OKLAHOMA COOPERATIVE MANAGERS: THEIR MANAGERIAL PROBLEMS AND OBJECTIVES FOR SUCCESS

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PREFACE

This study is concerned with the problems of management in the grain and supply cooperatives of Oklahoma. Because of the importance of the hired manager, the purpose of this study is to determine the underlying factor structure of some economic, sociological, and psychological variables that managers believe are relevant to managerial success. The form of analysis is by the principal factor method of factor analysis of variables drawn from a mail survey.

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CHAPTER I

INTRODUCTION

A. The Problem

The management of agricultural business firms, such as grain and supply cooperatives, is becoming increasingly complex. This is indicated by the frequency with which the Department of Agricultural Economics and the Extension Service are asked for information about problems and procedures of management. Such complexity is a result of the growth in size and intricacy of the cooperatives over the last decade or more by the processes of expansion of traditional functions and the adoption of new ones. This increased complexity and need by cooperative managers for information accentuates the requirement for research into the elements which determine managerial success and efficiency. Such areas as managerial functions, organizational structure, and decision making processes need to be investigated. Currently, there is little research information available about management in general, and even less which is specific to agricultural business firms.

B. Problem Setting

B.1 Cooperatives in Oklahoma

The total number and membership of cooperatives in Oklahoma have decreased over the last ten years, as shown in Table I, while business

TABLE I

STATISTICS OF OKLAHOMA FARMER COOPERATIVES

Variable Description		Year '60-'61	'65-'66	'68-'69
Total for All Farm Cooperatives:				
Number of Cooperatives:	In the State[a]	174	165	159
	Doing Business in the State	194	185	177
Gross Business Receipts:[b]		386,827	479,861	448,990
Net Business Receipts:[c]		284,736	280,036	293,105
Total for Cooperatives Handling the Marketing of Farm Products:[d]				
Number of Cooperatives:	In the State	154	147	139
	Doing Business in the State	169	163	151
Value of Gross Sales:[b]		320,403	391,724	330,563
Value of Net Sales:[c]		204,851	223,785	209,072
Sub-Total for Grain Handling Cooperatives:[d]				
Number of Cooperatives:	In the State	92	91	93
	Doing Business in the State	97	95	95
Value of Gross Sales:[b]		206,521	256,204	200,722
Value of Net Sales:[c]		98,662	98,288	85,434
Total for Supply Handling Cooperatives:[d]				
Number of Cooperatives:	In the State	159	155	148
	Doing Business in the State	169	167	160
Value of Gross Sales:[b]		53,360	76,566	99,854
Value of Net Sales:[c]		30,821	44,680	65,460
Total for Service Handling Cooperatives:[d]				
Number of Cooperatives:	In the State	155	149	145
	Doing Business in the State	164	159	153
Business Receipts:		13,064	11,571	18,573

TABLE I (Continued)

Variable Description	Year '60-'61	'65-'66	'68-'69
Membership:[e]			
Total			
Number of In State Cooperatives	174	165	159
Membership	184,275	137,730	134,820
Marketing			
Number of Principally Marketing Cooperatives	146	138	132
Membership	167,155	122,870	121,920
Grain			
Number of Principally Grain Cooperatives	81	81	80
Membership	51,330	55,160	57,060
Supply			
Number of Principally Supply Cooperatives	27	26	25
Membership	16,430	14,190	12,230
Service (to Supply)			
Number of Principally Service Cooperatives	1	1	2
Membership	690	670	670

[a]Refers to those cooperatives with headquarters in the state.

[b]Gross business or sales, in thousands of dollars, includes inter-cooperative.

[c]Net business or sales, in thousands of dollars, excludes inter-cooperative.

[d]Handling includes all cooperatives which have that business.

[e]Membership is allocated by major business activity.

Sources: [1, 4, 9]

receipts have increased. This is nearly opposite to what occurred with grain handling cooperatives, which maintained their number and increased their membership while experiencing a decreased net income from grain handling. Cooperatives handling supplies and services experienced an increase in business from these departments. It is likely that their increased revenue from handling supply and service trade helped many of the cooperatives overcome the decreased revenue from grain.

The grain and supply cooperatives, which were 1970 members of the Farmers Cooperative Grain Dealers Association of Oklahoma, are principally located in the major grain producing counties. These lie in a belt from Grant County in the north central part of Oklahoma, to Jackson County in the southwest, with the highest concentration of cooperatives being in Garfield County. There are additional member grain and supply cooperatives in northeast Oklahoma, in most counties west of the principal grain belt, in the neighboring Kansas county of Harper, and in the bordering Texas Panhandle counties of Hansford, Ochiltree, Lipscomb, and Hemphill. These cooperatives range in size from simple one-station operations to large, complicated multi-station operations spreading into neighboring states. They may handle only grain or supplies, or have a combination of both. Most of the grain handled is wheat, but barley, corn, milo, oats, other feed grains, soybeans and peanuts are also handled. In addition, some cooperatives located south of Oklahoma City handle cotton.

Grain cooperatives perform the extremely important marketing function of assembly. These cooperatives are primarily country elevators receiving most of the available grain for future delivery by rail or truck to secondary elevators or processors. They may also provide such

services as grain drying, cleaning, grading, blending, and storage. But with the advent of better trucks and roads, country elevators are increasingly by-passed in favor of the larger subterminal elevators, which are able to operate at lower cost because of the volume they handle [10, pp. 215-216]. Country elevators are presently being operated at less than full capacity, which is a result of having been overcapitalized in facilities in response to the high demand for storage by the Commodity Credit Corporation in 1959. Since 1959, the demand for storage by the Commodity Credit Corporation has continually decreased [10, p. 223].

B.2 Management of Cooperatives

Three principal aspects which distinguish cooperatives from other forms of business are: democratic control by members, operating at cost, and a limited return on invested capital. The last characteristic is designed to keep ownership and control of the cooperative in the hands of the users [8, p. 37]. Member-owners of a cooperative expect it to obtain the highest prices for their products if it is a marketing cooperative, or the lowest price for their supplies if it is a purchasing cooperative [5, pp. 223-224]. For a cooperative to remain in existence it must fulfill the above functions, in addition to providing service, quality products, and convenience that is at least equal to that which is currently provided by private business [5, p. 232].

Once an economic need is established for a cooperative association, other factors, which are the same for any business, must also be met by the cooperative if it is to be successful. These factors

include receiving and maintaining an adequate volume of business, obtaining adequate and reasonable financing with which to build a plant, the availability of efficient management, for which the association must be willing to pay, and the willingness of the membership to withstand competition [5, pp. 233-234]. The reasons for which a cooperative fails are generally those factors above which have not been met. Several studies have shown that the most important factor is probably management, followed by member relations and poor financing [2, pp. 26-34, 3, 6]. Member relations are generally considered to be the responsibility of management (for an informed member is a good member) and well-managed cooperatives consider the obligation of informing the members of the firm's activities to be very important [5, p. 238].

The management of cooperatives is made up of three levels: members, Board of Directors, and the hired manager. The members elect a Board of Directors from among themselves. The Board of Directors not only hires a manager, but also decides upon objectives, goals, and policies. Obtaining a good manager requires offering pay and facilities which are competitive with private business. But a good Board of Directors is not as easy to secure. A good farmer does not necessarily make a good director [5, p. 237]. B. D. Romine [7], who has had considerable experience with cooperatives, believes that a good manager leads and directs the directors in their duties.

C. Objectives

This study is concerned with the problem of management in the grain and supply cooperatives in Oklahoma. The purpose of this study

is to determine the underlying factor structure of some of the economic, sociological, and psychological variables that managers of cooperatives, from their own knowledge and experience, believe are relevant to decision making, and managerial efficiency and success; furthermore, determine the extent of the observed variance in these variables which is accounted for by the factors.

D. Organization of the Study

The next chapter reviews research upon means of measuring managerial ability and aspects of managers which distinguish the efficient from the inefficient. This review provides a summary of the background information needed for the understanding of the objectives and results of the study. It also provides the information used in the formulation of the questionnaire, showing the areas needing investigation. These areas were the manager's abilities, motivations, business practices, and personal history. Also indicated are suggested measures of managerial success and performance, by an analysis of the manager's pay scale and/or a financial analysis of his business.

Chapter III describes the procedure of analysis followed in this study. The answers to a mail questionnaire survey of the cooperative managers were put into a correlation matrix, which was then analyzed by the principal factor method of factor analysis. The resulting factors were then interpreted, as shown in Chapter IV. Chapter V contains the summary of the study, the conclusions, and the implications for further research. The conclusions from the Chapter IV interpretations of the factors are presented as hypotheses about the

management aspects which were indicated in the review of literature in Chapter II.

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CHAPTER II

A REVIEW OF LITERATURE

The area of management has been recognized since man first formed an organized society with leaders given the power to decide for the well being of others. Writings on management date back to the Egyptians [19, p. 18], but it is only recently that management theory has been actively researched. It was in the eighteenth century that management theories and principles began to materialize. Frederick W. Taylor, in 1911, was the first to insist on the scientific method [19, p. 21].

A. Measuring Managerial Performance

This research uses management and accepted management practices as a basis on which to distinguish the superior, inferior or average senior managers of grain and feed cooperatives in Oklahoma. Development of theory and principles of management practice is not described here, as it was not considered to be of prime importance to the research. Most good management texts contain a history of management and explanation of its theory. Trade journals and magazines afford more recent developments and information about the practice of management as described by business executives, management consultants, and others.

Senior managers are seldom tested for managerial performance. Possible reasons for this are: First, the adoption of performance

standards measurable by tests which is a twentieth century development, has been very slow among managers.[1] Second, few people enjoy being tested, and the senior manager of a company is in a position which allows him to avoid this, unless demanded by his Board of Directors. Third, while the necessary qualities for many jobs are obvious the qualities of a good manager are much more elusive.

Researchers, banks, lending agencies and others have attempted to evaluate performance of top management of companies in which they are interested. There are several methods of rating managerial performance from outside the company. First, the manager's past history is sometimes used as a measure of success. Second, managers may be rated on the past performance of the companies they control.

A.1 Rating Managers by Their Past History

This measure is based on a weighted sum of age, years of management experience, salary, and salary changes over a given period of time. Such a method has a major failing: a manager who founded his own company would not rise through the ranks with the accompanying promotion and salary changes.

Even for those who do rise through a company's ranks, there is conflicting evidence as to the advisability of using salary and promotion as measurements of success. A twenty-year study by Brenner and Lockwood [4] has found salary in one period of time a very significant predictor of salary at a later date. This was especially so for equally distant years as tenure with the same company increased. Their conclusions were that "the behavior and/or personal characteristics that are being rewarded are being rewarded consistently". Questions then

arise over the choice of characteristics being rewarded. Several studies have shown that salary and promotions are not necessarily closely related to merit and managerial effectiveness. Salary and promotions are biased by subjective ratings, market value for managerial skills, and company policies [22, p. 369].

A.2 Rating Managers by Company Performance

The assumption behind this method of analysis is that when performance of companies in the same industry are compared, the differences are due to the abilities of the individual managers in control [9]. The advantage of this method is that it can be done quantitatively. Balance sheets and income statements are analyzed, supplemented or replaced by indices of efficiency. It is cautioned, that if financial information is to be used in some way as a reliable measure of managerial success, it must be taken over an extended period of time [9]. This is because one set of financial ratios only indicates company, and management, performance at one point in time; past history is ignored. For instance, comparing the ratios of a young fast growing company of those of a well established company at only one point in time will give misleading information about the company's, and management's, performance. In addition, other considerations are indicated by Schermerhorn and Page [32, p. 12]:

> ...The individual ratios of a firm may differ considerably from the industry average, especially if such factors as size of firm, type of end product, organizational structure, geographical area of operation, type of customer, and operational practices such as terms of credit, inventory policies, etc., are not considered when calculating the industry average.

Frank DeWitt [9], a management evaluation specialist with the U.S. Air Force Contract Division in Los Angeles, proposed that management should be evaluated on the following basis:

(i) The performance of the managed enterprise.

(ii) The relationship of enterprise performance to the resources used to achieve it.

(iii) The position of the enterprise in its competitive environment.

This proposed method of analysis compares ratios similar to the "Returns on Investment" ratio used in accounting. DeWitt terms such ratios "Management Productivity" indices, where:

$$\text{Management Productivity} = \frac{\text{Performance Factor}}{\text{Resource Used}}. \qquad (2\text{-}1)$$

He considers the following three performance factors important to business corporations: (1) gross revenues, (2) operating income, and (3) net earnings. He suggests comparing these to three resources: (1) number of employees, (2) value of physical facilities, and (3) value of stockholders equity used (see Table II). It must be noted that accounting consistency must be maintained in valuing facilities and stockholders equity for all companies compared so that the ratios will not be misleading.

DeWitt [9] believes that these ratios reflect management's ability to compete and maximize returns to resources, while the performance factors alone only measure size. He stresses that these ratios must be used in conjunction with historical and projected data. When obtaining valid information about a company's performance from any one of these ratios, he states that the relative position of the company in an array

of all the companies in its industry is of the utmost importance, not the numerical differences. Additional information about a company is obtained by comparing the derived positions of the nine ratios for the company. Differences in position among the ratios may profile the company's strengths and weaknesses.

TABLE II

RESOURCE AND PERFORMANCE FACTOR ELEMENTS OF DEWITT'S PRODUCTIVITY INDICES

Resources	Performance Factor 1 Gross Revenues (R)	2 Operating Income (O.I.)	3 Net Earnings (N.E.)
1. Number of Employees (No. of e.)	$\frac{R}{\text{No. of e.}}$	$\frac{O.I.}{\text{No. of e.}}$	$\frac{N.E.}{\text{No. of e.}}$
2. Value of Physical Facilities (Val. of P.F.)	$\frac{R}{\text{Val. of P.F.}}$	$\frac{O.I.}{\text{Val. of P.F.}}$	$\frac{N.E.}{\text{Val. of P.F.}}$
3. Equity (E.)	$\frac{R}{E}$	$\frac{O.I.}{E.}$	$\frac{N.E.}{E.}$

DeWitt [9, p. 10] notes that efficiency ratios based on revenues are important, but profits, being of greater importance for survival, provide a better base. It is for this reason that he included the two profit indicators: (i) operating income -- to gain insight into whether the achievements were obtained through operational efficiencies;

and (ii) net earnings -- to gain insight into whether management has covered operating inefficiencies by such management action as selling assets.

Another method, used by Schrage [31, p. 58] in his research on management personality, is the average percent return on sales over an extended period of time for each company as a measure of its profitability and success.

There is a major problem with the assumptions behind this method of rating managers by company performance: Managers may be held responsible for, but not allowed to control or direct the company in such a way to obtain a favorable performance rating. Some managers may have a Board of Directors or partners whose effect on company performance is significant. In an analysis of managerial performance, the degree of interference would have to be determined or minimized [33]. Interference, beneficial or not, from within the company by a subordinate would have to be included as part of the manager's qualities, as he is responsible for the company's performance. In addition, there is the question of whether or not profit is the goal that managers should try to achieve in order to perform their jobs effectively [22, p. 370].

B. Managerial Performance Explained

Victor H. Vroom [34, p. 32] explains what he calls job performance (P) as a function of the abilities (A) of the worker which fit the job to be performed and the worker's motivation (M) to perform effectively,

$$P = f\ (A, M). \qquad (2\text{-}2)$$

Ability and motivation are dependent on one another. Neither alone will cause a high level of performance. For example, the combination of great motivation and little ability (or vice versa) may not produce high performance.

B.1 Ability

Ability is defined here as:

> ...the power to perform an act. An ability may be innate or it may be the result of practice....This implies that an act can be performed now...whereas aptitude implies that... training or education will be necessary before an act can be performed at some future time. Capacity...implies an ability which can be fully developed in the future only under optimal conditions of training...rarely reached [8].

Managerial ability would therefore be the result of such things as: (i) education, both formal, grade school through university or trade school, and informal, such as meetings and seminars, (ii) experience and practice, (iii) management-style, (iv) intelligence, and (v) veridical perception.

B.1.1 Education and Experience. Recently Beal, Warren and Duncan [2] conducted research on Iowa grain and supply cooperative managers. They discovered that economic success was best predicted by experience, followed by knowledge about product lines handled, general firm economics, and financial analysis. Education and training were positively correlated with the measure of economic success used but were not statistically significant at the ten percent level. When management performance was measured by those answers the managers gave to questions on how they performed their managerial roles, education rated highest, followed by knowledge and training, while experience was negatively related.

Beal, Warren and Duncan [2] theorized that the negative relationship between experience and the performance measure is due to the fact that the latter were based on academic definitions more familiar to the more educated, less experienced managers. They also believed education to be more important than shown, which was verified when they conducted a causal analysis of relationships. Education had three indirect effects upon performance and success. First, the more educated managers sought more training, thus gaining more economic knowledge leading to increased profitability. Second, education enhanced performance in a similar manner as profitability was enhanced. Third, education leads to more rational values and thus better performance. In addition, Heckhausen [15, p. 30] has found that those individuals with a higher level of education also had a higher degree of achievement motivation.

