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# SOME TRENDS IN THE DEVELOPMENT OF ENTREPRENEURSHIP IN THE UNITED STATES AND THE ANALYSIS OF THE ROLE OF THE COOPERATIVE EXTENSION SERVICE IN ENTREPRENEURIAL EDUCATION

BY

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Agriculture and Extension Education

1987

Abstract

SOME TRENDS IN THE DEVELOPMENT OF ENTREPRENEURSHIP IN THE UNITED STATES AND THE ANALYSIS OF THE ROLE OF THE COOPERATIVE EXTENSION SERVICE IN ENTREPRENEURIAL EDUCATION

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This study was designed to explore trends in entrepreneurship development and to analyze the role of the Cooperative Extension Service (CES) in entrepreneurial education. Trends were searched and examined. Differences and relationships among U. S. Cooperative Extension Services regions regarding allocations to program components and entrepreneurial education were investigated.

The objectives of the study are summarized below:

1. Explore trends in entrepreneurial development.
2. Ascertain the development of entrepreneurial education in the academic community.

3. Identify the variations and relationships regarding FTE allocation to program components and to entrepreneurial education.
4. Analyze the role of the CES in entrepreneurial education.

The sample, consisting of twenty four (24) state Cooperative Extension Service Units, representing the land-grant Universities was used in the study. Six (6) state Units were randomly selected per region. Of the total number of extension Units, six consisted of both 1862 and 1890 institutions.

The data were collected from States' Annual plan of Work files located with the USDA in Washington, D.C. The role of the CES was measured in terms of the Full-Time Equivalence (FTE) allocated to the various program components and to entrepreneurial education.

The data were analyzed using analysis of variance and stepwise regression procedures. The level of significance was set at 0.05.

The analysis of the study indicate increases in the number, variety, and support for entrepreneurial education. The analysis also show that among the CES regions there are some differences with regards to allocations, but that as

increases are made for other program components, they are also made for entrepreneurial education.

There is much similarity among the CES programs throughout the U.S. There is also the opportunity for states to be different based on geographical demographics. States also manage issues of critical concerns differently and this often results in the use of ambivalent language both in planning and reporting results. While steps were instituted to clarify the language of the POWs before the data acquisition, this language problem results in a limitation of this study. Another limitation of the study may be reflected in terms of overlaps. Staff positions reflecting FIEs are not rigidly controlled. Staff often participate in interdisciplinary endeavors regardless of assigned content areas.

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to the many individuals who have generously given of their time and other resources to assist me in the planning and execution of this research. It gives me great pleasure to make special acknowledgements to Dr. Carroll Wamhoff, my major Professor and Chairperson of my graduate committee. I am also grateful to Dr. Eddie Moore, Dr. Robert Craig, and Dr. Fred Whims, the other members of my committee, for their counsel and suggestions in regard to this research. Special thanks for help go to Dean Lois Lund, Dr. Jane Stolper, Dr. Mary Andrews, Dr. Betsy Jane Becker, and Mr. Joshua Bagakas.

I also wish to acknowledge my indebtedness to the great number of authors upon whose work has been drawn; to Mr. Thomas C. Tate, Program Analyst Officer, USDA, who so kindly furnished invaluable information; to state program-of-work-analysts for vital interpretations; to Drs. Norma Bobbitt, Lillian Holloman and Anne Fields for their profound encouragement; to Sue Foster, my former secretary, and to my daughter Jennifer, for always being there.

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# CHAPTER I

## DESCRIPTION OF THE PROBLEM

In recent years, there has been an acceleration in the growing consciousness of entrepreneurship. Writings about entrepreneurship have become very widespread, and it is almost impossible to pick up an issue of a business or organization journal without finding references to some phase of it.

A considerable amount of effort has been devoted to defining entrepreneurship. Conferences have been called for discussions that would lead to a definitive definition. Academic disciplines want individual identification with the term. The dictionary definition associates entrepreneurship with the creation of a new business and the assumption of risk for profit. Those on the outside of the economic discipline claim that this definition is too restricted to the "economic sector". Researchers whose backgrounds represent the social sciences imply that entrepreneurship implies the creation and implementation of something new and more efficient than what has gone before. Other writers view entrepreneurship as bold initiative, a creative venture and a hobby turned profitable. A definition that is broad and encompasses a wide variety of disciplines is provided by Timmons et al. (1977). It defines entrepreneurship as the

marshalling of people and resources to create, develop and implement solutions to problems to meet peoples needs.[1] Since the focus of this study is toward trends in the development of entrepreneurship development and the role of an organization, the researcher chose to use the definition presented by Timmons et al.

This study sought a more definitive understanding of entrepreneurship and of the role relationships in the program components focusing on entrepreneurial development within the Cooperative Extension Service. This very definitive understanding could embrace the total spectrum of entrepreneurship development in academic management and with organization practitioners; it could aid in diffusing knowledge relative to contemporary entrepreneurial interests, offerings, and research efforts. The study could be used to forge closer and more naturalistic links between the academic and the business community.

Research publications relating to entrepreneurship have increased, at an expanding rate, over the past several years. College and university offerings in entrepreneurship have increased from eight in 1968 to two hundred and seventy-four in 1985. Federal, state and local government units, both alone and in connection with major universities, have established programs and centers for the development of

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[1]Timmons, J., Smollen, L. E. Dinges, A. W., New Venture Creation. Homewood, Illinois: Irving, 1977.

reorganized to take advantage of the entrepreneurial spirit. Many of the traditional organizations, including the Cooperative Extension Service, have rejuvenated program efforts to include the home business, farm management and agri-business components as representative of entrepreneurship interests.

The recent interest in entrepreneurship may be explained by the following factors:

- Unemployment among the young.
- Failure rate among small and medium-sized businesses and their lack of management skills.
- Shifts in economic policy from consumption and manufacturing to information and investment.
- Response to the trendiness of entrepreneurship. Many research studies by behavioral scientists have focused upon the identification of potential entrepreneurs and upon the comparison between women and other minority entrepreneurs. While a knowledge of traits observed in these studies may contribute to the success of others in entrepreneurial endeavors, the studies fail to analyze the current status of entrepreneurship in the United States and the role of educational organization.

Some studies have focused on failed entrepreneurial endeavors, and researchers have identified possible scenarios for a variety of failure types. Other studies have analyzed the evolution of academic entrepreneurial firms and have characterized special events which influenced their development.

Other studies, more related to marketing and management, have emphasized the importance of venture capital, start-up costs and business management. Studies, with a focus on innovation, have emphasized market timing, product development and behavioral characteristics of managers. Agricultural scientists and other researchers have conducted research in innovative theory and information diffusion. And, when entrepreneurs have had a role in influencing public policy formation, there have been investigations of established current economic theory within which business policy is formulated. Costly studies have been made of general business curriculum and entrepreneurship courses to reflect attitudes and academic interest in entrepreneurship.

This study identified trends with regard to development in entrepreneurial education and examined the roles, relationships and variations of the allocations of resource in the Cooperative Extension Service System. Twelve hypotheses guided the study in the analysis of

relationships and variations in the use of resources. In reviewing this study, other researchers may avoid duplication and may be guided toward improved quality in investigations to meet the needs of entrepreneurship development.

## Statement of Problem

The country is undergoing an entrepreneurial explosion. There are many small business development programs and entrepreneurial centers operating in the United States. Several publications have featured articles relating to a variety of business topics. There is a variety of computer software and many conferences, seminars and programs are supporting efforts relating to entrepreneurship development. And, while there has been considerable research on entrepreneurs and various aspects of small and innovative business management, there is still much ambiguity about entrepreneurship. There is a lack of agreement for a definition of the term. There are negative connotations attached to personalities and academic capabilities of entrepreneurs. Although there is a wide interest in the subject, this interest has not led to the development or conversion of academic units, nor has there been an elevation in the status of entrepreneurship education.

This study focused upon two major concerns. The first related to a determination of the status or present position of contemporary entrepreneurship in relation to other academic units. The second concern related to the role of organizations, especially CES, as innovators to place resources at risk in fostering new development or producing new programs and services. This study differed from those of previous researchers in that it addressed the heretofore unanalyzed status of entrepreneurship in current society and the role of educational organizations in fostering development.

## Objectives of the Study

A major objective of the study was to ascertain the development of entrepreneurial courses and activities from an academic point of view. Entrepreneurship means many things to different people. There is much interest in this subject. A few universities and colleges offer formal courses, most do not. In some institutions these offerings are a part of the business curriculum, while at others, courses, programs and activities are held at various times, depending on funding sources and interest of groups. There are discrepancies in the articulation, requirements and developments of entrepreneurship. Therefore, a determination of the development of entrepreneurship was

made.

Another objective of this study was to assess the role relationships and in entrepreneurial programs in Extension in relation to other programs. According to research, innovations are influenced by attributes of relative advantage. The adoption of new programs is influenced by social systems operating in the environment. Answers were sought on the allocation of FTE assigned to entrepreneurship development in all extension program areas.

Past research indicates a contribution of entrepreneurship to innovation, job creation, and economic development. This research analyzed trends impacting on educational opportunities in entrepreneurial development.

The CES is a national organization affiliated with colleges and universities. It has a history of program innovation, working with people with special needs in agriculture, human ecology, marketing and related businesses. The fourth objective of this study was to identify variations in allocations of resources for entrepreneurial development.

The objectives for the study are summarized as follows:

1. Determine the development of entrepreneurial education sources and activities at colleges, universities and agencies throughout the country.

2. Analyze roles in Cooperative Extension Education of program components focusing on entrepreneurial development.

3. Examine trends in entrepreneurial development.

4. Identify variations in resource allocations for entrepreneurial development.

General Theoretical Framework of the Study

The theoretical framework for this study was obtained from research and development relating to social change. Theories in innovations, diffusion and dissemination, and knowledge utilization are all analyzed in a sociological and social-psychological framework. The theories focus on social change, problem solving, decision making and social interaction. Essentially the theories hold that for change to occur, there must be something new or innovative and that this must be communicated through

some form of system over a period of time. Rogers (1975) identifies innovation, communication, social systems, and time as the four crucial elements in the analysis of diffusion innovation for change. Havelock (1971) builds upon Rogers' theories and advances to "planning for innovation".

Innovation studies range from those involved in getting new drugs to be accepted by physicians to marketing and management practices for adoption by business and industry leaders. Research involving change is conducted in a multiplicity of disciplines. The theories were derived by accumulating generalities from empirical data to construct more abstract theories. This approach presents a more complete integration of various diffusion traditions. The research is often described in the literature as diffusion, diffusion of innovation, research in mass communication, planned innovation and educational diffusion.

Many of the early scholars of social change used what is called the middle range of analysis in deriving theories. In middle range analysis, propositions are mid-way in specificity - generalities between empirical data and grand theory. The middle range also fosters a more complete integration of various diffusion traditions.

There are seven traditions of research on diffusion delineated. These seven include anthropology, early sociology, rural sociology, education, medicine,

communication marketing, and business management. The major criterion for the delineation of these traditions is the disciplinary affiliation of the researcher, modified somewhat by the nature of the innovation studied (educational, marketing rural sociology, and the like).

The oldest of the seven traditions in diffusion is anthropology. Anthropologists centered their research upon the connection between culture and social change. A major argument raged over whether diffusion or parallel invention was more important in social change. It has been demonstrated that the receiver's culture has much influence upon the decision to adopt an innovation. If the new idea is compatible with existing cultural values, its likelihood of adoption is much greater, and its rate of adoption is more rapid.

Most early sociologists traced the diffusion of a single innovation over a geographical area. The contribution of Gabriel Tarde (1903), the french sociologist, was his insight into the process by which the behavior of opinion leaders is imitated by other individuals. The true significance of this field lies in the considerable influence of early sociologists upon later diffusion researchers.

The rural sociology tradition boasts the largest and most enduring concern with diffusion research. This

tradition dates from the 1920's when administrators in the U.S. Department of Agriculture launched a series of evaluation studies of diffusion campaigns that had been conducted by state extension services. Ryan and Gross' (1943) analysis of the diffusion of hybrid seed corn led directly to the investigation of correlates of innovativeness and to the role of various communication channels by functions of the innovation-decision process.

Extension education is considered a subtradition of rural sociology. The representatives of this group are usually found in agricultural universities, on the staff of agricultural extension services or elsewhere in departments of extension education. The primary concern of extension educators according to Ryan and Gross (1943), is the training of extension change agents. To improve the efficiency of extension diffusion campaigns, members of this subtradition became involved in diffusion research. Their studies have usually been designed to evaluate the effects of extension diffusion efforts.

The tradition in education theory is one of the largest in terms of number of studies. But, it is of less importance in terms of contribution to understanding social change. Carlson (1968) concurs in this rather low evaluation of educational diffusion: "Data collected on acceptance has not been characterized by rigor..given this

weak base, it is rather difficult to count on what is known about the diffusion of educational innovations".

Educational diffusion studies are characterized by bureaucratic structures and therefore the innovation-decisions are authoritarian or collective rather than optional innovation decisions. The best single predictor of school innovativeness is educational cost per pupil according to Mort (1953). The wealth of a school district can determine the innovativeness of educational ideas. Rogers (1971) states that while the education tradition has lagged behind agriculture, sociology, and medicine, it has made contributions in the field of mathematics education. He further emphasizes that active promotion of modern math in the 1960's and the powerful change agent, the Department of Education, directed change.

In the education tradition, Carlson (1965), illustrates the pattern of adoption of an educational idea over time approaches an S-shaped curve. Some of the shortcomings of the education studies are (1) researchers have ignored contributions of communication channels..., (2) the impacts of the social systems, and (3) innovative decisions are authoritative rather than individual adoptions explains Rogers (1971). Much of the research in education, relating to change has focused on (1) teachers as respondents, rather than simply as administrators, on (2)

within school, as well as school-to-school diffusion, and on (3) educational change in less developed nations.

The contributions of medical sociology to the traditions of research on diffusion may be characterized in terms of new drugs, techniques, or family planning methods, and these began in the early 1950's. In medical sociology, many of the doctors are adapters of new drugs and techniques, while in family planning methods or medical innovations, the adapters are clients or patients.

The classic study in this tradition was a drug study completed by three sociologists, Elihu Katz, Herbert Menzel, and James Coleman (1954), from the Columbia University Bureau of Applied Social Research. This study analyzed the diffusion of a new antibiotic that had appeared in late 1953. The innovation was referred to by the Bureau as "gammanyn" in published reports. The drug was tried at least once by 87 percent of the Illinois doctors, who had been making extensive use of two other closely related "miracle" drugs belonging to the same antibiotic family. The new drug superseded an existing idea just as hybrid corn replaced open-pollinated seed in the sociologist, agriculture area study.

Other studies in the medical area include inquiries concerning the adoption of polio vaccine, health practices, and diffusion of family planning methods. Most of the

studies relating to family planning have been conducted in less developed countries where population pressures on food are especially serious, Rogers (1971). "While the research adds to that of agriculture and sociology, the intellectual contributions of these studies has not been cited as extremely significant", he continues. This is due to conflicting and negative relationships between variables of economic and social will and independent variables such as age, family, size, education and the like. The studies have also neglected many social-psychological factors such as financial incentives, for adoption and communication techniques involved in diffusion as evidenced in the literature review.

Another tradition in diffusion research is communication. Since the early 1960's, communication researchers have investigated the transmission of technological ideas in medicine, education, agriculture and the like. Unlike the other traditions, communication research lacks a message orientation content. This lack of orientation content is the chief advantage, according to Rogers (1971). It can analyze innovations in agriculture, education, medicine, sociology, home economics, and the like, as well as a combination of these disciplines. This research differs from other technological innovation in that news events spread much more rapidly through the print and

electronic media.

The field of marketing provides another field for a diffusion tradition. Research efforts in this area were initiated in the early 1960's at about the same time many of the other diffusion research traditions were being established. This research interest was initiated largely due to the failure rate of so many new products. Marketing research is concerned with investigations that will provide an orderly flow of pertinent information for business managers to be used in making management decisions. Unlike the other research traditions, the aim of marketing research is to produce results that will be of use to the innovator, rather than to the receiver.

Much of the results has been achieved through the experiential approach with researchers having control over diffusion strategies making their research more powerful. Marketeers have identified many submarkets for products and have developed systems for identifying others as new products are innovated. Kotler (1984) observed that researchers have studied buyers' behavior and have determined cultural, social, psychological and personal factors that influence buyers' decisions.

The marketing tradition, while incorporating aspects of other tradition, relates more closely to research in agriculture and sociology. Research involving differences

In innovativeness points out that different people differ markedly in their readiness to try new products. In marketing, as well as in the sociology and agriculture tradition, adopters have been categorized as innovators, early adapters, early majority, late majority and laggards. Studies of marketing show that personal influence plays a large role in the adoption of a new product. This personal influence describes the effect of product statements made by one person and another's attitude or probability of purchase. According to Katz and Lazarsfeld (1955), it is shown that the characteristics of the innovation affect its rate of adoption, permitting products to catch on almost over night while others take a long time to gain acceptance.

The diffusion of marketing research is another major tradition involved in social change. Communication is another major diffusion tradition. They have their own histories and characteristics but are often considered along with other diffusion traditions.

## Importance of the Study

The importance of this study was to identify what is happening and why things are happening in entrepreneurship development and to isolate the role of Cooperative Extension as it relates to change and innovation in program thrusts to meet greater needs of people.

Organizations, including the Cooperative Extension Service, tend to be socially responsive and service oriented. They specialize in the delivery of social service, not provided by business and government. One of the sectors in the United States economy is that of non-profit organizations. Cooperative Extension, along with other non-business and non-government organizations, make up this sector. They often shift focus in their objectives to better serve a particular population. Traditionally, Cooperative Extension Service was concerned with agriculture development, and it provided services to limited resource farmers. As times and conditions shifted, new objectives supported new emphases and program thrusts. This study will inform extension administrators in the CES and administrators of other socially responsive organizations of the tends in contemporary entrepreneurship development. It will also provide information for assessing the role of extension in addressing change or innovation for new programs and the thrust for entrepreneurship development in areas other than the traditional ones of agriculture and home economics.

This study is important in that it can create new awareness as to how organizations change their focus in the light of new needs and interests. Through the examination of the patterns of change in the direction of

entrepreneurship, outside of farming and agri-business, key educators and leaders can be reminded of the processes involved in change and innovation and perhaps intensify the roles of the extension service.

