THE UNIVERSITY OF OKLAHOMA AND OKLAHOMA STATE

UNIVERSITY: A FACTORIAL-SPATIAL ANALYSIS

OF THEIR UNDERGRADUATE DISTRIBUTIONS

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF MAPS

CHAPTER I

STATEMENT OF THE PROBLEM AND METHODOLOGY

Introduction

Large numbers of Americans are enrolled in institutions of higher
learning every year; within the State of Oklahoma alone, there are over
116,000 such students.[1] These students, about five per cent of the
state's total population,[2] are enrolled mainly in state-supported
colleges and universities, of which the University of Oklahoma and
Oklahoma State University are the largest.

The aim of this study was to analyze specific aspects of the
University of Oklahoma and Oklahoma State University, especially the
enrollment of Oklahoma undergraduates at each institution. The re-
search did not attempt to follow the routes taken by many authors,
namely to discover why students attend college, or the impact of
college on students, rather it was aimed at discovering the under-
lying differences in the enrollment patterns of Oklahoma undergraduates
attending the University of Oklahoma or Oklahoma State University,
by county of permanent residence.

Statement of the Problem

The major thrust of this research was to identify and differentiate
the spatial pattern of enrollment of in-state undergraduate students,
by county of permanent residence, who attended either the University of

1

Oklahoma or Oklahoma State University during the fall semester of 1972.

In investigating the differences between the University of Oklahoma and Oklahoma State University, in regard to their in-state undergraduate distributions, by county of permanent residence, three hypotheses were tested: (1) that there would be an underlying zone of complementarity between the two patterns because of the influence of population and distance--the population size of each county and its distance from each university; (2) that the different routes these institutions took to become large universities would have some bearing upon their patterns of enrollment--that spatially, Oklahoma State University's enrollment would have a more rural bias than that of the University of Oklahoma, because of the former's history as an Agri-cultural and Mechanical College; and (3) that the individual reasons that students gave for deciding to attend either of these institutions would have spatial manifestations and that these would help account for the distributional differences in enrollment.

Methodology

The analysis of the in-state undergraduate enrollments at the University of Oklahoma and at Oklahoma State University involved a series of distinct steps. Each step of the research was designed as a foundation for subsequent analyses, with the final stage a step-wise regression analysis, utilizing all the generated data to portray the underlying reasons why students decided to attend these two universities and so bring out the underlying reasons for the different enrollment patterns.

The Historical Review

To set the stage for this study a brief historical review of the origins and development of the University of Oklahoma and Oklahoma State University was carried out. This review served another purpose in that it was used to indicate the degree of dissimilarity between the two institutions in terms of their *raison d'etre*. Also, it pointed out the future roads that these two universities might take. Yet another reason for the overview was to test the hypothesis that the present day academic emphases of the University of Oklahoma and of Oklahoma State University, related as they are to each institution's historical development, have spatial manifestations in their in-state undergraduate enrollment patterns, by county of permanent residence.

The Student Distributions

In this study only undergraduates whose permanent residence was in the State of Oklahoma were used. The major reason for restricting the study to Oklahoma students was that they formed the largest single group of students at these institutions, and to include out-of-state students would have introduced the distorting element of the high out-of-state fees, thus making valid comparisons difficult between in-state and out-of-state students.

The areal unit used throughout the research was the county. The primary reason for this choice was the availability of data--the county was the smallest areal unit for which enrollment and the United States Bureau of the Census data were available. Also, the 77 counties of Oklahoma gave a reasonable level of detail for mapping distributional trends and they provided a large enough population for the statistical

analyses.

An in-depth analysis of the student distributions in question was necessary for this study. However, before this was carried out the two enrollment distributions were analyzed to determine the extent of their dissimilarity;[3] the spatial unit used was the county, the statistical test was the Student's 't' Test and the enrollments were organized by county of permanent residence.

To show overall patterns of enrollment, the numbers of undergraduates attending the University of Oklahoma and Oklahoma State University were mapped. It was expected that those counties with large populations would send disproportionately large numbers of students to the University of Oklahoma and to Oklahoma State University. To overcome this distorting element, the in-state undergraduate totals for each university and each county, were calculated on a proportional basis—the number of in-state undergraduates attending the University of Oklahoma (or Oklahoma State University) as a proportion of the 18 to 24 year olds per county. The 18 to 24 year old age group was used because it most closely approximates that of the University of Oklahoma and Oklahoma State University undergraduates and is a statistical grouping used by the United States Bureau of the Census.

County Data

Background reading, carried out before the study was initiated, indicated certain variables were important in many students' decision making process of whether to go to college.[4] It was hypothesized, therefore, that these same considerations might be of value in explaining the distributions of the in-state undergraduates attending

the University of Oklahoma and Oklahoma State University. Several of
these variables were obtained from the United States Bureau of the
Census, while others had to be elicited directly from the students
by means of a questionnaire.

The data obtained from the United States Bureau of the Census
were: (1) population totals per county; (2) levels of urbanness--
the proportion of the county population classified as "urban" by the
Census, and as a check against this, a measure of ruralness was also
applied, the proportion of the county population employed in agri-
culture; and (3) income, race and education levels per county--
median family income, the per cent of the combined population classi-
fied as Black and American Indian, and the per cent of the 3-34 year
olds enrolled in full-time education, per county, respectively.

In addition to the correlation analyses carried out upon the above
Census data to determine their relationship to the student distri-
butions under study, the influence of distance was assessed in con-
junction with the population totals by means of the potential model.
The potential model, widely used in migration studies, consisted of
the population of each county divided by the distance of each county
from each university and thus indicated a positive relationship be-
tween the enrollment and the population totals, and a negative one
between distance and enrollment.

The Questionnaire

From the literature it was ascertained that certain variables
play an important role in a student's decision to attend college.
These variables, it was hypothesized, may also have spatial

manifestations and may help to explain and differentiate the student

distributions under analysis. To uncover the significance of these

variables, questionnaires were constructed.

The questionnaire was restricted to a single page in length,

because of the belief that this would evoke a more favorable response

rate from the participants. For the same reasons the return address

and "Campus Mail" were stamped on the back of each questionnaire.

The questionnaire was designed to reveal the underlying reasons

of why the students under analysis decided to attend the University of

Oklahoma or Oklahoma State University. Fourteen possible reasons were

laid out and the students were asked to indicate, on a one through

five scale, the importance of each reason in their own decision making

process; a score of one was given to factors of low importance, and

five, to factors of high importance.

The fourteen reasons selected covered as wide a range of topics

as possible and included all major reasons cited in the literature

as being of importance to students when selecting a college to attend.

However, space was provided for the students to write in any ad-

ditional comments or reasons they had for attending the University of

Oklahoma or Oklahoma State University.

This method of questioning students was used for several reasons.

It was a low cost means of reaching a large number of individuals in a

relatively short space of time. Also, it did not pressure the student

into giving an answer, since the student filled out the questionnaire

in his own time and at his pleasure. For these reasons, this technique

was felt to be the most satisfactory means of gathering the information

sought, especially with the time and funds available.

The questionnaires were sent to freshmen only, since these were the students who had most recently gone through the decision making process in question and were, therefore, the ones most likely to clearly recollect the underlying reasons for their choice of a university to attend. Also, their ideas of how they decided to come to the University of Oklahoma or Oklahoma State University would be the least influenced by the institution they were presently attending, since they had been in their respective universities for a shorter period than other students.

Before the questionnaires were printed and sent out to the freshmen, draft copies were circulated to 50 freshmen at each institution. This was an attempt to discover if any weaknesses existed in the wording or structure of the questionnaire. Also at this time, randomly selected students were asked to state if they had selected the university of their choice because of reasons other than those listed on the questionnaire. The result of this pre-test was very encouraging, for the subjects stated that they completely understood the questionnaire and what they were to do with it; they offered no reasons, other than those on the list, of why they had determined to attend the particular university of their choice. As a result of this pre-test, the final draft questionnaire was drawn up and printed for distribution.

The questionnaires were sent to a 50 per cent random sample of Oklahoma freshmen at both the University of Oklahoma and Oklahoma State University, 1,558 and 1,549 students respectively.[5] The numbers of questionnaires returned were 428 from Oklahoma State University students and 433 from University of Oklahoma students, representing

a 27.63 per cent and a 27.79 per cent return, respectively. The
return percentage were deemed high enough to enable further calcu-
lations to be carried out upon the data they generated.[6] The
questionnaire analyses are found in Chapter IV.

To form broad generalizations about the data collected via the
questionnaires, it was determined that factor analysis would be used
to pull together the underlying elements of the survey. For each
university the average scores given by the students of each county,
for all 14 questions posed, were calculated and factor analyzed on a
county basis. These factor scores were then mapped to illustrate
their spatial dimensions. The maps constructed used a common taxonomic
system, namely standard deviations above and below the means, to
facilitate spatial comparisons between the various factors and between
similar factors calculated for each university.

The Regression Analysis

The final stage of the investigation was a stepwise regression
analysis aimed at uncovering the elements that best described the dis-
tribution of in-state undergraduates at the University of Oklahoma and
at Oklahoma State University. By comparing those underlying elements
deemed important in explaining the distributions under analysis, it
was possible to state which phenomena were common to both institutions
and which were not. This in turn permitted the recognition of those
factors responsible for the different distributions of Oklahoma State
University and University of Oklahoma in-state undergraduates.

FOOTNOTES

[1] Oklahoma's enrollment in higher education for fall 1972 was 116,702. Source: Oklahoma State Regents for Higher Education, Sixteenth Biennial Report--Part II (Oklahoma City, Oklahoma, 1972), p. 1.

[2] The total State population in 1970 was 2,559,175 of which the enrollment in higher education (116,702) is 4.56 per cent. Enrollment source: Ibid. Population Source: United States Bureau of the Census, Census of Population: 1970. Final Report PC(1)-38, Oklahoma (Washington, D.C., 1972), p. 158.

[3] Preliminary analysis of the two distributions indicated a statistically significant difference between the two spatial patterns of enrollment. See Chapter IV for a full discussion of this point.

[4] See Chapter II for a description of these variables.

[5] Student addresses were obtained from the Registrars of the University of Oklahoma and Oklahoma State University. The county totals of in-state undergraduates attending these universities were obtained directly from the Oklahoma State Regents for Higher Education. The names and addresses were for the spring semester 1973 while the county totals were for fall 1972--the latter because this is the only time of year that such tabulations are made.

[6] A sample of between 10-25 per cent of the total population seems to be the norm in many studies, provided that this percentage is composed of at least 30 observations. Source: L. J. King, Statistical Analysis in Geography (Englewood Cliffs, N. J., 1969), p. 28.

CHAPTER II

REVIEW OF THE LITERATURE

There is an extensive literature dealing with many aspects of students and the colleges they attend.[1] One such area of research that has attracted scholars has been to determine which types of high school students are the most likely to attend college. Astin has stated that ". . . the distribution of students among higher educational institutions is far from random."[2] While several other studies[3] have determined that two of the most important elements in determining which students go to college are the intelligence and socio-economic background of the individuals. More definitive works have indicated that the socio-economic element is more significant for females and intelligence more significant for males, in terms of college aspirations.[4]

Research has also identified other variables deemed to be of significance in explaining why students go to college: Nam and Cowhig found that the size of the high school was an element,[5] while Trent and Medsker identified family size as a phenomenon to be reckoned with.[6] Other studies recognized race and religion,[7] peer group pressures,[8] and family and neighborhood forces[9] as being of importance in this decision making process. These many elements in the decision making process have been extrapolated by Feldman and Newcomb and succinctly described in the following way:

> The selection of a particular undergraduate institution
> is the outcome of a complex interaction of factors
> which include the aspirations, abilities and personality
> of student; the values, goals and socio-economic status
> of his parents; the direction of the influence of his
> friends, teachers and other reference persons; the
> size, location, tuition costs, curricular offerings
> and other institutional characteristics of various
> colleges; the image of these colleges held by the
> student and by those whose advice he seeks.[10]

In an attempt to reveal the major elements involved in the de-

cision making process that high school students go through when

choosing a college to attend, Richards and Holland[11] factor analyzed

27 underlying considerations and emerged with six significant factors:

(1) academic phenomena--the reputation, standards and quality of the

college; (2) practicality--costs and distance from home; (3) advice--

from teachers, parents and friends; (4) social atmosphere--fraternities,

sports and social reputation; (5) religious emphasis; and (6) the size

of the college. But,

> At the present time, however, we know very little
> about what kinds of students, entering what kinds of
> schools place major emphases upon which of these
> several considerations.[12]

One thing that is documented is that students ". . . select colleges

by means of vague notions which they can seldom document meaning-

fully."[13]

Becoming more specific, it has been indicated that "certain types

of colleges are in fact peopled by certain kinds of students."[14]

Similarly, other studies have shown that students majoring in certain

academic fields do show certain characteristics, for example, students

of high socio-economic status tend to have a recognizable bias towards

medicine, law, government, politics, the arts and the humanities,

whereas undergraduates of lower socio-economic levels choose education,

engineering and technical fields of study to a significant extent.[15]

Of the many studies cited above, most have dealt with the types of students that attend college and the decision making processes involved, only a few have even attempted to analyze their spatial manifestations. As was mentioned, Astin has stated that the distribution of students among institutions of higher education was not random and he stated later that:

> Relatively high correlations were found between the characteristics of the colleges and the characteristics of their entering student bodies and student bodies entering different types of institutions were found to differ substantially.[16]

Sewell discovered that spatial differences exist and projected that students from farming areas were less likely to go to college than were urban students, and that the larger the community the greater the proportion of students who would go to college.[17] However, Sewell made no attempt to map the differences he noted.

Although the studies cited above have spatial ramifications, few geographers have moved into this field of research. It is believed that many college registrars have general ideas about the distribution of their student body,[18] but beyond that, little work seems to have been carried out, or at least published.

In their 1967 study of the changing hinterlands of Colleges of Arts and Science in the State University of New York system, Brownell and Stanley compared the county of permanent residence of graduating seniors of the 1920's with those of a similar group in the 1960's.[19] The objective of this primarily cartographic study was not to explain distributions of students but rather to depict visually the changing spatial patterns of enrollment.

Harold McConnell's work measuring spatial the distribution of undergraduate students at Bowling Green State University, Ohio, by means of migration models, is probably the most significant work by a geographer to date in explaining spatial patterns of college enrollment.[20] McConnell concluded that the two most significant elements in determining a spatial interaction model, using enrollment data, were the population size of the unit used in the study, usually the county, and the distance of each unit from the interaction node, the University. He found that student enrollments, when mapped on a county basis, were directly related to the population of each county and inversely related to the distance separating the county and the university. This is the potential model widely used in migration studies and when it was applied to the Bowling Green situation McConnell stated that ". . . no refinement of the model is statistically superior to the basic potential model in accounting for spatial variation of undergraduate enrollment by county of origin."[21]

This review reveals the great volume of material written about the underlying reasons of why students attend college and also shows the sparcity of works carried out by geographers. However, McConnell's study does indicate that enrollment patterns can be readily explained by the use of relatively simple models.

No works were found dealing with explanations of why the distributions of students from two or more institutions of higher education were so similar or different. It is believed that the degree of similarity or difference is associated with the reasons outlined earlier of how students make up their minds to attend college and to test this concept this study will analyze the spatial distributions

of two state controlled universities of about the same enrollment size

and located in the same state--Oklahoma State University and the

University of Oklahoma.[22]

FOOTNOTES

[1]It was necessary to be cognizant of which students go to college and why, because it had been hypothesized that these phenomena would have spatial manifestations and be of significance in explaining the different distribution patterns of in-state undergraduates attending the University of Oklahoma and also Oklahoma State University. Later in the study these student considerations were used as variables in the regression and factor analyses.

It was beyond the scope of this study to cite all the works published on this topic. Below is listed a representational sample of recent studies in the field:

C. Abe et al., A Description of American College Freshmen, American College Testing Research Report, No. 1 (Iowa City, Iowa, 1965). C. N. Alexander and E. Q. Campbell, "Peer Influences on Adolescent Educational Aspirations and Attainments," American Sociological Review, XXIX (1964), pp. 568-575. A. W. Astin, "Some Characteristics of Student Bodies Entering Higher Educational Institutions," Journal of Educational Psychology, LV (1964), pp. 267-275. A. W. Astin, "Distribution of Students Among Higher Educational Institutions," Journal of Educational Psychology, LV (1964), pp. 276-287. A. W. Astin, "Influences on the Student's Motivation to Seek Advanced Training: Another Look," Journal of Educational Psychology, LIII (1962), pp. 303-309. A. W. Astin, "An Empirical Characterization of Higher Education Institutions," Journal of Educational Psychology, LIII (1962), pp. 224-235. A. W. Astin, Who Goes Where to College? (Chicago, 1965). L. L. Baird, Family Income and the Characteristics of College Bound Students, American College Testing Research Report, No. 17 (Iowa City, Iowa, 1967). L. L. Baird and J. L. Holland, The Flow of High School Students to Schools, Colleges and Jobs, American College Testing Research Report, No. 26 (Iowa City, Iowa, 1968). R. H. Beezer and H. F. Hjelm, Factors Related to College Attendance, United States Government, Department of Health, Education, and Welfare, Cooperative Research Monograph, No. 8 (Washington, D.C., 1961). R. P. Boyle, "On Neighborhood Context and College Plans," American Sociological Review, XXXI (1966), pp. 706-707. R. D. Brown, "Student Characteristics and Institutional Impact of the Large Publically Controlled Versus the Small Private Institution," College and University, XLII (1967), pp. 325-336. D. Cole and B. Fields, "Students' Perceptions of Varied Campus Climates," Personnel and Guidance Journal, XXXIV (1961), pp. 509-510. J. S. Coleman, The Adolescent Society (Chicago, 1961). P. Cutright, "Student's Decision to Attend College," Journal of Educational Psychology, XXXIII (1960), pp. 292-299. J. A. Davis, Undergraduate Career Decisions: Correlates of Occupational Choice (Chicago, 1965). J. S. Hammond, "Bringing Order into the Selection of a College," Personnel and Guidance Journal, XLIII (1965), pp. 654-660. P. Heist,

"The Entering College Student--Background and Characteristics," Review of Educational Research, XXX (1960), pp. 285-297. J. L. Holland, "Students Explanations of College Choice and Their Relationship to College Popularity, College Productivity and Sex Differences," College and University, XXXV (1958), pp. 313-320. J. L. Holland, "Parental Expectations and Attitudes About Colleges," College and University, XXXIV (1959), pp. 164-170. J. L. Holland, "Determinents of College Choice," College and University, XXXV (1959), pp. 11-28. C. Jencks and D. Reisman, The Academic Revolution (New York, 1968). I. Krauss, "Sources of Certain Educational Aspirations among Working Class Youth," American Sociological Review, XXIX (1964), pp. 867-879. L. Lipsett, "Why Students Choose a Particular College," College and University, XXVII (1952), pp. 264-269. E. I. McDill and J. Coleman, "Family and Peer Group Influences in College Plans of High School Students," Sociology of Education, XXXVIII (1965), pp. 112-126. J. A. Michael, "High School Climates and Plans for Entering College," Public Opinion Quarterly, XXV (1961), pp. 585-595. J. A. Michael, "On Neighborhood Context and College Plans," American Sociological Review, XXXI (1966), pp. 702-706. J. M. Richards and J. L. Holland, A Factor Analysis of Student "Explanations" of Their Choice of a College, American College Testing Research Report, No. 8 (Iowa City, Iowa, 1965). W. H. Sewell, "Community Residence and College Plans," American Sociological Review, XXIX (1964), pp. 24-38. W. H. Sewell and V. P. Shah, "Socioeconomic Status, Intelligence and the Attainment of Higher Education," Sociology of Education, XL (1967), pp. 1-23. W. H. Sewell and J. M. Armer, "Neighborhood Context and College Plans," American Sociological Review, XXXI (1966), pp. 159-168. W. H. Sewell and V. P. Shah, "Social Class, Parental Encouragement and Educational Aspirations," American Journal of Sociology, LXXIII (1968), pp. 559-572. T. E. Steahr and C. F. Schmid, "College Student Migration in the U.S.A.," Journal of Higher Education, XLIII (1971), pp. 441-462. J. W. Trent and L. L. Medsker, Beyond High School (San Francisco, California, 1968).

