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INTERGENERATIONAL OCCUPATIONAL MOBILITY OF MALE AND FEMALE ELEMENTARY SCHOOL PRINCIPALS IN THE MIDDLE UNITED STATES

by

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ABSTRACT

INTERGENERATIONAL OCCUPATIONAL MOBILITY OF MALE AND FEMALE ELEMENTARY SCHOOL PRINCIPALS IN THE MIDDLE UNITED STATES

by

Patsy Robinson Hashey

The study was conducted for the purpose of determining the patterns and processes of intergenerational occupational mobility among elementary school principals in the middle United States. During the 1976-77 school year, approximately 6800 individuals were members of the National Association of Elementary School Principals (NAESP) in the middle United States. It was determined that a representative sample of elementary school principals in the middle United States would contain at least 606 respondents. A sample of 977 members was obtained from the NAESP; data were collected from 697 elementary school principals (78.86% of the eligible respondents) by a researcher developed mail out questionnaire.

Six related research questions were formulated for examination, primarily by the third edition of the Automatic Interaction Detector (AID3) - a computer program designed especially for complex questions in the social sciences. The research questions were as follows:

1. What is the pattern of intergenerational occupational mobility (as measured by the SEI) for elementary school principals in the middle United States from background characteristics?
2. Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background characteristics?
3. Will the pattern of intergenerational occupational mobility (as measured by the SEI) from background and intervening characteristics for elementary school principals in the middle United States be replicated by a cross-validation sample?
4. Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background and intervening characteristics?
5. What is the process of intergenerational occupational mobility for elementary school principals in the middle United States?
6. Does the process of intergenerational occupational mobility differ for male and female elementary school principals in the middle United States?

Results of the analyses indicated that elementary school principals in the middle United States were upwardly mobile from father's occupation. No major differences in the pattern of mobility were detected except that men from blue collar origins were more mobile than women in the same category. Of the 24 variables examined, only father's occupational category, father's education and, for subjects from farm, deceased, and unemployed father's origins, whom respondent lived with at age 16 exhibited importance for the pattern of mobility among elementary school principals in the sample. It was concluded that at the time the majority of the sample became elementary school principals (1960s and 1970s), the position in the middle United States was open regardless of origin status.

The process of mobility appeared to be different for men than women. The process of mobility was identified as follows: the mother did not work outside the home, the parents lived together and had more than one child, male elementary school principals were teachers for 10 or less years, married with one to three children, 35 years of age or younger with a master's degree or higher at first principalship. For women the process of mobility was described as follows: the parents lived together and had more than one child, at first principalship women were between 26 and 45 years of age, held a master's degree or higher, and were teachers at the elementary school level.

The study was successfully cross-validated by a 20 percent sample, with a 95 percent confidence interval about the means.

DEDICATION

It is to my parents, Patricia and Edward Robinson, whom I dedicate this dissertation. Without their reinforcement, and the background characteristics they provided for me, I would not have written a dissertation.

ACKNOWLEDGEMENTS

The author wishes to express sincere appreciation to the National Association of Elementary School Principals for supplying the names and addresses of a sample of elementary school principals in the middle United States.

Special gratitude is extended to those principals who used their precious time to respond to the Survey of Elementary School Principals; their efforts made this dissertation possible.

I am deeply indebted to the dissertation committee, especially for their patience in assisting me 600 miles from campus. To Dr. Stanley Hecker, committee chairman, I thank for helping me attain my goal; appreciation is also extended to Dr. Samuel Moore for his critical wit, to Dr. Glen Cooper for sitting-in after the death of Dr. Vernon Hicks, and to Dr. Philip Marcus for his patience with my neophyte approach to sociology.

Computer assistance was provided by Fong Chan and John Yuen. Without their determination and the resources at Southern Illinois University Carbondale, I would not have persisted.

Moral support, incentives, and distractions were kindly contributed, unknowingly at times, by J.R. Special appreciation is also extended to Brett, for ignoring his mother and living on self-made peanut butter sandwiches for months.

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INTRODUCTION

The American occupational structure is stratified into a hierarchy of occupational groups.[1] Within each major group of the occupational hierarchy, e.g., professional, clerical, laborers, work roles are further stratified. Varying levels of achieved education and income by societal members have contributed to the stratified occupation structure.[2] Sorokin[3] explains that:

> If the members of a society are differentiated into various occcupational groups, and some of the occupations are regarded as more honorable than others, if the members of an occupational group are divided into bosses of different authority and into members who are subordinated to the bosses, the group is occupationally stratified....

The process of reaching a specific stratum in the occupational hierarchy and the subsequent interaction within that stratum, define the degree to which one has achieved occupational mobility.[4] The amount of mobility

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[1]Judah Matras, Social Inequality, Stratification, and Mobility (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975), p. 110.

[2]Albert J. Reiss, Jr. and others, Occupations and Social Status (New York: Free Press of Glencoe, 1961), pp. 84-85.

[3]Pitirim Sorokin, Social Mobility (New York: Harper and Brothers, 1927), p. 11.

[4]Peter M. Blau and Otis Dudley Duncan, The American Occupational Structure (New York: John Wiley & Sons, Inc., 1967), p. 76.

found within a society reflects the openness of the society, e.g., equal opportunity.[5] The social origins of labor force participants are a major determinant of occupational mobility between occupation groups. Comprehensive research on the social origins of labor force participants has been conducted by Blau and Duncan[6] who state that:

> The chances of occupational achievement are limited by the status ascribed to a man as the result of the family into which he was born. Indeed, a stable society is hardly conceivable that does not ascribe to every child a status in some kinship group, which is responsible for rearing and socializing him, and which, therefore, strongly influences his motivation to achieve, his qualifications for achievement, and hence his chances for success.

Knowledge of the occupational structure and the conditions governing a person's chances of moving up the occupational hierarchy and achieving economic success is "...essential for understanding modern society and, particularly, its stratified character."[7]

The intent of the study presented here was to focus on a specific work role within a major occupation group. The study was a descriptive investigation of the intergenerational occupational mobility of male and female elementary school principals in the middle United States

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[5]Aage B. Sørensen, "Growth in Occupational Achievement: Social Mobility or Investment in Human Capital," in Social Indicator Models, ed. Kenneth C. Land and Seymour Spilerman, (New York: Russell Sage Foundation, 1975), p. 336.

[6]Blau and Duncan, op.cit., p. 207

[7]Ibid., pp. vii-viii.

who were members of the National Association of Elementary School Principals during the 1976-77 school year. A survey of elementary school principals was conducted and the data were analyzed in an attempt to determine the similarities and differences in the patterns and processes of intergenerational occupational mobility among holders of that position.

Statement of the Problem

The problem is that the patterns and processes of intergenerational occupational mobility of male and female elementary school principals have not been studied.

The source of the problem is two fold. First, occupational strata are broad - covering a variety of jobs with varying prestige and status accorded the individuals who fill the job roles within each stratum. As a result data gathered for the purpose of analyzing occupational strata supply only scant knowledge of individuals who work at specific jobs within stratum.

Second, most studies of the American occupational structure have excluded the female worker.[8] Therefore the

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[8]Peter Y. DeJong, Milton J. Brawer, and Stanley S. Robin, "Patterns of Female Intergenerational Occupational Mobility: A Comparison with Male Patterns of Intergenerational Occupational Mobility," American Sociological Review, Vol. 36, (December, 1971), p. 1033.

question of whether the patterns and processes of intergenerational occupational mobility are the same for men and women remains unresolved.

To further compound these problems, the similarities and differences in intergenerational occupational mobility of elementary school principals have been infrequently investigated in the sociology of work.[9] Previous attempts have not only been rare, but have been very rudimentary in nature.

Purpose

It was the purpose of this study to define the patterns and processes of intergenerational occupational mobility among elementary school principals in the middle United States who were members of the National Association of Elementary School Principals during the 1976-77 school year.

Significance and Need for the Study

The movement of individuals from similar social backgrounds may disperse into many occupations or become concentrated in only a few.[10] Studies of the United States

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[9]Neal Gross and Anne E. Trask, Sex Factor and the Management of Schools (New York: John Wiley & Sons, 1976), p. 20.

[10]Blau and Duncan, op.cit., p. 42.

labor force cover the entire occupational structure in order to assess determinants of patterns and processes of intergenerational occupational mobility to occupational categories, "...not the individuals composing them."[11] In order to determine if a person's chances are limited or enhanced by their background characteristics, it was deemed necessary to view the occupational structure from the standpoint of individuals rather than from large occupational categories.

The elementary school principalship offers a unique and challenging area of study for at least two reasons. First, since little is known of the patterns of intergenerational occupational mobility to the elementary school principalship, recruitment for the position may be from a narrow or a wide base of origins. If it is found that elementary school principals in the middle United States experience upward mobility from their origins, it may indicate that these principals aspire to their positions but if downward mobility is revealed, they may be settling for that position instead of aspiring to it. In either case of vertical mobility, it is possible that patterns of intergenerational occupational mobility from their occupation origins exist, and it is also possible that the patterns may be the same or different among holders of that position.

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[11]Ibid., p. 23.

If school principals originate from a wide range of origins, this finding would lend more credibility to the notion that personal competence and the desire to perform as an elementary school principal are more influential in career selection than occupational origins. If, however, elementary school principals are from similar occupational origins, one alternative explanation might be that competence and desire for that position are developed early in life as a result of familial influence.

Second, the process of intergenerational occupational mobility may be similar or different, i.e., background and intervening characteristics salient to the process of attainment may vary among elementary school principals in the middle United States. If no differences are detected, it might be assumed that background and intervening factors influence elementary school principals similarly in the process of occupational attainment. It is possible however that the process of intergenerational occupational mobility to the elementary school principalship in the middle United States is different among holders of the position. In other words, comprehensive study of individuals who become elementary school principals in the middle United States may help clarify theories of career choice and individual qualification for entry into a specific occupation. In addition, the study of patterns and processes of intergenerational mobility of elementary school principals in the middle United States may shed

light on the similarities and differences in the intergenerational occupational mobility of elementary school principals in the United States and in other occupational areas as well.

Research Questions

The problem of the present study points to the fact that there is only scant knowledge of the patterns and processes of intergenerational occupational mobility of elementary school principals.

To begin to fill the void, it was determined that background characteristics and some intervening characteristics should be investigated in an attempt to define occupational flow to the elementary school principalship. While conclusive evidence should not be drawn from the results of one study, the primary objective here was to begin to determine some salient patterns and processes of intergenerational occupational mobility among elementary school principals in the middle United States. Six research questions were posed for the present study. They were as follow:

Research Question 1: What is the pattern of intergenerational occupational mobility (as measured by the SEI) for elementary school principals in the middle United States from background charactics?

Research Question 2: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background characteristics?

Research Question 3: Will the pattern of intergenerational occupational mobility (as measured by the SEI) from background characteristics and intervening characteristics for elementary school principals in the middle United States be replicated by a cross-validation sample?

Research Question 4: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background and intervening characteristics?

Research Question 5: What is the process of intergenerational occupational mobility for elementary school principals in the middle United States?

Research Question 6: Does the process of intergenerational occupational mobility differ for male and female elementary school principals in the middle United States?

Basic Assumptions

This research was based on the assumptions that:

1. Intergenerational occupational mobility studies of the American labor force are limited by; a) attentiveness to major occupational categories, and b) the exclusion of women, both as subjects and as mother's of subjects
2. Identification of population subgroups and analysis of their background characteristics and intervening characteristics would indicate patterns and processes of intergenerational occupational mobility

3. Intergenerational occupational mobility is only partly due to background characteristics and intervening characteristics. For example, pressure to leave origin status and availability of positions in any destination status are factors influencing mobility

Definitions of Terms

The following definitions were used for this study:

Background characteristics - A group of origin factors, measured by occupational origins (father's SEI), father's attained level of education, mother's attained level of education, parent(s) respondent resided with at age of 16, number of siblings and sibling placement, respondent's sex, and respondent's age.

Intergenerational occupational mobility - Movement from background characteristics to the offsprings' own career destination.

Intervening characteristics - Include the following characteristics of respondents in the study: marital status, presence of children, number of children, age of youngest child, number of years a teacher, highest earned college degree at first principalship, size community of employment.

Middle United States - Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.[12]

Occupational Origins - Socioeconomic status of respondent's father as measured by Duncan's[15] Socioeconomic Index (SEI) when the respondent was 16 years of age. Parents who are not employed for wages do not, according to the SEI, carry socioeconomic status.

Patterns of intergenerational occupational mobility - The flow in the relationship between occupational origins and occupational outcomes in terms of status. Patterns may be described in terms of distance and direction.

Processes of intergenerational occupational mobility - The paths individuals follow to the elementary school principalship. Process may be described in explanatory terms, i.e., how and why.

Delimitations

Two major delimitations for the study were identified and are as follows:

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[12]NEA Research Division, Elementary School Principalship in 1968 (Washington, D.C.: Department of Elementary School Principals, National Education Association, 1968), p. 7.

[13]Robert M. Hauser and David L. Featherman, The Process of Stratification: Trends and Analysis (New York: Academic Press, 1977), pp. 320-329.

1. Data were collected from elementary school principals in the middle United States who were members of the National Association of Elementary School Principals during the 1976-77 school year.
2. Occupational status was measured by the Socioeconomic Index set forth by Duncan.

Limitations

The following limitations were recognized for the study:

1. Intergenerational occupational mobility is only one component of social mobility
2. Occupational status is only one aspect of occupational attainment
3. The socioeconomic status scores obtained can not be directly compared with scores obtained through other scales, e.g., prestige
4. There was no attempt to exhaust the list of variables relevant to background and intergenerational occupational mobility, i.e., race, religion
5. No attempt was made to collect data from elementary school principals who were nonmembers of the National Association of Elementary School Principals, nor was an attempt made to solicit information from junior high or senior high school principals, or other groups who may have been members of the Association

Summary

The researcher's purpose was to investigate through observation and description, the patterns and processes of intergenerational occupational mobility of elementary school principals in the middle United States. The data were collected from elementary school principals in the middle United States who were members of the National Association of Elementary School Principals during the 1976-77 school year.

Chapter 2 will be a review of the literature on measuring the status and prestige of occupations, intergenerational occupational mobility and traditional methods of determining the patterns and processes of, through which the basic concepts and premises of the study were established. The variables pertinent to the topic were identified in the literature and a recent computer innovation was presented for its possible utility to the study.

Chapter 3 is a report of the sampling procedures of a description of the statistical methcds employed for the study. Detailed information was supplied to explain the development of the research instrument, and the coding of the dependent variable.

Chapter 4 will be the presentation of the data and analyses employed, findings of the study, and the development of a proposed model for future study. Chapter 5 is a summary of the study which includes the conclusions and recommendations.

Chapter 2

REVIEW OF RELATED LITERATURE

The study of social inequality, i.e., the unequal distribution of goods and services, rights and obligations, power and prestige is generally referred to as social stratification.[1] Social stratification is the set of rules and processes by which individuals of a given population attain incumbency in the roles and positions of the hierarchically superposed classes we call occupational categories.[2] Competition for status, and demand for participation in certain types of occupations create and perpetuate a stratified occupational structure.[3]

The occupational structure in the United States is the foundation of the stratification system. Blau and Duncan[4] state that:

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[1]James Littlejohn, Social Stratification (London: George Allen & Unwin Ltd., 1972), p. 9.

[2]Pitirim Sorokin, Social Mobility (New York: Harper & Brothers, 1927), p. 11.

Judah Matras, Social Inequality, Stratification, and Mobility (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975), p. 12.

[3]Burton Wright II, John Weiss, and Charles M. Unkovic, Perspective: An Introduction to Sociology (Hillsdale, Illinois: The Dryden Press, 1975), p. 19.

[4]Peter M. Blau and Otis Dudley Duncan, The American Occupational Structure (New York: John Wiley & Sons, Inc., 1967), p. 7.

> The occupational structure . . . not only constitutes an important foundation for the main dimensions of social stratification but also serves as the connecting link between different institutions and spheres of social life, and therein lies its great significance.

Stratification systems are present in human society because humans differ in genetic endowment and because without a hierarchical arrangement in society as a whole and in organizations within each society, the accomplishment of societal goals would be impossible.[5]

Sorokin[6] recognized three basic forms of social stratification: economic, political, and occupational. The study of economic and political stratification presupposes a thorough knowledge of the occupational hierarchy - the connecting link between different institutions and spheres of social life.[7]

The primary thrust of this review of selected literature will be to view patterns and processes of intergenerational occupational mobility of the holders of a single occupation, i.e., the elementary school principalship. The intragenerational interaction necessary to attain an elementary school principalship will not be considered.

First, the United States occupational structure will be defined within the concept of measuring the status

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[5]Wright, et.al., op.cit., p. 172.

[6]Sorokin, op.cit., p. 12.

[7]Blau and Duncan, op.cit., p. 7.

and prestige of occupations. Patterns and processes of intergenerational occupational mobility of the labor force will be reviewed paying special attention to findings specific to the elementary school principalship when available. Finally some descriptive characteristics of elementary school principals will be examined.

Measuring the Status and Prestige of Occupations

Traditionally the study of occupational mobility focuses on the status or prestige accorded individuals in the various strata of the occupational hierarchy. Researchers have sought to rank occupations according to some scale, to assess the interaction between occupational groups, and to determine the factors which stratify the occupational structure and operationalize the interaction.[8]

The standard approach has been to rank occupations in one of two ways: 1) by a socioeconomic status scale, or 2) a prestige scale.[9] When ranking occupations, a

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[8]Donald J. Treiman, "Problems of Concept and Measurement in the Comparative Study of Occupational Mobility," Social Science Research, Vol. 4, (1975), p. 185.

[9]Donald J. Treiman and Kermit Terrell, "Sex and the Process of Status Attainment: A Comparison of Working Women and Men", American Sociological Review, Vol. 40, (April, 1975), pp. 175-176.

socioeconomic status scale represents a composite index of education and income for each occupation rated.[10] Both measures of socioeconomic status (income and education) are aspects of occupational status since education is a basis for entry into many occupations, and for most people income is derived from occupation.[11] Prestige ratings represent a more subjective evaluation of the relative social standing of occupations.[12]

The first attempt at rating the prestige of occupations was by George S. Counts in 1925.[13] Respondents were asked to rank-order their perceptions of the prestige of a list of 45 occupational titles. Counts instructed raters to place the number one behind the occupation which was most "looked up to", the number two behind their second choice in that respect, and so on until they reached the number 45, i.e., the occupation with the lowest perceived social standing.[14] A number of studies were conducted in the 1930's and 1940's - all similar in method to those of Counts. All the early studies have been

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[10]Blau and Duncan, op.cit., p. 118.

[11]Albert J. Reiss, Jr., Occupations and Social Status (New York: The Free Press of Glencoe, Inc., 1961), p. 84.

[12]Blau and Duncan, op.cit., p. 119.

[13]Reiss, op.cit., p. 2.

[14]George S. Counts, "The Social Status of Occupations: A Problem in Vocational Guidance", The Social Review, Vol. 33, (January, 1927), p. 17.

criticized for questionable rating techniques, limited numbers of occupational titles, and representativeness of the occupations rated.[15]

More sophisticated methods were employed when in 1947 North and Hatt conducted the first national study of the prestige of occupations.[16] A scale was developed by asking respondents to rate their opinion of the general social standing of 88 occupational titles according to the following statements:[17]

1. Excellent standing
2. Good standing
3. Average standing
4. Somewhat below average standing
5. Poor standing

When rated the mean occupational prestige scores ranged from a low of 33 for shoe-shiner to a high of 96 for United States Supreme Court Justice.

At about the same time, A.M. Edwards ranked the United States population (using 1940 census data) according to their socioeconomic status, by first distinguishing between white collar/blue collar occupations, then according to education, income, and relative prestige.[18] His grouping

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[15]Ronald M. Pavalko, Sociology of Occupations and Professions (Itasca, Illinois: F.E. Peacock Publishers, Inc., 1971), pp. 132-133.

[16]Ibid., p. 133.

[17]Matras, op.cit., pp. 112-113.

[18]Matras, op.cit., p. 97.

of occupations led to the major groups used by the Bureau of the Census since 1940. Later investigations reinforced Edwards' method of ranking - the education and income of occupational incumbents have been found to correlate with the public prestige of their work and have frequently been used as indicators of status.[19]

Following the work of Edwards, and the North-Hatt study, Duncan devised a Socioeconomic Index (SEI) for 446 detailed occupational titles,[20] by measuring the relationship between North-Hatt prestige ratings and the socioeconomic (education and income) characteristics of occupations using a prediction equation.[21] Socioeconomic Index scores as a measure of occupational socioeconomic status, cannot be compared directly with prestige ratings. Instead, the scale, represented by two-digit numbers ranging from 0 to 96, is purported to be an estimate of the prestige of occupations.[22] The SEI allowed for expansion of previous methods of research - especially to the process of mobility (to be discussed later in this review of literature).

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[19]Marie R. Haug and Harold A. Widdison, "Dimensions of Occupational Prestige", Sociology of Work and Occupations, Vol. 2, No. 1, (February, 1975), p. 4.

[20]Blau and Duncan, op.cit., p. 121.

[21]Reiss, op.cit., p. 114.

[22]Blau and Duncan, op.cit., p. 120.

Although most mobility analysts today incorporate education as a research variable, Duncan utilized an average level of education attained by all individuals in an occupation in the SEI prediction equation. He reasoned that despite the apparent weighting of education, not all individuals in a given occupation have attained the same level of education.[23]

The 1947 North-Hatt study was replicated in 1963 by Hodge, Siegel, and Rossi in an effort to explore stability and change in occupational prestige during the 16 year period. The outgrowth of the replication was a third survey of occupational prestige launched in 1964 which ultimately provided a set of scores ranging from 9.3 to 81.5 for all 1960 census occupational categories.[24]

Prestige ratings have been shown to be close to invariant with respect to composition and size of the sample of raters, the form of the rating scale, the interpretation of "general standing" by raters, and the passage of time.[25] When comparing the stability of occupational prestige and occupational status over time, Nam and Powers found a lag between changes in status and

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[23]Blau and Duncan, Ibid., p. 125.

[24]Paul M. Siegel, "Prestige in the American Occupational Structure", (Unpublished doctoral dissertation, University of Chicago, 1971), Chapter II, pp. 29-30.

[25]Blau and Duncan, op.cit., p. 119.

prestige.[26] Public perceptions of the prestige of occupations apparently do not reflect changes in the income and education associated with occupations.[27] Blau and Duncan[28] state that:

> The higher order of reliability and stability evidenced by prestige ratings would command their use in problems requiring social distance scaling of the occupations pursued by a general sample of the working force, but for one fact: ratings have hitherto been available only for relatively small numbers of occupation titles.

Since the development of the SEI, prestige ratings have become available for a large number of occupational titles and therefore one might assume that studies of occupational mobility would now employ prestige scores rather than socioeconomic. However, two long standing issues remain unresolved in the study of status attainment: 1) do prestige scales and socioeconomic scales actually measure what they purport to measure, and more important, 2) are the two distinctly different.

Featherman and Hauser[29] in a recent study concluded that occupational stratification in the United States is based primarily on socioeconomic status. Occupational

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[26]Pavalko, op.cit., p. 140.

[27]Ibid.

[28]Blau and Duncan, op.cit., p. 119.

[29]David L. Featherman and Robert M. Hauser, "Prestige or Socioeconomic Scales in the Study of Occupational Achievement?", Sociological Methods and Research Vol. 4, No. 4, (May, 1976), p. 419.

prestige represents many salient occupational characteristics[30] while socioeconomic status is an objective measure of education and income which takes the "general social standing" of an occupation into account.[31] The SEI is seen by Featherman and Hauser[32] not as an estimate of occupational prestige - rather "...that prestige is an error-prone proxy for socioeconomic status . . . ." As evidence, a Featherman and Hauser comparison of SEI and prestige distributions for the major occupational categories in the United States indicated a wider range of SEI scores than prestige scores. When the scores were normalized to a common percentile metric, sample variances were more similar than in their raw form, and differences in the scales become even larger. Treiman[33] maintains that prestige mobility is one thing, and mobility among occupations classified according to education and income is another. He states further that;[34]

> We will not . . . make much progress in our understanding of the means by which advantage is transmitted from one generation to the next if we continue to construct status scales which combine, . . . in a confused way, diverse status attributes.

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[30]Ibid., p. 404.

[31]Blau and Duncan, op.cit., pp. 124-126.

[32]Featherman and Hauser, op.cit., p. 406.

[33]Treiman, op.cit., p. 201.

[34]Ibid.

Further, he asserts that if it is father's education and income we want to study, then that data should be collected separately rather than relying on a SEI score for that inference.[35] Featherman and Hauser[36] on the other hand, state that occupational prestige scores represent a ". . . congeries of salient dimensions or occupational characteristics," while SEI scores represent education and income. "Whatever it is that prestige scores scale . . . it is substantively different from socioeconomic status."[37]

Grasmick adhers to the idea that prestige scores and SEI scores are both measures of an occupational prestige structure,[38] a structure that is (at least) two-dimensional in nature - "economic return" and "value to society."[39]

Although socioeconomic status and prestige scores are not interchangeable there is a close correlation between occupational prestige and occupational socioeconomic status, and either may be indexed by a quantitative score that has convenient properties for statistical analysis and model

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[35]Ibid.

[36]Featherman and Hauser, op.cit., p. 404.

[37]Ibid., p. 405.

[38]Harold G. Grasmick, "The Occupational Prestige Structure: A Multi-dimensional Scaling Approach," The Sociological Quarterly, 17 (Winter, 1976), pp. 90-108.

[39]Ibid., pp. 100-102.

construction.[40] Featherman and Hauser conclude that the primary differences in socioeconomic status and prestige scales are substantive, and the process of stratification in the United States is socioeconomic and not prestige.[41]

Until contradictory evidence comes in, it appears that the SEI may be of more value in the study of occupational mobility than any existing prestige scale. Even though prestige scores have remained highly reliable and stable, the use of the SEI allows for greater interpretation of the obtained results in terms of what is actually measured.[42] However, Featherman and Hauser suggest at the present time, that:[43]

> One is best advised to use a scale for occupations which most accurately captures the features of occupations having force for the social process one is studying. In instances of occupational mobility . . . socioeconomic dimensions and socioeconomic scores for occupations are the more central, and therefore are preferable over prestige scores.

An additional concern remains in the measurement of occupational status and prestige. Both socioeconomic status and prestige ratings are questionable concerning their validity for measuring the occupational mobility of women, since in each case scores were computed on the

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[40]Otis Dudley Duncan, David L. Featherman and Beverly Duncan, Socioeconomic Background and Achievement (New York: Seminar Press, 1972), p. 6.

[41]Featherman and Hauser, op.cit., p. 418.

[42]Ibid., p. 405.

[43]Ibid., p. 406.

characteristics of the male labor force.[44] Treiman and Terrell[45] could not find enough information to decide definitively whether occupational status scales derived from characteristics of the male labor force are appropriate for measuring the status of women. The evidence strongly suggests however that the prestige hierarchy and the socioeconomic hierarchy are clearly invariant with respect to sex so that the occupational mobility of men and women can be compared by means of a single occupational scale.[46] It is possible among holders of a single occupation, that in true fact, one sex may be perceived as having more status or prestige in that position than the opposite sex. Using elementary and secondary school teachers and administrators for purposes of illustration, the status and prestige scores (see Table 1) within each measure vary slightly when the scores are adjusted to include women.

The pattern might lead one to conclude that women enjoy slightly higher (although perhaps not appreciably) prestige and status than men as teachers while, as school administrators, men enjoy more prestige than women although no more status.