Another contribution of the study will be the formation of a quick and reliable method to ascertain how resources are expended for new program thrusts. The study is especially important in a time of diminishing financial resources. Trustees, boards of regents with extension programs, politicians and other citizens are asking tough questions concerning results of program efforts and expenditures. Responses pertaining to increased production for products with very limited market appeal will hardly help farmers in the depressed farm economy. Entrepreneurship in its broad definition encompasses a wide variety of income producing enterprises suitable to a variety of occupations and skill levels. The study will help to explain the entrepreneurship concept and to illustrate its effect on the economic as well as the non-economic sectors of society. The study is therefore important in terms of priorities for use of diminishing financial resources.

Finally, an important contribution of the study is the influence it can have on the efforts of the extension service and other non-profit organizations, and the

assistance it can provide in helping institutions and perhaps entrepreneurs to reach their financial goals. The study will affect the manner in which organizations evaluate their role in program change and alter to better serve their public.

## Definition of Terms

There are several words and terms used in this study that will be defined here to facilitate understanding.

1. Communications - the process by which messages are transferred from a source to a receiver.
2. Cooperative Extension Service (CES) - an educational organization comprised of local, state and federal governmental units, attached to 1862 and 1890 land grant university systems to disseminate and encourage leadership and development techniques to individuals, families and communities.
3. Diffusion - the process by which an innovation or new idea spreads.
4. Entrepreneurship - The marshalling of resources, including humans, to create, develop or implement solutions to problems to meet the needs and interests of people.
5. FTE - Full Time Equivalence
6. Innovation - the perception of novelty by an

individual or group.

7. Incubator (small business) - a business in itself that provides support services for a variety of other small businesses usually housed in close proximity.
8. Management - that part of a business or firm that interprets needs and translates them into profitable products and services.
9. Marketing - a social process by which individuals and groups obtain what they need and want through creating and exchanging products or value with one another.
10. Organization - patterned relationship among people who are engaged in mutually dependent activity with a specific objective.
11. Other - variable crated while summing other variables in the study.
12. Role - a part played by an individual or group that is determined by the objectives of an organization or agency.
13. Role Relationship - pattern of predescribed roles useful in the structure and pattern of program allocation in certain organizations and agencies.
14. Social Change - a process by which alteration occurs in the structure and function of a social system.

Social change consists of invention, diffusion and related consequences.

15. Social Systems - a population of individuals who are functionally differentiated and engaged in a collective problem-solving behavior or a novel creativity.

16. Small Business - a firm employing ten or less employees with assets under $250,000. Some of these businesses or firms are operated as home-based engaging in agriculture, manufacturing or service providers.

17. Status - position of importance in a particular social system.

18. Status of Contemporary U.S. Entrepreneurship Development - relative position of growth and development of entrepreneurship in the United States. What is happening in educational and social organization with regards to development of entrepreneurship.

19. Strategy - the pattern of objectives, purposes, or goals and major policies stated in such a way as to define what the business firm or organization is in and how best it can meet its defined objectives.

20. U.S. Regions - the division of the states into four regions. South central, north central, western and

eastern regions represent the four U.S. extension regions.

21. Venture Capitalist - persons or investment firm willing and often seeking to lend money to promising high-risk firms for profit on their investment.

## Scope of the Study

The Cooperative Extension Service (CES) has been a major force in agricultural production, contributing significantly to the business and economic growth of the nation. Many farm families and agri-business enterprises have improved practices and increased return on their investment as a direct result of the Cooperative Extension Service. As agriculture is in transition, many social and economic conditions are affected causing some extension program efforts to be directed away from the agriculture production tradition.

While the CES has been involved in improving agri-business practices, other entrepreneurial activities are now starting to receive attention. This study identified some major trends in entrepreneurship development. This trend identification was made through a contextual analysis of the following:

(1) the universities and colleges offering programs in entrepreneurship development, (2) types of assistance

programs, both public and private provided (3) contemporary research, (4) changes in basic policies pertaining to entrepreneurship development, and (5) communication and technological opportunities available for entrepreneurs and (6) numbers and size of financial support systems available.

In addition to the trends presented, the study also examined the input of the Cooperative Extension Service toward entrepreneurship development through the analysis of the Full Time Equivalence (FTE) allocated by the four U.S. regions.

# CHAPTER II

## RELATED LITERATURE

There is considerable literature with relevance to the various parts of this research. Within the past several decades, entrepreneurship development has received a great deal of attention and scholars have conducted research in numerous areas. The basic mission of the Cooperative Extension is to disseminate and encourage application of research-generated knowledge and leadership techniques. Therefore, considerable research has been conducted in extension, especially in agriculture and home economics, with regard to new technology, innovation and leadership development. The literature with respect to roles of extension regarding entrepreneurship outside of agriculture is somewhat limited.

Literature that has direct relevance to this study was divided into the following areas: (1) The Cooperative Extension Service, (2) contemporary entrepreneurship, (3) extension education focusing on agriculture and home economics, (4) innovation and dissemination of knowledge and information, and (5) marketing management and communications. The literature review was guided by a search for new developments and trends in entrepreneurship and for information helpful to the analysis of the role of

the Cooperative Extension Service in entrepreneurial education.

## The Cooperative Extension Service

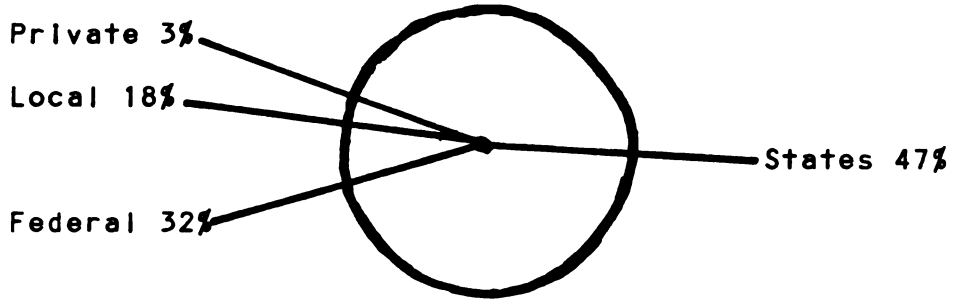
The Cooperative Extension is an educational program in content and methodology, and is administratively attached directly to the 1862 and 1890 land grant University System. It involves funding and administratively relationships which permit educational programs directed at broad national purposes yet serving specific local needs with priorities determined statewide or locally.

The role of the Cooperative Extension Service has been analyzed through a combination of two models, Information Processing and Humanistic. The Information Processing Model (IPM) Wexbey and Yukl (1977), holds that an organization can be viewed as an information processing network. This model views an effective organization as one that has (1) a diversity of outputs, (2) adequate resource inputs for the information transformation process, and (3) the ability to achieve difficult goals. The Humanistic Model (HM) Wexley and Yukl (1977), assumes a more people-involvement and citizen-linkage approach. Decentralization, participation, integration, and implementation of goals and missions are more easily effected if employees and citizens are involved to a large degree in the total operation of the

organization.

With respect to the Information Processing Model, the Cooperative Extension Service not only processes information, it disseminates information. The basic mission of the Cooperative Extension Service is to disseminate and to encourage the application of research-generated knowledge and leadership techniques to individuals, families and communities, CES Basic Charter (1986). The CES system functions as a nationwide educational network and resource through local offices, which are semi-autonomous units accessible to and subject to influence by local citizens, thereby maintaining an diversity of outputs. The CES also has professional functioning staff of college-trained personnel specifically qualified for their positions. The resources, while not excessive, permit educational programs to be directed at broad national purposes, while serving specific local needs with locally, determined priorities, Basic Charter (1986). Estimates of funding for the total Cooperative Extension Service from all sources total $1.042 billion in FY-1986. The distribution of funds is: Federal, $330 million; states, $487 million; local, $193 million; and private contributions of $32 million. Table I illustrates the funding picture.

**TABLE I - National Extension Funding**




The FY-1986 staffing level for the federal partner is 177 FTE's (full-time equivalent). Additionally, in the states approximately 16,745 FTE's are expended for professional extension agents and specialists in developing and delivering educational programs.

When analyzing CES for its ability to achieve difficult goals, the reader is reminded of the basic mission of the organization as problem-centered and situation-based with supportive relevant research and flexibility to build responses to change and innovation.

On target with the Humanistic Model, the Cooperative Extension Service organization is an integrated partnership with federal, state, and county levels of government, research, and the private sector. The CES system begins by helping people to identify and to understand their needs and problems and to use new technology or information in solving them, reports the CES System (1986).

The collaborative role of extension is synonymous with change. The adoption of new farming techniques

initiated by CES resulted in an agricultural system that is world renowned. The extension organization itself anticipates change and describes its position with regard to its role, The CES System ECOP report (1986).

> "Cooperative Extension is in a pivotal position. And, yet, an incredible thing seems to be happening to this organization. People keep asking, "What do they do?" and "Why are they needed?" Cooperative Extension is accused of being too obsolete. Some critics say the farm population is now too small...
>
> Maybe Extension has been too successful. Perhaps in some cases it has been too closely aligned with agriculture and has forgotten its university base. One of the problems in the constant battle for recognition and understanding could lie in the name itself - "Cooperative Extension" - an abstract term that does not identify what the organization does as clearly as did "Agricultural Extension".
>
> It is time to reaffirm the role of extension, to unify the extension of state and federal research and to coordinate planning for research and extension at the national level.
>
> As we approach a new century with increased demands for technology, extension needs to be recognized as a partnership working for a common goal, as envisioned by those who had the foresight to provide for this unique system."

Extension educators help in the clarification of the role of the Cooperative Extension Service. These educators in land-grant universities seek to develop, to share and to use new information and technology to solve problems in a variety of programmatic areas. They see the role of extension as that of: (1) building and maintaining linkages with consumers, producers, industry, and interest groups.

The linkages lead to beneficial relationships that help set program priorities and identify needs for research. In addition to linkages and relationship development, these educators see the role of CES as that of integrating knowledge and new techniques into educational programs that people can use immediately. And with agriculture in transition, small business management, entrepreneurial development, economic opportunity assessment, resource development, and other non-traditional programs are being emphasized according to USDA; Critical Concerns (1986). Finally, Extension sees a major role, one of providing workable management and marketing strategies in a variety of endeavors thereby educating citizens about how to select and use appropriate information and technology to solve problems.

Contemporary Entrepreneurship

In recent years, there has been increased efforts directed toward developing entrepreneurial education. In the United States, the number of colleges and universities offering such programs has increased from eight (8) in 1968 to two hundred and fifty (250) in 1983, Vesper (1985).

Different researchers have different views about the considerable growth of entrepreneurship during the past several decades. Some say the surge of interest came as a

backlash of the counter-culture youth movement of the 1960s and the consumer movement which opposed big business and giant profits. Some say unemployment among the young and the failure rate of small and medium-sized businesses and their lack of management skills generated this surge of interest. Others will contradict these opinions and insist that it is the Federal Government that has stimulated interest in entrepreneurship through activities in the Small Business Administration. Loyalists of the free enterprise groups argue that the recent celebration of the Bicentennial, with emphasis on the free enterprise spirit, focused efforts of agencies and organizations back into the economic sector of the United States. Still another group of scholars view this surge of interest as a direct result of cooperation among government, industry and education in the best sense of the word.

There are numerous agencies involved in contributing toward the growth of entrepreneurship. The Small Business Innovation Development Act (Public Law 97-219, 1982) permits government agencies to solicit proposals from small businesses for the purpose of awarding research contracts. Brannen and Gard (1985) identifies the following twelve government agencies qualified to participate in the Innovation Development Act: Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human

Services, Interior, Transportation, the Environmental Protection Agency, National Science Foundation, Nuclear Regulatory Commission, and the National Aeronautical and Space Administration. Funds for entrepreneurship development, according to these authors, are contingent upon entrepreneurs working closely with academic consultants or those small business firms with research and grant application expertise.

Substantial research has been conducted with respect to a definition of entrepreneurship as well as to defining the characteristics of entrepreneurs. The general definition of entrepreneurship is the creation of a new business. Timmons, et al. (1977) states that it is too restrictive and that the marshalling of people and resources to create, develop and implement solutions to problems to meet people's needs is more broad and conclusive.

## Entrepreneurial Characteristics

McClelland (1961) has been a major contributor to the study of personality characteristics of the entrepreneur. He pinpointed the characteristics as: risk-taker, high achiever, and self-confidence. Hagen (1962) defined the entrepreneurs' personality as a dichotomy: authoritarian and creative at the same time. Collins, et al (1964, 1970) saw the entrepreneur as a person who cannot

accept authority and seeks to escape. They differentiate between the innovating entrepreneur and the bureaucratic entrepreneur, the former who starts the business and the latter who climbs the hierarchical ladder. Cole (1959) spoke of the entrepreneur as a manager and innovator underlining that conservation and innovation were necessary to entrepreneurship. Richmond (1982) presents the entrepreneur as a person seeking to exercise his free choice and independence.

School systems have sought to identify characteristics of entrepreneurs in students so as to isolate them for special business courses. Kourilsky (1980) identified several variables useful to predict entrepreneurial success. Thee included: self-perception, academic ability maturity, loquacity, initiative, risk-taking, persistance and motivation.

Researchers also differ in their interpretation of personal characteristics. Liles (1974) defines entrepreneurial risk in terms of personal financial risk, missed career opportunities and risk related to family relations and mental health. Brockhaus (1981), Sexton and Bourman (1983) have found the entrepreneur as a risk taker is no different from the general population. Brockaus, however, identifies three levels of risk: General entrepreneurial risk, the probability of failure and known

consequences of failure.

With respects to entrepreneur types, Smith and Miner (1985) identify two, the craftsman-type and the opportunistic-type. Shils and Zucker (1979) identify and define the internal entrepreneur as one concerned for risk at the career level. He is not the object of financial or psychological risk.

Knight (1983) identifies three types of entrepreneurs: the craft-inventor who develops and improves a product, the promoter who has strong marketing and sales skills and who concentrates on establishing a new business by taking advantage of a new discovery or idea, and the general manager or coordinator who will seek expertise from the outside.

While some of the popular literature use terminology in small business and entrepreneurship interchangeably, many researchers make clear distinctions. Cole (1949, 1959) maintains that the entrepreneur is more concerned with the social and economic meaning of procedures and business institutions while the manager is more interested in the instrumental quality. Business administration is an operation discipline. Deeks (1976) identifies the major psychological differences. The entrepreneur who starts his own business is emotionally and financially committed to his business, while the administrator in a large firm maintains

well-defined relations with workers. Gasse (1985) makes a further distinction between the entrepreneur and the business manager, he states that the entrepreneur who is only maintaining his firm is no longer an entrepreneur but a manager.

Entrepreneurship and the Social System

Researchers generally agree that most entrepreneurs come from a variety of backgrounds. Schumpeter (1949) believes that entrepreneurs represent all social classes and cannot by distinguished along cultural lines. They are somewhat in agreement that the family from which one comes, has a significant influence on the development of entrepreneurship.

The family, especially the parents, plays an important role in establishing a framework for an entrepreneurial activity, Shapero and Kent (1982). Many writers believe that an individual can be highly motivated if one parent is in some form of business. A study by Jacobowitz and Winder (1982) showed that 72% of entrepreneurs were from families where at least one parent was an entrepreneur. Results of other studies Litvak and Maule, (1976); Scanlon, (1980); Kierulff, (1979); Petrof, (1980); and Shapero, (1980) put this figure at 50%. In addition, Petrof (1980) and Kierulff (1979) found a high

correlation between being the eldest child and becoming an entrepreneur.

Role of Entrepreneurship

Entrepreneurs play the key role in converting investment into growth. The degree of entrepreneurship is a prime determinant of the level of investment Efficiency Ratio - Office of Economic Research (1970). The higher the degree of entrepreneurship, the higher the IER. Some writers say that we have entered an era of environmental limits in which economic growth must cease. Others say that by unbasing entrepreneurial drive (helping the entrepreneur), society can be expanded and improved. There is agreement among researchers pertaining to differences between entrepreneurship and management. Entrepreneurs alter the structure of inputs and outputs while managers take "given" inputs and direct the process by which these inputs product predetermined outputs.

Leff (1979) defined entrepreneurship as the capacity for innovation, investment and activist expansion in new markets, products and techniques. He also states that "entrepreneurship is so important for economic development that it has been conceptualized as a fourth factor of production."

The role of entrepreneurship is also to become part

of the production process. Kristol (1979), suggests that while Americans are great inventors, it is the Japanese to a large extent who are the entrepreneurs. Most writers agree that the precise contribution of entrepreneurship is toward technological change, greater employment opportunity and a more efficient use of natural resources.

Concerning environmental factors that favour entrepreneurship, Bruno and Tyebjee (1978) identified the following seven:

- availability of experienced entrepreneurs.
- favourable government policies.
- proximity of universities.
- available land and infrastructure.
- sources of supplies and other support materials.
- pleasant living environment.
- resource (workforce).

Extension Education

Gibbs (1984) examines the role education plays in entrepreneurship development. He argues that instructors should have wide frames of reference so that the examples that they call upon within their teaching in specific subject areas are broad-based. Shils (1982) sees universities and entrepreneurial development as a unique

integrative approach that incorporates research and clinical program with the academic curriculum. Cooperative Extension programs argue for more cooperation between public and private organizations for better logistics and marketing of diverse products. Michigan State University, Cooperative Extension Service (1985), identifies education roles in farm and agri-business, recreation and tourism, and food processing that will contribute to entrepreneurship development.

The extension service system transfers technology to help individuals and families improve practices for greater efficiency in agriculture, home economics and related areas. Studies have usually been designed to evaluate the efforts and feasibility of the extension service. Agriculture, the largest component of the extension service, has the largest research base. While the term entrepreneurship was not used in the early farming tradition, the focus of extension education was to help the farmer better manage to increase yields and productivity. There are seventy empirical publications in extension education centered around agricultural ideas, including the famous hybrid seed corn study according to Rogers (1971). Research to assist farm entrepreneurs and agri-business managers has been sponsored by the Farm Foundation in cooperation with U.S. land grant institutions and the Cooperative Extension Service.

Research in public policy, rural farm structure, marketing econometric modeling, risk management and agricultural finance has been supported by public and private foundations, Farm Foundation Annual Report (1980). Agricultural cooperatives have made contributions to farm managers and business owners, USDA (1983).

The literature described in the preceding pages included writings and research relating to characteristics of entrepreneurship, personal experiences, roles of the entrepreneur, roles of the universities and special educational centers. The related literature is integrated through research and academic disciplines. The following related literatures will focus more specifically on (1) Extension Education and Home Economics Leadership, (2) Innovation and Dissemination, (3) Communication, and (4) Marketing Management.

