

AN ASSESSMENT OF THE PERCEIVED IMPORTANCE OF THE
ECONOMIC IMPACT OF VOCATIONAL AGRICULTURE
SUPERVISED OCCUPATIONAL EXPERIENCE
PROGRAMS (SOEP) WITHIN OKLAHOMA
COMMUNITIES

By

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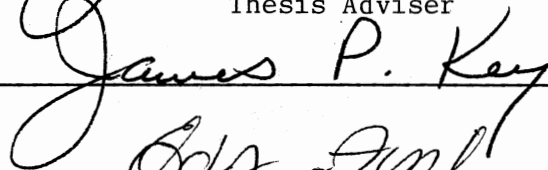
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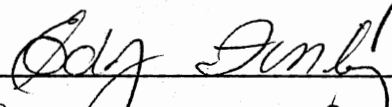
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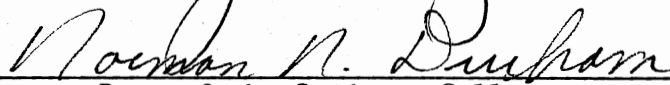
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CHAPTER I

INTRODUCTION

In recent years, much concern has been expressed by agricultural educators regarding the emphasis on and need for Supervised Occupational Education Programs (SOEP) in vocational agriculture. Supervised Occupational Experience Programs have been utilized to provide practical and realistic educational opportunities for students. Traditionally, SOEP's have addressed a production agriculture emphasis or placement on farms for students to gain occupational experience. Since the beginning of vocational agriculture, Supervised Occupational Experience (SOE) has been considered a vital and integral component of a total program of vocational agriculture. SOE has been that portion of the program that has made it vocational. In addition, SOE also provides the opportunity for students to look beyond the "farm gate" to a variety of experience in agribusiness ownership and placement.

SOE was defined in a publication of the National FFA Foundation (Supervised Occupational Experience Program Handbook, 1982):

Supervised Occupational Experience consists of all the planned practical activities conducted outside of scheduled class time in which the student develops and applies agriculture knowledge and skills. Students in Supervised Occupational Experience Programs are supervised by teachers, parents, employers and adults who assist them in achieving their educational objectives. The competencies and skills to be developed should be determined cooperatively by the student, teacher, parents and employer (p. 3).

Although many support vocational agriculture/FFA programs, including professionals who realize the value and training they received as a result of supervised experience being a major component of vocational agriculture, many policy makers, school administrators and the public at large may not be convinced of the value and impact of supervised experience as a major component of vocational agriculture. The "Nation at Risk" proposal would lead many to believe that "learning by doing" educational programs were not relative to today's modern academic expectations. However, many fail to realize the economic impact of such programs in local communities across the country. The income generated by many student Occupational Experience Programs far exceeds the operating budgets of many small schools. Many local communities flourish because of the insight and wisdom of vocational educators in agriculture who have stressed the importance and value of students developing skills through occupational and entrepreneurial training. While making a rather significant contribution to the economies in many local communities, the students' earned SOE income was a result of their employment in agribusiness and/or the ownership of production and/or agribusiness enterprises. Furthermore, the reduction of societal cost enhanced by young people being involved in productive educational activities, through programs such as activities that involved supervised experience training on a trial basis, provides an outlet for the energy and stress of becoming a young adult. In addition, the opportunity to be creative, earn a profit in a real life situation, and to make a worthwhile contribution seemed to be important factors in the lives of young people. Today, many vocational agriculture programs are renewing the emphasis and need for

profitability and practical skill development. Therefore, it becomes essential to determine the impact of the SOE component of Vo Ag on the economy of local communities.

Statement of the Problem

With increased concern regarding the cost of conducting vocational agriculture programs, especially during times of economic difficulty, it becomes necessary to direct attention to the impact and value of publicly financed programs. As educational funding decreases, legislators, and administrators begin looking at programs where cuts can be made without attracting too much attention. Because of this, these programs must be able to justify their existence. As a result of this study, agricultural educators should be in a better position to inform the public and address state agencies as to the value and contributions of SOEP's in Oklahoma.

Purpose of the Study

The purpose of this study was to assess the perceived importance of the economic impact of Vocational Agriculture Supervised Occupational Experience Programs (SOEP) within Oklahoma communities.

Objectives of the Study

In order to accomplish the purpose of this study, the following objectives were set forth:

1. To ascertain selected demographic characteristics of the vocational agriculture teachers who were obligated to an Oklahoma

public school contract.

2. To determine the perceived importance of selected benefits from Supervised Occupational Experience programs in vocational agriculture.

3. To determine the economic impact of SOE income as perceived by Oklahoma Vocational Agriculture teachers on their communities.

4. To determine the SOE income of students enrolled in Oklahoma vocational agriculture programs as reported on the "Final All Day Report."

5. To determine the multiplier effect of SOE income within Oklahoma communities.

6. To determine the economic impact within Oklahoma communities by district.

Scope of the Study

The population of this study was limited to vocational agriculture teachers in Oklahoma. At the beginning of the 1987-88 school year, there were 448 vocational agriculture teachers in the state.

Definition of Terms

The definitions utilized were those unique to this particular study.

Agribusiness - All businesses which provide inputs of production, processing, and distribution of agriculture goods and services.

Economic Impact - Is the effect a particular occurrence will

have on the economy of a community, region, state, et cetera.

Economic Sector - A portion of a district's, region's and/or state's development that pertains to its financing, management, production and distribution of goods and services.

Extrapolate - To infer from values within an already observed interval or a projection into an area not known or experienced so as to arrive at a usual conjectural knowledge of the unknown (16).

Final All Day Report - A comprehensive record concerning Supervised Experience record of income derived from vocational agriculture student enterprises in Oklahoma.

Income Multiplier - A factor utilized to measure the level of economic activity occurring in a particular sector, region, et cetera; or a factor used to determine the economic impact on a state, district, or economy with regard to change caused by external forces or policy decisions.

Interpolate - To estimate values of a function between known values for sectors of the economy and planning districts within the state.

Multiplier - The relationship between some observed change in the economy and the amount of economic activity that this change creates throughout the economy.

Net Labor Income - The amount of income a student has earned, after expenses have been subtracted from total income. Can be from production agriculture and/or agribusiness.

Occupational Training - Learning activities which provide awareness and exploration into a student's chosen occupational field.

Perception - Consciousness, observation, or awareness of the elements of environment through physical sensation (16).

Production Agriculture - Is generally known as a farming or ranching program consisting of crop or livestock type production enterprise projects.

SOE Income - Income which is derived from Vocational Agriculture students' Supervised Occupational Experience Programs.

Sub-State Planning Districts - A geographic area established by business groups, commodity producers, economic planners, et cetera to enhance the economic development and/or distribution of goods and services in a particular region or area.

Supervised Occupational Experience Programs (SOEP) - A series of related learning experiences which is carried on outside the classroom but is related to the in-class instruction. It is designed to develop knowledge and skills in agriculture and also to prepare students for a vocation in agriculture.

Type I Multiplier - Direct and indirect change in Oklahoma income per dollar of change in income of a producing sector.

Vo-Ag Supervisory District - Geographic sub-regions of Oklahoma divided for the purpose of management and supervision of vocational agriculture teachers.

Vocational Agriculture - A junior high and high school program which offers courses designed to aid students in training for a career in agribusiness and production agriculture.

CHAPTER II

REVIEW OF LITERATURE

A review of literature was conducted to better inform the reader concerning SOEP's and SOE income. The SOE section titles addressed were: (1) benefits of SOE programs, (2) multiplier effect, (3) concept of impact, and (4) economic impact.

The information gathered was helpful in determining the potential importance of SOE programs and the probable economic impact of extension programs and the agriculture sector within Oklahoma communities. The review was not a complete listing of all material, but a sample of related research efforts dealing with income and other benefits derived from student Supervised Experience Programs as well as economic impact.

Benefits of SOE Programs

Supervised Occupational Experience Programs are designed and conducted, along with FFA activities and classroom and laboratory instruction, to develop skills, concepts, and values needed by workers in the agriculture industry, according to Rawls (10, p. 31).

According to Fletcher, Williams, and Miller (5), "Educators have long recognized SOE programs as a means of providing students with practical experiences in agriculture." Rawls (10) also stated that, "SOE programs involve students in 'real life' agriculture experiences as part of the vocational agriculture curriculum." Rawls' (10) further

indicated, parents perceived their sons and daughters receiving benefits from their vocational agriculture SOE programs in the areas of work attitude, occupational development, and human relations. Fletcher et al. (5), also stated that

4a SOE provides students with practical learning in real life work settings and promotes educational development through actual job experiences on a farm or in an off-farm agriculture business (p. 62).

While Fletcher et al. (5) further indicated that, "Employers perceived agribusiness employment experiences as contributing to the development of occupational abilities."

Multiplier Effect

OSU Fact Sheet No. 821 (1) describes the multiplier effect as "The relationship between some observed change in the economy and the amount of economic activity that this change creates throughout the economy" (p. 811.1). Doeksen, Schreiner, and Barrett (1) indicated that there was a positive effect not only on the income of a community, but also a positive effect on employment in those communities. Kleinholz, Doeksen, Hobbs, Stacey, Frye, and Montgomery (7), in an Oklahoma Cooperative Extension Service rural development study, used the same relationship to determine the impact of a livestock auction facility in Hugo, Oklahoma. Their study revealed that the employees of the livestock facility will spend money which creates secondary jobs and income, while, the livestock auction business will purchase from other businesses entities which will also create jobs and income. "The total employment impact revealed in the study was estimated at 22 jobs (9 jobs x 2.42 multiplier effect) and the total income impact at \$138,960

(72,000 income x 1.93 multiplier effect" (p. 5).

In addition, in a personal interview, Schreiner (11) indicated that "the SOE income was a linkage of the students' enterprises to the community and was a part of the total direct and indirect effect of agriculture income on their communities." Furthermore, Schriener (11) stated that "people being rational beings seek the perceived highest return on investments and that proprietors are compensated through returns to resources, namely, land, labor and proprietor's capital". These in reality represent benefits of value added effects derived from interest and wages paid as well as proprietor's income.

Furthermore, according to Schreiner et al. (12) the Type I income multiplier was explained by the following:

livestock and livestock products as a factor of (k), indicates that for each additional dollar of household income generated from livestock and livestock products output, a total of \$4.60 dollars were generated in Oklahoma income by that sector and all interdependent sectors. This assumes that output from all interdependent sectors is over and above what was produced previously (p. 16).

The Concept of Impact and Evaluation

Forest and Marshall (4) in their extension impact study concluded that "the concept of 'impact' and the general benefits model helps in organizing an evaluation." Forest (3) further "provided additional framework for his General Benefits Model for identifying, describing, analyzing, and summarizing various impacts" (p. 24).

Leaders as well as the general public were asked whether they or their communities benefited from Extension in any of the following general ways:

* Developing groups, government, and democratic processes.

- * Developing individual roles and abilities.
- * Improving health and safety facilities and practices.
- * Conserving and improving the natural environment.
- * Securing economic improvement.
- * Expanding educational; resources or opportunities.

Based on major value systems and representative of long-term goals for human endeavors, the six types were used to categorize responses showing how Extension efforts in various and diverse ways had contributed toward central themes in people's lives (pp. 9-10).