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[44]McKee J. McClendon, "The Occupational Status Attainment Processes of Males and Females," American Sociological Review, Vol. 41 (February, 1976), p. 53.

[45]Treiman and Terrell, op.cit., p. 176.

[46]Ibid.

Table 1: SEI and Prestige Scores[47] of Elementary and Secondary School Teachers and Administrators

Position	SEI men	SEI men/women*	Prestige men	Prestige men/women
Elementary school teachers	71.2	71.4	58.9	59.2
Secondary school teachers	70.2	70.5	59.8	60.1
School administrators-elementary & secondary	71.7	71.7	61.7	61.6

*separate status and prestige scores where not available for women

The purpose of assigning status or prestige scores to occupations is to supply a quantitative measure of intergenerational occupational mobility from occupational origins to destination. In the following section we will see how the concept of mobility evolved and some purposes for researching the topic.

Intergenerational Occupational Mobility

The traditional concept of social mobility was defined by Sorokin in 1927, when he gave an account of the

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[47]Robert M. Hauser and David L. Featherman, The Process of Stratification: Trends and Analyses (New York: Academic Press, 1977), pp. 321-322.

main factors responsible for it, and classified various forms of mobility.[48] Social mobility is defined as movements of individuals (intragenerational) or families (intergenerational) between social positions, whether economic, occupational, or political.

Early analyses utilized local samples to measure intergenerational occupational mobility from father to son but since World War II, sociologists have put greater emphasis on national surveys of intergenerational occupational mobility.[49] The traditional thrust of mobility study is to define the amount and direction of occupational mobility from occupational origin (represented by father's occupation) to son's occupation, in search of patterns of mobility. Occupational origins, as measureable resources ascribed at birth and transmitted from one generation to the next, play an important role in determining the social opportunities one will experience through a lifetime. Hence, individual achievement relies to a great extent on the occupational origins of individuals.[50] It is that

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[48]Aage Bøttger Sørensen, "Models of Social Mobility," Social Science Research, Vol. 4, (1975b), pp. 66-67.

[49]Harrison C. White, Chains of Opportunity: System Models of Mobility in Organizations (Cambridge, Massachusetts: Harvard University Press, 1970), pp. 2-3.

[50]Blau and Duncan, op.cit., p. 207.

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status that establishes the overall social and financial status of the family.[51]

A distinction is made as to whether sons of an occupational origin typically experience vertical (upward or downward change in category) or horizontal (movement between jobs at the same level) mobility. Blau and Duncan[52] state that:

> The outflow of manpower from a given origin may disperse to supply many different career destinations or become concentrated to supply primarily a few. Correspondingly, the inflow of manpower into a given destination may be recruited from a wide base of different origins or largely from a narrow base of a few origins.

The results of such study yield indicators of the amount of openness in a society, and the chances an individual from a category of origin has of experiencing movement, and how far he can hope to go.[53] It is possible then to assess occupational mobility from father to son, determine the pattern of mobility experienced by the son, and come to some conclusions about the occupational structure in the United States. In the early years of mobility research,

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[51]Treiman and Terrell, op.cit., p. 177.

Joan Acker, "Women and Social Stratification: A Case of Intellectual Sexism," American Journal of Sociology, Vol. 78, No. 4, p. 937.

[52]Blau and Duncan, op.cit., p. 42.

[53]Peter Y. DeJong, Milton J. Brawer and Stanley S. Robin, "Patterns of Female Intergenerational Occupational Mobility," American Sociological Review, Vol. 36, (December, 1971), p. 1034.

the nature of our society may have been simplistic enough to make the assessment of mobility direction and distance an informative pursuit. Also, statistical and mathematical procedures were not advanced enough to allow more sophisticated analyses.

The Sorokin model for assessing sources of individual differences in the process of mobility[54] became known as the process approach. This approach (often referred to in the literature as status attainment*) to occupational mobility study is closely related but different than the traditional, in that the model decomposes the concept of occupational mobility into its major components.[55] The emphasis is on the degree to which the occupational status of a person is dependent upon that person's background characteristics and the degree to which occupational status is explained by the person's own experiences or characteristics that intervene between background and destination statuses.[56]

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[54]Sørensen, op.cit., p. 72.

[55]Blau and Duncan, op.cit., p. 195.

[56]William H. Sewell and Robert M. Hauser, Education, Occupation and Earnings (New York: Academic Press, 1975), p. 3.

*The term status attainment is used most commonly in the literature in reference to the process of intergenerational occupational mobility. However, as Sørensen explains, status attainment as a concept includes a plethora of characteristics which are rarely studied concurrently by mobility analysts.

In toto, the characteristics contributing to status attainment probably include all of the following:

1. occupational resources, e.g., education, race, and social origin
2. occupational achievement, e.g., achievement motivation, aspirations, and intelligence
3. occupational preferences, e.g., special skills and competencies
4. personal constraints, e.g., age, sex, and marital status

Of the above, "occupational resources" and "personal constraints" are most frequently analyzed in intergenerational occupational mobility studies,[57] unlike the early mobility model which measured only occupational movement from father to son.

Through the study of the process of status attainment, Sørensen[58] reports that it is possible to determine: 1) the chances an individual has for entering certain occupational levels; 2) the effect of various individual characteristics such as education; 3) mobility as a system characteristic; and 4) the study of individual variations in the distance and direction of mobility. The empiric question for such research is ". . . what if anything about socioeconomic background represents favorable or unfavorable

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[57]Sørensen, op.cit., pp. 67-68.

[58]Ibid., p. 71.

conditions for achievement, and how do these conditions exercise their influence?"[59] Instead of focusing on the relative importance of separate socioeconomic background factors, attention is on how the causes combine to produce the end result - an individual's occupational status.[60]

Until recently, the intergenerational occupational mobility of women was routinely excluded from such research efforts ". . . on the grounds that their experiences were too complicated for analysis."[61] As recently as 1972, Duncan, Featherman and Duncan[62] assume male and female mobility to be quite distinct so excluded women from their sample ". . . to make the investigation manageable." Rosenfeld[63] described the most common reasons for exclusion as problems involved in studying women's as compared to men's occupational histories, the lack of data on women's occupational movement, and the feeling that women are only marginal workers. For these reasons also, mother's education and occupation were not included as origin statuses

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[59]Duncan, Featherman and Duncan, op.cit., p. 4.

[60]Blau and Duncan, op.cit., p. 202.

[61]Treiman and Terrell, op.cit., p. 174.

[62]Duncan, Featherman and Duncan, op.cit., p. 15.

[63]Rachel Rosenfeld, "Women's Intergenerational Occupational Mobility," (University of Wisconsin-Madison: Center for Demography and Ecology, CDE Working Paper 75-28, 1975), p. 1.

in the status attainment model,[64] nor mother's occupation in the mobility model.

Since the benchmark study by Blau and Duncan, an increased number of women have moved into the labor force, which has caused a few to wonder if the patterns and processes of mobility are the same for men and women.[65] Some are beginning to recognize this exclusion of women as a serious limitation to understanding female occupational mobility, and occupational mobility over the entire labor force.[66]

The concept of intergenerational occupational mobility has broadened since Sorokin defined the main factors involved in social mobility. We have seen a move away from local samples to national surveys designed to measure the pattern of intergenerational occupational mobility. With the advancement of statistical methods and

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[64]Treiman and Terrell, op.cit., pp. 174-200.

Sewell and Hauser, op.cit., p. 5.

[65]DeJong et al., op.cit., p. 1033.

[66]Ibid.

Rosenfeld, op.cit., p. 1.

McClendon, op.cit., p. 52.

Ivan D. Chase, "A Comparison of Men's and Women's Intergenerational Mobility in the United States," American Sociological Review, Vol. 40 (August, 1975), p. 483.

Treiman and Terrell, op.cit., p. 174.

Acker, op.cit., p. 943.

sophisticated computer programs, researchers are now able to ask "why" do patterns of mobility form and "how" do the phenomena occur. The methods used to determine the patterns and processes of intergenerational mobility vary somewhat depending upon the researcher's orientation. For example, mathematicians tend more toward stochastic models of mobility while sociologists carry on empirical research leading to causal models.[67] The emphasis here is of course on the latter although the former will be drawn from occasionally.

Methods of Determining Pattern and Process

Traditional Methods of Mobility Analysis - Assessing Patterns of Mobility: Intergenerational occupational mobility study is an inquiry into the importance of occupational origins for the purpose of measuring the distance and direction of movement between an individual's occupational origins and current occupational status.[68] In the early days of mobility research, occupations were grouped into a limited number of categories,

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[67]Raymond Boudon, Mathematical Structures of Social Mobility (San Francisco: Jossey-Bass, Inc., Publishers, 1973), pp. 4-6.

[68]Blau and Duncan, op.cit., pp. 401-418.

Andrea Tyree and Judith Treas, "The Occupational and Marital Mobility of Women," American Sociological Review, Vol. 39, No. 3 (June, 1974), pp. 293-302.

whether major occupational groups or simply white collar/ blue collar, farm, or manual/nonmanual, farm, and turnover tables were constructed.[69] More recently, occupations have been ranked by some scale (either socioeconomic or prestige) and categorized by major occupational groups established by the United States Bureau of the Census.[70]

The categorized information is arranged in either a turnover table or a transition matrix, that is, a table displaying the cross-classification of father's and son's occupations,[71] with rows representing father's occupation at some specified point in the son's life and columns representing son's current occupation.[72] A turnover table represents father/son pairs in either raw numbers or in proportions obtained by dividing each value in the table by the total number in the sample population. A transition matrix differs in that all elements in the table are divided by their corresponding row totals and therefore all row totals equal one. Through tables of this type, the patterns of outflow from occupationl origin to destination are revealed.

Turnover and transition matrices of this nature only indicate the direction of mobility from origin status.

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[69]Treiman, op.cit., p. 185.

[70]Blau and Duncan, op.cit., p. 26.

[71]Boudon, op.cit., pp. 7-9.

[72]Treiman, op.cit., p. 185.

Of equal interest to most researchers is the actual distance of mobility. Distance can be assessed by examining the relative proportion of men from the same origins who end up in a certain occupation category, that is, a ratio measuring the extent to which mobility from one generation to another surpasses or falls short of chance.[73] The ratio in its simplist form can be expressed as:[74]

$$\text{Social distance mobility} = \frac{\text{observed mobility}}{\text{expected mobility}}$$

The ratio, sometimes termed the "index of association" or "social distance mobility ratio," is expressed by a value less than or greater than one, with a value of 1.0 indicating that observed mobility is equal to that expected on the assumption of statistical independence.[75]

A measure of mobility which can indicate distance and direction is the index of dissimilarity which measures how much more concentrated the destinations of individuals from a given occupational origin are than those of all persons in the sample, or what proportion from a given origin would have to change their occupation for their destination to equal that of the total population.[76]

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[73]Blau and Duncan, op.cit., p. 35.

[74]Natalie Rogoff, Recent Trends in Occupational Mobility (Glencoe, Illinois: The Free Press, 1953), p. 43.

[75]Blau and Duncan, op.cit., p. 35.

[76]Blau and Duncan, op.cit., pp. 43, 67.

Values are calculated by summing the percent differences of the same ($\pm$) sign. If father's occupation exerts no influence, and if the occupations of sons from a given origin are the same as the entire population, then the index value will be zero. If all individuals from a given origin are concentrated in a single occupation, the index will be close to 100.0.

The methods presented here have been those most commonly used by sociologists to measure the patterns of relationship between the occupational origin and destination of men in the labor force. Other procedures have been used - some being early forms of the methods reviewed here, while others have been explored for their possible theoretical value in improving upon the most common methods.[77]

Occupational Attainment Models - Assessing Patterns and Processes of Mobility: When analyzing patterns of mobility as a separate function, one is most concerned with relations among occupational groups within the occupational structure. Study of the process of mobility does not preclude analysis of distance and direction - it simply restricts pattern analysis to characteristics of individuals rather than to characteristics of

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[77]One is advised to see Boudon, op.cit., for further information.

occupational groups.[78] Within this framework pattern analysis provides a means of assessing the process of mobility, that is, the link between an individual's background characteristics and occupational destination.[79] When studying patterns and processes together, less rigorous and as we shall see shortly, probably more reliable methods are employed to study patterns of intergenerational occupational mobility. The procedure for studying patterns and processes together incorporates three basic components: 1) comparison of frequency distributions, 2) measures of association, and 3) tests of statistical significance.[80] Frequency distributions allow one to determine distance and direction of mobility for example, by scoring respondent's occupational origin, and respondent's current occupation on either a prestige or socioeconomic status scale, and substracting father's occupational status (Y) from respondent's (X).[81] The observed distance (X - Y) reveals at the same time, the direction of mobility, i.e., the remainder identifies the son as upwardly mobile (a positive value), downwardly mobile (a negative value), or immobile (a remainder of zero). Using this method,

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[78]Sørensen (1975b), op.cit., p. 71.

[79]Featherman and Hauser, op.cit., p. xx.

[80]Matras, op.cit., p. 378.

[81]Blau and Duncan, op.cit., p. 152.

one can determine which groups, e.g., sex, educational, experience similar patterns of mobility. This method provides the researcher with a useful summary statement that is free of assumptions, taking into account the actual form of a distribution in a way that measures of association do not. Blau and Duncan state that:[82]

> . . . analysis of mobility distributions along the lines set forth here is useful in checking conclusions reached by other means and possibly in expressing those conclusions in a fashion that some readers may find more interesting.

The process of attaining occupational positions and factors that influence patterns of occupational mobility are analyzed for their relationship to background characteristics.[83]

Sørensen[84] states that the most recent innovation in mobility research for determining the process of intergenerational occupational mobility is the use of regression to create causal models. This technique, path analysis, originated by Wright but adopted for use in mobility study by Duncan,[85] was used extensively by Blau and Duncan to describe and measure occupational attainment.

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[82]Ibid., p. 153.

[83]Blau and Duncan, Ibid., pp. 115-117.

[84]Sørensen, op.cit., p. 72.

[85]Otis Dudley Duncan, "Path Analysis: Sociological Examples," The American Journal of Sociology, Vol. 72, No. 1, (July, 1966), p. 2.

The model is a recursive sequence of regressive equations formulated to interpret the process of mobility as opposed to discovering the causes of that process.[86] Blau and Duncan[87] assumed a causal ordering from the temporal order of the data, i.e., that father's occupation influences respondent's education, respondent's first job and current job, respondent's education effects his first job, and so on.

Recent intergenerational occupational mobility/ status attainment literature does not show evidence of widespread use of path analysis, although the use of the correlation and regression as a method is extensive. The reasons for this, and some difficulties with other statistical methods and theoretical issues outlined here are discussed below.

Difficulties in Measuring the Pattern and Process of Mobility: Traditional analysis measures patterns of mobility without decomposing the movement between father's and son's statuses into its constituent elements, thereby hindering the understanding of how vertical circulation among the statuses is facilitated or limited by events and

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[86]Ibid., p. 1.

[87]Blau and Duncan, op.cit., pp. 168-171.

conditions in one's past and throughout the life cycle.[88] It is difficult to interpret the data and identify patterns that may exist, but more important, pattern analysis ignores the process of mobility.

Matrix data describes the proportion or number of people who were in an occupation at the time of data collection, among those who were in that occupation at a previous time. The matrix actually indicates the conditional probability of going from one state to the next.[89] An apparent difficulty is that different rates of fertility among occupational groups will lead to an over-representation of fathers of the more fertile social categories.[90] The numerical values reported in mobility tables are not comparable from one study to the next since values vary according to the number of occupational groups used for values presented in a matrix depends on the marginals, and marginal distributions differ from population to

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[88]David L. Featherman and Robert M. Hauser, "Design for a Replicate Study of Social Mobility in the United States," in Social Indicator Models, ed. Kenneth C. Land and Seymour Spilerman, (New York: Russell Sage Foundation, 1975), p. 222.

[89]Boudon, op.cit., p. 41.

[90]Ibid., p. 10.

population.[91] Tyree and Treas[92] adjusted male and female matrices to identical marginal totals to allow for comparability, but even with this procedure it was difficult to interpret what differences in cell entries actually meant.[93] In fact, reanalysis shows that Tyree and Treas overestimated differences because of interpretation difficulties.[94] Further attempts at improving the interpretability of matrices, for example Duncan's method of "simultaneous adjustment," have met with little success.[95]

Probably the greatest value of pattern analysis is intercohort comparison of data within a given sample, and to establish a framework for further analysis. Boudon[96] suggests that we consider mobility matrices as containing valid information on mobility but to interpret cautiously measures of association with the tables, or to use other methods.

Analysis of patterns does not reveal the causes or consequences of differences in the distance and direction

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[91]Natalie Rogoff Ramsøy, "Patterns of Female Intergenerational Occupational Mobility: A Comment," American Sociological Review, Vol. 38, No. 6, (December, 1973), pp. 806-807.

[92]Tyree and Treas, op.cit., p. 295.

[93]Chase, op.cit., p. 485.

[94]Hauser and Featherman, op.cit., p. 193.

[95]Sørensen, op.cit., p. 81

[96]Boudon, op.cit., p. 11.

of mobility, nor tell us how advantage or disadvantage is transmitted from one generation to the next.[97] Boudon[98] states that:

> Empirical research in the field of mobility has been overwhelmingly oriented towards a description rather than an explanation of the mobility processes. . . . the most interesting problem . . . is to know how and why they [people] are different rather than to know to what extent they are different.

The attainment model focuses on the degree to which the status of the son depends upon the statuses of the father, and on variables that intervene between origin and destination to explain the paternal effect on offsprings' achievement.[99] The most common procedures for determining the process of intergenerational occupational mobility, that is, the relationships and the effects of those relationships among the variables, are the correlation and regression techniques.

The classical scientific research design calls for measurement of a characteristic of interest (dependent variable) on similar subjects, the manipulation of characteristics (independent variables) on one group of subjects, and remeasurement of the dependent variable on both groups. The differences between manipulated and nonmanipulated subjects may allow one to predict the causal effects of

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[97]Blau and Duncan, op.cit., p. 152.

[98]Boudon, op.cit., p. 140.

[99]Featherman and Hauser (1975), op.cit., p. 222.

the independent variables. It cannot be assumed that a variable which is found to be a predictor of a phenomena is a causer, although the idea of causation implies that it is possible to predict an outcome.[100] Nor is it possible to determine the causal order of variables, i.e., whether X causes Y or Y causes X, from this method of analysis.[101] Often, variables other than those under consideration are responsible for the observed association.[102] McNeil, Kelly and McNeil[103] state that:

> . . .only a tight logical analysis can tease out the causative variables. Manipulation of the proposed causative variables is a necessary step in determination of causality.

In the social sciences, and in particular, in mobility research it is difficult to identify manipulatable characteristics of individuals. Human behavior is so complex that the effect on one variable may interact with another variable.[104] Sonquist reports that interaction appears with such regularity in sociological research that

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[100]Keith A. McNeil, Francis J. Kelly and Judy T. McNeil, Testing Research Hypotheses Using Multiple Linear Regression (Carbondale, Illinois: Southern Illinois University Press, 1975), p. 453.

[101]Gene V. Glass and Julian C. Stanley, Statistical Methods in Education and Psychology (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970), p. 121.

[102]Ibid.

[103]McNeil, Kelly and McNeil, op.cit., p. 315.

[104]McNeil, Kelly and McNeil, Ibid., pp. 9-10.

nonlinearity and interaction of the data seems to be the rule, while additivity and linearity seem to be the exception.[105]

Regression analysis assumes that the underlying relationships among the variables are linear and additive in the absence of interaction. This implies that each bivariate relationship between the dependent variables and the independent variables is linear and that the combined effects of the independent variables are additive.[106] In the social sciences we cannot make these assumptions. For example, it seems unlikely that the relationship between marital status and number of years in the labor force would be the same for men and women. Certain factors may interact with gender to produce varied results. In such cases, the usual multiple regression equation would yield inaccurate estimates of the dependent variable.[107] Before investigating the main effects of the variables, one should test for interaction. McNeil, Kelly and McNeil[108] state however that:

> The discovery of interaction should not be treated as a negative finding, but as an important finding in and of itself.

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[105]John A. Sonquist, Multivariate Model Building: The Validation of a Search Strategy (Ann Arbor, Michigan: Institute for Social Research, 1970), p. 30.

[106]Norman H. Nie and others, Statistical Package for the Social Sciences (New York: McGraw-Hill Book Company, 1970), p. 368.

[107]Nie et al., Ibid., p. 373.

[108]McNeil, Kelly and McNeil, op.cit., p. 391.

To avoid merely describing patterns of mobility and determining statistical differences between groups, and to enable consideration of several mobility determinants simultaneously, Blau and Duncan[109] assumed linearity and additivity in order to use regression and construct a causal model of mobility. Blau and Duncan admit the possibility of interaction effects but they are not sensitive to them ". . . on the supposition that interactions could be neglected when they were not explicit in the formulation of the classificatory [ordinal] variables themselves."[110] To the issue of statistical violation Blau and Duncan[111] state that:

> With some techniques we clearly go well beyond the point where the requisite assumptions can be at all rigorously justified. This venture, however, will--to the extent possible--be counterpoised by alternative treatments of the same data, avoiding at least some of the questionable assumptions.

Causal analysis is probably the easiest way to introduce a sufficient number of intervening variables to explain the mobility process.[112] However, at best we see a model based upon the somewhat "idealized assumption" of temporal order

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[109]Blau and Duncan, op.cit., pp. 116, 143.

[110]Ibid., p. 132.

[111]Ibid., pp. 116-117.

[112]Boudon, op.cit., p. 74.

from father's occupation and education (when son was 16 years of age), to son's education, to son's first job, to son's 1962 occupation.[113] In retrospect, it was not clear to Blau and Duncan if respondent's had finished their attained level of education prior to first job, or if education had intervened between first job and 1962 occupation.[114] To this degree the temporal order of the model confuses even the developers of the model. At best, what we probably see is a quasi-causal model based on what may be felonious assumptions.

Despite the statistical violations, Duncan stated that regression analysis is a straightforward and effective method of measuring the dependence of son's status upon his level of origin,[115] and that path analysis makes the rationale for a set of regressions explicit.[116] However, instead of demonstrating causality through a path diagram, a researcher may create a spurious model that demonstrates his own preconceived ideas rather than an actual

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[113]Blau and Duncan, op.cit., pp. 166-168.

[114]Ibid., p. 166.

[115]Otis Dudley Duncan, "Methodological Issues in the Analysis of Social Mobility," in Social Structure and Mobility in Economic Development, ed. Neil J. Smelser and Seymour Martin Lipset, (Chicago: Aldine Publishing Company, 1966), p. 96.

[116]Ibid., p. 7.

representation of reality. Nie et al.[117] state that:

> Path . . . is a method for tracing out the implications of a set of causal assumptions which the researcher is willing to impose upon a system of relationships. . . the incorporation of ambiguous assumptions in a model leads to ambiguities in interpretation of results.

When a researcher decides to demonstrate causality in the variables, he needs to clearly establish causal relationships a priori. Since the benchmark study by Blau and Duncan, mobility researchers have assumed a causal effect of background factors on occupational attainment based on the temporal ordering of these factors.[118] However, serious objection to these methods have been raised. For example, Boudon[119] states:

> When dealing with intergenerational mobility . . . perhaps the crucial problem here is to develop, so to speak, a systems analysis approach, i.e., to construct a formal theory including the intervening variables, the interaction of which is essential to the explanation of the mobility processes . . . . Up until now, studies in social mobility have been confronted with a difficult dilemma. Either the models include a sufficient number of intervening variables, but use general statistical instruments, the syntax of which is necessarily poor (for instance, the syntax of causal analysis where the only possible type of statement has the form: the variable X has an influence on the variable Y), or they use more sophisticated mathematical models but exclude a number of intervening variables which are essential for the explanation of the mobility processes.

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[117]Nie, et al., op.cit., p. 387.

[118]Matras, op.cit., p. 386.

[119]Boudon, op.cit., pp. 74-75.

According to Blalock[120] social scientists should integrate nonadditive and/or nonlinear models with causal models which, thus far, have been confined to linear additive models.

In the case of the elementary school principal we do not yet know what factors are causers or even predictors of the pattern and process of intergenerational occupational mobility among holders of that position.

Considering the nature of the questions posed for this study and the violation of statistical assumptions required to use the standard measures in mobility analysis, alternative methods were sought for this study.

Mobility Variables

Since regression was introduced as a means of assessing the patterns and processes of intergenerational occupational mobility the dependent variable changed from the distance between father's and son's occupational levels, to the occupational level attained by the son.[121] According

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[120]H. M. Blalock, "Indirect Measurement in Social Science: Some Nonadditive Models," in Quantative Sociology: International Perspectives on Mathematical and Statistical Modeling, ed. H.M. Blalock and others, (New York: Academic Press, Inc., 1975), pp. 377, 368.

[121]Sørensen (1975b), op.cit., p. 72.

to Duncan and Hodge[122] this was made feasible by the development of an objective measure of mobility, that is, the Socioeconomic Index. However, the SEI lacks the properties of a true interval scale, which is a requisite for the dependent variable in the regression equation. Duncan and Hodge[123] reason that despite its shortcomings, the SEI is a more appropriate measure of mobility than classification in the heterogeneous major occupational groups used in the past. Two limitations of the SEI were identified by Duncan and Hodge. First, is the difficulty of measuring non-farm and farm occupations on the same scale, and second, it is necessary to ignore variations in the time and places occupations were pursued. On the first point they recommend that:

> Users . . . hold these [farm] values suspect and to confine the main part of the analysis to men with non-farm origins.

On the second issue we are advised to ignore "spatio-temporal" differences in occupational status.

Most mobility variables are scaled on an ordinal rather than interval level. However, within each category of ordinal variables Blau and Duncan assume a linear

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[122]Otis Dudley Duncan and Robert W. Hodge, "Education and Occupational Mobility: A Regression Analysis," The American Journal of Sociology, Vol. 68, No. 6, (May, 1963), p. 644.

[123]Ibid., p. 631.

relationship between the dependent and independent variables. They state that ". . . the assumption of linearity is usually close enough to the truth, where we require it, to make regression worthwhile."[124] Duncan[125] states further that:

> If one must perforce consider a variable for which only ordinal measurement can be claimed, what damage is done in assigning numbers to the various grades of that scale and henceforth manipulating those numbers as if they arose from measurements on an interval scale? In college, for example, instructors grade students on the ordinal scale, A, B, C, D, F, and the registrars assign to these grades the numbers 4, 3, 2, 1, 0, respectively, in order to compute the "grade-point average." Clearly, such assignments are arbitrary. One might equally well use the numbers 16, 9, 4, 1, 0 in computing grade-point averages, unless, through convention or habituation, students and faculty come to feel that the difference between an A and a B is equal to the difference between a C and a D, and so on.

Little notice is taken of causal factors in the traditional model of mobility; in fact, the only variable of interest is generally occupation. The causal model originated by Blau and Duncan includes background characteristics, e.g., father's occupation and education, and intervening variables, e.g., size of community during youth, presence of parents, all peculiar to a respondent.[126]

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[124]Blau and Duncan, op.cit., p. 146.

[125]Otis Dudley Duncan, Introduction to Structural Equation Models (New York: Academic Press, 1975), p. 159.

[126]Blau and Duncan, op.cit., p. 197.

Of the causal model Duncan, Featherman and Duncan state that:[127]

> . . . one of the attractive features of the type of model investigated here is that it makes explicit both the direct and the indirect effects of causal variables on dependent variables and allows for the possibility that one variable may be 'dependent' with respect to its antecedents in a causal scheme but 'causal' with respect to subsequent variables.