Professional societies have made contributions in the following areas of career development and employment opportunities: The American Society of Agricultural Engineers (1978), the American Society of Agronomy (1978); Agriculture Education Resource Guide (1979), U.S. Department of Agriculture, Soil Conservation Service (1981), Agricultural Cooperative Extension Service (1978), USDA Forest Service (1975) and the American Phytopathological Society (1980). These publications record and explore

opportunities for employment in fields of agriculture and are used by educators as career information sources for both adult and youth audiences.

The extension service has made great contributions toward entrepreneurship through leadership development. The research on behavioral traits, structure and decision making has been facilitated by rapid technological developments. According to Wexley and Yukl (1977), various leader skills and personality traits depend also on other aspects of the leadership situation, including the amount of organizational stability or change (Mann, 1965). Volunteer leaders are essential to the maintenance, growth, development and stability of a democratic social system (Prauel et al 1984). According to Schindler-Rainman and Rippitts, the volunteer community means

> "They (volunteer leaders) are to Democracy what circulation blood is to the organism. They keep Democracy alive. They epitomize freedom and are to our society what the Bill of Rights is to t h e Constitution..."

Another organization that has used volunteers in fostering the development of entrepreneurship is the Small Business Administration (SBI). SCORE, ACE and SBI contribute to entrepreneurial growth through personalized counseling an advise to small business firms through volunteership leadership (SBA 1984).

Vocational home economics adds another dimension to

entrepreneurship. The contribution made in this area relates to work experience, vocational skills and the training of entrepreneurial concepts. Cooper (1980) states that management and supervisory skills can be taught through an entrepreneurial approach. Setz (1980), representing the Center for Research in Vocational Education, suggests that high school vocational instructors are in part responsible for the teaching of employability skills.

Innovation and Entrepreneurship Development

The literature with respect to innovation and entrepreneurship development has roots in innovation theory developed by Everett Rogers, Elihu Katz, Ronald Havelock, Herbert Lionberger and others. Recent researchers have examined motivational considerations with respect to the success of technically innovative entrepreneurs. Smith and Miner (1984) compared entrepreneurs heading faster growing firms with entrepreneurs heading slow growth firms, and non-entrepreneurs who were manager-scientist types. They found that the more successful entrepreneurs were differentiated from the other two groups by a stronger desire to achieve through one's own efforts, a great tendency to avoid risks, a more pronounced need for feedback and a stronger future orientation.

Venture capital and its influence regarding

Innovation has received a great deal of interest within the past few years. Jennings and Sexton (1984) studied the context of venturing and set forth a framework for future study. Bygrave (1984) and Wetzel (1984), in their studies describe firm types and venture capital backers with regards to innovation. Bygraves summarized that within the U.S. there are "conspicuous cases" of highly innovative technological ventures where entrepreneurs have agglomerated and where most of the highly innovative technical ventures are located.

Innovation is the first commercial application of an invention writes Mansfield (1968), Enos (1975) writes that innovation consumes a tremendous amount of time and effort as the basic idea is tested, refined, debugged, produced, and marketed, and further assets that "in the majority o cases there is not a clear boundary between invention and innovation." The literature reveals that innovation studies yield mixed results. Downs and Mohr (1976), Kets de Vries (1977) and Arrow (1982) have reported that factors found to be important for innovation in one study are found to be less important in another. Miller and Friesen (1980) argue that these conflicts occur because researchers have failed to consider the strategy behind the innovation.

Innovation is a costly process. Publications developed and produced by the U.S. Department of Commerce

(1982) indicate that 5-15% of the cost of a successful new product is incurred from engineering and design, 40-60% is spent on setting up the manufacturing process, 5-15% covers starting expenses, and 10-25% covers initial marketing expenses. The National Science Foundation (1979) reports that 3% of the total research expenditure is for basic research and 17% is for applied research often referred to as inventions, and 80% is spent on development which can be considered "innovative activities translating research findings into commercial products".

Researchers are in general agreement with respect to the diffusion of information regarding the innovation of new products or ideas. Theory related to diffusion can be identified with diffusion research by Rogers et al (1971). Recent studies appear to place greater emphasis upon talent and resources involved in the diffusion process than upon economic conditions and firm size (Romeo, 1977).

A number of institutional initiatives have been devised to nurture entrepreneurship in the U.S. Some initiatives have been public, some have been private, while others have been combination public-private initiatives. Some are in the form of nurturing incubation centers. Each initiative is limited with respect to the creative memo of understanding, that is they have a written assignment agreed upon by other agencies. The Small Business Investment

Corporation (SBIC) is a legislative establishment for numerous venture funds. Education-based outreach programs (housed on college and university campuses) attempt to "link" resources of universities and technical school to new ventures in the community (Routman et al, 1984). The Small Business Development Center (SBDC, Act 1979) is another U.S. program aimed at providing a diverse range of advice to entrepreneurs through university locations. The MIT Alumni Association, a private organization, has offered assistance toward entrepreneurship development. The university of Texas more recently has set up a program at an annual cost of $500,000 which is called an "Innovation Center Without Walls". Students are recruited and sometimes paid to work on new venture plans for community-based entrepreneurs.

## Marketing Management and Communications in the Context of Entrepreneurship Development

Marketing Management and its component, communication, have been reported to be unstructured and irregular in the work of entrepreneurs in small business ventures. There is relatively little known about the management communication component and other business functions. Since so little is known in these regards, the cited literature represents research in general business operations and management as well as that conducted with

respect to entrepreneurship.

Frederick W. Taylor (1911) was one of the first people to study business using a scientific approach. Taylor began with the basics, experimenting and adding blocks to form a cogent body of knowledge. Many of the principles of management Taylor developed are being taught and used today. Other pioneering scholars such as Frank and Lillian Gilbreth advanced Taylor's work in motion and time study (Fearon et al, 1979). Industrialists like Henry Ford applied these principles to mass production and manufactured goods that many could afford. Many tools and techniques developed in the first half of the century according to Fearon et al have enhanced the efficiency and effectiveness of business firms. These scholars conclude that: (1) F. W. Harris developed the economic order quantity formula that now is a fundamental concept in inventory control, (2) a decade later, several individuals, including H. F. Dodge, H. G. Romig and W. A. Shewhart, applied the probability theory to quality control and introduced the concept of assessing quality based on a random sample.

Perhaps the single most important technological advancement in recent history of business is the computer. Various managerial tasks can now be performed by the computer but literature is unavailable as to what extent they are used in the entrepreneurial development process

(Buzzell, 1972). Entrepreneurs are often performing as managers and marketing managers, especially in the small firms. Market researchers are in agreement that business owners/managers need to understand contemporary marketing and be prepared to analyze problems and make informed decisions. Kotler and Levy (1969) suggest that marketing not be confined to operations and productions but to broaden the concepts to other services including education.

Marketing is closely related to communication when a new product is developed; communication is used to diffuse knowledge of the product to the consumer. Arndt (1967), in the study of a new food product, found that interpersonal communication about the innovation frequently led to its purchase. Researchers are in general agreement about the importance of communication and marketing in the research tradition with respect to entrepreneurship development.

## Literature Review Summary

General trends of increasing number and variety of courses, activities and assistance for entrepreneurial development have continued over the past five years. The Cooperative Extension Service is responding to America's critical concerns through the allocation of resources and creating relationships to met the needs of the enterprising economy.

There is considerable literature and a stream of university research papers presenting new data on entrepreneurship. The trend for entrepreneurial education is in the direction of increased schools, courses, teaching approaches, publications and applied research.

A review of the literature reveals that the notion of entrepreneurship is many things to many people and many researchers approach the subject from a variety of viewpoints. Literature for this study was divided into the following areas: The Cooperative Extension Service contemporary entrepreneurship, extension education including agriculture and home economics, innovation and dissemination of knowledge, marketing management and communications. Although there is widespread national interest in the academic community, this interest has not advanced to the creation of departments or majors in the undergraduate areas. Most trends point to increase in support through the addition of courses, teaching techniques and research initiatives.

Found in the literature were theories relating to change, innovation, diffusion, communication, education, marketing, organizational development, medicine and sociology. These theories provided the general framework for the development of the hypotheses developed to guide the study. Literature pertaining to entrepreneurship

development and research, extension, business initiatives, agriculture economic theory, enterprise zones and colleges and universities provided additional information for trend analysis, descriptive summaries and hypotheses development.

The twelve hypotheses for the study are stated in Chapter III. Statements with regards to reference and support of theories are identified with each hypothesis. The hypotheses were tested empirically by statistical methods using analysis of variance and regression procedures.

# CHAPTER III

# METHODS AND PROCEDURES

This chapter contains the methodology and the procedures used in the study. The chapter is divided into four parts. The first part details the design of the study. The Cooperative Extension Service at the Land Grant University was the unit of analysis. The second part describes the population for the statistical analysis. The sample used, the methodology, the instrument used and the trends utilized are also characterized in this section. The third part presents the hypotheses. And, finally, the fourth part is devoted to a description of the statistical analysis employed to test the research hypotheses. The chapter concludes with a summary of the two primary concerns of this chapter, i.e., the presentation of a systematic examination and interpretation of information and the presentation of the methodological procedures employed in the investigation. A brief introduction to the following chapter is also included.

## Research Design

The over-arching objectives for the study were to explore trends entrepreneurial education to determine the role that is being implemented for it by the Cooperative Extension Service through the allocation of Full Time

Equivalencies to entrepreneurial activities. Specific objectives, purpose, and the scope of the study have been presented in Chapter I.

Twelve hypotheses were developed from the literature review and were used to guide the study. Particular reviews were made of studies relating to change and innovation, the adoption process for new ideas and technology, marketing, agriculture, communication, home economics and education. These hypotheses addressed major concerns relating to extension's variations and relationships of entrepreneurial development to other program efforts.

## The Population Studied

The Cooperative Extension Service (organization) in each of the four (4) regions of the United States comprised the population for the study. The basic mission of the Cooperative Extension Service is to disseminate information and encourage the application of research generated knowledge to individuals, families, firms or communities in five designated program areas. These areas include: agricultural systems, natural and environmental resources, community and small business development, home economics, and 4-H youth education. The Cooperative Extension Service in all of the states has basically the same organizational structure and similar formats for executing programmed

activities to clientele groups. Mary Nell Greenwood (1986) states that

> "Cooperative Extension programming must retain broad flexibility...if it is to remain relevant the dynamics of change for the greater good of people in their communities. Ways must be found to reach more people and to involve other disciplines in the support of the extension systems established program."

Sample

There are four U.S. regions identified as North Central, North East, Southern and Western. Some of the regions contain states with two or more land grant universities. Each land grant university has a structured extension organization. When there is more than one land grant university, coordination is at a central location. All states report FY Staff Efforts in terms of FTEs.

A random sample of six states was selected from each region by the use of an IBM computer at Virginia State University. The Cooperative Extension Service at the land grant university in each of the 24 selected states was used in the sample. Table 2 and Table 3 below represent the states which were selected in the sample.

## TABLE 2

State in the North Central and Southern Regions

| North Central Region | | Southern Region | |
|---|---|---|---|
| States In Region | Randomly Selected States | States In Region | Randomly Selected States |
| Illinois | | Alabama | Alabama |
| Indiana | | Arkansas | |
| Iowa | | Florida | |
| Kansas | Kansas | Georgia | |
| Michigan | | Kentucky | Kentucky |
| Minnesota | Minnesota | Louisiana | |
| Missouri | Missouri | Mississippi | Mississippi |
| Nebraska | | N. Carolina | |
| Ohio | Ohio | Oklahoma | Oklahoma |
| S. Dakota | | Tennessee | Tennessee |
| Wisconsin | Wisconsin | Texas | |
| N. Dakota | N. Dakota | Maryland | Maryland |

## TABLE 3

States in the Northeast and Western Regions

| Northeast Region | | Western Region | |
|---|---|---|---|
| States In Region | Randomly Selected States | States In Region | Randomly Selected States |
| W. Virginia | W. Virginia | New Mexico | |
| Delaware | Delaware | Arizona | Arizona |
| N. Jersey | N. Jersey | Utah | Utah |
| Pennsylvania | Pennsylvania | Colorado | |
| New York | New York | Wyoming | Wyoming |
| Connecticut | | Montana | |
| Rhode Island | | Nevada | |
| N. Hampshire | | Washington | Washington |
| Vermont | | Oregon | |
| Maine | | California | |
| Massachusetts | Massachusetts | Hawaii | Hawaii |
| D.C. | | Alaska | Alaska |
| | | Ohio | |

Methodology

The aforementioned hypotheses addressed possible regional relationships and variations with regard to FTE allocations and were tested for significance. The regression analysis model was used to analyze relationship among the four regions. The Analysis of Variance (ANOVA) was employed to test variations within and among the states in the various regions. Hypotheses were tested at 0.05 level of significance.

The data (FTEs) for each state in the sample were made available through the USDA, Washington, D.C., with the restriction that it be used only for educational research. Each state extension system identifies programs and activities designed to met the needs of the people in that particular state based on the five major program areas previously discussed. States construct plans of work and these plans are executed by professions and paraprofessionals in a systematic fashion. While some states have two or more land grant universities, usually a one program summary is tabulated for the Federal Extension Office in Washington, D.C. The plan of work summarizes FTEs by program areas and may be considered carefully documented data suitable for statistical analysis.

Requests were made to the Federal Extension Service for the Plan of Work sections of FY1984 - FY1987 Staff

Efforts identified in the sample. The raw data (FTE allocations and program areas. Ambivalent language existed in the POWs regarding allocations. In order to ascertain the descriptors that indicated efforts in entrepreneurship education, a telephone call was made to each state in question for verification. Extension analysts reported that terms such as entrepreneurship development, new business ventures or enterprises and home based business activities appropriately reflected the allocations to entrepreneurship education. In order that the study reflect programmatic changes, a summary copies of each state's POW was mailed to verify the current status of the FTEs in the POWs. Only four states responded, indicating that the numbers reported were in agreement with those existing on file with USDA.

It was decided that data obtained through this method would be more valid than that which could be obtained through mailed questionnaires. This would also insure complete participation of all states in the sample. Appendix A illustrates the type of data acquisition forms used in the study. Included also are copies of correspondence relative to the information acquisition. Appendix E provides specific FTE allocations by state and program areas.

Procedures

The purpose of this investigation was to explore trends in entrepreneurship and to examine relationships and variations regarding financial support for entrepreneurial development in relation to program efforts of other program areas. This would help assess the role played by the Cooperative Extension Service in entrepreneurial education. The study was divided into two sections. The first section was descriptive of the trends currently in operation in entrepreneurial development; the second section was an analysis of variations and relationships regarding FTE allocations in the four regions of the U.S. The trends for Section I were analyzed in terns of change and innovation on the part of existing organization and agencies. The trends utilized in this study are identified below:

1. Increase in number of school.
2. Increase in variety of schools.
3. Directions for entrepreneurial studies.
4. New initiative in public and private support.
5. Series, concentration and majors in entrepreneurial studies.
6. Research efforts.
7. Economic incentives for entrepreneurs and small business development.
8. Increase in research and popular publications relating to entrepreneurship.

9. Increasing financial support.
10. Change and shift in traditional efforts.
11. Variations in teaching approaches.
12. More centers being developed, more endowed chairs at colleges and universities.

Objectives for Section I

Related literature was reviewed to assist in the achievement of these objectives. Documented information from agencies, organizations, colleges and universities, descriptive bulletins and brochures, directories, conference proceedings, journal articles, and annual reports were used in the first part of the study where a descriptive analysis was made to:

1. Determine the development of entrepreneurial education courses and activities at colleges, universities and agencies throughout the country.
2. Examine trends in entrepreneurial development.

Objectives for Section II

Section two of the study involved statistical techniques for analysis. Raw data pertaining to the allocation of FTEs toward entrepreneurial development were recorded and analyzed. Multiple comparisons were made. The

use of ANOVA was made to examine variations and the stepwise regression was used to test significance between entrepreneurial activities and more traditional program activities.

3. Identify variations in resources allocations for entrepreneurial development.
4. Analyze role of Cooperative Extension Service in entrepreneurial education.

## The Data Collection Instrument

The instrument used to record the data for this study was a hand card. The hand cards provided space for including all of the information relating to each state's Staff Efforts. The study included twenty-four cases. The information from each region was printed on one large card making it easy to see all information, by region, at a glance. See Appendix A.

## Hypotheses

The major concern of this thesis was to explore contemporary entrepreneurial educational developments and to identify the changing role of the Cooperative Extension Service toward this development within a psychological frame of reference.

The theoretical framework for the study, as

presented earlier, resides in categories of social change. In general, theorists regard the two paradigm of types of social change as internal and external. With internal change, there is recognition for the need to change by members of the social system. For the external type, Rogers (1971) states that there is recognition made by change agents outside of the social system. He further regards two levels of social change as (1) the individual level and (2) the social system level. Changes that occur at the individual level relate to the adapter or rejector of the innovation. Change is also referred to as diffusion, adaptation, modernization, acculturation, learning or socialization.

While the changes at the individual level and the social system level are closely interrelated, this study focused primarily on the change at the social system level (CES), where change has been diversely termed entrepreneurial development, small business management, specialization, integration, or adaptation.

More generally, the theoretical orientation holds that for an organization to change, alterations must occur in the structure and function of a social system (Lowerence et al, 1969). For CES, function shifts relate to (1) the provision of increased information in the farming tradition of agriculture enterprises, (2) national concerns for

unemployment, (3) concerns for the failure rate of farm operators and non-farm business owners and their lack of managerial skills, (4) natural resources and public policy, (5) youth education, (6) family stability, (7) leadership and community development.

In general the theoretical orientation presented earlier was that change occurred for individuals and organizations at different times and that the adoption of new ideas and practices requires time and social systems. Leadership and other external environmental factors influences the rate of change according to Rogers (1971). Because organizations are dependent on the environment in many ways, they seek to develop programs or to use their resources in the most efficient manner (Lippett, 1976). This could suggest that among the CES organizations, some would be operating at various stages in the innovation process. The first hypothesis to test would be:

$H_1$ There are significant differences among the CES regions with respect to FTE allocation to entrepreneurial development.