B.1.2 Management Style. Management style directly affects management-employee relations. The morale and motivation of the employees affects their performance, which in turn affects company efficiency and productivity. Management-employee relations are influenced by: (i) the amount of decision-making which the employees are allowed to exercise, and (ii) the extent to which the manager is considerate of the needs and feelings of his subordinates [35].

It is fairly well accepted that there are three basic styles of management leadership:

(i) Autocratic -- leader centered. The manager gives direct orders, accepts no suggestions or help from his subordinates.

(ii) Democratic -- group centered. The manager leads his subordinates as a team. Also known as participative management.

(iii) Laissez-faire -- individual centered. The subordinates are free to do nearly as they please. Useful where individual initiative and thought are desired.

Democratic leadership has been shown to be the most effective form of management leadership for most management situations. Democratic management leadership is superior primarily for its motivational effects upon employees, but depending upon specific priorities, such as quality of decision reached, may not necessarily be the best for some particular situations [34, pp. 40-44]. Benefits of democratic management leadership are exemplified in a study by Lawler and Hachman [23]. In a field experiment, they allowed one group of employees in a company to set up a reward system for good job attendance. This system was then enforced on all employees. It was found that those employees who had helped set up the system attended work significantly more than they had previously, while those who had not helped, did not attend work significantly more than they had attended previously.

Other research has shown democratic managers to be orderly and structured in their behavior. They view their employees as an organized unit or team [36]. The style of management leadership is not free from the motivation of the manager: The individual strength of the manager's motives influence or form his style of management. Motives having the greatest effect are the interpersonal needs for power and affiliation [35]. These motives are discussed below in sections B.2.5 and B.2.6 respectively.

B.1.3 Intelligence. This ability is defined here as:

> ...1. the ability to meet and adapt to novel situations quickly and effectively; 2. the ability to utilize abstract concepts effectively; 3. the ability to grasp relationships and to learn quickly. The three definitions are by no means independent; they merely emphasize different aspects of the process... [8].

Vroom [34, p. 50] cites research which shows highly intelligent managers to be less successful and more critical of their situation. Heckhausen [14, p. 129] has found that above a certain level of intelligence, improvement in managerial performance depends upon the level of intelligence, not motivation.

B.1.4 Veridical Perception. This term was coined and defined by Schrage [31, p. 57] as: "...the act of recognizing people, things and situations as they truthfully are rather than attributing to them qualities which are the products of one's emotions or imagination." Schrage believes that the ability to perceive veridically is the most important factor differentiating the successful manager from the unsuccessful. He found that a manager's perception of the market, his customers, employees and self is very important. The manager who himself actively seeks out the opinion of his customers and employees and is aware and anxious of his own impaired performance in tight situations is the best manager. He is cognizant of his total environment. Schrage [31, p. 59] found veridical perception to be positively correlated with achievement motivation, but negatively correlated with power motivation.

B.2 Motivation

Research into the motivation of managers has only recently, within the last ten or fifteen years, begun in earnest. Since there has been

very little research conducted on motivation in agriculture or related businesses, most of the findings here cited are from research on managers and others in large corporations.

Some definitions are needed here before a review of the theory and research is attempted. The term "motivation" will be used in this context according to the following definition: "...an intervening variable which is used to account for factors within the organism which arouse, maintain, and channel behavior toward a goal..." [8]. Each factor is termed a "motive" which is defined as "...a state of tension within the individual which arouses, maintains and directs behavior toward a goal..." [8]. Motivation is therefore the sum of an individual's motives. Upon fulfilling a motive a sense of contentment is obtained termed "satisfaction" which is defined as "...a state of pleasantness and well being consequent upon having achieved a goal...(or) gratified an appetite or motive" [8].

Maslow [27, pp. 83-84] proposes a hierarchy of needs (motives) which are fulfilled in order of importance to the individual. Once a need is satisfied, it is no longer a driving force; only those needs not yet satisfied are motivators. A need does not have to be entirely satisfied before the next in the hierarchy becomes a motivator, nor are the needs in a fixed hierarchy for everybody, but may be ordered differently for each person.

Theorists and researchers have arranged needs (motives) in a number of hierarchies of importance. Maslow [27, pp. 84-99] has six classifications of needs: Physiological, Safety, Belongingness and Love, Esteem, Self-Actualization, and Aesthetic. More recently, Madsen [26, pp. 320-323], after reviewing a number of theories, proposed the

following list: (i) Primary motives: the innate, physiological determined motives, ten in number. (ii) Emotional motives: partly primary, partly secondary, two in number [security (fear), and aggression (anger)]. (iii) Secondary motives: acquired motives, socially and culturally determined, four in number (social-contact, achievement, power, and possession). Madsen [26, p. 323] describes his list as being sufficient to explain human actions.

Research, mostly using Murray's extensive list of empirically determined needs, has revealed several needs as important discriminators between the motivation of managers and non-managers, and between good and poor managers. These needs fall into Maslow's Safety, Belongingness and Love, and Esteem classification, and Madsen's Emotional and Secondary motives. In theories regarding job motivation, motives are generally segregated into two groups, context and content factors. A context factor is Wolf's [37] term for what has been called the hygiene, maintenance, extrinsic or dissatisfier factor; it is an outside or external factor of a job, e.g. the desire for compatible co-workers. A content factor is Wolf's [37] term for what has been called the motivator, intrinsic or satisfier factor; it is an aspect of the job in itself, e.g. the challenge of doing a job well.

Recently, Wolf [37] has proposed a theory of job motivation which he defines as: "Job motivation occurs when an individual perceives an opportunity to gratify an active need through job-related behaviors." Wolf's [37] theory takes into account both traditional theory of job motivation, which states that "the same elements can be related to both satisfaction and dissatisfaction", and Herzberg's two-factor theory of job motivation, which states that "content elements are more powerful

determinators of job satisfaction than are context elements..." Wolf's theory combines the two above by means of Maslow's hierarchy of needs, which indicates that context factors must first be satisfied before content factors of job motivation. Because the satisfaction of a previously ungratified need is greater than additional satisfaction from a need which is gratified on an on-going basis, a content element may be a stronger job satisfier [37].

Wolf's theory explains how higher level employees in a company are more satisfied, and how content elements are of greater importance as motivators to them. They have satisfied more of their lower needs and have begun to satisfy their higher needs, which are mostly content in nature.

Elements of motivation which have been determined to be important discriminators between good and poor managers are:

1. The level of satisfaction.
2. The need for safety, which includes concern over pay.
3. The need for affiliation.
4. The need for self-esteem.
5. The need for power, which includes the need for autonomy.
6. The need for achievement.

B.2.1 The Level of Satisfaction. Satisfaction depends upon the fulfillment of needs (motives). Generally, the more needs that are fulfilled, the greater the satisfaction. Satisfaction is an ultimate state. As lower needs become fulfilled, higher needs, which are more content in nature, become motivators [37]. Satisfaction is influenced by, and correlated with many variables.

Job satisfaction increases with higher levels of management and wages, as more motives are satisfied, and as goals are reached, or problems overcome [25, 34, pp. 49-58, 37]. In higher levels of management, motives to be satisfied are primarily content in nature; in lower levels, motives to be satisfied are primarily contextual in nature [3, 7, 37]. Job satisfaction increases with the degree of job fit; the better a person's abilities fit his job requirements, the greater his satisfaction [6]. Job satisfaction increases with the level of personal self-esteem [20].

A job is not free of life values of workers; it embodies a great amount of them [11]. Community economic characteristics have a strong effect upon employee job satisfaction and attitude toward pay [17, 18]. Job satisfaction is also moderated by how an employee believes his pay is determined and how he believes it should be determined [21]. To obtain maximum job satisfaction, the different aspects of a job require different combinations of managerial climatic components moderated by the work values of the employee [12]. Job performance may be enhanced by difficult specific work goals, but satisfaction is lowered [5, 25].[2]

B.2.2 The Need for Safety. The average person in today's society is predominantly satisfied in his safety needs. He is, for the most part relatively safe from wild animals or murder. A person today shows concern for safety by preferring a stable job and various forms of insurance for his own well-being. The concern for safety is also expressed by the preference for the familiar or known, and by the tendency to have some philosophy which organizes the world in a satisfactory manner [27, pp. 84-89].

The Safety (or security) motive may be defined as "...1. The tendency to seek security. 2. The tendency to protect onself from threat or possible failure by refusing to try or by lowering the level of aspiration" [8]. The degree of concern for the amount and type of safety varies with the age group, economic background, management level, and degree of personal concern. The safety motive as expressed in today's society can be classified as being generally contextual in nature to the job, and taken from the viewpoint of management, safety is essentially unrelated to job motivation, since employees generally can do little to improve their job safety [37].

Managers and professional employees consider safety and pay to be of less importance than the content aspects of work. This is opposite of what semi-skilled and unskilled workers believe.[3] Pay, which is a means to many of the context aspects of work, is a motivator only when there is a clear correlation between work performance and pay [6, 23, 21, 10, 30]. When pay is administered equal to all, or only biased by tenure, it leads to work performance which is the barest minimum needed to keep the employee in the company [10]. The best performers are motivated by content aspects of work; it is the lower performers who are motivated by pay [10, 28]. Vroom [34, pp. 51-53] reports that managers prefer wage compensations instead of fringe benefits. In addition, when managers compare wages they are more concerned, not with the actual amount, but rather how it compares to that of others in the field. The comparison of wages to those outside the company was most typical of well-educated managers.

B.2.3 The Need for Affiliation. The need for affiliation is comparable to Maslow's Belongingness and Love need, which comes after

his Physiological and Safety needs [27, pp. 89-90]. Madsen [26, p. 322] places it in his Social Contact Motive. Both Maslow and Madsen describe their classification as the non-sexual desire for contact with other human beings. It is defined as the "...need for friendly association with others; formation of friendships; joining of groups; loving; cooperation" [8].

Wainer and Rubin [35] discovered that the need for affiliation is nonlinearly, slightly negatively related to company performance. They attributed this to the fact that a person with higher need for affiliation may be able to obtain the assistance of his colleagues, some of whom may have a high need for achievement. Heckhausen [15, p. 23] has found that failure is correlated with difficulty in social affiliation. He also confirms Wainer and Rubin's findings that the need for affiliation and the need for achievement are negatively related. He found that those individuals who have a high need for achievement will choose to work with somebody they may dislike who knows the job well, while those with a low need for achievement will choose somebody they like who may not know the job [15, pp. 64-65].

B.2.4 The Need for Self-Esteem. Maslow [27, pp. 90-91] believes that "All people in our society...have a need or desire for a stable, firmly based, usually high evaluation of themselves, for self-respect, or self-esteem, and for the esteem of others." Maslow [27, p. 90] holds that the satisfaction of self esteem needs, leads to feelings of personal strength, self confidence, and of being useful and necessary to the world. Where these needs are frustrated, feelings of inferiority, of weakness, and of helplessness emerge. He divides esteem needs into two groups: (1) the desire for independence, mastery or achievement

in the world, and (2) the desires for prestige and recognition by others.

A person with high self-esteem is more likely to seek self fulfillment and satisfaction, but a person with low self-esteem, even when provided with the fulfillment of his desires, will not reach the same level of satisfaction as a high self-esteem individual [20]. Failure has been correlated with poor self concept and difficulty in social affiliations [15, p. 23]. In a study upon Iowa cooperative managers, it was found that the successful managers were characterized as having a relatively favorable self concept. The more positive their self concept, the better their performance and economic relations to their cooperatives. Self concept was positively correlated with dominance, a measure of leadership, and negatively correlated with abasement, a measure of guilt and submissiveness [1].

B.2.5 The Need for Power. This is a secondary motive resulting from competitive situations [26, p. 322]. It has been found to distinguish between successful and unsuccessful managers. It is the "...ability or authority to control others; social power" [8].

Vroom [34, p. 17] cites research showing that managers have a stronger desire for power and derive more satisfaction from interpersonal influence than do other occupational groups. However, the precise manner in which the strength of the power motive influences managerial success is not as clear.

Schrage [31, p. 59], in 1965, concluded that:

> Power motivation, as predicted, fogs the individual's perception of customers and employees. But instead of simply hurting profits, it causes either profits or losses to decrease!...

One reason Schrage [31, pp. 62-63] gives for his conclusion is that a low power-motivated manager is more aware of the facts because he is willing to delegate authority and obtain feedback on how the company is operating. On the other hand a highly power-motivated person may either produce some spectacular one-man maneuvers, producing high profits or losses which average out to a low net return; or be overly cautious, holding a tight rein over the company and accepting no advice, but keeping losses and profits to a minimum. Based upon the above conclusions from his resarch, and his finding that power motivation is negatively correlated with veridical perception, Schrage concludes that the successful manager has low power motivation.

Wainer and Rubin [35], in 1969, found the need for power, when considered alone, to be uncorrelated in conjunction with the degree of success. But when the need for power was considered in conjunction with the need for achievement, it was found that the best companies were controlled by managers with high need for achievement combined with a moderate need for power. Where high need for achievement was combined with high need for power, the manager was less successful. Wainer and Rubin [35] gave a possible explanation of their results -- the higher the need for power, the more autocratic the manager. This suggests that a moderate level of power motivation would indicate a manager whose style of leadership is democratic.

Wainer and Rubin's findings about power motivation have been partially confirmed in 1970 by Harrell [13, 14]. He compared MBA graduates and found that the higher wage earners, both in small and large businesses, were more domineering than low wage earners. He did not, however, seem to believe this dominance to be excessive,

since it was balanced by higher sensitivity and a higher friendliness score.[5]

The need for power is composed of five of Murray's needs, according to Madsen [26, p. 322]. One of these needs, the need for autonomy, has been found to be of great importance to the more successful managers [13, 14, 16]. This is a wish for independence, for freedom of choice and self regulation. Harrell [14] found the more successful entrepreneurs in small business had a greater desire for autonomy than the more successful in big business. He suggested that this may be the reason why such people had chosen small businesses rather than large. The need for autonomy also includes some of the desire for risk taking, but this will be explained under the need for achievement below.

B.2.6 The Need for Achievement. This motive is believed by many to be the most important to entrepreneurial success. Managers show stronger occupational drive and achievement motivation than do any other occupational group. It is not clear why entrepreneurs show high achievement motivation. It may be because (i) those people with high achievement motivation choose management for a career [15, p. 94], (ii) because tests and job recruiters unintentionally exclude all those from management who do not have high achievement motivation [16], or (iii) since McClelland [28, 29] has shown that achievement motivation can be learned, this may occur in managers as a result of their career [34, p. 18].

The achievement motive may be defined as: "...1. the tendency to strive for success or the attainment of a desired end...4. (Murray) The motive to overcome obstacles or to strive to do quickly and well things which are difficult" [8].

The strength of the need for achievement is directly correlated with the degree of success as a manager. Wainer and Rubin [35] have found that high achievement motivation in the manager causes success of the company. They found that highly achievement-motivated managers had a greater company growth rate than either moderate or low achievement-motivated managers.[6] Low achievement-motivated managers had a higher growth rate than moderate motivated managers, but this was not significant at the five percent level. Their findings disprove Schrage's [31, p. 59] 1965 conclusion that high achievement motivation causes great profits or great losses, while low achievement motivation causes low profits or low losses.

Heckhausen [15, p. 30] has found research which shows that those individuals with a high need for achievement have a higher level of education, occupy higher level jobs, work persistently harder, matured early, come from small towns or rural areas, and have grown up without either parental divorce or death prior to age sixteen. Those people with high achievement motivation prefer long-range goals, speak more of the future, and are more able to postpone rewards [15, pp. 42-44]. When considering goals, high achievement-motivated individuals worry about success or failure, but anticipate success more often than failure [15, p. 22]. They prefer goals of medium difficulty, which will have an equal chance of success dependent upon the individual's capabilities, while low achievement-motivated persons need either very easy, or exceedingly difficult goals [15, pp. 101-103]. A high achievement-motivated person is more goal-oriented; works better alone and yields less to social pressure; prefers excellence over prestige, although both are valued, and enjoys problem solving and achievement behavior

for its own sake [15, p. 67]. They prefer quick moving concentrated solutions but will feel unchallenged if the problem is too easy [15, p. 41].

A person with a high need for achievement and autonomy prefers moderate, well-calculated risks and has an aversion to daring speculation which may prove highly profitable in the short run, but which will eventually ruin the enterprise [14, 15, p. 60, 28, 34, p. 19].