It should be noted that causal variables whether background characteristics or intervening variables, differ to some extent depending on the emphasis of the researcher. For example, Treiman and Terrell, credited with the first attempt at comparing the status attainment processes of men and women, added mother's education and occupation (when available), race and sex as background characteristics.[128] In a separate analysis on employed women and their husbands, they included hours worked per year, number and age of children, and percent of years worked as intervening and outcome variables. McClendon's[129] basic model of the status attainment processes of men and women consisted of father's occupation and education, and mother's education as origin factors in combination with number of siblings, and respondent's age to formulate the socioeconomic

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[127]Duncan, Featherman and Duncan, op.cit., p. 23.

[128]Treiman and Terrell, op.cit., p. 181.

[129]McClendon, op.cit., p. 56.

background factors. Generally age has not been considered a background status but McClendon[130] reasoned that older workers would have lower levels of education than younger workers, more years in the labor force, and therefore age should be considered a background variable. An extended model for women incorporated marital status, number of children, and full time vs. part time worker as intervening factors.[131]

Although Rosenfeld[132] studied only the intergenerational occupational mobility of women, and therefore did not include parental education as a variable, she found that both father's and mother's occupations are significant dimensions of women's occupational mobility. Rosenfeld[133] suggests that women's occupational mobility cannot be studied exactly as men's and ". . . in particular, that in studying women's intergenerational occupational mobility, mother's occupation should be considered as an origin status." Rosenfeld[134] states further that:

> . . . with respect to both men and women . . . when the mother works outside the home, father's occupation alone is not a sufficient indicator of social position of the family. Within any family

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[130]Ibid.

[131]Ibid., p. 61.

[132]Rosenfeld, op.cit., p. 17.

[133]Ibid., p. 2.

[134]Ibid., p. 3.

> the father and mother may differ in social position as represented by occupation.
>
> Occupations of both the mother and father, then, might be needed to reflect the family's general social standing and life style and to indicate the occupation - relevant benefits provided by it to the next generation.

Falk and Cosby[135] studied the process of status attainment and identified mother's and father's education and occupation as two of the more critical contingencies affecting the occupational choice and status attainment of women. Treiman and Terrell[136] in their pioneering study of status attainment determined that it is no longer tenable to assume that the social status of married women is determined by that of their husbands. Treiman and Terrell[137] state that:

> The fact of the matter is that we do not yet know how the process of status attainment operates for women, especially in comparison with men, because there has been virtually no systematic work on the topic to date. . . .

New approaches are needed for further research on the patterns and processes of female intergenerational occupational mobility.[138]

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[135]William W. Falk and Arthur B. Cosby, "Women and the Status Attainment Process: A Working Paper," A paper presented at the Annual Meeting of the Rural Sociological Society (Montreal, Quebec, August, 1974), ERIC abstract ED097237.

[136]Treiman and Terrell, op.cit., pp. 174, 176.

[137]Ibid., p. 174.

[138]Falk and Cosby, op.cit.

It has been demonstrated that research variables in studies of the patterns and processes of intergenerational occupational mobility vary somewhat through the literature. What follows are the background characteristic variables and intervening variables identified for the present study of the patterns and processes of mobility for elementary school principals. Although the studies cited* below may not have used the precise verbage found here, the intent of the variables was the same. The variables are as follows:

1. Mother's occupational category[139]
2. Father's occupational category[140]
3. Mother's attained level of education[141]

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[139]Treiman and Terrell (1975), op.cit., p. 179.

Rosenfeld, op.cit., p. 18.

[140]Blau and Duncan, op.cit., p. 446.

Chase, op.cit., p. 491.

Betz, op.cit., p. 4.

[141]Treiman and Terrell (1975), op.cit., p. 179.

McClendon (1976), op.cit., p. 56.

*A citation under either background or intervening variables should not be taken to mean that the noted author used that variable as that category of variables.

4. Father's attained level of education[142]
5. Sex of respondent[143]
6. Respondent's age[144]
7. Parent/parents respondent resided with at age 16[145]

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[142]Featherman and Hauser (1976), op.cit., p. 419.

Treiman and Terrell (1975), op.cit., p. 179.

Duncan, Featherman and Duncan, op.cit., p. 39.

Blau and Duncan, op.cit., p. 449.

McClendon (1976), op.cit., p. 56.

[143]DeJong, Brawer and Robin, op.cit., p. 1039.

Tyree and Treas, op.cit., p. 297.

McClendon (1976), op.cit., p. 56.

Treiman and Terrell (1975), op.cit., p. 179.

[144]Duncan and Hodge, op.cit., p. 663.

Rogoff, op.cit., p. 19.

Rosenfeld, op.cit., p. 18.

Duncan, Featherman and Duncan, op.cit., p. 17.

Blau and Duncan, op.cit., p. 178.

Betz, op.cit., p. 5.

NEA Research Division, Elementary School Principalship in 1968 (Washington, D.C.: National Education Association, Department of Elementary School Principals', 1968), p. 10.

McClendon (1976), op.cit., p. 56.

[145]Blau and Duncan, op.cit., p. 447.

8. Number of siblings and sibling placement[146]

Intervening variables

9. Current marital status[147]

10. Children (yes/no)[148]

11. Number of children[149]

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[146]Duncan, Featherman and Duncan, op.cit., p. 39.

Blau and Duncan, op.cit., p. 446.

Christopher Jencks and others, Inequality: A Reassessment of the Effect of Family and Schooling in America (New York: Harper & Row, Publishers, 1972), p. 321.

McClendon (1976), op.cit., p. 56.

[147]Chase, op.cit., p. 491.

Treiman and Terrell (1975), op.cit., p. 187.

Duncan, Featherman and Duncan, op.cit., p. 13.

Blau and Duncan, op.cit., p. 448.

NEA 1968, op.cit., p. 12.

McClendon (1976), op.cit., p. 62.

[148]Duncan, Featherman and Duncan, op.cit., p. 13.

[149]Treiman and Terrell (1975), op.cit., p. 187.

Duncan, Featherman and Duncan, op.cit., p. 13.

Blau and Duncan, op.cit., p. 382.

Wendy Carolyn Wolf, Occupational Attainments of Married Women: Do Career Contingencies Matter? (University of Wisconsin-Madison: Center for Demography and Ecology, CDE Working Paper 76-3, 1976), p. 27.

Janet McIntosh, "Differences Between Women Teachers Who Do and Who Do Not Seek Promotion", The Journal of Educational Administration, Vol. 12, No. 2, (October, 1974), p. 34.

12. Age of youngest child[150]

13. Teacher (yes/no)[151]

14. Number of years a teacher[152]

15. Highest earned degree at first principalship

16. Size community of employ[153]

The background characteristics and intervening variables identified for the present study were elaborated upon in Chapter 3. By careful examination of the variables stated above, it may be possible to determine patterns and processes of intergenerational occupational mobility among elementary school principals in the middle United States.

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[150]Treiman and Terrell (1975), op.cit., p. 195.

Wolf, op.cit., p. 26.

[151]NEA 1968, op.cit., p. 13.

Betz, op.cit., p. 4.

[152]NEA 1968, op.cit., p. 20.

[153]NEA 1968, op.cit., p. 91.

Some Characteristics of Elementary School Principals

This review of the literature has shown that until very recently most research on intergenerational occupational mobility of the United States labor force has concentrated on the male worker, rather than studying the entire labor force or comparing men and women. In studies of the elementary school principalship conducted since 1952, there has been a tendency to compare the characteristics and capabilities of the male and female.[154] We do not find comprehensive studies of the patterns and processes of intergenerational occupational mobility among elementary school principals however. In fact, little is known of the background characteristics and intergenerational occupational mobility of public school administrators.[155]

One study surfaces from the literature in this respect. Gross and Trask[156] conducted a national cross-section survey during the 1960-1961 school year of 189 elementary school principals in 41 large city school

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[154]Joan D. Meskin, "The Performance of Women School Administrators - A Review of the Literature," Administrator's Notebook, Midwest Administration Center, The University of Chicago, Vol. 23, No. 1, 1974, p. 1.

[155]Neal Gross and Anne E. Trask, Sex Factor and the Management of Schools, (New York: John Wiley & Sons, 1976), p. 20.

[156]Ibid., p. 12.

systems. Although background characteristics constituted only a small portion of their inquiry, Gross and Trask[157] indicated that factors operating early in an elementary school principals' life cycle may effect occupational performance, the functioning and productivity with their organization, and their orientations and responses to work.

Within the past ten years, there appears to be only one published national survey of characteristics of elementary school principals.[158] Although not a mobility study it was significant to the conception of the present study. It was estimated that between 45,000 and 50,000 persons in the United States held positions where they exercised the basic functions of the elementary school principalship.[159] During the 1976-1977 school year approximately 25,000 of those elementary school principals were members of the National Association of Elementary School Principals (NAESP), and about 6800 performed their principalship duties in the middle United States.[160] The NEA found that in 1968, 77.6 percent of the elementary school

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[157]Ibid., pp. 20-21.

[158]NEA 1968, op.cit.

[159]Ibid., p. 6.

[160]Edward Keller, Telephone communication, Deputy Executive Director, National Association of Elementary School Principals, May 25, 1976.

principals in their sample were men.[161] By 1972-1973 the percent male elementary school principals increased to 80.4.[162]

For reporting purposes in this section of the literature review, gender will be used as a predictor variable due to the disparity in numbers of men and women in the elementary school principalship, and because it is an independent variable in the proposed analysis. Gross and Trask[164] found that a substantial proportion of urban elementary principals had experienced upward occupational mobility but that a larger proportion of men achieved higher status through the principalship than women, i.e., the father's of female principals display a slightly higher occupational distribution than father's of urban male elementary school principals. In addition, these same men stated "upward mobility" more often than women as a reason for deciding to become a principal.[164] Comparison of age cohorts reveals only two departures from the above - more women between the ages of 46 and 55 than men had father's in blue-collar jobs, and in the 25 to 45 age group more women were from farm origins. Betz[165] in a study of the

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[162]HEW, The Condition of Education (Washington D.C.: National Center for Education Statistics, Education Division, 1975), p. 173.

[163]Gross and Trask, op.cit., p. 25.

[164]Gross and Trask, op.cit., p. 75.

[165]Betz, op.cit., p. 6.

rate of intergenerational mobility of public school teachers during the 1960-1961 school year concluded that while white-collar origins (measured by father's occupation) were over-represented in all age groups, there were proportionately more female school teachers from white-collar origins, and more men from blue-collar origins in the public schools.

Occupational inheritance was higher among women than men from mother's occupation - nearly one-half of the employed mothers of urban female principals were teachers while one-fourth of the employed mothers of urban male principals were teachers.[166] In a Canadian study of female elementary school teachers, McIntosh[167] found that of those women who had applied for promotion, 42.9 percent had working mothers while only 28.2 percent not applying for promotion had working mothers. Working mothers of teachers who had applied for promotion tended to be employed in semi-professional or managerial occupations (53.3%). White found that among female teachers having had a working mother was associated with a high commitment to the profession.[168]

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[166]Gross and Trask, op.cit., p. 27.

[167]McIntosh, op.cit., p. 31.

[168]K. White, cited in "Parental Influences on Women's Career Development," Janet Sorensen and Carol Jean Winters, p. 39, in Emerging Women: Career Analysis and Outlook, ed. Samuel H. Osipow, (Columbus, Ohio: Charles E. Merrill Publishing Company, 1975).

The level of education completed by the fathers of urban female principals was higher than that obtained by the fathers of male principals but there were no sex differences in the level of education attained by their mothers.[169]

Female elementary school principals are clearly older than their male counterparts. The median age of male elementary school principals in 1968 was 43 years compared to 56 years of age for women.[170] In fact, 70.9 percent of these male principals were under the age of 50, while 76.5 percent of the women were over 50 years of age. The same condition is seen for age at first principalship. Over half (58%) of all urban female elementary school principals were over 40 years of age at their first principalship while 67 percent of all urban male elementary school principals were 40 years of age or less.[171] Despite these differences the median number of years total experience does not vary significantly between men and women.[172]

Nearly 66 percent of all elementary school principals in the middle United States held the position of

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[169]Gross and Trask, op.cit., p. 29.

[170]NEA 1968, op.cit., p. 10.

[171]Gross and Trask, op.cit., p. 51.

[172]Ibid., p. 52 and NEA, p. 21.

elementary classroom teacher just prior to their first elementary principalship.[173] It is not uncommon for an elementary school principal to have as many as nineteen years experience as an elementary teacher prior to first principalship.[174] Men in the principalship have fewer mean years in the classroom however than women. The mean years of teaching experience among women in urban principals was 15.9 years compared with 9.2 years for men.[175] Nationally, women average 15 years as classroom teachers - a full ten years more than men.[176]

Elementary school principals tend to be a highly educated occupational group. The majority hold at least a master's degree with only slight variation with respect to gender, or geographical location.[177] Principals in the middle United States found the highest rate of master's degrees of all four sections of the country - 84.1 percent of all elementary school principals sampled had a master's degree. In the middle United States 6.1 percent had a six year degree and 1.6 percent had a doctor's. It may be interesting to note that although a reported 70 percent of

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[173]NEA 1968, op.cit., p. 13.

[174]Ibid., p. 20.

[175]Gross and Trask, op.cit., p. 45.

[176]NEA 1968, op.cit., p. 20.

[177]Gross and Trask, op.cit., p. 52. and NEA 1968, op.cit., p. 21.

all doctorates in education are granted to men,[178] among elementary school principals in the United States, nearly equal numbers of men and women had that degree in 1968.[179]

The notion that women earn less money for equal work in the labor force has been well documented elsewhere. Featherman and Hauser[180] conclude that women earn proportionately less for equal work and equal occupations. This phenomenon may not hold true however in the case of elementary school principals. The median salary of female principals ($11,000) was slightly higher in 1968 than for male principals ($10,100). This may be due to the concentration of female elementary school principals in urban schools which tend to offer higher salaries than rural systems.[181] A recent salary survey shows that the national mean salary of elementary school principals has risen to

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[178]NEA 1968, op.cit., p. 24.

[179]Patricia Cayo Sexton, Women in Education (Bloomington, Indiana: Phi Delta Kappa Educational Foundation, 1976), p. 79.

[180]David L. Featherman and Robert M. Hauser, "Sexual Inequalities and Socioeconomic Achievement in the U.S., 1962-1973," American Sociological Review, Vol. 41, (June, 1976), p. 129.

[181]NEA 1968, op.cit., p. 129.

$22,132.[182] For their salaries, the majority of elementary school principals work between ten and eleven months.[183]

The majority of the women (63%) in the urban sample were never married with only 37 percent currently or ever married.[184] Men on the other hand displayed an overwhelming tendency to be married (92%) with only 5 percent never married.

We do not know, especially when speaking of elementary school principals, whether the variables included in current studies are causal effects or simply correlates of occupational status. It seems worth exploring this dilemma before assuming we know the causers by analyzing variables which may be predictors of the process of intergenerational occupational mobility to the elementary school principalship. In essence, what is required is an interactive model to explain similarities and/or differences in the distance and direction of intergenerational occupational mobility, via the observed processes of mobility. A technique has been identified which may allow the development of such a model.

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[182]William L. Pharis and Edward P. Keller, "Bucks, Benefits, and Bargaining: The BIG Picture," The National Elementary Principal, Vol. 57, No. 3, (March, 1978), p. 25.

[183]NEA 1968, op.cit., p. 39.

[184]Gross and Trask, op.cit., p. 23.

The Automatic Interaction Detector

The Automatic Interaction Detector (AID) is a computer program developed ". . . in rebellion against the restrictive assumptions of conventional multivariate techniques and the cumbersome inconvenience of ransacking sets of data in other ways. . . ."[185] Reichardt and Schmeikal[186] report that the AID method allows a researcher to "look beneath the surface of data" in order to expose social processes; with conventional statistical methods, we observe only the end-product of those processes. The AID procedure is appropriate when the problem in data analysis ". . . is to determine which of the variables are related to the phenomenon in question (through what conditions and through what intervening processes) but may not necessarily involve the exact testing of specific hypotheses."[187]

The AID is a special regression method which uses the basic principles of analysis of variance[188] - examining

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[185]John A. Sonquist, Elizabeth Lauh Baker and James N. Morgan, Searching for Structure (Ann Arbor, Michigan: Institute for Social Research, 1970), p. vii.

[186]Robert Reichardt and B. Schmeikal, "Theoretical Considerations and Simulation Models Related to the Model of Sonquist and Morgan," pp. 451-465, in Blalock, op.cit., p. 465.

[187]Sonquist, Baker and Morgan, op.cit., p. 1.

[188]G. Bonelli, "Tree-Analysis -- The Method by Sonquist and Morgan," pp. 465-472, in Blalock, op.cit., pp. 465-466.

a full data set using repeated one-way ANOVA, in search of predictors that account for variance in the dependent variable.[189] The AID algorithm performs a series of binary splits by locating and partitioning the predictor which reduces the variance of the dependent variable the most - continuing to less and less stable predictors on smaller and smaller mutually exclusive subgroups.[190] Each split of an initial group will produce greater homogeneity within each subgroup. At the same time a split produces two mutually heterogeneous groups. The basic question according to Sonquist, Baker and Morgan[191] is as follows:

> . . . what dichotomous split on which single predictor variable will give us a maximum improvement in our ability to predict values of the dependent variable?

Certain conditions must be applied to the data and data analysis to enable accurate interpretation of the program output. First, it is assumed that the continuous dependent variable has few if any extreme cases, although should they occur, the program has provision to handle them. Predictor variables may be a combination of independent variables and intervening variables but should be single

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[189]Sonquist, Baker and Morgan, op.cit., pp. 1-15.

[190]Sonquist, Baker and Morgan, op.cit., pp. 2, 16.

[191]Ibid., p. 2.

dimension classifications, scaled as nominal and/or ordinal.[192] The AID algorithm uses degrees of freedom very quickly and therefore it is necessary to use samples of 500[193] to 1000.[194]

The amount of variance which must be explained by a split should be some prestated fraction of the original variance around the variables mean. Sonquist, Baker and Morgan[195] indicate this fraction is often .006 or 0.6 percent, while Bonelli[196] states that for a partition to supply additional explanation the fraction should be greater than one to two percent. Bonelli also specifies that the variance of any given subgroups should be greater than one to two percent of the original variance, otherwise the subgroup and its parent are fairly homogeneous. It is also advisable to set a minimum number of cases allowable within each subgroup to keep the standard error at a minimum. Sonquist, Baker and Morgan[197] suggest setting this number

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[192]Ibid.

[193]B. Bolton, Personal communication, June 18, 1963 [sic] , in "A Methodology for the Development of Empirically Based Differential Service Patterns for Clients in Rehabilitation Facilities," Jerome R. Lorenz, (Doctor's dissertation, University of Wisconsin-Madison, 1973), Dissertation Abstract International, 34 (10), 5171B, (University Microfilm No. 74-3533), p. 50.

[194]Sonquist, Baker and Morgan, op.cit., p. 3.

[195]Sonquist, Baker and Morgan, op.cit., p. 16.

[196]Bonelli, op.cit., p. 471.

[197]Sonquist, Baker and Morgan, op.cit., p. 16.

at twenty-five while Bonelli[198] indicates ten to twenty. One might also limit the total number of possible splits to avoid generating so many subgroups that interpretation becomes difficult.[199] It is not necessary to use each of the three safeguards, yet one or more should be employed.[200] When any one or a combination of the above criterion have been reached the partitioning process "automatically" ceases for that subgroup.

A unique feature of the AID is that variables are not described in relation to something else, hence one has a set of subgroups whose characteristics are clearly defined by the dependent variable through simple statistics (mean, standard deviation).[201]

The results of the AID are displayed pictorially in a tree structure which make the variable splits (the interactive properties of the independent variables) and the interpretation of processes explicit.[202] The predicted value of the dependent variable for any individual is the mean of his final group. The configuration of the output

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[198]Bonelli, op.cit., p. 471.

[199]Sonquist, Baker and Morgan, op.cit., p. 17.
Bonelli, op.cit., p. 471.

[200]Sonquist, Baker and Morgan, op.cit., pp. 16-17.

[201]Ibid., p. 2.

[202]Reichardt and Schmeikal, op.cit., p. 451.

tree can assist the analyst in data interpretation, i.e., whether the predictors are additive or interactive.[203]

The researcher has the flexibility to prespecify ways in which the data are handled. By rank ordering the sequence of various types of independent variables, the researcher is able to determine linearity or non-linearity.[204] For example, Sonquist, Baker and Morgan[205] state that:

> One can introduce a set of basic background factors, remove their influence by calculating for each individual his deviation from the average of the final group to which he belongs, reassemble the full data set and analyze these residuals using another set of predictors. Since this process assumes no interaction between stages, one may want to introduce some of the initial predictors at the second stage.

Of import to any analysis is the issue of consistent or stable results, given similar data. Sonquist[206] suggests several methods for examining the stability of an AID analysis, i.e., reviewing the explanation power of the variables and the tree structure, and the shapes of the effects of the predictor in various parts of the tree. The researcher can examine the total amount of variance explained by the tree structure; examine the amount of

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[203]Sonquist, Baker and Morgan, op.cit., pp. 49-50.

[204]Ibid., p. 46.

[205]Ibid., p. 19.

[206]Sonquist, op.cit., pp. 87-89.

variation explained by each split; review the ordering of the splits; or examine the composition of the final groups. A researcher would probably use more than one of the above techniques to compare two samples since although the order of the splits may vary for two samples, the final groups may still prove them similar. Sonquist[207] also suggests exact replication of the analysis by dividing the sample in half from the onset or, the most stringent test, cross-validation. The cross-validation can be accomplished by selecting a random sample of the full sample and retaining it for later use - at which time the cross-validation sample is forced to reproduce the AID splits obtained in the study sample.[208] Sonquist did not provide a method for comparing the results of the sample other than visual examination. Lorenz[209] therefore proposed placing a confidence interval around the population mean (derived from sample means with a pooled estimate of the variance) in order to be more confident of: 1) the reliability of the original AID results, and 2) to enable the researcher to predict variables significant to the outcome in question.

Although this writer finds no instance of this algorithms use for study of intergenerational occupational mobility, the AID has been used within the field of

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[207]Ibid., p. 90.

[208]Lorenz, op.cit., pp. 70-71.

[209]Ibid., pp. 71-72.

rehabilitation to assess patterns of client characteristics to predict client outcomes, e.g., job placement.[210] Lorenz[211] concludes that the AID has potential for problem finding and hypothesis generating because it enables the researcher to construct, in a systematic way, inductive models based on sample data.

Summary

The variables relevant to this study were identified from an extensive review of sociological literature pertaining to the social origins and intergenerational occupational mobility of the United States labor force, and from the intervening and background characteristics of elementary school principals. This literature review established that few studies of the United States labor force have included gender as a stratifying variable. In addition, the typical study views broad occupational categories rather than individuals within specific roles. It was concluded that by studying a single occupation, it could be determined if incumbents experience similar patterns and processes of intergenerational occupational mobility to that position.

For the purposes of this study it was assumed that the background and intervening characteristics of both

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[210]Ibid., p. 9.

[211]Ibid., pp. 121-123.

male and female elementary school principals could be examined vis-a-vis a similar set of variables, but that methods of data analysis should be sufficiently flexible to allow for differences to surface, should they exist. An algorithm was identified that exhibits such flexibility. This, and other procedures will be expanded upon in Chapter 3.

Chapter 3

METHODOLOGY

The Sample and Data Collection

The sample consisted of 697 elementary school principals in the middle United States who were members of the National Association of Elementary School Principals (NAESP) during the 1976-77 school year. During that school year, approximately 6800 NAESP members performed as elementary school principals in the middle United States. The sample was identified from a NAESP membership list (listed alphabetically by zip code) maintained on computer. Since that computer was not programmed to select subjects by simple random sampling techniques, a modification known as systematic selection[1] was employed to identify a representative sample of the population. It was determined that a representative sample* of elementary school principals in

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[1]Donald P. Warwick and Charles A. Lininger, The Sample Survey: Theory and Practice (New York: McGraw-Hill Book Company, 1975), pp. 101-103.

*The formula was: $$n = \frac{Z^2}{4E^2 + \frac{Z^2}{N}}$$

where: N = total population = 6800
Z = 2.58, α = .01
E = error term = .05
n = representative sample size

the middle United States would contain at least 606* respondents. The NAESP sells membership mailing labels in lots of 1000--therefore, a membership list equal to or just under 1000 was requested. Following a random start, every seventh unit on the middle United States membership list was identified for the sample. The result was 977 computer printed labels.

A survey instrument (see Appendix B) was mailed during June, 1977, to 977 elementary school principals who were 1976-77 members of the NAESP in the middle United States. A follow-up postcard (see Appendix C) was mailed the following September to non-respondents. Of the original sampling frame, 14 surveys were returned "address unknown" which left 963 possible respondents. Responding in some way to the survey were 829 individuals (84.85%)--of which 78 indicated they were not elementary school principals**, 40 stated that they preferred not to respond. The number who were not heard from was 148. Therefore, the adjusted

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*Formula obtained from Maryellen McSweeney, Class Lecture, Education 967, Advanced Research Methods in Education, Michigan State University, East Lansing, Spring, 1976.

**Those members of the NAESP who were not elementary school principals were retired, deceased, or had job titles such as media specialist, university professor, superintendent of schools, junior high school principal, or teacher.

sample size was determined to be 963 less the non-elementary school principals or N = 885. In total, 583 instruments were returned on the first mailing and 114 on the second, yielding n = 697 or 78.76 percent of the adjusted sample size; 71.34 percent of the original mail out.

Instrumentation

The Survey of Elementary School Principals (see Appendix B) was developed in absence of a pre-existing instrument for collecting data pertinent to the measurement of patterns and processes of intergenerational occupational mobility among elementary school principals. This section explains the development of that research instrument, and defines the variables of the present study.

Development of the Instrument

The research instrument was prepared by: 1) reviewing related literature to identify those variables which reportedly enable one to measure patterns and processes of intergenerational occupational mobility, 2) reviewing related literature to identify variables specifically related to the elementary school principalship, and 3) exploring various approaches to stating survey questions. The instrument was designed so that respondents needed only to check (✓) the appropriate response category to each question.

The first draft was reviewed by selected university faculty from the disciplines of sociology, educational administration, and educational psychology for clarity,

accuracy, and relevancy. After slight modification, the instrument was reviewed by a computer consultant to determine if the format was conducive to efficient transcription to computer scan sheets. The result was a five page (twenty-three item) questionnaire, divided into three general areas: personal characteristics, work experience, and parental information. Only one response to each question was possible with the exception of "level/levels of past teaching experience" (Item 8-B).

No pre-existing indicators of reliability or validity were available since the Survey of Elementary School Principals was a new instrument. However, the questions solicited only descriptive, categorical information and were patterned after questions from tested instruments: two studies of elementary school principals[2] and the Occupational Changes in a Generation survey[3] (part of the Bureau of Census' 1962 Current Population Survey) were used as models for question

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[2]NEA Research Division, Elementary School Principalship in 1968, (Washington, D.C.: National Education Association, Department of Elementary School Principals).

Neal Gross and Anne E. Trask, Sex Factor and the Management of Schools (New York: John Wiley & Sons, 1976).

[3]Peter M. Blau and Otis Dudley Duncan, The American Occupational Structure (New York: John Wiley & Sons, Inc. 1967), pp. 445-449.

preparation. Therefore, the concerns of reliability and validity were not judged to be a serious issue. Duncan's Socioeconomic Index (SEI), used to measure the dependent variable, that is, distance and direction of mobility from father's occupation when the respondent was about 16 years of age, is a widely standardized scale.[4] Tests of validity reveal correlations of approximately .75 for adult son's report of father's occupation.[5] An added precaution (double-coding) was taken in converting father's occupational title to scale scores and will be discussed later in this chapter.