In addressing their conclusion concerning "Respondents' perceptions of impact are valid alternatives to empirical observations, Forest and Marshall (4) indicated that "all data in the project-end results, reactions, contact-are perceptual" (p. 9). they emphatically stated the reasons for underscoring the data as follows:

- * Perceptual data are easier to collect than 'hard evidence.' Scientific controls, observers, pre- and post-measurements, and other canons of science are more difficult, if not impossible, to apply in multiyear, multidiscipline, multimethod, multiaudience, and multi-staff program evaluations.
- * Voluntary adult programs depend more on perceived value to participants or potential participants than on actual value.
- * Perceptual data are less costly, both in money and in irritation to respondents.
- * Perceptual data are more easily understood. Feelings and testimonies of people are easily understood, while some users may not understand how numbers of actual changes made by people or institutions affect their lives institutions affect their lives or reflect value of a program.
- * Perceptions allow respondents to review their experience retrospectively and suggest major program sequences, interconnected events, and additive effects (p. 13).

Economic Impact

Nelson (9) in Fact Sheet No. 826 states that not only is agriculture of critical importance to the rural communities in Oklahoma, but "even nonagriculture industries such as the oil industry and the trucking industry are significantly related to agriculture" (p. 816.1). Nelson (9) also indicated that

Agriculture output accounts for 4% of the total goods and services output of the state while 13% of the states output can be attributed to agriculture as a basic sector. Also, 9% of the income and 11% of employment in Oklahoma is directly from agriculture and 31% of its total income and 29% of its total employment are attributable to agriculture (p. 826.2).

Kleinholz et al. (7), in a Southern Oklahoma Rural Development Study previously eluded to, stated that

Agribusinesses have a tremendous impact on the economy of the community in which they are located. They not only employ large numbers of people and have large payrolls, but also draw into the community a large number of out-of-town visitors who purchase goods and services from local retailers (p. 1).

Summary

Supervised Occupation Experience Programs have been the part of vocational agriculture which has set it apart from other educational programs. This allows instructors and students to apply what is taught and learned in the classroom to real life situations. This gives the student valuable "hands-on" experience in their chosen occupational field and as well as an advantage when they seek full time employment.

There are a variety of benefits vocational agriculture students receive from SOE programs. SOE programs allow students to develop

skills and competencies in an agriculture field in which they are interested. SOE programs also allow students to develop their leadership and citizenship abilities which assists them in any occupation they choose. These types of programs also assist students in developing their abilities in record keeping and human relations.

Without a doubt, businesses and industries have a positive effect on the communities in which they are located. They not only have a direct effect on employment and income in these communities, but an indirect effect as well. The income from these businesses in turn creates income and employment of other businesses in the community. In addition, these businesses bring in income from outside the community by out-of-town customers.

Agriculture not only has an impact on the income and employment of its own sector, but also affects nonrelated industries as well. Agriculture, either directly or indirectly, impacts 31 percent of Oklahoma's gross income and 29 percent of its work force.

CHAPTER III

METHODS AND PROCEDURES

Introduction

The primary purpose of this study is to assess the perceived importance of the economic impact of vocational agriculture supervised occupational experience programs (SOEP) within Oklahoma communities. In order to accomplish this, the following objectives were to be addressed: (1) to ascertain selected demographic characteristics of the vocational agriculture teachers who were obligated to an Oklahoma public school contract; (2) to determine the perceived importance of selected benefits from Supervised Occupational Experience Programs in vocational agriculture; (3) to determine the economic impact of SOE income as perceived by Oklahoma vocational agriculture teachers on their communities; (4) to determine the SOE income of students enrolled in Oklahoma vocational agriculture programs as reported on the Final All Day Report; (5) to determine the multiplier effect SOE income has within Oklahoma communities; and (6) to determine the economic impact within Oklahoma communities by district utilizing the income multipliers derived from sub-state planning income ascertained from Final All Day SOE reports.

The Population

Since this study was one component of the American Association of

Teacher Education in Agriculture Western Region Research Project to determine the "Impact of Vo Ag on the community," it was decided that the study should be a state-wide effort. Therefore, the author and his graduate committee made the decision that the population of this study should consist of all vocational agriculture instructors in Oklahoma. Table I reflects the total population of this study by supervisory district. The five Vo Ag "sub-regions" of the state consisted of the Northwest, Southwest, Central, Southeast, and Northeast supervisory districts (See Figure 1).

Development of the Instrument

In preparation of the instrument to satisfy the objectives of the study, several other studies and survey instruments were evaluated.

Investigation of other methods of inquiry for this particular population led to the finding that the (See Appendix A) questionnaire was the most appropriate procedure to meet the objectives of the study. To gather the data concerning statements assessing the impact of SOE income within local communities as perceived by Oklahoma Vocational Agriculture instructors, five forced response questions which were both of qualitative and quantitative nature, were included, while the remaining six questions were also forced choice items which utilized ordinal, Likert-type and interval scales. The questions were basically divided into two sections, section one, which assessed specific demographic characteristics regarding the teacher and local Vo Ag program and secondly, questions which appraised the impact, importance, benefits, and sources of SOE and community income.

The questions were developed from specific factors and research

TABLE I
A DISTRIBUTION OF THE STUDY POPULATION BY DISTRICT

| District | Number of Instructors | Percentage |
|-----------|-----------------------|------------|
| Northwest | 68 | 15.18 |
| Southwest | 94 | 20.98 |
| Central | 89 | 19.87 |
| Northeast | 100 | 22.32 |
| Southeast | 97 | 21.65 |
| Total | 448 | 100.00 |

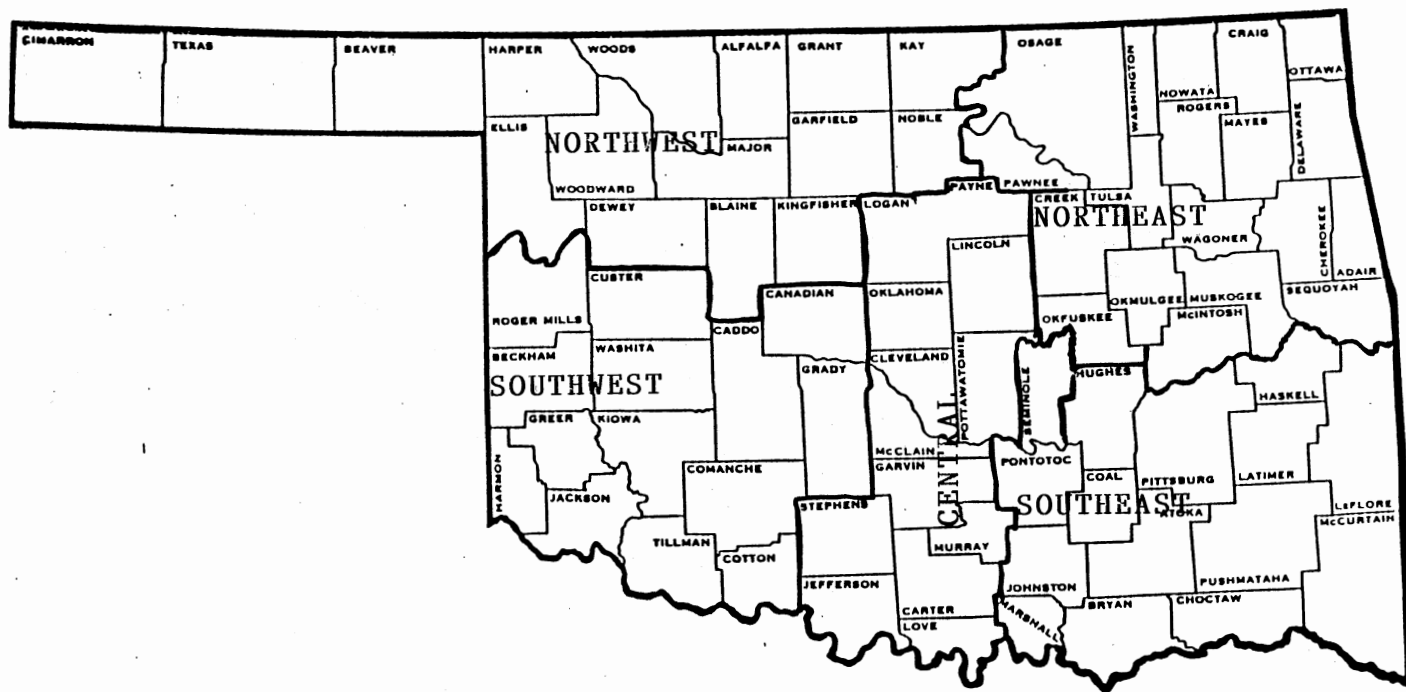


Figure 1. Geographic Location of Oklahoma Vocational Agriculture Supervisory Districts

findings concerning the relative value and importance of SOE income derived from students' supervised experience programs in vocational agriculture. A draft of the instrument was reviewed by the author's graduate committee and upon completion revisions were made. Once the revisions were made, the questions were put in final format and submitted to the state Vo Ag supervisory staff for their review and any additional changes.

The information obtained from the instrument provided a means for assessing the perceived importance and impact of student SOE income on local communities as well as student benefits. The questionnaire included a scale of categories relative to sources of both community and SOE income, while a choice of responses ranging from zero to 100 percent were available which the participants could indicate their perceptions. In addition, the instrument also included questions with a five point "Likert-type" scale with variables in five major areas of perceived importance and impact.

The response variables with regard to the perceived importance of selected SOE benefits were allotted the numerical values as follows: "No Importance" = 0; "Little Importance" = 1; "Some Importance" = 2; "High Importance" = 3; "Very High Importance" = 4; while corresponding absolute limits were set for the levels of "Importance" at 0 to .49 for "No Importance"; .5 to 1.49 for "Little Importance"; 1.5 to 2.49 for "Some Importance"; 2.5 to 3.49 for "High Importance"; and 3.5 and greater for "Very High Importance".

Furthermore, the response variables with regard to importance of SOE income and the impact of losing SOE income were assigned the

following numerical values: (1) "Importance" - "No Importance" = 0; "Little Importance" = 1; "Some Importance" = 2; "Important" = 3; and "Very Important" = 4; while corresponding values were also assigned to (2) "Impact" - "No Impact" = 0; "Little Impact" = 1; "Some Impact" = 2; "High Impact" = 3; and "Very High Impact" = 4. Real limits were also established for "Importance" or "Impact", respectively; 0 to .49 for "No Importance" or "No Impact"; .5 to 1.49 for "Little Importance" or "Little Impact"; 1.5 to 2.49 for "Some Importance" or "Some Impact"; 2.5 to 3.49 for "Important" and "High Impact"; and 3.5 to 4.0 for "Very Important" or "Very High Impact".

Collection of Data

After final revisions and considerations, the instrument was color coded, printed, and packaged for distribution in the five respective Vo Ag supervisory districts. Since there was a relatively large number of potential respondents, it was decided by the author's committee and the state Vo Ag staff that each district supervisor would administer the questionnaire during their respective Professional Improvement (PI) meetings during the month of February, 1988. After completion by teacher respondents, the district supervisors returned the questionnaires to the author for compiling the data.