[2] A. W. Astin, "The Distribution of Students among Higher Education Institutions," Journal of Educational Psychology, LV (1964), p. 284.

[3] See for example: C. Jenks and D. Riesman, The Academic Revolution. E. I. McDill and J. Coleman, "Family and Peer Group Influences in College Plans of High School Students," pp. 112-126. W. H. Sewell, "Community Residence and College Plans," pp. 24-38. W. H. Sewell and V. P. Shah, "Socioeconomic Status, Intelligence and Attainment in Higher Education," pp. 1-23.

[4] K. A. Feldman and T. M. Newcomb, The Impact of College on Students (San Francisco, California, 1970), p. 107.

[5] C. B. Nam and J. D. Cowhig, "Factors Relating to College Attendance of Farm and Non-farm High School Graduates: 1960" (Washington, D.C., 1962).

[6] J. W. Trent and L. L. Medsker, Beyond High School, pp. 53-56.

[7] J. W. Trent, "Personal Factors in College Choice," (paper presented at the annual meeting of the College Entrance Examination Board, New York, 1965), quoted in Feldman and Newcomb, p. 107.

[8] C. N. Alexander and E. Q. Campbell, "Peer Influences on Adolescent Educational Aspirations and Attainments," pp. 568-575.

[9] R. P. Boyle, "On Neighborhood Context and College Plans," pp. 706-707. J. L. Holland, "Parental Expectations and Attitude about Colleges," pp. 164-170. L. Krauss, "Sources of Certain Educational Aspirations among Working Class Youth," pp. 867-879. J. Coleman, "Family and Peer Group Influences in College Plans of High School Students," pp. 112-126.

[10] Feldman and Newcomb, Impact of College on Students, p. 110.

[11] J. M. Richards and J. L. Holland, A Factor Analysis of Students' "Explanations" of Their Choice of a College.

[12] Feldman and Newcomb, Impact of College on Students, p. 111.

[13] J. L. Holland, "Students' Explanations of College Choice and their Relation to College Popularity, College Productivity and Sex Differences," p. 319.

[14] Feldman and Newcomb, Impact of College on Students, p. 144.

[15] See: L. L. Baird, Family Income and the Characteristics of College Bound Students. American College Testing Report, No. 17 (Iowa City, Iowa, 1965). J. A. Davis, Undergraduate Career Decisions: Correlates of Occupational Choice (Chicago, 1965).

[16] A. W. Astin, "Distributions of Students among Higher Education Institutions," p. 284.

[17] W. H. Sewell, "Community Residence and College Plans," pp. 24-38.

[18] In the State of Oklahoma all state controlled institutions of higher education have to submit county by county and state by state breakdowns of the permanent residences of their students to the Oklahoma State Regents for Higher Education, on an annual basis. Informal conversations with registrars in Oklahoma, Ohio and New York indicated a broad general knowledge of students distributional patterns for each registrar's institution.

[19] J. W. Brownell and R. W. Stanley, "A Cartographic Analysis of the Changing Hinterlands of the State University of New York Colleges of Arts and Sciences," Proceedings of the Eighth Annual Meeting, New York-New Jersey Division of the Association of American Geographers (West Point, New York, 1967), pp. 74-93.

[20]H. McConnell, "Spatial Variability of College Enrollment as a Function of Migration Potential," Professional Geographer, XVII (November, 1965), pp. 29-37.

[21]Ibid., p. 35.

[22]Both institutions are state controlled universities of about the same enrollment size and within the same state. Fall, 1972 undergraduate totals supplied by the Oklahoma State Regents for Higher Education for Oklahoma State University were 13,744 and for the University of Oklahoma were 13,390.

CHAPTER III

HISTORICAL REVIEW

An analysis of how institutions developed often yields insight
into their present organization and goals. In the case of the
University of Oklahoma and Oklahoma State University this brief
historical overview is intended to bring out major developmental
trends as a means of explaining some of the differences to be found
between these two educational institutions.

The University of Oklahoma

Out of the first legislative assembly of the Oklahoma Territory
came an act providing for the establishment of a university at Norman,
with the official title of "The University of Oklahoma." Governor
Steele signed this bill on December 19, 1890, although it was nearly
two years before classes were held, September, 1892.[1]

The early developments within the University indicated the path
which this institution was to follow. The first presidents placed
little emphasis upon the agricultural or technical realms of study,
for the major thrusts were toward the liberal and fine arts, science
and the professions.[2] Such a direction was reflected in the first
academic degrees to be offered--Baccalaureates of Arts, Philosophy,
Letters and Science--and also in the colleges and schools that were
established soon after the University opened:[3]

> College of Arts and Sciences (1893)
> School of Pharmacy (1893)
> School of Fine Arts (1903)
> Graduate School (1909)
> School of Engineering (1909)
> School of Education (1909)
> School of Law (1909)
> School of Medicine (1910)

The above reveal the base from which the University developed, a base which was significant in determining the direction and nature of the academic momentum of the institution.

Although growth in the early decades was slow and the range of curriculum offerings narrow, it may be stated that by the end of the first fifty years of its history, the University of Oklahoma was undoubtedly a university in every sense of the word.[4] From that time until the present, the institution has continued to develop its programs along the direction established early in its history, for the University has continued to place great emphasis upon the professions, arts and sciences, leaving technical and vocational sectors of higher education to other institutions.

<div align="center">Oklahoma State University</div>

The Agricultural and Mechanical College of the Territory of Oklahoma officially opened its doors in Stillwater to students on December 14, 1891.[5] Two years later its name was changed to Oklahoma Agricultural and Technical College, a title which it kept until 1957 when a legislative act changed the name again, to Oklahoma State University of Agriculture and Applied Sciences.[6] Thus, throughout much of its history Oklahoma State University has had the ring of a land grant school in its title. To what extent this has permeated

throughout the institution and affected its direction of growth, will now be analyzed.

Oklahoma Agricultural and Mechanical College was established because of the desire of the legislature to secure funds that were available under the provisions of the Morrill Acts of 1862 and 1890 and the Hatch Act of 1887.[7] The first annual catalog and prospectus clearly stated that there was to be a difference between the institutions at Stillwater and Norman: "The objective of the Agricultural and Mechanical College is not to afford a university education . . . ."[8] Thus, from the beginning, the college had a rural-agricultural-vocational flavor, distinct from that of the more liberal arts oriented university being established at Norman. Nunn goes so far as to state that the first courses offered at Oklahoma A. and M., in keeping with the spirit of the Morrill Acts, ". . . were particularly designed for young men and women who expected to live on the farm and who could not complete a college course."[9] The 1891 prospectus of the College described the functions of this A. and M. institution in the following way:

> The design of the institution is to afford practical
> instruction in agriculture and the natural sciences
> connected therewith, and also the sciences which
> bear directly upon all industrial arts and pursuits.[10]

In spite of the name change from A. and M. College to State University, the institution at Stillwater still retained much of its original direction. As late as 1970 President Robert Kamm stated that:

> I wish to emphasize that O.S.U. will continue to be true
> to its Land Grant tradition . . . (and that) . . . .
> Strong emphasis will continue at O.S.U. in the years
> ahead on the biological and physical sciences and on
> their applied areas of agriculture, engineering, home
> economics and veterinary medicine.[11]

Although Oklahoma State University has broadened its outlook and degree offerings, there are still strong vestiges of the old A. and M. college around. It would not be out of place to assume, therefore, that an agriculturally oriented institution, as O.S.U. was and probably is, would attract a different student body from that attending the University of Oklahoma. From the very start, O. U. was designed and built as a well rounded university offering a broad range of liberal arts courses and training for the professions. It complemented the institution at Stillwater.

FOOTNOTES

[1]S. E. Nunn, "A History of Education in Oklahoma Territory."
(unpublished Ed.D. dissertation, University of Oklahoma, 1941), p. 64.

[2]S. W. Hoig, "A History of the Development of Institutions of
Higher Education in Oklahoma." (unpublished Ph.D. dissertation,
University of Oklahoma, 1971), p. 20.

[3]H. G. Bennett, "The Development of Higher Education in Oklahoma."
(unpublished M.A. thesis, University of Oklahoma, 1924), p. 28.

[4]S. W. Hoig, p. 114.

[5]M. C. Santee, "A History of the School of Agriculture of the
Oklahoma Agricultural and Mechanical College, 1891-1914." (unpublished
M.S. thesis, Oklahoma State University, 1956), p. 5.

[6]T. L. Agnew, "Survival, Stability and Maturity," Oklahoma State
Alumnus Magazine, X (May, 1969), p. 18. Although this is the full
title of the University, it is usually shortened to "Oklahoma State
University" in general usage and in most publications. The shortened
version will be used throughout this study.

[7]S. W. Hoig, p. 24.

[8]Annual Catalog and Prospectus of the Agricultural and Mechanical
College of the Territory of Oklahoma, 1892-3. (Guthrie, Oklahoma, 1893),
p. 11.

[9]S. E. Nunn, pp. 67-69.

[10]M. C. Santee, p. 10.

[11]R. B. Kamm, "University Guidelines and a Look at the 1970's at
O.S.U.," Oklahoma State Alumnus Magazine, XI (April, 1970), p. 4.

CHAPTER IV

UNDERGRADUATE DISTRIBUTIONS

Statistical Analyses

The data pertaining to the number of in-state undergraduates per
county attending the University of Oklahoma and Oklahoma State Uni-
versity were for the fall semester 1972 as it is only during this time
of the academic year that the Oklahoma Regents for Higher Education
demand detailed, county by county breakdowns, from the institutions
of higher education in the State.

These data, when mapped in raw score form, showed the over-
whelming influence of the large urban areas; as was to be expected,
those counties with the largest populations sent more students to
Oklahoma State University and to the University of Oklahoma than did
counties with low population levels. As a means of bringing out less
noticeable relationships, the student distributions were also mapped
in terms of the numbers of undergraduates per the number of 18 to 24
year olds per county. This age group was used by the U. S. Bureau of
the Census in its 1970 county by county breakdowns of population, and
this group most closely approximated the age of the undergraduates
attending Oklahoma State University and the University of Oklahoma.
The county enrollment totals when mapped this way will be described
as the transformed data.

Having arranged the undergraduate data as outlined above, the
raw figures were mapped as a means of visually representing the spatial
differences between the two distributions (see Maps 1 and 2, pages
26 and 27). However, to give a quantitative description of the amount
of difference between these two distributions, a Student's "t" Test
was used, first on the raw data and then on the transformed data.

When the Student's "t" Test was applied to the raw data, the
number of Oklahoma State University of University of Oklahoma under-
graduates per county, the results were as follows: "t" = 0.04 which
indicated, at the .05 level of significance, that there was no signifi-
cant difference between the two distributions. However, from the
visual standpoint, see Maps 1 and 2, it seemed as though there should
be a difference.

An indicator of why the spatial or visual and the mathematical
results were so different was uncovered when the means of the two
distributions were analyzed. Although these group means were very
close, the individual scores per county differed, to a large extent in
many cases, for both the University of Oklahoma and the Oklahoma State
University distributions.[1] This situation indicated the probability
that the large numbers of in-state undergraduates residing in Payne,
Cleveland, Tulsa or Oklahoma counties and attending either the
University of Oklahoma or Oklahoma State University, were greatly
distorting the statistical calculations.

On the basis of the above discovery, another Student's "t" Test
was run, this time omitting the two counties containing the major
urban centers--Oklahoma and Tulsa Counties--and the two counties
containing the Universities under analysis--Payne and Cleveland
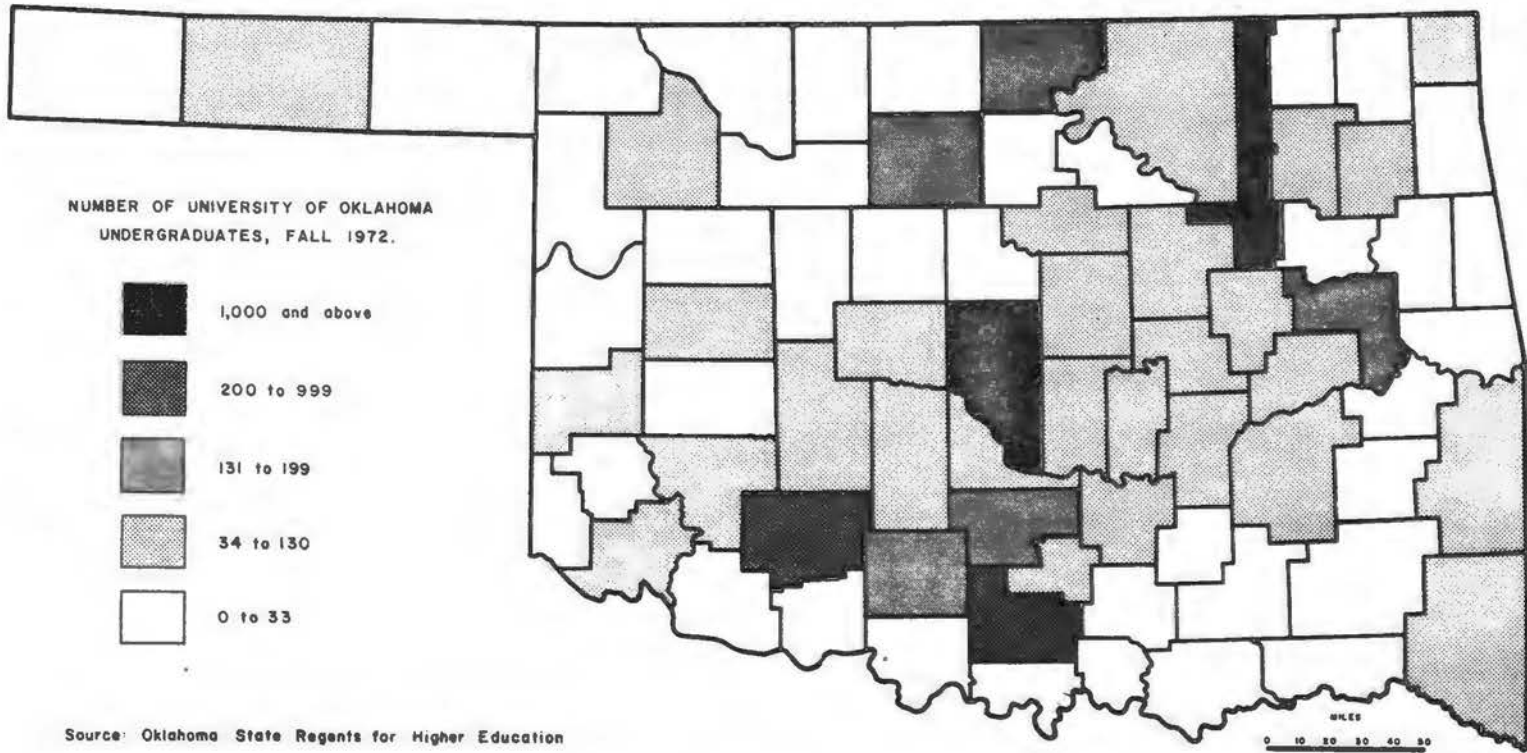
NUMBER OF UNIVERSITY OF OKLAHOMA
UNDERGRADUATES, FALL 1972.

1,000 and above

200 to 999

131 to 199

34 to 130

0 to 33

Source: Oklahoma State Regents for Higher Education

Map 1.   The Distribution of In-State Undergraduates Attending the University
of Oklahoma, by County of Permanent Residence, Fall 1972

NUMBER OF OKLAHOMA STATE UNIVERSITY
UNDERGRADUATES, FALL 1972.

1,000 and above

200 to 999

131 to 199

34 to 130

0 to 33

Source: Oklahoma State Regents for Higher Education.