Descripter Variables

The descripter variables of the study were not identified for statistical analysis but for population description. Frequency distributions are presented in Appendix D.

The descripter variables of this study were: past teacher, level/levels of teaching, number of years as an elementary school principal, highest earned college degree, area of specialization (highest earned degree), number of schools under direction, total enrollment under direction, total school system enrollment, salary for 1976-77 school

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[4]Robert M. Hauser and David L. Featherman, The Process of Stratification: Trends and Analysis (New York: Academic Press, 1977), p. 53.

[5]Ibid., p. 57.

year, number of months under contract, state of employment, and age at first principalship.

Coding Occupation

Two standard methods for scoring occupations (prestige and socioeconomic status scales) were reported in Chapter 2 of this study. It was found that: a) the prestige and SEI scales were computed on the characteristics of the male labor force, b) the prestige and the status hierarchies are nearly invariant with respect to sex, c) the SEI represents a composite index of education and income, taking prestige into account, d) the prestige scale measures general social standing, e) there is a close correlation between occupational prestige and occupational socioeconomic status, f) both prestige and status can be indexed by a quantitative score, g) the SEI offers a wider range of scores than the prestige scale, and h) the process of stratification in the United States is socioeconomic and not prestige. In view of the above, the following propositions were offered:

Proposition 1: If the prestige hierarchy and the socioeconomic status hierarchy are nearly invariant with respect to sex, and

Proposition 2: If the Socioeconomic Index takes the prestige of an occupation into account, and

Proposition 3: If the Socioeconomic Index offers a wider range of scores than the prestige scale,

Then it would follow that: Similarities and differences in the distance of intergenerational occupational mobility among elementary school principals may be more easily detected using the SEI than a prestige scale.

It was determined therefore to measure the occupational status rather than the occupational prestige of occupations.

Occupational status was measured by the SEI developed by Otis Duncan and updated by Hauser and Featherman[6] to the 1970 Census occupational codes (see Appendix A). Since the statistical algorithm used in this study does not handle decimal places in the dependent variable efficiently[7], SEI scores were rounded to the nearest whole number for ease in scoring and interpretation. Occupations were double-coded - a practice underscored by Treiman[8] in order to minimize coding error and arbitrary scoring judgements, that is, scored by two coders working in isolation. The two sets of scores were then compared and reconciled when disagreement was evident. It was therefore assumed that coding reliability of father's SEI score was maximized.

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[6]Hauser and Featherman, op.cit., pp. 320-329.

[7]John A. Sonquist, Elizabeth Lauh Baker, and James N. Morgan, Searching for Structure (Ann Arbor, Michigan: Survey Research Center, 1974), p. 55.

[8]Donald J. Treiman, "Problems of Concept and Measurement in the Comparative Study of Occupational Mobility", Social Science Research, Vol. 4, (1975), p. 197.

If a respondent did not specify father's occupation title on the survey instrument but did provide the occupational category, the median score for occupation category as specified on the instrument was assigned. The median scores were as follows:

Occupational Category	Median Score
a) professional or scientific	71
b) managerial or executive	56
c) clerical or sales	50
d) skilled craftsman or foreman	33
e) unskilled worker	11

In the case where a parent was not employed for wages when the respondent was 16 years of age, the parent was coded "00"; deceased parents were coded "99", and part-time workers were coded "98". In the case of small business ownership the parent was coded "62 - managers - administrators, not elsewhere classified" rather than as a worker in a specified business since it was assumed that ownership would confer more status than merely working at the place of business. When a specified occupation could not be located in the "Occupational Classification System" (see Appendix A), the Dictionary of Occupational Titles[9] was

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[9]United States Department of Labor, Definition of Titles, Vol. 1 of Dictionary of Occupational Titles, (Washington, D.C.: Government Printing Office, 1965).

used to gain enough information on that occupation to identify an appropriate title. An example of the coding process was provided as a preface to Appendix A.

Independent Variables

The independent variables were identified in the literature review section of this study. These variables were categorized as background characteristics and intervening characteristics. The statistical procedure identified for the study necessitates strict adherence to a set of criteria (discussed more fully under Design and Statistical Procedures of this chapter). In accordance with those criteria, frequency distributions for each original independent variable were calculated (see Appendixes E and F) for recoding purposes. The criteria for recoding the independent variables were as follows: 1) a functional yet limited number of variable categories (usually three to five but rarely more than seven are acceptable),[10] 2) 20 percent or more of the sample represented in one classification of any given variable[11], or a minimum of

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[10]John A. Sonquist, Multivariate Model Building: The Validation of a Search Strategy (Ann Arbor, Michigan: Institute for Social Research, 1970), p. 192.

[11]Ibid., p. 204.

approximately 50 cases per classification or more[12], and 3) an awareness of correlations between study variables.[13]

It was recommended by Rosenfeld, and Falk and Cosby that mother's occupation be included in the measurement of intergenerational occupational mobility.[14] It was not possible to use mother's occupation as a dependent variable with accuracy, however, for three reasons: 1) an acceptable method for combining the effects of father's and mother's occupations has not been identified, 2) the frequency distribution of mother's occupation as measured by the SEI (see Appendix E; Table 34) was trimodal and in violation of AID3 criteria for the dependent variable,[15] and 3) there were a high proportion of mothers in the

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[12]Frank M. Andrews. James N. Morgan, and John A. Sonquist, Multiple Classification Analysis: A Report on a Computer Program for Multiple Regression Using Categorical Predictors (Ann Arbor, Michigan: Institute for Social Research, 1967), p. 79.

[13]Sonquist, op.cit., p. 78.

[14]Rachel Rosenfeld, Women's Intergenerational Occupational Mobility (University of Wisconsin-Madison: Center for Demography and Ecology, CDE Working Paper 75-28, 1975), p. 2.

William W. Falk and Arthur B. Cosby, "Women and the Status Attainment Process: A Working Paper", (a paper presented at the Annual Meeting of the Rural Sociological Society, Montreal, Quebec, August, 1974) ERIC abstract ED097237.

[15]Sonquist, op.cit., p. 197.

sample classified as "homemakers." Instead, mother's occupation was incorporated as an independent variable, specifically a background characteristic which it was felt, acknowledged the possibility that mother's occupation played a role in the intergenerational occupational mobility of labor force participants.

Background characteristics were identified as: father's occupational category, mother's occupational category, father's attained level of education, mother's attained level of education, respondent's age, respondent's sex, parent(s) respondent resided with at the age of 16, and number of siblings and sibling placement. The data were gathered using the Survey of Elementary School Principals developed in the previous section and presented in Appendix B. The raw data were coded on computer scane sheets as shown in Table 2 under "Original Categories". For analysis purposes, variable categories were recoded by computer program as shown in Table 2.

Intervening characteristics were identified as characteristics particular to each respondent assumed to occur since 16 years of age. They are as follows: current marital status, children and number of children, number of years a teacher, age of youngest child, highest earned college degree at first principalship, and size of community of employment. The raw data were coded on computer scane sheets as shown in Table 3, and recoded by computer program for analysis.

Table 2: Definition of Categories of Elementary School Principals' Background Characteristics

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Father's education	Grade 8 or less	1	Grade 8 or less	311
	Some high school Completed high school	2	Some high school or high school graduate	239
	Some college, technical or special training after high school Bachelor degree Master degree Doctorate or professional degree	3	Some college, college graduate or above	147
Mother's education	Grade 8 or less	1	Grade 8 or less	201
	Some high school Completed high school	2	Some high school or high school graduate	330
	Some college, technical or special training after high school Bachelor degree Master degree Doctorate or professional degree	3	Some college, college graduate or above	166

Table 2 (cont'd)

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Sex	Male	1	Male	536
	Female	2	Female	161
Age	25 years or under 26 - 35 years	1	35 years or under	123*
	36 - 45 years	2	36 - 45 years	239
	46 - 55 years	3	46 - 55 years	223
	56 years or over	4	56 years or over	96*
Residence at age 16	Both parents	1	With both parents	615**
	Mother only Father only Neither parent	2	Not with both parents	82*
Number siblings and sibling placement	An only child	1	Only child	57*
	Oldest with 1 - 3 Oldest with 4 or more siblings	2	Oldest child	217

*Represents less than 20% of the sample in a given classification of a variable or 50 which ever is less, and therefore a potential source of analysis difficulty.

**Represents more than 80% of the sample in a given classification of a variable and therefore a potential source of analysis difficulty.

Table 2 (cont'd)

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Number siblings and sibling placement (cont'd)	Youngest with 1 - 3 Youngest with 4 or more siblings	3	Youngest child	170
	Middle with 2 or 3 siblings Middle with 4 or more siblings	4	Middle child	253
Father's occupational category	Professional or scientific Managerial or executive Clerical or sales	1	White collar	218
	Skilled craftsman or foreman Unskilled worker	2	Blue collar	319
	Farmer Unemployed	3	Farm and unemployed	150
Mother's occupational category	Professional or scientific Managerial or executive Clerical or sales Skilled craftsman or foreman Unskilled worker Farmer	1	Employed	197
	Homemaker	2	Unemployed	491

Table 3: Definition of Categories of Elementary School Principals' Intervening Characteristics

Variable	Original Categoires	Recoded Categories	Definition of Recoded Categories	N
Marital status	Married - living with spouse	1	Currently married	570
	Married - separated from spouse Widowed Divorced Never married	2	Not currently married	127*
Children	No	1	No children	132*
Number of children	Yes: 1 - 3 children	2	1 - 3 children	454
	Yes: 4 - 6 children Yes: More than 6 children	3	4 or more children	104*
Number years a teacher	0 - 1 years 2 - 5 years	1	0 - 5 years	216
	6 - 10 years	2	6 - 10 years	283
	11 - 15 16 or more years	3	11 or more years	194

*Represents less than 20% of the sample in a given classification of a variable or 50 which ever is less, and therefore a potential source of analysis difficulty.

Table 3 (cont'd)

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Highest earned degree at first principal-ship	No college degree Associate Bachelor	1	Bachelor or less	133
	Master	2	Master	532
	Education Specialist Doctorate	3	Education specialist or doctorate	32*
Size community of employ	Rural - non-farm Rural - farm Small town (2,500-19,999)	1	Rural or small town	297
	Small city (20,000-49,999) Medium city (50,000 - 249,999)	2	City	248
	Large city (250,000- or more) Suburb of a large city	3	Large city or suburb of	152
Age of youngest child	Under 6 years	1	Under 6 years	90*
	6 - 18 years	2	6 - 18 years	247
	Over 18 years	3	Over 18 years	142

*Represents less than 20% of the sample in a given classification of a variable or 50 which ever is less, and therefore a potential source of analysis difficulty.

Dependent Variable

The dependent variable used to determine the pattern of intergenerational occupational mobility in this study was identified as distance and direction from father's occupation as measured by the SEI, to the elementary school principalship. The following mathematical procedures were employed to determine the value of the dependent variable for each respondent. The distance and direction of intergenerational occupational mobility from father's occupation[16] to the elementary school principalship was measured by the following formula:

$$R - Y = D$$

where;

Y = father's SEI score

R = respondent's SEI score = 72

D = distance and direction of mobility

Values of the dependent variable were positive (denoting upward mobility from father's occupation) or negative (meaning downward mobility from father's occupation) according to the formula, depending upon direction of mobility. If, for example, the father had been employed as a fireman at the time our respondent was 16 years of age,

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[16]Blau and Duncan, op.cit., p. 152.

the SEI value for that occupation would be 37.0. The called for values would be substituted in the formula above as follows:

72 - 37 = +35

Therefore, that respondent's distance of mobility would be equal to 35 SEI points, and the direction of mobility would be upward from father's occupation as indicated by the positive (+) value. The AID3 computer program does not accommodate negative numbers however, so values - using the above formula, were recoded using FORTRAN by subtracting if positive or adding if negative the value from 100. Therefore, in the above example of a fireman, the respondent's distance and direction of mobility would be recorded as 135. If a respondent's father worked as a dentist (SEI = 96) the procedure would be as follows:

72 - 96 = -24

100 - 24 = +76

This would indicate that the respondent had experienced downward mobility equivalent to 24 SEI points. The resulting distribution would have 100 as a midpoint if there was no mobility and a range of 76 - 172.

Through the literature, occupational inheritance is often defined as a son inheriting his father's occupation category.[17] For purposes of this study occupational inheritance or immobility was determined on the basis of a

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[17]Hauser and Featherman, op.cit., p. 158.

specific SEI score, i.e., occupational inheritance was taken as zero mobility, D = 0 or recoded score = 100. SEI scores are estimates of the prestige of an occupation, derived from a composite index of income and education. Therefore the reader is cautioned against concluding that zero difference between respondent's and father's SEI scores necessarily mean the father worked as an elementary school principal, only that the father enjoyed the same level of socioeconomic status. In fact, SEI = 72 applies also to prekindergarten and kindergarten teachers, wholesale and retail trade buyers, high school principals, and stock and bond salesmen (see Appendix A).

Design and Statistical Procedures

It was established that little is known of the background and intervening characteristics leading to the elementary school principalship. It would have been presumptuous then, if not impossible, to develop statistically testable hypotheses and follow the established methods of labor force analysis of intergenerational occupational mobility without making assumptions about linearity and additivity of the data. Instead a statistical measure was sought that would not make causal assumptions about the data, and would also look for interactions among the variables rather than ignore there existence. The procedure identified - the third edition of the Automatic Interaction Detector (AID3) was used to answer the research questions

stated in Chapter 1. The research questions were as follows:

Research Question 1: What is the pattern of intergenerational occupational mobility (as measured by the SEI) for elementary school principals in the middle United States from background characteristics?

Research Question 2: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background characteristics?

Research Question 3: Will the pattern of intergenerational occupational mobility (as measured by the SEI) from background characteristics and intervening characteristics for elementary school principals in the middle United States be replicated by a cross-validation sample?

Research Question 4: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background and intervening characteristics?

Research Question 5: What is the process of intergenerational occupational mobility for elementary school principals in the middle United States?

Research Question 6: Does the process of intergenerational occupational mobility differ for male and female elementary school principals in the middle United States?

The use of the AID3 necessitates controlling several factors during the computer run to avoid misinterpretation of the data. In addition, one must be aware of correlations between study variables since their presence may mask the importance of some variables. The criteria for AID3 use

are: 1) calculation of correlations between study variables,[18] 2) data that are not badly skewed,[19] 3) not more than seven categories within each independent variable, and generally only three to five,[20] 4) unidimensional categories within each independent variable,[21] and 5) too few (less than 50) cases within a variable class.[22] Violations of one or more of the criteria may result in "loss of competition", i.e., a variable not being used in the splitting process, or a large sampling error, thereby causing misinterpretation of the data.[23] In addition; 6) extreme cases or bimodalities in the dependent variable, and 7) small sample size can cause spuriousness.[24] Although sample size was sufficiently large (greater than 500 cases) for data sets of less than 1000 cases, controls must be placed on the search process. Finally, it was recommended

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[18]Sonquist, Baker, and Morgan, op.cit., pp. 11-15.

[19]Ibid., p. 50.

[20]Sonquist, op.cit., p. 192.

[21]Sonquist, Baker, and Morgan, op.cit., p. 3.

[22]Andrews, Morgan, and Sonquist, op.cit., p. 79.

[23]Sonquist, op.cit., p. 78.

[24]Sonquist, Baker, and Morgan, op.cit., p. 3.

that the stability and predictive power of the AID3 analysis be examined through cross-validation of the sample.[25]

To avoid misinterpretation of the data the following precautions were taken: a) the correlations between study variables were computed (see Table 4), b) frequency distributions were calculated for each variable (see Appendixes E and F) to assess the balance in cell frequencies. Original independent variable categories were collapsed and redefined when necessary to attain maximum balance, and to limit the number of categories within each variable. Also; c) the amount of variance explained by a binary split was prestated at .006 or .6 percent,[26] d) an allowable minimum group size (n = 25) before a split could occur was specified,[27] and e) 20 percent of the original sample were randomly selected for cross-validation of of the sample results.

The specific procedures followed to answer each research question were as follows:

Research Question 1: What is the pattern of intergenerational occupational mobility (as measured by the SEI) for elementary school principals in the middle United States from background characteristics?

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[25]Sonquist, op.cit., pp. 89-90.

[26]Sonquist, Baker, and Morgan, op.cit., p. 16.

[27]Ibid.

Table 4: Correlations Between Study Variables

	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16
V2 Sex		.1351***	.4532***	.1683***	.3754***	.2925***	.3227***	-.0816*	.1577***	.0127	.0133	-.0135	.0192	-.0321	-.0338
V3 Age			.2311***	.2857***	.0590	.1017**	.2484***	-.0890*	.0771*	-.1421***	-.1678***	.0027	.0192	.0691*	.0913**
V4 Marital Status				.6671***	.6863***	.5037***	.1558***	-.0720*	.1200***	-.0220	-.0046	-.0356	.0354	-.0380	-.0200
V5 Children					.5700***	.4212***	.0646*	-.0286	.0851*	.0203	.0243	-.0041	-.0391	-.0105	-.0675**
V6 # Children						.7053***	.1255***	-.0840*	.1131***	-.0020	-.0020	.0004	.0557	-.0002	-.0539
V7 Age Youngest Child							.0992**	-.0717*	.1016**	.0035	-.0093	-.0002	.0789*	.0108	-.0736*
V8 # Years Teacher								.0605	.0986**	-.0679*	.0645*	.1343***	.0758*	.0110	.0519
V9 Highest Degree 1st Prin									.0739*	.0865*	.0590	-.0278	-.0433	-.1492***	.0692*
V10 Size City										.0399	-.0581	-.0210	-.0329	-.0982**	-.0361
V11 Father's Educ											.5654***	-.0181	-.0897**	-.5067***	-.2468***
V12 Mother's Educ												.1650***	-.1348***	-.3864***	-.4485***
V13 Resided													.1189***	.1088**	-.0274***
V14 Siblings														.1798***	-.1615***
V15 Father's Occ Cat[a]															.1858***
V16 Mother's Occ Cat[a]															

*** p = .001 ** p = .01 *p = .05

[a]Negative correlations often resulted for occupational category because it was ranked from highest to lowest unlike other variables

Procedures

a) The AID3 was used to:

   1. determine the pattern of intergenerational occupational mobility from background characteristics for elementary school principals in the sample, and

   2. examine the variance explained by background characteristic variables.

b) Frequencies of employed father's SEI scores were calculated for the total sample and presented in a histogram.

Research Question 2: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background characteristics?

Procedures

a) The AID3 was used to determine the pattern of mobility for men and women from background characteristics by:

   1. Forcing the AID3 to split first on the sex variable, and

   2. Visually examining the AID3 splits and the amount of variance explained.

b) Frequencies of employed father's SEI scores were calculated separately for men and women in the sample and presented in a histogram,

c) A Z-test of male and female respondent's means of father's SEI scores was calculated.

Research Question 3: Will the pattern of intergenerational occupational mobility (as measured by the SEI) from background characteristics for elementary school principals in the middle United States be replicated by a cross-validation sample?

Procedures

a) A 20 percent cross-validation sample was randomly selected from the total sample,

b) The AID3 splits obtained in the remaining study sample were duplicated on the cross-validation sample, and

c) The resulting end group means from the cross-validation sample were compared with those of the study sample end group means using the formulae (see p. 98) developed for cross-validation analysis by Lorenz.[28]

Research Question 4: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background and intervening characteristics?

Procedures

The AID3 was used to determine the pattern of mobility for men and women from background and intervening characteristics by:

a) Forcing the AID3 to split first on the sex variable, and

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[28]Jerome R. Lorenz, "A Methodology for the Development of Empirically Based Differential Service Patterns in Rehabilitation Facilities," (Doctor's dissertation, University of Wisconsin-Madison, 1973), Dissertation Abstracts International, 1974, 34(10), 5171B (University Microfilms No. 74-3533).

The formulae were as follows:

$$\text{Upper limit} = \bar{X}_{ss} + t_d SE_{ss,cv}$$

$$\text{Lower limit} = \bar{X}_{ss} - t_d SE_{ss,cv}$$

when

$$SS_{ss,cv} = \frac{SS_{ss} + SS_{cv}}{N_{ss} + N_{cv} - 2}$$

and $d + N_{cv} - 1$

where $\bar{X}_{ss}$ = mean of the study sample end group

t_d = value of t with d degrees of freedom

SS_{ss} = sum of squares for the study sample

SS_{cv} = sum of squares for the cross-validation sample

N_{ss} = number of subjects in study sample

N_{cv} = number of subjects in cross-validation sample

$SE_{ss,cv}$ = pooled estimate of standard error

b) Visually examining the AID3 splits and the amount of variance explained.

Research Question 5: What is the process of intergenerational occupational mobility for elementary school principals in the middle United States?

Procedures

Frequencies of respondent characteristics were examined to determine process. Seventy percent response to an item category was arbitrarily set as an acceptable limit for process identification.

Research Question 6: Does the process of intergenerational occupational mobility differ for male and female elementary school principals in the middle United States?

Procedures

Frequencies of respondent characteristics were examined separately for men and women to determine male and female processes of mobility. Seventy percent response to an item category was arbitrarily set as an acceptable limit for process identification.

Summary

The methodology for sample selection and data collection were set forth in this chapter. The variables employed and means of coding each were described, and the research questions were presented, and the statistical procedures were outlined which included AID3 controls for data misinterpretation.

Chapter 4

RESULTS AND DISCUSSION

The researcher's purpose for this study was to define the patterns and processes of intergenerational occupational mobility among elementary school principals in the middle United States who were members of the National Association of Elementary School Principals during the 1976-77 school year. The procedures used in analyzing the data were delineated in the preceding chapter. In this chapter, the results of the analyses were presented and discussed in the order of the research questions.

Results

The data were analyzed by answering six research questions. The questions and results of the analyses were as follows:

Research Question 1: What is the pattern of intergenerational occupational mobility (as measured by the SEI) for elementary school principals in the middle United States from background characteristics?

To answer the above question, the AID3 was used to determine the pattern of intergenerational occupational mobility and examine the variance in father's SEI scores explained by the background characteristics of elementary school principals in the study. The variances explained by background characteristic variables were presented in

Table 5. Father's occupational category explained the greatest amount of variance among the background variables (39.9%), followed by father's education (18.7%). The least significant variable in this respect was sex with only 0.5 percent of the variance in father's SEI scores explained by that background characteristic.

Table 5. Variation in Father's SEI Scores Explained by Respondent's Background Characteristics

Background Characteristic	Percent Variation
1. Father's occupational category	39.9
2. Father's education	18.7
3. Mother's education	9.4
4. Mother's occupational category	2.3
5. Lived with at 16	2.2
6. Age	1.4
7. Siblings	1.1
8. Sex	0.5
Total variation explained	47.8%

The pattern of mobility from background characteristics to the elementary school principalship was presented in Figure 1; an explanation of each end group was offered (see Table 6). AID3 results indicate that father's occupational category, father's education, and respondent's residence at age 16 [lived with] explained 47.8 percent of the criterion variance.

By tracing the sequence of splits in the tree structure, we see that the pattern of mobility from background characteristics for elementary school principals

Figure 1: The Pattern of Mobility from Background Characteristics for Elementary School Principals, Reducibility = .6; Minimum Group Size = 25

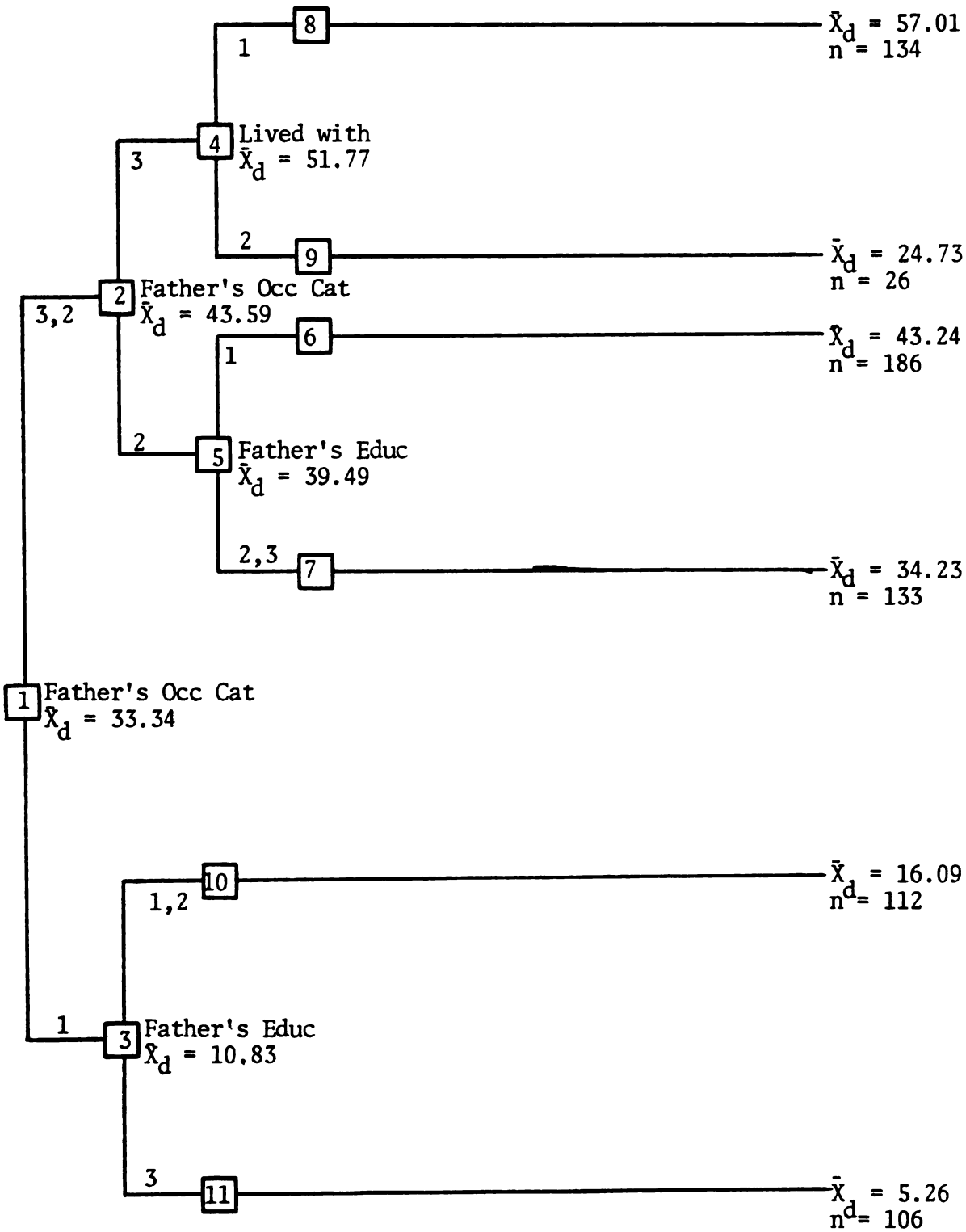


Table 6: The Pattern of Mobility from Background Characteristics, Final Groups in Rank Order of Mobility

Group Number	Number of Cases	Mean Mobility	Characteristics
8	134	57.01	Father was a farmer, deceased, or unemployed; at age 16 respondent lived with both parents
6	186	43.24	Father was a blue collar worker with an eighth grade education or less
7	133	34.23	Father was a blue collar worker with higher than an eighth grade education
9	26	24.73	Father was a farmer, deceased, or unemployed; at age 16 respondent did not live with both parents
10	112	16.09	Father was a white collar worker with a high school education or less
11	106	5.26	Father was a white collar worker with higher than a high school education

whose fathers were in the white collar occupational category differs from those whose fathers were in the blue collar, and farm, deceased father, or unemployed categories. Father's education was the only salient background variable for principals from white collar origins. If the white collar father did not attend beyond high school, the elementary school principal experienced an average increase of 16.09 SEI points over the father. When the father did attend beyond high school however, the principal averaged only a 5.26 increase in SEI points.