Analysis by Sub-State Planning Districts

The income multipliers presented in Table II (13) apply to the entire state and are useful for state analysis. In addition, many citizens have a concern about the effect of economic development on a sub-state or regional basis. As a part of Doeksen's, Schreiner's and

TABLE II
INCOME MULTIPLIERS FOR SUB-STATE PLANNING DISTRICTS IN OKLAHOMA
BY SELECTED ECONOMIC SECTORS

| Economic Sector | Planning Districts | | | | | | | | | | |
|-------------------------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| | No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | No. 6 | No. 7 | No. 8 | No. 9 | No. 10 | No. 11 |
| Livestock and Products | 1.79 | 1.89 | 1.64 | 1.93 | 1.93 | 1.92 | 2.00 | 1.85 | 1.82 | 1.89 | 1.71 |
| Crops and Forestry | 1.97 | 2.01 | 1.75 | 2.12 | 2.12 | 2.54 | 2.02 | 2.39 | 1.84 | 1.93 | 1.68 |
| Lumber, Wood, Furniture | 1.51 | 1.60 | 1.39 | 1.73 | 1.56 | 1.73 | 1.54 | 1.68 | 1.41 | 1.48 | 1.34 |
| Transportation and Warehousing | 1.59 | 1.64 | 1.45 | 1.70 | 1.10 | 1.88 | 1.61 | 1.79 | 1.47 | 1.52 | 1.43 |
| Wholesale and Retail Trade | 1.46 | 1.55 | 1.39 | 1.54 | 1.53 | 1.65 | 1.51 | 1.63 | 1.39 | 1.45 | 1.35 |
| Finance, Insurance, and Real Estate | 2.16 | 2.22 | 2.24 | 2.27 | 2.35 | 2.36 | 2.08 | 2.09 | 1.82 | 2.20 | 1.85 |

Source: Dean F. Schriener and James Chang. Structure and Analysis of the Economies of Substate Planning Districts in Oklahoma. Ozark Regional Commission Publication (May 1975).

Barrett's (1) study "income multipliers were derived for the 11 sub-state planning districts in Oklahoma." Figure 2 delineates the boundaries of individual planning districts. However, it should be noted that similarities do exist geographically between some Vo Ag Supervisory Districts and the economic sub-state planning districts.

Analysis of Data

Data collected from the survey were analyzed utilizing descriptive statistics. It was important to emphasize that this was a descriptive study to assess teacher perceptions and to describe their responses.

The descriptive statistics used to treat the data were frequency distributions, percentages, and arithmetic means. Weighted mean responses for each of the statements listed with regard to Selected Benefits of SOE, Importance of SOE Income, and Impact on the Economies of Local Communities were calculated on both a district and state-wide basis. Since this study attempted to include all teachers of vocational agriculture in Oklahoma, it was important to point out the necessity of utilizing the arithmetic mean as a statistical measure. According to Hoshmand (6, p. 24),

Agricultural scientists and managers alike often talk about averages in the context of average weight gain, average retail food price, average income of farm workers, average milk production per day, etc. These averages simply summarize, in a single value, a set of data. In other words, averages are no more than the middle, or central location of a set of values or measurements. Averages can be presented as one of the three measures of central tendency, namely the mean, the median, and the mode.

Mean. The most familiar average is the mean or the arithmetic mean symbolized as \bar{X} . It is found by adding the

all the values of a group of items and dividing the sum by

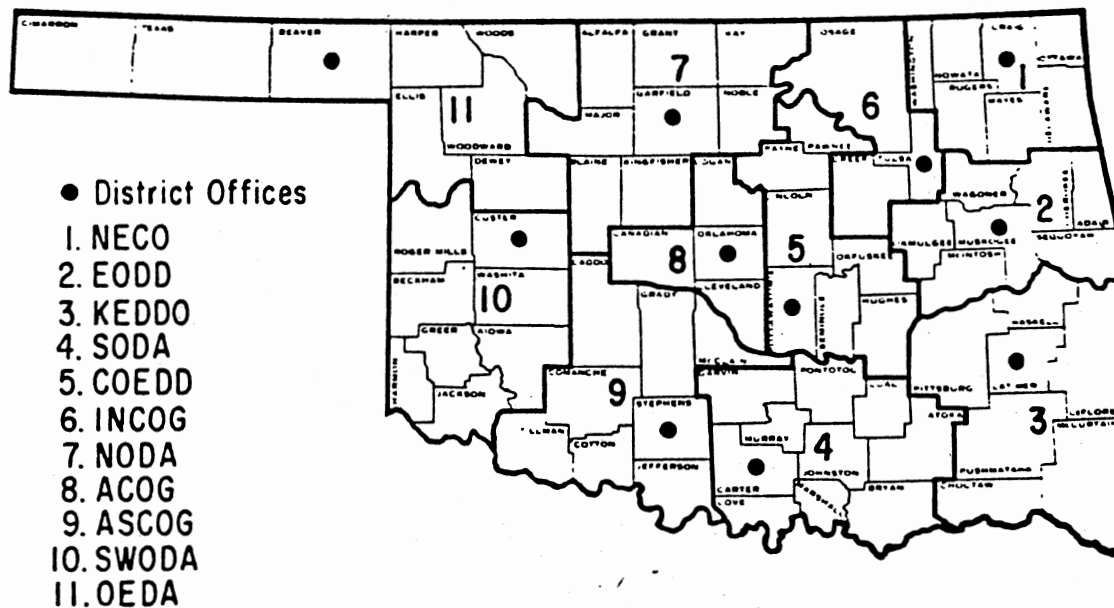


Figure 2. Geographic Distribution of Oklahoma Sub-State Planning Districts

all the values of a group of items and dividing the sum by the total number of items. The formula for the mean for the sample and population respectively is as follows:

If a sample:

$$\bar{X} = \frac{\sum X}{n}$$

If a population:

$$\mu = \frac{\sum X}{N}$$

where:

X = measured value of an item

\bar{X} = sample mean, read as X-bar

n = size of a sample

μ = population mean, read as mu

N = size of finite population

The Greek capital letter Σ (sigma) is used to indicate the addition of all observed values of X. It is read as summation of. To distinguish between a sample and a population, we designate the population by the Greek letters, and the sample with Roman letters (p. 24).

In addition to underlining the use of descriptive statistics in this study, it was also important to stress the expediency of using income multiplier tables (1) to extrapolate the economic impact of student SOE income on Oklahoma communities by district.

Schriener (11) in a personal interview stated "an income multiplier of 1.90 for student SOE income would be representative of multipliers estimated across Oklahoma sub-state planning districts for the agriculture sector as a whole." Therefore, the economic impact of \$1,000 of student SOE income could be projected at \$1,900 (\$1,000 x 1.90).

However, Forest and Marshall (4, p. 17) concluded that

Data may not need sophisticated association or difference tests and inferential statistics if users want mere descriptions and percentages on how various groups answer key questions.

Therefore, the table for income multipliers and the SOE income

summary was utilized in part to estimate the economic impact within Oklahoma communities by supervisory district.

CHAPTER IV

PRESENTATION OF ANALYSIS OF DATA

The purpose of this chapter is to report the findings from the questionnaire used to conduct the study. The intent of the study was to assess the economic impact of Supervised Occupational Experience Programs in Vocational Agriculture within Oklahoma Communities as perceived by vocational agriculture instructors.

The scope of the study included all (448) vocational agriculture instructors in Oklahoma. The questionnaire was administered to 448 instructors of vocational agriculture and, of those, 373 responded to the questionnaire.

Table III reveals the distribution of respondents by district. Sixty-four (14.29 percent of the population) responded from the Northwest District, 86 (19.20 percent of the population) from the Southwest District, 69 (15.40 percent of the population) from the Central District, 80 (17.86 percent of the population) from the Northeast District, while 74 (16.52 percent of the population) responded from the Southeast District. A total of 373 respondents (83.26 percent of the population) out of a possible 448 teachers participated in the survey.

The survey was carried to Professional Improvement (PI) meetings by District Vocational Agriculture Supervisors. However, 75 instructors chose not to respond to the survey, even though they were required to be present at the PI meeting.

TABLE III

A DISTRIBUTION OF RESPONDENTS AND NONRESPONDENTS BY DISTRICT

| District | Frequency Distribution | | | | Total | |
|-----------|------------------------|-------|----------------|-------|-------|--------|
| | Respondents | | Nonrespondents | | | |
| | (N = 373) | | (N = 75) | | N | % |
| | N | % | N | % | | |
| Northwest | 64 | 14.29 | 4 | .89 | 68 | 15.18 |
| Southwest | 86 | 19.20 | 8 | 1.79 | 94 | 20.98 |
| Central | 69 | 15.40 | 20 | 4.46 | 89 | 19.87 |
| Northeast | 80 | 17.86 | 20 | 4.46 | 100 | 22.32 |
| Southeast | 74 | 16.52 | 23 | 5.13 | 97 | 21.65 |
| Total | 373 | 83.27 | 75 | 16.73 | 448 | 100.00 |

Table IV reveals a summary of respondents' age by district. Sixty-two respondents (13.84 percent of the population) from the Northwest District had an average age of 34.6 years, 85 respondents (18.97 percent of the population) from the Southwest District had an average age of 33.9 years, 69 respondents (15.40 percent of the population) from the Central District had an average age of 34.0 years. Seventy-nine respondents (17.63 percent of the population) from the Southeast District had an average of 35.2 years, while 73 respondents (16.29 percent of the population) had an average age of 34.4 years. A total of 368 respondents (82.14 percent of the population) from across the state had an average age of 34.04 years.

Table V reveals a summary of respondents' years of teaching experience by district. From the Northwest District, 64 teachers (17.16 percent of the respondents) responded with an average of 10.8 years of teaching experience, 86 (23.06 percent of the respondents) responded from the Southwest District with an average of 10.4 years of teaching experience, 69 (18.50 percent of the respondents) responded from the Central District with an average of 10.6 years of teaching experience, 80 (21.45 percent of the respondents) responded from the Northeast District with an average of 11.8 years of teaching experience, while 74 (19.84 percent of the respondents) responded from the Southeast District with an average of 11.8 years of teaching experience. A total of 373 Vo Ag teachers (100.00 percent of the respondents) responded from across the state with an average of 11.08 years of teaching experience in vocational agriculture programs.

Table VI reveals a summary of respondents' tenure at their

TABLE IV
A SUMMARY OF RESPONDENTS' AGE BY DISTRICT

| District | Frequency Distribution (N = 448) | | |
|-----------|-------------------------------------|-------|---------------|
| | Respondents | | \bar{X} Age |
| | N | % | |
| Northwest | 62 | 13.84 | 34.6 |
| Southwest | 85 | 18.97 | 33.9 |
| Central | 69 | 15.40 | 34.0 |
| Northeast | 79 | 17.63 | 35.2 |
| Southeast | 73 | 16.29 | 34.4 |
| Total | 368 | 82.14 | 34.04 |

TABLE V
A SUMMARY OF RESPONDENTS' YEARS OF TEACHING EXPERIENCE BY DISTRICT

| District | Frequency Distribution | | |
|-----------|------------------------|--------|-----------------------------|
| | Respondents | | \bar{X} Years' Experience |
| | N | % | |
| Northwest | 64 | 17.16 | 10.8 |
| Southwest | 86 | 23.06 | 10.4 |
| Central | 69 | 18.50 | 10.6 |
| Northeast | 80 | 21.45 | 11.8 |
| Southeast | 74 | 19.84 | 11.8 |
| Total | 373 | 100.00 | 11.08 |

TABLE VI

A SUMMARY OF RESPONDENTS' TENURE IN THEIR PRESENT SCHOOLS BY DISTRICT

| District | Frequency Distribution | | Total |
|-----------|------------------------|--------|-------|
| | Respondents | | |
| | N | % | |
| Northwest | 64 | 17.16 | 8.1 |
| Southwest | 86 | 23.06 | 7.3 |
| Central | 69 | 18.50 | 7.1 |
| Northeast | 80 | 21.45 | 9.3 |
| Southeast | 74 | 19.84 | 8.3 |
| Total | 373 | 100.00 | 8.03 |

present schools by district. In the Northwest District, 64 respondents (17.16 percent) had taught at their present school an average of 8.1 years, 86 respondents (23.06 percent) from the Southwest District had taught at their present school an average of 7.3 years, 69 respondents (18.50 percent) from the Central District had taught at their present school an average of 7.1 years, 80 respondents (21.45 percent) from the Northeast District had taught at their present school an average of 9.3 years, while 74 respondents (19.84 percent) from the Southeast District had taught at their present school an average of 8.3 years. A total of 373 Vo Ag teachers (100.00 percent) responded that they had taught at their present school an average of 8.03 years.