MILES
0 10 20 30 40 50
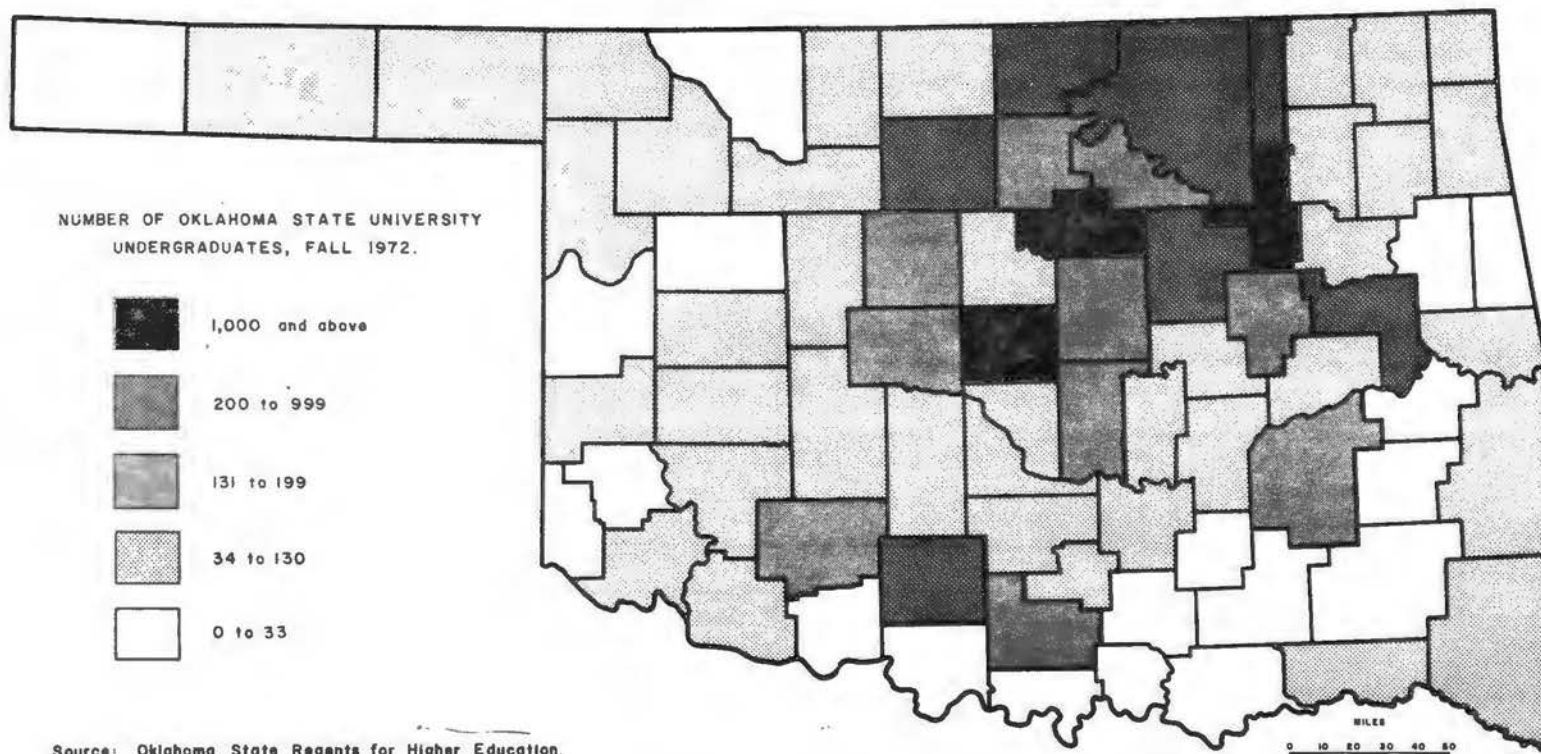
Map 2. The Distribution of In-State Undergraduates Attending Oklahoma State
University, by County of Permanent Residence, Fall 1972

counties.[2] The result of this calculation showed that the "t" score

was much higher than before, 10.023, which was significant at the .05

level, and indicated that there was a significant difference between

the distributions of the in-state undergraduates attending the Uni-

versity of Oklahoma and Oklahoma State University when those distri-

butions were analyzed on a county scale but without the distorting

elements of the two largest urban centers and the home counties of

the Universities in question.

The results of the "t" Test analyses were further supported by

correlation analyses. The correlation between the numbers of in-state

undergraduates attending the University of Oklahoma and those attending

Oklahoma State University, from all 77 counties of the state, the raw

data, was $r = +0.7953$, yielding a coefficient of determination of

63.25 per cent. However, when Cleveland, Payne, Tulsa and Oklahoma

counties were omitted from the calculations the correlation coefficient

was much lower, $r = +0.62$, yielding a coefficient of determination of

38.44 per cent.

The correlation analyses showed, therefore, the tremendous sig-

nificance of the four counties in the spatial manifestations of the

University of Oklahoma and Oklahoma State University undergraduate

distributions. However, since the four counties being scrutinized

supplied 8,959 undergraduates to the University of Oklahoma, or 67.92

per cent of the total, and 6,340 undergraduates to Oklahoma State

University, or 43.13 per cent of that total, they must figure in all

further calculations. It must be realized that powerful as these

counties were in the statistical realm, their spatial influence was

much less significant.

Using the transformed values, the number of in-state under-

graduates as a proportion of the number of 18 to 24 year olds per

county, for each of the 77 counties for each university under analysis,

created a more even or common denominator than had the raw data. The

result of the Student's "t" Test run on these data was that "t" =

3.8056, which indicated a statistically significant difference between

the two distributions, at the .05 level. The degree of similarity

between the two distributions when measured by correlation analysis

was r = +0.0900, the coefficient of determination being 0.0081 per

cent, which was not significantly different from zero and indicated

no significant relationship.

The above calculations, using the transformed data, offered a

more accurate picture of the distributional differences between under-

graduates attending the University of Oklahoma and Oklahoma State

University, than did the raw data. However, the raw data were of

great value in bringing out the importance of the two major urban

areas and of the counties in which the universities under analysis

were located.

Spatial Analysis

The spatial analyses of those in-state undergraduates attending

the University of Oklahoma and those attending Oklahoma State Uni-

versity were facilitated by the construction of a series of maps;

Maps 1 and 2 depict the raw data distribution, while Maps 3 and 4

present the transformed data distributions, for both universities.

The raw data map of the University of Oklahoma undergraduates

(see Map 2, page 27) reflects the great influence of the two largest

U. OF O. UNDERGRADUATESOFA9 AUPROPORTOON TESOFA9 AUPROPORTION
OF THE 18 – 24 YEAR ODDSTHERICODNTYEAR OODSTPER COUNTY

0.180 and above	0.180 and above
0.080 to 0.179	0.080 to 0.179
0.042 to 0.079	0.042 to 0.079	0.042 to 0.079
0.016 to 0.041	0.016 to 0.041	0.016 to 0.041
0.000 to 0.015	0.000 to 0.015	0.000 to 0.015

Oklahoma State Source: Oklahoma Higher Board of Oklahoma Higher Education for Higher Education
United States Bureau United States Bureau Census of the Population, 1970s of Population, 1970

MILES

Map 3. The Distribution of Map-Distribution of graduates alleugrehatak Attendanigthe University
of Oklahoma, by Oklahoma, Refresidents For Residents or Proportions of Proportion of the
18 to 24 Year Old o per Year Old per Year Old Fall 1972

30   30   30

O.S.U. UNDERGRADUATES AS A PROPORTION
OF THE 18-24 YEAR OLDS PER COUNTY

■	0.180 and above
■	0.080 to 0.179
▨	0.042 to 0.079
▨	0.016 to 0.041
□	0.000 to 0.015

Sources: Oklahoma State Regents for Higher Education.
United States Bureau of the Census, Census of Population, 1970.
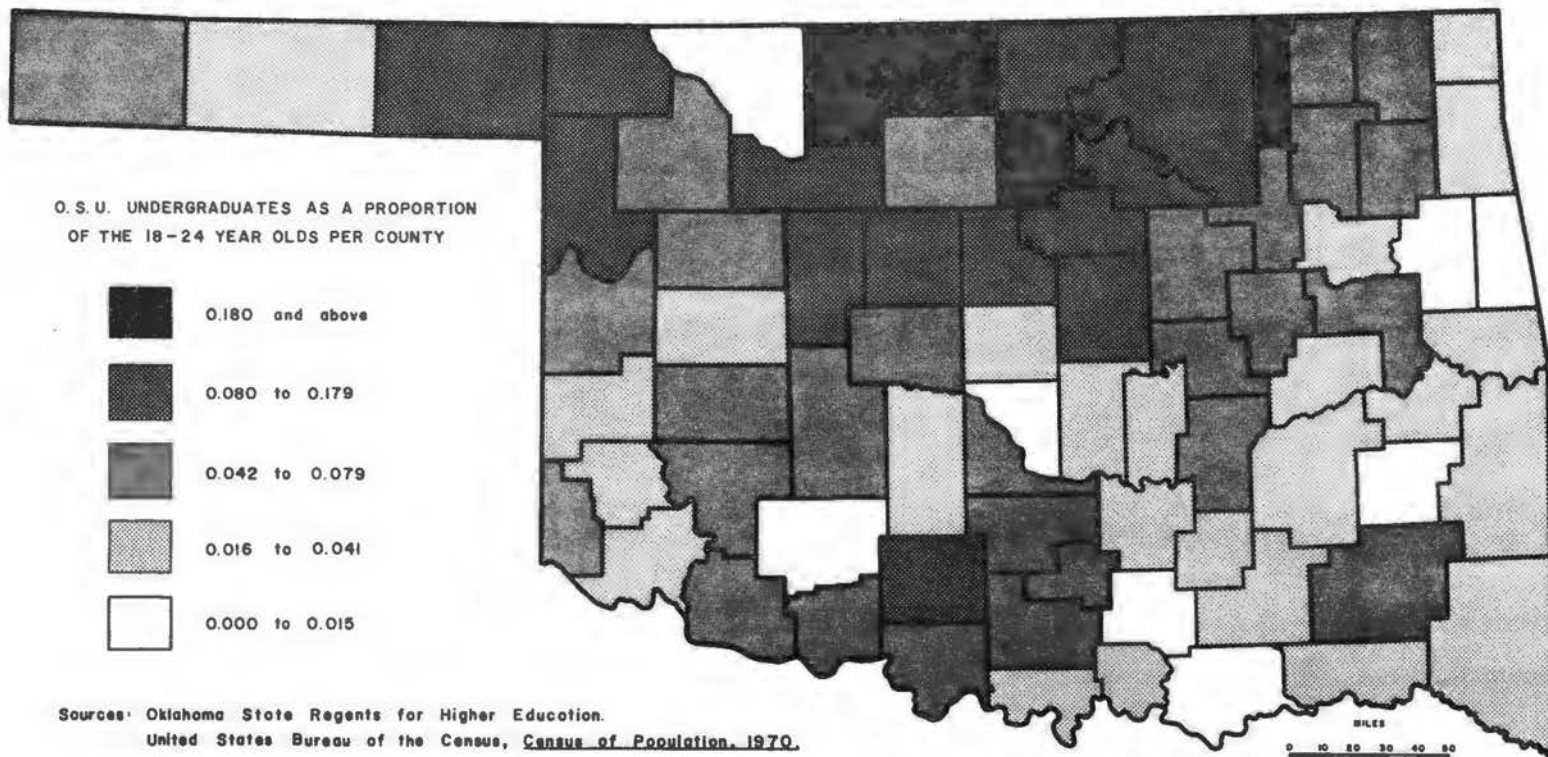
Map 4. The Distribution of In-State Undergraduates Attending Oklahoma State
University, by County of Permanent Residence, as a Proportion of
the 18 to 24 Year Olds per County, Fall 1972

urban areas in Oklahoma, as well as that of the home county of the

University of Oklahoma.[3] Conversely, those counties with low popu-

lations are depicted as sending relatively few students to that insti-

tution.[4] These low intensity counties[5] formed two major belts in the

state, a concave zone in the southeast third and a convex zone in the

northwestern third of the state. Those regions of lowest intensity

contained 39 of the 77 counties in Oklahoma (or 50.69 per cent of the

total) and reemphasize the relatively concentrated nature of the

distribution of undergraduate students attending the University of

Oklahoma, by county of permanent residence.

Based upon the above, the following generalization may be made;

University of Oklahoma undergraduates were highly concentrated in

two small areas--Tulsa and Cleveland/Oklahoma counties[6]--with a belt

of moderate density extending northeast to southwest across the central

part of the state, leaving the southeastern and northwestern thirds

of the state as minor source areas for the University of Oklahoma

undergraduate population.

In comparison with that of the University of Oklahoma, the state

wide distribution of the undergraduates attending Oklahoma State

University was more evenly dispersed, although the great influence of

the two largest urban areas and the home county of the University can

be seen on Map 1 (page 27). However, surrounding Payne county was a

zone of relatively high density, as regards undergraduate places of

permanent residence; such a zone was lacking in the case of the

University of Oklahoma. In terms of the lowest intensity category

of the undergraduate permanent county of residence, a pattern emerged

for Oklahoma State University that was similar to that found for the

University of Oklahoma, for there were two major areas of low intensity, a concave zone in the southeast and convex zone in the northwestern part of the state. However, those zones were much smaller in extent for Oklahoma State University students than they were for those attending the University of Oklahoma, for this lowest intensity category covered only 20 counties for Oklahoma State University undergraduates and represented only 25.97 per cent of all counties in the state.

Although there were similarities between the distributions of the permanent addresses of undergraduates attending the two institutions under analysis, there were major areas of difference. A distinct zone of concentration or intensity of Oklahoma State University undergraduates home counties was found around Payne county. It must also be stated that the Oklahoma State University zones of low intensity were much smaller in extent than are those of the University of Oklahoma. This pattern indicated a more uniform dispersion of Oklahoma State University undergraduates over the state than was the case for the University of Oklahoma; the University of Oklahoma undergraduates were highly concentrated in two major areas with a very rapid decline in intensity to the northwest and to the southeast and a less sharp decline to the northeast and the southwest. The decline in intensity of Oklahoma State University undergraduates from the. major zone of concentration occurred in all directions, but it was less steep than that for the University of Oklahoma undergraduates.

Using the raw data (the numbers of undergraduates per county), distinct patterns of enrollment were uncovered. However, these patterns were distorted somewhat by the population levels in each

county. To facilitate the analysis of this element maps were drawn

depicting the transformed data--the number of in-state undergraduates

as a proportion of the number of 18 to 24 year olds per county (see

Maps 3 and 4, pages 30 and 31).

Map 3 (page 30) depicting the University of Oklahoma transformed

data, suggests several features. Although the lowest intensity zones

appeared basically as they did on Map 2 (page 27), they were less

extensive and more poorly defined. The concentration of intensity of

in-state undergraduates around Cleveland county was also significant--

this southcentral zone of concentration (although limited in extent)

does give a somewhat concentric circle pattern of decreasing intensity

with increasing distance--this negative exponential function will be

analyzed later.

A great majority of the county scores on Map 3 (page 30) fall

within the lowest two categories of the taxonomy used: 62 counties

representing 80.52 per cent of the 77 county total. This factor

indicated once more the relatively concentrated geographical area from

which the University of Oklahoma drew its undergraduate student body.

Also brought out by Map 3 was the influence of the large urban areas

and the home county of the University, although to a lesser extent

than on Map 2 (page 28).

Map 4 (page 31), depicting the transformed data of Oklahoma State

University, offered a pattern that was different from that of the

University of Oklahoma (compare Maps 3 and 4, pages 30 and 31). To

the north and west of Payne County, the home of Oklahoma State Uni-

versity, the distribution under analysis reached its greatest density;

here 16 of the 17 counties with scores of 0.080 and above were

located. Surrounding this zone, a concave region of moderate density (scores ranging from 0.042 to 0.079) was noticeable and with increasing distance from this the intensity levels declined, resulting in an area of low scores (0.016 and below) being recognizable in the southeastern quarter of the state.

In comparison with the distribution of the transformed data of the University of Oklahoma undergraduates, that of Oklahoma State University reached higher density levels in all regions, with the exception of the counties immediately surrounding the University of Oklahoma. It was worthy of note that the regions of lowest density for both universities were located in the southeastern part of the state, yet even here Oklahoma State University's distribution was of a greater magnitude than that of the University of Oklahoma.

Although the distribution of the transformed data for Oklahoma State University was less clearly defined than that for the University of Oklahoma, and although there did seem to be a general distance decay factor underlying the pattern, other phenomena must also be considered. These phenomena will be the topic of the next chapter.

Conclusion

The distribution of the in-state undergraduates, by county of permanent residence, attending the University of Oklahoma and also Oklahoma State University have been illustrated as having spatially different patterns. Using the raw or the transformed data, the maps constructed showed that the county by county density levels of the undergraduates attending Oklahoma State University were greater and areally more extensive than were those for the University of Oklahoma.

[1]The mean number of undergraduates attending the University of Oklahoma per county was 173.896, while that for Oklahoma State University was 178.490; the standard deviations were 414.82 and 599.56 respectively.

[2]A further reason for omitting Payne and Cleveland counties was that married or older undergraduates will often take up residence in the county containing the university they are attending, hence, their "permanent" address may in reality be a temporary one and may not indicate from which county they came prior to beginning their studies. Unfortunately there was no way of identifying such students or their true permanent addresses or county of origin.

[3]The fall 1972 enrollments for the University of Oklahoma undergraduates from Oklahoma county were 4,268, Tulsa County, 1,852, and from Cleveland county, 2,777. The fourth most important source county of undergraduates attending the University of Oklahoma was Washington county which sent only 324 students in the fall of 1972. Source: Oklahoma State Regents for Higher Education.

[4]See Chapter V for a detailed statistical analysis of this phenomenon.

[5]Counties containing 33 or less University of Oklahoma undergraduates were considered as the lowest intensity counties.

[6]Oklahoma county contained 2,346 of Oklahoma State University's undergraduates, Tulsa County 2,592 and Payne county, 1,298. Source: The Oklahoma State Regents for Higher Education.

CHAPTER V

THE UNDERGRADUATE DISTRIBUTIONS

AND PUBLISHED DATA

In the literature many phenomena were found to be related to the spatial patterns of enrollment of college students.[1] Since raw data pertaining to the elements deemed important in explaining such enrollment distributions can be obtained at the county level from the United States Bureau of the Census, this chapter will analyze selected Census material to explain the differences between the University of Oklahoma and Oklahoma State University in-state undergraduate distributions as broken down by county of permanent residence.

The data selected from the Census were as follows: population totals per county; the per cent of the 3 to 34 year olds in full time education per county; the median family income per county; and the combined total of Blacks and American Indians as a percentage of the total population per county. These data were selected for two reasons: (1) they were available and tabulated on a county by county basis; and (2) the literature had indicated that they might provide the greatest amount of explanation of the differences between the two undergraduate student distributions under analysis.

The data selected and their relationships to the in-state under-graduate distributions (by county of permanent residence) of students attending the University of Oklahoma and also Oklahoma State University

are presented in Table I (page 39).

Population

Maps 1 and 2 (pages 26 and 27) indicated a strong relationship
between the population totals of each county and those in-state under-
graduates (measured by county of permanent residence) attending the
University of Oklahoma and those attending Oklahoma State University.
The correlation coefficients, measuring the degree of similarity be-
tween these distributions, were high. The correlation coefficient for
Oklahoma State was $r = +0.9075$, giving a coefficient of determination
of 82.35 per cent, while those for the University of Oklahoma were
slightly lower, $r = +0.8659$, giving a coefficient of determination of
74.99 per cent.

Population and Distance

According to McConnell,[2] distance was an important element in
explaining student distributions. This factor was introduced into the
calculations as a negative function to describe distance decay and so
indicate that the student distributions were directly related to the
population size of each county and inversely related to the distance of
each county from the University in question. This may be described as:

$$U_{ji} = P_i / D_{i-j}$$

where U_{ji} represents the numbers of undergraduates from University
"j" in county "i", P_i is the population of county "i" and D_{i-j} is
the distance from county "i" from University "j".