Friedlander [10] has found a relationship between age, content motives, and context motives of work among white collar workers. Both high and low job performers, when young managers, prefer content aspects of work over context aspects such as recognition and the social environment. As age increases, preference for social environment increases in importance for both, but unlike low performers, high performers always maintain the primacy of content work aspects.[8]

Friedlander [10] also found that those individuals who were motivated by the content aspects of work continually obtained recognizable signs of advancement, while those who sought only the recognizable signs of advancement failed to do so.

FOOTNOTES

[1]Research in management job performance first began at the lowest level, with the foreman and his workmen. Only in the last one or two decades has attention shifted to middle management, leaving the highest level of management still untested.

[2]The exception may be found in the person who derives great satisfaction from work, and who may believe in the Protestant Ethic.

[3]Managers and professional employees consider security and pay to be of less importance than the content aspects of work, according to Centers and Bugental [6]. They found that managers and professional employees rated the following items in decreasing order of importance: interesting work, satisfaction, self-expression, pay, good co-workers, and security, in that order. At the other end of the management hierarchy, semi-skilled and unskilled workers ranked the items in the following order of importance: pay, good co-workers, interesting work, security, satisfaction, and self-expression. Pay moved from fourth place for managers to first place for semi- and unskilled workers, and security moved from sixth place to fourth place.

[4]Of those managers who had a low need for affiliation, 69 percent of them had a higher than average company growth rate; of those with a moderate need for affiliation, 44 percent; and of those with a high need for affiliation 40 percent had a higher than average company growth rate [35].

[5]The latter was not significant at the .05 level [13].

[6]Significant at the .01 level [35].

[7]The content motives are apparently mostly the need for achievement.

[8]The importance of work motivators, mostly content, for low performers reaches a maximum at age thirty then levels off until age fifty when it begins dropping. For high performers, the work motivators, content and promotions, decrease slightly to age thirty, but thereafter increase [9].

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CHAPTER III

ANALYTICAL PROCEDURE

A. The Sample

The population under study consisted of the principal managers of 102 cooperatives which were 1970 members of the Farmers Cooperative Grain Dealers Association of Oklahoma.

A pilot version of the questionnaire was pretested in early May, 1971. The final version of the questionnaire was mailed to 102 principal managers of cooperatives on May 18, 1971. Forty-eight questionnaires were returned from this mailing. On July 2, 1971, questionnaires were mailed to principal managers of cooperatives who had not returned a questionnaire after the first mailing. Thirteen completed questionnaires were returned after the second mailing, for a total of 61 questionnaires, or a return rate of 59.8 percent. Of these 61 questionnaires, 13 were rejected because they were incomplete. This left for analysis 48 questionnaires, or 47.1 percent of the population. These 48 questionnaires were not classified into groups, although it was recognized that these cooperatives varied in size, location, and type of business conducted.

The method of factor analysis, shown in section C.2.3 of this chapter, as well as the number of observations relative to the number of variables under study, precluded making statistical tests. This is relatively unimportant, as it is not the purpose of this study to test

hypotheses. Instead, the primary objective is to determine some of the elements which control managerial success. Results from this research will be presented as hypotheses which will require testing in later studies.

B. The Questionnaire

The mail survey questionnaire, shown in Appendix A, consisted of three parts. The first part contained 80 questions asking the managers for their opinions on various topics, which have been demonstrated in Chapter II by previous research to be relevant to decision making by managers. The second part consisted of 21 questions seeking information on such subjects as the manager's age, pay, armed services record, and cooperative size. The third part was a request for financial information about the cooperative for the years 1966 through 1970.

B.1 Opinion Questions

The study, being exploratory in nature, required that many areas of concern be investigated to provide a broad perspective of the general problem. This necessitated the use of many questions which could be answered quickly and easily. It was therefore decided to present managers with statements about these areas of concern. The managers were asked to score each statement relative to how much they agreed or disagreed with it, using a scale from 1 through 99, where a "1" would indicate complete disagreement, a "50" no opinion, and "99" complete agreement. The 80 opinion questions comprised 13 separate groups of questions. Each group of questions focused on an aspect of the manager which was judged by past research to be a possible indicator of

managerial performance. These groups, labeled 1 through 13, form composite groups referred to as veridical perception, management motivation, and business behavior.

B.1.1 Veridical Perception. Questions in Groups 1, 2, 3, 4, and 5 focus on different facets of veridical perception.

The questions in Group 1, veridical perception, are used to determine how concerned managers are about obtaining accurate information, how aware they are of their own limitations, and the effects of their actions. Table III contains those statements concerning this aspect of veridical perception. Group 2, operational objectivity, shown in Table IV, investigates the importance managers place on regular accounting and economic measures for supervision and analysis of their business operation. A study of operational objectivity provides an investigation of some traditional assumptions of economic research, which are that those managers who desire more accurate information about their business use this information for decision making, and that these managers are also aware of new production methods that will aid or hinder their business.

Group 3, environmental awareness, examines managers' desires for information from peers, specialists in the profession, and customers. It is argued by some that those managers desiring this information would consider it important to attend farmer meetings and seminars. Group 3 is shown in Table V. Group 4, the manager's perception of himself and his employees, shown in Table VI, examines management-employee relations by asking for the manager's opinion of his employees and of himself. It is reported that a good manager, one who perceives veridically, will know his employees better than a poor manager [5].

TABLE III

QUESTIONS IN GROUP 1 -- USED TO ANALYZE VERIDICAL PERCEPTION

Question Number	Question
7.	I consider it very important that I check the work schedule for each department every day.
41.	I believe I can obtain as good information by getting reports from the salesmen as obtaining it directly myself from customers.
48.	I encourage criticism and suggestions from my customers.
55.	I leave many jobs to my employees because they are able to do them as well or better than I can.
61.	Company growth is due to my efforts alone.
71.	My business decisions have had little impact upon the local community.
78.	I encourage suggestions from my employees.

TABLE IV

QUESTIONS IN GROUP 2 -- USED TO ANALYZE OPERATIONAL OBJECTIVITY

Question Number	Question
2.	I never expand an enterprise without first estimating by regular accounting methods the costs and returns of doing so.
9.	I could tell someone the exact rate of return and volume obtained last month for each enterprise (or department) without looking at my records.
23.	I always determine precisely the benefits and costs of government programs to me before deciding upon the extent of participation.
30.	I always consider the effect on the entire firm operation when deciding on new production methods for an enterprise.
37.	I know exactly how the latest developments in production methods would affect my operation.
43.	I am responsible for searching out and evaluating new ways to operate.

TABLE V

QUESTIONS IN GROUP 3 -- USED TO ANALYZE ENVIRONMENTAL AWARENESS

Question Number	Question
35.	It is highly important to me to attend farmer field days, machinery demonstrations, reunions, etc.
47.	It is highly important to attend my own trade meetings, university extension classes, etc.
54.	I consider it important to participate in trade organizations.
66.	I consider it important to talk frequently with the county agent and other professional agricultural workers.

TABLE VI

QUESTIONS IN GROUP 4 -- USED TO ANALYZE THE MANAGER'S PERCEPTION OF SELF AND EMPLOYEES

Question Number	Question
Employees:	
1.	I have the best employees in the community.
8.	I could not be more satisfied with my employees.
29.	My employees receive the highest wages for laborers in the community.
56.	I have low employee turn-over.
62.	My employees could not benefit more by obtaining a similar job within Oklahoma.
Manager:	
42.	I am the lowest paid manager of any business in the community.
49.	I am the highest paid manager in this trade within Oklahoma.
67.	In the company, I am compensated the least relative to my abilities.
75.	The wage I receive from managing my firm gives me a high degree of personal fulfillment.

Group 5, national awareness, measures the importance managers place on national and international news. Veridical perception implies the wish to be informed of the total environment in which one exists. Table VII contains those questions concerned with national awareness.

B.1.2 Management Motivation. Questions in Groups 6, 7, 8, 9, and 10 were used to analyze management motivation. Group 6, social involvement, relates to the manager's need for affiliation, or the need for friends and joining of groups. Table VIII contains those statements concerning social involvement. The questions in Group 7, status, shown in Table IX, investigate a manager's need for self-esteem and the esteem of others. Questions regarding power motivation are contained in Group 8, and shown in Table X. These questions were used to obtain a measure of the manager's dominance over other people. Independence, measured by the variables in Group 9, shown in Table XI, is the manager's need for autonomy and independence, relative to his Board of Directors. Group 10 contains the variables, shown in Table XII, which measure achievement motivation, which is a manager's desire to excel at his job.

B.1.3 Business Behavior. This composite group consists of Groups 11, 12, and 13. Group 11, general business practices and beliefs, includes such areas of concern as delegation of authority, control of employees, the emergence of critically important employees within the cooperative, the manager's conviction about the importance of a college education, experience in the armed services, and the accumulation of debt. Group 11 is shown in Table XIII. Table XIV contains Group 12, business objectives and plans, which contains statements in the area of who makes the objectives and plans for the cooperative and how detailed

TABLE VII

QUESTIONS IN GROUP 5 -- USED TO ANALYZE NATIONAL AWARENESS

Question Number	Question
13.	I obtain great personal satisfaction in studying national and world news every day.
27.	I derive great personal satisfaction from time spent listening to or watching national news reports.
34.	When on vacation, I prefer to travel outside the state.
76.	National and world news are important to my business operation.

TABLE VIII

QUESTIONS IN GROUP 6 -- USED TO ANALYZE SOCIAL INVOLVEMENT

Question Number	Question
5.	Local community service organizations, such as J.C.'s, Lions, etc. are important to me.
12.	It is important to me to be active in local community organizations.
19.	I consider it of great importance to my business that my family participate in this business's community affairs.
26.	When I can not attend community activities, it bothers me to allow others to represent me and my family.
40.	To participate in local political activities is of great importance to me.

TABLE IX

QUESTIONS IN GROUP 7 -- USED TO ANALYZE STATUS

Question Number	Question
6.	I am very proud of the title of manager.
14.	I derive great satisfaction from signing my name as manager.
21.	I like the respect I receive from my employees for the position I hold.
28.	I derive great satisfaction from the status I hold in the community as a manager of a grain and feed firm.

TABLE X

QUESTIONS IN GROUP 8 -- USED TO ANALYZE POWER MOTIVATION

Question Number	Question
46.	I derive great satisfaction from having others work for me and with me.
60.	I appreciate having others look to me as their leader.
65.	I derive satisfaction from giving orders to others.
73.	In a company of this size, employees should have an opportunity to exercise some authority over routine matters affecting them.

TABLE XI

QUESTIONS IN GROUP 9 -- USED TO ANALYZE INDEPENDENCE

Question Number	Question
10.	My decision making power is less than my share of the responsibility (relative to the Board of Director's share).
24.	I like being manager because I can work as hard as I wish.
31.	I benefit my firm by often times taking on the responsibilities of the board.
53.	I consider myself to be exceedingly independent of my Board of Directors.
70.	I feel that the average tenure of the members of my present Board of Directors is too long.
80.	My Board of Directors is my greatest limiting management factor.

TABLE XII

QUESTIONS IN GROUP 10 -- USED TO ANALYZE ACHIEVEMENT MOTIVATION

Question Number	Question
3.	The greatest challenge to management is dealing with risk and uncertainty.
17.	The company's ultimate objectives are too high.
38.	Management is challenging and exciting to me as each day brings new and different problems for me to solve.
44.	One aspect of management which I detest is the heavy competition.
51.	The aspect I dislike the most about management is the pressure build up.
68.	I like to manage a cooperative because the work is seasonal.
72.	I would rather take a faltering company and accept the responsibility of building it up.
74.	I am uncomfortable when making decisions under uncertainty.
77.	One of the aspects which appeal to me most about being a manager is that my success is dependent upon my own production record.

TABLE XIII

QUESTIONS IN GROUP 11 -- USED TO ANALYZE SEVERAL BUSINESS PRACTICES AND BELIEFS

Question Number	Question
4.	Those businesses which are willing to borrow money are more likely to be successful than those that make it a policy to avoid debt.
15.	I have complete control over the hiring and firing of all employees working below me.
18.	My foremen should follow a strict daily schedule in the performance of their jobs.
22.	There is one (or more) key employee (other than the manager) within my cooperative who is important enough to the operation of the business, that the cooperative could not operate efficiently if he were replaced.
33.	My serving in the Armed Forces gave me experience in the leadership of men which has been beneficial to business. (If you did not serve, put 50).
36.	If I were suddenly incapable of managing the company (due to accident or illness), my successor from within the cooperative, would be prepared to take my job.
45.	I firmly believe that a college education is necessary for a beginning manager to be successful today.
58.	I consider seniority as very important in promotion.
69.	I believe my employees should make all operating procedure decisions.
79.	In order to be efficient at my job it is necessary that I follow a strict daily schedule.

TABLE XIV

QUESTIONS IN GROUP 12 -- USED TO ANALYZE
BUSINESS OBJECTIVES AND PLANS

Question Number	Question
11.	My Board of Directors needs my guidance in setting the objectives of the cooperative.
25.	The setting of the company's ultimate objectives should be exclusively my job.
32.	I firmly believe that I should be the only one that formulates the company plans.
39.	I consider this company an innovational leader in the trade within Oklahoma.
52.	I have plans set up for this company, to be implemented during the next five years, specifying for each year exactly what is to be done and when.
59.	I believe in company plans which specify exactly when something is to be done.
64.	The company's ultimate objectives are highly detailed.

they are. Group 13, verbalization, shown in Table XV, centers on whether a manager will discuss his business, with whom, and how he feels about doing so. A study in Tennessee showed that better farm managers could better express themselves in this area [2].

B.2 Personal History Questions

Twenty-one questions were used to obtain information to supplement the analysis of financial data. Subjects covered by these questions are age, experience as a manager, pay, years served and rank acquired in the armed forces, education, travel, time spent at seminars and management classes, social involvement, number of competitors, trade area, and average tenure of the Board of Directors. Question number 14 of the questionnaire was withheld from analysis because of the degree to which it was misinterpreted;[1] question number 2 was withheld because an essay answer was required, which was not meant to be included in a quantitative analysis.

B.3 Financial Information

Condensed financial statements for the years 1966 through 1970 were asked for in question 22 of the questionnaire. Most cooperatives had condensed financial statements for 1970 readily available, but much of the financial data was not readily available for the other years. Selected financial ratios were computed from data in the 1970 financial statements of those cooperatives analyzed. The financial ratios computed will be discussed in detail below.

TABLE XV

QUESTIONS IN GROUP 13 -- USED TO ANALYZE VERBALIZATION

Question Number	Question
16.	I feel extremely uneasy when discussing company business matters with people other than family members and close friends.
20.	Discussion of business practices and techniques with other managers is helpful.
50.	I absolutely refuse to talk about my business operations and its problems with people other than the family.
57.	If asked, I can perfectly describe the kinds of facilities I have and their operation.
63.	I frequently encourage others in the trade to accept new ideas and methods.

C. Data Analysis

C.1 Data Preparation

Once the data had been collected and the questionnaires edited for completeness, the raw data had to be prepared for analysis.

C.1.1 Opinion Questions. Due to the fact that people, when answering a question which has a scale of answers, remain near the mean, the responses to the 80 opinion questions were re-scaled as standard normal deviates; also, 300 was added to the re-scaled responses so as to have all values greater than zero. The standard normal deviates spread out the middle section of the range of raw data so as to give a better interpretation.

C.1.2 Personal History Questions. These were coded to save space when put on computer cards. The coding consisted of removing the zeros from numbers in the hundreds, thousands, and millions.

C.1.3 Financial Data. The 11 financial ratios computed required 14 separate items of information. They were: (i) Liquid Assets, composed of accounts, notes, and sales receivable, and cash on hand; (ii) Current Assets, composed of Liquid Assets, inventories, and prepaid expenses; (iii) Fixed Assets, composed of land, buildings, equipment and fixtures, minus book-value depreciation;[2] (iv) Inventories; (v) Current Liabilities, composed of all liabilities due within the next fiscal year; (vi) Total Liabilities, composed of current and long-term liabilities; (vii) Net Working Capital, (viii) Net Worth, composed of special revenues[3] and members' equity, made up of capital stock, equity credits, and retained earnings; (ix) Gross Income,[4] made up of sales and other operating income before cost of sales and operating expenses;

(x) Operating Profit,[5] composed of gross income, minus cost of goods sold and operating expenses; (xi) Net Profit, composed of total net earnings on a before-income-tax basis, patronage refunds, and dividends received; (xii) Salaries, composed of all wages and salaries, including the manager's; (viii) Overhead, composed of all operating expenses except salaries, depreciation, operating taxes and licenses; (xiv) Depreciation, at the amount cited by each cooperative.[6]

Eleven ratios obtained from the above financial information included: (i) Current Ratio, an estimate of the firm's ability to pay its current liabilities from presently owned assets; (ii) Liquid Ratio, a more stringent test of liquidity than the current ratio; (iii) Inventory to Net Working Capital, a check on relative inventory size; (iv) Gross Income over Net Working Capital, a determination of net working capital turnover; (v) Total Liabilities to Net Worth, a test for solvency and credit security; (vi) Fixed Assets to Net Worth, a second test for solvency;[7] (vii) Net Profit to Net Worth, test for profitability, a measure of return on investment; (viii) Operating Profit to Gross Income, a measure of total operating efficiency; (ix) Salaries to Gross Income, an operating ratio to test whether labor and management salary expense is out of line; (x) Overhead to Gross Income, another operating ratio used to test whether overhead was excessive; (xi) Depreciation to Gross Income, an indicator of whether new facilities have been added recently.