Table VII indicates the distribution of respondents by single or multiple teacher department. There were 257 (68.90 percent) single teacher departments that responded from across the state, with the Southwest District having the most respondents with 60 or 16.09 percent. There were 116 (31.10 percent) multiple teacher departments that responded from across the state, with the Southeast District having the most respondents with 29 or 7.77 percent.

Table VIII indicates the respondents' perceptions of the distribution of the major sources of community income derived by source. Of the total responses, 73 (20.39 percent) and 54 (15.08 percent) responded that 30 to 40 percent of their community's income came from production agriculture. One hundred fifty-five (48.14 percent), 92 (28.57 percent), and 54 (16.77 percent) responded that ten to 30 percent of their community's income came from agriculture business.

Ninety-seven (38.19 percent), 73 (28.74 percent), and 44 (17.32

TABLE VII

A DISTRIBUTION OF RESPONDENTS BY TYPE OF DEPARTMENT

| Type of Department | Frequency Distribution | | | | | | | | | |
|-----------------------|-----------------------------------|-------|-----------------------------------|-------|---------------------------------|-------|------------------------------------|-------|-----------------------------------|-------|
| | Northwest District (N = 68) | | Southwest District (N = 94) | | Central District (N = 89) | | Northeast District (N = 100) | | Southeast District (N = 97) | |
| | N | % | N | % | N | % | N | % | N | % |
| Single Teacher | 53 | 14.21 | 60 | 16.09 | 43 | 11.53 | 56 | 15.01 | 45 | 12.06 |
| Multiple Teacher | 11 | 2.95 | 26 | 6.97 | 26 | 6.97 | 24 | 6.43 | 29 | 7.77 |
| Total | 64 | 17.16 | 86 | 23.06 | 69 | 18.50 | 80 | 21.45 | 74 | 19.84 |

TABLE VIII

RESPONDENTS' PERCEPTIONS OF THE DISTRIBUTION OF THE MAJOR SOURCES
OF COMMUNITY INCOME DERIVED BY SOURCE

| Income Source | Frequency Distribution Percentages of Derived Income | | | | | | | | | | | | | | | | | | | | Total | |
|----------------------|--|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|------|------------|------|------------|------|------------|---|-------------|---|-------|--------|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | N | % |
| | (10%) N | % | (20%) N | % | (30%) N | % | (40%) N | % | (50%) N | % | (60%) N | % | (70%) N | % | (80%) N | % | (90%) N | % | (100%) N | % | | |
| Ag Production | 68 | 19.00 | 55 | 15.36 | 73 | 20.39 | 54 | 15.08 | 45 | 12.57 | 31 | 8.66 | 21 | 5.87 | 12 | 3.35 | - | - | - | - | 358 | 100.00 |
| Ag Business | 155 | 48.14 | 92 | 28.57 | 54 | 16.77 | 16 | 4.97 | 4 | 1.24 | 1 | .31 | - | - | - | - | - | - | - | - | 322 | 100.00 |
| Energy | 97 | 38.19 | 73 | 28.74 | 44 | 17.32 | 17 | 6.69 | 11 | 4.33 | 6 | 2.36 | 3 | 1.18 | 3 | .18 | - | - | - | - | 254 | 100.00 |
| Forestry | 34 | 60.71 | 9 | 16.07 | 2 | 3.57 | 4 | 7.14 | 2 | 3.57 | 4 | 7.14 | - | - | 1 | 1.79 | - | - | - | - | 56 | 100.00 |
| Small Business | 197 | 64.17 | 75 | 24.43 | 26 | 8.47 | 4 | 1.30 | 5 | 1.63 | - | - | - | - | - | - | - | - | - | - | 307 | 100.00 |
| Industry | 100 | 52.36 | 45 | 23.56 | 17 | 8.90 | 22 | 11.52 | 2 | 1.05 | 4 | 2.09 | 1 | .52 | - | - | - | - | - | - | 191 | 100.00 |
| Tourism | 68 | 80.00 | 14 | 16.47 | 1 | 1.18 | 2 | 2.35 | - | - | - | - | - | - | - | - | - | - | - | - | 85 | 100.00 |
| Government | 50 | 72.46 | 12 | 17.39 | 1 | 1.45 | 4 | 5.80 | 1 | 1.45 | 1 | 1.45 | - | - | - | - | - | - | - | - | 69 | 100.00 |
| College & University | 31 | 62.00 | 14 | 28.00 | 1 | 2.00 | 1 | 2.00 | 2 | 4.00 | 1 | 2.00 | - | - | - | - | - | - | - | - | 50 | 100.00 |

percent) responded that ten to 30 percent of their communities' income came from energy and related fields. One hundred ninety-seven (64.17 percent), 75 (24.43 percent), and 26 (8.47 percent) responded that ten to 30 percent of their communities' income came from small business. One hundred (52.36 percent) responded that ten percent of their communities' income came from industry. Forestry, tourism, government, and colleges had only minimal impact on the communities' income because these are regional occupations by nature.

Table IX reveals a summary of respondents' perceptions concerning the identity of SOE income derived by chapter members by selected SOE programs. Forty-five (12.40 percent), 54 (14.88 percent), 50 (13.77 percent), 61 (16.80 percent), and 57 (15.70 percent) responded that 30 to 70 percent of their chapter's SOE income was derived from production agriculture. One hundred thirty-one (50.19 percent) and 78 (29.89 percent) responded that ten to 20 percent of their chapter's SOE income was derived from on-farm placement. One hundred thirty-two (48.53 percent) responded that ten percent of their chapter's SOE income was derived from ownership agriculture business. One hundred fourteen (40.86 percent), 55 (19.71 percent), and 49 (17.56 percent) responded that ten to 30 percent of their chapter's SOE income came from placement in agriculture business. Twelve (4.30 percent) responded that 50 percent of their chapter's SOE income came from placement in agriculture business.

Table X reveals a summary of respondents perceived importance of SOEP's by selected SOE benefits. Responses revealed in Table X indicate that vocational agriculture teachers regarded the benefits of

TABLE IX

A SUMMARY OF RESPONDENTS' PERCEPTIONS CONCERNING THE IDENTITY OF SOE INCOME
 DERIVED BY CHAPTER MEMBERS BY SELECTED SOE PROGRAMS

| Sources of Income | Frequency Distribution Percentage of SOE Income | | | | | | | | | | | | | | | | | | | | Total | |
|--------------------------|--|-------|----|-------|----|-------|----|-------|----|-------|----|-------|----|-------|----|------|----|------|----|------|-------|--------|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Ag Production | 7 | 1.93 | 30 | 8.27 | 45 | 12.40 | 54 | 14.88 | 50 | 13.77 | 61 | 16.80 | 57 | 15.70 | 34 | 9.37 | 18 | 4.96 | 7 | 1.93 | 363 | 100.00 |
| On Farm Placement | 131 | 50.19 | 78 | 28.89 | 31 | 11.38 | 9 | 3.45 | 7 | 2.68 | 4 | 1.53 | 1 | 1.38 | - | - | - | - | - | - | 261 | 100.00 |
| Ag Business | 132 | 48.53 | 73 | 26.84 | 31 | 11.40 | 22 | 8.09 | 6 | 2.21 | 7 | 2.57 | - | - | 1 | .37 | - | - | - | - | 272 | 100.00 |
| Ag Business Placement | 114 | 40.86 | 55 | 19.71 | 49 | 17.56 | 32 | 11.47 | 12 | 4.30 | 11 | 3.94 | 3 | 1.08 | 2 | .72 | 1 | .36 | | | 279 | 100.00 |

TABLE X

A SUMMARY OF RESPONDENTS' PERCEIVED IMPORTANCE OF SUPERVISED OCCUPATIONAL EXPERIENCE PROGRAMS BY SELECTED SOE BENEFITS

| Selected Benefits | Levels of Importance | | | | | | | | | | Total | Mean Response | Category | |
|------------------------|----------------------|------|-----------------------|-------|---------------------|-------|---------------------|-------|--------------------------|-------|-------|---------------|----------|----------------------|
| | (0) No Importance | | (1) Little Importance | | (2) Some Importance | | (3) High Importance | | (4) Very High Importance | | | | | |
| | N | % | N | % | N | % | N | % | N | % | | | | |
| 4 Leadership | 0 | - | 3 | .82 | 32 | 8.74 | 94 | 25.68 | 237 | 64.75 | 366 | 100.00 | 3.54 | Very High Importance |
| Human Relations | 1 | .27 | 5 | 1.37 | 64 | 17.53 | 139 | 38.08 | 156 | 42.74 | 365 | 100.00 | 3.22 | High Importance |
| 40 Skill Development | 0 | - | 3 | .82 | 29 | 7.97 | 100 | 27.48 | 232 | 63.74 | 364 | 100.00 | 3.54 | Very High Importance |
| 5 Career Opportunities | 2 | .55 | 7 | 1.93 | 74 | 20.39 | 145 | 39.94 | 135 | 37.19 | 363 | 100.00 | 3.11 | High Importance |
| 5 Record Keeping | - | - | - | - | 21 | 5.80 | 94 | 25.97 | 247 | 68.23 | 362 | 100.00 | 3.62 | Very High Importance |
| Responsibility | - | - | 1 | .27 | 3 | .82 | 48 | 13.19 | 312 | 85.71 | 364 | 100.00 | 3.43 | High Importance |
| Self-Confidence | 1 | .28 | 1 | .28 | 20 | 5.54 | 109 | 30.19 | 230 | 63.71 | 361 | 100.00 | 3.57 | Very High Importance |
| Positive Attitude | - | - | - | - | 25 | 6.78 | 129 | 34.96 | 215 | 58.27 | 369 | 100.00 | 3.51 | Very High Importance |
| Work Habits | 1 | .27 | 1 | .27 | 12 | 3.25 | 114 | 30.89 | 241 | 65.31 | 369 | 100.00 | 3.61 | Very High Importance |
| Community Support | 3 | .83 | 8 | 2.22 | 57 | 15.79 | 143 | 39.61 | 150 | 41.55 | 361 | 100.00 | 3.19 | High Importance |
| Student Income | 3 | .86 | 29 | 8.17 | 127 | 35.77 | 119 | 33.52 | 77 | 21.69 | 355 | 100.00 | 2.67 | High Importance |
| Other | 1 | 6.25 | 5 | 31.25 | 6 | 37.50 | 2 | 12.50 | 2 | 12.50 | 16 | 100.00 | 1.94 | Some Importance |

improved leadership, human relations, skill development, career opportunity, record keeping, responsibility, self confidence, positive attitude, work habits, community support, and student income of "high" or "very high importance", with a mean response that ranged from 2.67 to 3.62.

