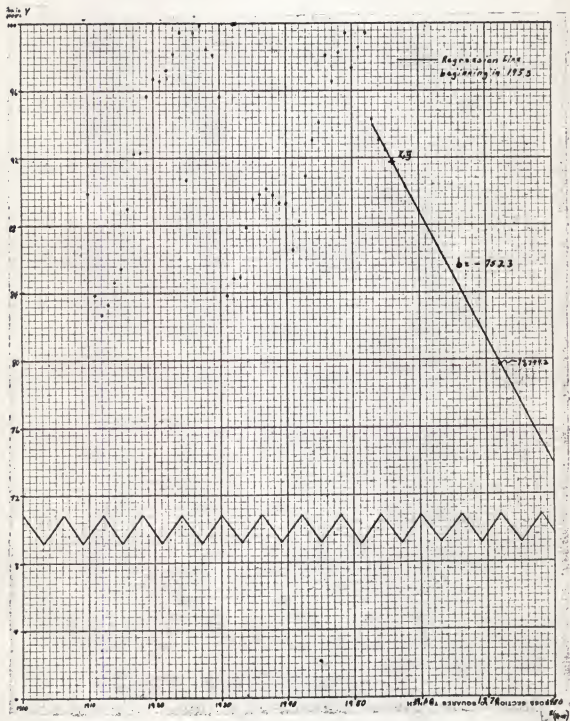
Fig. C-1.--Population of class A cities: 1910-1960
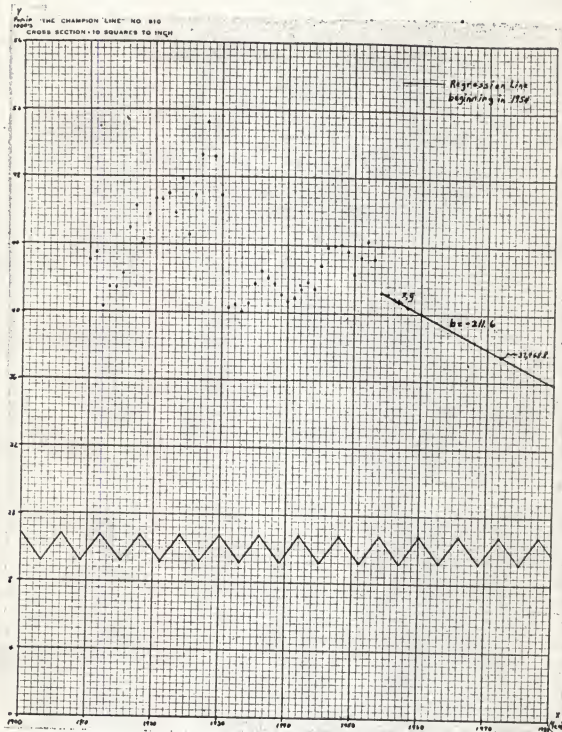
Fig. C-2.--Population of class B cities: 1910-1960
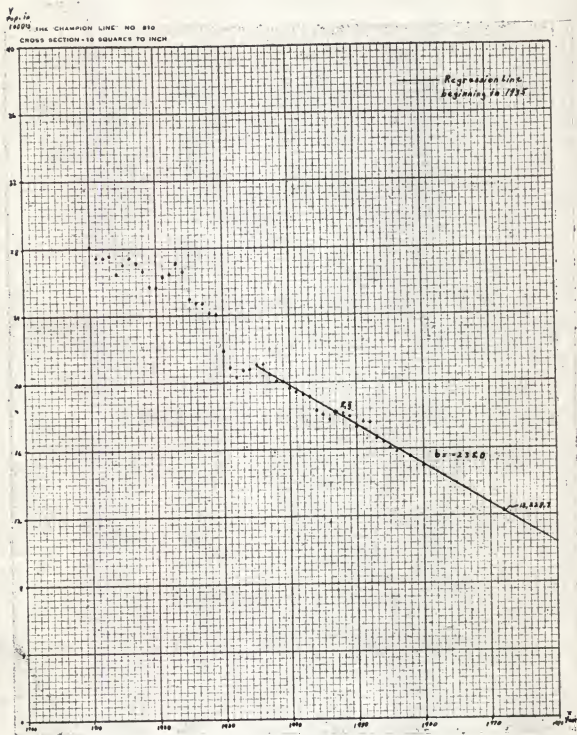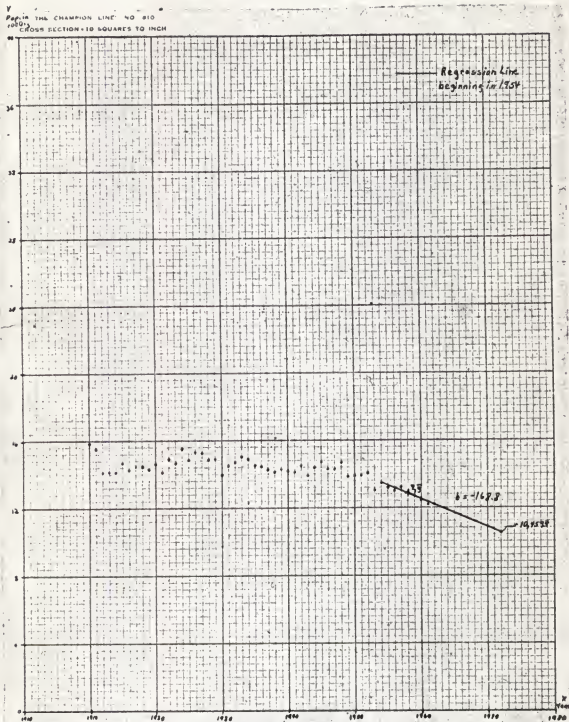
Fig. C-3.--Population of class C cities: 1910-1960