C.2 Data Analysis

C.2.1 Correlation Matrix and Identification of Questions and Variables.

Before the correlations were computed from the data, the

questions and variables were numbered 1 through 116. The first 80 questions retained the number assigned to them in the questionnaire. The remaining variables were personal history questions from Section II of the questionnaire, and financial ratios. These remaining variables were assigned numbers shown in Appendix B.

C.2.2 Determining the Number of Factors to Extract. Prior to the factor analysis via the principal factor method, it was necessary to know the sufficient number of factors to explain a chosen amount of the variation in the data, yet not have too many factors such that efficiency of data reduction would be lost, or too few factors such that some important relationships would be missed. A cluster analysis of the data was made by computing an Index of Internal Consistency [3, p. 28]. Nineteen clusters were obtained, but ten were couplets or triplets, six of which had high Indexes of Internal Consistency and four of which had low indexes. Based upon the Indexes of Internal Consistency and the eigenvalues, shown in Appendix C, four principal factor solutions were obtained, where the number of factors extracted ranged from a minimum of 12 to a maximum of 15.

C.2.3 Factor Analysis by Principal Factors. Since there were 48 observations on each of 116 variables, the correlation matrix was semi-positive definite. That is, it was singular, and, thus, when eigenvalues were computed some were zero. The singular correlation matrix eliminated the use of the maximum likelihood factor analysis computer programs available[8] [1]. This required use of a principal factor method of factor analysis computer program. A principal factor model may be used to describe a variable in terms of a linear combination of hypothetical constructs, or factors, by the equation:

$$Z_j = a_{j1}F_1 + a_{j2}F_2 + \cdots + a_{jm}F_m + d_j u_{ji} \qquad \begin{matrix}(j=1,\ 2,\ \ldots,\ n)\\ (i=1,\ 2,\ \ldots,\ N)\\ (p=1,\ 2,\ \ldots,\ m)\end{matrix} \quad (3\text{-}1)$$

where Z_j is the j^{th} standardized variable, a_{jp} is the factor loading of the j^{th} variable on the p^{th} factor, F_p, and d_j is the coefficient of the unique variance u_{ji} for all observations on the j^{th} variable [3].

The computer program used was FACTO, from the Scientific Subroutine Package, modified for my own use [6].[9] Each factor in a principal factor solution, in consecutive order, makes a maximum contribution to the explained total variance of the n variables. In a principal factor solution, all factors are required to reproduce the matrix of correlations among variables, but for explanatory purposes, only those factors are retained which account for a large percentage of total variance. Once the principal factor solutions, containing 12 through 15 factors, were obtained, a comparison of the ease with which variables could be allocated in each factor and the percentage of total variance explained by the first-order factors led to the choice of solution to use in describing the data.

According to Oehrtman [4, p. 9] factor loadings are interpreted in three ways. "First, they represent the relative importance of each factor in influencing each observed variable." For instance, in this study, the best prediction of the first variable would be an equation of the values for the factors[10] times their respective factor loadings obtained from the first row of the factor matrix in Appendix C. Similarly, each of the other variables can be expressed as a linear function of the 12 factors. "Second, the factor loadings represent the net correlation coefficient between each factor and each observed variable" [4, p. 9]. For example, the first loading, which is -.54

in Factor 1, indicates that Factor 1 explains $(-.54)^2$, or 29 percent, of the variance in variable 1, after allowing for the other factors. The cumulative sum of the squared factor loadings for each variable is shown as a communality, or the amount of variance explained by all 12 factors. For variable 1 the communality is .55; that is, 55 percent of the variance in variable 1 is explained by the 12 extracted factors shown in Appendix C. "Third, and in some ways most important, the factor loadings serve as the basis for combining the variables into common groups. This is done on the basis of which factor has the highest loading with each particular variable" [4, pp. 9-10]. The classification of variables into factors is easy as long as each variable is added to that factor to which the variable appears to have the closest relationship. Once all the variables are relegated to their respective factors, these factors can be identified by a meaningful interpretation of the variables in the factor; this is done by attempting to find a common bond between them.

C.2.4 Allocation of Variables to Factors. Each variable was included in the factor where the factor loading of the largest absolute magnitude appeared, or in other words, the factor with which it was most highly correlated. If a variable had other factor loadings which were within .05 of the largest factor loading, these additional factors were also considered as a possible location for the variable. In this situation, the variable was added to that factor to which it contributed most in interpretation.

C.2.5 Second-Order Factors. Second-order factors were computed to determine the relationships of first-order factors. A correlation matrix was computed, using as data the factor loadings from the rotated

first-order factor matrix. The resulting correlation matrix was inputted to FACTO, which was set up to obtain three solutions containing two through four second-order factors. From these three solutions one was chosen, in a manner similar to the selection of the first-order factor solution, to explain the variation in the first-order factors.

D. Hypothesis Formulation

One value of factor analysis is that the results obtained may be used by a researcher in the formulation of hypotheses about the behavior of managers relative to their opinions and attitudes, age, ability, and the financial status of their business. These hypotheses need to be tested and verified in further research, since they are derived in this study from a sample of only 48 observations[11] on each of 116 variables.

FOOTNOTES

[1]Question 14 asked for total time spent outside the state by the manager since he finished his formal education, the answer to which, when compared to those from Question 3.a., years served in the armed forces, in many cases indicated that more time had been spent in the armed services than out of state. Upon checking with several managers, a misinterpretation of Question 14 was confirmed.

[2]Other assets, such as investment in regional cooperatives were not included in either current or fixed assets.

[3]Special revenues included accelerated amortization of grain facilities.

[4]Gross income was used in this study as a measure of trading size.

[5]Operating profit was used in this study as a measure of profit size.

[6]No distinction was made as to whether the depreciation rate was that used for federal income tax purposes, straight line, or any other form of computation.

[7]Low percentages of net worth held as fixed assets are favorable.

[8]The programs available were: (i) APTERYX: "FActor loadings, sPecific variances, communaliTies, maximum likElihood estimates, least squaRes estimates. AlternatelY principal aXis estimates", the Statistical Laboratory, Iowa State University, Ames, Iowa; (ii) UMLFA: "Unrestricted Maximum Likelihood Factor Analysis", from the Educational Testing Service, Princeton, New Jersey.

[9]Modifications to the subroutine FACTO, from the Scientific Subroutine Package were: (i) The program was set up to accept a correlation matrix instead of raw data, reducing the amount of space required in the computer; (ii) the subroutine EIGEN was substituted by the subroutine GIVENS, which calculates eigenvalues and eigenvectors. The GIVENS subroutine was formulated by Franklin Prosser, Indiana University (September, 1967); (iii) the use of a critical value to decide how many eigenvalues, and thus the number of factors to retain, was substituted by the input of bounds on the number of factors to extract; (iv) the program was changed such that it could be stopped, and restarted, just after the calculation of eigenvalues and eigenvectors to allow for inspection of eigenvalues and a decision on the number of factors to extract; (v) the program was changed to punch the rotated

factor matrix in addition to writing it out; and (vi) the program was used in double precision.

[10]Factor loadings may be used to compute values for these factors. These values are referred to as factor scores. It was not necessary to compute factor scores in this study.

[11]The 48 observations represented 47.1 percent of the population.

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CHAPTER IV

RESULTS, AN INTERPRETATION OF THE FACTORS

Four principal factor solutions were computed, containing 12 through 15 factors. A comparison of these solutions led to the choice of the 12 factor solution as the best description of the data. Reasons for this choice were: (i) there were fewer occurrences where a variable had more than one factor loading equal in magnitude, and thus, greater distinction was obtained regarding the factor into which each variable would be included; and (ii) those solutions having more than 12 factors did not substantially increase the cummulative percentage of the variance explained, as shown in Table XVI below.

TABLE XVI

CUMULATIVE PERCENTAGE OF EIGENVALUES FROM 116 VARIABLES -- PERCENTAGE OF TOTAL VARIANCE IN THE DATA EXPLAINED BY FIRST-ORDER FACTORS

Number of Factors	Cumulative Percentage of Eigenvalues
11	60.3%
12	63.1%
13	65.6%
14	68.0%
15	70.3%
16	72.4%

The results from the 12 factor solution are presented as a factor matrix in Appendix C. The factor matrix is composed of factor loadings which are the correlations of each variable with each of the factors.

A. First-Order Factors

There are 12 first-order factors, derived from a correlation matrix of the raw data. The variance explained by each factor is shown in Appendix C.

A.1 Factor 1 -- Veridical Perception

The items that load higher on Factor 1 than on any other factor are ordered in Table XVII according to the magnitude of their loadings. All variables except one are correlated positively with the factor and 19 have a loading of .50 or greater in magnitude. Variable 20, Discussion of business practices and techniques with other managers is helpful, and variable 54, I consider it important to participate in trade organizations, both have loadings of .77. Variable 30, I always consider the effect on the entire firm operation when deciding on new production methods for an enterprise, has a loading of .76. Therefore, Factor 1 accounts for 59, 59, and 58 percent of the common variance in variables 20, 54, and 30 respectively. The variables that load high on Factor 1 are concerned with Veridical Perception, which is thus used as a suggested name for this factor.

An interpretation of Factor 1 would allow one to hypothesize that a manager who shows the following characteristics could be an outgoing person. He places importance in speaking to other managers, participating in trade and social organizations, encouraging suggestions

TABLE XVII

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 1 -- VERIDICAL PERCEPTION

Variable Number	Variable Description	Factor Loading
20.	Discussion of business practices and techniques with other managers is helpful.	.77
54.	I consider it important to participate in trade organizations.	.77
30.	I always consider the effect on the entire firm operation when deciding on new production methods for an enterprise.	.76
57.	If asked, I can perfectly describe the kinds of facilities I have and their operations.	.74
43.	I am responsible for searching out and evaluating new ways to operate.	.72
48.	I encourage criticism and suggestions from my customers.	.70
47.	It is highly important to me to attend my own trade meetings, university extension classes, etc.	.69
2.	I never expand an enterprise without first estimating by regular accounting methods the costs and returns of doing so.	.67
5.	Local community service organizations, such as J.C.'s, Lions, etc., are important to me.	.67
35.	It is highly important to me to attend farmer field days, machinery demonstrations, reunions, etc.	.66
6.	I am very proud of the title of manager.	.59
24.	I like being a manager because I can work as hard as I wish.	.57
38.	Management is challenging and exciting to me as each day brings new and different problems for me to solve.	.57
37.	I know exactly how the latest developments in production methods would affect my operation.	.56

TABLE XVII (Continued)

Variable Number	Variable Description	Factor Loading
1.	I have the best employees in the community.	.54
15.	I have complete control over the hiring and firing of all employees working below me.	.54
23.	I always determine precisely the benefits and costs of government programs to me before deciding upon the extent of participation.	.54
56.	I have low employee turn-over.	.53
46.	I derive great satisfaction from having others work for me and with me.	.51
39.	I consider this company an innovational leader in the trade, within Oklahoma.	.48
100.	The total volume of wheat handled by my cooperative in 1970?	-.48
11.	My Board of Directors needs my guidance in setting the objectives of the cooperative.	.47
93.	In the last two years (since June 1, 1969), how many days have you spent at management classes, programs, seminars, etc.?	.42
8.	I could not be more satisfied with my employees.	.41
63.	I frequently encourage others in the trade to accept new ideas and methods.	.40
14.	I derive great satisfaction from signing my name as manager.	.35

from his customers, going to farmer field days, and encouraging others to accept new ideas and methods. He also indicates that he helps his Board of Directors set objectives. All this could indicate that he attempts to verbally communicate. This communication could be a source of information to him, to which he adds by considering it important to analyze his operation when considering changes in it, feeling it his responsibility to search out and evaluate the latest production methods, and government programs, and placing importance in knowing how these developments could affect his operation. These variables may indicate a manager who is objective in his business decisions, which with his apparent desire to verbally communicate, could indicate a manager with the ability to perceive veridically.

His apparent high self-esteem, pride in being a manager, feelings of achievement at his job, and appreciation of being able to work at new problems each day as hard as he likes, could all indicate a satisfied manager. In addition, the importance placed in having others work for him and with him, the apparent liking for his employees and low employee turnover may indicate a manager with a democratic leadership style.

The volume of wheat handled by the cooperative is negatively related to the above variables. There are possibly two explanations for this relationship. First, younger managers, who would probably have more years of formal education and smaller cooperatives, would better understand the terms used in some of the questions. Or second, the older managers who have gained experience feel they do not have to ask for advice; they may feel reticent about discussing their business, and believe that they have met all the possible problems in the job.

If this is the case, their sense of satisfaction may be expected to decrease.

A.2 Factor 2 -- Egotistical Autocrat

Those variables that load higher on Factor 2 than on any other factor are ordered in Table XVIII according to the absolute magnitude of their loadings. All except one variable are correlated positively with the factor and 11 have a loading of .50 or greater in absolute magnitude. Variable 32, I firmly believe that I should be the only one that formulates the company plans, has a loading of .73. Factor 2 therefore accounts for 53 percent of the common variance in variable 32. Those variables that load high on Factor 2 indicate egotism and an autocratic management leadership style; these therefore suggest Egotistical Autocrat as a name for this factor.

The impression obtained from Factor 2 is that of somebody who refuses to delegate authority, and who believes he is superior to others. His belief that he should be the only one who formulates plans, set company objectives, that his employees may make small decisions but none threatening his authority over them, and by the importance he places in political activities possibly indicates an autocratic manager. His belief that company growth is due to his efforts alone, his dislike for sharing company business matters with others, and his dislike for being represented by others could show egotism.

The other variables could principally be an outcome of the manager being egotistical and autocratic. Being autocratic could lead him to believe he is independent of his Board of Directors, and may even pit him against his Board of Directors. He believes he has a smaller share

TABLE XVIII

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 2 -- EGOTISTICAL AUTOCRAT

Variable Number	Variable Description	Factor Loading
32.	I firmly believe that I should be the only one that formulates the company plans.	.73
16.	I feel extremely uneasy when discussing company business matters with people other than family members and close friends.	.71
79.	In order to be efficient at my job it is necessary that I follow a strict daily schedule.	.70
25.	The setting of the company's ultimate objectives should be exclusively my job.	.69
26.	When I cannot attend community activities, it bothers me to allow others to represent me and my family.	.69
61.	Company growth is due to my efforts alone.	.69
69.	I believe my employees should make all operating procedure decisions.	.66
50.	I absolutely refuse to talk about my business operations and its problems with people other than family.	.65
10.	My decision making power is less than my share of the responsibility (relative to the Board of Director's share).	.63
62.	My employees could benefit more by obtaining a similar job within Oklahoma.	.57
73.	In a company of this size, employees should have an opportunity to exercise some authority over routine matters affecting them.	-.54
49.	I am the highest paid manager in this trade within Oklahoma.	.48
68.	I like to manage a cooperative because my work is seasonal.	.48
13.	I obtain great personal satisfaction in studying national and world news everyday.	.47

TABLE XVIII (Continued)

Variable Number	Variable Description	Factor Loading
40.	To participate in local political activities is of great importance to me.	.47
3.	The greatest challenge to management (excluding obtaining financial credit) is dealing with risk and uncertainty.	.46
17.	The company's ultimate objectives are too high.	.46
41.	I believe I can obtain as good information by getting reports from the salesmen as obtaining it directly myself from customers.	.46
70.	I feel that the average tenure of the members of my present Board of Directors is too long.	.44
53.	I consider myself to be exceedingly independent of my Board of Directors.	.43

of the decision making power than his share of the responsibility, that the average tenure of his Board of Directors is too long, and the Board of Directors has set goals too high. He recognizes that his employees could do better by working elsewhere, but does not believe that he could do better by working elsewhere. His interest in the news may be due to the importance he places in political activities. He indicates recognition of risk and uncertainty, but appears to fail to recognize the importance of first-hand information from his customers and the importance of rigidity in a strict daily schedule.

A.3 Factor 3 -- Age and Tenure

Table XIX shows those variables that load higher on Factor 3 than on any other factor, ordered according to the magnitude of their loadings. All variables except four are correlated positively with the factor and six have loadings of .50 or greater in absolute magnitude. Variable 89, What was your annual base pay when you began this job (excluding fringe benefits and management incentives)?, had a loading of -.78. That is, Factor 3 accounts for 61 percent of the common variance in variable 89. Those variables that load high on Factor 3 are concerned with Age and Tenure, which is therefore used as a suggested name for this factor.