Table XI reveals an estimate of the percentage of student SOE income spent by geographic area. Seventy-two, 107, and 135 or 86 percent responded respectively that 40 to 100 percent of their students' SOE income was spent within their local community. One hundred ten, 109 and 64 or 87 percent responded respectively that zero to 60 percent of their students' SOE income was spent outside their community, but inside the state. One hundred twenty-three or 84 percent of their students' SOE income was spent out of the State of Oklahoma.

Table XII reveals a summary of the importance of student SOE income to the economics of local communities by district. The responses in Table XII reveal that all five districts considered student SOE income, with mean responses ranging from 1.89 to 2.22, to be of "some importance" to the economics of their community. Three hundred twenty-three (323) responses or 87 percent of the responses fell in the category of "little importance", "some importance" or "important".

Table XIII reveals a summary of respondents' perceptions as to the impact of lost SOE income from local communities by district. The responses gathered from Table XIII reveal that all five districts considered the loss of student SOE income to be of "high impact", with mean responses ranging from 2.51 to 2.97, to the economy of their community. Three hundred twenty-five (325) or 88 percent of all

TABLE XI

AN ESTIMATE OF THE PERCENTAGE OF STUDENT SOE INCOME
SPENT BY GEOGRAPHIC AREA

| Geographic Area | Frequency Distribution | | | | | | | | | | Total | |
|------------------------|------------------------|-------|----------|-------|----------|-------|----------|-------|-----------|-------|-------|--------|
| | 1 | | 2 | | 3 | | 4 | | 5 | | | |
| | (0-19%) | | (20-39%) | | (40-59%) | | (60-79%) | | (80-100%) | | N | % |
| Within School District | 18 | 4.93 | 33 | 9.04 | 72 | 19.73 | 107 | 29.32 | 135 | 36.99 | 365 | 100.00 |
| Within State | 110 | 33.85 | 109 | 33.54 | 64 | 19.69 | 34 | 10.46 | 8 | 2.46 | 325 | 100.00 |
| Outside State | 123 | 84.25 | 14 | 9.59 | 8 | 5.48 | 1 | 1.68 | - | - | 146 | 100.00 |

TABLE XII

A SUMMARY OF THE IMPORTANCE OF STUDENT SOE INCOME TO THE ECONOMIES OF LOCAL COMMUNITIES BY DISTRICT

| District | Levels of Importance | | | | | | | | | | Mean Response | Category | | |
|-----------|-------------------------|------|-----------------------------|-------|---------------------------|-------|---------------------------|-------|--------------------------------|-------|---------------|----------|-------|-----------------|
| | (0) No Importance | | (1) Little Importance | | (2) Some Importance | | (3) High Importance | | (4) Very High Importance | | | | Total | |
| | N | % | N | % | N | % | N | % | N | % | | | N | % |
| Northwest | 4 | 6.35 | 9 | 14.29 | 23 | 36.51 | 23 | 36.51 | 4 | 6.35 | 63 | 100.00 | 2.22 | Some Importance |
| Southwest | 4 | 5.88 | 16 | 23.53 | 26 | 38.24 | 17 | 25.00 | 5 | 7.35 | 68 | 100.00 | 2.04 | Some Importance |
| Central | 2 | 2.27 | 23 | 26.14 | 30 | 34.09 | 23 | 26.14 | 10 | 11.36 | 88 | 100.00 | 2.18 | Some Importance |
| Northeast | 2 | 2.50 | 31 | 38.75 | 27 | 33.75 | 14 | 17.50 | 6 | 7.50 | 80 | 100.00 | 1.89 | Some Importance |
| Southeast | 1 | 1.41 | 18 | 25.35 | 27 | 38.03 | 16 | 22.54 | 9 | 12.68 | 71 | 100.00 | 2.20 | Some Importance |
| Total | 13 | 3.51 | 97 | 26.22 | 133 | 35.95 | 93 | 25.14 | 34 | 9.18 | 370 | | | |

TABLE XIII

A SUMMARY OF RESPONDENTS' PERCEPTIONS AS TO THE IMPACT OF
LOST SOE INCOME FROM LOCAL COMMUNITIES BY DISTRICT

| District | Levels of Importance | | | | | | | | | | Total | Mean Response | Category | |
|-----------|----------------------|------|-------------------------|-------|-----------------------|-------|-----------------------|-------|----------------------------|-------|-------|------------------|----------|-------------|
| | (0) No Impact | | (1) Little Impact | | (2) Some Impact | | (3) High Impact | | (4) Very High Impact | | | | | |
| | N | % | N | % | N | % | N | % | N | % | | | | |
| Northwest | 2 | 3.17 | 2 | 3.17 | 13 | 20.63 | 29 | 46.03 | 17 | 26.98 | 63 | 100.00 | 2.90 | High Impact |
| Southwest | 2 | 2.94 | 7 | 10.29 | 23 | 33.83 | 19 | 27.94 | 17 | 25.00 | 68 | 100.00 | 2.62 | High Impact |
| Central | 1 | 1.14 | 10 | 11.36 | 18 | 20.45 | 37 | 42.05 | 22 | 25.00 | 88 | 100.00 | 2.78 | High Impact |
| Northeast | 1 | 1.25 | 13 | 16.25 | 30 | 37.50 | 16 | 20.00 | 20 | 25.00 | 80 | 100.00 | 2.51 | High Impact |
| Southeast | - | - | 5 | 7.25 | 21 | 30.43 | 14 | 20.29 | 29 | 42.03 | 69 | 100.00 | 2.97 | High Impact |
| Total | 6 | 1.63 | 37 | 10.05 | 105 | 28.53 | 115 | 31.25 | 105 | 28.53 | 368 | 100.00 | | |

responses fell within the category of "some impact", "high impact", or "very high impact".

Table XIV summarizes student net income as reported on the Final All Day Report. The ranges in net income were \$1,153,475.11 for the Northwest District to \$1,796,820.64 for the Northeast District, with the average net income for the state being \$1,488,239.75. Total net income for the entire state was \$7,441,198.78 which averaged \$338.25 per FFA member. Table XIV also shows that the Northeast District had the highest percentage of the state's SOE net income with 24.15 percent. The Northwest District had the lowest percentage with 15.50 percent of the State's SOE net income. The Southwest, Central, and Northwest Districts were all above the state average for SOE net income, while the Northwest and Southeast Districts were below the state average for SOE net income.

Table XV reveals a summary of the multiplier effects in the agriculture sector with regard to student SOE income by district. The income multiplier, interpolated from the multiplier effects in Table III of OSU Extension Fact Sheet No. 821(1) [Appendix B], of 1.9 was multiplied by the aggregate of each districts' student SOE net income. The results shown in Table XV indicates a per dollar impact of 1.9 times on the economy with in communities of the five respective supervisory districts. The multiplier effect for net labor income from student supervised experience programs ranged in economic impact from \$2,196,602.70 within communities of the Northwest District to \$3,413,959.10 within communities of the Northeast District. The

TABLE XIV

A SUMMARY OF STUDENT SOE INCOME DISTRIBUTION AS A PROPORTION
OF THE STATE TOTAL BY DISTRICT

| District | Proportion of Net SOE Income | | |
|-------------|------------------------------|--|---|
| | SOE Net Income | Percent (%) of Total Net SOE Income | Percent (%) Above or Below State Average |
| Northwest | \$1,153,475.11 | 15.50 | -22.49 |
| Southwest | \$1,545,114.54 | 20.76 | + 3.82 |
| Central | \$1,679,533.70 | 22.57 | +12.85 |
| Southeast | \$1,266,254.79 | 17.02 | -14.92 |
| Northeast | \$1,796,820.64 | 24.15 | +20.73 |
| State Total | \$7,441,198.78 | 100.00 | |

State Average Net SOE Income: \bar{X} = \$1,488,239.75

Average Net SOE Income Per FFA Member: \bar{X} = \$388.25

*19,166 Oklahoma FFA Members

Source: Final Report Agricultural Education Supervised Occupational Experience Program.
Stillwater, OK: Oklahoma State Department of Vocational-Technical Education, 1987.

TABLE XV

A SUMMARY OF MULTIPLIER EFFECTS IN THE AGRICULTURE SECTOR WITH
REGARD TO STUDENT SOE INCOME BY DISTRICT

| District | Economic Sector | Income Multiplier* | SOE Net Income** | Multiplier Effect |
|-------------|-----------------|--------------------|---------------------|-------------------|
| Northwest | Agriculture | 1.90 | \$1,153,475.11 | \$ 2,191,602.70 |
| Southwest | Agriculture | 1.90 | \$1,545,114.54 | \$ 2,935,717.60 |
| Central | Agriculture | 1.90 | \$1,679,533.70 | \$ 3,191,114.00 |
| Southwest | Agriculture | 1.90 | \$1,266,254.79 | \$ 2,405,883.90 |
| Northeast | Agriculture | 1.90 | \$1,796,820.64 | \$ 3,413,959.10 |
| State Total | Agriculture | 1.90 | \$7,441,198.78 | \$14,138,278.00 |

Sources: *Dean F. Schreiner, Vorawoot Hirunruk, and Chaipant Pongtanakorn. "Input-Output Multipliers for Oklahoma." Research Report P-857 (October 1984), Stillwater, OK: Oklahoma State University, Agriculture Experiment Station.

**Final Report Agricultural Education Supervised Occupational Experience Program. Stillwater, OK: Oklahoma State Department of Vocational-Technical Education, 1987.

economic impact state-wide across the 372 communities with Vo Ag programs was measured at \$14,138,278.00.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this chapter is to present a summary of the study which was conducted to determine the perceptions of instructors in vocational agriculture as to the economic impact of their students' Supervised Occupational Experience Programs (SOEP) within the local community. Major findings, conclusions, and recommendations concerning the impact of SOE income within Oklahoma communities was based upon a detailed inspection and analysis of data.

Purpose of the Study

The purpose of this study is to assess the perceived importance of the economic impact of vocational agriculture SOEP's within Oklahoma communities.

Objectives of the Study

In order to accomplish the purpose of this study, the following objectives were set forth.

1. To ascertain selected demographic characteristics of the vocational agriculture teachers who were obligated to an Oklahoma public school contract.

2. To determine the perceived importance of selected benefits from Supervised Occupational Experience Programs in vocational agriculture.
3. To determine the economic impact of SOE income as perceived by Oklahoma Vocational Agriculture teachers on their communities.
4. To determine the SOE income of students enrolled in Oklahoma vocational agriculture programs as reported on the "Final All Day Report".
5. To determine the multiplier effect SOE income has within Oklahoma communities.
6. To determine the economic impact within Oklahoma communities by district utilizing the income multipliers derived from sub-state planning districts and the net SOE income ascertained from Final All Day reports.

Rationale (For Design and Conduct of the Study)

The objective of the study was to determine the teachers' perceptions of the importance and impact of SOE income within their local communities as well as a measure of economic impact. The data was collected by a questionnaire method. State Vo Ag district supervisors assisted with the data collection during monthly Professional Improvement (PI) meetings in January and February, 1988. The 448 teachers in each of the 24 Professional Improvement groups were given the opportunity to participate in the study. Three hundred seventy-three (83.26 percent) teachers responded to the survey. Since all teachers had the opportunity to complete a questionnaire, the study was basically one of describing the teachers' perceptions of the impact

of SOE income in their own community. Frequency distributions, percentages and arithmetic means were the descriptive statistics utilized to describe the data.