Innovation theory supported by Rogers (1971) et al suggest that the rate in which change occurs is influenced by the attributes of (a) relative advantage, (b) compatibility, (c) complexibility, (d) trialability, and (e) observability. CES has traditions in agriculture production

and thus and attributes for innovation in this discipline could contribute to innovations in other agriculture or non-farm enterprises. The second hypothesis becomes:

$H_2$ There are significant differences among the CES regions with respect to FTE allocations and agriculture marketing.

Social research investigations of organizations in a state of change, including the Extension Service, are grounded in the attributes of compatibility and complexity. If a program idea is compatible with the prevalent values and norms of the organization, the new program or idea will be more rapidly adapted. The complexity of a new program or activity affects its rate of adoption. Lionberger (1954) and Marcum (1968) made observation of these attributes in research concerning innovation, communications and organizational climate.

Organizations, when confronted with problems relating to national and international concerns, governmental agencies and cultural subenvironments began to develop plans to cope with the relevant changes.

The following two hypotheses with regards to natural resources and community development and public policy are presented.

$H_3$ There are significant differences among the regions with respect to FTE allocation to natural resources.

$H_4$ There are significant differences among the

regions with respect to FTE allocation to community development and public policy.

One central goal of nearly all organizations, whether explicit or implicit is viability and survival (Waxel and Yuki (1971). If an organization including CES achieves the original objective, "improving farming practices in the world," for which it was created and thereby produces too many "successful farmers", new objectives may be found in other areas such as public policy, local government, leadership development. The finding of new objectives for emphasis may vary with respect to states and regions.

In many large organizations, the authority for making key decisions is influenced by councils and boards of directors, and this contributes to innovation and change. The categories of home economics and 4-H Youth work usually make use of these councils. Some regions might show greater reluctance to social change based on the use of this process. Based on this frame of reference, the following two hypotheses were investigated:

$H_5$ There are significant differences among the regions with respect to home economics and FTE allocation.

$H_6$ There are significant differences among the regions with respect to 4-H youth work and FTE allocation.

The degree to which a social organization will

initiate innovation depends to a large degree upon trialability, an attribute of diffusion theory. Many social systems will try new ideas on a limited basis. If Research and Development funds are available or if "soft" monies can be made available, leadership is more likely to experiment with new innovations. Ryan and Gross (1943) found that not one of their Iowa farmer respondents adapted seed corn without first trying it on a partial basis. The Small Home-Based Business program at Michigan State University was expanded on "soft monies". An innovation that is triable represents less risk to the institution or individual who is considering it.

A fifth attribute in diffusion theory relates to observability. An innovation for a new program, thrust or idea is adopted or not adopted in relationship to its ability to be observed by significant others. With most organizations a series of program development activities takes place. When the new innovation can be viewed as part of this process, especially in the problem solution, evaluation and stabilization phases, the innovation has a better than average chance of being initiated.

To examine attributes of diffusion theory relating to change and role, the following six hypotheses were presented:

$H_7$ There is a significant relationship

to change and role, the following six hypotheses were presented:

$H_7$ There is a significant relationship between FTE allocation and entrepreneurial development.

$H_8$ There is a significant relationship between FTE allocation to Natural Resources and FTE allocation to entrepreneurial development.

$H_9$ There is a significant relationship between FTE allocation to Community Development and FTE allocation to entrepreneurial development.

$H_{10}$ There is a significant relationship between FTE allocation to Home Economics and FTE allocation to entrepreneurial development.

$H_{11}$ There is a significant relationship between FTE allocation to 4-H and FTE allocation to entrepreneurial development.

$H_{12}$ There is a relationship between FTE allocation to Other (total FTE) and entrepreneurial development.

The theoretical perspectives and the population studied are conterminous with previous studies of social and institutional change made by Rogers (1971), Havelock (1971), Katz (1966), and others. The easier it is for an organization to see results of an innovation, the more likely it is to adopt (Havelock, 1971). With agriculture in transition, many CES organizations will accelerate relationships to bring about change. Extension's strengths are manifested in its relationships (USDA-Ecop 1986).

and interest groups are among the roles identified by CES. Other roles consist of integrating knowledge and new technology into programs and educating citizens about how to select and use appropriate technology and to solve practical problems.

Extension educators in land-grant universities, public and private research laboratories, business, and other organizations seek to develop, to share and use new information to solve problems in agriculture, home economics, as well as new thrusts in business and industry (USDA-Ecop, 1986).

The presentation of data and appropriate statistical analyses concerning the role and involvement of extension education completes the analysis in this study.

## Description of the Statistical Analyses

The Analysis of Variance (ANOVA) model or procedure was employed to determine whether or not there exist significant differences among the regions with respect to FTE allocations to entrepreneurial development and other extension program areas. ANOVA was employed to test the first six hypotheses about the means for the variables among and between the regions. A part of the study is concerned with the variations regarding FTEs in four different U.S. regions. Analysis of variance can be used to test

hypotheses concerning more than two means and was therefore used in the place of a T-test analysis.

The specific kind of ANOVA test made in this study is called the one-way analysis of variance with equal cell sizes. The theory behind ANOVA is based on the assumption that the populations are normal. The rule of thumb for entries in the ANOVA table is based on the research of Tukey (1956). The analysis of variance was made by statistical package (SPSS) software available at Michigan State University.

A second kind of test used in this study was the regression procedure. According to Glass and Hopkins (1984), much if not most behavioral research that employs multiple regression equations utilizes "step-wise" multiple regression. In step-wise regression the best predictor is selected in step 1 and a one-predictor regression equation is provided along with the correlation and various other statistics such as the standard error of estimate. In step 2 the variable that would contribute the most additional relevant variance is selected and a two-predictor regression equation is selected and $Ry.x_1x_2$ is determined. Each successive step progresses in like manner.

The Regression Analysis procedure was employed to test hypotheses to determine whether or not there are significant relationships between entrepreneurial

test hypotheses to determine whether or not there are significant relationships between entrepreneurial development and other extension program components. The inferential methods for regression are based on the following:

(a) Regression line: for each X-value, the mean of the corresponding population of Y-values is $B0+ B_1{}^x$.

(b) Normality: for each X-value, the distribution of the corresponding population of Y-values is normal.

(c) Equal variances: the variances $\sigma^2$, of the normal distribution are identical.

Stated in somewhat clearer terms, the assumptions state that for each X-value, the corresponding population of Y-values is normally distributed with mean $B_0 + B_1x$ and variance $\sigma^2$. Weiss and Hassett (1982) rephrase the assumption to include the error terms, E which are also normally distributed with mean of 0 and the same variance $\sigma^2$. Thus the model becomes:

$$Y = B^0 + B_1x + E$$

population Y-value = population regression line value + error term

Data for this study included the variables of

policy, home economics, 4-H youth, entrepreneurial development, and "other" (a combination of all variables excluding entrepreneurial development).

This regression procedure was chosen over more traditional procedures due to the sample size and the number of variables used the analysis.

## Summary

There were two primary concerns of this chapter. The first concern was the description of the systematic examination and interpretation of information regarding trends and the future viability of entrepreneurship development in CES. The concern was addressed via an examination of the trends currently in operation in entrepreneurial development. The second concern was the description of the methodological procedures employed in the investigation of relationships and variations regarding FTE allocations. Briefly, this concern was addressed via (1) the methodology used in the investigation; (2) the population and design; (3) statements of the hypotheses and the background developed to show the general relationship and variation of each of the hypotheses to the entire study; and (4) a description of the methods, and designation of the statistics, employed to test the hypotheses. In the following chapter, the results of the investigation are

reported.

# CHAPTER IV

# RESULTS AND INTERPRETATION

This chapter consists of four major sections. The first part describes the results of the various factors considered in the contextual exploration of entrepreneurial development. The second part involved the quantification and measurements relating to the hypothesized Full Time Equivalency allocation to entrepreneurial development. The third part is a descriptive analysis of the role of the Cooperative Extension Service. And, finally, the fourth part summarizes the chapter.

## Some Trends In Entrepreneurship Development

Many organizations have combined activities to foster entrepreneurial education. Several professional groups have emerged. They represent both the public and private sectors. Financial institutions are investing in entrepreneurship. One group, the Corporation for Enterprise Development, serves as a resource for fledgling entrepreneurs. The Local, State and Federal governments are now assisting with this initiative. Several states are funding small business centers providing financial assistance and directions for incubation centers. Other states are combining research facilities with high-tech

centers involving local colleges and universities. While the federal government has reduced its efforts in some areas, it has increased them in other areas. The recent White House Conferences scheduled in strategic regions around the country in 1986, support this trend. The Small Business Administration has increased its efforts through the cooperation of locally sponsored events.

During the past five years, several principal trends have become visible. These trends are as follows:

1. Increase in number of schools, courses and activities.
2. Increase in the variety of schools providing education and/or services.
3. Development for new directions for studies and approaches.
4. Increase in the variety of teaching methods.
5. Increases in both public and private support.
6. Changes with regards to economic regulations.
7. New and different economic incentives.
8. Greater support by agencies and organizations.
9. Greater research endeavors, more professional conferences and seminars.
10. More endowed chairs.
11. Increase in the number of publication and computer software packets.

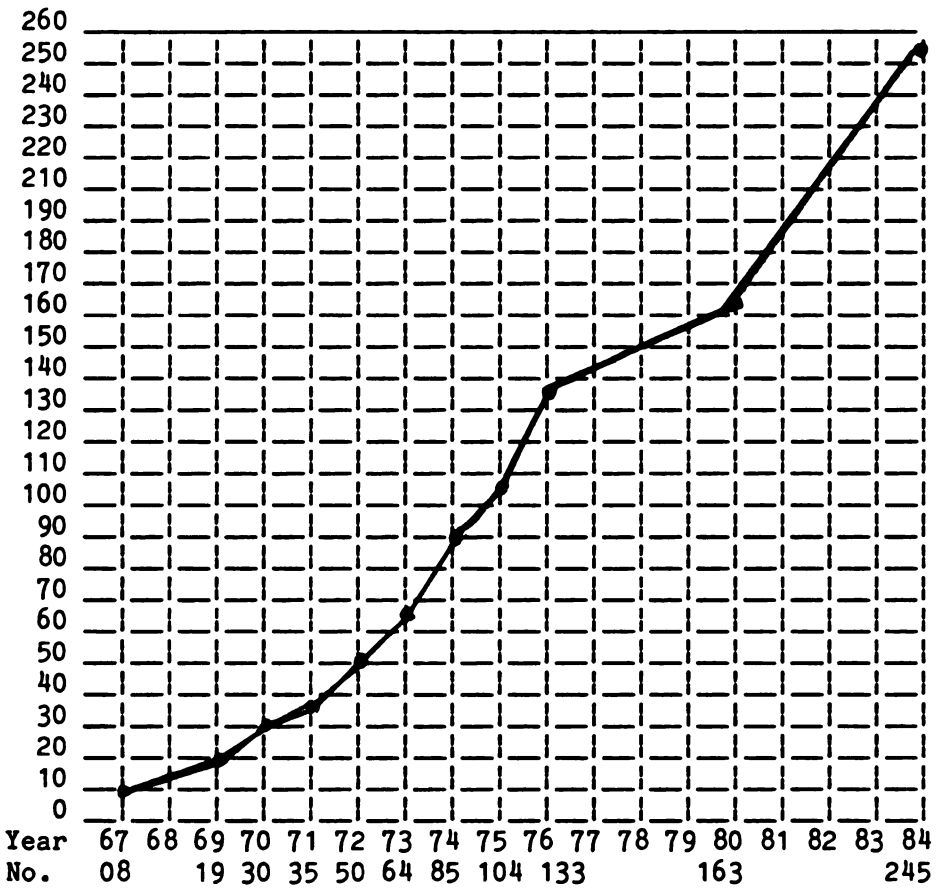
Increase In Number of Schools, Courses and Activities

The number of schools offering courses in entrepreneurship has increased dramatically. In 1980 there were 163 different schools offering courses compared to 245 in 1985 (Vesper, 1985). Of the number of schools providing these course, two hundred and twelve (212) are schools of business. Forty one (41) of these are engineering schools while eight have courses in both their business and engineering schools. Table 3 illustrates the increase in schools offering courses in entrepreneurship education.

Entrepreneurial education is now offered in non-urban settings and in many disciplines under a variety of course titles. Traditionally, the majority of offerings were in the metropolitan areas where instructors had greater access to large numbers of students interested in the subject, where guest lecturers were more available and where more opportunities were available experimentally.[1] However, administrators learned that non-urban areas also wanted to study the subject. Community colleges serving many of the non-urban areas have made a tremendous contribution in this endeavor. A large number of courses have been offered at colleges and universities outside of business and engineering. Especially noteworthy are departments within colleges such as fashion merchandising, interior design, agriculture, child development, architecture, home economics

**TABLE 4**

Growth In Number of Schools with Entrepreneurship Courses Over Time




SOURCE: Entrepreneurship Research Proceedings, Wharton Entrepreneurship Center, 1985.

(human ecology) and both social and natural science.

Directions for entrepreneurship courses have taken many forms. Many schools are presently experimenting with several approaches. One approach is to offer a "standard course" consisting of (a) venture design projects, (b) case studies, (c) readings, and (d) lectures by guest speakers

and the instructors. Many schools move on to a logical second course such as a "project" course in which students who started in the first course implement their learning in the second course. Some schools offer special sections for non-business and non-engineering majors. Another approach that some schools take is to offer "specialty courses" in entrepreneurship education. These courses sometimes overlap and create redundancies between entrepreneurship courses and other courses in the curriculum. Educators are presently pondering whether there is a full course-worth of difference between entrepreneurial marketing and other marketing courses, or between venture capital and other finance courses, and if so, what is it? Schools that are exploring this frontier include Babson, Calgary, Southern California and Wharton.

Entrepreneurship courses tend to be relatively high in student popularity (Vesper, 1985). In many universities, instructors are permitted to be selective in their admissions. With some schools, selection is based on personal interviews, others require course priority to gain entry and in a few schools, a course in entrepreneurship is required. Other avenues of course introduction being tried at several schools are the introduction of entrepreneurship in other courses and the use of entrepreneurship as a capstone similar to the way business policy is treated.

Colleges and universities are offering courses under a variety of course titles. Some schools and the courses that they offer are presented on the following page.

The trend in teaching approaches in U.S. entrepreneurship is varied. This is accounted for in part by class composition. Some universities combine undergraduate and graduate students in the same classes. Others are offering classes to students other than business or engineering majors. A few universities are combining credit and non-credit students in classes simultaneously.

The most widely used techniques are class

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**TABLE 5**

Entrepreneurship Course Titles At
Various U.S. Universities - 1986

| Colleges & Universities | Title of Courses |
|---|---|
| Babson, Baylor, Calgary, Harvard & Northeastern | Venture Finance |
| Baylor, Calgary | Venture Marketing |
| Harvard | Entrepreneurial Management |
| Drexel, MIT, RPI | Innovation Management |
| Dartmouth, MIT | Product Design & Develop. |
| Arizona State, Rhode Island, Wichita State | Feasibility Analysis |
| Hawaii | Economics of Entrepreneur. |
| Case-Western | Psychology of Entrepreneurs |
| Wisconsin | Entrepreneurial History |
| UCLA, NYU, Wichita State | Internal Corporate Entrepreneurship |
| Baylor | Venture Accounting & Taxes |
| Babson | Academic Fields of Entrepreneurship |
| Calgary | Venture Law |
| Harvard | Real Estate Venture |
| Michigan State | Small Home Business |

discussions, case studies, field study, reading assignments, speaker and guest panels, and model building (Entrepreneurship Proceedings, 1986). Many professors are placing more emphasis on the use of technology, and students are becoming involved with the use of personal computers in venture planning and the use of video tapes of real entrepreneurs. With many schools the development of product prototypes, not just paper designs, become part of the course. Live entrepreneurial cases, as opposed to written cases, become part of the class for instruction as well as final examination. An increase in the number of texts required for each class is a technique of most major schools with entrepreneurial studies. Professors wish to expose students to as broad a spectrum as possible. A few schools provide funding for students who have high grade point averages and/or scholarships when they demonstrate skills for venture capital acquisition or innovative business opportunities.

While entrepreneurship courses tend to be popular with students, their majors continue to be in business management, engineering, liberal arts, and other subjects. While evidence is inconclusive, there appear to be increased activities at the masters and doctoral levels. Harvard, Georgia Tech, Michigan State, Washington, St. Louis University and Wharton reported instances of graduate work

in entrepreneurship development (Frontiers in Entrepreneurship - Proceedings, 1986). Harvard appears to be the leading institution in graduate level study of entrepreneurship.

The trend toward a series of outreach activities and field experiences for entrepreneurial students continues upward. Out-reach activities which involve students working to help entrepreneurs develop business plans, establish record systems, conduct market research and the like are among the things entrepreneurial club members implement. Entrepreneurship symposia, speakers bureau, lunch and dinner information series are also activities associated with student entrepreneurial clubs. The idea of creating venture capital funds for the financing of student-designed ventures is also being explored at several institutions. In 1984 the first national convention of college and university entrepreneurial clubs convened at MIT (Frontiers in Entrepreneurship - Proceedings 1986).

Trends relating to public and private support for entrepreneurial development and small business management appear to be escalating. One prime mover is the Small Business Administration. This organization, at one time, operated offices in each state. The SBA's Small Business Institute operates with the cooperation of faculty,, seniors and graduate students to extend personal counseling to small

firms. The SBI provided leadership for the formation of the International Council for Small Business.

While economic regulations impact upon all businesses, they have a profound impact upon entrepreneurial development. The trend for entrepreneurment is toward deregulation.

The entrepreneur often suffers severe set-backs due to economic regulations. These regulations act as a drag on economic growth by diverting resources away from directly productive uses thereby stifling entrepreneurial initiatives (CES Systems, 1986). Since most economic regulations have profound negative effects on small entrepreneurial enterprises, local and state initiatives are forming to assist toward deregulation. The Environmental Protection Agency and the Federal Communication Agency are among the agencies at which deregulations are aimed.

Other trends that relate to entrepreneurial development include efforts of economic stimulation and revitalization of depressed urban areas. Enterprise zones and incubation centers are being established in many depressed neighborhoods and thee zones and centers are granted relief from the constraints of taxation, regulation and local community services (SBA, 1984).

In an effort to meet needs of clientele, attract funding sources and retain leadership, many of the

traditional institutions are becoming involved in entrepreneurial development. This involvement is being manifested in two distinct forms. The first form is to provide specific activities, classes or programs for potential entrepreneurs. The second form is to attempt to incorporate the entrepreneurial spirit into existing programs and activities. The Cooperative Extension Services in many states are involved more or less in the former (CES, 1986). Secondary educational institutions and many institutions of higher education are involved in the latter. While CES has always encouraged and put forth many efforts in production agriculture, efforts are being increased to promote the entrepreneurial skills in other programs such as home economics, 4-H and resource development. Organizations such as the Junior League, Secondary Vocational Agriculture, and Jaycees, have a tradition in enterprise development which too are being accelerated.