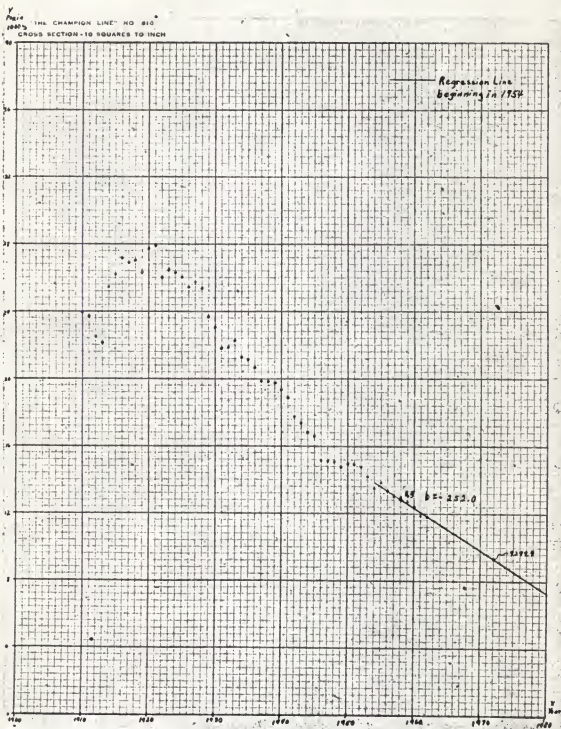Fig. C-4.--Population of class A townships: 1910-1960

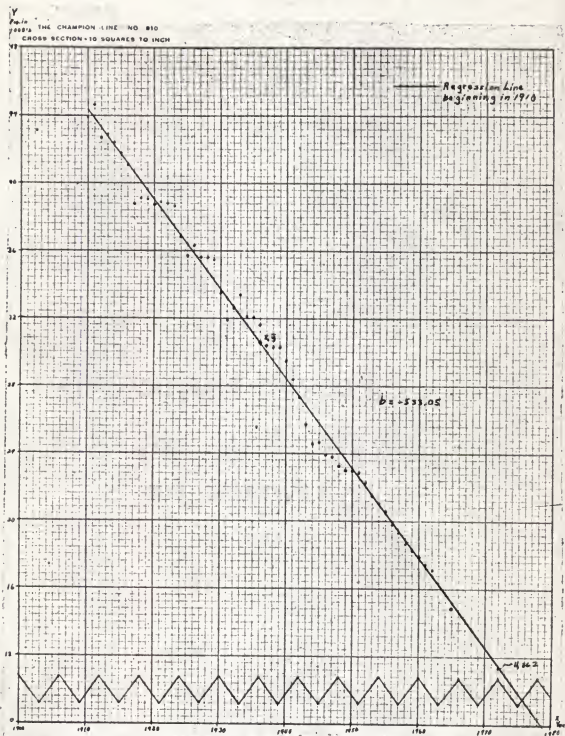Fig. C-5.--Population of class B townships: 1910-1960