An interpretation of Factor 3 would allow one to hypothesize that it describes a manager who has maintained his job for many years. The factor indicates the manager has not changed jobs for some time and believes in an ordered life, where change occurs under well regulated circumstances, such as promotion based on tenure, and avoids risks, as indicated by the dislike for taking the responsibility of building

TABLE XIX

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 3 -- AGE AND TENURE

Variable Number	Variable Description	Factor Loading
89.	What was your annual base pay when you began this job (excluding fringe benefits and management incentives)?	-.78
90.	In what year did you begin your present job?	-.74
91.	What is your age?	.74
87.	How many years have you been a manager?	.70
27.	I derive great personal satisfaction from time spent listening to or watching national news reports.	.57
72.	I would rather take a faltering company and accept the responsibility of building it up.	-.57
45.	I firmly believe that a college education is necessary for a beginning manager to be successful today.	-.43
58.	I consider seniority as very important in promotion.	.40
94.	How many days did you spend outside the state during the last two years (since June 1, 1969)?	.35

up a faltering company. He appears not to believe in a college education but he places importance in being well informed on the news. The fact that he has traveled could be a product of his age; his children may have grown up and left, leaving him the means with which to fulfill the desire to travel.

A.4 Factor 4 -- Fringe Benefits, Pay, Education and Experience

Those variables which load higher on Factor 4 than on any other factor are ordered in Table XX according to the absolute magnitude of their loadings. All variables except two are correlated positively with the factor and four have loadings of .50 or greater in absolute magnitude. Variable 83, Of your 1970 wages, what percent was in the form of fringe benefits?, and variable 81, Of your 1970 wages, what percent was in the form of base pay?, have loadings of .78 and -.72 respectively. That is, Factor 4 accounts for 61 and 52 percent of the common variance in variables 83 and 81 respectively. The variables in Factor 4 are concerned with Fringe Benefits, Pay, Education and Experience, which is thus used as a suggested name for this factor.

Factor 4 could be interpreted as follows: The percentage which fringe benefits are of salary received in 1970 by the manager, increases quite obviously at the cost of the percentage that base pay is of total salary. In addition, as the percentage for fringe benefits increases, so does the amount of base pay received in 1970. Apparently, the most popular fringe benefits were hospital and life insurance, and the least popular of the three was a retirement plan. It appears that those who are better educated and had fewer years as foreman and/or assistant manager prior to becoming manager received higher wages and

TABLE XX

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 4 -- FRINGE BENEFITS, PAY, EDUCATION AND EXPERIENCE

Variable Number	Variable Description	Factor Loading
83.	Of your 1970 wages, what percent was in the form of fringe benefits?	.78
81.	Of your 1970 wages, what percent was in the form of base pay?	-.72
112.	Hospitalization Insurance?	.58
113.	Life Insurance?	.57
86.	How many years were you a foreman and/or assistant manager before becoming a manager?	-.47
88.	What was your 1970 base pay on an annual basis (excluding fringe benefits or management incentives)?	.45
92.	What was your formal education?	.44
114.	Retirement Plan?	.41

more fringe benefits. This could be the result of managers with more formal education being more aware of the price of their services.

A.5 Factor 5 -- Self-Esteem and Confidence

Those variables that load high on Factor 5 are ordered according to the magnitude of their loadings in Table XXI. All 11 variables are correlated positively with the factor and five have loadings of .50 or greater in magnitude. Variable 60, I appreciate having others look to me as their leader, has a loading of .76. That is, Factor 5 accounts for 58 percent of the common variance in variable 60. The variables that load high on Factor 5 are concerned with Self-Esteem and Confidence, which is thus used as a suggested name for this factor.

An interpretation of Factor 5 would allow one to hypothesize that this factor describes a manager who has a high regard for himself and is confident of his abilities. This factor appears to indicate a manager who appreciates being looked to as a leader, enjoys his job, plans ahead, has somebody within the cooperative who can take his job if he is suddenly incapacitated, and who also is unafraid of asking for advice from his employees or professional agricultural workers. The fact that he enjoys leading is corroborated, though very weakly, by the number of social, civic, and agricultural trade groups to which he is a member and in which he takes a leading part.

A.6 Factor 6 -- Liquidity

Those variables that load higher on Factor 6 than on any other factor are ordered in Table XXII according to the magnitude of their loadings. Only two variables are correlated positively with the factor

TABLE XXI

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 5 -- SELF-ESTEEM AND CONFIDENCE

Variable Number	Variable Description	Factor Loading
60.	I appreciate having others look to me as their leader.	.76
28.	I derive great satisfaction from the status I hold in the community as a manager of a grain and feed firm.	.63
75.	The wage I receive from managing my firm gives me a high degree of personal fulfillment.	.63
78.	I encourage suggestions from my employees.	.58
77.	One of the aspects which appeal to me most about being a manager is that my success is dependent upon my own production record.	.50
36.	If I were suddenly incapable of managing the company (due to accident or illness), my successor from within the cooperative, would be prepared to take my job.	.47
59.	I believe in company plans which specify exactly when something is to be done.	.45
65.	I derive satisfaction from giving orders to others.	.41
66.	I consider it important to talk frequently with the county agent and other professional agricultural workers.	.39
95.	What is the number of social, civic, and agricultural trade groups of which you are a member?	.31
96.	What is the total number of years you have held the following positions (president, vice president, secretary, treasurer) in the groups mentioned in question 95 since the end of your formal education?	.19

TABLE XXII

RATIOS, QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 6 -- LIQUIDITY

Variable Number	Variable Description	Factor Loading
102.	Liquid Ratio.	.89
101.	Current Ratio.	.85
29.	My employees receive the highest wages for laborers in the community.	-.56
105.	Total liabilities to net worth.	-.51
9.	I could tell someone the exact rate of return and volume obtained last month for each enterprise (or department) without looking at my records.	-.50
106.	Fixed assets to net worth.	-.46

and five of the six variables have a loading of .50 or greater in absolute magnitude. Variable 102, Liquid Ratio, and variable 101, Current Ratio, have factor loadings of .89 and .85 respectively. That is, Factor 6 accounts for 79 and 72 percent of the common variance in variables 102 and 101 respectively. The two variables which load distinctively higher on Factor 6 are concerned with Liquidity, which is therefore used as a suggested name for this factor.

An interpretation of Factor 6 would allow one to hypothesize that this factor describes a safe liquid financial position. As the current and liquid ratios increase, the ratios of total liabilities and fixed assets to net worth decrease. It may be said that a manager who has the above liquid position is fairly safe from unexpected debts. But, his safe liquid position is possibly the cause of his failure to keep a close watch on the operations of each of his departments in the cooperative, possibly lowering his ability to perceive veridically.

A.7 Factor 7 -- Management Incentives

Table XXIII shows those four variables, ordered according to the magnitude of their loadings, that load higher on Factor 7 than on any other factor. All variables are correlated positively with the factor and three have loadings of .50 or greater in magnitude. Variable 110, Overhead to Gross Income, and variable 82, Of your 1970 wages, what percent was in the form of a management incentive (profit share, etc.)?, have loadings of .86 and .83 respectively. The common variance in variables 110 and 82 accounted for by Factor 7 is 74 and 69 percent respectively. Two of these three variables that load high on Factor 7

are concerned with Management Incentives, which is thus used as a suggested name for this factor.

TABLE XXIII

RATIOS, QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 7 -- MANAGEMENT INCENTIVES

Variable Number	Variable Description	Factor Loading
110.	Overhead to gross income.	.86
82.	Of your 1970 wages, what percent was in the form of a management incentive (profit share, etc.)?	.83
115.	Did your cooperative pay you a management incentive when you began your present job?	.52
12.	It is important to me to be active in local community organizations.	.45

An interpretation of this factor leads one to hypothesize that as the ratio of overhead to gross income increases, so does the amount paid the manager in the form of a management incentive. This may be because such a manager is in charge of a more diversified cooperative in which overhead expenses increase relative to sales volume [4, p. 8]. Also, managers who receive incentives may consider it important to be active in local social organizations.

A.8 Factor 8 -- Armed Services Record

Factor 8 has four variables which load higher on it than on any other factor. These variables are shown in Table XXIV, ordered according to the absolute magnitude of their loadings. Only one variable is correlated negatively with the factor and three have loadings .50 or greater in magnitude. Variable 84, Number of years served in the armed services, has a loading of .77. That is, Factor 8 accounts for 59 percent of the common variance in variable 84. The two variables which load highest on Factor 8 are concerned with the managers' Armed Services Record, which is therefore used as a suggested name for this factor.

TABLE XXIV

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 8 -- ARMED SERVICES RECORD

Variable Number	Variable Description	Factor Loading
84.	Number of years served in the armed services.	.77
85.	Rank acquired.	.67
33.	My serving in the armed forces gave me experience in the leadership of men which has been beneficial to my business. (If you did not serve, put 50).	.52
34.	When on vacation, I prefer to travel outside the state.	-.48

An interpretation of Factor 8 leads one to hypothesize that the more years a manager has served and the higher rank he has reached in the armed services, the greater beneficial effect he believes his serving in the armed forces has had on his business. In addition the dislike for travel outside the state, when on vacation, appears to increase with the number of years in the armed services. This may be an indication of the wish for the familiar, and a symptom of the need for safety [2, pp. 84-89]. This dislike for travel outside the state could have implications about the ability of the manager to perceive veridically.

A.9 Factor 9 -- Responsibility Avoidance

Those variables that load higher on Factor 9 than on any other factor are ordered in Table XXV according to the magnitude of their loadings. Two of those four variables are correlated positively with this factor and two have loadings of .50 or greater in absolute magnitude. Variable 55, I leave many jobs to my employees because they are able to do them as well or better than I can, has a loading of .71. This loading indicates that Factor 9 accounts for 50 percent of the common variance in variable 55. A suggested name for Factor 9 is Responsibility Avoidance, which is indicated by the variables which load high on this factor.

An interpretation of Factor 9 would allow one to hypothesize that a manager who shows the following combination of characteristics could be avoiding responsibility. He delegates authority to his subordinates because he believes they are able to perform a job as well or better than he can, he has not set all company objectives, and feels

uncomfortable when making decisions under uncertainty. With a manager who avoids responsibility, a cooperative could be expected to lose trade to its competitors, hence the smaller trade area.

TABLE XXV

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 9 -- RESPONSIBILITY AVOIDANCE

Variable Number	Variable Description	Factor Loading
55.	I leave many jobs to my employees because they are able to do them as well or better than I can.	.71
116.	In the past, have you set all company objectives?	-.65
98.	What is the radius, in miles, of your trade area?	-.49
74.	I am uncomfortable when making decisions under uncertainty.	.44

Another interpretation of Factor 9 would be that it may describe somebody who recently became a manager. This would explain the small trade area, since a beginning manager could be expected to begin at a small cooperative. It would also explain why he has not set company objectives, and if he had had a college business education, or something similar, he would probably be more likely to delegate authority. His discomfort under uncertainty could be due to lack of experience in decision making. Thus, hypotheses from this factor need to be tested before either one of these interpretations can be accepted over the other.

A.10 Factor 10 -- Projection Due to Feelings of Failure

Factor 10 has 14 variables which load on it higher than on any other factor. They are shown in Table XXVI, ordered according to the absolute magnitude of their loadings. Only three variables are correlated negatively with this factor and seven have loadings of .50 or greater in absolute magnitude. Variable 44, One aspect of management which I detest is the heavy competition, has a loading of .77. That is, Factor 10 accounts for 59 percent of the common variance in variable 44. Factor 10 could be interpreted as being concerned with Projection Due to Feelings of Failure, which is a suggested name for this factor.

The impression obtained from this factor is that of a manager who blames others, particularly his Board of Directors, for his shortcomings. This is defined as projection, "...a defensive reaction by means of which (an individual) ... transfer(s) the blame for (his) own shortcomings, mistakes, and misdeeds to others..." [1, p. 99].

This hypothesis is based upon the following interpretation of the factor. The manager is a poor one. He fails to plan ahead, he allows the presence of an irreplaceable employee in the cooperative, he does not consider world and national news important to his business, and neither does he consider it important that his family participate in local affairs. The last aspect is a possible indication of aloofness to the local residents, some of whom would be his customers. But, he does recognize the value of appropriate use of debt.

Also, this manager appears to enjoy power, shown by his desire for respect from his employees and the desire that his foremen follow a

TABLE XXVI

QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 10 -- PROJECTION DUE TO FEELINGS OF FAILURE

Variable Number	Variable Description	Factor Loading
44.	One aspect of management which I detest is the heavy competition.	.77
64.	The company's ultimate objectives are highly detailed.	-.64
80.	My Board of Directors is my greatest limiting management factor.	.61
42.	I am the lowest paid manager of any business in the community.	.58
76.	National and world news are important to my business operation.	-.58
52.	I have plans set up for this company, to be implemented during the next five years, specifying for each year exactly what is to be done and when.	-.54
31.	I benefit my firm by often times taking on the responsibilities of the board.	.51
67.	In the company, I am compensated the least relative to my abilities.	.42
51.	The aspect I dislike the most about management is the pressure build up.	.41
4.	Those businesses which are willing to borrow money are more likely to be successful than those that make it a policy to avoid debt.	.36
19.	I consider it of great importance to my business that my family participate in this business community's affairs.	-.36
18.	My foremen should follow a strict daily schedule in the performance of their jobs.	.35
21.	I like the respect I receive from my employees for the position I hold.	.34

TABLE XXVI (Continued)

Variable Number	Variable Description	Factor Loading
22.	There is one (or more) key employees (other than the manager) within my cooperative who is important enough to the operation of the business, that the cooperative could not operate efficiently if he were replaced.	.34

strict schedule. He apparently has a low need for achievement as a manager, manifested by the strong dislike he has for two inherent aspects of the job he holds, heavy competition and pressure build up. He could be unaware of his own shortcomings and so blame his Board of Directors for his feelings of failure. This may be shown by his feelings that he is being limited in job by his board, by his belief that they have failed to set up detailed objectives, and his belief that he must perform some of their duties since they have failed to do them. In addition, he feels his Board of Directors is not compensating him enough for his efforts. This is indicated by his feelings of being compensated the least in the cooperative relative to his abilities, and being the lowest paid manager in the community.

A.11 Factor 11 -- Working Capital and Profitability

There are five variables which load higher on Factor 11 than on any other factor. They are shown in Table XXVII, ordered according to the absolute magnitude of their loadings. Only two variables are correlated positively with this factor and three have loadings of .50 or greater in absolute magnitude. Variable 104, Gross income over net working capital, has a loading of -.81, and variable 103, Inventory to net working capital, has a loading of -.80. Factor 11 therefore accounts for 66 and 64 percent of the common variance in variables 104 and 103 respectively. These variables that load high on Factor 11 are concerned with Working Capital and Profitability, which is thus used as a suggested name for this factor.

TABLE XXVII

RATIOS, QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 11 -- WORKING CAPITAL AND PROFITABILITY

Variable Number	Variable Description	Factor Loading
104.	Gross income over net working capital.	.81
103.	Inventory to net working capital.	.80
71.	My business decisions have had little impact upon the local community.	-.60
7.	I consider it very important that I check the work schedule for each department every day.	.43
107.	Net profit to net worth.	-.40

An interpretation of Factor 11 would allow one to hypothesize that as the relative size of net working capital increases, with respect to gross income and inventories, so does net profit to net worth increase. Another hypothesis would be that as net working capital increases relative to gross income, profitability of the cooperative also increases, possibly due to decreased inventories. A result of the second hypothesis could be an apparently looser supervision of the operation of each department by the manager. Finally, the manager's concern over the impact of his decisions on the local community appears to be positively correlated with relative size of net working capital.

A.12 Factor 12 -- Operating Profits

Table XXVIII shows five variables which load higher on Factor 12 than on any other factor. These variables are ordered in the table according to the absolute magnitude of their loadings. Only two variables have a loading of .50 or greater in absolute magnitude, variables 109 and 111; and three of these variables are correlated negatively with this factor. Variable 109, Salaries to gross income, has a loading of .66. That is, 44 percent of the common variance in variable 109 is accounted for by Factor 12. Those variables that load high on Factor 12 are concerned with Operating Profits, which is therefore used as a suggested name for this factor.

TABLE XXVIII

RATIOS, QUESTIONS AND THEIR FACTOR LOADINGS IN FACTOR 12 -- OPERATING PROFITS

Variable Number	Variable Description	Factor Loading
109.	Salaries to gross income.	-.66
111.	Depreciation to gross income.	-.52
108.	Operating profit to gross income.	.48
97.	What is the number of all competitors with which your customers may attempt to trade?	-.39
99.	The average tenure of the members of my present Board of Directors.	.39

An interpretation of this factor leads one to hypothesize that as salaries and depreciation decrease as a percentage of gross income, the ratio of operating profit to gross income increases. This may be either an indication of low wages and the use of old facilities, or an efficient internal operation. In addition, one may posit that as operating profit increases, the number of competitors decreases and the average tenure of the Board of Directors increases. This may indicate either less need for modern facilities for reasons of lack of competition, and/or possibly directors with experience who help the cooperative operate efficiently.