Research activities in entrepreneurship education have increased significantly since 1980. Evaluations of research reports indicate that areas are precisely defined and fall primarily into about eight major areas. Babson College, a forerunner in entrepreneurial research conducted an interest survey among researchers participating in the 1986 Research Conference. The findings indicate the number one research interest area is "entrepreneurial

characteristics and traits". This is followed with interest in "net working and mentor". Other areas of interests include high technology and innovation, education and entrepreneurship, market strategies, venture capital, comparative and foreign based studies, and investors and venture financing. The survey also indicates that female entrepreneurial studies and public policy issues were areas of least importance to researchers.

Since 1980 more than 358 papers have been reported on entrepreneurship research (Frontiers of Entrepreneurship Research - Proceedings, 1986). While many of the colleges and universities offering entrepreneurial programs are conducting research, they also support and contribute to the international and annually observed Babson Entrepreneurship Conference. Some 282 research papers have been presented at these conferences where attendance is restricted to a "required paper".

Table 6 is a breakdown of these totals over the 1981-86 period. It also shows a substantial percentage of new attendees each year.

**TABLE 6**

The Number of Presented Papers and Authors
Babson Entrepreneurship Research Conferences

| Year | No. of Papers | No. of Authors & Co-Authors | No. of New Authors | % New Authors |
|---|---|---|---|---|
| 1981 | 39 | 59 | 1st Year at Babson -- | |
| 1982 | 35 | 58 | 36 | 62% |
| 1983 | 37 | 60 | 34 | 57% |
| 1984 | 43 | 67 | 22 | 33% |
| 1985 | 60 | 97 | 47 | 48% |
| 1986 | 68 | 124 | 68 | 55% |
| Total | 282 | 465 | | |

Source: Entrepreneurship Research Conference Proceedings, Babson College, 1986.

Table 7 presents the publication record for the period.

There is a growing trend toward increased financial support for entrepreneurial programs. Endowed chairs are increasing very rapidly (Vespers, 1985). Some of the major universities that are well financed are Harvard and Wharton. There is also an increase in the number of entrepreneurial centers around the country. Babson College, Arizona State, Carnegie-Mellon and Case-Western have very well financed centers. Other centers are located at DePaul, Ohio State, New York University, North Carolina, Utah State, Wichita State, Texas Tech and Rensselaer. Several other universities have initiated proposals for centers for their campuses.

**TABLE 7**

Papers Presented Versus Papers Published
Babson Entrepreneurship Research Conf., 1986

| Year | No. of Papers Presented | No. of Papers Published | % Of Total | No. of Summaries Published | % of Total |
|---|---|---|---|---|---|
| 1981 | 39 | 39 | 100 | -- | -- |
| 1982 | 35 | 35 | 100 | -- | -- |
| 1983 | 37 | 33 | 89 | -- | -- |
| 1984 | 43 | 38 | 88 | -- | -- |
| 1985 | 60 | 38 | 63 | -- | -- |
| 1986 | 68 | 44 | 65 | 24 | 35 |

Source: Entrepreneurship Research Conference Proceedings, Babson College, 1986.

The final trend explored in this paper relates to the increase in the number of publications, amounts of computer software and the number of new books written. The professional journals interested in articles include: American Journal of Small Business Management, Wisconsin Small Business Forum, Journal of Business Venturing, Industrial Marketing Management, and Harvard Business Review. The libraries, especially those located in the entrepreneurship centers, indicate an increase in the number of popular publications. They subscribe to a variety of popular publications and also provide current book reviews

Tests of Hypotheses and Discussion

In this section, the results of the statistical tests for each of the six hypotheses comparing the allocation of FTEs by region and by program areas are presented and discussed.

The data for this study are based on twenty-four cases with a total of six variables. The cases provide the representative samples from each of the four U.S. Cooperative Extension Regions. The cases and data on each variable are summarized in Appendix F.

When the regions were compared, agriculture, youth, home economics and "other" were significant at the 0.05 significance level with regards to FTE allocations among the regions. But for natural resources, community resource and development and entrepreneurship development there were no statistical differences in the FTE allocations among the regions.

**TABLE 8**

Comparison of Program Areas an FTE Allocations Among the Regions

| Area | F Values | Significance Values |
|---|---|---|
| Agriculture | 4.856 | 0.011* |
| Natural Resources | 1.006 | 0.4106 |
| CRD/PP | 2.558 | 0.0839 |
| Home Economics | 3.771 | 0.0270* |
| 4-H Youth | 5.250 | 0.0078* |
| Entrepreneurial | 1.088 | 0.3771 |
| Other (non-ext.) | 4.758 | 0.0116* |

*0.050 Significance Level.

**TABLE 9**

Comparison Of Sample Means by Region
(FTE Allocations)

| Region | GRP | AG | NR | CRD/PP | HE | 4-H | Ent. | OTHER* |
|---|---|---|---|---|---|---|---|---|
| N. Cent. | (1) | 78.751 | 22.526 | 20.467 | 40.618 | 56.235 | 20.856 | 248.608 |
| Southern | (2) | 117.865 | 11.451 | 14.911 | 93.056 | 95.443 | 18.105 | 332.728 |
| N. East. | (3) | 65.351 | 26.025 | 12.878 | 50.963 | 42.423 | 12.333 | 197.641 |
| Western | (4) | 30.910 | 4.390 | 4.836 | 15.390 | 23.721 | 5.000 | 79.248 |

*Other is the variable created by summing all variables excluding entrepreneurial development.

The tabulations in Table 9 indicate some mean differences among regions regarding allocations of FTEs to entrepreneurial development though these differences were not significant. While the Southern regions lead the U.S. in total FTE allocations, it ranks second with respect to entrepreneurial development. The mean score is possibly influenced by the fact that the Southern region is comprised of both 1862 and 1890 institutions. The North Central leads with a mean of 20.85 FTE. This is four times that of the Western region and almost doubles the mean allocations for the Northeast. A possible explanation for this mean is that these states are grouped in the highly industrialized area of the mid-west. In addition, this region contains a larger percentage of the high tech centers. It also provides incentives for incubation programs. Many extension programs relate directly to entrepreneurial type efforts. Northeast

and Western regions represent the next mean comparisons with Northeast allocating more than twice the amount of the Western region.

FTE Allocation and Entrepreneurial Development

Entrepreneurial development outside of the agriculture tradition is being viewed by any extension organizations as a new or innovative method of reaching more people. The question preceding the first hypothesis is whether the diffusion effect would influence extension in adoption or rejection of entrepreneurial development as a serious program category. The testing of a hypothesis regarding variation among the regions might register in the continuum of innovativeness, thus the presentation of the following hypothesis.

$H_1$ There are significant differences among the regions with respect to FTE allocations to entrepreneurial development.

The analysis of variance by regions indicated an observed significance level of 0.377. When compared to the 0.050 level, it was not significant, indicating that the hypothesis could not be accepted.

Additional interpretation of this finding could possibly relate to the confusion between the terms small business and entrepreneurial development and between

agriculture production and agriculture marketing. The results of this analysis indicated that there is no significant variation i.e., less than 0.05, with regard to entrepreneurial development among the four regions (see Appendix B).

FTE Allocation and Agriculture

In this part of the study, agriculture becomes the independent variable. Agriculture also enjoys a relative advantage in terms of its place historically in the CES structure and also with respect to the research traditions in diffusion and innovation theories.

$H_2$ There are significant differences among the regions with respect to FTE allocations for agriculture production.

As illustrated in Table 9, the mean scores for agriculture by region vary significantly. Group 2 reported the highest mean with groups 1, 3, and 4 following respectively. The over-all mean score for group 2 may be explained by the availability of FTEs from both the 1862 and 1890 institutions.

The analysis of variance indicated a high degree of significance which would lead to the rejection of the null hypothesis that there is no variation in FTEs with regards to agriculture by regions.

**TABLE 10**

Analysis of Variance (FTE and Agriculture)

| Source | D.F. | Sum of Squares | Mean Square | F Ratio | F Prob |
|---|---|---|---|---|---|
| Between Groups | 3 | 23254.9328 | 7751.6443 | 4.586 | 0.0107 |
| Within Groups | 20 | 31928.2767 | 1596.4138 | | |
| Total | 23 | 55183.2095 | | | |

The Tukey test further indicated that it is group 2 and group 4 that differ significantly.

**TABLE 11**

Pairs of Groups Significantly Different at the 0.05 Level

```
                                                GGGG
                                                RRRR
                                                PPPP
                                                0000
                                                0000
                                                4312
                                                 |
          Mean Group                             |
                                                 |
        30.9100 Grp 004                          |
        65.3517 Grp 003                          |
        78.7417 Grp 001                          |
       117.8650 Grp 002-------------------*      |
```

Table 11 reflects an analysis of multiple comparisons (Tukey = Ranges) which indicates pairs of groups

that were significant at the 0.05 level

Natural Resources and Community Development

Hypotheses number three and four address the variation between the regions with respect to natural resources and community development and public policy. Some organizational theories suggest that changes occur rapidly when environmental threats impact upon institutions. Others suggest that the attribute of "relative advantage" with regard to innovation is more powerful in creating change.

$H_3$ There are significant differences among the regions with respect to FTE allocations to Natural Resources.

**TABLE 12**

Analysis of Variance (Variable NR)

| Source | D.F. | Sum of Squares | Mean Square | F Ratio | F Prob |
|---|---|---|---|---|---|
| Between Grps. | 3 | 1791.2326 | 597.0775 | 1.006 | 0.4106 |
| Within Grps. | 20 | 11869.6144 | 593.4807 | | |
| Total | 23 | 13660.849 | | | |

The analysis of variance indicates that there is no significant variation among the regions with respect to FTE allocation and NR. The hypothesis was not rejected at the 0.05 level of significance.

FTE Allocations and CRD

$H_4$ There is significant variation among the regions with respect to FTE allocations to CRD.

The analysis of variance indicates that there is no significant variation among the regions with respect to FTE allocations for CRD, therefore the hypothesis was not rejected.

**TABLE 13**
Analysis of Variance (FTE and CRD)

| Source | D.F. | Sum Of Squares | Mean Squares | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Grps. | 3 | 755.4329 | 251.8110 | 2.558 | 0.839 |
| Within Grps. | 20 | 1968.9150 | 98.4458 | | |
| Total | 23 | 2724.3480 | | | |

FTE and Home Economics

Home economics is an area that utilizes councils and boards for making many key decisions. What impact will this input have regarding regional variation with respect to influencing FTE allocations?

$H_5$ There is significant variation among the regions regarding FTE allocations to home economics education.

The analysis of variance test does support the hypothesis here. This finding is supported by Katz (1954) and the Cooperative Extension Service mission of flexibility

and prompt response to human needs. Katz remarks, "people in our time are so passionate about new technology, so utterly shaped by it, so convinced of its superiority so immersed in the technological environment that they are all, without exception, oriented toward technological progress". The special political and economic environment diversities of states also support this finding.

Table 13 indicates that there is significant variation among the states with regard to FTEs in home economics. This hypothesis is not rejected at the 0.05 level.

Table 14 is a post-hoc Tukey test which shows that it is group 2 and group 4 that are significantly different at 0.05 level.

**TABLE 14**

Analysis of Variance for Home Economics

| Source | D.F. | Sum of Squares | Mean Square | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Grps | 3 | 19514.0827 | 6504.694 | 3.771 | 0.0270 |
| Within Grps | 20 | 34502.1917 | 1725.109 | | |
| Total | 23 | 54016.2745 | | | |

**TABLE 15**

Pairs of HE Groups (Variable HE)

| Mean | Group | GGGG RRRR PPPP 0000 4312 |
|---|---|---|
| 15.3900 | Grp 004 | |
| 50.9633 | Grp 003 | |
| 70.6183 | Grp 001 | |
| 93.0567 | Grp 002 | * |

FTE and 4-H

The 4-H youth program is very diverse. Programs reflect the characteristics of the states in which they reside. The structure of the organization involves not only extension staff members and parents but a large number of volunteers. Information derived from theories and research in information diffusion and innovation lead us to believe that 4-H youth work is under the same kind of evaluation as home economics and agriculture.

$H_6$ There is significant variation among the regions with respect to 4-H youth work and FTE allocations.

The analysis of variance technique indicated a significant variation among the regions. Two group subsets show significance at the 0.050 level. Tables 15 and 16 indicate this result.

**TABLE 16**

Analysis of Variance (4-H)

| Source | D.F. | Sum of Squares | Mean Square | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between Grps | 3 | 1635.063 | 5545.021 | 5.250 | 0.0078 |
| Within Grps | 20 | 2125.448 | 1056.272 | | |
| Total | 23 | 37760.512 | | | |

The multiple range test shows a comparison of subsets which denotes pairs of groups significantly at the 0.05 level. Table 16 illustrates this result.

Table 17 indicates a significant variation between the Southern region and the Western region of the United States regarding FTE allocation. There is also a significant variation between the Southern region and the Northeast region.

**TABLE 17**

Pairs of Groups Significance

| Mean | Group | GGGG RRRR 0000 0000 4312 |
|---|---|---|
| 23.7217 | Grp 004 | \|\| |
| 42.4233 | Grp 003 | \|\| |
| 56.2350 | Grp 001 | \|\| |
| 95.4433 | Grp 002 | ** |

Table 17 indicates a significant variation between the Southern region and the Western region of the United State regarding FTE allocation. There is also a significant variation between the Southern region and the Northeast region.

FTE and Other

The variable "other" was created by summing the results from the variables agriculture through 4-H youth. While this was not a hypothesis, the results are none-the-less important and very significant. The analysis of variance determined a significance level of 0.0116. The multiple range test identified two subsets that were significant variations with regards to "other" and FTE allocations. The summaries are highlighted in Appendix B.

Relationships

To determine the type and strength of relationships existing between traditional program areas of work in CES and entrepreneurial development, six hypotheses were formulated and tested.

A step-wise regression analysis technique (explained in Chapter III) was used. Table 18 provides an overview of the observed relationship found between the variables.

**TABLE 18**

Relationship of All of the Program Areas and FTE Allocation to the Entrepreneurial Allocation

| Area | F Value | DF | Signif. Level |
|---|---|---|---|
| Other | 20.248 | (1,22) | 0.000* |
| NR | 6.378 | (1,22) | 0.000* |
| CRD | 10.071 | (3,21) | 0.007* |
| HE | 16.824 | (2,22) | 0.001* |
| 4-H Youth | 11.481 | (1,22) | 0.003* |
| Ag | 18.210 | (1,22) | 0.000* |

It appears that as funds were increased in terms of support of CES, each of the program areas increased their amount of funding and subsequently their amounts of funds for entrepreneurial education.

There are six major program areas in the extension land-grant system. While regions differ socially, geographically, and politically, similar programming models are utilized by all regions for the six program areas.

Table 18 presents statistics and the relationship between all of the variables in the study. The relationships determined by this study support organizational theory and proposed flexibility in extension to respond to environmental threats to include new program thrusts. All hypotheses were tested at the 0.05 level and

were significant except Natural Resources.

Table 19 shows the rank and strengths of the relationship between the variables of FTE allocations to agriculture, home economics, youth, community resource development, and natural resources.

**TABLE 19**

Rank According to Strengths of Relationships to Entrepreneurial Development

| Area | Rank | Correlation Coefficient (r) |
|---|---|---|
| Agriculture | 1 | 0.673* |
| Home Economics | 2 | 0.658* |
| Youth | 3 | 0.586* |
| CRD | 4 | 0.561* |
| NR | 5 | 0.243 |

*Significant at 0.05 level

It should be noted that all of the correlations show positive relationships with entrepreneurial development except the Natural Resource Program area. This means that, as allocations or expenditures are increased for most of the program areas, so are the allocations or expenditures increased toward entrepreneurial education. Table 20 presents the variables with corresponding means and standard deviations for allocative expenditures.

**TABLE 20**

Mean and Standard Deviation for Allocative Expenditures In CES Major Program Areas

| Variables | Means | Standard Deviation |
|---|---|---|
| Agriculture | 73.219 | 48.982 |
| Natural Resources | 16.098 | 24.371 |
| Community Dev. | 13.275 | 10.883 |
| Home Economics | 57.507 | 48.461 |
| 4-H Youth | 54.455 | 40.518 |
| Entrepreneurial Development | 14.073 | 16.569 |
| Other* | 214.556 | 145.329 |

*Total variables minus entrepreneurial development

The fact that relationships are significant is not surprising in view of the service mission of the Cooperative Extension Service, which allows for funding and administrative relationships that permit educational programs to be directed toward broad national purposes. And, since some of the national purposes are directed toward employment, economic development, public policy and family stability, the significance of the positive nature of the relationship is more easily understood.

Agriculture and Entrepreneurial Development

This phase focuses on agriculture and entrepreneurial allocations to determine if a significant relationship exists.

$H_7$ There is a significant relationship between FTE allocations to agriculture and FTE allocations to entrepreneurial development.

This support is conterminous with the main concept of traditional agriculture (1) to be innovative in program development and (2) to emphasize marketing techniques and farm management principles in solving agribusiness problems. The Agricultural Marketing Act of 1946 supports this finding.

Natural Resources and Entrepreneurial Development

This phase focuses on natural resources and entrepreneurial allocations.

$H_8$ There is a significant relationship between FTE allocations to natural resources and FTE allocations to entrepreneurial development.

The findings indicated a non-significant relationship between natural resource and entrepreneurship (refer to Table 17). Natural resources (CES) work is based on the philosophy that individuals and organizations are concerned with the environment and, that when certain crises occur, they will apply multi-disciplinary approaches or

innovative approaches to solve problems of natural resources. This is in disagreement with other writings of Schen which maintain that the organization must feel discomfort or threats before increasing efforts for problem solving.

Table 21 illustrates relationships of staff efforts expended in agriculture and natural resources over time.

**TABLE 21**

Relationship of Staff Efforts in Agriculture and Natural Resources Over Time

| Program Area | Staff Year 1971 | 1972 | 1973 | 1974 | 1975 | 5-Year Increase |
|---|---|---|---|---|---|---|
| Business Mgmt. | 927 | 822 | 846 | 863 | 919 | 0 |
| Agri. Mktg. | 679 | 628 | 678 | 630 | 607 | 11 |
| Environ. & Nat. Res. | 260 | 262 | 266 | 269 | 270 | 4 |

SOURCE: Cooperative Extension programs. Extension Serv., USDA, Washington, D.C., June 1976.