TABLE I

CORRELATION COEFFICIENTS FROM THE STUDENT AND COUNTY ANALYSES

Institution	Combined total of Blacks and American Indians per county as a percentage of the total county population	Per cent of 3-34 year olds in full time education per county	Median family income per county	Population per county/ distance from each University	Population per county
Number of O.S.U. undergraduates per county	+0.0185*	+0.1473*	+0.5198	+0.9148	+0.9075
Number of O. U. undergraduates per county	-0.0036*	+0.0597*	+0.4709	+0.9936	+0.8659

*Correlation coefficients not significant at the .05 per cent level.

To test this model, correlation analyses were carried out. The variables consisted of the total numbers of in-state undergraduates, by county of residence, attending the University of Oklahoma on the one hand, and the population totals of each county divided by the distance that each county was from Norman on the other. The same computations were done for Oklahoma State University, with Stillwater being substituted for Norman. The distances used were desire line distances, measured in miles from the center of each county to each University.

By adding this distance function to the formula, the correlation coefficient for Oklahoma State University was raised slightly, to $r = +0.9148$, with a coefficient of determination of 83.69 per cent. For the University of Oklahoma, however, this negative function caused a great increase in the correlation coefficient, to $r = +0.9936$, giving a coefficient of determination of 98.72 per cent.

Income

Income levels are often deemed to be important factors in explaining student enrollments in institutions of higher education.[3] As a result, correlation analyses were carried out between the median family income levels per county and the distribution of in-state undergraduates, by county of permanent residence, attending the University of Oklahoma on the one hand and Oklahoma State University on the other.

The above calculations yielded moderately high correlation coefficients: for the University of Oklahoma $r = +0.4709$, while that for Oklahoma State University was slightly higher, $r = +0.5198$. These correlation coefficients indicated a significant positive relationship

between income and enrollment levels per county, and although the level of explanation was lower than that of the potential models, the income variable may prove to be of value in the later stepwise regression analyses.

Education

Education levels per county were compared to the in-state undergraduate enrollment distributions, by county of permanent residence, of both the University of Oklahoma and Oklahoma State University, because of the belief that this phenomenon would help to explain the differences between the two student patterns.[4] For the University of Oklahoma r = +0.0597 and the coefficient of determination was 0.3464 per cent, while the results for Oklahoma State University were only slightly higher, r = +0.1473 with a coefficient of determination of 2.169 per cent. Both correlation coefficients were not significantly different from zero.

Ethnicity

Many studies cite the significance of the socio-economic status of a student as being important in college enrollment studies.[5] The most important component of this phenomenon, the influence of income, has been analyzed already, however, it was believed that an analysis of the ethnic element might help to explain further the two undergraduate distributions under analysis.

The correlations carried out between the measure of ethnicity[6] and the numbers of in-state undergraduates per county of residence attending either the University of Oklahoma or Oklahoma State University

produced results that were not statistically significant: for the
University of Oklahoma r = -0.0036, while for Oklahoma State University
r = +0.0185.

Urban and Rural Measures

As was mentioned in Chapter II, Feldman and Newcomb[7] have shown
that certain kinds of students attend certain kinds of colleges.
Astin[8] supported this view when he stated that certain kinds of colleges
attract student bodies with certain characteristics. Therefore, since
the historical backgrounds and modern orientations of Oklahoma State
University and of the University of Oklahoma are so different[9] (with
Oklahoma State University being more agriculturally biased and the
University of Oklahoma having a more liberal arts/professions orien-
tation), it was expected that there would be different relationships
between rural and urban phenomena and the distributions of the two
undergraduate student bodies under analysis. To test this hypothesized
relationship, correlation analyses were run on an urban measure[10] and
a rural/agricultural measure[11] on the one hand, and the transformed
student data[12] per county, for each university, on the other. The
transformed data were used because it was believed that these would
keep distortions to a minimum and produce more meaningful results than
if the raw student data were used. The results of the analyses are
displayed in Table II (page 43).

All of the correlation coefficients shown in Table II were very
low, not one of them having a coefficient of determination greater
than seven per cent. As a result, these values must be regarded as
being of extremely low significance, or even random events.

TABLE II

CORRELATION COEFFICIENTS USING TRANSFORMED DATA

Institution	Urban Measure*	Rural Measure*
O.S.U. Undergraduates/total number of 18-24 year olds per county	-0.1895	+0.2732
O.U. Undergraduates/total number of 18-24 year olds per county	+0.2492	-0.2090

*See Footnotes 10 and 11 for full definition.

Conclusion

The analyses of the variables obtained from the United States Bureau of the Census produced varied results. These results will be assessed below.

The very high correlation coefficients obtained for the potential models (when their distributions were compared to those of the in-state undergraduates, by county of residence, attending the University of Oklahoma or Oklahoma State University) indicated that these models would probably be major inputs in the regression analyses to be carried out later. However, there was still the probability that other variables would improve the explanation of the student distributions under analysis, especially in the case of Oklahoma State University, where the coefficient of determination between the two distributions[13] was only 83.69 per cent. Also, since the goal of the study was to explain

the differences between the in-state undergraduate distributions, by

county of residence, of Oklahoma State University and of the University

of Oklahoma, the analysis of other variables was deemed necessary.

The urban and rural measures used in this study, when compared

to the two student distributions being analyzed were expected to offer

certain results. It was hypothesized that the University of Oklahoma's

in-state undergraduate distribution pattern would have a positive re-

lationship to the urban measure and a negative one to the rural

measure, used in the study; the opposite situation was expected for

the Oklahoma State University and its student distribution under

analysis. These relationships did occur but the correlation co-

efficients were so low that they could be regarded as random events.

The correlation analyses carried out between the distributions

of the in-state undergraduates attending the University of Oklahoma

and also Oklahoma State University, by county of residence, and the

income levels per county, produced moderately high coefficients of

determination; 22.17 per cent for the University of Oklahoma and 27.07

per cent for Oklahoma State University. However, the relationships

between ethnicity and education levels on the one hand and the two

student distributions under analysis on the other, produced results

that were not significantly different from zero.[14]

It may be concluded therefore, that of all of the variables

analyzed here, only the potential models and income levels offer the

greatest probability of most satisfactorily explaining the differences

between the two student distributions being analyzed. However, the

combined relationships of all of these variables were analyzed, in

conjunction with the variables derived from the questionnaires, in

a stepwise regression model used later in the study in case they

were able to increase the "r" value through their interrelationships

with each other.

FOOTNOTES

[1]See Chapter II.

[2]McConnell, "Spatial Variability of Enrollment," p. 29.

[3]See: Sewell and Shah, "Socio-economic Status, Intelligence and Attainment in Higher Education," pp. 1-23. Richards and Holland, Factor Analysis of Explanations, cited earlier in Chapter II.

[4]This was measured by the per cent of 3-34 year olds in full time education, per county, 1970. This is an educational breakdown used by the U. S. Bureau of the Census. Source: U. S. Bureau of the Census, Census of Population. General and Social Characteristics. Final Report PC(1)-38, Oklahoma (Washington, D.C., 1971), pp. 318-324.

[5]Ibid.

[6]The per cent of the total county population classified as Black and American Indian.

[7]Feldman and Newcomb, Impact of College on Students, p. 144.

[8]Astin, "Distributions of Students Among Higher Educational Institutions," p. 284.

[9]See Chapter III, particularly the statement of President Kamm of Oklahoma State University describing the future role or direction of Oklahoma State University in the academic and non-academic world.

[10]The per cent of the population per county, classified as urban by the U. S. Bureau of the Census. Source: U. S. Bureau of the Census, Census of Population: 1970. Number of Inhabitants. Final Report PC(1)-A38, Oklahoma (Washington, D.C., 1971), pp. 16-17.

[11]The per cent of the working population employed in agricultural activities. Source: U. S. Bureau of the Census, Census of Population: 1970. General Social and Economic Characteristics. Final Report PC(1)-C38, Oklahoma (Washington, D.C., p. 157.

[12]The transformed data was the number of in-state undergraduates, by county of permanent residence, attending the University of Oklahoma or Oklahoma State University, as a proportion of the 18-24 year olds per county.

[13]The transformed data for O.S.U. and the potential model.

[14]The literature had indicated that income, ethnicity, education, urbanness and urualness were significant in explaining who went to college. However, the spatial patterns of these phenomena did not correlate highly with the undergraduate distributions under analysis. The reasons for this may be: (i) the amount of generalization generated by the county unit of measurement; and (ii) the fact that these phenomena had already been taken into consideration because the subjects were attending universities.

CHAPTER VI

ANALYSIS OF STUDENT PERCEPTIONS

The Questionnaires

Much data can be obtained from published sources, especially the U. S. Bureau of the Census. However, in attempting to analyze why students decided to attend either of the two largest universities in the State of Oklahoma, and so help explain the underlying reasons for the different distribution patterns of their in-state undergraduates by county of residence, it was necessary to carry out a primary survey. This research was accomplished by means of a short questionnaire.

The returns of the questionnaire were deemed numerous enough to permit further analyses to be carried out upon the data they generated:[1] for the University of Oklahoma 433 returns were obtained, (27.79 per cent of the total sent out) while for Oklahoma State University 428 questionnaires (27.63 per cent) were returned (see Appendix A, Table X.

From another standpoint the questionnaire returns from the two universities were comparable--returns were received from 51 counties for Oklahoma State University undergraduates and from 48 counties for the University of Oklahoma. It must also be stated that the numbers of undergraduates whose permanent addresses were located in the unrepresented counties were low, the counties from which no returns were

obtained accounted for only 3.45 per cent of the total undergraduate

population at the University of Oklahoma (462 students out of a fall

1972 total of 15,588) and for only 7.63 per cent of the undergraduate

student body at Oklahoma State University (1,409 out of 15,069 under-

graduates, as of fall, 1972.

It must be stated therefore, that the counties not represented in

the questionnaire returns are low value counties. Since well over

90 per cent of the home county locations will be represented in the

later analyses, the impact of the no-returns is likely to be very

limited in extent and should not greatly affect the outcome of the

study.

Analysis of Write-in Responses

Before analyzing the major portion of the questionnaires a

discussion of the comments written in by the students is necessary

since they might help to explain the differences between the two stu-

dent distributions under analysis.

Since most of the students who offered extra comments failed to

give them a score on the one through five scale, little comparative

analysis can be carried out between these insights and those provided

by the main body of the questionnaire. However, the returns may be

descriptively analyzed and they do offer another view into the under-

lying reasons of why the students decided to attend these two insti-

tutions of higher learning.

From the students attending the University of Oklahoma, 147

questionnaires contained written-in comments. Although the total

number of comments was 174, a significant proportion of the responses

had to be classified as "repeats" since they were reiterations, usually stronger or more precise in nature, of questions asked in the body of the questionnaire. One hundred and eight comments were so classified, this represents 60.07 per cent of the total write-in responses.

The responses from the Oklahoma State University students were very similar to those mentioned above. One hundred and six returns contained write-in comments, which totaled 138 comments in all. However, 85 or 61.59 per cent were repeats of questions asked in the main section of the questionnaire.

An analysis of the responses which were not classified as repeats offered some information. At the University of Oklahoma the most common response referred to special programs that only this University offered in the State of Oklahoma, especially in medical and related fields; 41 of the 66 non-repeat responses were so classified. From this it would seem that specific programs, even at this early stage, have the ability to attract students and thus are included in the decision making process.

The next most important write-in response referred to the University of Oklahoma being a large institution with wide course offerings--10 responses. Even though this reason appeared relatively frequently, it can be given little weight since both Oklahoma State University and the University of Oklahoma are large and have extensive course offerings. Consequently, one can doubt whether a student would choose one institution over the other on these grounds.

Of the remaining written-in statements, the attractiveness of the University of Oklahoma campus elicited seven responses, to be

away from high school friends received six mentions, while familiarity

with the institution was cited twice.

From the above it would seem that the major feature the body of

the questionnaire was unable to pick up was the special course offer-

ings of the University of Oklahoma. However, it must be stated that

the 41 questionnaires upon which this comment was written represent

only 9.47 per cent of the total number that was received.

The analysis of the Oklahoma State University student write-in

comments were similar in nature, but lower in quantity, to those

obtained from University of Oklahoma students. The most frequent

written response of the Oklahoma State freshmen referred to the beauty

of the campus as being important in their decision to attend this

University; 17 written responses were so classified. However, this

factor was cited on only 3.97 per cent of the total number of question-

naires received, a low return. The next most frequently mentioned

reason for attending Oklahoma State University was familiarity with

the institution, especially through the 4-H organization; 16 question-

naires contained this response, 3.74 per cent of the total return.

The attractive forces of special programs, especially veterinary

medicine and forestry, elicited 13 written responses, while the large

size and wide offerings of the institution were mentioned seven times.

In comparison with their peers at the University of Oklahoma,

the freshmen of Oklahoma State University offered no single out-

standing response, however, it is worthy of note that the two most

frequently mentioned reasons for deciding to attend this educational

institution were of a non-academic nature--familiarity with and the

beauty of the Stillwater campus. These two factors, although most

frequently stated by Oklahoma State freshmen, were found on only a total of 7.71 per cent of responses, not a highly significant proportion of the total.

Although of limited value, the write-in responses did offer some insight into the student decision making process when the choice of which university to attend is made. The students at the University of Oklahoma considered academic reasons to a greater extent than did those attending Oklahoma State University. To what extent this represents a different student body, may be seen later when further analyses are put forward.

Analysis of Scores Responses

Table III shows the average scores that were received by each question on the questionnaires from the sample of freshmen drawn at Oklahoma State University and the University of Oklahoma. In both cases the two most important or outstanding reasons given for attending these universities were their academic reputation and the desire to live away from home, although it must be stated that these scores were not high--3.643 on a five point scale.

TABLE III

THE AVERAGE SCORE AND RANK OF THE RESPONSES TO
QUESTIONNAIRES SENT TO UNIVERSITY OF OKLAHOMA
AND OKLAHOMA STATE UNIVERSITY FRESHMEN

Topic of Question	University Oklahoma Av. Score	Rank	Oklahoma State University Av. Score	Rank
(1) Proximity to home	2.727	7	2.262	11
(2) Academic reputation	3.271	1	3.637	2
(3) Keeping costs low	2.817	4	2.838	7
(4) Family recommendations	2.815	5	2.935	4
(5) University recruiting	1.750	14	2.413	9
(6) Teacher recommendations	1.812	13	2.310	10
(7) Sports	2.310	11	1.903	13
(8) Social atmosphere	2.856	3	3.304	3
(9) Influence of friends	2.453	10	2.802	8
(10) Proximity to large city*	2.457	9	---	--
(10) Distant from large city*	-----	--	1.765	14
(11) Conservative campus	2.485	8	2.878	5
(12) Small town location	2.215	12	2.253	12
(13) University funding	2.736	6	2.858	6
(14) Live away from home	3.237	2	3.643	1

*Question 10 on the questionnaire for the University of Oklahoma did
not correspond exactly with question 10 for Oklahoma State University,
hence, the blanks in the "Average Score" and "Rank" columns of each
university.

The greatest differences, in terms of their ranked position, between the scores of the Oklahoma State University and University of Oklahoma students, came on the responses to the questions dealing with (1) the influence of the proximity to home and (2) university recruiting effectiveness on the decision making process. Students attending the University of Oklahoma rated proximity to home as the seventh most important reason for attending that institution, while Oklahoma State University's freshmen ranked it eleventh. There was a similar range difference in terms of the importance of university recruiting. The University of Oklahoma students rated this as the least important reason for attending the college of their choice, while at Oklahoma State University this was ranked ninth in importance.

Two categories of response had moderately different rankings. The attempts to keep costs low was rated as being of less importance at Oklahoma State University than at the University of Oklahoma, and the attraction of the sports program was also rated lower at Oklahoma State University than at the University of Oklahoma. For the rest of the questions asked, the rank of each response at Oklahoma State University was within two places of that given for the corresponding question at the University of Oklahoma.

To ascertain the degree of the relationship between the ranked questionnaire responses given by the in-state undergraduates attending the University of Oklahoma on the one hand and Oklahoma State University on the other, a Spearman's Rank Order Correlation was run. However, since one question on the Oklahoma State University questionnaire was not identical to that presented to the University of Oklahoma freshmen, this item was omitted from the correlation analysis.[2] The

scores of the remaining 13 questions were ranked for each institution and then correlated: this analysis yielded a rank order correlation coefficient of +0.8132 and a coefficient of determination of 66.13 per cent.

The correlation analysis indicated a significant positive relationship between the overall responses to the questionnaires returned by the University of Oklahoma and the Oklahoma State University undergraduates sampled. This result would support the view that there were distinct similarities between the underlying reasons that the two student bodies had for choosing an institution of higher learning to attend. It must be stated, however, that the above did leave 43.87 per cent of the relationship statistically unexplained.

Factor Analysis of the Questionnaires

Introduction

In an attempt to pull together the possible reasons for students attending either of the two educational institutions under investigation, factor analyses were carried out upon the questionnaires received from the two student bodies. By this technique it was hoped that the major underlying features in the choosing of a university program, outlined in the questionnaires, would be brought out.

Before the factor analyses were run, the returned questionnaires were sorted by county; this was done separately for the University of Oklahoma and Oklahoma State University. For each county the scores given to each individual question by each responding student whose permanent home address was in that county were totaled and the average calculated. The average scores per question per county were then

organized in matrix form. For the University of Oklahoma the matrix

was 48 by 14 items in size--the 48 responding counties by the average

score for each of the 14 questions asked. For Oklahoma State University

a 51 by 14 matrix was formed by the counties responding and the number

of questions asked, respectively. Data emanating from the factor

analyses carried out upon the above matrices are found in Tables IV

and V (pages 57 and 58) and Appendix B (page 98).

Oklahoma State University

The factor analysis for Oklahoma State University freshmen was

carried out first. The rotated factor matrix is illustrated as

Table IV (page 57). From this matrix five factors may be identified.

Factor 1 may be regarded as an index of "conservativeness," since three

of the five elements of this factor point in this direction and the

remaining two do not conflict with them.[3] Factor 2 was more difficult

to categorize, however, the great weighting of one and the negative

value given to another, of the three elements which make up this factor

support the categorization of this factor as the "social atmosphere"

factor.[4] Both elements of Factor 3 deal with university influence upon

the decision making process.[5] However, the stronger weighting of

university recruiting would support the claim to name this the "direct

university influence" factor. Factor 4 contains only two elements,

both non-academic in nature.[6] The strongest element in this factor

referred to the attraction force of collegiate sports and as such this

will be entitled "sports." The last of the five factors generated by

the factor analysis had two elements, both of which had high readings.