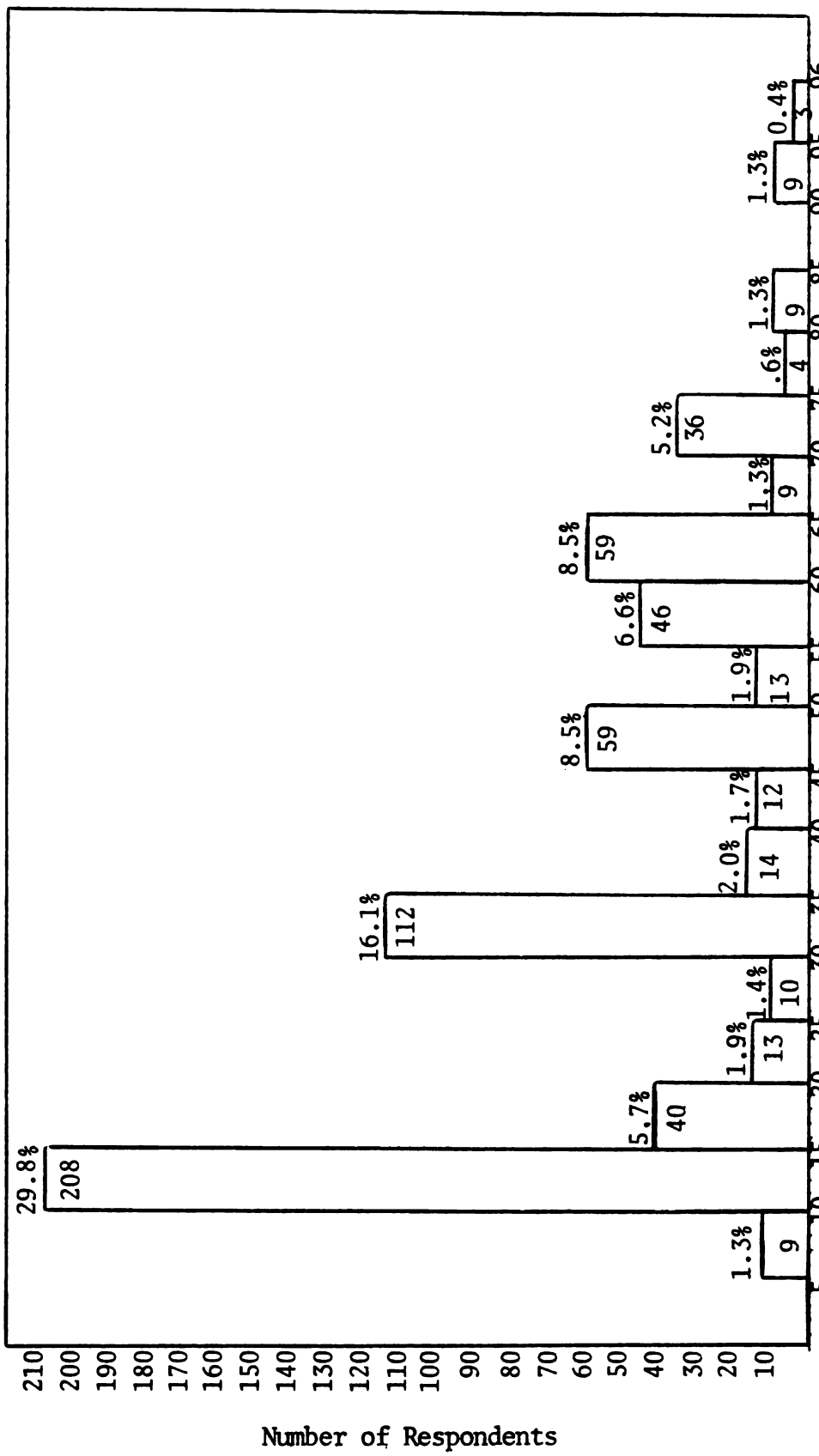
Principals from blue collar origins were similarly effected except that when the father did not attend school beyond the eighth grade the average SEI increase was 43.24 points, while if the father attended school beyond the eighth grade, respondents gained only an average of 34.23 SEI points.

Principals from farm origins or with father deceased or unemployed fathers were not similarly effected by father's education. In fact, beyond father's occupational category, residence at the age of 16 [lived with] was the only salient variable. Respondents from that origin category who lived with both parents experienced the greatest amount of mobility among all groups ($\bar{X}_d$ = 57.01). When the respondent did not live with both parents, average mobility to the principalship was 24.73 SEI points.

An additional measure was utilized to examine the pattern of mobility from the background characteristics of elementary school principals. Frequency of employed father's scores, when respondents were 16 years of age, were calculated for elementary school principals in the sample and presented in a histogram (see Table 7). The most frequently observed SEI score was 14 (farmer), which somewhat skewed the distribution negatively due to the relatively large number. The majority of father's SEI scores (60.1%) fell below the midpoint of the SEI range. The median of the distribution was 33.

The mean father's SEI score was 38.66 with a standard deviation of 25.23. When subtracted from the SEI for elementary school principals (72), mean difference ($\bar{X}_d$) for the entire sample was +33.34, i.e., the average elementary school principal in the study was upwardly mobile 33.34 points from father's SEI score. Few subjects experienced downward mobility from father's SEI score - in fact, in raw numbers only 30 feel into the downward mobility group. When farm and deceased fathers were omitted from the distribution, the mean father's SEI score was 42.04 ($\bar{X}_d$ = 29.96), with a standard deviation of 21.63. The median score for this group was 40 when farm (n = 145) and deceased (n = 29) fathers were omitted.

Table 7: Frequency of Employed Father's SEI Scores When Respondents Were 16 Years of Age



Research Question 2: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background characteristics?

To determine the pattern of mobility from background characteristics for men and women in the sample, the AID3 algorithm was forced to split first on the sex variable (see Figure 2; end groups explained in Table 8). Visual examination indicates that for both men and women, the most important variable in the pattern from origin status was father's occupational category. The mean difference between respondent's and father's SEI scores were slightly greater for men ($\bar{X}_d$ = 34.29) than women ($\bar{X}_d$ = 30.17).

As one would expect, sons and daughters of white collar fathers experienced very little mobility. Male elementary school principals whose fathers were employed in white collar occupations were strongly influenced only by father's education; when the father did not attend beyond high school mean mobility was 14.63 SEI points but only 5.60 when the father attended beyond high school.

The pattern of mobility was more complicated for sons from blue collar, and farm, deceased father, or unemployed occupational origins than for individuals from white collar origins. The greatest amount of variance among the background variables for blue collar, and farm, deceased father, or unemployed origins was explained by son's residence at the age of 16 [lived with]. For those sons living with both parents, father's occupational category

Figure 2: The Pattern of Mobility for Men and Women from Background Characteristics of Elementary School Principals

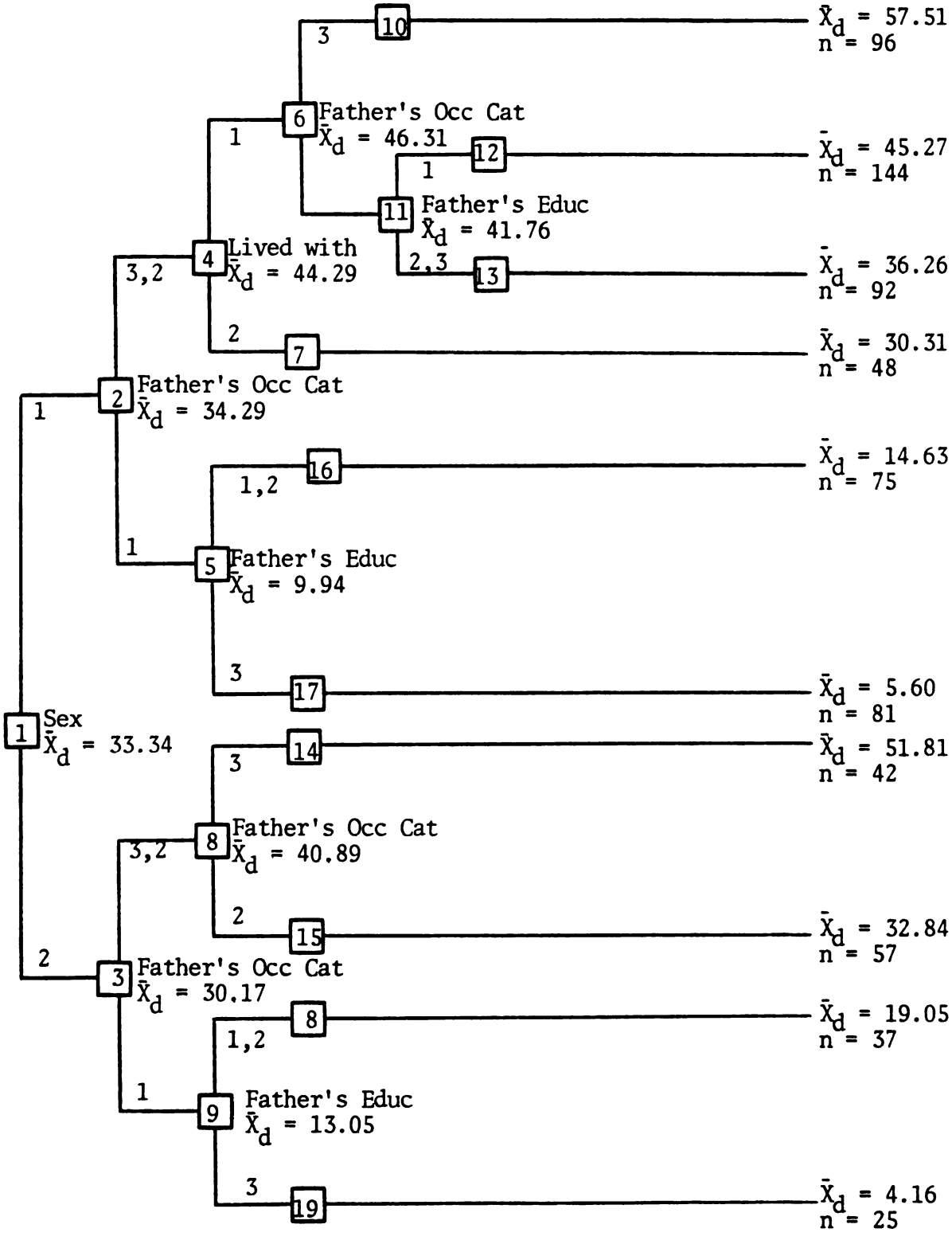


Table 8: The Pattern of Mobility from Background Characteristics for Men and Women, Final Groups in Rank Order of Mobility

Group Number	Number of Cases	Mean Mobility	Characteristics:MEN
10	96	57.51	Father was a farmer, deceased, or unemployed; son lived with both parents at age 16
12	144	45.27	Father was a blue collar worker with less than an eighth grade education when the son lived with both parents at age 16
13	92	36.26	Father was a blue collar worker with higher than an eighth grade education when the son lived with both parents at age 16
7	48	30.31	Father was a blue collar worker, or a farmer, deceased, or unemployed; the son did not live with both parents at age 16
16	75	14.63	Son's father was a white collar worker with no education beyond high school
17	81	5.60	Son's father was a white collar worker who was educated beyond high school
			Characteristics:WOMEN
14	42	51.81	Daughter's father was a farmer, deceased, or unemployed

Table 8 (Continued)

Group Number	Number of Cases	Mean Mobility	Characteristics:WOMEN
15	57	32.84	Daughter's father was a blue collar worker
18	37	19.05	Daughter's father was a white collar worker with no education beyond high school
19	25	4.16	Daughter's father was a white collar worker who was educated beyond high school

explained the largest portion of the variance among background characteristics. Sons from farm, deceased father, or unemployed origins were, on the average, the most mobile among the total sample of elementary school principals ($\bar{X}_d$ = 57.51). Sons from blue collar origins who lived with both parents were however, split once more; fathers not exceeding an eighth grade education were in lower socio-economic positions than fathers who attended school beyond the eighth grade. When the son did not live with both parents, he experienced less mobility from father's SEI score to the elementary school principalship ($\bar{X}_d$ = 30.31) than sons who lived with both parents.

The pattern of mobility for female elementary school principals whose father's worked in white collar occupations was very similar to their male counterparts. As with the male principal, the single important background variable was father's education. Among women whose father's did not attend beyond high school, the mean amount of mobility was 19.05 to the elementary school principalship. Daughters whose father attended beyond high school experienced very little mobility ($\bar{X}_d$ = 4.16).

Among women from blue collar, and farm, deceased father, or unemployed father's categories the pattern of mobility was somewhat different than for men from like origins. The two categories of women were, in fact, effected by little else than father's occupational category; mean differences between women's and father's SEI scores

indicate a 32.84 increase in SEI for women from blue collar origins, and a 51.81 point increase for women from farm, deceased father, or unemployed origins.

Overall the variance explained by background characteristics was less for women than men; the total explained variance represented in Figure 2 was 47.8 percent. Variation explained by individual background characteristics (see Table 9) indicates that the mean variance for men and women in the sample differ by as much as 6.8 percent or as little as 0.1 percent.

Table 9: Sex Variation in Father's SEI Scores Explained by Respondent's Background Characteristics

Background Characteristics	Percent Variation Men	Women	Difference
1. Father's occupational category	42.0	35.2	6.8
2. Father's education	18.4	19.7	1.3
3. Mother's education	10.1	7.0	3.1
4. Mother's occupational category	2.3	2.2	0.1
5. Age	1.4	5.5	4.1
6. Lived with at 16	1.8	4.0	2.2
7. Siblings	0.8	6.5	5.9

To add support for the patterns of mobility identified, the frequencies of employed father's SEI scores were calculated separately for men and women in the sample and presented in two histograms (see Table 10 - women; Table 11 - men).

Table 10: Frequency of Employed Father's SEI Scores When Female Respondents Were 16 Years of Age

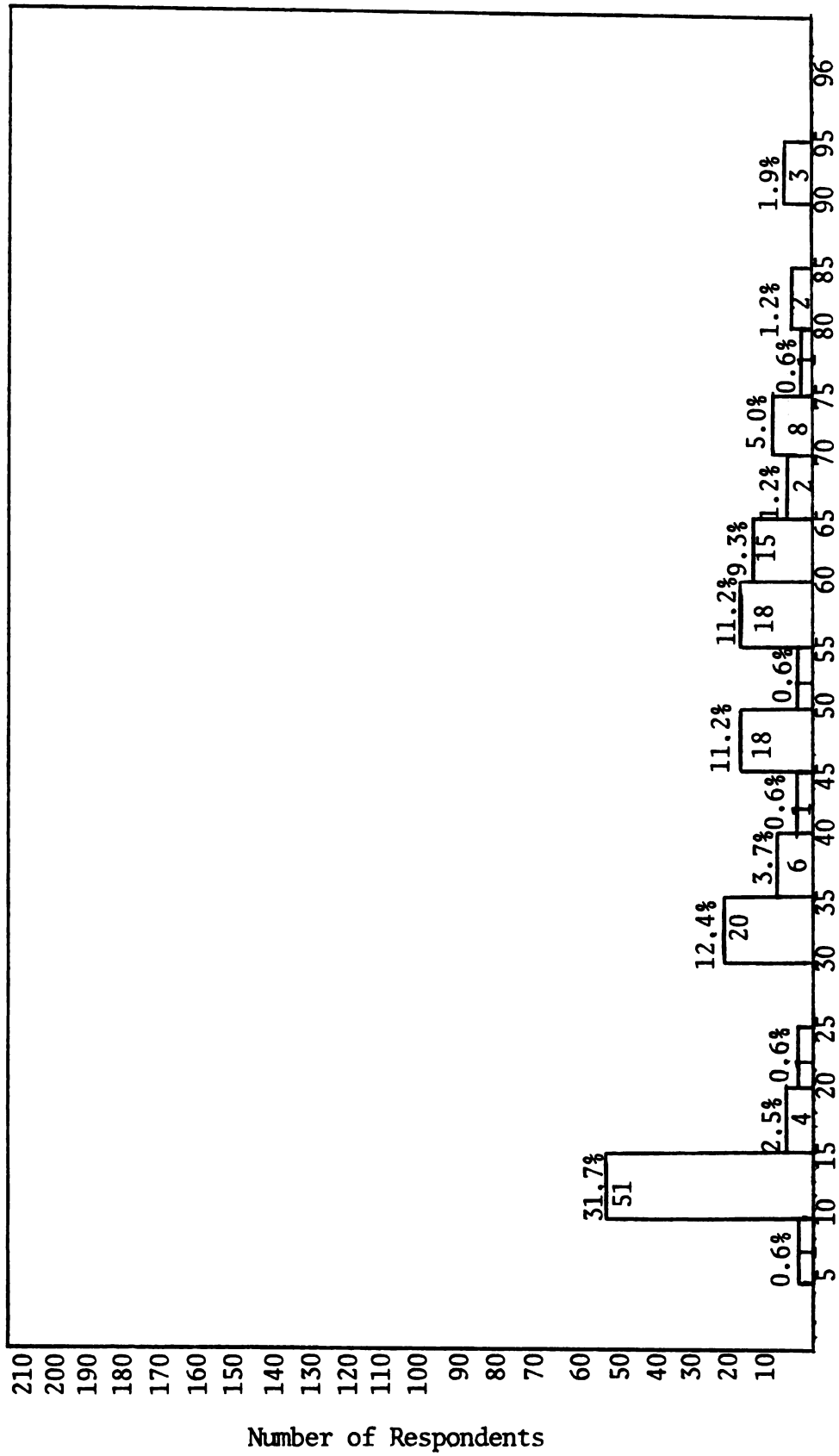
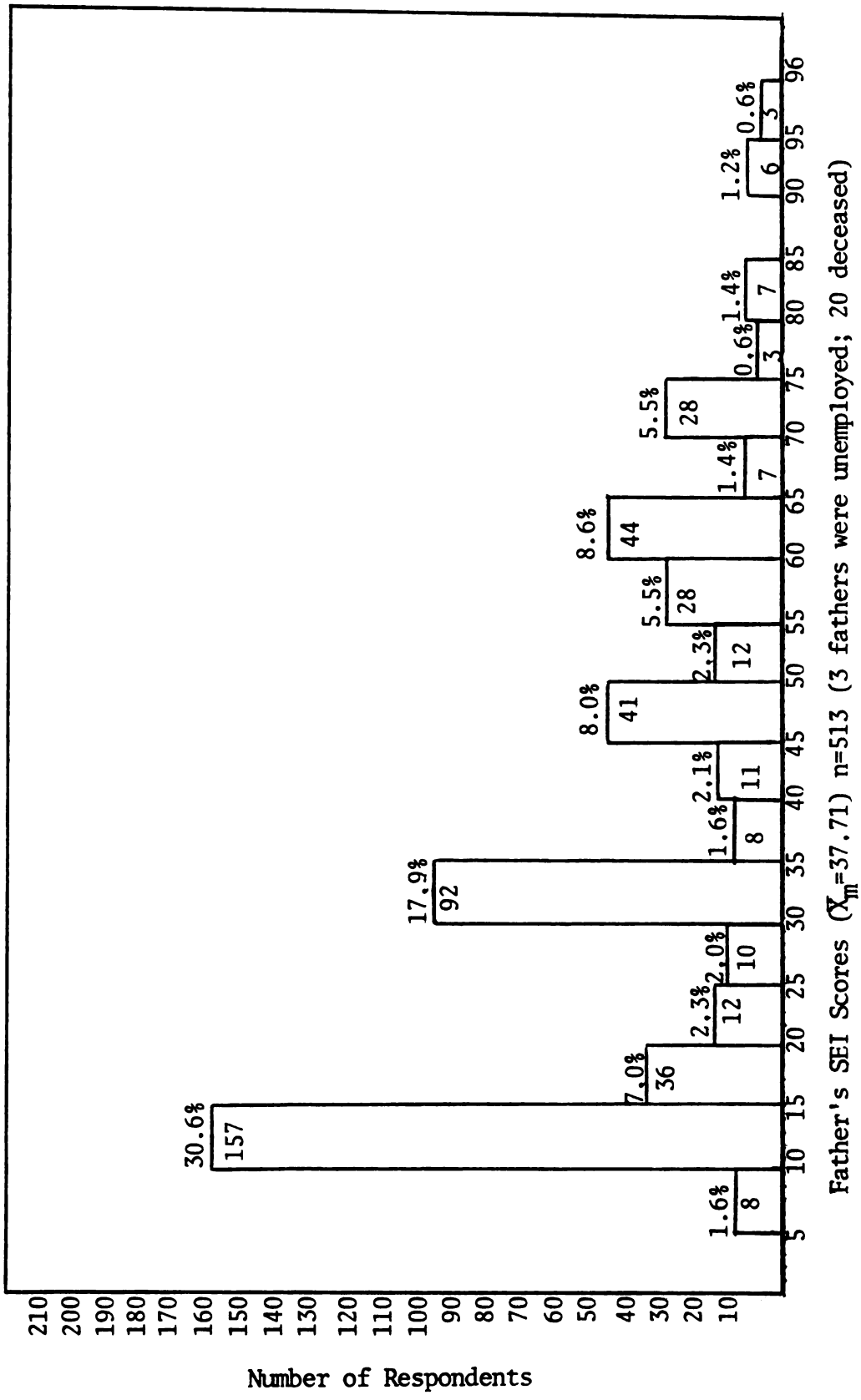


Table 11: Frequency of Employed Father's SEI Scores When Male Respondents Were 16 Years of Age



The mean father's SEI score for women was 41.83 ($\bar{X}_d$ = 30.17) with a standard deviation of 26.05, while for men was 37.71 ($\bar{X}_d$ = 34.29) and a standard deviation of 24.95. Downward mobility was experienced by 23 male elementary school principals (4.29% of the male sample) and seven women (4.35% of the female sample).

The Z-test, which revealed no significant difference ($Z = 1.32$, $p<.05$), was used to test for a statistical difference between the male and female means of father's SEI scores. A difference between the two groups was noted however, in that 42.2 percent of the fathers of women as opposed to 63.3 percent of the fathers of men were below the midpoint of the distribution. The median were 40 and 33 respectively. Therefore it was determined appropriate to test male and female means for differences between segments of the continuum, as a post hoc procedure to Research Question 2.

The Z-test of means for men ($\bar{X}_d$ = 62.06) and women ($\bar{X}_d$ = 58.95) whose father's worked in white collar occupations revealed no statistically significant difference ($Z = 1.26$, $p<.05$). However, the same test of principals ($\bar{X}_m$ = 31.07; $\bar{X}_f$ = 39.16) with fathers in blue collar occupations indicated a statistically significant difference between men and women in that category ($Z = 2.33$, $p<.05$). There was no significant difference ($Z = 0.02$, $p<.05$)

between male ($\bar{X}$ = 20.25) and female ($\bar{X}$ = 20.19) principals from farm, deceased father, or unemployed father's origin as a category.*

Research Question 3: Will the pattern of intergenerational occupational mobility (as measured by the SEI) from background and intervening characteristics for elementary school principals in the middle United States be replicated by a cross-validation sample?

To answer Research Question 3, it was necessary to randomly select a cross-validation sample from the total sample (N = 697). The random cross-validation sample was selected by computer program, and contained 97 men and 42 women (n_{CV} = 139) - precisely 19.94 percent of the total sample.

An AID3 analysis was made on the background and intervening characteristics of the remaining 558 subjects (henceforth referred to as the study sample); the results were presented in a tree structure (see Figure 3), with end group explanations offered in Table 12. The criterion variance explained by respondent's background and intervening characteristics in the study sample were shown in Table 13.

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*Means in this category were higher than the SEI score for farmer, since deceased fathers were coded "99" to distinguish them from unemployed fathers coded "0".

Figure 3: The Pattern of Mobility from Background and Intervening Characteristics for Elementary School Principals (Study Sample)

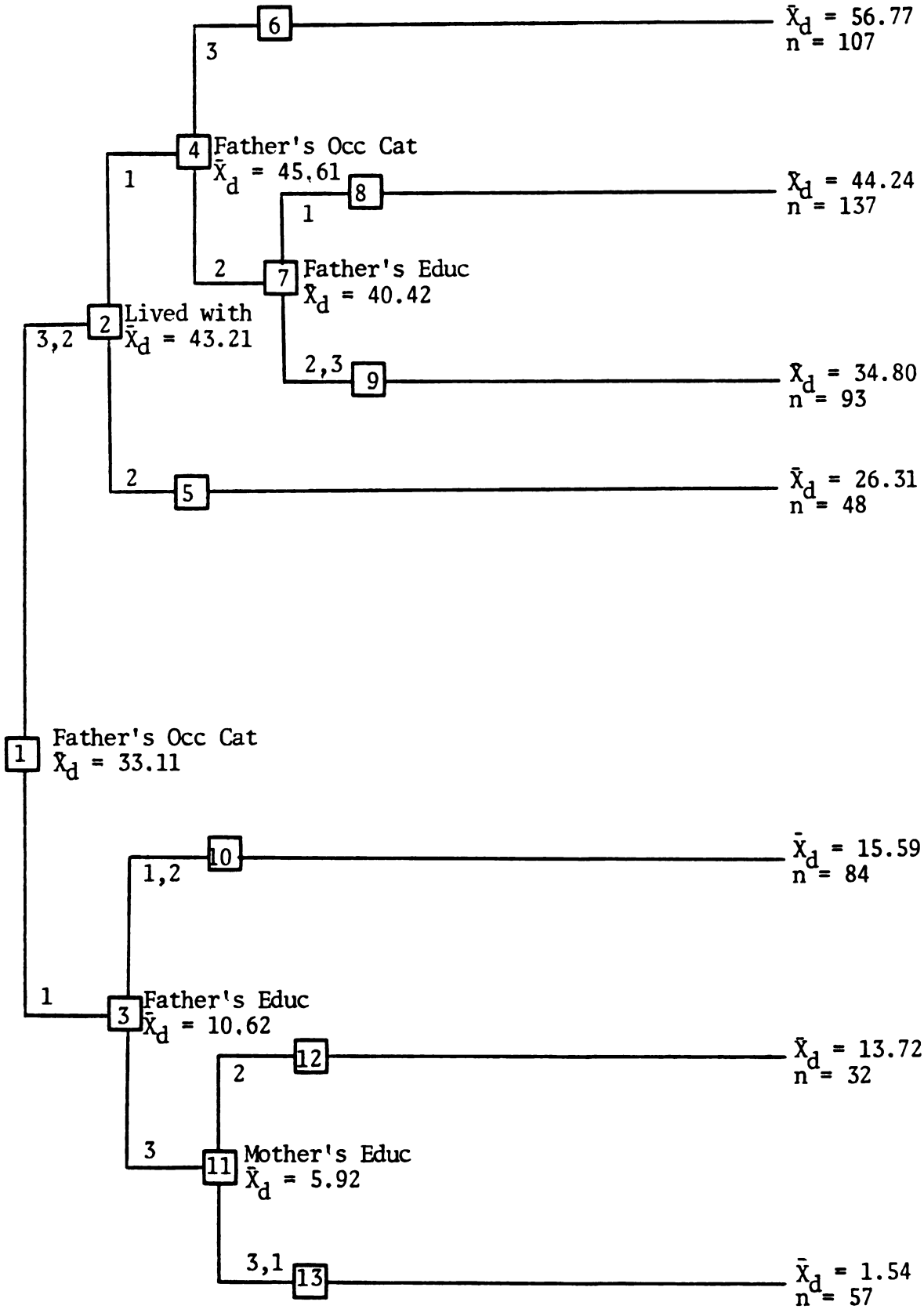


Table 12: The Pattern of Mobility from Background and Intervening Characteristics of the Study Sample, Final Groups in Rank Order of Mobility

Group Number	Number of Cases	Mean Mobility	Characteristics
6	106	56.77	Father was a farmer, deceased, or unemployed; respondent lived with both parents at age 16
8	137	44.24	Father was a blue collar worker with less than an eighth grade education; respondent lived with both parents at age 16
9	93	34.80	Father was a blue collar worker with higher than an eighth grade education; respondent lived with both parents at age 16
5	48	26.31	Father was a blue collar worker, or a farmer, deceased, or unemployed; respondent did not live with both parents at age 16
10	84	15.59	Father was a white collar worker who did not go beyond high school
12	32	13.72	Father was a white collar worker who was educated beyond high school. Mother had higher than an eighth grade education but did not go beyond high school
13	57	1.54	Father was a white collar worker educated beyond high school. Mother either went beyond high school or did not exceed eighth grade

The AID3 splits obtained for the study sample were replicated for the cross-validation sample by way of a card sorter and presented in Figure 4 with mean differences in principal's and father's SEI scores. A confidence interval was placed about the means using the Lorenz formulae presented in Chapter 3. The end group means of the cross-validation sample were compared with end group means for the study sample (see Table 14). It was found, with 95 percent assurance, that each cross-validation sample end group mean feel within the confidence intervals about study sample end group means, i.e., the results of the study were successfully cross-validated.