B. Second-Order Factors

Second-order factors were computed to determine the relationships between first-order factors. A correlation matrix was computed using as data the factor loadings from the rotated twelve first-order factor matrix. The resulting 12 x 12 correlation matrix was inputed to FACTO which was set to obtain three solutions containing two through four second-order factors. From these three solutions, the solution containing three second-order factors was chosen. The reasons for this choice were: (i) the solution containing two second-order factors did not contribute to the explanation of variance in the eighth first-order factor; (ii) the solution containing three second-order factors added considerably to the interpretation of the data, as is indicated in Table XIX, by that percentage of total variance which was explained; (iii) the solution containing four second-order factors had two sets of couplets of first-order factors, which indicated over-factorization.

TABLE XXIX

CUMULATIVE PERCENTAGE OF EIGENVALUES FROM TWELVE FIRST-ORDER FACTORS -- PERCENTAGES OF TOTAL VARIANCE IN THE FIRST-ORDER FACTORS EXPLAINED BY SECOND-ORDER FACTORS

j^{th} Eigenvalue from Correlations Between First-Order Factors	Cumulative Percentage of Eigenvalues
2	25.9%
3	36.0%
4	45.8%

B.1 Second-Order Factor A -- Pay and a Theoretically Good Manager

Those first-order factors that load higher on Second-Order Factor A than on any other second-order factor are shown in Table XXX. Those first-order factors are ordered according to the absolute magnitude of their loadings, except for first-order Factor 10 which is included here, since it adds to the interpretation of this second-order factor, but principally belongs in Second-Order Factor C. First-order Factor 4, Fringe Benefits, Pay, Education, and Experience, and first-order Factor 2, Egotistical Autocrat have loadings of .67 and -.62 respectively. That is, Second-Order Factor A accounts for 45 and 38 percent of the common variance in first-order Factors 4 and 2. Of those five first-order factors, three are correlated positively with Second-Order Factor A and three have loadings which are greater than .50 in absolute magnitude. Those first-order factors that load high on Second-Order Factor A are concerned with pay and variables which could be interpreted as indicative of a theoretically good manager. Thus, Pay and the

Theoretically Good Manager is used as a suggested name for this second-order factor.

TABLE XXX

FIRST-ORDER FACTORS AND THEIR LOADINGS IN SECOND-ORDER FACTOR A -- PAY AND THE THEORETICALLY GOOD MANAGER

First-Order Factor Number	First-Order Factor Title	Factor Loading
4	Fringe Benefits, Pay, Education, and Experience	.67
2	Egotistical Autocrat	-.62
5	Self-Esteem and Confidence	.49
7	Management Incentives	.36
10[a]	Projection Due to Feelings of Failure	-.54

[a]Factor 10 is included here as it is highly correlated with this second-order factor, and contributes to its interpretation.

An interpretation of Second-Order Factor A would allow one to hypothesize that pay increases with those theoretically determined aspects of a good manager. This hypothesis is based upon the following interpretation of the following first-order factors: (i) From within Factor 4, as pay increases so do fringe benefits and education, but experience prior to becoming a manager decreases. (ii) Factor 2, which is negatively correlated with this second-order factor, possibly shows

that the theoretically good manager is not egotistical nor autocratic; he apparently has no dissatisfaction with his Board of Directors and will share company business matters with others. (iii) Factor 5 could indicate that the manager has a high self-esteem and is confident of his abilities; that he enjoys his job, is unafraid of asking for advice, and is socially active. (iv) Factor 7 may be interpreted to show that he is likely to receive a management incentive, and that he has a higher than average overhead to gross income ratio. Maybe this is because there are a large number of departments within the cooperative and this ratio could be an indication of size [4, p. 8]. The high factor loading for Factor 10, which is actually loacted in Second-Order Factor C, corroborates Factor 2, if Factor 10 is interpreted as indicating that the manager has a low need for power and has no dissatisfaction with his Board of Directors. Thus, it could be hypothesized that the highly paid manager performs some of the aspects required of a good manager, and has a high need for achievement.

B.2 Second-Order Factor B -- Older Experienced Managers

Table XXXI shows Second-Order Factor B with those first-order factors, which load higher on it than on any other second-order factor, ordered according to the absolute magnitude of their loadings. Three of these five first-order factors are correlated positively with this second-order factor and two first-order factors have loadings greater than .50 in absolute magnitude. First-order Factor 3, Age and Tenure, has a loading of .76. That is, Second-Order Factor B accounts for 58 percent of the common variance in first-order Factor 3. Those first-order factors which load high on Second-Order Factor B are concerned

with variables which could be interpreted to describe an Older Experienced Manager, which is thus used as a suggested name for this factor.

TABLE XXXI

FIRST-ORDER FACTORS AND THEIR FACTOR LOADINGS IN SECOND-ORDER FACTOR B -- OLDER EXPERIENCED MANAGER

First-Order Factor Number	First-Order Factor Title	Factor Loading
3	Age and Tenure	.76
1	Veridical Perception	-.55
9	Responsibility Avoidance	-.48
12	Operating Profit	.43
11	Working Capital and Profitability	-.27

It may be hypothesized that age increases with experience and profits, but is negatively related to some of those theoretically good aspects of a manager. This hypothesis is based upon the following interpretation of those first-order factors contained in Second-Order Factor B: (i) Factor 3 may be interpreted as indicating that as age increases so does tenure with the same job, years as a manager, importance of seniority in promotion, and the dislike for risks, possibly indicating rigidity. (ii) Factor 1, which is negatively related, may indicate that the older manager is not outgoing, does not investigate

new ideas nor use regular accounting methods as aids in decision making. He may therefore have poor veridical perception. In addition, Factor 1 may show that the older manager has low self-esteem and is dissatisfied, yet he operates a large grain cooperative. (iii) Factor 9 may indicate that an older manager does not avoid responsibility and has a large trade area. (iv) Interpreting, from the variables in Factors 11 and 12, it may be hypothesized that older more experienced managers have higher profits and more working capital and are less observant of their cooperatives. Further, these increased profits may be an outcome of having managed the same cooperative for a long period of time, as indicated in Factor 3, and not necessarily that of being a good manager.

B.3 Second-Order Factor C -- Liquidity

There are three first-order factors that load higher on Second-Order Factor C than on any other second-order factor. These first-order factors are ordered in Table XXXII according to the magnitude of their loadings. All of them are correlated positively with Second-Order Factor C and two have a loading of .50 or greater in magnitude. First-order Factor 6, Liquidity, has a loading of .65. That is, Second-Order Factor C accounts for 41 percent of the common variance in first-order Factor 6. The first-order factor that loads high on Second-Order Factor C is concerned with Liquidity, which is thus used as a suggested name for this second-order factor.

An interpretation of this second-order factor would allow one to hypothesize that an overly liquid financial position may possibly indicate poor management. This hypothesis is based upon the following

interpretations of those variables in the first-order factors: (i) An interpretation of Factor 10 may indicate a poor manager by his apparent failing to plan ahead, allowing an employee to be irreplaceable in the cooperative, not considering world and national news important, enjoying power but possibly showing a low achievement motivation, and apparently blaming his Board of Directors for his feeling of failure and what he considers low pay. (ii) Liquidity may not be an indicator of profitability, but rather an indicator of safety and this is in keeping with the need for safety as indicated in Factor 8 by the dislike for travel outside the state.

TABLE XXXII

FIRST-ORDER FACTORS AND THEIR FACTOR LOADINGS IN SECOND-ORDER FACTOR C -- LIQUIDITY

First-Order Factor Number	First-Order Factor Title	Factor Loading
6	Liquidity	.64
10	Projection Due to Feelings of Failure	.58
8	Armed Services Record	.39

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CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter summarizes the analysis and hypotheses developed concerning which questions are important elements in the explanation of managerial success and efficiency of cooperative managers. The first section summarizes the objectives and procedure of this study. The second section contains the conclusions, presented as hypotheses. The third section covers the limitations and biases of this study, and the need for further research to confirm the hypotheses drawn from the results of this study.

A. Summary

A.1 Objectives

This research is exploratory in nature to determine those elements which explain managerial success and efficiency of cooperative managers. Because many possible areas of management have a bearing on the subject, it was decided to survey these areas extensively and formulate, rather than test, hypotheses from the results of this study. The study's intent could, therefore, be defined as one of analyzing many aspects of managerial performance and setting apart those aspects which provide the greatest amount of explanation of managerial success and efficiency of cooperative managers. These aspects would include the manager's objectives, motives, business style, and personal history.

The purpose of this study is to determine the underlying factor structure of some economic, sociological, and psychological variables that managers of cooperatives, from their own knowledge and experience, believe are relevant to decision making, and managerial efficiency and success; and in addition, determine the extent of the observed variance in these variables that is accounted for by the factors.

A.2 Procedure

It was decided to sample, by means of a mail questionnaire, the population of principal managers of the 102 member cooperatives, in 1970, of the Farmers Cooperative Grain Dealers Association of Oklahoma. A questionnaire return rate of 59.8 percent of the population was obtained. After editing, questionnaires from 47.1 percent of the population remained for analysis.

The questionnaire consisted of three parts: opinion questions, personal history questions, and a request for cooperative financial information. The 80 opinion questions were presented as statements which the managers were asked to score, on an agree-disagree scale. The statements covered the areas of veridical perception, motivation, and business practices and beliefs. Specific motives investigated were the need for safety, self-esteem, affiliation, power, autonomy, and achievement.

The personal history questions, 21 in number, sought information about the managers' pay, armed services record, education, age, tenure on the job, experience, social involvement, travel, tenure of their Board of Directors, trade areas, and volume of wheat handled by their cooperatives in 1970. Information for 11 ratios on liquidity, solvency,

profitability, and operating efficiency was obtained from condensed income statements and balance sheets furnished by these cooperatives.

Data from the returned questionnaires were then used to compute a matrix of correlations between 116 variables. This correlation matrix was then analyzed by means of the principal factor method of factor analysis. This analysis yielded 12 first-order factors offering information on different facets of cooperative management performance. In addition, the rotated factor matrix was used to compute a correlation matrix for these 12 first-order factors and, in turn, this correlation matrix was analyzed by the principal factor method of factor analysis, yielding three second-order factors. Conclusions, shown below as hypotheses, were then drawn from interpretations of these 12 first-order factors and three second-order factors.

B. Conclusions

The method of analysis, as well as the number of observations relative to the number of variables under study, precluded making statistical tests. This is relatively unimportant, as it was not the purpose of this study to test hypotheses. Instead, the primary objective was to conduct exploratory research on the elements which determine managerial success. Results from this research are presented below as hypotheses which will require testing in later studies.

Following each first-order name is a list of variable numbers, and following each second-order factor name is a list of first-order factor numbers. It is hypothesized that these variables and first-order factors affect an aspect of managerial performance, described respectively by the first- and second-order factor names, more than any

other variables or first-order factors do. This list of variables or first-order factors included in a hypothesis may be increased or decreased according to the detail desired by a researcher.

B.1 Hypotheses About First-Order Factor Composition

Factor 1: Veridical Perception is best described by variables numbered 20, 54, 30, 57, 43, 48, 47, 2, 5, and 35, as shown in section A.1, Chapter IV.

Factor 2: Egotistical Autocrat is best described by variables numbered 32, 16, 79, 25, 26, 61, 69, 50, 10, 62, and 73, as shown in section A.2, Chapter IV.

Factor 3: Age and Tenure is best described by variables numbered 89, 90, 91, and 87, as shown in section A.3, Chapter IV.

Factor 4: Fringe Benefits, Pay, Education, and Experience is best described by variables numbered 83, 81, 112, and 113, as shown in section A.4, Chapter IV.

Factor 5: Self-Esteem and Confidence is best described by variables numbered 60, 28, 75, and 78, as shown in section A.5, Chapter IV.

Factor 6: Liquidity is best described by variables numbered 102 and 101, as shown in section A.6, Chapter IV.

Factor 7: Management Incentives is best described by variables numbered 110 and 82, as shown in section A.7, Chapter IV.

Factor 8: Armed Services Record is best described by variables numbered 84 and 85, as shown in section A.8, Chapter IV.

Factor 9: Responsibility Avoidance is best described by variables numbered 55 and 116, as shown in section A.9, Chapter IV.

Factor 10: Projection Due to Feelings of Failure is best described by variables numbered 44, 64, 80, 42, 76, 52, and 31, as shown in section A.10, Chapter IV.

Factor 11: Working Capital and Profitability is best described by variables numbered 104, 103, and 71, as shown in section A.11, Chapter IV.

Factor 12: Operating Profits is best described by variables numbered 109, 111, and 108, as shown in section A.12, Chapter IV.

B.2 Hypotheses About Second-Order Factor Composition

Factor A: Pay and the Theoretically Good Manager is best described by first-order factors numbered 4, 2, and 5, as shown in section B.1, in Chapter IV.

Factor B: Older Experienced Manager is best described by first-order factors numbered 3, 1, 9, and 12, as shown in section B.2, Chapter IV.

Factor C: Liquidity is best described by first-order factors numbered 6 and 10, as shown in section B.3, Chapter IV.

B.3 Hypotheses Derived from Factor 1

I. An outgoing person is likely to be able to perceive veridically.

II. Veridical perception results in higher self-esteem.

III. Veridical perception results in higher job satisfaction.

IV. Veridical perception results in more democratic management leadership.

B.4 Hypotheses from Factor 2

V. A manager who is autocratic is also egotistical.

VI. An autocratic and egotistical manager is dissatisfied with his Board of Directors.

VII. An autocratic and egotistical manager feels impaired by his Board of Directors.

B.5 Hypotheses from Factor 3

VIII. Tenure at the same job is positively correlated with the manager's age.

IX. Managers who are older and have more tenure at the same position prefer well-ordered jobs in which there is little risk involved.

B.6 Hypotheses from Factor 4

X. The percentage of fringe benefits and amount of base pay received are positively correlated.

XI. Hospital and life insurance are preferred by managers over retirement plans as fringe benefits.

XII. More educated managers with fewer years experience before becoming managers, receive higher wages and more fringe benefits than less educated managers receive.

B.7 Hypothesis from Factor 5

XIII. Managers with high self-esteem and confidence are more successful at their jobs than are managers with low self-esteem and little confidence.

B.8 Hypotheses from Factor 6

XIV. As financial liquidity ratios increase, ratios of solvency, such as total liabilities or fixed assets to net worth, decrease.

XV. A manager with a highly liquid financial position does not keep a close watch on the internal operation of the cooperative.

B.9 Hypothesis from Factor 7

XVI. A manager who receives a management incentive is likely to have a higher overhead to gross income ratio than a manager who does not receive a management incentive.

B.10 Hypotheses from Factor 8

XVII. The more years served and higher rank reached in the armed forces by the manager, the greater beneficial effect the manager believes his armed service record has had on his business.

XVIII. Managers who served in the armed forces prefer not to travel out of the state.

B.11 Hypothesis from Factor 9

XIX. Cooperatives with managers who avoid responsibility have a smaller trade area than cooperatives with managers who do not avoid responsibility.

B.12 Hypothesis from Factor 10

XX. Managers who have low achievement motivation and show signs of failing at their job, project their feelings of failure onto their Board of Directors.

B.13 Hypotheses from Factor 11

XXI. As net working capital increases relative to gross income, profitability of the cooperative increases also.

XXII. Net working capital increases due to decreased inventories.

XXIII. Cooperatives with higher relative net working capital also have managers with low internal supervision of the cooperative.

XXIV. A manager's concern for the impact of his decisions on the local community increases with relative net working capital.

B.14 Hypotheses from Factor 12

XXV. Operating profit is inversely related to salaries and depreciation.

XXVI. Operating profit increases with fewer competitors.

XXVII. Operating profit increases with the average tenure of the Board of Directors.

B.15 Hypotheses from Second-Order Factor A

XXVIII. More educated and higher paid managers are less autocratic and egotistical than less educated and lower paid managers.

XXIX. More educated and higher paid managers have higher self-esteem and confidence than less educated and lower paid managers.

XXX. More educated and higher paid managers are more likely to receive a management incentive, but have higher overhead costs than less educated and lower paid managers.

XXXI. More educated and higher paid managers have higher achievement motivation, lower power motivation, and are more satisfied at their jobs than less educated and lower paid managers.