However, the element described as "keeping costs low" is much more

TABLE IV

ROTATED FACTOR MATRIX FOR O.S.U. QUESTIONNAIRE RETURNS

Variable[1]	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Variable 1	0.10059	_-0.55383_	0.21593	0.32582	0.43896
Variable 2	_0.69164_[2]	-0.22323	0.32335	-0.06005	-0.37140
Variable 3	0.12005	0.01992	-0.18524	-0.04399	_0.79704_
Variable 4	0.17879	0.12780	0.36115	_0.54564_	-0.05378
Variable 5	0.03724	0.04528	_0.69147_	-0.14407	0.23365
Variable 6	-0.12218	_0.55121_	0.51378	-0.18230	-0.05614
Variable 7	0.09321	0.01267	-0.13555	_0.79683_	0.07214
Variable 8	-0.04220	_0.84425_	0.02117	0.32722	0.09155
Variable 9	0.16132	0.00520	0.34451	0.09289	_0.70411_
Variable 10	_0.67293_	-0.21946	-0.20040	0.05579	0.31322
Variable 11	_0.47739_	0.45261	0.13063	-0.36648	0.38623
Variable 12	_0.68117_	-0.04996	0.18423	0.38556	0.22162
Variable 13	-0.00792	0.07635	_-0.61252_	-0.29005	0.14127
Variable 14	_0.64434_	0.39264	-0.15257	0.17983	0.18749

[1]Each variable refers to each question posed on the Oklahoma State University questionnaire. Variable 1 refers to the first question, variable 2, to the second, and so on. See Appendix B, p. 98). for a full description of each variable.

[2]The underlined scores represent those which comprise each of the five factors. Each field represents one factor--see heading of each field.

TABLE V

ROTATED FACTOR MATRIX FOR O.U. QUESTIONNAIRE RETURNS

Variable[1]	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Variable 1	-0.00814	0.01365	<u>0.81243</u>	0.10722	-0.16694
Variable 2	-0.42398	<u>0.52129</u>	0.51668	0.04110	0.32546
Variable 3	-0.23002	0.37468	0.23196	0.02727	<u>-0.55579</u>
Variable 4	-0.07423	-0.15302	0.09327	<u>0.78362</u>	0.08819
Variable 5	<u>0.67411</u>[2]	0.00948	0.23524	0.15590	0.08819
Variable 6	<u>0.73678</u>	0.26907	0.20096	0.19491	0.14612
Variable 7	0.38729	0.12141	-0.04923	<u>0.63823</u>	0.10534
Variable 8	-0.14611	0.35218	-0.18552	<u>0.54302</u>	0.39963
Variable 9	<u>0.72463</u>	0.11678	-0.23567	-0.29498	0.03397
Variable 10	0.15739	<u>0.080349</u>	0.05558	-0.09070	-0.12577
Variable 11	0.11322	<u>0.82629</u>	-0.14763	0.05716	-0.16809
Variable 12	0.47541	<u>0.64089</u>	0.09867	0.40467	-0.08740
Variable 13	0.31468	-0.07311	<u>0.64464</u>	-0.16574	-0.05139
Variable 14	0.08083	-0.14100	-0.03088	-0.06022	<u>0.79651</u>

[1] Each variable refers to each question posed on the University of Oklahoma questionnaire. Variable 1 refers to the first question, variable 2 to the second question, and so on. See Appendix B (page 98). for a full description of each variable.

[2] The underlined scores represent those which comprise each of the five factors. Each field represents one factor--see the heading of each field.

powerful than the one dealing with peer group influence. As a result, Factor 5 was classified as a "low cost" factor.

The factor analysis carried out upon the freshmen returns of the questionnaires brings out five underlying reasons of why students chose to attend Oklahoma State University. These reasons are summarized below:

Factor 1--The conservativeness of the University

Factor 2--The appealing social atmosphere of the University

Factor 3--Direct University influence

Factor 4--The attractiveness of collegiate sports

Factor 5--Fiscal expediency, to keep educational costs low

The University of Oklahoma

The factor analysis carried out upon data generated by the University of Oklahoma undergraduates yielded different results to that for Oklahoma State University.[7] The emanating factors from this analysis were classified under somewhat different headings, as will now be shown.

Factor 1, for the University of Oklahoma undergraduates, may be identified as "high school influence" since the two highest scores referred to the recommendations of high school teachers and to the decision of friends to attend that institution. The third element of this factor, the significance of University of Oklahoma recruiting, would be carried out, in part, in the high schools and as such does not detract from the categorization made.

Factor 2 was comprised of four elements, two of which were very strong. That the University of Oklahoma was not a politically

"radical" campus and that it was located in a small town separate but close to a major urban area, determined the classification of this factor as one of "conservativeness." The least powerful element making up this factor, the influence of the academic reputation of the University of Oklahoma, did not detract from the overall tenor of the classification determined above.

Two elements made up Factor 3, and both had an aspect of cost as an underlying feature. The most powerful score was recorded for proximity to home, which may be translated as an attempt by the student to keep education costs low. Similarly, the remaining score, the influence of the University of Oklahoma funding, also has fiscal overtones. As a result of the above, this factor was labeled as the cost factor--the attempt to keep educational costs low.

Factor 4 embodied three scores and was difficult to discern. The strongest element referred to family influence, while the remaining two, both moderately strong, referred to non-academic influences--the collegiate sports program and the good social atmosphere on the University of Oklahoma campus. It was determined that since the two moderately strong elements were so closely aligned, in terms of what they described, and since their combined effect would probably override that of the family influence, then this factor could be classified as the non-academic influence of the University.

Factor 5 was composed of a negative and a positive element. Since the score recorded for the desire of students to live away from home was greater than that for the cost influence, it was determined that this be classified as the student independence factor.

The five factors that were recognized from the rotated factor

matrix depicting the results of the questionnaires returned by the

University of Oklahoma undergraduates are listed below:

Factor 1--High school influence

Factor 2--Conservativeness of the campus

Factor 3--Low cost influences

Factor 4--University non-academic influences

Factor 5--Separation factor

The factors obtained for the University of Oklahoma undergraduates

differed somewhat from those calculated for Oklahoma State University,

but this can be readily explained if the two student bodies are com-

posed of students with different aims, ideas, or backgrounds.

Mapping and Spatial Analysis

of Factor Scores

The factor analysis brought out some of the underlying reasons

why students decided to attend either the University of Oklahoma or

Oklahoma State University. The aim of this section is to discover

if the individual factors, when mapped, form distinctive spatial

patterns.

Oklahoma State University

The factors generated from the Oklahoma State University under-

graduate questionnaire returns were spatially portrayed on Maps 5 to

9 (pages 62, 63, 64, 65, and 66). A common taxonomic system[8] was

used on all of the factor maps to facilitate the analyses of, and

between, the factor distributions.

FACTOR SCORES

+0.9931 to +2.9732

+0.9930 to -0.9873

-0.9874 to -2.9675

No Data Available

MILES
0   10   20   30   40   50
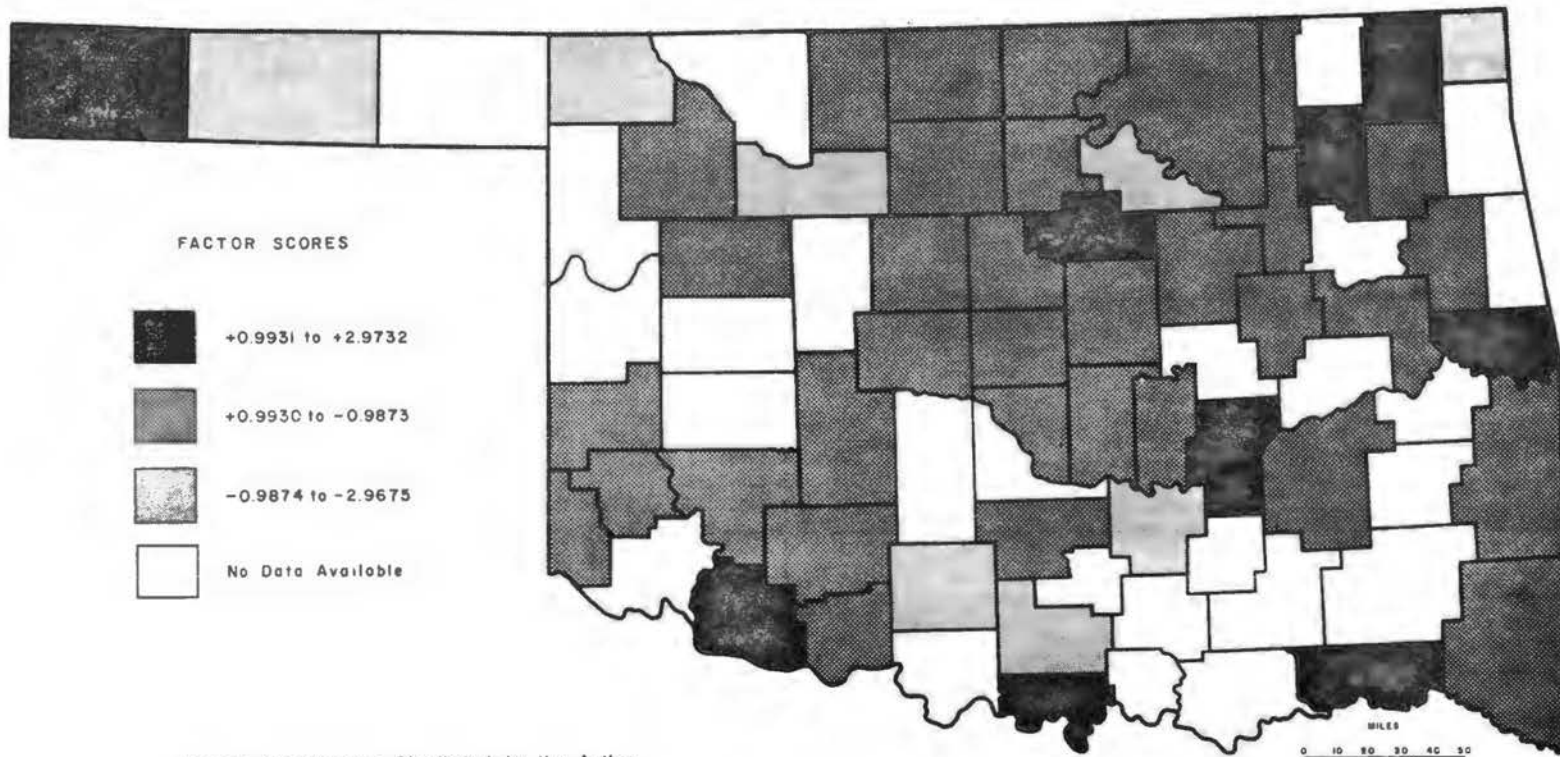
Map 5.   Oklahoma State University: The Distribution of the
Conservativeness Variable - Factor I

FACTOR SCORES

+0.9902 to +2.9704

+0.9901 to -0.9902

-0.9903 to -2.9765

No Data Available
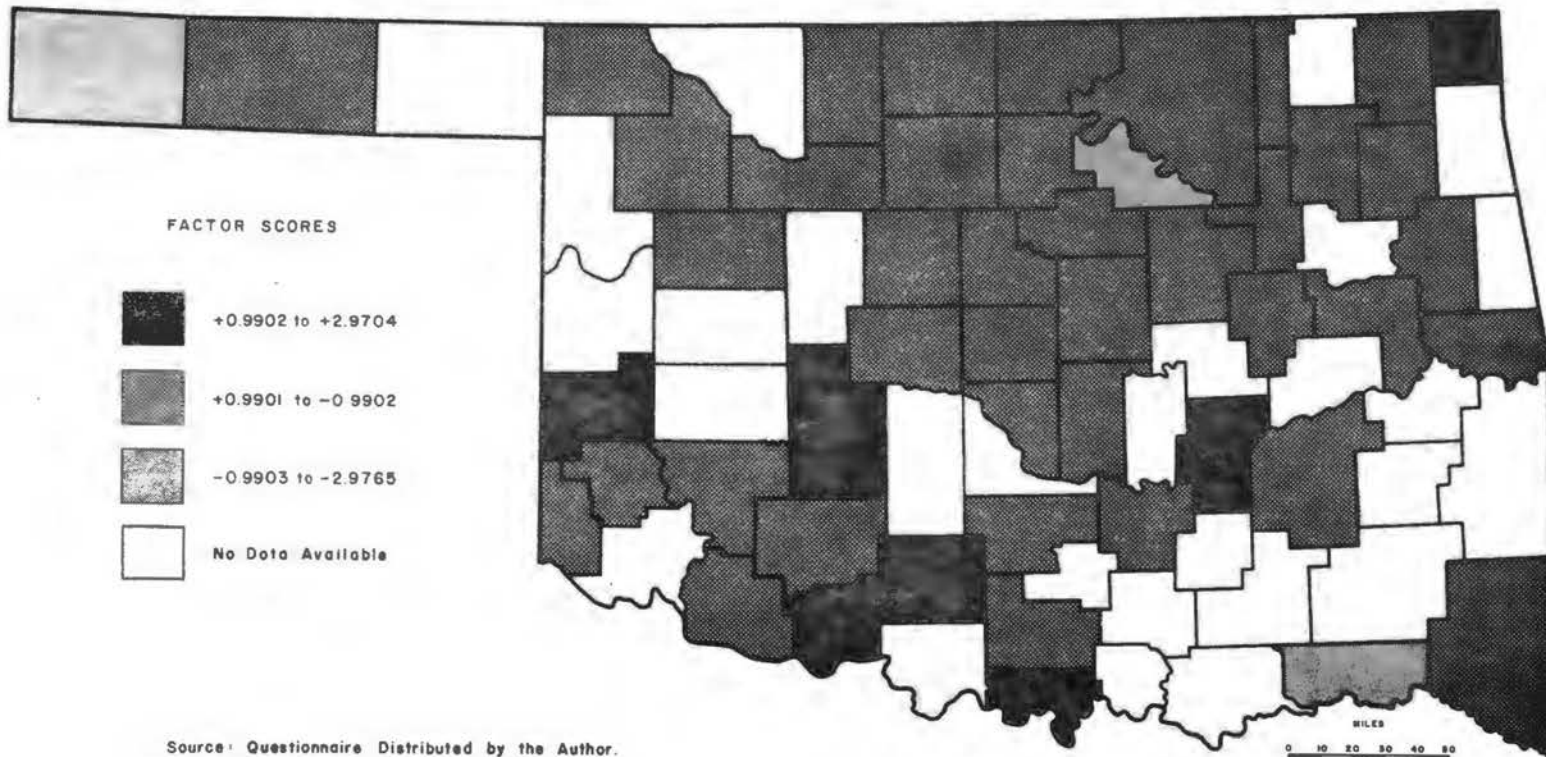
Map 6. Oklahoma State University: The Distribution of the Social Atmosphere
Variable - Factor II

FACTOR SCORES   FACTOR SCORES

+0.9902 to +2.9714   +0.9902 to +2.9714

+0.9901 to -0.9901   +0.9901 to -0.9901

-0.9902 to -2.9714   -0.9902 to -2.9714   -0.9902 to -2.9714

No Data Available   No Data Available   No Data Available

Source: Questionnaire Distributed by the Author.

Map 7.   Oklahoma State Questionnaire Distribution of the Direct
Influence Variable and Factor Location III

FACTOR SCORES

■ +1.0139 to +3.0218

▨ +1.0138 to -0.9942

▨ -0.9943 to -3.0022

□ No Data Available
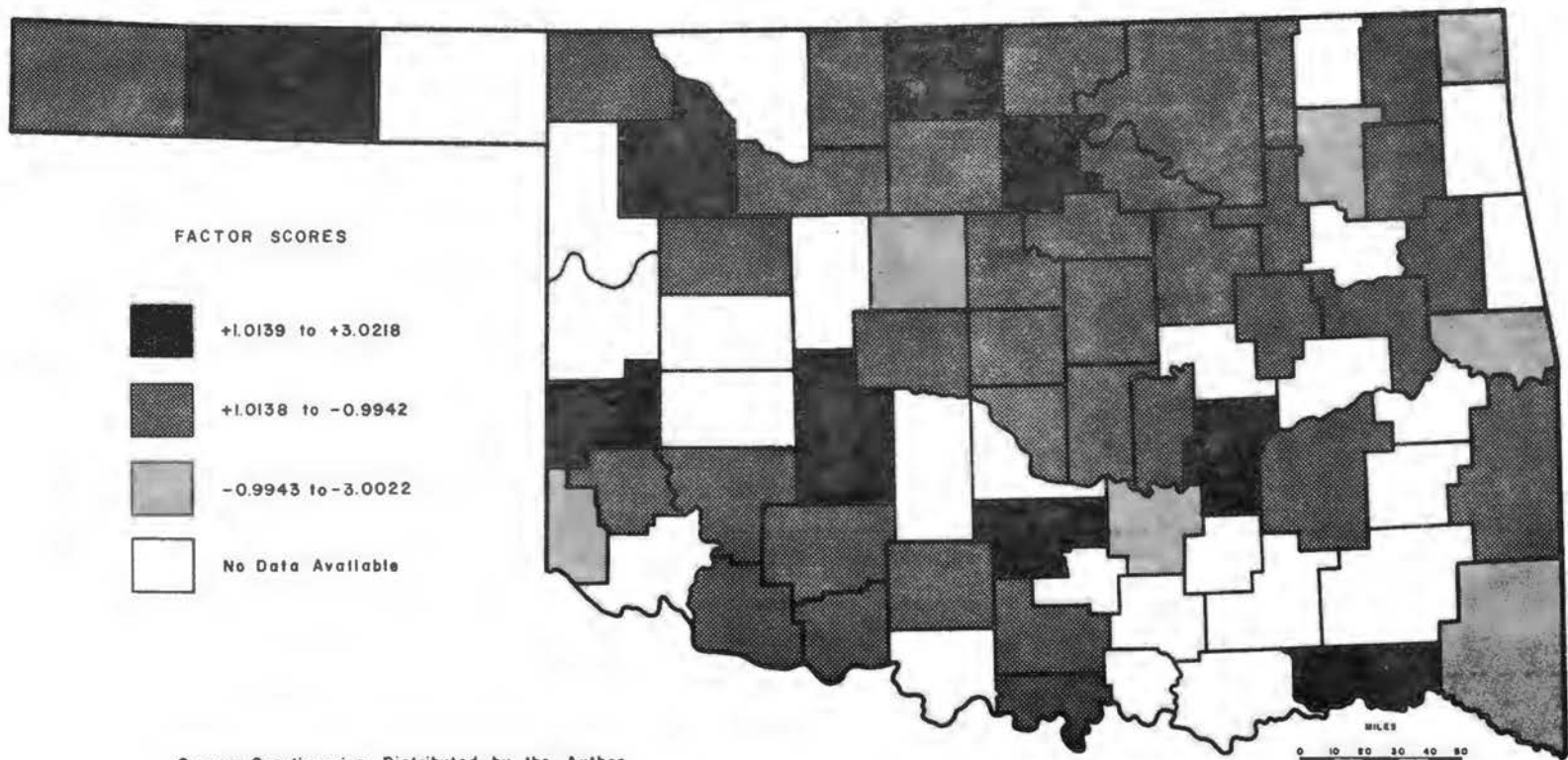
Map 8. Oklahoma State University: The Distribution of the Sports
Variable - Factor IV