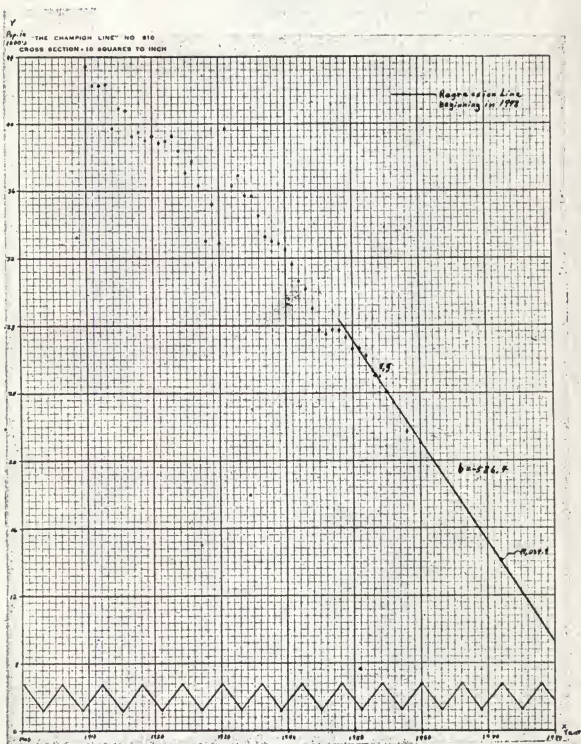Fig. C-6.--Population of class C townships: 1910-1960

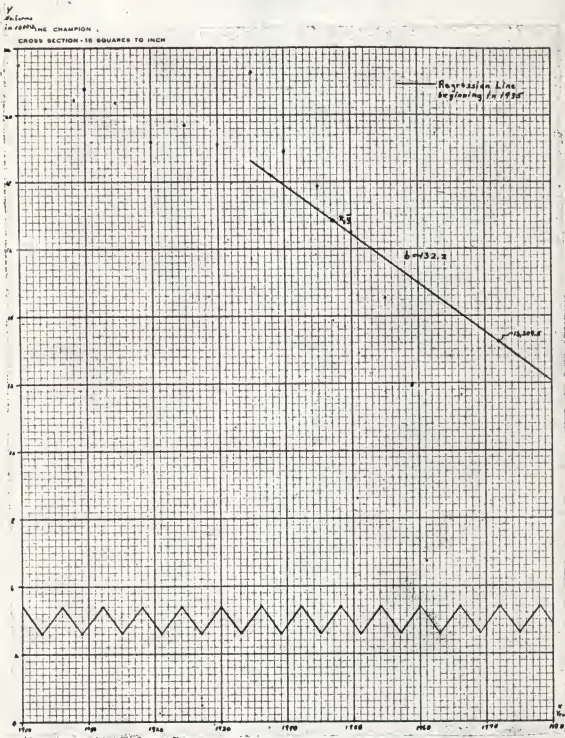Fig. C-7.--Population of class D townships: 1910-1960

Fig. C-8.--Number of farms: 1900-1959

BIBLIOGRAPHY

Books

Faville, David E., Jones, Dix M., and Sonne, Richard B. Merchandise
    Availability in Utah. Stanford, California: Stanford Univer-
    sity Press, 1942.

Howes, Charles C. This Place Called Kansas. Norman, Oklahoma: Uni-
    versity of Oklahoma Press, 1952.

Lewis, Harold MacLean. City Planning, Why and How. New York: Long-
    mans, Green and Co., 1959.

Lösch, August. The Economics of Location. New Haven, Connecticut:
    Yale University Press, 1954.

Mayer, Harold M. and Kohn, Clyde F. (ed.). Readings in Urban Geo-
    graphy. Chicago: University of Chicago Press, 1963.