B.16 Hypotheses from Second-Order Factor B

XXXII. Profitability and experience increase with age.

XXXIII. Older managers are more rigid, disliking change or risk.

XXXIV. Age is negatively related to veridical perception.

XXXV. Older managers do not avoid responsibility.

XXXVI. Older managers control larger cooperatives.

B.17 Hypotheses from Second-Order Factor C

XXXVII. An overly liquid financial position is a safety margin used by poor managers.

XXXVIII. Low achievement motivation, poor business practices, and dissatisfaction with the Board of Directors are positively related to financial liquidity.

C. Limitations and Implications

C.1 Limitations and Biases of the Study

Possibly the greatest limitation of the study is the financial ratios, because they were calculated for only one point in time. This may favor managers who have long tenure at the same cooperative, since they should benefit from their experience with their particular cooperative and, thus, obtain better financial ratio positions. Perhaps a better measure of each manager's effect upon his respective cooperative would have been obtained by measuring the change in financial ratios that occurred over a given time period or over his tenure with the cooperative.

Other biases and limitations enter when no consideration was made for differences in company size, location in the state, products handled, or business style. The cooperatives varied from small, one-station grain elevators to large, multi-station cooperatives that handled grain and supplies and operated in neighboring states. In addition, the cooperatives varied greatly as to location in Oklahoma and, consequently, the products handled varied, also.

C.2 Implications for Further Research

Further research is required to test those hypotheses shown in the conclusions to this study.

A given set of the above hypotheses may be tested by an in-depth study of members of three categories of managers: good, average, and poor. The rate of change in returns to investment or stockholder's equity over a given period could be used as criteria to categorize

managers into different levels of management quality. Statistical tests could then be used to analyze those variables hypothesized in this study to be important in the explanation of differences in motivation, objectives, and management style between the categories of quality of management. Or, differences in motivation, objectives, and management style could be measured by Lawler's [1] Multitrait-Multivariat approach. This requires that each manager be rated by his Board of Directors, peers, customers, and himself on each selected variable. Another method would be to use Discriminant Analysis. That is, variables which have been hypothesized to distinguish the good from the poor managers could be used to predict the success of a sample of managers. A comparison of the predictions with what really occurred could be used to test hypotheses.

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APPENDIX A

SAMPLE QUESTIONNAIRE

CONFIDENTIAL

Dept. of Agric. Econ.
Oklahoma State University
Stillwater, Okla. 74074

Code No. ___

General Instructions

The Department of Agricultural Economics and Extension Service frequently are asked for information relative to problems and procedures of management in agricultural marketing firms. This questionnaire is concerned with the problem of adjustment to changing situations facing managers. The information obtained is needed to determine some of the important characteristics of management adjustment by analyzing opinions, attitudes, and priorities of objectives and goals of managers of agricultural marketing cooperatives of different size in Oklahoma.

The questions in section I are answered by inserting scores from the range 1 through 99 in the blanks provided. The score is considered as a percent agreement. The higher the score is above 50, the greater your agreement with the statement, and the lower the score is below 50, the greater your disagreement. A "1" indicates complete disagreement, a "99" means complete agreement, while a "50" would indicate no opinion, undecided, or do not know.

I. Consider each statement individually. Put down the appropriate score from 1 through 99 in the space provided that first comes to your mind.

The following scale may help in keeping the directions in mind.

1	10	20	30	40	50	60	70	80	90	99
Strongly Disagree				Uncertain or of no Opinion						Strongly Agree

1. I have the best employees in the community. _____

2. I never expand an enterprise without first estimating by regular accounting methods the costs and returns of doing so. _____

3. The greatest challenge to management (excluding obtaining financial credit) is dealing with risk and uncertainty. _____

4. Those businesses which are willing to borrow money are more likely to be successful than those that make it a policy to avoid debt. _____

5. Local community service organizations, such as J. C.'s, Lions, etc., are important to me. _____

6. I am very proud of the <u>title</u> of manager. _____

7. I consider it very important that I check the work schedule for each department every day. _____

8. I could not be more satisfied with my employees. _____

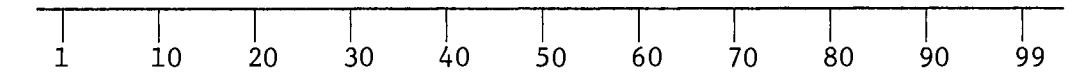
9. I could tell someone the exact rate of return and volume obtained last month for each enterprise (or department) without looking at my records. _____

10. My decision making power is less than my share of the responsibility (relative to the Board of Director's share). _____

11. My Board of Directors needs my guidance in setting the objectives of the cooperative. _____

12. It is important to me to be active in local community organizations. _____

The following scale may help in keeping the directions in mind.



Strongly Disagree — Uncertain or of no Opinion — Strongly Agree

13. I obtain great personal satisfaction in studying national and world news everyday. _____

14. I derive great satisfaction from signing my name as manager. _____

15. I have complete control over the hiring and firing of all employees working below me. _____

16. I feel extremely uneasy when discussing company business matters with people other than family members and close friends. _____

17. The company's ultimate objectives are too high. _____

18. My foremen should follow a strict daily schedule in the performance of their jobs. _____

19. I consider it of great importance to my business that my family participate in the business community's affairs. _____

20. Discussion of business practices and techniques with other managers is helpful. _____

21. I like the respect I receive from my employees for the position I hold. _____

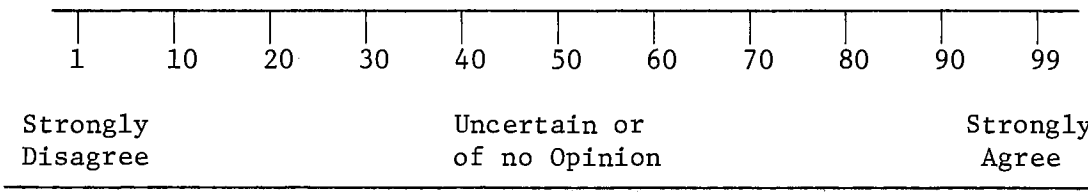
22. There is one (or more) key employee (other than the manager) within my cooperative who is important enough to the operation of the business, that the cooperative could not operate efficiently if he were replaced. _____

23. I always determine precisely the benefits and costs of government programs to me before deciding upon the extent of participation. _____

24. I like being a manager because I can work as hard as I wish. _____

25. The setting of the company's ultimate objectives should be exclusively my job. _____

The following scale may help in keeping the directions in mind.



26. When I cannot attend community activities, it bothers me to allow others to represent me and my family. _____

27. I derive great personal satisfaction from time spent listening to or watching national news reports. _____

28. I derive great satisfaction from the status I hold in the community as a manager of a grain and feed firm. _____

29. My employees receive the highest wages for laborers in the community. _____

30. I always consider the effect on the entire firm operation when deciding on new production methods for an enterprise. _____

31. I benefit my firm by often times taking on the responsibilities of the board. _____

32. I firmly believe that I should be the only one that formulates the company plans. _____

33. My serving in the armed forces gave me experience in the leadership of men which has been beneficial to my business. (If you did not serve, put 50.) _____

34. When on vacation, I prefer to travel outside the state. _____

35. It is highly important to me to attend farmer field days, machinery demonstrations, reunions, etc. _____

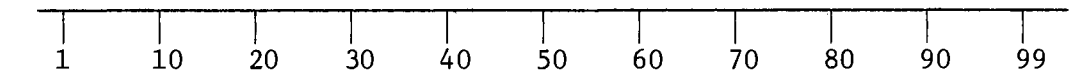
36. If I were suddenly incapable of managing the company (due to accident or illness), my successor from within the cooperative, would be prepared to take my job. _____

37. I know exactly how the latest developments in production methods would affect my operation. _____

38. Management is challenging and exciting to me as each day brings new and different problems for me to solve. _____

39. I consider this company an innovational leader in the trade, within Oklahoma. _____

The following scale may help in keeping the directions in mind.



Strongly Disagree — Uncertain or of no Opinion — Strongly Agree

40. To participate in local political activities is of great importance to me. _____

41. I believe I can obtain as good information by getting reports from the salesmen as obtaining it directly myself from customers. _____

42. I am the lowest paid manager of any business in the community. _____

43. I am responsible for searching out and evaluating new ways to operate. _____

44. One aspect of management which I detest is the heavy competition. _____

45. I firmly believe that a college education is necessary for a beginning manager to be successful today. _____

46. I derive great satisfaction from having others work for me and with me. _____

47. It is highly important to me to attend my own trade meetings, university extension classes, etc. _____

48. I encourage criticism and suggestions from my customers. _____

49. I am the highest paid manager in this trade within Oklahoma. _____

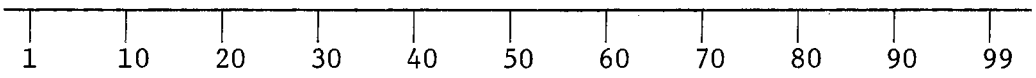
50. I absolutely refuse to talk about my business operations and its problems with people other than family. _____

51. The aspect I dislike the most about management is the presure build up. _____

52. I have plans set up for this company, to be implemented during the next five years, specifying for each year exactly what is to be done and when. _____

53. I consider myself to be exceedingly independent of my Board of Directors. _____

The following scale may help in keeping the directions in mind.



Strongly Disagree — Uncertain or of no Opinion — Strongly Agree

54. I consider it important to participate in trade organizations. _____

55. I leave many jobs to my employees because they are able to do them as well or better than I can. _____

56. I have low employee turn-over. _____

57. If asked, I can perfectly describe the kinds of facilities I have and their operations. _____

58. I consider seniority as very important in promotion. _____

59. I believe in company plans which specify exactly when something is to be done. _____

60. I appreciate having others look to me as their leader. _____

61. Company growth is due to my efforts alone. _____

62. My employees could benefit more by obtaining a similar job within Oklahoma. _____

63. I frequently encourage others in the trade to accept new ideas and methods. _____

64. The company's ultimate objectives are highly detailed. _____

65. I derive satisfaction from giving orders to others. _____

66. I consider it important to talk frequently with the county agent and other professional agricultural workers. _____

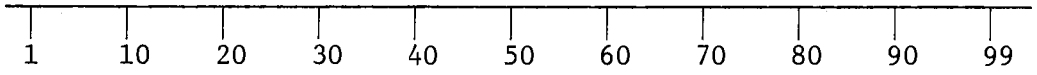
67. In the company, I am compensated the least relative to my abilities. _____

68. I like to manage a cooperative because my work is seasonal. _____

69. I believe my employees should make all operating procedure decisions. _____

70. I feel that the average tenure of the members on my present Board of Directors is too long. _____

The following scale may help in keeping the directions in mind.



Strongly Disagree — Uncertain or of no Opinion — Strongly Agree

71. My business decisions have had little impact upon the local community. _____

72. I would rather take a faltering company and accept the responsibility of building it up. _____

73. In a company of this size, employees should have an opportunity to exercise some authority over routine matters affecting them. _____

74. I am uncomfortable when making decisions under uncertainty. _____

75. The wage I receive from managing my firm gives me a high degree of personal fulfillment. _____

76. National and world news are important to my business operation. _____

77. One of the aspects which appeal to me most about being a manager is that my success is dependent upon my own production record. _____

78. I encourage suggestions from my employees. _____

79. In order to be efficient at my job it is necessary that I follow a strict daily schedule. _____

80. My Board of Directors is my greatest limiting management factor. _____

II. General Information

1. Of the income payed to you by the cooperative in 1970; what percent:

   a. was in the form of base pay _____%

   b. was in the form of a management incentive (profit share, etc.) _____%

   c. was in the form of fringe benefits _____%

   Those fringe benefits paid by my cooperative are:

   Hospitalization insurance Yes ___ No ___
   Life insurance Yes ___ No ___
   Retirement plan Yes ___ No ___
   Other, specify: _____

2. How is your management incentive determined? _____

   _____

3. Did you serve in the armed forces: Yes ___ No ___. If yes,

   a. number of years served: _____ years

   b. rank acquired: _____

4. How many years were you a foreman and/or assistant manager before becoming a manager? _____ years

5. How many years have you been a manager? _____ years

6. What was your 1970 base pay on an annual basis (excluding fringe benefits or management incentive)? $_____ per year

7. What was your annual base pay when you began this job (excluding fringe benefits and management incentives)? $_____ per year

8. In what year did you begin your present job? Year: _____

9. Did your cooperative pay you a management incentive when you began your present job? Yes ___ No ___

10. What is your age? Years: _____

11. What was your formal education?

   a. High School: number of years _____

   b. Trade School: number of years _____

   c. College: number of years _____

12. In the last two years (since June 1, 1969), how many days have you spent at management classes, programs, seminars, etc.?
Number of days: _____

13. In the past, have you set all company objectives? Yes ___ No ___

14. How much total time have you spent outside the state? (Indicate whether days, weeks, months or years). Number of _____ spent outside the state: _____

15. How many days did you spend outside the state during the last two years (since June 1, 1969)? Number of days: _____

16. What is the number of social, civic and agricultural trade groups of which you are a member? _____

17. What is the total number of years you have held the following positions in the groups mentioned in question 16 since the end of your formal education? (e.g. if you were president of group A and group B in the same year, consider it as 2 years total for that year.)

    President _____ number of years.

    Vice President _____ number of years.

    Secretary _____ number of years.

    Treasurer _____ number of years.

18. What is the number of all competitors with which your customers may attempt to trade? _____

19. What is the radius, in miles, of your trade area? _____ miles

20 The average tenure of the members on my present Board of Directors is _____ years.

21. The total volume of wheat handled by my cooperative in 1970 was _____ bushels.

22. Please enclose condensed financial statements for the following years:
    1966
    1967
    1968
    1969
    1970

Your Name: _____

Cooperative: _____

APPENDIX B

INDEX TO VARIABLE IDENTIFICATION: VARIABLE NUMBERS ASSIGNED FOR ANALYTICAL PURPOSES TO QUESTIONS AND FINANCIAL RATIOS OBTAINED FROM THE QUESTIONNAIRE

TABLE XXXIII

INDEX TO VARIABLE IDENTIFICATION: VARIABLE NUMBERS ASSIGNED FOR ANALYTICAL PURPOSES TO QUESTIONS AND FINANCIAL RATIOS OBTAINED FROM THE QUESTIONNAIRE

Variable Numbers, Assigned for Analytical Purposes	Variable Identification, Questions and Financial Ratios Obtained from the Questionnaire
1 through 80	Question 1 through 80, section I[a]
81	Question 1a, section II[a]
82	Question 1b, section II
83	Question 1c, section II
84	Question 3a, section II
85	Question 3b[b], section II
86	Question 4, section II
87	Question 5, section II
88	Question 6, section II
89	Question 7, section II
90	Question 8, section II
91	Question 10[c], section II
92	Question 11, section II
93	Question 12, section II
94	Question 15, section II
95	Question 16, section II
96	Question 17[d], section II
97	Question 18, section II
98	Question 19, section II
99	Question 20, section II
100	Question 21, section II

TABLE XXXIII (Continued)

Variable Numbers, Assigned for Analytical Purposes	Variable Identification, Questions and Financial Ratios Obtained from the Questionnaire
101	Current ratio[e]
102	Liquid ratio
103	Inventory to Net Working Capital
104	Gross Income over Net Working Capital
105	Total Liabilities to Net Worth
106	Fixed Assets to Net Worth
107	Net Profit to Net Worth
108	Operating Profit to Gross Income
109	Salaries to Gross Income
110	Overhead to Gross Income
111	Depreciation to Gross Income
112	Hospital Insurance, question 1c, section II
113	Life Insurance, question 1c, section II
114	Retirement Plan, question 1c, section II
115	Question 9, section II
116	Question 13, section II

[a]The sections refer to sections of the questionnaire, shown in Appendix A.

[b]Rank was measured from the bottom up, with Recruit = 1, and Chief of Staff = 25.

[c]Education was measured as the sum of years of formal education completed, high school through university or trade school.

[d]All positions were added and entered as one number.

[e]For a description of each ratio see section C.1.2 of Chapter III.