In addition to the questionnaire used to secure data concerning the teachers' perceptions, an extensive review of literature was conducted as well as several personal interviews (2 & 11) with members of the Oklahoma State University Agricultural Economics Rural Development staff. Furthermore, additional data for the study included (a) net student SOE income derived from Supervised Training Program Summaries [Final All-Day Report, 1987 calendar year] (15) and (b) income multiplier factors (1) determined for sub-state planning districts and the agriculture sector. These factors were interpolated through the use of income multiplier tables obtained through the "Projection and Analyses of the Economics of Sub-State Planning Districts in Oklahoma" (1) and assistance from the agricultural economics faculty.

After collecting and treating the information, the data were summarized in the findings by district. It was concluded that the methodology and procedures utilized were statistically sound since the purpose of the study was to describe the teachers' perceptions regarding the importance and impact of SOE income. In addition, the respondents were considered as the population since all teachers were provided an opportunity to participate. A follow-up of nonrespondents was not conducted since all teachers attended their respective monthly Professional Improvement (PI) meeting to complete the survey and as each had the opportunity.

In comparing the teachers' perceptions with the findings of the

literature review and interpolation of the income multiplier tables, it was believed that the teachers' perceptions were quite accurate. With regard to this rationale for the design and conduct of the study, it was further concluded that the design and methodology allowed the opportunity to assess a realistic measure of economic impact by district.

It was anticipated, since this was part of a regional study, that interested readers would ask, "Why was a sampling of perceptions from other states surrounding Oklahoma not conducted?" To respond as accurately as possible to the presupposition: (1) the assignments made during the 1987 Western Region AATEA Research meetings at Ogden, Utah were made on a voluntary basis and each state had the opportunity to conduct studies on all or any portion of the research meeting's theme, which was "Impact of the Vo Ag Program on the Community" and (2) few studies, if any concerning agricultural education programs, had been conducted to measure economic impact. Since this was a relatively new endeavor, it was the rationale of the graduate committee that a study such as this should be conducted as a two-phase effort with the first phase being on a state by state basis. Therefore, Phase II of the effort would include a sampling of teacher perceptions from surrounding states as well as reviewing the literature to determine income multipliers and summaries of student SOE income from other state departments of vocational agriculture. The next phase of a regional study of this magnitude, would allow generalizations to be inferred since measures of the economic impact of agriculture on communities in other states of the region could be compared back to the base line study.

Major Findings of the Study

The major findings in this study were grouped into three sections. The findings were as follows:

1. Teacher Demographics
2. Teacher perceptions of the importance and impact of SOE income within their communities by district
3. Measures of Economic Impact

Teacher Demographics

Major findings revealed that teachers were relatively a young group, with an average age of 34.09 years. In addition, the teachers as a group had an average of 11.08 years teaching experience, while having an average tenure in their present school of 8.03 years. Furthermore, 31.1 percent were teaching in multiple teacher programs, while 68.9 percent taught in single teacher programs.

Teacher Perceptions

Community Sources of Income. Major sources of income identified in the respondents' communities were agriculture production, agriculture business, small business, and energy. The highest percentage identified among the major sources of income was perceived as agriculture production with 50 percent of the community's income. While colleges and universities were perceived as generating the smallest percentage among the respondents' communities. A more important finding was that 21.16 percent of the respondents perceived that production agriculture was the single largest source of community

income, followed by agribusiness with 19.03 percent, small business with 18.14 percent, and energy with 15.01 percent, while industry ranked fifth among teacher perceptions as a source of community income.

Sources of SOE Income. The major sources of student SOE income as perceived by teacher respondents included agriculture production, ag business placement, ag business ownership, and on-farm placement, respectively. A major finding was that 10.04 percent of teacher respondents perceived that agriculture production generated 60 to 70 percent of the students' SOE income, while only 2.23 percent of the teacher respondents in the three remaining areas combined perceived that on-farm placement, ag business ownership, and ag business placement generated 60 to 70 percent of students' SOE income.

Selected Benefits of Supervised Occupational Experience Programs. Record keeping, work habits, self confidence, skill development, leadership, and positive attitude were all perceived by teacher respondents to be of "very high importance" with regard to selected benefits of SOE programs, while responsibility, human relations, community support, and career opportunities were seen as being "highly important". A rather interesting finding was the teachers' perceptions of income from their students' own SOE programs. They rated student SOE income as "highly important" with a 2.67 mean score, however, SOE income as a level of importance received the next to the lowest mean score for selected SOE benefits.

Expenditure of Students' SOE Income. Over 28 percent of the the respondents perceived that from 60 to 100 percent of the students' SOE income was spent within the students' community, while slightly

over five percent indicated that they felt 60 to 100 percent of student SOE income was spent within the state, but outside the community. However, approximately 15 percent of the teacher respondents felt that less than 20 percent of student SOE income was spent outside of the state.

Importance of Students' SOE Income to the Community. By and large, most of the teacher respondents indicated that student SOE income was perceived as only of "some importance" to their local community's economy. An interesting finding was that the Southeast district had the most teacher respondents, with nine indicating that students SOE income was "very important" to their community's local economy, while the Northwest district, which is highly "ag" oriented, had only five teachers which perceived that student SOE income was "very important" to their local economy.

Impact of Lost SOE Income. Even though teacher respondents perceived student SOE income as being of only "some importance", a clear majority of 220 teachers, out of a possible 368 teacher respondents, perceived that the impact of lost SOE income from their local communities would have a "high" to a "very high impact" on local economies. It was also interesting to note that the mean responses from the Southeast district and Northeast district were very similar, similar, being 2.97 and 2.92, respectively.

Measures of Economic Impact

Proportion of Net SOE Income. It was surprising to find that Table XIII reveals that almost one-fourth of the state's FFA net SOE income was comprised of student SOE income from the Northeast District

TABLE XVI

STATE INCOME FROM OKLAHOMA AGRICULTURE*

| Income | Percentage |
|--|------------|
| Direct Agricultural Income as a Percentage of Total Income | 9.0 |
| Income Attributable to Agriculture as a Percentage of Total Income | 31.0 |

Source: *Data reported by Dean F. Schriener and James F. Chang.
"Projection and Analyses of the Economies of Sub-State
Planning Districts in Oklahoma," Ozarks Regional Commission
Publication (May 1975). Table is reprinted from OSU Fact
Sheet No. 826(9), June, 1982.

with 24.15 percent of the state's total (\$7,441,198.78). Over two-thirds of the state's total student SOE was generated in the Northeast, Central, and Southwest Districts with 24.15, 22.57, and 20.76 percent, respectively. Another finding of equal interest was the proportion of which net student SOE income in the Northwest District was below the state average ($\bar{X} = \$1,488,239.75$). In addition, Table XIII shows a net SOE income of \$388.25 per member for the 19,166 Oklahoma FFA members.

Multiplier Effects in Agriculture. As shown in Table XIV, interpolation of income multipliers across sub-state planning districts with inferences made back to the Vo Ag Supervisory District for the agriculture sector was determined to be 1.90. Schriener (11), earlier in a personal interview, stated "An income multiplier of 1.90 would be representative of income multipliers for student SOE income from agriculture across sub-state planning districts" (Figure 2). The total net student SOE income from all five supervisory districts shown in Table XIV was \$7,441,198.78. Interpolation of an income multiplier of 1.90 (11) across the state for student SOE income and applying the multiplier to the direct effects of this particular sector of the agricultural industry yielded a projected total income of \$14,138,278.00 ($\$7,441,198.78 \times 1.9$).

Nelson (9) stated

Agriculture output accounts for only 4% of the total goods and services in the State of Oklahoma. However, 13% of the state's output can be attributed to agriculture as a basic sector (p. 826.2).

In addition, Table XVI (13) reveals that, in Oklahoma, nine percent of the income is directly from agriculture, while 21 percent of

the state's income can be attributable to agriculture. Nelson (9) further stated in a more detailed explanation of this particular table that, "Oklahoma's income attributable to direct and induced effects of agriculture represents 20% of the state's income" (p. 826.2). An important finding in this regard means that, given a 150 million bushel wheat crop, a ten-cent-per-bushel change in seasonal average price causes a projected change of approximately \$28,500,000 using the interpolated income multiplier of 1.9 for student SOE income.

Conclusions

Based on the major findings and interpretation of the data reported by the respondents and interpolations of income multiplier tables and the supervised training program summaries contained in the review of literature of this study, the following conclusions were drawn:

Demographic Characteristics

1. Based upon the major findings regarding demographic characteristics, it is apparent that the teaching corps in vocational agriculture is rather young.
2. Since the teaching corps in vocational agriculture is relatively young, it can be further concluded that their years of experience in the profession would be rather small, while at the same time, these teachers seemed satisfied to remain in the communities and school districts in which they began their teaching careers.
3. It was readily apparent that most Oklahoma vocational

agriculture instructors teach in small communities with single teacher departments.

Teacher Perceptions

1. Based upon the major findings regarding the teachers' perceptions, it was concluded that the major sources of community income in Oklahoma were derived primarily from production agriculture, agribusiness, small business and energy.

2. Based upon the major findings, the most popular SOE programs with the students seemed to be ownership-type production agriculture programs.

3. Therefore, it was further concluded from the major findings that teachers seem to be more successful in cultivating student interest in SOE programs that pertain to ownership-type production agriculture programs.

(a) However, even though progress has been made in involving students in Ag Business "placement and ownership" programs, it was apparent that little visibility or income was derived from student SOE's in "on farm placement."

4. In addition, it was concluded that the largest portion of SOE income was derived from ownership production agriculture and placement in agribusiness programs.

5. It was evident from the major findings that the teachers perceived the selected benefits of SOE programs more favorably in the terms of work habits, leadership, skill development, record keeping and the development of self confidence among their students.

6. Therefore, it appeared that the teacher respondents did not

perceive the importance of student SOE income as a primary goal.

7. In addition, it can be further concluded that there appeared to be little notable difference in teacher perceptions by district with regard to the importance of student SOE income.

8. Based upon the major findings, it seems that most high school vocational agriculture students spend the income derived from SOE programs in their local communities.

9. It was apparent that the teacher respondents believed that the loss of SOE income from their communities would have a "high impact" on local economies.

10. It was further evident that even though teachers saw SOE income as being of "some importance", they also had the belief that it had a "high impact" on local economies.

Economic Impact

1. Based upon the major findings and the literature review regarding economic impact, it was concluded that multiplier analysis was useful in determining the impact of income on an economy, as well as the change caused by external/internal forces or decisions regarding new innovations or ideas that concern either agriculture or business.

2. The total impact of agriculture on an economy includes direct, indirect, and induced impacts. Therefore, it was concluded that if agriculture was important to Oklahoma, it could be further concluded that revenues derived from student SOE programs have a positive impact on the economies of local communities.

3. It was concluded that an industry's output may be a relatively minor factor in its perceived importance to local economies, however,

local income and employment generated by an industry may be much more of a significant factor.

4. According to the major findings and the review of literature, agriculture and student SOE income are definitely of significant importance statewide, but it does not approach other areas of economic activity to the degree that it does in the Northeast, Central and Southwest areas of the state.

5. Based upon the review of literature, personal interviews and major findings, it was concluded that district multipliers were smaller than state multipliers due to economies of scale and linkages that exist with regard to the availability of venture capital and markets.