Myrdal, Gunnar. Rich Lands and Poor; The Road to World Prosperity.
    New York: Harper & Brothers, 1957.

Nelson, Richard L. The Selection of Retail Locations. New York:
    F. W. Dodge Corporation, 1958.

Reilly, William J. The Law of Retail Gravitation. New York: William
    J. Reilly Co., 1931.

Snedecor, George W. Statistical Methods. Ames, Iowa: The Iowa
    State College Press, 1956.

Zornow, William Frank. Kansas: A History of the Jayhawk State.
    Norman, Oklahoma: University of Oklahoma Press, 1957.

Periodicals

"Agricultural Growth and the Rural Economy," Monthly Review, Federal
    Reserve Board of Kansas City: (June, 1960), pp. 3-8.

Bennett, Victor W. "Consumer Buying Habits in a Small Town Located
    Between Two Large Cities," Journal of Marketing, VIII, No. 4
    (April, 1944), pp. 405-416.

Douglas, Edna. "Measuring the General Retail Trading Area—A Case
    Study," Journal of Marketing, XIII, No. 4 (April, 1949), pp.
    481-497 and XIV, No. 1 (July, 1949), pp. 46-60.

Ferber, Robert. "Variations in Retail Sales Between Cities," Journal of Marketing, XXII, No. 3 (January, 1958), pp. 295-303.

Goldstein, Sidney and Mayer, Kurt. "Patterns of Business Growth and Survival in a Medium-Sized Community," The Journal of Economic History, XVII, No. 2 (June, 1957), pp. 193-206.

Hassinger, Edward. "The Relationship of Retail-Service Patterns to Trade Center Population Change," Rural Sociology, XXII, No. 3 (September, 1957), pp. 235-240.

Houser, G. C. "How Accurately Can Engineers Predict Future Population Growth of Cities?," The American City, XXXIX, No. 3 (September, 1928), pp. 124-126.

Hutchinson, Ruth Gillette, Hutchinson, Arthur R., and Newcomer, Mabel. "A Study in Business Mortality," American Economic Review, XXVIII, No. 3 (September, 1938), pp. 497-514.

Jung, Allen F. "Is Reilly's Law of Retail Gravitation Always True?," Journal of Marketing, XXIV, No. 2 (October, 1959), pp. 62-63.

Loomer, Harlin G. "Accuracy of the Ratio Method for Forecasting City Population: A Reply," Land Economics, XXVIII, No. 2 (May, 1952), pp. 180-183.

McLean, John E. "More Accurate Population Estimates by Means of Logistic Curves," Civil Engineering, XXII, No. 2 (February, 1952), pp. 35-37.

Nelson, Lowry and Jacobson, Ernst T. "Recent Changes in Farm Trade Centers of Minnesota," Rural Sociology, VI, No. 2 (June, 1941), pp. 99-106.

Reynolds, Robert B. "A Test of the Law of Retail Gravitation," Journal of Marketing, XVII, No. 3 (January, 1953), pp. 273-277.

Roterus, Victor. "Effects of Population Growth and Non-Growth on the Well-Being of Cities," American Sociological Review, XI, No. 1 (February, 1946), pp. 90-97.

Schmitt, Robert C. and Crosetti, Albert H. "Accuracy of the Ratio Method for Forecasting City Population," Land Economics, XXVII, No. 4 (November, 1951), pp. 346-348.

_____. "Short-Cut Methods of Forecasting City Population," Journal of Marketing, XVII, No. 4 (April, 1953), pp. 417-424.

Public Documents

Kansas State Board of Agriculture. State Board of Agriculture Reports: 1st to 44th Reports. 1877-1878 to 1960-1961.

U. S. Bureau of the Census. County and City Data Book, (a statistical abstract supplement), 1962.

U. S. Bureau of the Census. United States Census of Agriculture, Kansas; 1900 to 1959.

U. S. Bureau of the Census. United States Census of Business: Retail Trade, 1939, 1948, 1954, and 1958.

U. S. Bureau of the Census. United States Census of Population: General Population Characteristics, Kansas; 1960.

U. S. Bureau of the Census. United States Census of Population: General Social and Economic Characteristics, Kansas; 1960.