FACTOR SCORES   FACTOR SCORES

+0.9902 to +2.9704   +0.9902 to +2.9704

+0.9901 to -0.9901   +0.9901 to -0.9901

-0.9902 to -2.9704   -0.9902 to -2.9704   -0.9902 to -2.9704

No Data Available   No Data Available   No Data Available

MILES
0 10 20 30 40 50
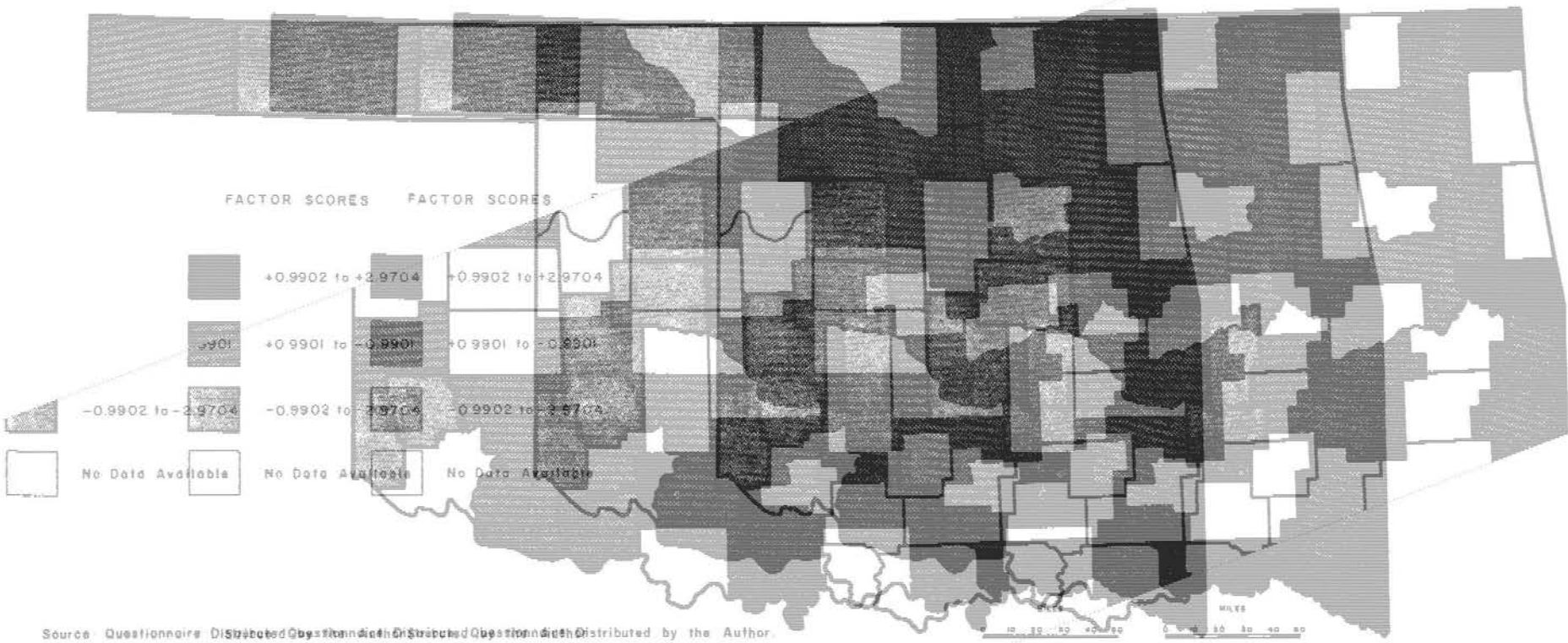
Source: Questionnaire Distributed by the Author.

Map 9.   Oklahoma State: The Distribution of the
Fiscal Expediency Variable or Factor V

Analytically descriptive spatial investigations of the maps proved difficult, for no distinct factor score patterns could be discerned from Maps 5 through 9 (pages 62, 63, 64, 65 and 66), and there were no counties that consistently rate high or low factor scores.

Overall, the spatial analysis of the factors for Oklahoma State University undergraduates added little to the study. The spatially significant, but low enrollment counties, for which no returns were received, may have given a greater overall perspective. However, in attempting to keep the questionnaires confidential, no names were put upon them, making it impossible to determine which students had not returned the questionnaires. Consequently, no follow-up questionnaires were sent out.

The University of Oklahoma

The analysis of the spatial patterns of the factors calculated from the returns of the University of Oklahoma undergraduates was affected by the no-return counties. It is interesting to note that 15 of the non-return counties for Oklahoma State University students were also no-return counties for the University of Oklahoma. It has been mentioned already that those were counties which sent very few students to either institution, and it is highly probable that the 50 per cent sample of freshmen might not have included undergraduates coming from such areas. Furthermore, it might be that the no-return counties provided no freshmen to these educational institutions at the time of the study.[9] As with the maps of the factor scores for Oklahoma State University, those for the University of Oklahoma had no distinct spatial patterning (see Maps 10 through 14, pages 68 through 72).
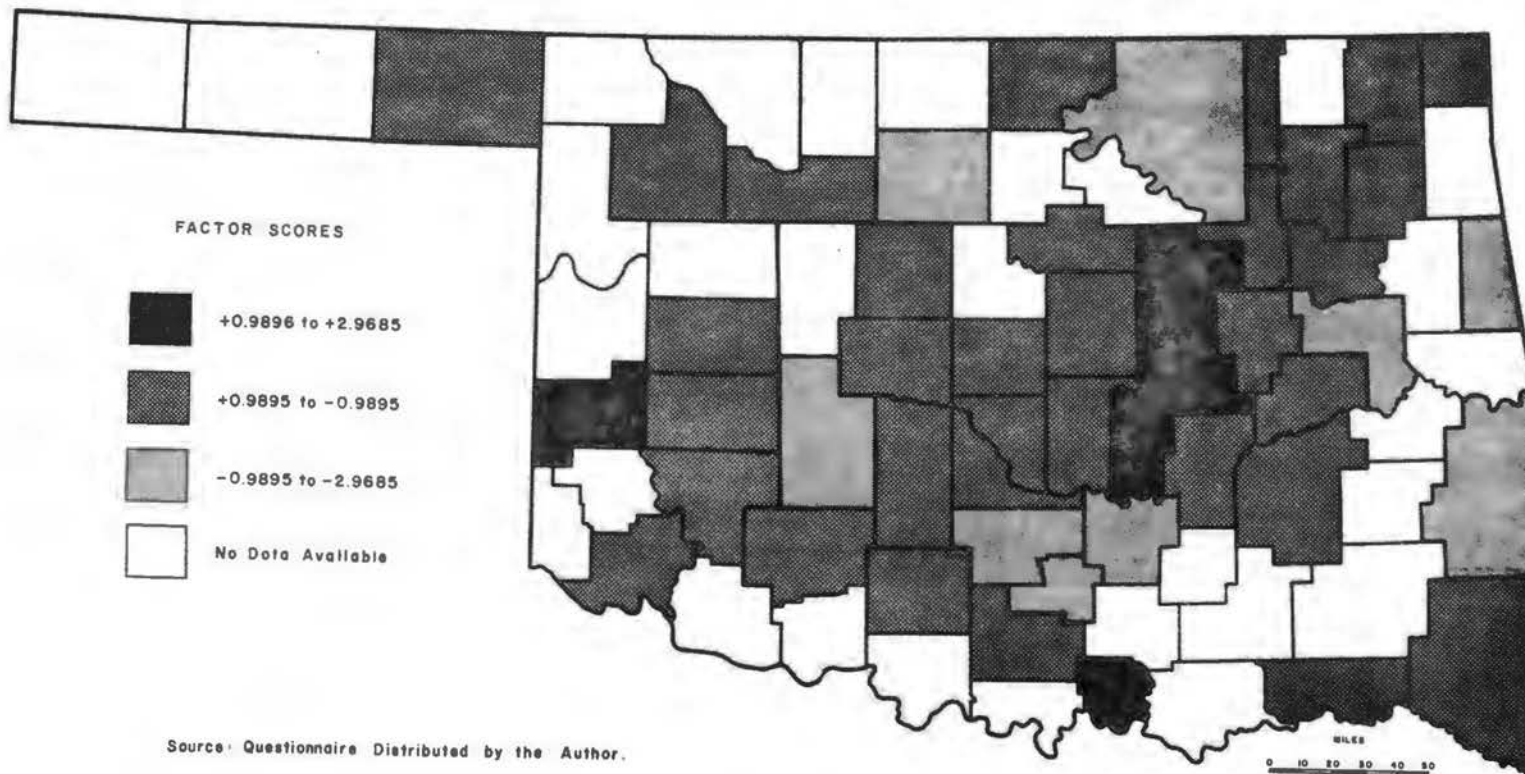
Map 10. The University of Oklahoma: The Distribution of
the High School Variable - Factor I
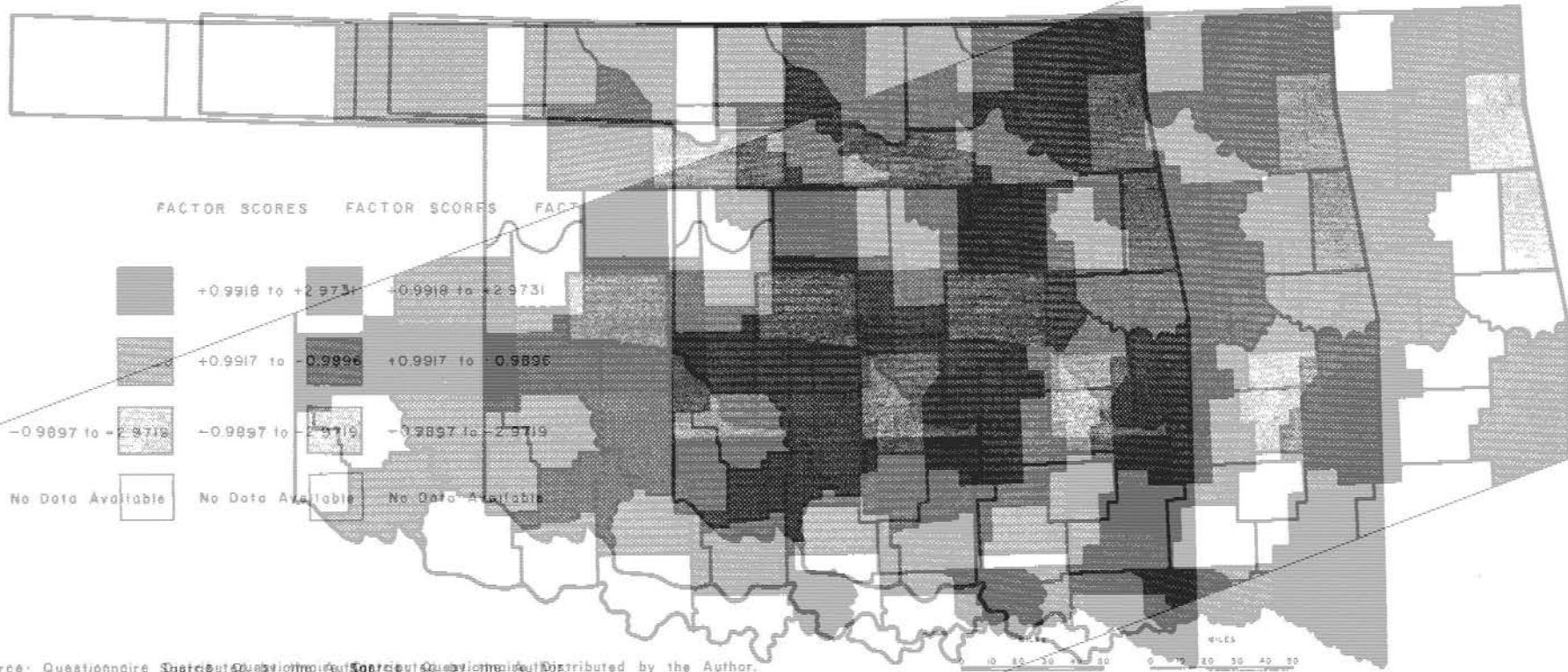
FACTOR SCORES   FACTOR SCORES   FACT

| | +0.9918 to +2.9731 | +0.9918 to +2.9731 |

| | +0.9917 to -0.9896 | +0.9917 to -0.9896 |

−0.9897 to -2.9719   −0.9897 to -2.9719   −0.9897 to -2.9719

No Data Available   No Data Available   No Data Available

Map II. The University of Oklahoma Distribution of the
Conservativeness Commitment Factor II

69   69   69

FACTOR SCORES

+0.9896 to +2.9685

+0.9895 to -0.9895

-0.9896 to -2.9684

No Data Available
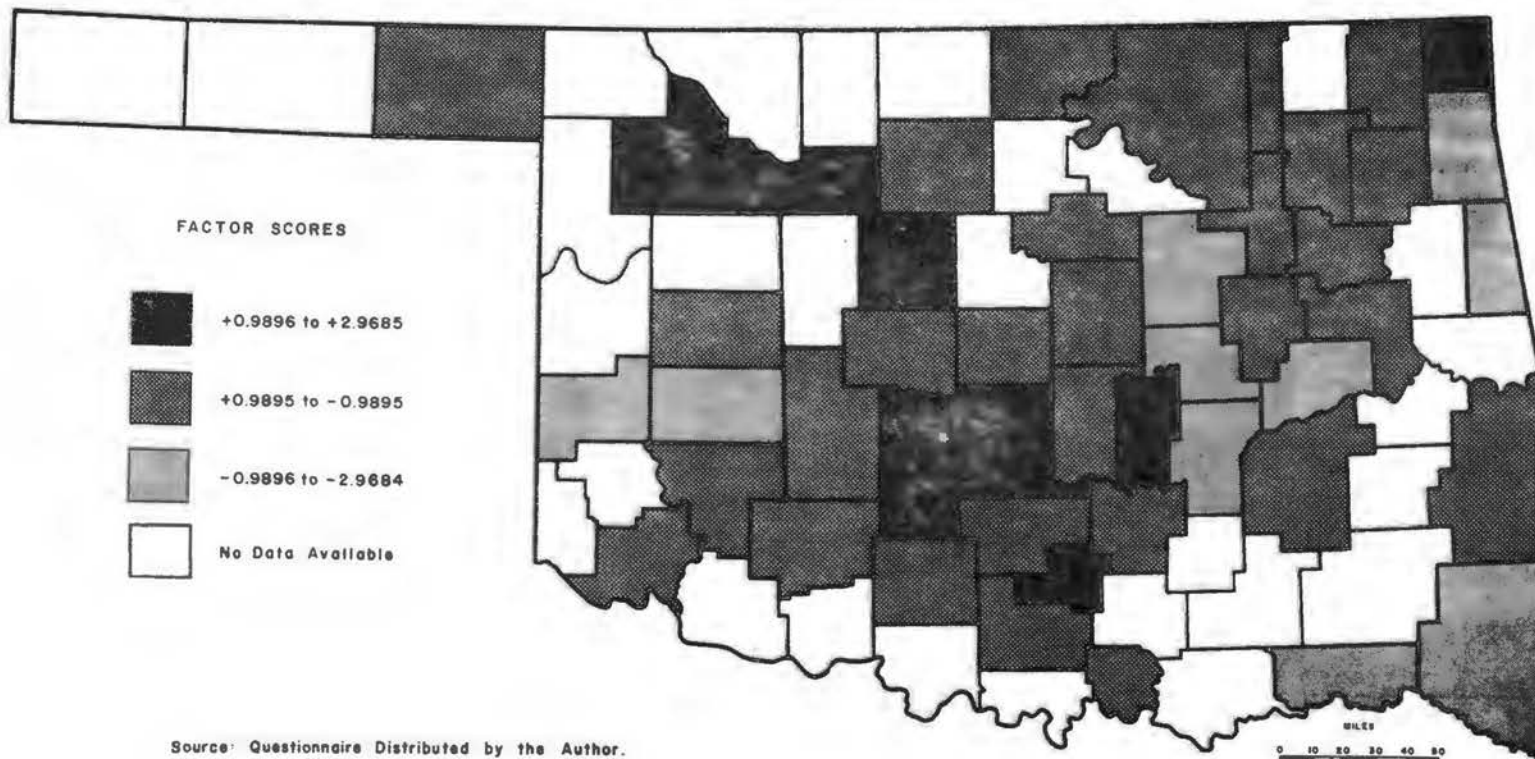
Map 12. The University of Oklahoma: The Distribution of the
Low Cost Variable - Factor III

FACTOR SCORES   FACTOR SCORES

+0.9896 to +2.9685   +0.9896 to +2.9685

+0.9895 to -0.9895   +0.9895 to -0.9895

-0.9896 to -2.9685   -0.9896 to -2.9685   -0.9896 to -2.9685

No Data Available   No Data Available   No Data Available
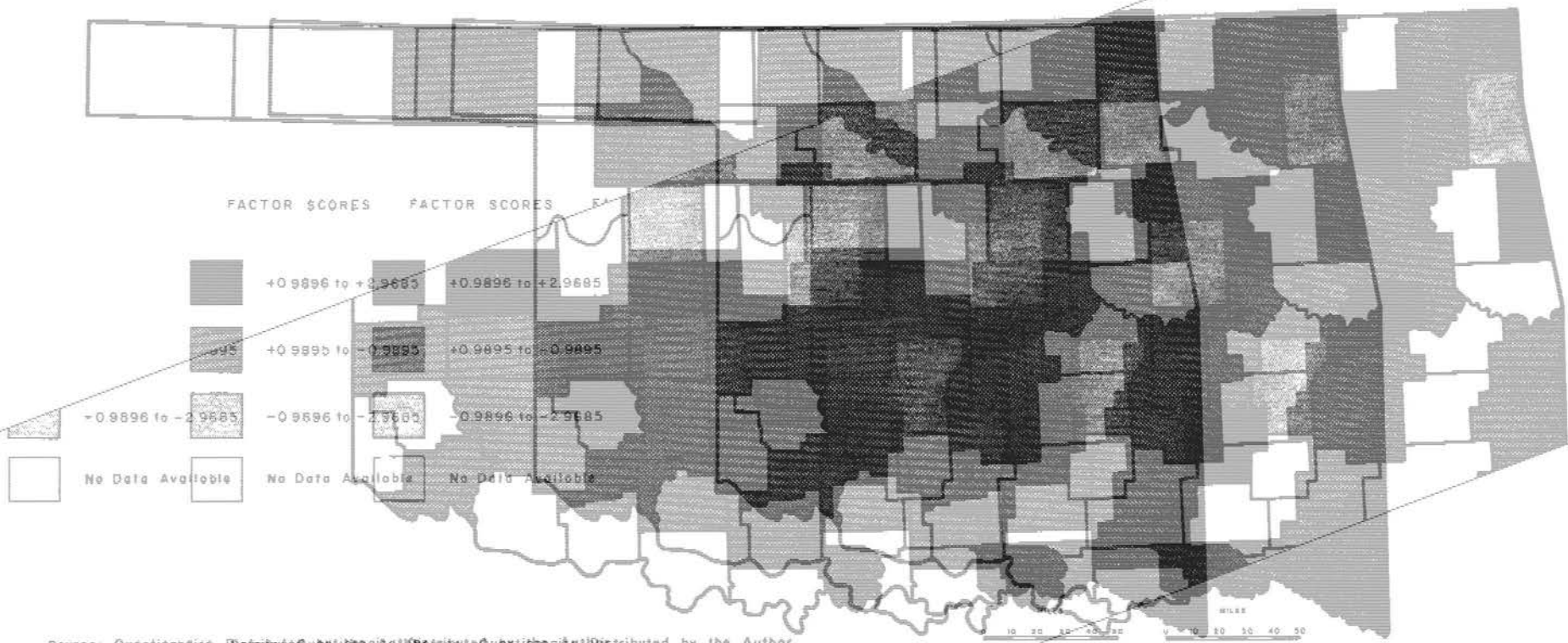
Source: Questionnaire Distributed by the Author.