APPENDIX C

ROTATED FIRST-ORDER FACTOR MATRIX WITH MEANS AND STANDARD DEVIATIONS

TABLE XXXIV

ROTATED FIRST-ORDER FACTOR MATRIX WITH MEANS AND STANDARD DEVIATIONS

Variable	Factors												Common-alities	Mean	Standard Deviation[a]
	1	2	3	4	5	6	7	8	9	10	11	12			
1	-.54	.19	.09	.15	-.05	.36	.12	-.03	-.10	-.18	-.07	.02	.55	78.96	15.18
2	-.67	.07	.13	.06	-.15	-.10	.02	.15	-.06	-.11	.06	-.02	.54	81.29	20.70
3	-.15	.46	.24	-.12	-.04	-.08	-.22	-.12	-.26	.37	.01	.12	.59	59.17	30.61
4	-.31	.35	.09	.21	.15	.11	-.12	.13	.03	.36	-.16	.04	.50	74.58	22.84
5	-.67	-.17	.05	.09	.03	-.05	-.11	.21	-.21	-.26	.02	-.21	.71	76.02	22.74
6	-.59	.08	.12	.03	.32	-.12	.00	-.10	-.12	-.00	.11	-.25	.58	82.19	21.32
7	-.35	.34	-.03	-.21	-.04	.16	-.36	-.09	-.02	.05	.43	.10	.64	61.58	29.57
8	-.41	.21	.23	-.06	-.40	-.27	.14	-.12	-.03	-.10	.34	.04	.66	61.06	26.67
9	-.20	.16	.29	.10	-.06	.50	-.30	-.03	-.14	.04	.03	.33	.64	48.46	30.62
10	.03	.63	-.06	-.11	.16	.18	-.13	.05	-.23	.13	-.17	.13	.61	35.60	29.25
11	-.47	.34	.09	.08	.01	.17	-.40	-.11	-.03	.27	-.28	.10	.72	82.00	16.51
12	-.20	.15	.06	.25	.13	.14	-.45	-.05	-.30	-.00	.04	.16	.49	77.79	20.94
13	.02	.47	-.24	.01	.29	-.23	-.11	-.10	.06	-.10	-.30	-.23	.59	55.75	28.28
14	-.35	.29	-.17	.02	.19	-.21	-.14	-.30	.05	.08	.06	.07	.45	53.94	29.75
15	-.54	-.11	.15	-.04	-.00	-.13	.13	-.19	-.03	.02	-.17	.22	.48	87.35	23.04
16	-.02	.71	-.11	.24	-.00	.03	.13	.02	-.02	.26	.16	.15	.71	30.65	33.39
17	-.13	.46	-.05	-.36	-.32	.10	-.02	-.01	-.01	.22	.15	.04	.54	15.79	18.25
18	-.25	.29	.10	-.40	.32	-.04	.20	-.03	.08	.35	.23	-.02	.64	46.44	32.44
19	-.34	.02	.10	-.28	-.03	.02	-.24	.13	-.08	-.36	.13	.11	.45	61.17	30.86
20	-.77	-.12	.10	-.15	-.20	.16	.24	.19	.15	.05	.12	.01	.83	92.21	9.41
21	-.32	.24	-.01	.09	.26	.20	-.32	-.13	-.00	.34	.16	.09	.55	75.44	22.35
22	.03	.24	-.21	.30	-.05	.14	.16	-.10	-.06	.34	-.17	.38	.55	42.77	35.95
23	-.54	.25	-.14	.02	.16	-.16	.02	-.02	.04	.25	-.12	-.06	.51	64.92	28.01
24	-.57	.17	-.20	.25	.24	-.14	-.08	.09	.01	.40	-.15	.10	.74	48.48	35.47
25	-.15	.69	.09	.02	.09	-.06	.16	-.02	.01	.08	.12	.13	.58	22.10	28.36
26	-.15	.69	.14	.09	-.07	.03	.03	-.22	-.03	.04	.03	-.08	.60	27.21	27.54
27	-.28	.19	-.57	-.15	.15	.15	.11	-.25	.16	-.23	-.14	-.31	.78	59.65	28.81
28	-.41	.15	-.02	-.18	.63	-.05	-.03	-.19	.14	.07	.27	-.17	.79	63.19	29.02
29	-.33	.06	-.15	-.15	-.07	.56	.21	.19	-.15	-.05	.20	.06	.63	67.83	30.73
30	-.76	-.06	.16	.06	.03	.25	-.01	-.01	.01	-.17	.11	-.06	.72	85.81	16.49
31	-.28	.13	.26	-.03	-.20	-.06	-.06	-.26	.16	.51	.18	-.16	.62	42.06	34.38
32	-.03	.73	.20	.15	-.05	-.16	-.20	.09	-.01	.10	.14	-.01	.70	15.17	20.84
33	-.56	.05	.06	.19	.10	-.06	.02	-.52	.02	.05	.05	-.17	.69	67.21	22.92

TABLE XXXIV (Continued)

Variable	Factors												Common-alities	Mean	Standard Deviation[a]
	1	2	3	4	5	6	7	8	9	10	11	12			
34	-.41	.26	-.13	.15	.13	-.21	-.32	.48	.12	-.15	.01	.06	.71	53.13	32.17
35	-.64	.08	.14	-.15	.11	-.05	.04	-.12	.19	.27	.06	.15	.62	65.50	26.73
36	-.38	.00	.12	.04	.47	.12	-.19	.20	-.24	-.07	-.05	.16	.57	60.79	32.09
37	-.56	.41	.01	-.11	-.14	.19	-.03	-.11	.07	-.09	-.08	.28	.66	56.52	22.50
38	-.57	.19	.12	.08	.26	-.14	.04	-.01	.38	.25	-.02	.12	.69	80.92	18.93
39	-.48	.07	.25	-.04	.17	-.15	.10	-.18	-.03	.08	.31	-.25	.56	71.42	21.77
40	-.21	.47	.07	-.13	-.00	.20	-.25	-.10	.00	-.06	-.10	-.27	.49	30.96	27.13
41	-.31	.46	.11	.25	.10	-.24	-.14	-.26	.38	.10	-.21	.12	.76	36.23	27.48
42	.02	.42	.15	-.18	-.10	-.05	-.10	-.09	.02	.58	.05	-.11	.61	31.71	29.21
43	-.72	.03	.06	-.04	.03	.13	-.18	-.04	.25	.22	.00	.27	.76	84.90	13.71
44	-.15	.24	.02	.00	.05	.10	-.12	-.09	.04	.77	-.14	-.07	.72	27.46	26.43
45	-.35	.27	.43	.09	.00	.07	.07	-.27	-.18	.08	.20	-.04	.54	40.48	35.47
46	-.51	.10	.24	.02	.24	.12	-.06	-.50	-.02	.04	.16	.13	.70	78.83	21.18
47	-.69	-.12	.08	.03	-.02	.13	.05	.00	-.36	-.06	.18	.13	.70	75.96	23.62
48	-.70	.10	-.11	-.21	.22	-.23	-.10	-.09	-.05	.19	.19	.14	.77	83.81	17.48
49	-.09	.48	-.22	.08	-.09	.25	-.15	.23	.09	.05	.12	.14	.48	27.94	27.14
50	-.06	.65	.03	.05	-.04	.01	-.05	-.16	.04	.09	-.09	-.17	.50	19.60	24.04
51	-.27	.16	-.04	-.04	-.09	.37	.03	.14	.22	.41	-.02	-.05	.49	50.56	31.16
52	-.18	.24	.05	-.01	-.10	.39	-.02	-.28	.08	-.54	.04	-.09	.64	37.27	28.85
53	-.05	.43	.19	.07	-.41	.02	-.18	-.08	.04	-.14	.00	-.24	.51	16.60	20.89
54	-.77	-.14	-.17	-.13	.21	.12	-.08	-.11	-.26	.02	.04	-.09	.80	68.81	24.20
55	-.37	-.04	.02	-.01	.11	-.05	.15	.14	-.71	-.15	-.23	.18	.81	73.65	25.84
56	-.53	.16	-.42	.13	-.08	.02	-.02	-.35	-.10	.07	-.08	.13	.66	81.46	19.95
57	-.74	.08	-.03	.02	-.15	.20	-.19	-.35	.03	.16	.01	-.06	.82	91.15	9.71
58	-.13	.28	-.40	.07	.13	.08	.06	.13	-.12	-.33	-.02	.12	.44	50.56	31.29
59	.08	.14	-.28	-.26	.45	-.05	.12	-.31	-.02	-.02	.16	.06	.52	62.04	30.39
60	-.24	-.04	.02	.02	.76	.02	.18	-.27	.18	-.04	.11	-.15	.81	67.52	24.47
61	.08	.69	.03	.06	-.07	-.03	.03	.05	-.06	-.06	-.01	-.29	.59	13.04	19.47
62	-.00	.57	.04	-.15	.03	-.34	.06	.03	.39	.05	-.12	-.00	.64	25.94	26.41
63	-.40	-.36	.04	.01	.29	.09	-.12	.08	.36	.04	.22	.07	.59	67.65	19.46
64	.06	.21	-.08	.00	.37	.09	.04	-.05	.10	-.64	-.13	.11	.65	36.15	26.17
65	-.04	.27	.24	-.29	.41	.01	-.21	-.17	-.20	-.39	.20	.01	.69	35.81	23.74
66	-.30	-.23	.10	.01	.39	.10	-.04	.12	-.29	-.39	.18	.24	.65	68.35	30.01

TABLE XXXIV (Continued)

Variable	Factors												Common-alities	Mean	Standard Deviation[a]
	1	2	3	4	5	6	7	8	9	10	11	12			
67	.04	.25	.13	-.07	.01	-.11	-.01	.37	-.37	.42	.34	.02	.66	34.46	25.53
68	.02	.48	-.08	-.00	.18	-.33	.12	-.44	.06	.25	-.08	-.08	.66	15.63	22.22
69	.07	.66	-.17	-.01	-.09	.02	.10	.32	.09	-.08	.03	-.22	.66	14.04	18.11
70	.10	.44	.09	-.18	.07	-.22	.11	-.29	.07	.15	.22	-.27	.54	29.88	33.72
71	.17	.35	-.15	-.10	-.13	-.16	.33	-.01	.16	.12	-.60	.25	.80	34.21	26.28
72	-.21	.23	.57	.03	-.06	-.03	-.15	-.06	-.19	-.06	.15	-.08	.52	48.71	29.84
73	.06	-.54	-.06	-.00	.37	.24	-.12	-.10	-.21	-.09	-.05	-.20	.62	80.02	19.66
74	-.16	.18	.24	-.31	.19	.02	.29	-.14	-.44	.33	.02	-.20	.68	56.85	28.54
75	-.04	-.00	.07	.15	.63	.02	-.23	.32	-.16	-.22	-.07	-.11	.67	64.46	28.23
76	.13	-.04	-.39	.12	.21	-.18	-.14	-.20	.02	-.58	-.10	-.29	.75	70.35	24.20
77	.01	.03	-.05	-.03	.50	-.32	-.26	-.01	.34	.08	.44	-.05	.74	72.29	25.11
78	-.24	-.34	-.03	-.02	.58	.00	-.13	-.21	.27	-.10	.00	.20	.70	87.94	12.02
79	.05	.70	-.03	-.11	.11	-.14	.24	-.03	-.10	.04	.15	.26	.70	38.00	28.69
80	-.05	.29	.04	-.31	.04	.04	.03	.07	-.12	.61	.28	-.07	.67	23.43	26.56
81	-.00	-.12	.09	-.72	.00	-.06	.40	.09	-.06	-.09	.02	.06	.73	93.58	5.83
82	.08	-.09	.07	.01	.07	-.08	-.83	-.01	-.06	.06	-.07	-.09	.74	0.96	3.29
83	-.05	.18	-.14	.78	-.04	.12	.07	-.09	.11	.07	.02	-.00	.71	5.46	5.33
84	-.12	-.01	-.05	.08	.07	.03	.24	-.77	.02	-.07	.20	-.01	.72	2.15	2.25
85	-.15	.05	.01	.23	.07	-.13	-.05	-.67	-.04	-.13	.32	.13	.70	4.19[b]	4.59
86	-.04	.00	.02	-.47	.11	-.06	-.04	-.31	.36	.30	-.23	-.19	.66	5.13	5.65
87	.13	-.16	-.70	.20	-.05	.14	-.02	-.04	-.27	-.26	.00	-.07	.75	9.73	7.18
88	-.01	-.13	.13	.45	.35	.24	-.09	-.20	-.01	-.36	-.02	.04	.60	10.68[c]	2.23[c]
89	-.06	-.10	.78	.03	.15	.10	.03	-.02	-.08	-.18	-.17	.11	.74	6.99[c]	3.00[c]
90	-.13	-.00	.74	-.19	.05	-.03	.00	-.11	.14	.05	-.12	.08	.67	62.37[d]	7.58
91	.15	-.16	.74	-.14	.08	-.17	.15	-.20	-.10	-.13	-.04	.00	.74	44.67	9.76
92	-.23	.01	.24	.44	.32	.14	.19	-.05	.07	-.07	.34	-.02	.59	5.46	1.95
93	-.42	-.27	.22	-.13	.24	.00	-.00	.11	.08	-.37	.03	.06	.52	16.21	14.90
94	-.09	-.20	-.35	-.10	.29	-.08	-.35	.23	.24	-.25	-.11	-.19	.61	16.42	16.05
95	.03	-.08	.18	.36	.31	-.08	-.09	-.13	-.20	-.10	-.06	-.07	.36	3.31	1.91
96	-.11	.07	.04	.19	.19	-.24	-.02	-.03	-.07	-.00	-.23	-.07	.21	6.54	8.25
97	-.12	.06	.17	-.14	-.03	.25	-.13	.02	.23	-.16	.07	.39	.39	13.02	28.79
98	-.08	-.12	.08	.38	-.06	.04	.12	.14	.49	-.29	.40	.09	.70	20.42	12.85
99	-.15	.13	-.30	.26	.07	-.18	.03	.12	.18	.03	-.18	-.39	.46	8.85	4.22

TABLE XXXIV (Continued)

Variable	Factors 1	2	3	4	5	6	7	8	9	10	11	12	Commonalities	Mean	Standard Deviation[a]
100	.48	-.21	-.08	.32	.36	.10	.16	-.00	.01	-.20	.04	-.16	.62	647.01[c]	590.18[c]
101	-.18	.08	.14	.05	.00	-.85	-.01	-.01	-.01	-.11	.04	.28	.88	3.10	3.83
102	-.14	.09	.01	.04	-.09	-.89	.00	-.07	-.01	-.02	-.05	.16	.86	1.80	1.73
103	-.07	.09	-.11	.11	.06	.17	.04	-.19	.09	.06	.80	.03	.77	0.92	1.73
104	.00	.17	-.06	.08	.02	.14	.04	-.12	.09	.10	.81	-.12	.76	17.88	34.45
105	-.04	-.24	.26	.10	.08	.51	.01	-.13	.07	-.07	.07	.24	.49	0.31	28.94
106	.08	-.36	.09	.18	.24	.46	.07	-.08	.12	-.15	.08	.03	.51	0.55	0.14
107	.10	.07	-.04	.04	-.08	.12	-.15	.12	.01	.00	.40	-.18	.27	0.12	0.11
108	.13	-.04	-.40	-.11	-.09	.10	-.09	-.01	.04	.00	-.47	-.48	.66	0.029	0.024
109	-.11	-.02	.31	-.13	-.12	-.25	-.10	.16	.10	-.07	.03	.66	.69	0.045	0.023
110	.08	-.15	.12	.13	-.06	-.09	.86	-.10	.09	-.05	-.02	.17	.85	0.035	0.041
111	-.11	-.16	-.12	.08	.01	-.17	-.04	-.11	-.09	-.15	-.08	.52	.41	0.016	0.007
112	.20	-.11	-.02	.58	.03	-.27	-.03	.02	-.11	-.07	.14	.15	.52	0.44	0.50
113	-.15	.17	.04	.57	-.27	-.08	-.10	-.05	-.17	-.10	.18	-.25	.60	0.69	0.47
114	.22	.02	-.12	.41	-.01	-.25	.41	-.27	-.25	-.04	-.03	-.12	.61	0.75	0.44
115	-.06	.07	-.20	-.06	.14	-.19	-.52	-.21	.39	.30	-.20	-.12	.72	0.06	0.24
116	.04	.01	.13	-.14	.11	.09	.05	.04	.65	-.06	.04	.04	.49	0.23	0.42
Eigenvalues	15.75	10.47	6.93	5.84	5.38	5.08	4.94	4.47	3.93	3.70	3.47	3.23			
Variance Explained (Percent)	13.58	9.03	5.97	5.03	4.64	4.38	4.26	3.86	3.39	3.19	2.99	2.79			

[a] These are for the original data before being changed by standard normal deviates.

[b] Equivalent to a rank of E-3, Private First Class.

[c] To obtain statistic multiply by 1,000.

[d] To obtain year add 19,000.

APPENDIX D

ROTATED SECOND-ORDER FACTOR MATRIX

TABLE XXXV

ROTATED SECOND-ORDER FACTOR MATRIX

First-Order Factor	Second-Order Factor A	B	C	Communalities
1	-.20	-.55	..05	.345
2	-.62	.11	.21	.444
3	-.09	.76	-.20	.625
4	.67	.10	.17	.489
5	.49	.14	.12	.276
6	.15	.08	.64	.443
7	.36	.13	.33	.257
8	.02	.14	.39	.176
9	.14	-.48	-.29	.336
10	-.54	-.11	.58	.646
11	-.12	-.27	-.04	.089
12	-.04	.43	.03	.191
Eigenvalues	1.66	1.45	1.21	
Variance Explained by Each Second-Order Factor	13.8%	12.1%	10.1%	

VITA

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