University Publications

Bunn, Verne A. and Christenson, Donald D. Population, Income, and Retail Sales in Kansas and Oklahoma for 1950-1960 with Projections for 1965 and 1970. The Center for Business Management Services, College of Business Administration; Wichita, Kansas: University of Wichita, November, 1962.

Eusenberg, Mildred E. The Interrelationships of Region, Population Change, and Change in Number of Retail Firms in Selected Areas of Nonmetropolitan Kansas. Contribution No. 8, Department of Economics and Sociology, Kansas Agricultural Experiment Station; Manhattan, Kansas: Kansas State University, 1963.

Chittick, Douglas. Growth and Decline of South Dakota Trade Centers, 1901-51. Agricultural Experiment Station Bulletin 448; Brookings, South Dakota: South Dakota State College, May, 1955.

Coolsen, Frank, Myers, Will S., and Martin, James W. Paducah and Western Kentucky Income, Labor, and Retail Trade Patterns. Bulletin Number 24, Bureau of Business Research, College of Commerce; Frankfort, Kentucky: University of Kentucky, August, 1952.

Dakin, Ralph E., et al. Area Development: An Interdisciplinary Approach to Research. Kansas Agricultural Experiment Station Bulletin 440; Manhattan, Kansas: Kansas State University, 1961.

Doerflinger, Jon A., and Marshall, D. G. The Story of Price County, Wisconsin: Population Research in a Rural Development County. Research Bulletin 220, Agricultural Experiment Station and Agricultural Extension Service; Madison, Wisconsin: University of Wisconsin, 1960.

Farm Management Summary and Analysis Report. 1955, 1957, 1958, 1959, 1960, 1961, 1962 Reports, Extension Service; Manhattan, Kansas: Kansas State University, 1955 to 1962.

Fine, Isadore V. Retail Trade Area Analysis: A Guide to Effective
Use of Retail Trade Area Studies. School of Commerce, Bureau of
Business Research and Service, Wisconsin Commerce Papers, Vol.
I, No. 6; Madison, Wisconsin: University of Wisconsin, January,
1954.

Johnson, John L. and Greene, Elan. The Economy of Northern Kentucky.
Bureau of Business Research, College of Commerce, No. 29; Frank-
fort, Kentucky: University of Kentucky, May, 1964.

Knox, John W. Survey of Trade Areas in Southeast Kansas. MF-115,
Extension Service; Manhattan, Kansas: Kansas State University,
January, 1963.

Kolb, John H. and Day, LeRoy J. Interdependence in Town and Country
Relations in Rural Society. Research Bulletin 172, Agricultural
Experiment Station; Madison, Wisconsin: University of Wisconsin,
December, 1950.

Korbel, William. Turnover of Retail Firms in Kansas. School of
Business, Bureau of Business Research; Lawrence, Kansas: Uni-
versity of Kansas, March, 1955.

Landis, Paul H. The Growth and Decline of South Dakota Trade Centers,
1901-1933. South Dakota Agricultural Experiment Station Bulle-
tin 279; Brookings, South Dakota: South Dakota State College
of Agriculture, April, 1933.

_____. Washington Farm Trade Centers, 1900-1935. Washington Agri-
cultural Experiment Station Bulletin 360; Pullman, Washington:
State College of Washington, July, 1938.

Lively, C. E. Growth and Decline of Farm Trade Centers in Minnesota,
1905-1930. Minnesota Agricultural Experiment Station Bulletin
287; Duluth, Minnesota: University of Minnesota, July, 1932.

McKinney, R. D., et al. Area Development: Southeast Kansas Survey
Results. Extension Service; Manhattan, Kansas: Kansas State
University, December, 1961.

Pfanner, John Adams, Jr. A Statistical Study of the Drawing Power of
Cities for Retail Trade. Studies in Business Administration,
Vol. X, No. 3, The School of Business, The University of Chicago;
Chicago: The University of Chicago Press, 1940.

Scotton, Donald W. Trends in Rural Retailing in Two Illinois Districts:
1938 to 1950. Bulletin 76, College of Commerce and Business
Administration, Bureau of Economic and Business Research; Urbana,
Illinois: University of Illinois, 1953.