Research Question 4: Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background and intervening characteristics?

The AID3 was forced to split first on the sex variable to answer Research Question 4. The patterns of mobility from background and intervening characteristics for male and female elementary school principals in the sample (see Figure 5) were identical to that explained by background characteristics only (see Figure 2). The end groups were defined in Table 15.

The overall variance explained by background and intervening characteristics was 47.8 percent (the same as was explained by background characteristics alone). Table 16 indicates that little variance is accounted for by the intervening variables for either men or women. The

Figure 4: Cross-validation Sample (20%)

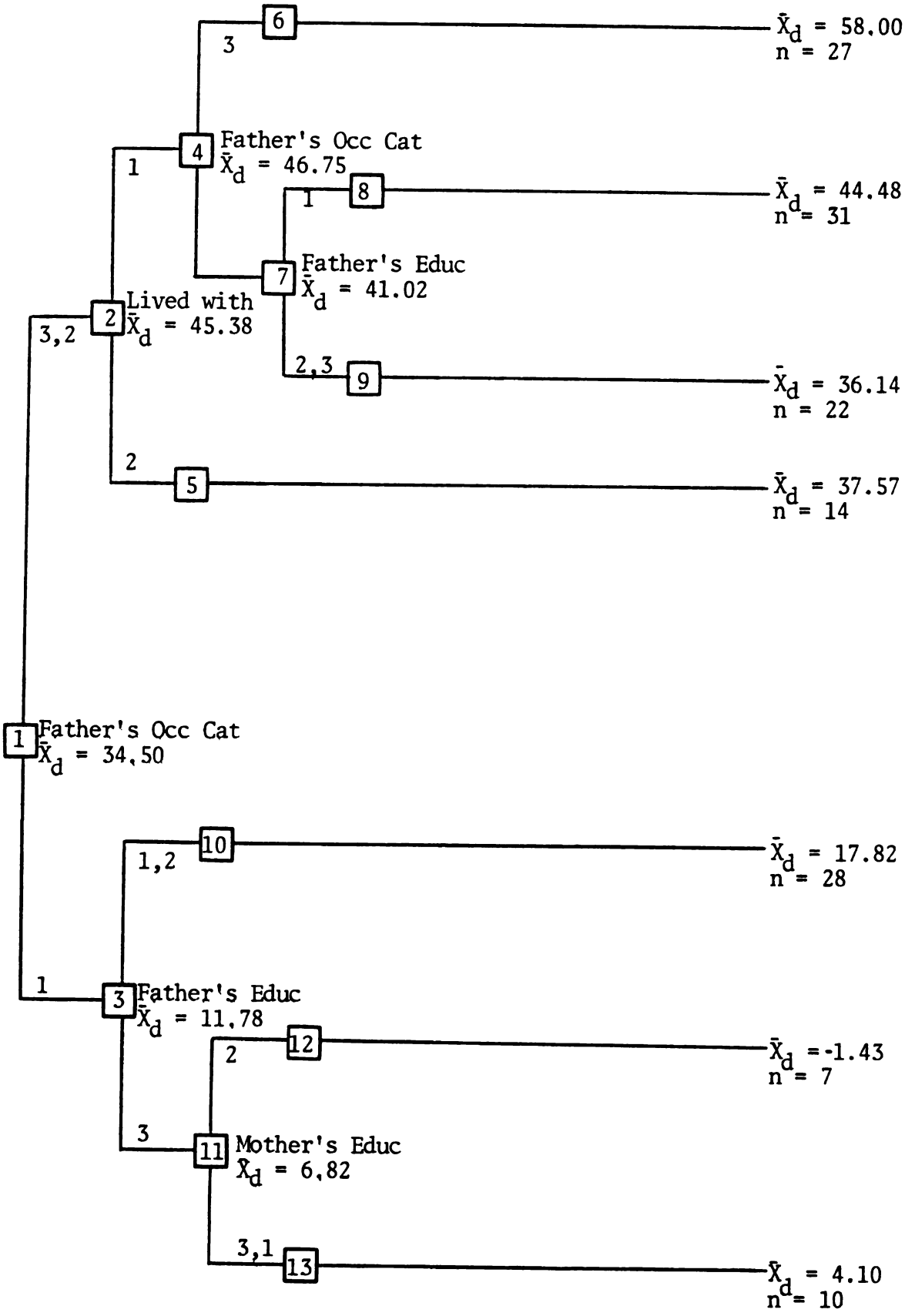


Table 13: Variation in Father's SEI Scores Explained by Respondent's Background and Intervening Characteristics for the Study Sample

Variable	Percent
1. Sex	0.6
2. Age	0.7
3. Marital status	0.2
4. Number of children	0.3
5. Age of youngest child	0.2
6. Years of teaching	0.8
7. Degree at first principalship	1.3
8. Size city/town	0.5
9. Father's education	17.5
10. Mother's education	8.6
11. Father's occupational category	38.0
12. Mother's occupational category	2.7
13. Lived with	2.6
14. Siblings	1.1
Total explained variation	47.8%

Table 14: Cross-validation: Study Sample Mean Difference Confidence Intervals, Final Groups in Rank Order of Mobility

End Group	Study Sample $\bar{X}$	Cross-val. $\bar{X}$	Study Sample $\bar{X}_d$ Confidence Interval
6	56.77	58.00	$53.40 < \mu > 60.14$
8	44.24	44.48	$37.52 < \mu > 50.96$
9	34.80	36.14	$26.79 < \mu > 42.81$
5	26.31	37.57	$6.26 < \mu > 46.36$
10	15.59	17.82	$9.62 < \mu > 21.56$
12	13.72	-1.43	$-3.80 < \mu > 31.24$
13	1.54	4.10	$-9.15 < \mu > 12.23$

Figure 5: The Pattern of Mobility for Men and Women from Background and Intervening Characteristics to the Elementary School Principalship

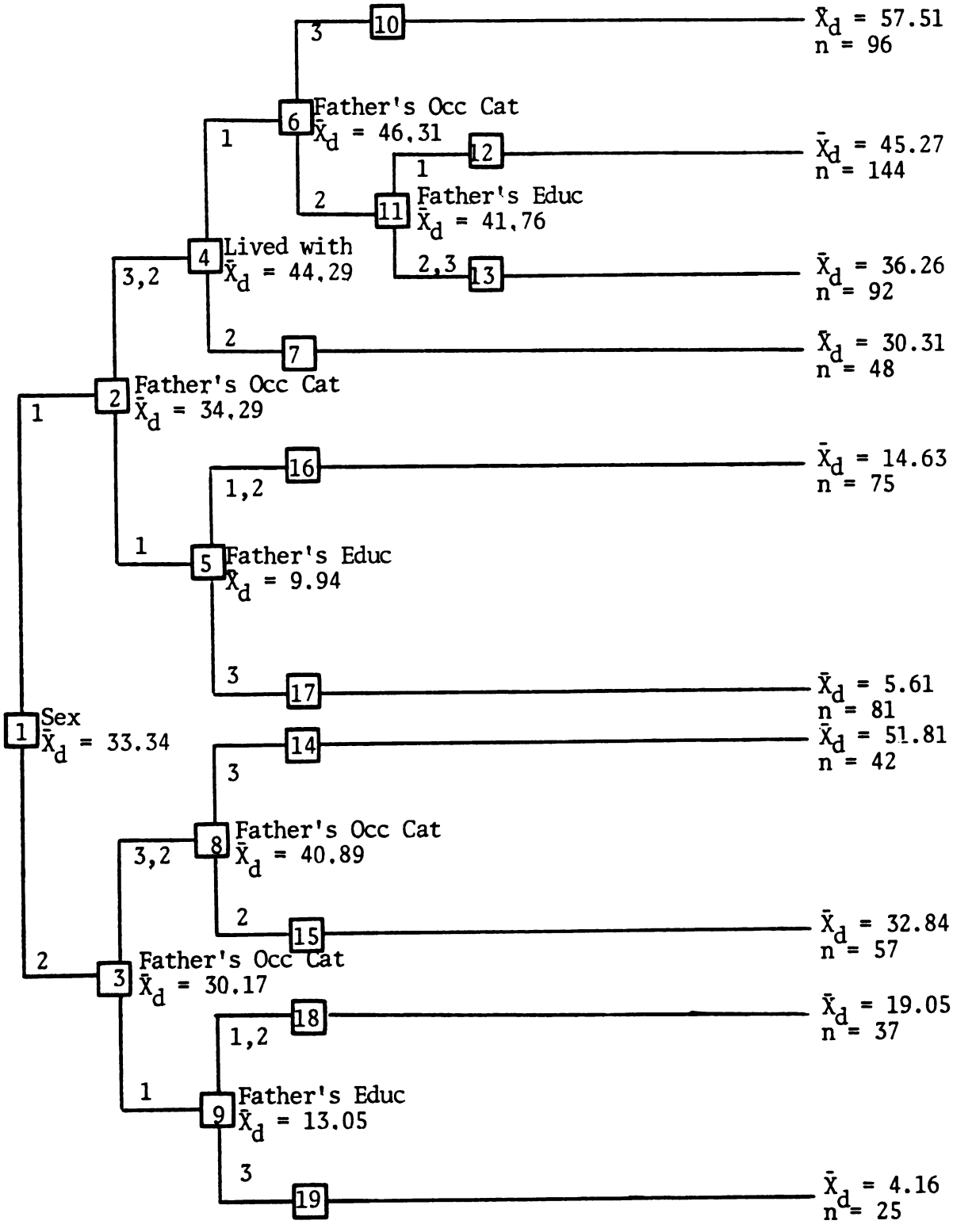


Table 15: The Pattern of Mobility for Men and Women from Background and Intervening Characteristics, Final Groups in Rank Order by Their Mean Differences

Group Number	Number of Cases	Mean Mobility	Characteristics:MEN
10	96	57.51	Father was a farmer, deceased, or unemployed; son lived with both parents at age 16
12	144	45.27	Father was a blue collar worker with less than an eighth grade education when the son lived with both parents at age 16
13	92	36.26	Father was a blue collar worker with higher than an eighth grade education when the son lived with both parents at age 16
7	48	30.31	Father was a blue collar worker, or a farmer, deceased, or unemployed; the son did not live with both parents at age 16
16	75	14.63	Son's father was a white collar worker with no education beyond high school
17	81	5.60	Son's father was a white collar worker who was educated beyond high school

Table 15 (Continued)

Group Number	Number of Cases	Mean Mobility	Characteristics:WOMEN
14	42	51.81	Daughter's father was a farmer, deceased or unemployed
15	57	32.84	Daughter's father was a blue collar worker
18	37	19.05	Daughter's father was a white collar worker with no education beyond high school
19	25	4.16	Daughter's father was a white collar worker who was educated beyond high school

Table 16: Variation in Father's SEI Scores Explained by Intervening Characteristics of Men and Women

Intervening Characteristics	Percent Total Sample	Percent Men	Percent Women	Difference
Marital status	0.1	0.0	0.4	0.4
Number of children	0.4	0.7	4.2	3.5
Age of youngest child	0.3	0.4	4.5	4.1
Years of teaching	0.6	0.9	2.0	1.1
Degree first principalship	1.0	0.8	1.5	0.7
Size city/town	0.7	0.3	2.1	1.9

differences in male and female percents ranged from 4.1 percent to 0, with the greatest difference in intervening variables being shown for age of youngest child. That variable represented 4.5 percent of the variance for women while only 0.4 percent for men.

Research Question 5: What is the process of intergenerational occupational mobility for elementary school principals in the middle United States?

To identify the process of mobility for elementary school principals in the middle United States, frequency tables of respondent characteristics (presented in Appendixes D through F) were evaluated by the following criterion: no less than 70 percent of the sample were required to respond to an item category, or a combination of contiguous categories when appropriate. The results were presented in an assumed chronological order.

Part of the process of mobility for elementary school principals in the sample appears to be having a mother who was not employed outside the home (see Appendix E; Table 34) when respondents were 16 years of age (70.45%). The sample, 76.90 percent of whom were male (see Appendix E; Table 37), tended not to be only children - in fact, 91.12 percent were raised with at least one other child (see Appendix E; Table 40), and lived with both (see Appendix E; Table 39) parents (88.24%).

Not surprising perhaps, 99.57 percent had experience as a teacher prior to their first principalship (see Appendix D; Table 21) although the level at which they

taught (see Appendix D; Table 22) was not a relevant indicator (according to the established criterion) of who became elementary school principals. Ordinarily a respondent did not teach (see Appendix F; Table 45) more than 10 years (71.60%) or exceed the age of 45 (see Appendix D; Table 27) (7.60%) at first principalship. Being married (see Appendix F; Table 41) and living with spouse (81.78%) and having (see Appendix F; Table 42) children (80.20%) were salient factors among the sample.

Finally and perhaps most important in light of the analyses of mobility patterns, 80.78 percent of the respondents had a master's degree or higher (see Appendix F; Table 46) at the time they first assumed an elementary school principalship.

In summary, the process of intergenerational occupational mobility for elementary school principals in the middle United States was to be male and reared by both parents. The mother remained at home to care for more than one child. One must almost certainly have been a teacher, but for not more than 10 years, nor exceeded the age of 45 to have become an elementary school principal in the middle United States. Marriage and children were as common as having a master's degree or higher at first principalship.

Research Question 6: Does the process of intergenerational occupational mobility differ for male and female elementary school principals in the middle United States?

To answer the above question the data (presented in Appendixes D through F) were examined separately for men and women in the sample. The processes of mobility were identified by the following criterion: no less than 70 percent of the sample were required to respond to an item category, or a combination of contiguous categories. The results of these analyses were presented in an assumed chronological order.

The Process of Mobility for Men: Mothers of male elementary school principals (see Appendix E; Table 34) were not employed outside the home (70.90%). Among the male sample, 88.43 percent lived with both parents (see Appendix E; Table 39) and 90.86 percent had brothers and sisters (see E; Table 40).

As teachers (99.44%) for 10 or less (see Appendix F; Table 45) years (80.42%), men did not find teaching at the elementary school level (see Appendix D; Table 22) a prerequisite for an elementary school principalship. Marriage (92.16% living with spouse) and (see Appendix F; Tables 41 through 43) children (88.43%), although usually not more than three (71.46%), were very common. At first principalship, men (see Appendix D; Table 27) were likely to be 35 years of age or younger (76.68%) and possess (see Appendix F; Table 46) a master's degree or higher (82.46%).

In summary, according to the criterion established, age of youngest child and level taught were not part of the process of mobility for men in the sample. The process of intergenerational occupational mobility for male elementary school principals in the middle United States, i.e., how they reached the position, was as follows:

1. The mother did not work outside the home,
2. The parents lived together and had more than one child,
3. Experience as a teacher,
4. Male elementary school principals were teachers for 10 years or less,
5. Marriage and one to three children were common,
6. At first principalship, men were 35 years of age or younger,
7. Men held a master's degree or higher at first principalship.

The Process of Mobility for Women: The majority (87.58%) of the women in the sample lived with both parents (see Appendix E; Table 39) and only 6.83 percent were an only child (see Appendix E; Table 40). Without exception (100.0%) the women were teachers (see Appendix D; Table 21) prior to becoming an elementary school principals, and 72.05 percent taught in an elementary school (see Appendix D; Table 22). Although marital status was not salient in this analysis for women, it may be interesting to note that nearly 52 percent were not currently married (see Appendix F; Table 41).

A full 75.78% percent were between the ages of 26 and 45 (see Appendix D; Table 27), and 75.15 percent had a master's degree or higher (see Appendix F; Table 46) at the time they first became elementary school principals.

According to the criterion established, marital status, having children, age of youngest child, mother's occupational category, and years a teacher were not part of the process of mobility for female elementary school principals. The process of mobility for female elementary school principals in the middle United States was summarized as follows:

1. The parents lived together and had more than one child,
2. At first principalship, women were between 26 and 45 years of age,
3. Women held a master's degree or higher at first principalship,
4. A teacher at the elementary level.

Review and Discussion of Significant Findings

Answers to six research questions were sought through various statistical methods. It was found that the pattern of mobility among elementary school principals in the middle United States was one of upward mobility from father's occupation when respondent was 16 years of age; only 4.30 percent of the sample indicated downward mobility. Women in the total sample were slightly less mobile than men, although the overall differences in mean father's SEI scores

were not statistically significant. The most mobile segment of the sample was principals originating from the farm, deceased father, or unemployed father's category who lived with both parents (19.23% of the sample), and as one might expect, the least mobile group had white collar fathers who attended beyond high school - 15.21 percent of the sample.

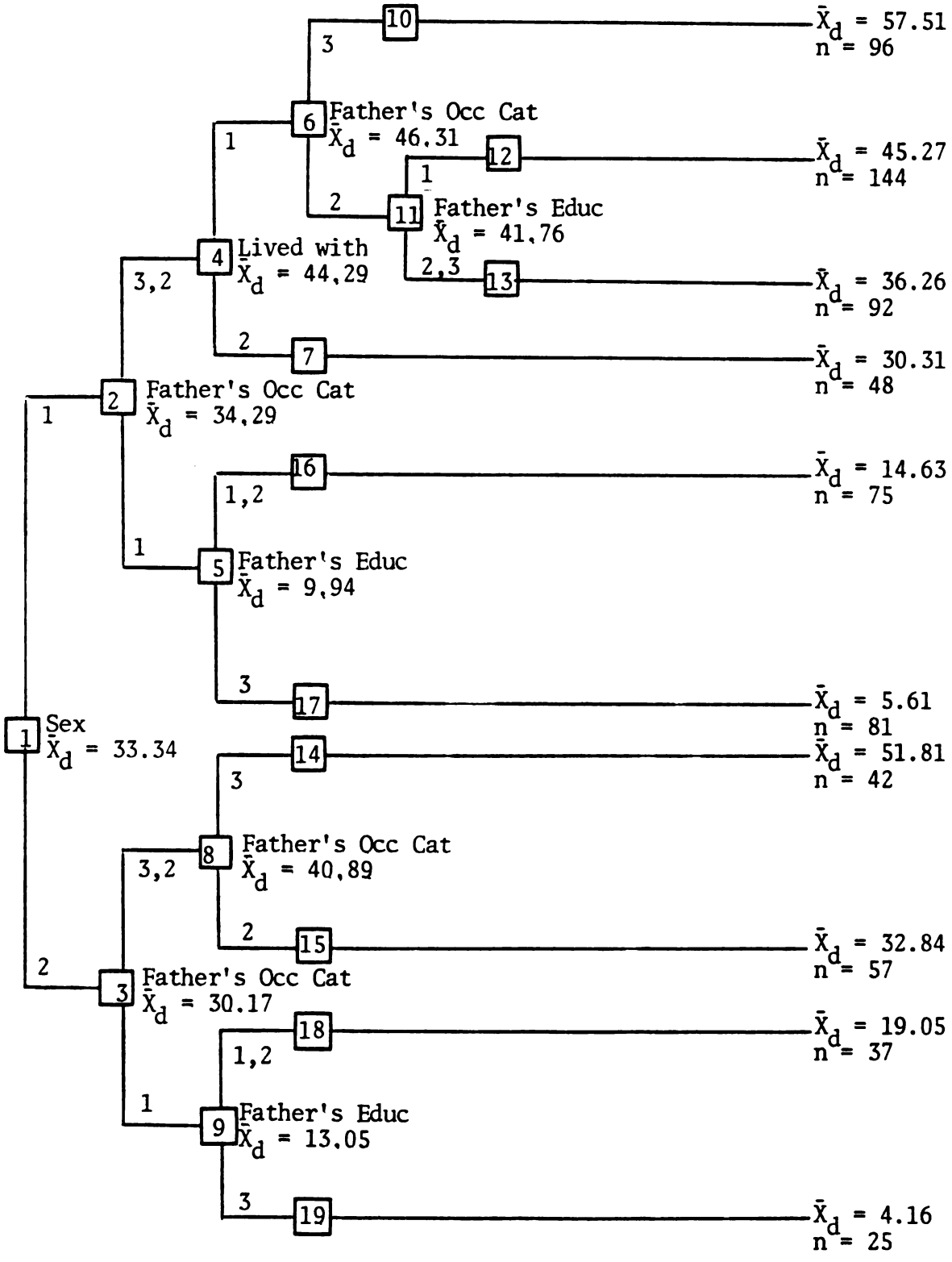
A statistical difference in mean white collar origins was not found between men and women, although a higher proportion of women (38.50%) than men (26.11%) found their origins in the stratum (percents derived from Appendix E; Table 33). A significant difference was detected among men and women from blue collar origins. Women in that category were from higher blue collar origins than their male counterparts. It may be interesting to note also that 35.40 percent of the women and 48.88 percent of the men were from blue collar origins (percents derived from Appendix E; Table 33). Men (23.69%) and women (31.06%) from farm, deceased father, or unemployed origins showed no difference in mean father's SEI scores (percents derived from Appendix E; Table 33).

Of the eight variables identified as background characteristics only three, i.e., father's education, father's occupational category and whom respondent lived with at age 16, were important in the AID3 analyses of mobility pattern. Father's occupational category explained 39.9 percent of the criterion variance for the total sample.

Father's education was the only important variable for elementary school principals from white and blue collar origins, and the single salient variable for principals from farm, deceased father, or unemployed origins was whom they lived with at age 16.

When the algorithm forced the sample to split first on the background variable sex, it was found that the same three variables remained salient in the AID3 analysis for men and women. However, only father's occupational category and father's education were indicated from background characteristics for women, while all three variables prevailed for men. Although at first review there appeared to be a difference in the pattern of male and female mobility, in all likelihood the patterns were approximately the same. Careful analysis of the AID3 output indicated that a split would have occurred for women from the blue collar, and farm, deceased or unemployed father's categories on the variable "lived with" had the group size been larger. Split of Group 14 (see Figure 5) would have produced two new groups - one with n = 38 and a second with n = 4. The algorithm was programmed for a minimum group size of 25 to prevent spurious results. It was concluded then that if there had been more women in the sample, the pattern of mobility for men and women as explained by the AID3 analyses would be approximately the same.

Figure 5: The Pattern of Mobility for Men and Women from Background and Intervening Characteristics to the Elementary School Principalship



The cross-validation procedure produced an 80 percent study sample that traced patterns of mobility from background and intervening characteristics for elementary school principals in order to test overall the stability of the AID3 results. The study sample was successfully cross-validated; therefore it was concluded that since the mean differences expressed in the end group of a random sample of respondents were within the limits established by the cross-validation formulae, the results of the AID3 analyses of the study sample are reasonably reliable predictors of the population end group means.

The results of the analysis for men and women from background and intervening variables taken together were the same as when background variables were analyzed separately. Therefore, the intervening variables identified for the study explained little if any variance in the pattern of mobility for male and female elementary school principals.

As a post hoc search for variables significant to the pattern of mobility, the researcher included the descripter variables discussed earlier, in two additional AID3 analyses. The first analysis was for the background, intervening, and descripter variables of the total sample while the second analyzed male and female elementary school principals separately.

Descripter variables were recoded (see Appendix G) as per the AID3 criteria. The first analysis revealed no

descripter characteristics in the AID3 tree structure; the addition of variables made no difference in the pattern of mobility. The total variance accounted for also remained the same - 47.8 percent. The second analysis produced no differences in male or female mobility using all three variable classifications from the results presented in Figure 2 (mobility from background characteristics alone), nor did the total criterion variance explained by the addition of descripter variables change.

Table 17 was prepared to show the amount of criterion variance explained by each study variable. Using the 0.6 percent criteria of significance suggested for AID3 use, it is apparent that ten of 24 variables did not account for an acceptable level of variance for the total sample. A technique, developed by Pohlmann and Moore[1], indicated no statistically significant differences between the overall variance accounted for by the gender variable, at the 95 percent level of confidence.

Exploration of the frequency data revealed the following variables as having importance for the process of mobility for elementary school principals:

1. Sex
2. Whom respondent lived with at age 16

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[1]John T. Pohlmann and James F. Moore, "Interval Estimation of the Population Squared Multiple Correlation", Multiple Linear Regression Viewpoints, Volume 8, Number 1, pp. 18-31.

Table 17: Variation Explained by Background, Intervening, and Descripter Variables for Men, Women, and the Total Sample.

Variable	Total Sample	Men n=536	Women n=161	Difference
Background:				
Sex	0.5%	---	---	---
Age	1.4	1.4%	5.5%	4.1%
Father's Occ Cat	39.9	42.0	35.2	6.8
Mother's Occ Cat	2.3	2.3	2.2	0.1
Father's Education	18.7	18.4	19.7	1.3
Mother's Education	9.4	10.1	7.0	3.1
Lived With	2.2	1.8	4.0	2.2
Siblings	1.4	0.8	6.7	5.9
Intervening:				
Marital Status	0.1	0.0	0.4	0.4
Number of Children	0.4	0.7	4.2	3.5
Age of Youngest Child	0.3	0.4	4.5	4.1
Years a Teacher	0.6	0.9	2.0	1.1
Degree First Prin.	1.0	0.8	1.5	0.7
Size City/Town	0.7	0.3	2.1	1.8
Descripter:				
Current Education	0.0	0.0	0.0	0.0
Specialization	0.0	0.2	0.0	0.2
Level Taught	0.4	0.4	1.1	0.7
Years a Prin.	1.6	1.1	5.1	4.0
Age First Prin.	0.1	0.7	0.0	0.7
Number Schools	0.1	0.0	0.5	0.5
System Enrollment	0.0	0.2	0.9	0.7
Salary	1.6	2.3	0.9	1.4
Contract	0.6	0.6	1.1	0.5
State	1.4	1.7	0.7	1.0
Total Explained Variance	47.8%	49.8%	40.7%	9.1%

* 3. Mother's occupational category

4. Presence of siblings

5. Employment as a teacher

* 6. Number of years as a teacher

** 7. Level taught

8. Age first principalship

* 9. Marital status

*10. Having children

11. Education first principalship

*12. Number of children

It appears that there is not just one process of mobility for elementary school principals in the middle United States. Although the processes for men and women are similar in several ways, they are dissimilar in as many others. Therefore the process of mobility should be studied separately for men and women in the future.