Map 13.   The Major City of Oklahoma: The Distribution of the
Non-Academic Non-Academic Factor IV

FACTOR SCORES   FACTOR SCORES

+0.9852 to +2.9786   +0.9852 to +2.9786

+0.9851 to -1.0083   +0.9851 to -1.0083

-1.0084 to -3.0012   -1.0084 to -3.0012   -1.0084 to -3.0012

No Data Available   No Data Available   No Data Available

MILES

0 10 20 30 40 50
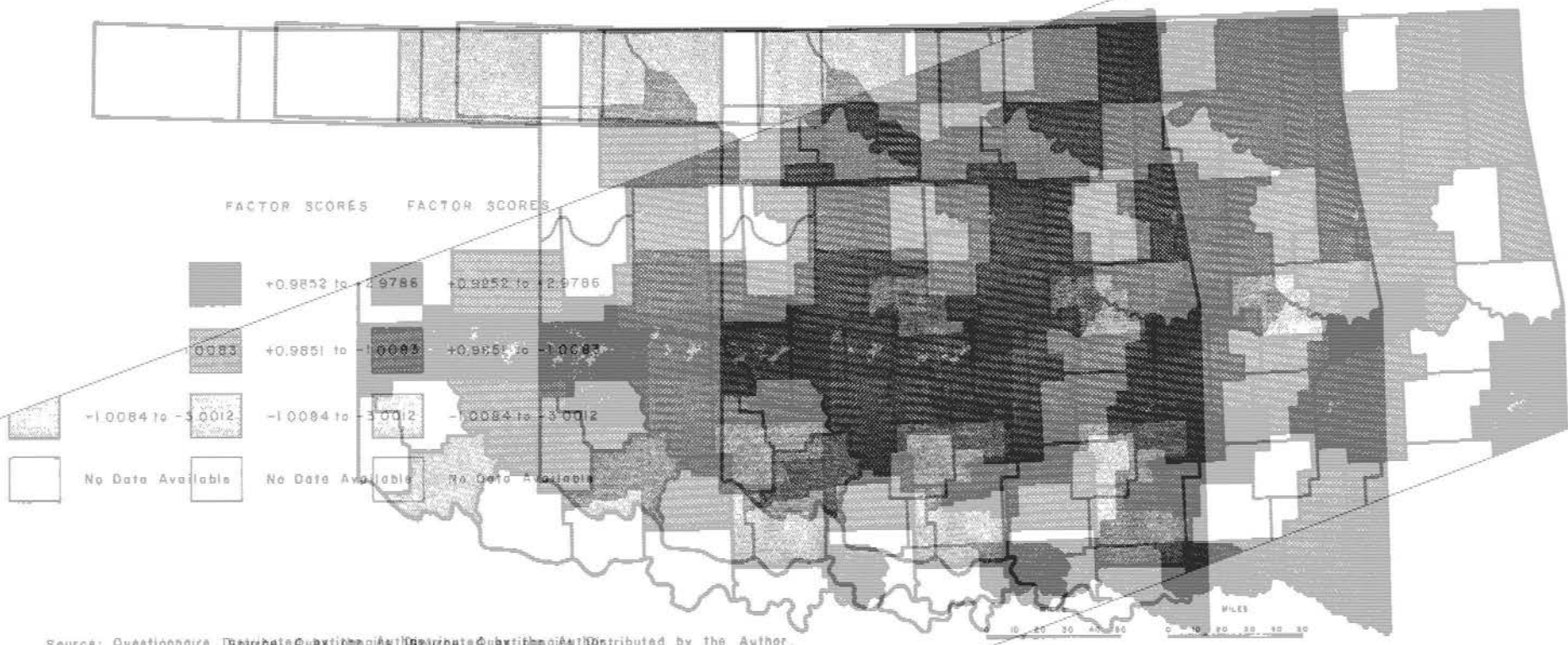
Source: Questionnaire Distributed by the Author.

Map 14.   The University of Oklahoma Theater's Distribution of the
          Separation Variables: Factor V

It must be concluded, therefore, that the spatial patterning of
the factor scores for both Oklahoma State University and the University
of Oklahoma undergraduates provided little information that would be
useful in explaining the problems which were the focus of the study.
While factors themselves were of interest, their areal distributions
gave little support to the hypothesis that student perceptions of
universities have distinct spatial manifestations--at least as far as
these factors and universities were concerned.

Quantitative Analysis of the Factor Scores

The factor analyses identified five different factors for the
University of Oklahoma and for Oklahoma State University. Although
certain factors for the University of Oklahoma were given descriptive
titles which were the same as those used to identify factors for
Oklahoma State University, the like-named factors had different con-
stituent elements, which precluded comparative statistical analyses.
This lack of a common denominator for such correlation analyses does
not detract from the descriptive analyses of the areal variations of
the factor scores recorded earlier in this chapter. However, it is
interesting to note that a conservativeness element, a low costs
factor and a non-academic-social factor came on the fore in the
factor analyses of both institutions.

Of the 10 factors generated for Oklahoma State University and the
University of Oklahoma, seven were linked in some way and three were
not. The three non-related factors were high school influences and
separation factors at the University of Oklahoma, and the direct
university influence at Oklahoma State University. This would tend to

indicate that there was a greater degree of similarity between the factor scores from these two institutions than there were differences between them, although the degree of similarity cannot be quantitatively assessed.

Conclusion

The analysis of the questionnaires gave much information which can be divided into three major categories, on the basis of source. The first set of data came from the write-in responses and indicated a degree of difference between the University of Oklahoma and Oklahoma State University freshmen. The University of Oklahoma undergraduates placed more emphasis upon academic reasons for attending the university of their choice than did Oklahoma State University students; the latter stated familiarity with, and the beauty of, the Stillwater campus as being important in their decision making process.

When the scored responses to the questionnaires were analyzed, by means of rank order correlations, a significant degree of similarity was shown between the two freshmen groups, r = +0.8132. This moderately high correlation coefficient was witness of an underlying similarity between Oklahoma freshmen at the two educational institutions under analysis.

A comparison of the five factors generated by the factor analysis carried out upon the questionnaires also indicated a degree of similarity between the two student bodies--7 out of 10 factors had at least a one tie relationship.

Overall, there seemed to be underlying areas of similarity between the undergraduate groups at the University of Oklahoma and Oklahoma State University, for this would account for the high correlation coefficients obtained earlier in the comparative analyses carried out on the two student bodies. However, there were differences between the two groups of students, for example, the University of Oklahoma students placed more emphasis upon academically-related reasons for attending that institution than did the students attending Oklahoma State University.

Differences, such as the one noted above, in the reasons for attending a university were probably great enough to manifest themselves in the different spatial patterns that were seen when the University of Oklahoma and Oklahoma State University undergraduates were mapped at the county level, especially so in the low student generating counties (see Maps 1, 2, 3, and 4 on pages 26, 27, 30 and 31).

The data generated by the factor analyses for each university were then placed in a stepwise regression model with the potential model and the Census data. The results of these analyses are found in Appendix "C", pages 108, 109, 110.

FOOTNOTES

[1]See King, Statistical Analysis in Geography, p. 28.

[2]The question omitted referred to proximity or distance of each institution from the large urban centers--Oklahoma City and Tulsa. The preliminary survey of 50 University of Oklahoma and Oklahoma State University freshmen indicated that the Oklahoma State University students felt that these two cities were distant from their campus, while the University of Oklahoma students regarded Norman as being close to Oklahoma City. As a result, the wording of the questions on the questionnaires reflected this difference, which in turn necessitated their omission from the correlation analysis.

[3]Factor 1 is composed of the following elements: that Oklahoma State University is not a radical campus, that the University is located in a small town, that Stillwater is some distance from large urban areas, the students' desire to live away from home and the academic reputation of the University.

[4]Factor 2 is composed of a negative element--the score given to the proximity to home question, a low positive score given to high school recommendations and a high positive score recorded for the attractiveness of the good social atmosphere at Oklahoma State University.

[5]Factor 3 is composed of a negative element--University funding, and a strong positive element--University recruiting effectiveness.

[6]Factor 4 is composed of an element classified as the influence of family recommendations, and a stronger element--the attraction force of collegiate sports.

[7]See Tables IV and V, pages 57 and 58.

[8]The common denominator of the taxonomic system used was the standard deviation. This system was used by Yeates when mapping various phenomena that helped explain land value distributions in Chicago: "The isoline interval chosen for each map is one standard deviation; therefore, each map can be compared because the intervals are comparable and related to their respective means." M. H. Yeates, "Some Factors Affecting the Spatial Distribution of Chicago Land Values, 1910-1960." Economic Geography, XLI (1965), p. 59.

[9]No-return counties with very low undergraduate totals: for the University of Oklahoma, Roger Mills county sent only 1 student, Harmon--2 students, Atoka--7 students, Harper--7 students; for Oklahoma State University, Johnson county sent 9 students, Coal--14 students, Adair--15 students. The above examples indicate the distinct possibility that no freshmen from these counties were enrolled at the University of Oklahoma or Oklahoma State University during the time the study was carried out. This casts new light upon the no-returns category used in the body of the work. It must be stated that only a 100 per cent sample of the total undergraduate body would have picked up students from these low value counties but even that would not have guaranteed returns from all counties. Such an undertaking was beyond the means available for this study.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The purpose of this research was to ascertain the reasons for the different distributional patterns of in-state undergraduate enrollment at the University of Oklahoma and at Oklahoma State University. This was carried out by means of several methods: spatial and statistical techniques applied to Census data and information obtained through the medium of a questionnaire--the primary data source.

The analysis of the history and development of the University of Oklahoma and Oklahoma State University was revealing. It showed the different roads taken by these institutions and their different foci today:[1] President Kamm of Oklahoma State University recognized his University's future "strong emphasis"[2] in the Land Grant tradition, an emphasis different from that of the University of Oklahoma. It was expected that the difference in academic orientation would manifest itself in somewhat different distributional patterns of the two under-graduate student groups, with the University of Oklahoma's under-graduate body being more highly urban in orientation while that of Oklahoma State University being more evenly dispersed and having a stronger element in the rural or agricultural regions of the state. However, statistical analyses, using urban and rural measures, failed to prove this orientation satisfactorily.

Partially because of the above, there was a distinct zone of complementarity between the two student distributions. Their relationship to county population totals and the distance of the county from each institution brought out this factor to a great extent. Since both of these institutions were large, state-controlled, and had some parallel or over-lapping programs, such a situation was to be expected. The zone of complementarity was great, although this was not readily brought out on the maps[3] because these institutions are not located in the same county. If the distributions were superimposed, with the interaction nodes[4] placed directly upon each other, greater complementarity would be revealed--this was demonstrated statistically by means of correlation analyses using the potential model and enrollment distributions.

This zone of complementarity was also exposed by the factor analyses. The relationships between the elements identified by this statistical technique were relatively high,[5] the spatial manifestations of these factors added little to the study. Similarly, the perceptions of the undergraduates attending the University of Oklahoma or Oklahoma State University did not form spatially recognizable patterns, but they were alike in nature from one institution to the other.

The three hypotheses put forward early in the study, to explain the differences between the undergraduate distributions of Oklahoma State University and the University of Oklahoma were only partially upheld: (1) the potential model and stepwise regression analyses showed the strong underlying complementarity between the two student distributions; (2) the historical backgrounds and modern orientations of these institutions were of very low significance in explaining the

different enrollment patterns, and their influence--when brought

together with other variables--was of no significance; and (3) student

perceptions of the Universities were important in explaining why these

individuals attended the University of Oklahoma or Oklahoma State

University; however, these perceptions did not form recognizable

state-wide areal patterns.

The areal patterns of undergraduate enrollment at the University

of Oklahoma and Oklahoma State University were different, but the

phenomena underlying them were very similar. The stepwise regression

analyses have shown that the three most significant variables used to

describe the areal distributions were the same in both cases and that

they may account for as much as 92.14 per cent of the University of

Oklahoma's undergraduate enrollment and 87.39 per cent of Oklahoma

State University's. The reason why the underlying phenomena explaining

the enrollment patterns were so similar, yet the patterns themselves

were so dissimilar, was that these two institutions did not occupy

the same location.

The research supported McConnell's view that the potential model

was probably the phenomenon that could best explain patterns of student

enrollment, by county of permanent residence. This does not refute

the research cited in Chapter II that income, social status, intelli-

gence, and the like are important in college enrollment, rather it

indicated that the distributions of these phenomena were able to

explain only a very small amount of the spatial patterns of in-state

undergraduates, by county of permanent residence, attending each of

the universities under analysis. The data obtained from the United

State Bureau of the Census and the questionnaires indicated who went

to college, whereas the potential model best described from where
these students came, their home counties, and the overall spatial
pattern of enrollment.

Implications

This study has brought out the major distributional patterns of
the undergraduates attending the University of Oklahoma and Oklahoma
State University. Indirectly it has helped to explain the reasons
why the students decided to attend either of these two educational
institutions. The information contained in this work may be put to
use by university administrators, especially those whose emphasis is
upon recruitment.

Maps 1 and 2 (pages 26 and 27), portray the areas from which the
largest numbers of students originate, and they emphasize the over-
whelming influence of the large urban areas. If enrollment is to be
increased with the minimum of effort, the relatively few major urban
regions of the state should be the first areas to be canvassed.

The potential model was shown to be an effective tool for ana-
lyzing undergraduate enrollment distributions at both the University
of Oklahoma and at Oklahoma State University. By the use of this
model, administrators can predict, with a high degree of accuracy, the
enrollment potential of each areal unit in the recruitment region.
This projected or expected enrollment may be utilized by recruiting
officials to determine which areas fall above or below their enroll-
ment potential. Knowledge of enrollment potential may be of value
for several other reasons: (1) it indicates where strenuous recruiting
efforts should be made--in those areas with enrollments below the

expected level; (2) by analyzing phenomena associated with those areas where enrollments fall well below the expected totals, reasons for "low production" may be uncovered and used to increase recruiting effectiveness; (3) an anlysis of the techniques utilized in those areas that "over produce" might indicate some of the factors that might help boost enrollment in the "under productive" areas; and (4) it would give the recruiter a better overall picture of enrollment, thus facilitating the planning of recruitment drives.

The potential model can play an effective role in recruitment drives, but it should be recognized the recruiter is dealing predominately with young people who have a decision to make, a decision that may affect their whole lives. It is necessary, therefore, that the recruiter comprehend the decision making process that in-coming students go through when deciding on a college to attend. By the use of the questionnaires in this study, certain phenomena were found to be perceived by students as important in the decision to attend the University of Oklahoma or Oklahoma State University. By discovering what a student expects and needs from a college, the institution's administration can gear programs to serve better the needs of its students, to make the institution more attractive to potential students and to help the recruitment drive succeed.

The proposals outlined above were made because the findings of this study indicated that the undergraduates attending the University of Oklahoma or Oklahoma State University regarded the influence of university recruiting as being very low in importance in their decision regarding which college to attend (see Table III, page 53).

To increase enrollment at each institution, this study indicated that the use of the potential model and questionnaires in the recruitment drives might prove to be of value.

FOOTNOTES

[1]The University of Oklahoma is primarily a liberal arts-professions oriented university, while Oklahoma State University still has a strong flavor of the Agricultural and Mechanical School that it was for the majority of its history. It must be stated, however, that these two institutions are very much closer today in their orientations than they were in the past.

[2]Kamm, "Guidelines and a Look at the 1970's." p. 4.

[3]See Maps 1 to 4 (pages 26, 27, 30 and 31).

[4]The universities under analysis.

[5]Seven of the ten factors generated had one tie relationships, only three were unrelated.

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APPENDIX A

THE QUESTIONNAIRES

NAME OF YOUR HOME COUNTY . . . .

The aim of this questionnaire is to attempt to discover the underlying reasons why students decide to attend Oklahoma State University for their college education. Please answer all of the following questions to the best of your ability.

Using the scale given below, rate how important the following reasons were in your decision to attend O.S.U. Circle the number which best represented your feeling at the time when you were deciding whether or not to come to O.S.U. Please answer all of the questions.
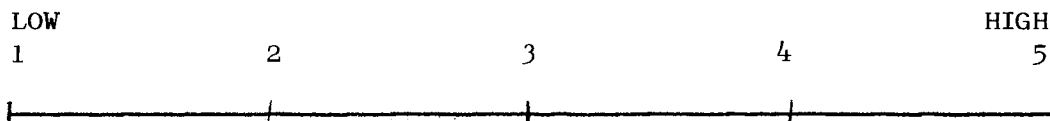
```
LOW                                                              HIGH
1              2              3              4                 5
|--------------|--------------|--------------|----------------|
```

This reason was   ————————————▶   This reason was
LOW in importance   HIGH in importance.