Community Resource Development and Entrepreneurial Development

The hypothesis to test this relationship is stated below.

$H_9$ There is a significant relationship

between natural CRD resource development and entrepreneurial development.

This relationship was significant (0.001) resulting in the failing to reject the hypothesis. Prawl and Gross (1984) relate CRD with civic and economic development. They proceed to state that CRD is a source of information for local governments. Civic and economic relationships are also supported in many states by staff appointment divisions between departments of business, economics and resource development.

Home Economics and Entrepreneurial Development

This hypotheses deals with relationships between home economics and entrepreneurial development.

$H_{10}$ There is a significant relationship between allocations for home economics and allocations for entrepreneurial development.

The analysis indicated a positive significant relationship (refer to Table 17) and the hypothesis was not rejected at the 0.05 level. This relationship is further highlighted by the new program directions emanating from the home economics prospectives of non-traditional home economics. Home economists are currently being assisted in their endeavors to apply creative approaches to business and innovation and in training students for career opportunities. Comfort and Terrass (1979) foster the belief

that home economists should be educationally and occupationally prepared to train persons who are and will be employed in these changing occupations.

Entrepreneurial Development and 4-H Youth Work

This is addressed by the Hypothesis listed below:

$H_{11}$ There is a relationship between 4-H youth work and entrepreneurial development.

The summary Table 21 presents the stepwise regressions analysis of the relationship between 4-H youth and entrepreneurial development between regions.

This hypothesis was not rejected as relationships were significant. This can possibly be explained by the mission of the 4-H youth program which states that the 4-H youth program is responsive to changes in social, technological, political, economic and environmental conditions. Program projects and activities relate to entrepreneurial spirit.

Summary

In this chapter the trends for entrepreneurship development were presented. This indicated the growth in the number of institutions offering courses and activities in entrepreneurial development. Specific colleges and universities were also identified with course titles and

widely used teaching techniques discussed. The growth in the number of courses over time was also illustrated and plotted for years between 1967 and 1984. The analyses of trends also indicated an increase in the research efforts and support for entrepreneurship development through institutions and both public and private initiatives.

Two methods were employed to analyze the data regarding the hypotheses developed for the study. The ANOVA model and the regression procedure were used to determine variations and relationships regarding FTE units to program areas in extension and new approaches in entrepreneurship development.

Tables are used to present data describing the differences and relationships in a variety of program areas. The analysis of variance and regression procedures were tested at the 0.05 level of significance. A report of the status of the hypotheses is summarized in chapter five.

The role of extension was identified as maintaining linkages and relationships for integrating knowledge and new techniques for entrepreneurship education. The role of extension has been synonymously linked with change. The institutions of extension will over time convert more allocations to entrepreneurship development to facilitate its position of leadership in helping more people at critical times solve problems.

The study determined the development of entrepreneurial courses on activities at major colleges and universities. It also analyzed roles, differences and relationships of traditional programs with emphasis toward entrepreneurial development through statistical procedures, trends and report summaries.

# CHAPTER V

## Summary, Conclusions, Limitations, Discussions and Implications for Research

Entrepreneurship development is a topic that generally means the marshalling of people and resources for more efficient solutions to problems to meet the needs and interests of people. There is a large and diverse quantity of literature on the topic. The literature relates to areas of definition, entrepreneurial characteristics, personal experience of the entrepreneur, the social system, the role of entrepreneurship, innovation and entrepreneurship development, marketing management, and communications.

### Trends

There are emerging trends for entrepreneurship development. Educational institutions are introducing new courses as well as integrating entrepreneurial activities into existing curricula There is increased support for entrepreneurial education. Public and private agencies are providing assistance to the process through direct contact with entrepreneurs, deregulation, and improved technology. Several universities have endowed chairs. Research is increasing in both applied and empirical categories.

The Cooperative Extension Service, an organization

concerned with helping people solve problems in a variety of areas is increasing its contribution to entrepreneurship education. Shifts in the agriculture tradition are permitting greater resource allocation toward the development of entrepreneurship development.

## Methodology

This study explored trends and analyzed roles and relationships in the Cooperative Extension Service that are important to entrepreneurial development. The data for the sample were taken from USDA F-85 records. Four U.S. regions comprising twenty-four states were included in the study.

The data were analyzed using one-way analysis of variance, stepwise regression analysis and descriptive summaries.

## Findings

From the statistical analysis, a number of significant findings resulted. Table 23 presents the results of the tests of hypotheses regarding the Cooperative Extension Service programs in determining variations and relationships with regards to regions.

The decision rule for tests of hypotheses in this study was to reject the null hypotheses that the population means are all equal and accept the alternate research

hypotheses if the ratio of the between group men square to the within group mean square exceeds F , where 0.05 is the desired significance level. Otherwise, accept (or not reject) the null hypothesis and reject the alternate or research hypotheses.

**TABLE 22**

Summary of Hypotheses Tested and Decisions

| | Hypothesis | Decision |
|---|---|---|
| $H_1$ | There is significant variation among the regions with respect to FTE allocations to entrepreneurial development | Rejected |
| $H_2$ | There is significant variation among the regions with respect to FTE allocations to agriculture (production, marketing) | Supported |
| $H_3$ | There is significant variation among the regions with respect to FTE allocations to natural resources | Rejected |
| $H_4$ | There is significant variation among the regions with respect to FTE allocations to community development and public policy | Rejected |
| $H_5$ | There is significant variation among the regions with respect to home economics and FTE allocations | Supported |
| $H_6$ | There is significant variation among the regions with respect to 4-H work and FTE allocations. | Supported |
| $H_7$ | There is a significant relationship | |

| | | |
|---|---|---|
| | between FTE allocation to agriculture and FTE allocations to entrepreneurial development | Supported |
| $H_8$ | There is a significant relationship between FTE allocation to natural resources and FTE allocations to entrepreneurial development | Rejected |
| $H_9$ | There is a significant relationship between FTE allocation to community and FTE allocations to entrepreneurial development | Supported |
| $H_{10}$ | There is a significant relationship between FTE allocation to home economics and FTE allocations to entrepreneurial development | Supported |
| $H_{11}$ | There is a significant relationship between FTE allocation to 4-H and FTE allocations to entrepreneurial development | Supported |
| $H_{12}$ | There is a significant relationship between FTE allocation to "Other" (total FTE) and entrepreneurial development | Supported |

*Support indicates rejection of the corresponding null hypothesis at the 0.05 level of significance.

## Conclusions

The following conclusions are based upon the results of the data analyses and summaries.

1. Public attention has begun to focus upon entrepreneurship because of emerging evidence that entrepreneurship addresses a primary policy issue-economic growth.
2. Entrepreneurship development is being supported

by both secondary and post-secondary educational institutions. Many innovations have occurred in these institutions to meet this national need.

3. The Cooperative Extension Service provides contributions to entrepreneurial development through many of its existing programs. The major role for the Cooperative Extension Service is through relationships and prescribed interaction among entrepreneurs. The organizational structure permits relationships with a variety of entrepreneurial endeavors.
4. Organizations have joined forces to support entrepreneurial education through newsletters, conferences, seminars, consortiums and linkages with business industry and labor.
5. Entrepreneurship development contributes to economic development. Since the entrepreneurs play the key role in converting investment into growth, the degree of entrepreneurship is a determinant of the level of investment-efficiency ratio. The regulatory agencies are attempting to support this development through changes in regulations and taxation.
6. A number of new institutional mechanisms have

been devised to nurture new ventures. The incubation centers, the Enterprise Institute, community development centers and venture capital networks are supporting entrepreneurial efforts.

7. Region I represents the area of the U.S. where allocations for entrepreneurial education was the highest.

8. The increase in support for entrepreneurship has shown a steady increase since 1968, an indication that change and innovation occur over a period of time and are expected to continue.

9. As expenditures or allocations for other extension programs are made, they will also be made toward entrepreneurship development.

10. Extension is meeting the challenges of the future. It employs agents to create change. Because programs are built from research, it feeds the system a sophisticated base of knowledge that is flexible and enables the organization to adopt to changing conditions.

11. The study looked at entrepreneurship development from a view point of expenditures of resources in the CES organization.

Examination of data revealed some significant relationships and variations among the four regions regarding the allocation of funds toward the development of entrepreneurship. Data used in the research were taken from FY-85 USDA records and therefore form a basis for future study of the U.S. entrepreneurship development through the allocation of fund for FTE efforts. The 1985 CES expenditures were as follows: $\leq$ - 1% 8.33% of states, 1-5% ->45.83%, 5-10% ->33.33%, $\geq$ 10% ->12.5%. Further details are given in Appendix C.

## Limitations

On the basis of this investigation, the following limitations are offered:

1. Situation Analysis

While a number of significant variations occurred between program areas and regions, individual states and regions have latitude to make decisions regarding program concentration. Whereas all of the states follow a programming process model of pre-planning through reporting results, a certain amount of latitude is permitted by USDA. Other external factors such as social, political,

economical, geographical and demographics influence program area choice.

2. Ambivalent Language

There are no uniform standardized grouping of activities under program area headings. It is obviously easy to group agriculture production or home economics activities but home business, small business and entrepreneurial activities can be placed with a separate program area thereby splintering or losing FTE credits.

3. Multi-discipline Effect

With the continuing efforts to do holistic programming, often a multi-disciplinary team is formed to address problems of limited, low, or no income families and the possibility exists to have FTE incorrectly documented. This situation can also occur with split appointments especially below the quarter time allocation.

4. Volunteers

Volunteers are an ongoing part of the extension program. They are often used to extend resources or become multipliers of information. No attempt was mae to measure or include the significant role they play in the formation of social systems for the diffusion of information or the general dispensing of information. They are involved in all program areas, however, some make greater uses of their services than do others.

5. Program Overlap

A review of staff plans can reveal overlaps, especially in areas of natural resources, agriculture, and home economics with 4-H youth. Staff positions in county areas can be expected to feature overlap which may not reflect the true FTE allocation.

6. Differentiation

Secondary data sources can and often do provide accurate data, however, program titles can be confusing and misleading. The titles are not always clear and explicitly. They don't always imply program content.

This can be a serious limitation to the study unless efforts are made to discern the true identity of the program content through the appropriate structure.

## Discussions

The number of trends identified and used in the analysis of entrepreneurship development have increased steadily since 1968. These trends relate to the increasing number and kinds of institutions offering education and services, financial support, research efforts and resource centers. All of the trends appear to be in an upward spiral. The term entrepreneurship fires the imagination of many people. New and popular publications relating to entrepreneurship have created an industry in itself.

Individuals and organizations are all on the entrepreneurial roller coaster. Local, state and the Federal government have combined or are working singularly to help promote entrepreneurism. The various enterprise zones, incubation centers, small business programs and university centers are further examples identified to assist in the entrepreneurial education.

The Cooperative Extension Service is among the institutions offering education as an aid to the entrepreneurship development. The Extension Service initially and continuously strives to help with critical concerns. Critical concerns are addressed through increased employment opportunities, knowledge and information dissemination, research relationships and general education. Critical concerns are also addressed through entrepreneurship development. Entrepreneurs of small firms are responsible for creating eighty percent (80%) of the new jobs in the economy. The flexible structure of the extension service provides an opportunity for entrepreneurship at many different levels and with varying areas of enterprises. Traditionally, extension was agricultural oriented but since new and innovative technology knows no subject identification, entrepreneurship can also be enhanced.

Entrepreneurship is thriving. It has begun to be

taken seriously by the public and by the media. It means new business formations which translates into new market demands as well as new jobs. Entrepreneurship has a relationship with extension, in that both are concerned with innovation and efficient use of resources to meet the needs of people. Extension promotes innovation and change and so does entrepreneurism.

Extension's role has been identified as that of providing linkages with groups pointing out research needs, integrating knowledge and in general educating citizens. Its role is manifested (for entrepreneurship development) through its structure and its availability to reach entrepreneurs and help them to succeed. Both policy formation and attractive environment contribute to entrepreneurial development and, CES with its natural linkages through local, state and national partners can enhance the competitiveness and profitability of entrepreneurs.

The more FTEs (resources) that are allocated toward entrepreneurial education, the greater will be the strength of CES in meeting critical economic concerns of a large segment of the population. This study shows that as increases are made toward total allocations in program components, increases are also made toward entrepreneurial education.

Implications for Research

As the Cooperative Extension Service attempts to respond to America's critical concerns, other new and innovative program components will be added to the program areas. Additional studies featuring new and/or innovative programming can be investigated to determine variation, proportions and relationships to the FTE. The literature and data sources revealed program components in states' efforts directed toward leisure education, international education, and public policy. Investigations similar to the kind used in this study could clarify FTE allocations for those areas and also provide further support for theories relating to change and innovation.

1. Replication of Study

While this study made use of secondary source data, replicating the study with primary data would add to its validation. No doubt different states would appear in the sample and interest would result from the two comparisons.

In addition to the comparisons for validation and theoretical contributions established by this study which indicated that eight percent of the states spent < 1%, forty-five percent spent from 1-5%, thirty-three percent spent from 5-10%, and twelve percent spent > 10% of their allocations for entrepreneurship education and development.

2. While the data used in the study provided for quantitative information relative to entrepreneurial development, a need exists for more qualitative information. Information that can measure to some extent denotes the economic impact of the entrepreneurial FTE allocation.

3. Organizations like CES respond quickly to external environmental changes (i.e. Ground water, plight of farmers). Studies are needed to determine response time or FTE allocations for programs applicable to extension goals and missions. Theories in innovation and information diffusions, and in organizational management could be tested with respect to organization change.

4. Finally, regions that showed significant variations regarding FTE allocations should be further analyzed to determine what factors prevalent in those states contributed to this significance.

# APPENDICES

# Appendix A

## Data Acquisition Hand Cards

Appendix A

HAND CARD
for
DATA ACQUISITION
(FTE Allocations)

| States | Region | Program Areas | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | Groups |
| 2 | | Ag | NR | CRD | HE | H-H | Ent | # |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

# APPENDIX B

## SUMMARY OF CASES AND VARIABLES OF U.S. LAND-GRANT INSTITUTIONS' FTE ALLOCATIONS

Appendix B

SUMMARY OF CASES AND VARIABLES OF U.S. LAND-GRANT INSTITUTIONS - FTE ALLOCATIONS

| Cases | Variables | | | | | Regions |
|---|---|---|---|---|---|---|
| | AG | NR | CRD | HE | 4-H | Other |
| Kansas | 54.25 | 16.70 | 11.00 | 88.50 | 68.70 | 12.50 |
| Minnesota | 50.75 | 14.45 | 10.50 | 68.70 | 59.50 | 10.00 |
| Missouri | 102.51 | 16.60 | 36.55 | 50.40 | 41.37 | 14.52 |
| Ohio | 90.81 | 37.31 | 35.31 | 124.51 | 52.31 | 15.72 |
| Wisconsin | 104.79 | 45.00 | 24.50 | 70.00 | 86.00 | 69.30 |
| N. Dakota | 69.40 | 5.10 | 5.00 | 21.60 | 29.53 | 3.10 |
| Alabama | 156.10 | 23.11 | 28.88 | 113.15 | 63.80 | 27.90 |
| Kentucky | 154.00 | 2.34 | 14.97 | 140.06 | 164.08 | 38.54 |
| Mississippi | 104.41 | 419.59 | 18.97 | 116.24 | 79.30 | 24.85 |
| Oklahoma | 89.93 | 10.87 | 5.50 | 65.51 | 75.98 | 6.89 |
| Tennessee | 126.10 | 14.40 | 15.10 | 79.80 | 138.00 | 2.00 |
| Maryland | 76.65 | 8.40 | 6.05 | 43.58 | 51.50 | 8.45 |
| West Virginia | 32.09 | 8.10 | 23.40 | 24.00 | 27.30 | 5.40 |
| Delaware | 11.30 | 1.20 | 0.50 | 3.70 | 8.30 | 0.60 |
| New Jersey | 36.53 | 3.59 | 8.43 | 19.66 | 27.56 | 7.50 |
| Pennsylvania | 84.94 | 117.59 | 11.26 | 52.76 | 40.80 | 7.80 |
| New York | 188.00 | 22.00 | 28.72 | 180.09 | 117.71 | 45.50 |
| Massachusetts | 39.25 | 3.67 | 4.96 | 25.57 | 32.87 | 7.20 |
| Oregon | 25.10 | 0.00 | 3.90 | 12.91 | 29.35 | 0.60 |
| Utah | 32.20 | 7.45 | 9.30 | 10.25 | 30.40 | 1.65 |
| Wyoming | 17.93 | 2.60 | 0.50 | 12.81 | 14.35 | 2.00 |
| Washington | 75.53 | 12.99 | 8.56 | 38.44 | 53.65 | 13.75 |
| Hawaii | 22.05 | 0.00 | 1.25 | 11.60 | 12.50 | 6.70 |
| Alaska | 12.65 | 3.30 | 5.50 | 6.33 | 2.08 | 5.30 |

# APPENDIX C

## FTE ALLOCATIONS BY STATE AND FTE PERCENTAGES BY PROGRAM COMPONENTS

Appendix C - FTE Allocations by State and Percentages by Program Components

| | Total FTE's | | % FTE In Ent. Dev. |
|---|---|---|---|
| Kansas | 251.65, | 12.5 -> | 4.96 |
| Minnesota | 213.9, | 10 -> | 4.67 |
| Missouri | 261.95, | 14.52 -> | 5.54 |
| Ohio | 355.97, | 15.72 -> | 4.42 |
| Wisconsin | 399.59, | 69.3 -> | 17.34 |
| North Dakota | 133.73, | 3.1 -> | 2.32 |
| Alabama | 412.94, | 27.9 -> | 6.76 |
| Kentucky | 513.99, | 38.54 -> | 7.49 |
| Mississippi | 353.36, | 24.85 -> | 7.03 |
| Oklahoma | 254.68, | 6.89 -> | 2.70 |
| Tennessee | 375.4, | 2.0 -> | 0.53 |
| Maryland | 194.63, | 8.45 -> | 4.34 |
| Wet Virginia | 120.29, | 5.4 -> | 4.49 |
| Delaware | 25.6, | 0.6 -> | 2.34 |
| New Jersey | 103.27, | 7.5 -> | 7.26 |
| Pennsylvania | 315.15, | 7.8 -> | 2.48 |
| New York | 582.02, | 45.5 -> | 7.82 |
| Massachusetts | 113.52, | 7.2 -> | 6.34 |
| Oregon | 71.87 | 0.6 -> | 0.83 |
| Utah | 91.25 | 1.65 -> | 1.81 |
| Wyoming | 50.19 | 2.0 -> | 3.98 |
| Washington | 202.92, | 13.75 -> | 6.78 |
| Hawaii | 54.1, | 6.7 -> | 12.38 |
| Alaska | 35.16, | 5.3 -> | 15.07 |