One advantage of the AID3 is its ability to ferret out a plethora of information about the variables under study for the purposes of further research and theoretical model building - an advantage not so readily possible with some other statistical procedures. Two primary issues were addressed here: 1) the effect of some correlations among the variables, and 2) the identification of some interactions among the variables. Using that information, the researcher

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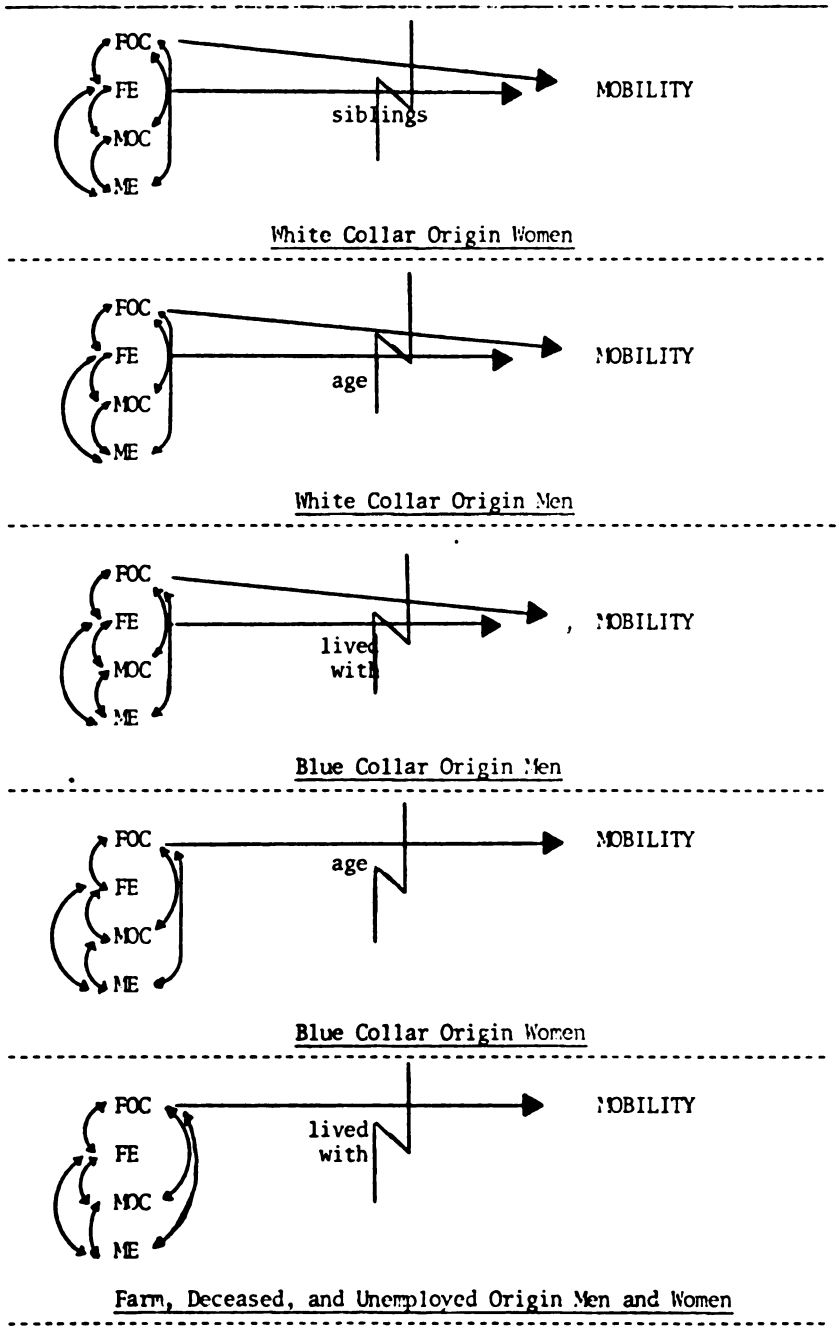
* Men only
** Women only

pulled together some considerations for developing a model for further study of the patterns intergenerational occupational mobility of elementary school principals, with implications for the process of mobility. Since only background characteristics were indicated as important to the patterns of mobility from the AID3 analyses, this post hoc investigation was confined to the same (see Figure 6).

Correlations among the background and intervening variables under study were presented in Table 4 of this dissertation. It was shown that no variables were more than somewhat correlated ($r = \pm.3$ to $\pm.6$). Of those variables that fell within this range, all were what would ordinarily be expected, e.g., father's education was somewhat correlated with father's occupational category ($r = .5067$), and marital status was correlated with having children ($r = +.6671$). The variance explained by father's education dropped as that explained by father's occupational category was used for the split which produced Groups 2 (men) and 3 (women), indicating the strength of the relationship (see Table 18). When Group 2 split into Groups 4 and 5, the variance explained by both variables dropped sharply. At the same juncture, the effect of whom the son lived with at age 16 (Group 4) nearly doubled. It was concluded then that for male elementary school principals from blue collar, and farm, deceased father, or unemployed origins, "lived with" interacts with father's occupational category and/or father's education. Moving a step farther,

Figure 6: A Proposed Model for the Study of the Mobility Among Elementary School Principals by Origin Strata



FOC=father's occupational category, FE=father's education, MOC=mother's occupational category, ME=mother's education. A straight line indicates a direct effect; a curved line indicates a correlative effect; a zig-zag indicates an interactive effect.

it was apparent that when Group 4 split into Groups 6 and 7, the variance explained by father's occupational category increased for Group 6 although not for Group 7. The split of Group 6 saw the variance of father's education double while the variance in father's occupational category was nil. This indicates an interactive effect between father's education, father's occupational category, and the "lived with" variable for sons from blue collar origins. By following this procedure, it was possible to conclude the following about mobility patterns among elementary school principals:

1. For women from white collar origins, siblings appears* to interact with father's occupational category and father's education
2. For men from white collar origins, age interacts with father's education and father's occupational category
3. For men from blue collar origins, father's occupational category and father's education interact with the "lived with" variable

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*Note: For white collar women, split of Group 9 raised the variance of siblings (Group 15) indicating interaction, even though a split did not occur due to the small number. If the female sample size had been sufficiently large, Group 14 would have split on the "lived with" variable. Also, had the sample size been larger Group 15 would have split on father's education. There were also indications from Group 15 (see Table 18) that for blue collar women, age interacts with father's occupational category. All this suggests that the pattern of mobility is approximately, though not exactly the same for men and women.

Table 18: Variance Explained by Background Variables for Men and Women on Each Group (Minimum Group Size Reduced to Two)

Predictor	Group 1	2	4	3	6	11	8	7	5	12	15	17	13	19	16	14	18	9
Sex	.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Age	.9	.7	.9	.8	.4	.3	.3	.3	.0	.0	.5	1.7	.3	.2	.1	.2	.1	.0
Father's Educ	15.4	11.8	.3	3.5	.5	1.0	.6	.4	.7	--	.6	.2	.0	--	.0	.1	.1	.7
Mother's Educ	6.7	5.4	.5	1.3	.4	.4	.1	.0	.6	.1	.0	.0	.1	.3	.0	.0	.4	.7
Father's Occ C	36.2	29.4	2.1	6.7	3.8	---	2.0	.1	--	--	--	.1	--	--	.3	--	--	--
Mother's Occ C	2.3	1.7	1.3	.5	.9	.5	.0	.2	.1	.0	.1	.4	.4	.0	.1	.1	.1	.6
Lived With	2.2	1.3	2.4	1.0	--	--	1.1	--	.0	--	.1	--	--	.1	--	1.4	.3	.3
Siblings	.8	.5	.4	1.4	.7	.5	.8	.9	.6	.2	.2	--	.2	.3	.0	.6	.5	.1

4. For men from farm, deceased, or unemployed origins, father's occupational category interacts with the "lived with" variable. The same appears* to be true for women in the same category.
5. For women from blue collar origins, age appears* to interact with father's occupational category.

Mother's occupational category and mother's education were somewhat correlated (r = -.4485) with each other, and with father's occupational category and father's education (see Table 4). The variance explained by each dropped as Groups 2 and 3 were created. Neither mother's variable appeared to interact with any other variables.

Variables not appearing in the AID3 (pattern) analysis were potential process variables since the variables indicated in an AID3 analysis are those which explain the largest portion of the criterion variance. Process variables, i.e., those which indicated homogeneity among the subjects on a given variable, if examined with pattern

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*Note: For white collar women, split of Group 9 raised the variance of siblings (Group 15) indicating interaction, even though a split did not occur due to the small number. If the female sample size had been sufficiently large, Group 14 would have split on the "lived with" variable. Also, had the sample size been larger Group 15 would have split on father's education. There were also indications from Group 15 (see Table 18) that for blue collar women, age interacts with father's occupational category. All this suggests that the pattern of mobility is approximately, though not exactly the same for men and women.

variables should also allow for theory development and model building. By studying pattern and process together, it may be possible to predict who will become an elementary school principal.

Observations

As a post hoc extension of the analysis of the process of mobility some additional observations were made on the study variables, by state of employment, to include those not identified as important process variables. In this section state refers to politically organized bodies with definite boundaries such as Illinois, Michigan, and Wisconsin. Although state as a variable explained only 1.40 percent of the variance in the pattern of mobility (1.70% for men and 0.70% for women), some differences were detected by state of employment. Interpretation of the data by state must be read with caution in that the sample was drawn to be representative of the middle United States rather than individual state. Although not a research question in the study, it is possible that the process of mobility differs to some extent by state of employment. Such will not be determined here; rather, some data were presented by state of employment for utility in future research.

The proportion of women in the sample (23.10%) was slightly higher than the national average among elementary school principals; some variation by state was noted in the

proportion of men to women in the middle United States (see Table 19). The majority were employed east of the Mississippi River with the largest single number being in Michigan.

Table 19: Percent Men and Women From Each State in the Sample

State	Percent Men	Percent Women	N
Illinois	68.75	31.25	80
Indiana	88.31	11.69	77
Iowa	75.51	24.49	49
Kansas	81.58	18.42	38
Michigan	75.33	24.67	150
Minnesota	77.55	22.45	49
Missouri	79.59	20.41	49
Nebraska	75.00	25.00	28
North Dakota	90.91	9.09	11
Ohio	72.73	27.27	88
South Dakota	72.73	27.27	11
Wisconsin	80.00	20.00	60
Total			690*

*State of residence could not be determined for seven respondents

Typically the respondent was principal of one elementary school (83.50%). However, when respondents directed two schools in Illinois, Missouri, and Nebraska the probability was greater that the respondent was a woman. In Michigan, Minnesota, North Dakota, and Ohio a man was more likely to direct two schools than a woman. It was not common to find an elementary school principal directing three schools except in Nebraska (17.86%).

The majority of principals directed (indirectly at least) the activities of between 200 and 599 students (see Appendix D; Table 27). Schools with fewer than 200

students appeared to be nearly equally distributed between men and women in all states but Minnesota, Missouri, and South Dakota where the smallest schools were almost exclusively lead by women. At the same time, the largest enrollments (more than 600 students) were under the direction of men in Minnesota (26.53%) while distributed almost equally in all other states. Few differences occurred by state for respondents who directed between 200 and 599 students. However, in Illinois, Iowa, and Nebraska women were more likely to direct 200 to 399 students while more men than women were directing 400 to 599.

Total school system enrollment for the majority (51.23%) was 3000 to 24,999 students. While the trend was toward an equal distribution on number of students under the direction of male and female elementary school principals in the middle United States, when viewed from the point of system enrollment the picture seemed to change. There were more women than men in large school systems 25,000 students or more - especially in Illinois (40.0%), Indiana (33.33%), Nebraska (42.86%), and Wisconsin (41.67%). In Indiana and Wisconsin there were twice as many men in systems with 3000 to 24,999 students while Kansas had twice as many women in this category. In the smaller systems of Illinois, Kansas, Nebraska, and Wisconsin (300 to 2999 students) men predominated two to one. These findings were consistent with those of size of community of employment. It was found that in Illinois, Kansas, Minnesota, and Missouri at least

twice as many women were employed in suburbs of large cities than men. In Wisconsin a woman was 10 times as likely to work in a large city while in Illinois and Missouri women were about twice as likely to work in a large city. In the medium cities (50,000 to 249,999) of Indiana, Iowa, Michigan, and Ohio proportionately twice as many women or more were found while men predominated in Illinois and Missouri. Small cities (20,000 to 49,999) were about equally represented except that in Kansas and Nebraska there were more women while in Minnesota, Ohio, and Wisconsin more men were found. In nearly every state there were proportionately more male elementary school principals in small towns (2500 to 19,999); this tendency was marked in Iowa, Kansas, Nebraska, and Wisconsin. There was little difference by state or sex of respondent in the distributions in rural farm and rural nonfarm communities.

A wider range in salary was noted among women than men. While men tended to be clustered between $16,000 and $23,999, women were more evenly dispersed among the salary categories. For example, 26.09 percent of the women earned less than $16,000 per year as an elementary school principal while only 7.27 percent of the men fell into this category.*

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*Women in the following states averaged more women under $16,000 per year than the total female sample: Minnesota (36.36%), Missouri (50.0%), South Dakota (66.67%), and Iowa (50.0%). Men in Illinois (9.62%), South Dakota (12.5%), Nebraska (14.29%), Kansas (25.81%), Missouri (15.79%), and Minnesota (10.53%) averaged more men under $16,000 per year than the total male sample.

At the same time 23.69 percent of the men and 21.74 percent of the women earned $24,000 or more per year as elementary school principals.

Salary differences in isolation of current level of education and number of years in a position are difficult to interpret since these two variables reportedly determine an individual's salary. A clear majority (75.38% of the men and 83.23% of the women) held a master's degree when the sample was drawn and it was not uncommon for respondents to hold an education specialist degree (17.36%).* Even at first principalship only 19.08 percent held less than a master's degree. Of those holding a master's degree at first principalship, 12.20 percent completed an education specialist degree and 1.58 percent a doctorate at the time the sample was drawn. It should also be noted that the yearly contracts of elementary school principals in the middle United States extended 10 to 11 months (73.89%) with little difference detected by state or gender.

In general, women tended to have held their position as an elementary school principal fewer years than men (see Appendix D; Table 22), a factor which may help explain the salary differences noted earlier. However,

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*The highest rates were noted among men in Kansas (30.0%), Iowa (24.32%), Indiana (23.53%), Michigan (21.62%), Minnesota (21.05%), Missouri (20.51%), and Nebraska (45.0%); women in Minnesota (18.18%) and Michigan (24.32%).

such was not the case in Minnesota, Kansas, and Nebraska where 40 percent or more of the women queried had worked as an elementary school principal 15 or more years. It may be interesting to note that the women in those same states were not as highly salaried as the men even though twice as many men as women were elementary school principals 15 or more years. However, as was noted earlier, a disproportionately high number of men in each of these states held an education specialist degree.

Area of specialization for the highest degree held was generally supervision/educational administration (68.15%) or elementary education (21.66%); women were somewhat less likely to specialize in supervision (59.01%) than men (70.9%) but slightly more likely to concentrate in elementary education (27.33%) than men (19.96%). Some differences were noted among the states in that 70 percent or more of the women specialized in supervision in Illinois, Iowa, Minnesota, and Nebraska; women in Kansas (71.43%) specialized most often in elementary education. Men and women in Ohio tended to be the most evenly split between specialization in supervision and elementary education.

Age of respondent in 1977 was more diverse for women than men with women being generally older than men - a factor perhaps not consistent with the findings on number of years a principal until we note that women were generally older at first principalship than men. It was found that 68.66 percent of the male sample was 26 to 35

years of age at first principalship while only 36.65 percent of the women were of the same age (see Appendix D; Table 26). Such consistency occurred among the states that it would almost appear that if a man had not become an elementary school principal by the age of 35 his chances diminished to about one in five; in Nebraska and North Dakota his prospects were even less - about one in ten. Women however beyond the age of 35 have a 50/50 chance or more of a first principalship - in fact, in Indiana, Missouri, and Wisconsin a woman had little chance of an elementary school principalship under the age of 35.

As might be expected from the above findings, women taught more years prior to first principalship than men. Regardless of gender it was most common to teach at the elementary school level (68.15%) and/or in a junior high school (35.29%).

Men in the sample (92.16%) were almost exclusively married and living with spouse while 51.55 percent of the women were not married. In fact, 34.78 percent of the women were never married as compared to 4.10 percent of the men. The rate of never married women was even higher in Illinois (45.83%), Indiana (66.67%), Iowa (50.0%), and Minnesota (45.45%). Although having children was common among those who marry, men were more likely to have more than three children (16.79%) than women (8.79%). The fact that the children of women tended to be older in 1977 than the children of men is probably explained by the ages of male and female respondents.

Father's occupational category did not vary significantly by state from the overall sample (see Appendix E; Table 32), except that nearly all women in Wisconsin were from white collar origins (83.33%). In general we would assume that father's education would remain consistent with father's occupational category. In Illinois, for example, one and a half times more of the men than expected were from white collar origins. At the same time twice as many fathers as was expected had a college degree. Evaluating the sample in this manner it was found of men that in those states that produced a disproportionate number of farm fathers for the sample, whether more or less than the 19.4 percent found in the male sample (Michigan 7.08%, Minnesota 32.43%, Kansas 38.71%, Iowa 40.54%, Nebraska 57.14%, South Dakota 37.5%, and North Dakota 55.65%), father's education was no different than the overall sample except in Kansas where twice as many fathers had a high school diploma than was expected; North Dakota where only two-thirds as many as expected had less than a high school diploma; and in Nebraska where one and a half times as many as expected had a high school diploma. For the most part consistency was found for the fathers of women in terms of education and occupational category. In Kansas however women were one and a half times more likely to have farm origins (42.86%) than women in the total sample (25.47%)

yet no differences were detected in father's occupational category.

Although mothers tended not to be employed outside the home (70.45%), they were more likely to have completed high school than fathers of elementary school principals in the middle United States (60.98% of the fathers did not have a high school diploma as compared to 48.93% of the mothers). Men in Michigan (59.82%), and women in Wisconsin (41.67%) and Kansas (57.14%) were some what less likely to have had an unemployed mother, while men and women in Iowa (81.63%), North Dakota (81.82%), Nebraska (85.19%), and Minnesota (85.11%) were somewhat more likely to have had an unemployed mother. Mothers who were employed outside the home were most often found in the white collar occupations (64.19% for men and 73.47% for women).

Most principals lived with both parents at the age of 16 (88.24%) and one or more siblings (91.12%) regardless of gender or state of employment. The majority had one to three siblings with little difference in terms of sibling placement (oldest 31.14%, middle 24.39%, and youngest 35.59%) except in Nebraska, North Dakota, and South Dakota where men and women had four or more siblings a majority of the time; and in Kansas, Ohio, and Wisconsin where women were only children twice as often as was expected. Women in Minnesota, Nebraska, Illinois, and Wisconsin were middle children more often but most often the oldest in Kansas

and Indiana. Men in North Dakota and Wisconsin were middle children a majority of the time.

Of the variables studied, some differences were detected by gender and by state of employment. It would appear that stratification by these two factors in future study of elementary school principals in the middle United States would be warranted.

Summary

The results of the statistical analyses were reported in this Chapter in the order of the research questions. The salient findings were reviewed and discussed, and some post hoc analyses were presented.

The summary, conclusions, and recommendations of this study are presented in the final chapter.

Chapter 5

SUMMARY, LIMITATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

A summary of the study is presented in this section through a review of the purpose, research questions, methodology, and findings of the study.

Purpose

The purpose of the study set forth by the researcher was to define the patterns and processes of intergenerational occupational mobility among elementary school principals in the middle United States who were members of the National Association of Elementary School Principals during the 1976-77 school year. Knowledge of the distance and direction of mobility as well as identification of factors which influence an individual to become an elementary school principal were considered important in order to determine if an individual's occupational opportunities are limited or enhanced by accidents of birth and/or subsequent experiences.

Research Questions

In an attempt to fulfill the purpose of the study answers to the following research questions were sought:

1. What is the pattern of intergenerational occupational mobility (as measured by the SEI) for elementary school principals in the middle United States from background characteristics?

2. Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background characteristics?

3. Will the pattern of intergenerational occupational mobility (as measured by the SEI) from background characteristics and intervening characteristics for elementary school principals in the middle United States be replicated by a cross-validation sample?

4. Do the patterns of intergenerational occupational mobility (as measured by the SEI) differ for male and female elementary school principals in the middle United States from background and intervening characteristics?

5. What is the process of intergenerational occupational mobility for elementary school principals in the middle United States?

6. Does the process of intergenerational occupational mobility differ for male and female elementary school principals in the middle United States?

Methodology

The sample was composed of 697 elementary school principals who were members of the National Association of Elementary School Principals during the 1976-77 school year, all of whom lived and worked in a 12 state area referred to as the middle United States.

Data were collected during the summer and fall of 1977, using an instrument developed by the researcher named the Survey of Elementary School Principals. The data were transferred from the returned questionnaires to computer op scan sheets for use and storage on computer tape.

The dependent variable, pattern of mobility from father's occupation, was coded according to Duncan's Socioeconomic Index (SEI) by two independent coders. Upon completion, scores were compared, and rectified when necessary.

The independent variables were defined in two major categories: background characteristics and intervening characteristics; a third category of variables used primarily for sample description, was labeled descripters. The background characteristics identified for the study were: sex, age, father's occupational category, mother's occupational category, father's education, mother's education, whom respondent lived with at age 16, and siblings and sibling placement. The intervening variables were: marital status, children and number of children, number of years a teacher, highest earned college degree, degree at first principalship, size community of employ, and age of youngest child. The descripter characteristics were: level/levels of teaching, number years an elementary school principal, highest earned college degree, area of specialization (highest degree), number of schools under direction, age at first principalship, total enrollment under direction, total school system enrollment, salary for the 1976-77 school year, number months under contract, and state of employment.

The third edition of the Automatic Interaction Detector (AID3), a component of the OSIRIS package, was used as the primary method to evaluate the research questions. The Statistical Package for the Social Sciences (SPSS)

was used to supplement the AID3 when simple frequency distributions were required and to obtain the variable intercorrelations.

The study was cross-validated by computing a 95 percent confidence interval about the study sample end group mean differences in order to determine if the cross-validation means were statistically different.

Findings

The major findings of the investigation were summarized for this section by presenting the results of the analysis of each research question. A proposed model for future study of the patterns and processes of mobility of male and female elementary school principals was gleaned from the findings.

It was found that the average amount of mobility for elementary school principals in the sample was +33.34 SEI points from father's occupation, on a 96 point scale (+ indicates upward mobility); 4.3 percent of the total sample experienced downward mobility. The sample consisted of 31.28 percent principals from white collar origins, 45.77 percent from blue collar origins, and 20.95 percent from farm origins.

The mobility patterns of male and female elementary school principals were compared with the following results: Male elementary school principals were slightly more mobile than their female counterparts although the difference in mean mobility was not statistically significant (34.29 and

and 30.17 respectively). Downward mobility was experienced by approximately equal percents of men (4.29) and women (4.35). More women (38.5%) than men (26.11%) found their origins in the white collar stratum but there was no significant difference in the amount of mobility experienced by each group (mean mobility was 13.05 and 9.95 SEI points respectively). Male elementary school principals from blue collar origins were significantly more mobile (40.93 SEI points) than women (32.84 SEI points), and a higher proportion of men (48.88%) found their origins among the blue collar than women (35.44%). No difference in distance of mobility was detected among male and female elementary school principals from farm, deceased father, or unemployed origins (mobility was 51.75 for men and 51.81 for women). The percents from farm origins, not including those with deceased or unemployed fathers varied slightly with 19.4 percent of the men and 25.47 percent of the women originating in that category.

The results of the AID3 analyses indicated that the pattern of mobility for elementary school principals in the middle United States was dominated by father's occupational category, father's education, and whom respondent lived with at age 16. It seems remarkable that with 47.8 percent of the variance in father's occupation accounted for, all was attributed to background characteristics, with father's occupational category and father's

education explaining 39.9 percent and 18.7 percent respectively. It was found that these two variables were somewhat correlated (r= -.5067).

The pattern of mobility appeared to be similar for men and women even though some differences were identified. It was found that the pattern of mobility for men and women from white collar origins was similar with father's education being the most salient variable. For men, age interacted with father's occupational category and education while for women, siblings appeared to interact with the father's variables. Women from blue collar and from farm, deceased and unemployed fathers were effected by little other than father's occupational category, although had sample size been larger, whom they lived with at age 16 probably would have produced an AID split. The age of blue collar origin women appears to interact with father's occupational category. Men who were not from white collar origins were dominated by whom they lived with at age 16 - a variable which interacted with father's occupational category and education. Those not living with both parents experienced the least amount of mobility. Men from blue collar origins who lived with both parents were influenced by father's education; men from farm, deceased and unemployed fathers who lived with both parents were effected by little else. For men from the latter origin category, father's occupational category interacted with the "lived with" variable.

The pattern of mobility for male and female elementary school principals in the middle United States could be represented as an additive model if, when interactions occurred among variables, the effects of the interacting variables could be combined at various points in the model. Since: 1) mother's occupational category and mother's education were correlated with father's occupational category and education, 2) a technique was not available to combine the effects of father's and mother's occupational status', and 3) the mother's variables accounted for little of the overall criterion variance for either gender, it would not appear necessary to include mother's occupational category and education in the model. However, as was emphasized earlier, it is possible that in the future, one or both of the mother's variables will have more effect on the pattern of mobility of elementary school principals as more mothers become wage earners. Thus, the researcher recommends retaining the mother's variables in the model.

The study sample was successfully cross-validated; the results of a random sample of respondents were within the limits established by the cross-validation formulae.

Sex of respondent determined the process of mobility for elementary school principals; the conditions surrounding employment were more complicated for men than women. The process of mobility was identified for men as follows:

1. The mother did not work outside the home,
2. The parents lived together and had more than one child,
3. Experience as a teacher* for 10 years or less,
4. Married with one to three children, and
5. 35 years of age or younger with a master's degree at first principalship.

The process of mobility for women was identified as follows:

1. The parents lived together and had more than one child,
2. Experience as an elementary teacher, and
3. At first principalship, women were between the ages** of 26 and 45 with a master's degree or higher.

As important perhaps as what was found is what was not revealed through the study. In this country many pride in their perceived opportunity to excel; we often read and hear that individual success depends on individual effort. The results of this study reinforce such a generalization, at least in part. Since the pattern analysis indicated that elementary school principals in the middle United States were extremely mobile from father's occupational category and father's education, we must look to the process of mobility to determine how and why some individuals become elementary

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*It was more common for men than women to have had teaching experience other than at the elementary school level.

**59.63% of the women were over the age of 35 at first principalship as compared to 23.14% of the men.

school principals. It was found for example that over the total sample nearly all subjects had been a teacher, the majority had a mother who did not work outside the home, most were male, and most had a master's degree or higher upon entry as a principal. It is possible that only one is an overriding factor in the process of mobility, e.g., attained level of education. However, the scope of this investigation did not include provision for such assessment.

When variable correlations and interactions were studied, differences in mobility by origin strata for men and women were indicated. A proposed model for study was drawn from the findings which may have utility for future analyses of the patterns and processes of mobility of male and female elementary school principals.