6. Even though multiplier analyses were useful to determine the total impact on an economy, to the extent that change caused by some external force had a measurable influence on local communities, it was concluded that the analysis does not determine whether agriculture student SOE enterprises will be profitable to the participants or beneficial to their local communities.

Recommendations

As a result of the conclusions drawn from the findings and interpretations of data, the following recommendations were outlined:

1. Based upon the conclusion that the major sources of community revenues were derived from production agriculture, agribusiness, small business and energy, it was recommended that teachers conduct "well rounded" programs and encourage their students to develop a wide range of skills and competencies as well as becoming involved in supervised

entrepreneurial or occupational placement programs that lead to gainful employment.

2. Based upon the conclusion that the teachers' perceptions of selected SOE benefits derived by students were beneficial, it was recommended that teachers specifically pay close attention to the development of work habits, self confidence, leadership, and record keeping skills among their students.

3. Based upon the conclusion of how teachers perceive the importance of SOE income, it was recommended that they continue to stress the value of their students becoming productive citizens in society.

4. Teachers should encourage their students who are conducting supervised experience programs to trade with local businesses whenever possible.

5. Based upon the conclusion that teacher respondents believed that the loss of SOE income from their community would have a "high impact" on their local economy, it was recommended that teachers encourage students to participate in ownership and/or occupational placement programs from for which employment skills can be developed and income derived.

6. Based upon the conclusion that multiplier analysis is useful in determining economic impact, it was recommended that teacher respondents encourage an awareness among students, school administrators, community leaders, and citizens concerning economic literacy and the impact of agriculture as well as the value of attracting new entrepreneurs to their communities.

7. Based upon the conclusion that agriculture is important to

Oklahoma and that student income derived from SOE programs has a positive impact on local economies, it was recommended that teacher respondents and community leaders make local citizens aware of the importance of agriculture to firms from which purchases are made by individuals whose employment and income are attributable to agriculture.

8. In addition, it should be further recommended that local school districts continue providing educational programs which involve students conducting "trial runs" in an area of agricultural interest, which is supervised by a teacher of vocational agriculture.

Recommendations for Additional Research

The following recommendations were made by the author based upon the findings of the study and his personal judgment resulting from conducting the study:

1. A case study should be conducted in selected Oklahoma communities to determine the specific economic impact of income derived from student SOE programs in vocational agriculture on the local economy.

2. Phase II of the base line study be conducted to include teacher perceptions and the acquisition of students' supervised training summaries and multiplier effects from other states in the Western region.

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APPENDIXES

APPENDIX A

FFA SOE IMPACT SURVEY

Name _____ School _____

(01) 1. District: NW 1 SW 2 C 3 SE 4 NE 5

(02-03) 2. Age: _____

(04-05) 3. Years of Teaching Experience: _____

(06-07) 4. Tenure in Present School: _____

(08) 5. Type of Department:

Single Teacher 1 Multiple Teacher 2

INSTRUCTIONS: ITEMS 6 & 7 - The sum of all circled responses should total 100%

Example:

| | | | | | | | | | | | |
|---------------------------|---|----|----|----|----|----|----|----|----|----|------|
| Ag Production (Ownership) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| On-Farm Placement | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| Agribusiness | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| Placement in Ag | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| Total 100% | | | | | | | | | | | |

6. Identify the major sources of income to your community by circling the percentage derived from each source. (Circle one for each source)

| | <u>0</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10</u> |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| (09-10) Agriculture Production | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (11-12) Agribusiness | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (13-14) Energy (oil, gas, & coal) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (15-16) Forest/Forest Products | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (17-18) Small Business | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (19-20) Industry | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (21-22) Tourism | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (23-24) Government Grants and Contracts | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (25-26) Colleges and Universities | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |

Total 100%

7. Identify sources of income derived by your chapter's members from their SOE programs by circling the percentage from the selected SOE areas listed below. (Circle one for each source)

| | <u>0</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10</u> |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| (27-28) Agriculture Production (Ownership) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (29-30) On-Farm Placement | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (31-32) Agribusiness (Ownership) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| (33-34) Placement in Agribusiness | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100% |
| Total 100% | | | | | | | | | | | |

8. Rate the following selected benefits of SOE by perceived importance (On a scale of 0-4, with 0 = no importance, 1 = little importance, 2 = some importance, 3 = high importance, 4 = very high importance):

- (35) a. Leadership
 (36) b. Human Relations
 (37) c. Skill Development
 (38) d. Career Opportunity
 (39) e. Record Keeping
 (40) f. Responsibility
 (41) g. Self Confidence
 (42) h. Positive Attitude
 (43) i. Work Habits
 (44) j. Community Support
 (45) k. Student Income
 (46) l. Other (Specify) _____

9. Estimate the percentage of your students' SOE income that is spent in the following designated areas. (Consider total student FFA membership)
Total 100%

- (47-48) a. Within your school district
 (49-50) b. Within the state (but outside your school district)
 (51-52) c. Outside the state

10. How important is your student's SOE income to the economy of your community? (Check one below)

- (53) a. No Importance
 (54) b. Little Importance
 (55) c. Some Importance
 (56) d. Important
 (57) e. Very Important

11. In your opinion, what would be the impact, on the economy of your community if voag was taken out of the local high school and SOE income was lost. (Check one below)

- (58) a. No Impact
 (59) b. Little Impact
 (60) c. Some Impact
 (61) d. High Impact
 (62) e. Very High Impact

APPENDIX B

OSU EXTENSION FACT SHEET NO. 821

Multipliers of Agriculture and Other Industries

OSU Extension Facts

No. 821

Published by Oklahoma State University Distributed Through County Extension Offices

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What will be the economic impact of a proposed project? What will be the total regional impact on income and employment resulting from the establishment of a new plant? What type of industry, if established, will create the most economic activity? These are questions which are difficult to answer, but leaders in business and government require such information for purposes of evaluating how various projects and programs will effect the economic activity in a region.

Leaders are asking for information on the different abilities of various industries to generate new jobs. Decision makers need to know how the available resources in a region can best be used for further development and economic growth.

These and similar types of questions constantly face Oklahoma businessmen and government leaders. Before expanding their facilities, businessmen attempt to evaluate the demand for increased production of goods and services. Others in the region are interested in the impact that new or expanded industries will have on their businesses. Those who finance a new plant in an area want to know the impact the new facility will have on the economic activity of the area.

Information is needed to measure a decline in economic activity as well as an increase. For example, what will be the effect on the economy if a plant or army base were to close its doors? Employment and income would directly decline by the size of the employed labor force and payroll of the closed plant. Other businesses in the region however, would also feel the effects as lesser amounts of their goods and services would be demanded.

A measure is needed that yields the effects created by an increase or decrease in economic activity. In economics, the measure that yields this information is called the multiplier effect.

Multiplier Effect

The multiplier effect indicates the relationship between some observed change in the economy and the amount of economic activity that this change creates throughout the economy. For example, suppose the region has an income multiplier of 2.8 and a new plant puts \$1,000,000 worth of income into the hands of those operating and those employed by the firm. The multiplier effect indicates that this initial increase in income will swell to \$2,800,000 worth of income as the secondary repercussions are felt throughout the region's economy.

Multipliers for various types of industrial activity are expected to differ. The industrial activity of an area can be classified into three broad categories. First are the basic industries such as farming, mining, and forestry. These industries depend and are directly related to the natural resources of the region. Second are the industries which process the raw materials of the basic industries. Industries in this category include flour mills, oil refining, livestock processing, etc. The third stage industries arise to meet the needs of the other industries and include businesses such as wholesale and retail stores, transportation, communication, etc.

The multipliers of the service-type sectors are expected to be smaller than the other sectors. Business in the service-type industries depends directly on activity in the basic and processing industries.

The multiplier effects are computed for employment and income. If employment is increased or decreased, the employment multiplier indicates how this change will affect the rest of the economy. Similarly, the income multiplier measures the change in income that is created by some increase or decrease in the economy.

A recent study has been completed which measures the employment and income multipliers for the basic industries, the processing industries and the service-type industries. The multipliers were derived for the state as well as for each sub-state planning district within the state.

The State Analysis

The analysis conducted on the Oklahoma economy consisted of dividing the economic activity into 20 sectors. These included three primary resource sectors, eight manufacturing sectors, and nine service sectors (Table 1).

Data were obtained for each sector and were arranged in a mathematical model which represented the trading pattern of the economy. By applying certain mathematical techniques to the model, income and employment multipliers were obtained.

Employment Multipliers

Employment multipliers for the State are presented in Table 1. The employment multiplier is defined as the Total change in employment due to a one unit change in the labor force in a specific sector. As an example, the employment multiplier for food products for the State is 4.60. This means that if a new food products manufacturing plant is established in Oklahoma employing 100, the total employment impact for the State will be 460 including the new plant's labor

force. The total employment impact assumes new additional output for all interdependent sectors. If the new plant processes agricultural products already produced in the State, the total employment impact will be somewhat less than 460.

The employment multipliers in agriculture are 2.05 and 2.23 for the livestock and crop sectors, respectively. Mining has a multiplier of 2.66. Employment multipliers range from 1.45 to 10.94 for the manufacturing sectors. The petroleum products and food products sectors have the largest multipliers. Both multipliers assume new production of basic agricultural and mining products. The range of the employment multipliers in the service sectors is from 1.65 for medical and professional services to 3.08 for construction.

Income Multipliers

Income multipliers for the State are presented in Table 1. The income multiplier measures the total change in personal income resulting throughout the economy from a one dollar change in income in a sector. As an example, the income multiplier for food products for the State is 3.81 indicating the income change for that sector and all interdependent sectors.

The income multiplier for the livestock sector is 2.77, for the crop sector is 3.08 and for mining is 2.63. In the manufacturing sectors again the petroleum products sector and the food products sector have the largest multipliers. The multipliers for the other manufacturing sectors range from 2.04 to 3.00. The range in income multipliers for the service sectors is from 1.99 to 3.49.

Table 1. Employment and Income Multipliers By Sector for Oklahoma

| Sectors in Oklahoma Economy | Employment Multiplier | Income Multiplier |
|---|-----------------------|-------------------|
| Primary Resource Sectors | | |
| 1. Livestock and Products | 2.05 | 2.77 |
| 2. Crops and Forestry | 2.23 | 3.08 |
| 3. Mining | 2.66 | 2.63 |
| Manufacturing | | |
| 4. Food Products | 4.60 | 3.81 |
| 5. Textiles and Apparel | 1.45 | 2.04 |
| 6. Lumber, Wood and Furniture | 2.13 | 2.13 |
| 7. Printing and Publishing | 2.29 | 2.16 |
| 8. Petroleum Products | 10.94 | 7.73 |
| 9. Machinery | 2.40 | 2.15 |
| 10. Transportation Equipment | 2.97 | 3.00 |
| 11. Other Manufacturing | 2.67 | 2.45 |
| Services | | |
| 12. Construction | 3.08 | 2.50 |
| 13. Transportation and Warehousing | 2.86 | 2.27 |
| 14. Communication and Utilities | 3.49 | 2.65 |
| 15. Wholesale and Retail Trade | 1.95 | 2.03 |
| 16. Finance, Insurance and Real Estate | 3.22 | 2.87 |
| 17. Business and Personnel Services | 2.51 | 2.19 |
| 18. Medical and Professional Services | 1.65 | 2.01 |
| 19. Federal Government Enterprises | 2.27 | 1.99 |
| 20. State and Local Government Enterprise | 2.94 | 3.49 |

Source: Dean F. Schreiner and James C. Chang, *Structure and Analysis of the Economies of Substate Planning Districts in Oklahoma*. Ozarks Regional Commission Publication, May 1975.