2 = 1%
11 = 1-5%
8 = 5-10%
3 = 10-25%

Funds

| | |
|---|---|
| <1% | 8.33% of states |
| 1-5% | 45.83% |
| 5-10% | 33.33% |
| >10% | 12.5% |

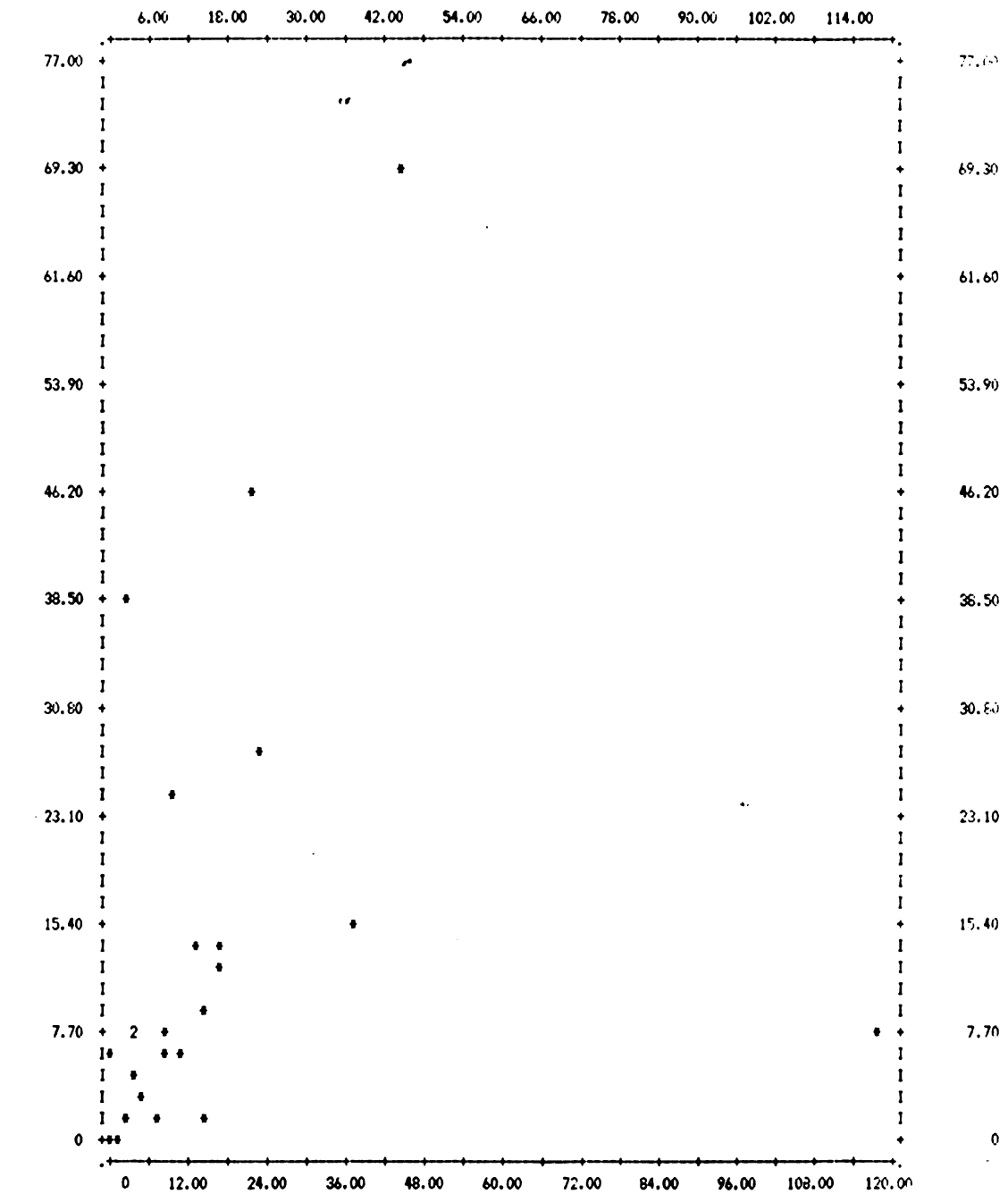
# APPENDIX D

## SCATTERPLOTS IDENTIFYING RELATIONSHIPS BETWEEN VARIABLES OF FTE TO PROGRAM COMPONENTS

## Scatterplots

.E NONAME (CREATION DATE = 10/09/86 )

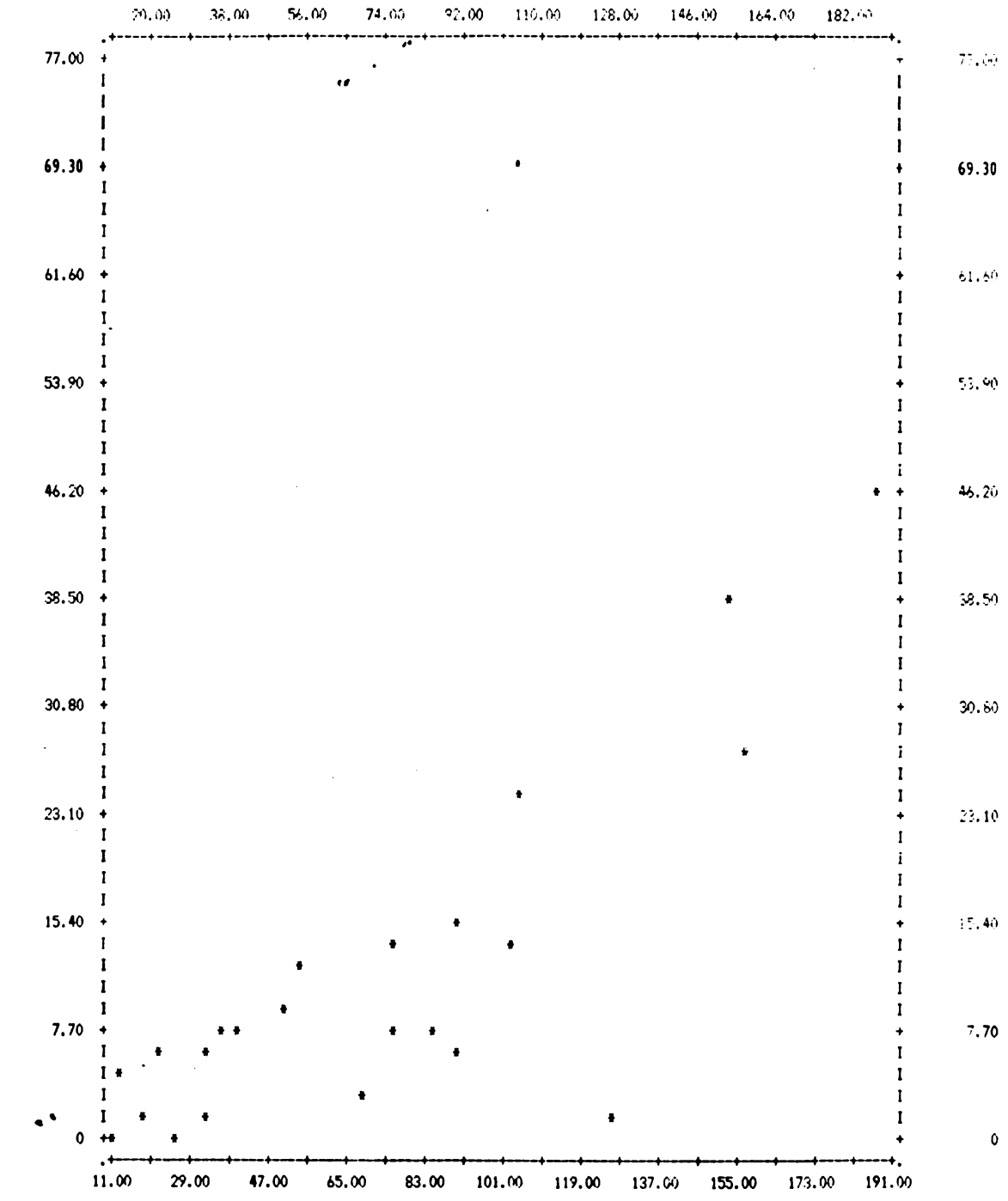
'ATTERGRAM OF (DOWN) EXT Small BUSINESS
(ACROSS) NR NATURAL RESOURCE




PLOTTED VALUES - 24 EXCLUDED VALUES - 0 MISSING VALUES - 0

:LE NONAME (CREATION DATE = 10/09/86 )

:ATTERGRAM OF (DOWN) EXT SMALL BUSINESS
(ACROSS) AG AGRICULTURE

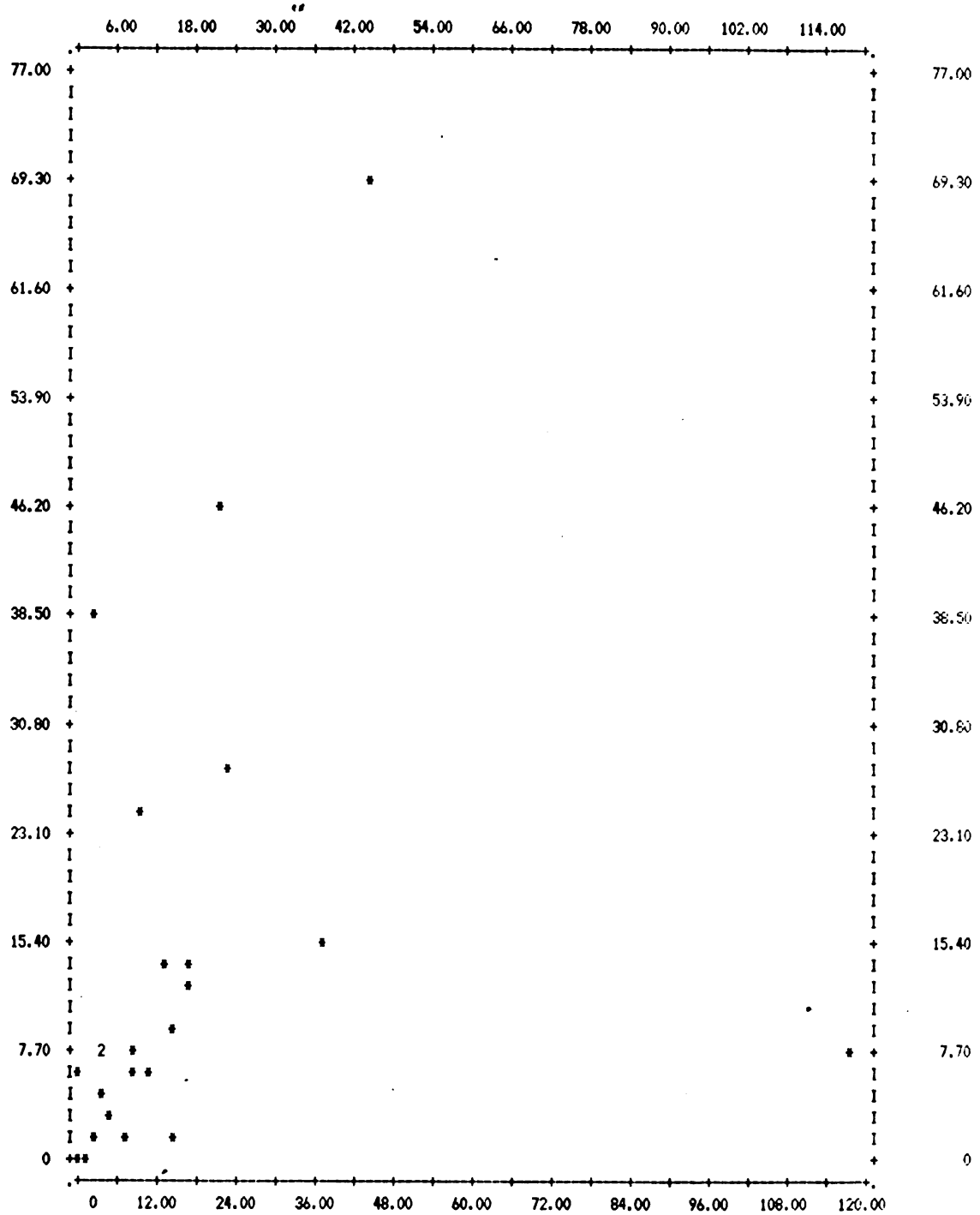



PLOTTED VALUES - 24 EXCLUDED VALUES - 0 MISSING VALUES - 0

U.S LAND GRANT UNIVERSITIES' FTE ALOCATIONS 10/09/86 SPSS V9.0 .00.33.29. PAGE 3

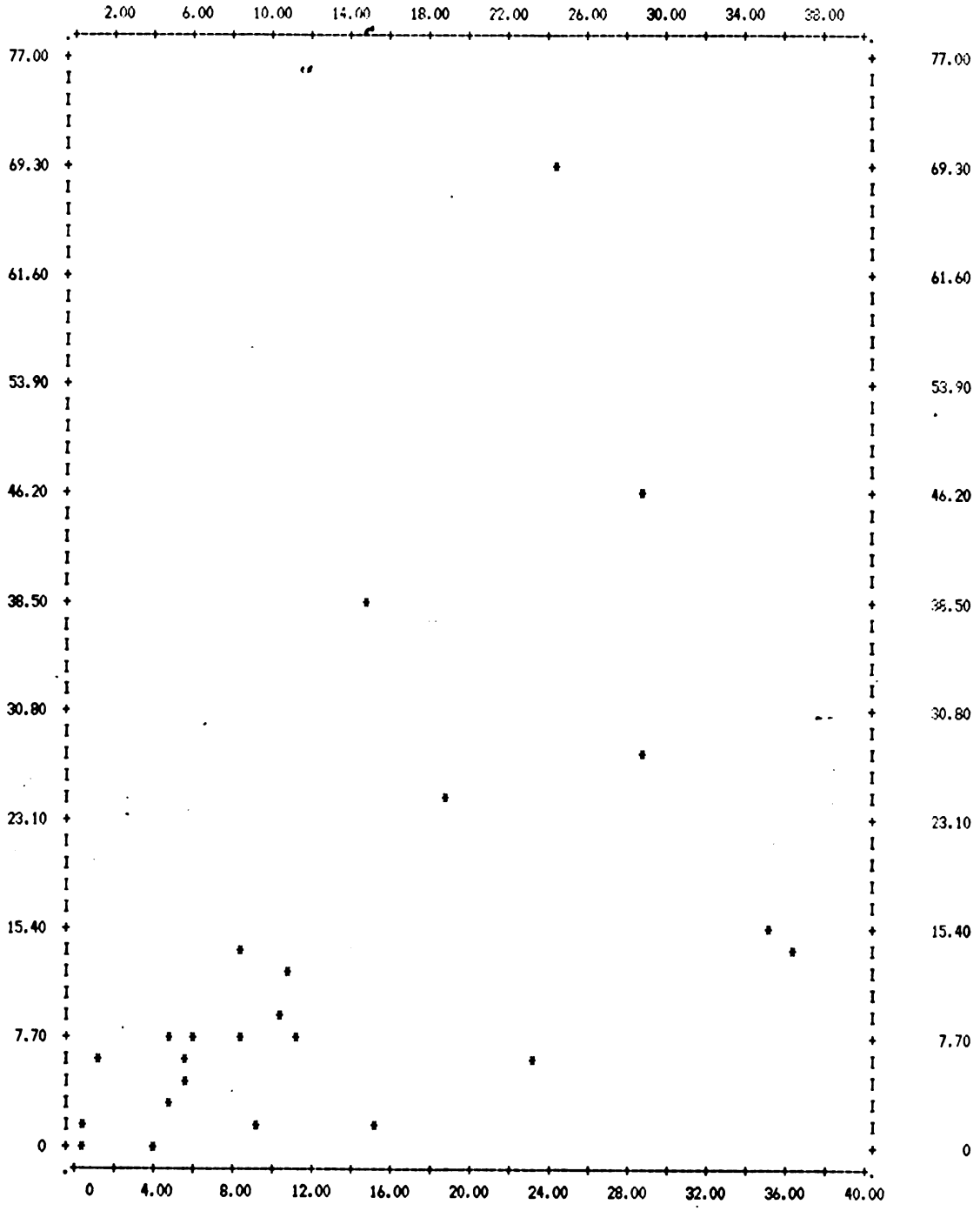
FILE NONAME (CREATION DATE = '0/09/86 )

SCATTERGRAM OF (DOWN) EXT ALL BUSINESS
(ACROSS) NR NATURAL RESOURCE



FILE NONAME (CREATION DATE = 10/09/86 )