Smith, T. Lynn. Farm Trade Centers in Louisiana, 1901-1933. Louisiana
Agricultural Experiment Station Bulletin 234; Baton Rouge,
Louisiana: Louisiana State University, January, 1933.

Tobkin, Leonard and Palmer, Edgar Z. *Types of Business in Nebraska Towns.* Business Research Bulletin No. 57, College of Business Administration; Lincoln, Nebraska: University of Nebraska, 1954.

Zimmerman, C. C. *Farm Trade Centers in Minnesota, 1905-1929.* Minnesota Agricultural Experiment Station Bulletin 269; Duluth, Minnesota: University of Minnesota, September, 1930.

Unpublished Material

Cooleen, Frank C. and Myers, Will S.. "Survey of Buying Habits--Paris, Kentucky and Nearby Towns," unpublished preliminary report, Bureau of Business Research, College of Commerce, University of Kentucky, January 10, 1952.

Doerflinger, Jon. "Service Orientation of Open-Country People in Price County," unpublished report, Rural Sociology Department, University of Wisconsin, May, 1958.

Sears, Jane. "A Test of a Method of Determining Trade Area Boundaries," unpublished report, Department of Economics and Sociology, Kansas State University, 1963.

Other Sources

Dun and Bradstreet. *Reference Book.* Book No. 2, Vol. 406; New York: Dun and Bradstreet, Inc., 1957.

Dun and Bradstreet. *Reference Book.* Book No. 1, Vol. 411; New York: Dun and Bradstreet, Inc., 1962.

Planning Advisory Service. *Population Forecasting.* No. 17; Chicago: American Society of Planning Officials, 1956.

THE EFFECT OF POPULATION CHANGE
ON SELECTED TYPES OF BUSINESSES IN SOUTHEAST KANSAS BY 1972

by

JANE LYNNE SEARS

B. S., Kansas State University, 1960

———————————

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Department of Economics and Sociology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1964

ABSTRACT

The purpose of this study was to determine the effect that changes in population will have on the number of units of several types of businesses in a nine county area in southeast Kansas. Population in this area has declined since the passing of the mining era early in this century. This plus the enlargement of individual businesses has reduced the number of business units considerably in the past and can be expected to do the same in the future.

The projections were made from 1962 to 1972, and the types of businesses considered were food stores, clothing stores, farm machinery stores, and banks. The cities in the area were divided into three groups: cities under 1,000, cities 1,000-4,999, and cities 5,000 and over. The population of these groups, the population of rural areas, and the number of farms were projected to 1972 using linear regression. The projections indicated a 15% loss in population by 1972 with the heaviest losses in small towns and rural areas. A 30% decrease in the number of farms was indicated.

The number of business units in each city size group in 1957 and 1962 were enumerated and the total net worth for each type of business and net worth per firm for each group were computed for each of these years. Trade areas were delineated using information from a postcard survey. By measuring the trade areas, the present and 1972 populations of the trade areas of each city size group were estimated

1

for each type of business.

The estimate of the number of food stores in each group by 1972 was made by assuming that the population per store would continue to change at the same rate as between 1957 and 1962. The population per clothing store was assumed to remain constant until 1972. The number of farm machinery stores was assumed to decline by half as much as the number of farms. The number of banks was assumed to remain constant despite the population decline. Examination of past trends led to these assumptions.

Applying these guidelines and allowing for changes in trade area boundaries caused by the last of a particular type of business leaving a town, it was predicted that the number of food stores would decrease 47.2% in the largest cities, 49.0% in the medium cities, and 54.3% in the smallest cities. Clothing stores were predicted to decrease 16.0% in the largest cities, 11.1% in the medium cities, and 16.7% in the smallest. Farm machinery stores were predicted to decrease by 16.7%, 15.0%, and 14.3% in the large, medium, and small cities respectively. The number of banks was expected to remain the same, since greater activity by fewer customers would support them all.

It can be seen that the predicted decline in the number of business units will be divided fairly evenly among the different sizes of cities. However, most businesses remaining in small towns will not be in as strong financial position as those in the larger cities.