(1)   12345   To what extent was proximity to your home important in your decision to attend O.S.U.?

(2)   12345   To what result was your decision to enroll at O.S.U. the result of the University's good academic reputation?

(3)   12345   How significant a factor was the cost of going to university (keeping university costs low) in your decision to attend O.S.U.?

(4)   12345   How important were family recommendations of O.S.U. in your decision to enroll here?

(5)   12345   To what extent was O.S.U.'s recruiting important in your decision to come here?

(6)   12345   How important were high school teachers' recommendations of O.S.U. in your decision to enroll here?

(7)   12345   How important was the collegiate sports program in attracting you to O.S.U.?

(8)   12345   To what extent did O.S.U.'s reputation of having a good social atmosphere attract you to O.S.U.?

(9)   12345   To what extent were the decisions of your friends to attend O.S.U. important in your decision to come here?

(10) 12345   In your decision to come to O.S.U., how important was the fact that the University is located some distance away from large cities (Oklahoma City and Tulsa)?

(11) 12345 O.S.U. is not a politically radical campus on which
              student revolts occur--how important was this fact in
              your decision to attend O.S.U.?

(12) 12345 In your decision to enroll at O.S.U. how important was
              the fact that the University is located in a small town?

(13) 12345 How important was O.S.U. funding (scholarships, loans,
              etc.) in your decision to come here?

(14) 12345 To live away from home--how important was this in your
              choice of a university to attend?

      ***** Were there any other reasons? Please write them in below
              and rate them as you have done above.

12345 . . . .

12345 . . . .

12345 . . . .

Thank you for filling out this questionnaire. Please fold the
questionnaire (so that the return address on the back is visible),
seal it with tape or staples and return it via Campus Mail.
Thank you again for your help.

NAME OF YOUR HOME COUNTY . . . .

The aim of this questionnaire is to attempt to discover the underlying reasons why students decide to attend the University of Oklahoma for their college education. Please answer the following questions to the best of your ability.

Using the scale given below, rate how important the following reasons were in your decision to come to O.U. Circle the number which best represented your feeling at the time when you were deciding whether or not to come to O.U. Please answer all of the questions.

LOW				HIGH
1	2	3	4	5

This reason was
LOW in importance ————————➤ This reason was
HIGH in importance.

(1) 12345 To what extent was proximity to your home important in your decision to attend O.U.?

(2) 12345 To what extent was your decision to enroll at O.U. the result of the University's good academic reputation?

(3) 12345 How significant a factor was the cost of going to university (keeping university costs low) in your decision to attend O.U.?

(4) 12345 How important were family recommendations of O.U. in your decision to enroll here?

(5) 12345 To what extent was O.U.'s recruiting important in your decision to come here?

(6) 12345 How important were high school teachers' recommendations of O.U. in your decision to enroll here?

(7) 12345 How important was the collegiate sports program in attracting you to O.U.?

(8) 12345 To what extent did O.U.'s reputation of having a good social atmosphere attract you to O.U.?

(9) 12345 To what extent were the decisions of your friends to attend O.U. important in your decision to come here?

(10) 12345 In your decision to come to O.U., how important was the fact that the University is located close to a large city (Oklahoma City)?

(11) 12345 O.U. is not a politically radical campus on which student riots occur--how important was this fact in your decision to attend O.U.?

(12) 12345 In your decision to attend O.U., how important was the fact that the University is located in a small town?

(13) 12345 How important was O.U. funding (scholarships, loans, etc.) in your decision to come here?

(14) 12345 To live away from home--how important was this in your choice of a university to attend?

***** Were there any other reasons? Please write them in below and rate them as you have done above.

12345 . . . .

12345 . . . .

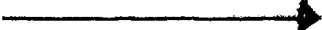12345 . . . .

Thank you for filling out this questionnaire. Please fold the questionnaire (so that the return address on the back is visible), seal it with tape or staples and return it via Campus Mail. Thank you again for your help.

TABLE VI

THE QUESTIONNAIRE RETURNS--OKLAHOMA STATE UNIVERSITY

County	Number of Questionnaire Returns	Number of Undergraduates Fall 1972
Adair	--	15
Alfalfa	4	82
Atoka	--	20
Beaver	--	40
Beckham	3	70
Blaine	--	75
Bryan	--	22
Caddo	3	111
Canadian	6	163
Carter	4	151
Cherokee	3	33
Choctaw	2	43
Cimarron	3	20
Cleveland	4	104
Coal	--	14
Comanche	5	175
Cotton	2	29
Craig	4	83
Creek	9	263
Custer	--	91
Delaware	--	40
Dewey	1	28
Ellis	--	39
Garfield	18	499
Garvin	2	107
Grady	--	94
Grant	4	95
Greer	1	29
Harmon	1	23
Harper	2	49
Haskell	--	30
Hughes	1	41
Jackson	--	103
Jefferson	--	29
Johnson	--	9
Kay	19	527
Kingfisher	3	133
Kiowa	2	54
Latimer	--	25
LeFlore	2	92
Lincoln	4	144
Logan	4	121
Love	1	18

TABLE VI (Continued)

County	Number of Questionnaire Returns	Number of Undergraduates Fall 1972
McClain	--	55
McCurtain	5	66
McIntosh	--	37
Major	2	76
Marshall	--	16
Mayes	4	108
Murray	--	40
Muskogee	10	253
Noble	9	168
Nowata	--	48
Okfuskee	--	45
Oklahoma	67	2,346
Okmulgee	9	196
Osage	6	225
Ottawa	3	120
Pawnee	2	114
Payne	35	1,298
Pittsburgh	4	145
Pontotoc	3	74
Pottawatomie	6	168
Pushmataha	--	30
Roger Mills	--	16
Rogers	3	113
Seminole	3	73
Sequoyah	1	47
Stephens	9	243
Texas	2	90
Tillman	2	68
Tulsa	97	2,592
Wagoner	--	42
Washington	26	721
Washita	--	51
Woods	--	23
Woodward	3	74
Total	428	13,744*

*Source: Oklahoma State Regents for Higher Education

TABLE VII

THE QUESTIONNAIRE RETURNS--UNIVERSITY OF OKLAHOMA

County	Number of Questionnaire Returns	Number of Undergraduates Fall 1972
Adair	--	8
Alfalfa	1	14
Atoka	--	7
Beaver	1	17
Beckham	2	44
Blaine	--	18
Bryan	--	18
Caddo	2	63
Canadian	2	104
Carter	15	224
Cherokee	--	29
Choctaw	1	15
Cimarron	--	10
Cleveland	53	2,777
Coal	--	17
Comanche	12	320
Cotton	--	23
Craig	4	25
Creek	2	97
Custer	2	53
Delaware	1	8
Dewey	--	8
Ellis	--	11
Garfield	5	183
Garvin	8	173
Grady	3	117
Grant	--	10
Greer	--	11
Harmon	--	2
Harper	--	7
Haskell	--	18
Hughes	1	37
Jackson	4	95
Jefferson	--	13
Johnson	--	19
Kay	12	241
Kingfisher	1	25
Kiowa	4	59
Latimer	--	9
LeFlore	2	64
Lincoln	1	45
Logan	--	26
Love	--	15

TABLE VII (Continued)

County	Number of Questionnaire Returns	Number of Undergraduates Fall 1972
McClain	3	125
McCurtain	1	42
McIntosh	2	37
Major	1	11
Marshall	1	15
Mayes	2	46
Murray	1	46
Muskogee	7	189
Noble	--	13
Nowata	--	27
Okfuskee	2	25
Oklahoma	131	4,268
Okmulgee	6	92
Osage	3	56
Ottawa	3	80
Pawnee	--	9
Payne	2	62
Pittsburgh	4	127
Pontotoc	2	94
Pottawatomie	4	190
Pushmataha	--	8
Roger Mills	--	1
Rogers	2	63
Seminole	3	122
Sequoyah	--	29
Stephens	8	182
Texas	--	35
Tillman	--	33
Tulsa	81	1,852
Wagoner	2	24
Washington	19	324
Washita	2	17
Woods	--	25
Woodward	2	42
Total	433	13,390*

*Source: Oklahoma State Regents for Higher Education

APPENDIX B

THE FACTOR ANALYSES

GENERAL INFORMATION PERTAINING

TO THE FACTOR ANALYSES

The factor analysis model used on the University of Oklahoma and Oklahoma State University questionnaire data was a packaged program devised at the University of California, Health Sciences Computer Facility. It has the code "BMD 03M" and was the version of May 2, 1966.

The eigenvalue cut-off level used in the factor analysis program was 1.0000 for both runs.

On the following pages are listed relevant information pertaining to the factor analyses carried out upon the University of Oklahoma and Oklahoma State University data:

(1) Correlation matrices of the 14 variables (questions).

(2) Eigenvalues for the 14 variables.

(3) Cumulative proportion of the total varience for the 14 variables.

TABLE VIII

OKLAHOMA STATE UNIVERSITY--CORRELATION MATRIX OF
THE 14 QUESTIONNAIRE VARIABLES

Row 1

| 1.00000 | 0.13062 | 0.27089 | 0.16738 | 0.16604 | -0.24302 | 0.20351 | -0.24642 |
| 0.27116 | 0.16784 | -0.06944 | 0.30187 | -0.10595 | 0.08021 | | |

Row 2

| 0.13062 | 1.00000 | -0.13443 | 0.19039 | 0.11106 | 0.03991 | -0.00907 | -0.21246 |
| -0.01398 | 0.19685 | 0.09850 | 0.37169 | -0.15291 | 0.20215 | | |

Row 3

| 0.27089 | -0.13443 | 1.00000 | -0.04864 | -0.00282 | -0.01641 | 0.03348 | 0.06186 |
| 0.37457 | 0.26791 | 0.27537 | 0.28601 | 0.24545 | 0.17783 | | |

Row 4

| 0.16738 | 0.19039 | -0.04864 | 1.00000 | 0.08923 | 0.04213 | 0.10237 | 0.24367 |
| 0.21527 | -0.01756 | -0.06916 | 0.35292 | -0.19073 | 0.21074 | | |

Row 5

| 0.16604 | 0.11106 | -0.00282 | 0.08923 | 1.00000 | 0.28581 | -0.08461 | 0.05373 |
| 0.26350 | -0.03170 | 0.15744 | 0.15574 | -0.14642 | 0.07151 | | |

Row 6

| -0.24302 | 0.03991 | -0.01641 | 0.04213 | 0.28581 | 1.00000 | -0.10470 | 0.31555 |
| 0.02423 | -0.31422 | 0.20344 | 0.03224 | -0.11940 | -0.04978 | | |

Row 7

| 0.20351 | -0.00907 | 0.03348 | 0.10237 | -0.08461 | -0.10470 | 1.00000 | 0.20503 |
| 0.08765 | 0.16230 | -0.17826 | 0.38487 | -0.13371 | 0.18056 | | |

Row 8

-0.24642	-0.21246	0.06186	0.24367	0.05373	0.31555	0.20503	1.00000
0.06425	-0.11906	0.28097	0.02723	-0.07072	0.32973		

Row 9

0.27116	-0.01398	0.37457	0.21527	0.26350	0.02423	0.08765	0.06425
1.00000	0.29636	0.35376	0.24309	-0.17674	0.20944		

Row 10

0.16784	0.19685	0.26791	-0.01756	-0.03170	-0.31422	0.16230	-0.11906
0.29636	1.00000	0.26704	0.48954	-0.02794	0.32036		

Row 11

-0.06944	0.09856	0.27537	-0.06916	0.15744	0.20344	-0.17826	0.28097
0.35376	0.26704	1.00000	0.24180	-0.04292	0.39014		

Row 12

0.30187	0.37169	0.28601	0.32592	0.15574	0.03224	0.38487	0.02723
0.24309	0.48954	0.24180	1.00000	-0.13939	0.36737		

Row 13

-0.10595	-0.15291	0.24545	-0.19073	-0.14642	-0.11940	-0.13371	-0.07072
-0.17674	-0.02794	-0.04292	-0.13939	1.00000	0.14580		

Row 14

0.08021	0.20215	0.17783	0.21074	0.07151	-0.04978	0.18056	0.32973
0.20944	0.32036	0.39014	0.36737	0.14580	1.00000		

TABLE IX

OKLAHOMA STATE UNIVERSITY, QUESTIONNAIRE--FACTOR ANALYSIS
EIGENVALUES OF THE 14 VARIABLES

2.93180	1.90085	1.66078	1.39711	1.25414	0.96729	0.87090	0.73981
0.58743	0.48962	0.36609	0.34182	0.30805	0.18428		

TABLE X

OKLAHOMA STATE UNIVERSITY, QUESTIONNAIRE--FACTOR ANALYSIS
CUMULATIVE PROPORTION OF TOTAL VARIANCE
OF THE 14 VARIABLES

0.20941	0.34519	0.46382	0.56361	0.65319	0.72228	0.78449	0.83733
0.87929	0.91427	0.94042	0.96483	0.98683	1.00000		

TABLE XI

THE UNIVERSITY OF OKLAHOMA--CORRELATION MATRIX OF
THE 14 QUESTIONNAIRE VARIABLES

Row 1

1.00000	0.13062	0.27089	0.16738	0.16604	-0.24302	0.20351	-0.24642
0.27116	0.16784	-0.06944	0.30187	-0.10595	0.08021		

Row 2

0.13062	1.00000	-0.13443	0.19039	0.11106	0.03991	-0.00907	-0.21246
-0.01398	0.19685	0.09850	0.37169	-0.15291	0.20215		

Row 3

0.27089	-0.13443	1.00000	-0.04864	-0.00282	-0.01641	0.03348	0.06186
0.37457	0.26791	0.27537	0.28601	0.24545	0.17783		

Row 4

0.16738	0.19039	-0.04864	1.00000	0.08923	0.04213	0.10237	0.24367
0.21527	-0.01756	-0.06916	0.32592	-0.19073	0.21074		

Row 5

0.16604	0.11106	-0.00282	0.08923	1.00000	0.28581	-0.08461	0.05373
0.26350	-0.03170	0.15744	0.15574	-0.14642	0.07151		

Row 6

-0.24302	0.03991	-0.01641	0.04213	0.28581	1.00000	-0.10470	0.31555
0.02423	-0.31422	0.20344	0.03224	-0.11940	-0.04978		

Row 7

0.20351	-0.00907	0.03348	0.10237	-0.08461	-0.10470	1.00000	0.20503
0.08765	0.16230	-0.17826	0.38487	-0.13371	0.18056		

Row 8

-0.13768	0.22007	-0.00697	0.17308	0.03906	0.15905	0.19837	1.00000
-0.10146	0.10920	0.16432	0.29032	-0.21445	0.09146		

Row 9

-0.08953	-0.30839	-0.12757	-0.22443	0.32566	0.37772	0.07523	-0.01066
1.00000	0.19260	0.13048	0.26549	0.01662	0.15331		

Row 10

0.09965	0.27660	0.22394	-0.06539	0.09688	0.23323	0.09434	0.10920
0.19260	1.00000	0.58472	0.53211	0.04536	-0.15796		

Row 11

-0.06403	0.23480	0.23801	-0.00436	-0.00865	0.26286	0.18236	0.16432
0.13048	0.58472	1.00000	0.58851	-0.04809	-0.18885		

Row 12

0.11870	0.14063	0.20884	0.22678	0.33779	0.53078	0.47058	0.29032
0.26549	0.53211	0.58851	1.00000	0.16794	-0.08410		

Row 13

0.29062	0.06954	-0.04072	-0.05035	0.14167	0.26097	-0.00018	-0.21445
0.01662	0.04536	-0.04809	0.16794	1.00000	-0.07113		

Row 14

-0.09547	0.04058	-0.34588	-0.14691	0.07549	0.00936	0.05792	0.09146
0.15331	-0.15796	-0.18885	-0.08410	-0.07113	1.00000		

TABLE XII

UNIVERSITY OF OKLAHOMA, QUESTIONNAIRE--FACTOR ANALYSIS
EIGENVALUES OF THE 14 VARIABLES

3.09925	2.05461	1.59876	1.48011	1.22962	0.88925	0.75255	0.61887
0.54310	0.50118	0.41349	0.33900	0.27880	0.20140		

TABLE XIII

UNIVERSITY OF OKLAHOMA, QUESTIONNAIRE--FACTOR ANALYSIS
CUMULATIVE PROPORTION OF TOTAL VARIANCE
OF THE 14 VARIABLES

| 0.022137 | 0.36813 | 0.48233 | 0.58805 | 0.67588 | 0.73940 | 0.79315 | 0.83736 |
| 0.87915 | 0.91195 | 0.94149 | 0.96570 | 0.98561 | 1.00000 | | |

APPENDIX C

THE STEPWISE REGRESSION ANALYSES

Several phenomena that were spatially related to the distribution of undergraduates attending the University of Oklahoma and Oklahoma State University have been introduced earlier in this work. These elements were anlyzed in isolation with the undergraduate distributions and as such did not reflect the role they would play when the other interacting elements are introduced so as to form the "real world" picture. To overcome this problem, all the independent variables used in explaining the undergraduate distributions were put into a stepwise regression model. By this technique, the amount of overlap in the explanations of the dependent variable,[1] by the independent variables, would be considered, and the results would give a clear picture of the underlying elements which were significant in explaining the distribution of undergraduates attending the University of Oklahoma or Oklahoma State University.

To include all the independent variables necessitated deleting several counties from the analyses. As a result, only those counties from which questionnaires had been received were utilized. Thus for the University of Oklahoma 51 counties were analyzed and for Oklahoma State University, 48.

The results of the stepwise regression analysis were similar for both the University of Oklahoma and Oklahoma State University. In both cases the "potential model" variable was very strongly related to the in-state undergraduate distributions under analysis, while the next most important variable for both universities, "income," added very little to the level of explanation in either case. For Oklahoma State University the multiple "r" for the undergraduate distribution and the potential model was $+0.9112$ ($r^2 = +0.8303$), by adding the

"income" variable the increase in "r^2" was only +0.039. For the
University of Oklahoma the multiple "r" for the undergraduate dis-
tribution and the potential model was +0.9472 (r^2 = +0.8971) and by
adding the "income" variable the increase in "r^2" was only +0.0123.

The above results indicated the overwhelming strength of the
potential model in explaining the in-state undergraduate distributions
of Oklahoma students, by county of permanent address, attending
either the University of Oklahoma or Oklahoma State University in
the fall of 1972. Although the other variables increased the levels
of explanation in both of the undergraduate distributions under
analysis, this increase was very limited and overshadowed to a great
extent by the potential model.

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