SCATTERGRAM OF (DOWN) EXT SMALL BUSINESS
(ACROSS) CRD

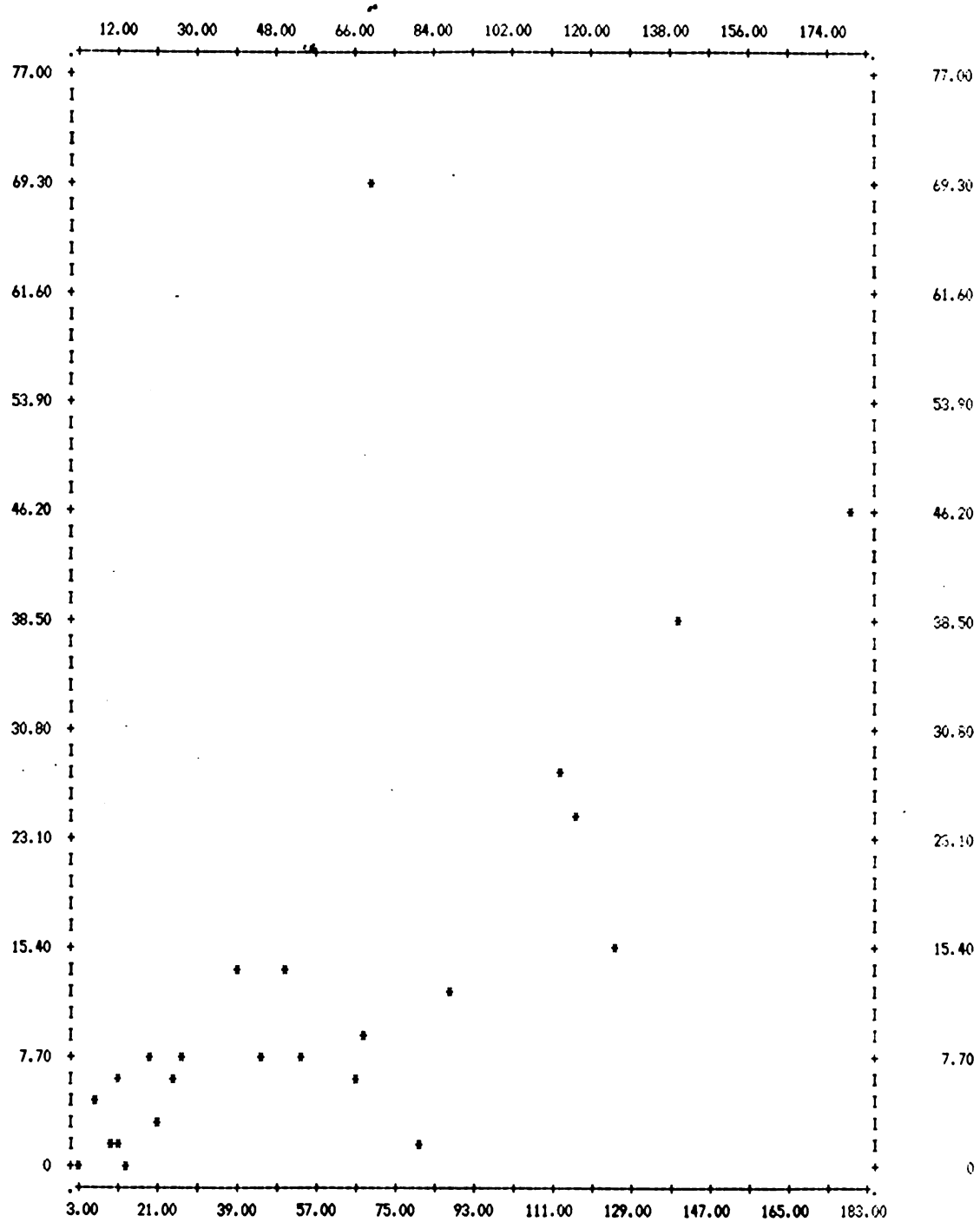



PLOTTED VALUES - 24 EXCLUDED VALUES - 0 MISSING VALUES - 0

.S LAND GRANT UNIVERSITIES' FTE ALOCATIONS 10/09/86 SPSS V9.0 .00.33.29. PAGE 5

-ILE NONAME (CREATION DATE = 10/09/86 )

CATTERGRAM OF (DOWN) EXT SMALL BUSINESS
(ACROSS) HEC HOME ECONOMICS

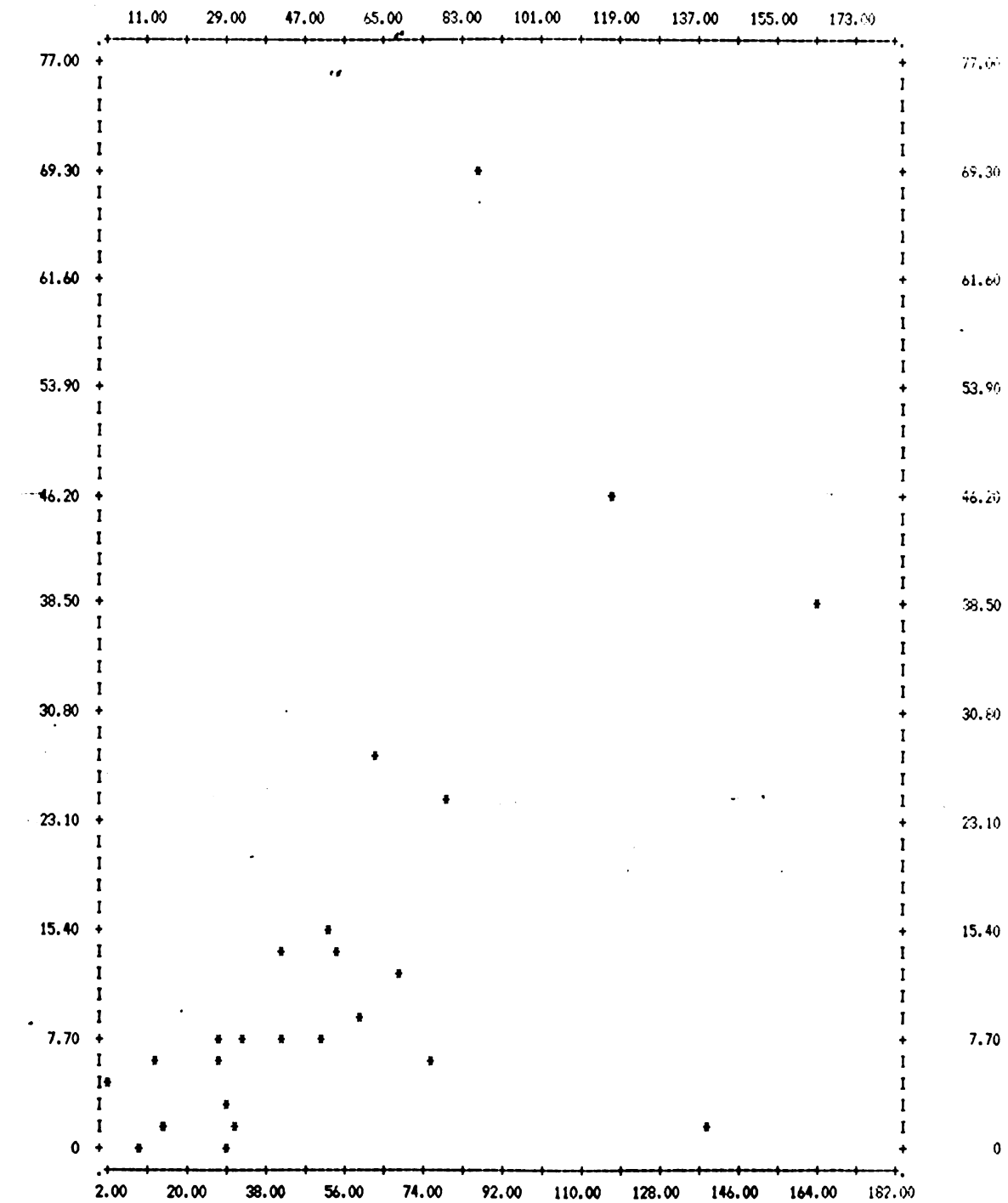



PLOTTED VALUES = 24 EXCLUDED VALUES = 0 MISSING VALUES = 0

.S LAND GRANT UNIVERSITIES' FTE ALOCATIONS 10/09/86 SPSS V9.0 .00.33.29. PAGE 6

'ILE NONAME (CREATION DATE = 10/09/86 )

CATTERGRAM OF (DOWN) EXT SMALL BUSINESS
(ACROSS) YOUTH

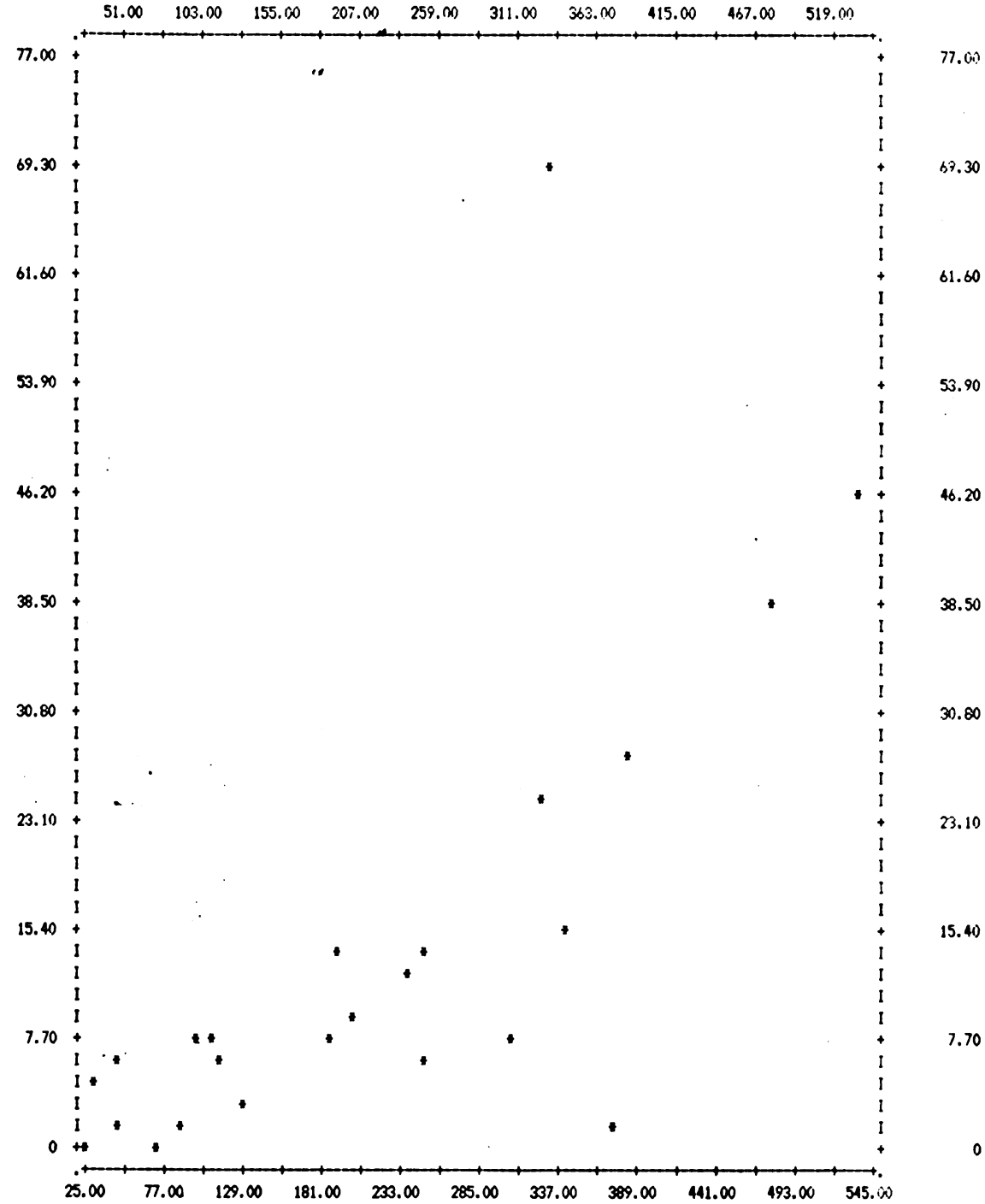



PLOTTED VALUES - 24 EXCLUDED VALUES - 0 MISSING VALUES - 0

.S LAND GRANT UNIVERSITIES' FTE ALOCATIONS 10/09/86 SPSS V9.0 .00.33.29. PAGE 7

:LE NONAME (CREATION DATE = 10/09/86 )

CATTERGRAM OF (DOWN) EXT SMALL BUSINESS
(ACROSS) REST NONE SMALL BUSINESS




PLOTTED VALUES - 24 EXCLUDED VALUES - 0 MISSING VALUES - 0

# Appendix E

# Correspondence

United States Department of Agriculture
Extension Service
Program Development, Evaluation, and Management Systems
Washington, D.C. 20250

August 18, 1986

Dr. Isabel Jones
Extension Specialist
1605 Colehole Drive
Midlothian, VA 23113

Dear Dr. Jones:

Enclosed are printouts of Extension Staff effort planned for the period FY 1984 through FY 1987. As a condition of sharing this information with you, we would appreciate a chance to review your use of the data prior to release of publication.

These titles should help you in identifying the programs you are interested in.

Sincerely,

THOMAS G. TATE
Program Analyst Officer

Enclosures

The Extension Service is an agency of the United States Department of Agriculture and the Federal Partner in the Cooperative Extension System.

Appendix E

1605 Colehollow Drive
Midlothian, VA 23113
Phone: (804) 379-1953

September 1986

Dear Dr. Piltch:

I am a graduate student at Michigan State University, pursuing a Ph.D. in Agriculture and Extension Education. The focus of my research is toward the Full Time Equivalency (FTE) with respect to entrepreneurial and small business development. Your state was selected at random to be a part of this study.

I have already obtained a print-out of your Extension Staff efforts planned for FY 1984 - FY 1987. If there have been any changes since filing your report, please notify me at the above address or telephone number.

Sincerely,

Isabel A. Jones
Associate Professor and
Extension Specialist

cc: Dr. Carroll Wamhoff

AGRICULTURAL EXTENSION SERVICE

UNIVERSITY OF MINNESOTA

Office of the Dean and Director
240 Coffey Hall
1420 Eckles Avenue
St. Paul, Minnesota 55108

October 7, 1986

Isabel A. Jones
1605 Colehollow Drive
Midlothian, VA 23113

Dear Ms. Jones:

Your request for updated information about the Minnesota Extension Service plan of work 1984-87 has been referred to me. Enclosed is a copy of a revised Table 1 regarding staffing changes that have been made since the original document was submitted.

Please let me know if you need more information about any of this.

Sincerely,

Julie Medbery
Executive Assistant

enclosure

# Table I
## Planned Allocation of Professional/Paraprofessional Staff Years by Program Area[1]

**Fiscal Year** 1984-87

**State** Minnesota **Institution** 1862, University of Minnesota Agricultural Extension Servic (1862, 1890, Tuskegee)

| Program Area | 1984 | | 1985 | | 1986 | | 1987 | |
|---|---|---|---|---|---|---|---|---|
| | Prof | Para | Prof | Para | Prof | Para | Prof | Para |
| AG | 179.3 | 4.1 | 176.2 | 3.0 | 178.8 | 3.0 | 175.0 | 0.0 |
| NR (in CRD) | | | | | | | | |
| CRD | 55.9 | 0.6 | 55.6 | 1.0 | 53.0 | 1.0 | 65.0 | 1.0 |
| HE | 92.6 | 39.2 | 97.7 | 43.0 | 98.4 | 43.0 | 94.0 | 43.0 |
| 4-H | 114.3 | 14.1 | 118.4 | 4.8 | 121.5 | 4.8 | 120.0 | 7.0 |
| Total | 442.1 | 58.0 | 447.9 | 51.8 | 451.7 | 51.8 | 454.0 | 51.0 |

[1]Staff year allocations account for total available FTE's. Calculate to one decimal place. Staff resources allocated to administration management, staff development, etc., are to be allocated to relevant program areas. This table should account for all staff years available in 1862 and 1890 institutions.

# APPENDIX F

## State Summaries (FTEs)

Appendix F

STATE SUMMARIES (FTEs)

| STATES | | PROGRAM AREAS FTES | | | | | | |
|---|---|---|---|---|---|---|---|---|
| North Central Region | Regions* | Ag. | NR | CRD/ PP | HE | 4-H | Dev. | # |
| Kansas | N. Cent. | 54.25 | 16.7 | 11.0 | 88.5 | 68.7 | 12.5 | 1 |
| Minnesota | N. Cent. | 50.75 | 14.45 | 10.50 | 68.7 | 59.50 | 10.0 | 1 |
| Missouri | | 102.51 | 16.6 | 36.55 | 50.4 | 41.37 | 14.52 | 1 |
| Ohio | N. Cent. | 90.81 | 37.31 | 35.31 | 124.51 | 52.31 | 15.72 | 1 |
| Wisconsin | | 104.79 | 45 | 24.5 | | 86 | 69.3 | 1 |
| N. Dakota | N. Cent. | 69.4 | 5.1 | 5.0 | 21.6 | 29.53 | 3.1 | 1 |
| Southern Region | | | | | | | | |
| Alabama | Southern | 156.10 | 23.11 | 28.88 | 113.15 | 63.80 | 27.90 | 2 |
| Kentucky | Southern | 154 | 2.34 | 14.97 | 140.06 | 164.08 | 38.54 | 2 |
| Mississippi | Southern | 104.41 | 9.59 | 18.97 | 116.24 | 79.3 | 24.85 | 2 |
| Oklahoma | Southern | 89.93 | 10.87 | 5.50 | 65.51 | 75.98 | 6.89 | 2 |
| Tennessee | Southern | 126.10 | 14.4 | 15.10 | 79.8 | 138 | 2 | 2 |
| Maryland | Southern | 76.55 | 8.40 | 6.05 | 43.58 | 51.50 | 8.45 | 2 |
| North Eastern Region | | | | | | | | |
| W. Virginia | N. East. | 32.09 | 8.10 | 23.4 | 24 | 27.3 | 5.4 | 3 |
| Delaware | N. East. | 11.3 | 1.2 | .5 | 3.7 | 8.3 | .6 | 3 |
| New Jersey | N. East. | 36.53 | 3.59 | 8.43 | 19.66 | 27.56 | 7.5 | 3 |
| Pennsylvania | N. East. | 84.94 | 117.59 | 11.26 | 52.76 | 40.8 | 7.8 | 3 |
| New York | N. East. | 188 | 22 | 28.72 | 180.09 | 117.71 | 45.5 | 3 |
| Massachusetts | N. East. | 39.25 | 3.67 | 4.96 | 25.57 | 32.87 | 7.2 | 3 |

*Abbreviations: Ag. - Agriculture
NR - Natural Resources
CRD/PP - Community Resource Development/Public Policy
HE - Home Economics
Entre. Dev. - Entrepreneurship Development

| Western Region | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Arizona | Western | 25.1 | 0 | 3.91 | 12.91 | 29.35 | .6 | 4 |
| Utah | Western | 32.2 | 7.45 | 9.3 | 10.25 | 30.40 | 1.65 | 4 |
| Wyoming | Western | 17.93 | 2.60 | .50 | 12.81 | 14.35 | 2.00 | 4 |
| Washington | Western | 75.53 | 12.99 | 8.56 | 38.44 | 53.65 | 13.75 | 4 |
| Hawaii | Western | 22.05 | 0 | 1.25 | 11.6 | 12.5 | 6.7 | 4 |
| Alaska | Western | 12.65 | 3.3 | 5.5 | 6.33 | 2.08 | 5.3 | 4 |

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