An Analysis By Sub-State Planning Districts

The employment and income multipliers presented above apply to the entire state and are extremely useful for state analysis. However, many people are concerned about the effect of industrialization on a sub-state, regional basis. As part of the study, employment and income multipliers were derived for the 11 sub-state planning districts in Oklahoma. Figure 1 delineates the boundaries of each planning district.

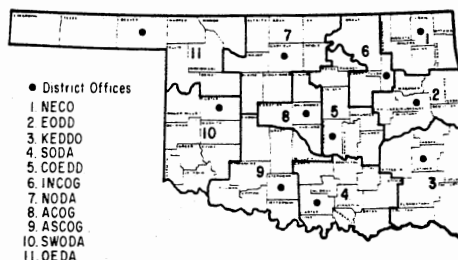


Figure 1. Oklahoma Sub-State Planning Districts

District Employment Multipliers

Multipliers for the 11 planning districts are presented in Table 2. When one compares the multipliers for the state with those of the planning districts, one should note that in general the State multipliers are larger. That is because the State has fewer leakages from the economic system than the planning districts. Some planning districts frequently supply certain of the required inputs from other planning districts, thus reducing the local impact of a change in sector output. For the state, trade among planning districts is netted out and does not appear as a leakage in the multiplier.

District Income Multipliers

Income multipliers for each planning district are presented in Table 3. Each multiplier indicates the amount of income generated in that district from a

one dollar increase in direct income for a given sector. Again the district multipliers are smaller than the State multipliers due to leakages between districts.

Summary

Multiplier analysis is useful to determine the total impact on an economy, state or substate region, of some change caused by an external force or decision such as location of a new business or government facility. The analysis *does not* determine whether location of the facility is profitable to the investors nor whether the impact of the facility is beneficial to the local community.

Additional analyses are needed to determine the net benefits derived by private and public sectors of the state and or local community (See OSU Bulletin B-715, Ron E. Schaffer and Luther G. Tweeten).

Table 2. Employment Multipliers By Sector and Planning District in Oklahoma.

| Sector | Plan- ning Dis- trict 1 | Plan- ning Dis- trict 2 | Plan- ning Dis- trict 3 | Plan- ning Dis- trict 4 | Plan- ning Dis- trict 5 | Plan- ning Dis- trict 6 | Plan- ning Dis- trict 7 | Plan- ning Dis- trict 8 | Plan- ning Dis- trict 9 | Plan- ning Dis- trict 10 | Plan- ning Dis- trict 11 |
|---------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| Livestock and Products | 1.50 | 1.55 | 1.42 | 1.56 | 1.54 | 1.43 | 1.92 | 1.48 | 1.71 | 1.90 | 1.78 |
| Crops and Forestry | 1.55 | 1.54 | 1.43 | 1.57 | 1.58 | 1.64 | 1.90 | 1.68 | 1.66 | 1.87 | 1.73 |
| Mining | 1.27 | 2.23 | 1.48 | 3.13 | 2.74 | 1.58 | 3.09 | 1.59 | 2.96 | 2.86 | 3.26 |
| Food Products | 4.08 | 3.59 | 3.42 | 3.77 | 3.68 | 2.89 | 3.26 | 2.56 | 2.98 | 3.13 | 2.48 |
| Textiles and Apparel | 1.26 | 1.31 | 1.25 | 1.29 | 1.38 | 1.27 | 1.48 | 1.23 | 1.23 | — | 1.22 |
| Lumber, Wood and Furniture | 1.51 | 1.74 | 1.68 | 1.62 | 1.56 | 1.62 | 1.52 | 1.55 | 1.45 | 1.39 | 1.35 |
| Printing and Publishing | 1.63 | 1.83 | 1.63 | 1.71 | 1.74 | 1.78 | 1.63 | 1.68 | 1.51 | 1.50 | 1.43 |
| Petroleum Products | 9.44 | 7.13 | 5.69 | 5.79 | 6.63 | 7.15 | 4.70 | 7.80 | 5.03 | — | — |
| Machinery | 1.87 | 1.90 | 1.66 | 1.80 | 1.86 | 1.78 | 1.84 | 1.68 | 1.71 | 1.61 | 1.55 |
| Transportation Equipment | 1.66 | 1.73 | — | — | 1.86 | 2.36 | 1.76 | 2.00 | 1.64 | 1.78 | — |
| Other Manufacturing | 2.56 | 2.08 | 2.11 | 1.98 | 2.12 | 1.93 | 2.09 | 1.82 | 1.59 | 2.13 | 1.70 |
| Construction | 2.07 | 1.76 | 1.57 | 2.26 | 2.44 | 2.34 | 2.62 | 2.13 | 2.12 | 2.23 | 3.23 |
| Transportation and Warehousing | 2.30 | 1.99 | 1.79 | 2.28 | 2.33 | 2.30 | 1.57 | 1.93 | 1.70 | 1.64 | 1.51 |
| Communication and Utilities | 3.34 | 2.36 | 2.18 | 2.70 | 2.78 | 2.80 | 1.76 | 2.48 | 1.87 | 1.79 | 1.78 |
| Wholesale and Retail Trade | 1.43 | 1.58 | 1.42 | 1.53 | 1.52 | 1.59 | 1.50 | 1.52 | 1.39 | 1.44 | 1.32 |
| Finance, Insurance and Real Estate | 2.88 | 2.76 | 2.89 | 2.75 | 2.91 | 2.38 | 2.38 | 2.14 | 2.06 | 2.44 | 2.00 |
| Business and Personnel Service | 1.51 | 1.63 | 1.42 | 1.70 | 1.52 | 1.59 | 1.62 | 2.14 | 1.47 | 1.82 | 1.50 |
| Medical and Professional Service | 1.25 | 1.29 | 1.17 | 1.30 | 1.31 | 1.47 | 1.34 | 1.46 | 1.18 | 1.20 | 1.18 |
| Federal Government Enterprises | 1.68 | 1.83 | 1.73 | 1.84 | 1.90 | 1.65 | 1.66 | 1.60 | 1.56 | 1.74 | 1.59 |
| State and Local Enterprises | 2.51 | 1.98 | 1.88 | 2.18 | 2.59 | 2.49 | 2.39 | 2.23 | 1.68 | 2.06 | 1.65 |

¹dash indicates there is no economic activity occurring in that sector in that region.

Source: Dean F. Schreiner and James C. Chang, *Structure and Analysis of the Economics of Substate Planning Districts in Oklahoma*, Ozarks Regional Commission Publication, May, 1975.

Table 3. Income Multipliers by Sector and Planning District In Oklahoma.

| Sector | Plan- ning Dis- trict 1 | Plan- ning Dis- trict 2 | Plan- ning Dis- trict 3 | Plan- ning Dis- trict 4 | Plan- ning Dis- trict 5 | Plan- ning Dis- trict 6 | Plan- ning Dis- trict 7 | Plan- ning Dis- trict 8 | Plan- ning Dis- trict 9 | Plan- ning Dis- trict 10 | Plan- ning Dis- trict 11 |
|---------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| Livestock and Products | 1.79 | 1.89 | 1.64 | 1.93 | 1.93 | 1.92 | 2.00 | 1.85 | 1.82 | 1.89 | 1.71 |
| Crops and Forestry | 1.97 | 2.01 | 1.75 | 2.12 | 2.12 | 2.54 | 2.02 | 2.39 | 1.84 | 1.93 | 1.68 |
| Mining | 1.52 | 1.93 | 1.52 | 2.13 | 2.00 | 1.75 | 2.13 | 1.80 | 1.74 | 2.66 | 2.00 |
| Food Products | 2.58 | 2.17 | 2.21 | 2.77 | 2.56 | 2.52 | 2.33 | 2.56 | 2.20 | 2.31 | 2.45 |
| Textiles and Apparel | 1.46 | 1.55 | 1.34 | 1.56 | 1.55 | 1.67 | 1.53 | 1.62 | 1.40 | — | 1.35 |
| Lumber, Wood and Furniture | 1.51 | 1.60 | 1.39 | 1.62 | 1.56 | 1.73 | 1.54 | 1.68 | 1.41 | 1.48 | 1.34 |
| Printing and Publishing | 1.53 | 1.61 | 1.41 | 1.62 | 1.60 | 1.77 | 1.57 | 1.72 | 1.43 | 1.49 | 1.38 |
| Petroleum Products | 4.54 | 2.36 | 3.17 | 4.40 | 5.05 | 6.06 | 3.16 | 7.98 | 3.62 | — | — |
| Machinery | 1.53 | 1.60 | 1.38 | 1.59 | 1.56 | 1.76 | 1.54 | 1.71 | 1.42 | 1.45 | 1.36 |
| Transportation Equipment | 1.77 | 1.85 | — | — | 1.85 | 2.40 | 1.78 | 2.62 | 1.59 | 1.54 | — |
| Other Manufacturing | 1.83 | 1.76 | 1.55 | 1.78 | 1.71 | 2.01 | 1.65 | 2.02 | 1.46 | 1.45 | 1.40 |
| Construction | 1.74 | 1.80 | 1.58 | 1.86 | 1.73 | 1.91 | 1.82 | 1.93 | 1.67 | 1.76 | 1.62 |
| Transportation and Warehousing | 1.59 | 1.64 | 1.45 | 1.70 | 1.10 | 1.88 | 1.61 | 1.79 | 1.47 | 1.52 | 1.43 |
| Communication and Utilities | 1.93 | 1.85 | 1.67 | 1.93 | 1.92 | 2.18 | 1.77 | 2.17 | 1.62 | 1.67 | 1.63 |
| Wholesale and Retail Trade | 1.46 | 1.55 | 1.39 | 1.54 | 1.53 | 1.65 | 1.51 | 1.63 | 1.37 | 1.45 | 1.35 |
| Finance, Insurance and Real Estate | 2.16 | 2.22 | 2.24 | 2.27 | 2.35 | 2.36 | 2.08 | 2.09 | 1.82 | 2.20 | 1.85 |
| Business and Personnel Service | 1.56 | 1.64 | 1.44 | 1.65 | 1.64 | 1.81 | 1.60 | 1.72 | 1.46 | 1.54 | 1.42 |
| Medical and Professional Service | 1.47 | 1.56 | 1.38 | 1.56 | 1.57 | 1.66 | 1.50 | 1.61 | 1.39 | 1.45 | 1.35 |
| Federal Government Enterprise | 1.46 | 1.50 | 1.35 | 1.53 | 1.53 | 1.64 | 1.45 | 1.59 | 1.35 | 1.40 | 1.32 |
| State and Local Enterprise | 2.73 | 2.11 | 1.90 | 2.46 | 2.72 | 2.95 | 2.49 | 2.83 | 1.80 | 2.08 | 1.81 |

¹dash indicates there is no economic activity occurring in that sector in that region.

Source: Dean F. Schreiner and James C. Chang. *Structure and Analysis of the Economies of Substate Planning Districts in Oklahoma*, Ozarks Regional Commission Publication, May, 1975.

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VITA

Ronald L. Wright

Candidate for the Degree of

Master of Science

Thesis: AN ASSESSMENT OF THE PERCEIVED IMPORTANCE OF THE ECONOMIC
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