Limitations

All research is somewhat hindered by a variety of limitations; this study was no exception. Although it is perhaps dangerous to study segments of human behavior in lieu of the holistic, in the social sciences the researcher is faced with the awesome responsiblity of keeping the data manageable. It was recognized that intergenerational occupational mobility is only one component of occupational attainment. No attempt was made to observe factors pertinent to occupational attainment outside the area of intergenerational occupational mobility. An exhaustive list

of relevant variables was not studied; the exclusion of race as a background variable was perhaps the most serious omission. Jencks[1] et al found that black men from equal origins with white men (as measured by father's occupation) averaged less mobility than white men. Therefore, it is possible that black men who become elementary school principals are from higher occupational origins than white men in the same position.

The study was also limited by the lack of a technique to combine the effects of father's and mother's occupational status'. Such a formula would enable the researcher to more realistically assess the socioeconomic status of the respondent's family, since the overall status of the family is likely to increase somewhat due to advantages provided by the second income.

The Socioeconomic Index created a limitation in that the scores within the area of education were not necessarily consistent with what we might assume the public school hierarchy of positions to be (see Table 20).

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[1]Christopher Jencks et al, Inequality: A Reassessment of the Effect of Family and Schooling in America, (New York: Harper & Row Publishers, 1972), p. 190.

Table 20: SEI Scores For Some Public School Professional Positions

Position	SEI Scores*
Adult education teachers	61.3
Secondary school teachers	70.2
Elementary school teachers	71.2
School administrators, elementary and secondary	71.7
Prekindergarten & kindergarten teachers	72.0

*Scores were rounded to the nearest whole number in the analysis since the AID3 algorithm was unable to handle decimals in the dependent variable

In addition, it is possible that elementary school principals vary in the amount of socioeconomic status they enjoy within their communities, or as compared to one another since variance in education and income among principals in the sample was noted.

Finally, the study results may have been hindered by the disproportionate number of women in the sample. Although the researcher could have weighted the data for females, a larger sample size would probably be more informative.

Conclusions

The conclusions of the study, drawn from the findings, were as follow:

1. Until future study contradicts these findings, one might assume that the patterns and processes of mobility for elementary school principals in the United States are similar to those in the middle United States.
2. The patterns of mobility among elementary school principals suggests that:
    a) the occupational structure has remained relatively stable over time, since age was not a salient variable. Unless decided changes occur in the political and economic structures of the United States, one would expect this phenomenon to prevail,
    b) in terms of origin strata, equal opportunity for entry into the position is a reality, based on the study variables. Certain variables e.g., race of respondent, were not included in this study.
3. The processes of mobility for male and female elementary school principals suggest that differences in recruitment practices exist for men and women.

Importance to Education: The study of intergenerational occupational mobility among elementary school principals provides information regarding the openness of that position within the American occupational structure. Since an individual's career occupies a dominant place in his/her life, interest in opportunity for the position are natural. The results of such study have implications for career guidance and recruitment to the position.

Knowledge of the process of mobility to the elementary school principalship can assist aspirants to the position in establishing factors which limit or enhance their opportunity for the position. It was found that the process of mobility was somewhat different for male and female elementary school principals, e.g., men were younger with less teaching experience than women, and proportionately there were few women in the sample. It was also found that women were older, taught more years, and were slightly more likely to have taught at the elementary school level than men. These factors may indicate that few women aspire to the elementary school principalship, or that women do not have the appropriate characteristics for the position. One might also express curiosity for an unmarried man's chances of becoming an elementary school principal since nearly all male respondents were married and living with spouse. In short, awareness of the characteristics of those who have successfully competed for an elementary school principalship

provides a baseline of information for knowledgeable career planning by aspirants to the position.

The study of entry level characteristics of holders of an elementary school principalship may have implications for past recruitment by school administrators. A pertinent question might be, do men and women with these characteristics aspire more often to the position than others with differing characteristics, or do individuals who hire elementary school principals seek men and women who have these characteristics?

Finally, this analysis provides a baseline for continued study of intergenerational occupational mobility among elementary school principals in the middle United States. The large amount of mobility recognized among elementary school principals also presents us with a serious question. Did these individuals become elementary school principals to enhance their personal status rather than for more altruistic reasons?

Recommendations

Some recommendations were noted through the course of analyzing and summarizing the findings; several deserve final mention.

The pattern of intergenerational occupational mobility from a single occupation would be enhanced by the ability to measure individual socioeconomic status enjoyed by holders of the position as determined by income and

education. This would allow the investigator to use the respondent's status as the dependent variable. Using the content of this study as an example, intergenerational occupational mobility to the elementary school principalship could be measured from father's occupation, and other variables of choice.

Recognition of the process of intergenerational occupational mobility for elementary school principals is far from a reality. Such knowledge of this and other professions would be beneficial, not just to satisfy a researcher's curiosity but, for use in career planning and as a vocational guidance tool.

A technique to combine the effects of father's occupation and mother's occupation would be valuable in determining family socioeconomic status - a factor that this researcher believes will become increasingly potent due to the increasing number of women who are becoming wage earners.

It is with regret and chagrin that race was not included as a background variable to the study since it is possible that racial minorities and the white majority experience different processes of mobility.

The AID3 has potential for generating testable hypotheses for further study; more remarkably, it has potential for theory development in the social sciences.

Coding the SEI

To arrive at a code for a specified occupation, we use "millwrights" for purposes of illustrations. The Occupation Code (this Appendix) must first be obtained from the Occupational Classification System* (this Appendix). That code is then checked against the Duncan Socioeconomic Index (SEI).* In our example, the Occupation Code for the occupation millwright is 502 (see p. 172 of this Appendix). Code 502 receives a SEI score of 31.0 (see p. 182 of this Appendix).

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*From: Robert M. Hauser and David L. Featherman, The Process of Stratification: Trends and Analysis (New York: Academic Press, 1977), pp. 309-329.

APPENDICES

APPENDIX A

Socioeconomic Index

Equivalent alphabetic codes follow some codes. Either code may be utilized, depending on the processing method. "N.e.c." means "not elsewhere classified."

Occupation Code	PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS
001	Accountants
002	Architects
	Computer specialists
003	Computer programmers
004	Computer systems analysts
005	Computer specialists, n.e.c.
	Engineers
006	Aeronautical and astronautical engineers
010	Chemical engineers
011	Civil engineers
012	Electrical and electronic engineers
013	Industrial engineers
014	Mechanical engineers
015	Metallurgical and materials engineers
020	Mining engineers
021	Petroleum engineers
022	Sales engineers
023	Engineers, n.e.c.
024	Farm management advisors
025	Foresters and conservationists

[1] This code is used to identify not reported industries in surveys where the not reported cases are not allocated.

[2] Those returns from the Population Census which do not have an industry entry are allocated among the major industry groups during computer processing. These cases are labeled with the code for the "allocation" category to which they are assigned.

Occupation Code	PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS—Continued
026	Home management advisors
	Lawyers and judges
030	Judges
031	Lawyers
	Librarians, archivists, and curators
032	Librarians
033	Archivists and curators
	Mathematical specialists
034	Actuaries
035	Mathematicians
036	Statisticians
	Life and physical scientists
042	Agricultural scientists
043	Atmospheric and space scientists
044	Biological scientists
045	Chemists
051	Geologists
052	Marine scientists
053	Physicists and astronomers
054	Life and physical scientists, n.e.c.
055	Operations and systems researchers and analysts
056	Personnel and labor relations workers
	Physicians, dentists, and related practitioners
061	Chiropractors
062	Dentists
063	Optometrists
064	Pharmacists
065	Physicians, medical and osteopathic
071	Podiatrists
072	Veterinarians
073	Health practitioners, n.e.c.
	Nurses, dietitians, and therapists
074	Dietitians
075	Registered nurses
076	Therapists
	Health technologists and technicians
080	Clinical laboratory technologists and technicians
081	Dental hygienists
082	Health record technologists and technicians
083	Radiologic technologists and technicians
084	Therapy assistants
085	Health technologists and technicians, n.e.c.
	Religious workers
086	Clergymen
090	Religious workers, n.e.c.
	Social scientists
091	Economists
092	Political scientists
093	Psychologists
094	Sociologists
095	Urban and regional planners
096	Social scientists, n.e.c.
	Social and recreation workers
100	Social workers
101	Recreation workers
	Teachers, college and university
102	Agriculture teachers
103	Atmospheric, earth, marine, and space teachers
104	Biology teachers
105	Chemistry teachers
110	Physics teachers
111	Engineering teachers
112	Mathematics teachers

Occupation Code	PROFESSIONAL, TECHNICAL, AND KINDRED WORKERS—Continued
113	Health specialties teachers
114	Psychology teachers
115	Business and commerce teachers
116	Economics teachers
120	History teachers
121	Sociology teachers
122	Social science teachers, n.e.c.
123	Art, drama, and music teachers
124	Coaches and physical education teachers
125	Education teachers
126	English teachers
130	Foreign language teachers
131	Home economics teachers
132	Law teachers
133	Theology teachers
134	Trade, industrial, and technical teachers
135	Miscellaneous teachers, college and university
140	Teachers, college and university, subject not specified
	Teachers, except college and university
141	Adult education teachers
142 (N)	Elementary school teachers
143	Prekindergarten and kindergarten teachers
144	Secondary school teachers
145	Teachers, except college and university, n.e.c.
	Engineering and science technicians
150	Agriculture and biological technicians, except health
151	Chemical technicians
152	Draftsmen
153	Electrical and electronic engineering technicians
154	Industrial engineering technicians
155	Mechanical engineering technicians
156	Mathematical technicians
161	Surveyors
162	Engineering and science technicians, n.e.c.
	Technicians, except health, and engineering and science
163	Airplane pilots
164	Air traffic controllers
165	Embalmers
170	Flight engineers
171	Radio operators
172	Tool programmers, numerical control
173	Technicians, n.e.c.
174	Vocational and educational counselors
	Writers, artists, and entertainers
175	Actors
180	Athletes and kindred workers
181	Authors
182	Dancers
183	Designers
184	Editors and reporters
185	Musicians and composers
190	Painters and sculptors
191	Photographers
192	Public relations men and publicity writers
193	Radio and television announcers
194	Writers, artists, and entertainers, n.e.c.
195	Research workers, not specified

MANAGERS AND ADMINISTRATORS, EXCEPT FARM

201	Assessors, controllers, and treasurers, local public administration
202	Bank officers and financial managers
203	Buyers and shippers, farm products
205	Buyers, wholesale and retail trade
210	Credit men
211	Funeral directors
212	Health administrators
213	Construction inspectors, public administration
215	Inspectors, except construction, public administration
216	Managers and superintendents, building
220	Office managers, n.e.c.
221	Officers, pilots, and pursers; ship
222	Officials and administrators; public administration, n.e.c.
223	Officials of lodges, societies, and unions
224	Postmasters and mail superintendents
225	Purchasing agents and buyers, n.e.c.
226	Railroad conductors
230	Restaurant, cafeteria, and bar managers
231	Sales managers and department heads, retail trade
233	Sales managers, except retail trade
235	School administrators, college
240	School administrators, elementary and secondary
245	Managers and administrators, n.e.c.

SALES WORKERS

260	Advertising agents and salesmen
261	Auctioneers
262	Demonstrators
264	Hucksters and peddlers
265	Insurance agents, brokers, and underwriters
266	Newsboys
270	Real estate agents and brokers
271	Stock and bond salesmen
280	Salesmen and sales clerks, n.e.c.[1]

CLERICAL AND KINDRED WORKERS

301		Bank tellers
303		Billing clerks
305	(P)	Bookkeepers
310		Cashiers
311		Clerical assistants, social welfare
312		Clerical supervisors, n.e.c.
313		Collectors, bill and account
314		Counter clerks, except food
315		Dispatchers and starters, vehicle
320		Enumerators and interviewers
321		Estimators and investigators, n.e.c.
323		Expediters and production controllers
325		File clerks
326		Insurance adjusters, examiners, and investigators
330		Library attendants and assistants
331		Mail carriers, post office

[1] Category "280 Salesmen and sales clerks, n.e.c." was subdivided in the Census into 5 occupation groups dependent on industry. The industry codes are shown in parentheses.

281	Sales representatives, manufacturing industries (Ind. 107–399)
282	Sales representatives, wholesale trade (Ind. 017–058, 507–599)
283	Sales clerks, retail trade (Ind. 608–699 except 618, 639, 649, 667, 668, 688)
284	Salesmen, retail trade (Ind. 607, 618, 639, 649, 667, 668, 688)
285	Salesmen of services and construction (Ind. 067–078, 407–499, 707–947)

Occupation Code	CLERICAL AND KINDRED WORKERS—Continued
332	Mail handlers, except post office
333	Messengers and office boys
334	Meter readers, utilities
	Office machine operators
341	Bookkeeping and billing machine operators
342	Calculating machine operators
343	Computer and peripheral equipment operators
344	Duplicating machine operators
345	Key punch operators
350	Tabulating machine operators
355	Office machine operators, n.e.c.
360	Payroll and timekeeping clerks
361	Postal clerks
362	Proofreaders
363	Real estate appraisers
364	Receptionists
	Secretaries
370	Secretaries, legal
371	Secretaries, medical
372 (Q)	Secretaries, n.e.c.
374	Shipping and receiving clerks
375	Statistical clerks
376	Stenographers
381	Stock clerks and storekeepers
382	Teacher aides, exc. school monitors
383	Telegraph messengers
384	Telegraph operators
385	Telephone operators
390	Ticket, station, and express agents
391	Typists
392	Weighers
394	Miscellaneous clerical workers
395	Not specified clerical workers

	CRAFTSMEN AND KINDRED WORKERS
401	Automobile accessories installers
402	Bakers
403	Blacksmiths
404	Boilermakers
405	Bookbinders
410	Brickmasons and stonemasons
411	Brickmasons and stonemasons, apprentices
412	Bulldozer operators
413	Cabinetmakers
415 (R)	Carpenters
416	Carpenter apprentices
420	Carpet installers
421	Cement and concrete finishers
422	Compositors and typesetters
423	Printing trades apprentices, exc. pressmen
424	Cranemen, derrickmen, and hoistmen
425	Decorators and window dressers
426	Dental laboratory technicians
430	Electricians
431	Electrician apprentices
433	Electric power linemen and cablemen
434	Electrotypers and stereotypers
435	Engravers, exc. photoengravers
436	Excavating, grading, and road machine operators; exc. bulldozer
440	Floor layers, exc. tile setters

Occupation Code		CRAFTSMEN AND KINDRED WORKERS—Continued
441		Foremen, n.e.c.
442		Forgemen and hammermen
443		Furniture and wood finishers
444		Furriers
445		Glaziers
446		Heat treaters, annealers, and temperers
450		Inspectors, scalers, and graders; log and lumber
452		Inspectors, n.e.c.
453		Jewelers and watchmakers
454		Job and die setters, metal
455		Locomotive engineers
456		Locomotive firemen
461		Machinists
462		Machinist apprentices
		Mechanics and repairmen
470		Air conditioning, heating, and refrigeration
471		Aircraft
472		Automobile body repairmen
473	(S)	Automobile mechanics
474		Automobile mechanic apprentices
475		Data processing machine repairmen
480		Farm implement
481		Heavy equipment mechanics, incl. diesel
482		Household appliance and accessory installers and mechanics
483		Loom fixers
484		Office machine
485		Radio and television
486		Railroad and car shop
491		Mechanic, exc. auto, apprentices
492		Miscellaneous mechanics and repairmen
495		Not specified mechanics and repairmen
501		Millers: grain, flour, and feed
502		Millwrights
503		Molders, metal
504		Molder apprentices
505		Motion picture projectionists
506		Opticians, and lens grinders and polishers
510		Painters, construction and maintenance
511		Painter apprentices
512		Paperhangers
514		Pattern and model makers, exc. paper
515		Photoengravers and lithographers
516		Piano and organ tuners and repairmen
520		Plasterers
521		Plasterer apprentices
522		Plumbers and pipe fitters
523		Plumber and pipe fitter apprentices
525		Power station operators
530		Pressmen and plate printers, printing
531		Pressman apprentices
533		Rollers and finishers, metal
534		Roofers and slaters
535		Sheetmetal workers and tinsmiths
536		Sheetmetal apprentices
540		Shipfitters
542		Shoe repairmen
543		Sign painters and letterers
545		Stationary engineers
546		Stone cutters and stone carvers
550		Structural metal craftsmen
551		Tailors

Occupation Code		CRAFTSMEN AND KINDRED WORKERS—Continued
552		Telephone installers and repairmen
554		Telephone linemen and splicers
560		Tile setters
561		Tool and die makers
562		Tool and die maker apprentices
563		Upholsterers
571		Specified craft apprentices, n.e.c.
572		Not specified apprentices
575		Craftsmen and kindred workers, n.e.c.
580		Former members of the Armed Forces
		OPERATIVES, EXCEPT TRANSPORT
601		Asbestos and insulation workers
602	(T)	Assemblers
603		Blasters and powdermen
604		Bottling and canning operatives
605		Chainmen, rodmen, and axmen; surveying
610		Checkers, examiners, and inspectors; manufacturing
611		Clothing ironers and pressers
612		Cutting operatives, n.e.c.
613		Dressmakers and seamstresses, except factory
614		Drillers, earth
615		Dry wall installers and lathers
620		Dyers
621		Filers, polishers, sanders, and buffers
622		Furnacemen, smeltermen, and pourers
623		Garage workers and gas station attendants
624		Graders and sorters, manufacturing
625		Produce graders and packers, except factory and farm
626		Heaters, metal
630		Laundry and dry cleaning operatives, n.e.c.
631		Meat cutters and butchers, exc. manufacturing
633		Meat cutters and butchers, manufacturing
634		Meat wrappers, retail trade
635		Metal platers
636		Milliners
640		Mine operatives, n.e.c.
641		Mixing operatives
642		Oilers and greasers, exc. auto
643		Packers and wrappers, except meat and produce
644		Painters, manufactured articles
645		Photographic process workers
		Precision machine operatives
650		Drill press operatives
651		Grinding machine operatives
652		Lathe and milling machine operatives
653		Precision machine operatives, n.e.c.
656		Punch and stamping press operatives
660		Riveters and fasteners
661		Sailors and deckhands
662		Sawyers
663		Sewers and stitchers
664		Shoemaking machine operatives
665		Solderers
666		Stationary firemen
		Textile operatives
670		Carding, lapping, and combing operatives
671		Knitters, loopers, and toppers
672		Spinners, twisters, and winders
673		Weavers
674		Textile operatives, n.e.c.
680		Welders and flame cutters

Occupation Code	OPERATIVES, EXCEPT TRANSPORT—Continued
681	Winding operatives, n.e.c.
690	Machine operatives, miscellaneous specified
692	Machine operatives, not specified
694	Miscellaneous operatives
695	Not specified operatives
701	Boatmen and canalmen
703	Bus drivers
704	Conductors and motormen, urban rail transit
705	Deliverymen and routemen
706	Fork lift and tow motor operatives
710	Motormen; mine, factory, logging camp, etc.
711	Parking attendants
712	Railroad brakemen
713	Railroad switchmen
714	Taxicab drivers and chauffeurs
715 (U)	Truck drivers
	LABORERS, EXCEPT FARM
740	Animal caretakers, exc. farm
750	Carpenters' helpers
751 (V)	Construction laborers, exc. carpenters' helpers
752	Fishermen and oystermen
753	Freight and material handlers
754	Garbage collectors
755	Gardeners and groundskeepers, exc. farm
760	Longshoremen and stevedores
761	Lumbermen, raftsmen, and woodchoppers
762	Stock handlers
763	Teamsters
764	Vehicle washers and equipment cleaners
770	Warehousemen, n.e.c.
780	Miscellaneous laborers
785	Not specified laborers
	FARMERS AND FARM MANAGERS
801 (W)	Farmers (owners and tenants)
802	Farm managers
	FARM LABORERS AND FARM FOREMEN
821	Farm foremen
822	Farm laborers, wage workers
823	Farm laborers, unpaid family workers
824	Farm service laborers, self-employed
	SERVICE WORKERS, EXC. PRIVATE HOUSEHOLD
	Cleaning service workers
901	Chambermaids and maids, except private household
902	Cleaners and charwomen
903 (X)	Janitors and sextons
	Food service workers
910	Bartenders
911	Busboys
912	Cooks, except private household
913	Dishwashers
914	Food counter and fountain workers
915 (Y)	Waiters
916	Food service workers, n.e.c., except private household
	Health service workers
921	Dental assistants

Occupation Code	SERVICE WORKERS, EXC. PRIVATE HOUSEHOLD—Continued
922	Health aides, exc. nursing
923	Health trainees
924	Lay midwives
925	Nursing aides, orderlies, and attendants
926	Practical nurses
	Personal service workers
931	Airline stewardesses
932	Attendants, recreation and amusement
933	Attendants, personal service, n.e.c.
934	Baggage porters and bellhops
935	Barbers
940	Boarding and lodging house keepers
941	Bootblacks
942	Child care workers, exc. private household
943	Elevator operators
944	Hairdressers and cosmetologists
945	Personal service apprentices
950	Housekeepers, exc. private household
952	School monitors
953	Ushers, recreation and amusement
954	Welfare service aides
	Protective service workers
960	Crossing guards and bridge tenders
961	Firemen, fire protection
962	Guards and watchmen
963	Marshals and constables
964	Policemen and detectives
965	Sheriffs and bailiffs
980	Child care workers, private household
981	Cooks, private household
982	Housekeepers, private household
983	Laundresses, private household
984 (Z)	Maids and servants, private household
995	OCCUPATION NOT REPORTED[2]
	ALLOCATION CATEGORIES[3]
196	Professional, technical, and kindred workers—allocated
246	Managers and administrators, except farm—allocated
296	Sales workers—allocated
396	Clerical and kindred workers—allocated
586	Craftsmen and kindred workers—allocated
696	Operatives, except transport—allocated
726	Transport equipment operatives—allocated
796	Laborers, except farm—allocated
806	Farmers and farm managers—allocated
846	Farm laborers and farm foremen—allocated
976	Service workers, exc. private household—allocated
986	Private household workers—allocated

[2] This code is used to identify not reported occupations in surveys where the not reported cases are not allocated.

[3] Those returns from the Population Census which do not have an occupation entry are allocated among the major occupation groups during computer processing. These cases are labeled with the code for the "allocation" category to which they are assigned.

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
001	76.8	76.9	55.9	56.0
002	85.2	85.3	66.7	
003	65.0		50.6	
004	65.0		50.6	
005	65.0		50.6	
006	87.0		71.1	
010	89.9		67.2	
011	84.0		67.8	
012	84.0		69.4	
013	85.5		55.6	
014	80.2		62.1	
015	83.1		58.4	
020	85.0		61.6	
021	81.0		57.1	
022	87.0		50.6	
023	86.9		67.0	
024	83.0		53.9	
025	48.0		53.9	
026	83.0		53.9	
030	93.0		75.7	
031	92.3		75.1	
032	60.0		54.6	
033	74.6		59.6	
034	81.0		55.4	
035	80.0		65.0	
036	81.0		55.4	
042	80.0		55.8	
043	62.0		47.0	
044	80.0		67.7	
045	79.4		67.1	67.3
051	80.0		67.2	
053	80.0		73.8	
054	77.2	77.4	64.8	65.1
055	65.7		50.8	
056	83.6	82.4	55.8	55.2
061	75.0		60.0	
062	96.0		73.6	
063	79.0		62.0	
064	81.3	81.4	60.3	
065	92.1		81.2	
071	58.0		36.7	
072	78.0		59.7	
074	39.0		52.1	
075	44.3		60.1	
076	59.9	58.9	40.5	38.5
080	48.0		61.0	
081	48.0		61.0	
082	60.0		54.6	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
083	48.0		61.0	
084	48.0		61.0	
085	52.2	55.2	49.8	51.1
086	52.0		69.0	
090	56.7	57.1	55.0	54.6
091	74.4	74.3	53.6	53.5
093	81.0		71.4	
095	65.0		50.6	
096	81.0		65.6	
100	64.0		52.4	
101	67.0		48.6	
102	84.0		78.3	
103	84.0		78.3	
104	84.0		78.3	
105	84.0		78.3	
110	84.0		78.3	
111	84.0		78.3	
112	84.0		78.3	
113	84.0		78.3	
114	84.0		78.3	
115	84.0		78.3	
116	84.0		78.3	
120	84.0		78.3	
121	84.0		78.3	
122	84.0		78.3	
123	53.2	55.6	46.8	48.6
124	64.0		53.2	
125	84.0		78.3	
126	84.0		78.3	78.3
130	84.0		78.3	
132	84.0		78.3	
133	84.0		78.3	
134	84.0		78.3	
135	84.0		78.3	
140	84.0		78.3	
141	61.3	64.3	44.3	43.9
142	71.2	71.4	58.9	59.2
143	72.0		56.1	
144	70.2	70.5	59.8	60.1
145	62.3	57.7	44.2	44.9
150	62.0		47.2	
151	62.0		47.0	
152	67.0		56.1	
153	62.0		51.6	51.5
154	64.1	64.0	49.5	49.4
155	62.0		47.0	
161	48.4		53.1	
162	62.0		47.0	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
163	79.0		70.1	
164	69.0		42.8	
165	60.8	60.3	51.7	51.9
170	48.0		48.2	
171	69.0		42.8	
172	62.0		47.0	
173	62.0		47.2	
174	65.0		50.6	
175	60.0		55.0	
180	59.4	60.2	51.8	52.1
181	76.0		59.8	
182	45.0		37.6	
183	70.5	70.4	56.5	
184	82.0		51.2	
185	52.0		46.0	
190	67.0		56.2	
191	50.0		40.5	
192	82.0		56.7	
193	65.0		50.6	
194	40.2	45.4	38.6	41.2
195	65.0		50.6	
201	61.2	58.8	50.9	53.8
202	79.5	80.0	66.1	66.6
203	50.5	50.3	43.0	42.9
205	72.1		50.0	
210	74.0		48.8	
211	59.0		52.2	
212	74.1	56.9	63.8	59.4
213	57.6	57.5	39.6	
215	66.7	66.6	42.3	
216	32.0		38.3	
220	75.1	73.1	57.6	56.0
221	49.9		56.7	
222	67.3	66.5	60.7	60.3
223	59.8	60.0	48.4	48.4
224	61.3	60.8	58.4	58.3
225	74.7	74.8	46.4	
226	58.2		40.9	
230	37.6	38.1	38.7	38.9
231	70.6	69.8	48.5	47.8
233	74.7	74.6	54.2	
235	77.9	77.1	70.6	69.6
240	71.7		61.7	61.6
245	62.0	61.7	50.8	50.7
260	66.1		42.3	
261	40.0		31.9	
262	35.0	38.1	28.3	30.6
264	08.8	12.9	18.6	20.2

1970 Census occupation code	Duncan SEI*		Siegel (1965 NORC) Prestige*	
	Male scores	Total scores	Male scores	Total scores
265	66.0		46.8	
266	27.0		15.4	
270	62.0		44.0	
271	72.3	72.4	51.2	51.3
281	65.0		49.1	
282	60.9		39.9	
283	39.0		28.7	28.6
284	39.0		28.6	
285	52.7	52.2	35.8	35.4
301	52.0	51.8	49.5	49.0
303	44.0		36.2	
305	50.8	50.9	47.3	47.4
310	44.0	43.9	31.4	31.0
312	43.6	43.8	35.8	36.0
313	43.3	42.5	28.4	27.9
314	44.0		36.2	
315	39.9	40.1	33.3	33.4
320	44.0		36.2	
321	59.2	56.2	42.9	41.2
323	43.7	43.6	36.0	
325	44.0		31.4	30.8
326	62.1		47.6	
330	44.0	43.1	40.4	39.7
331	53.0		42.3	
332	43.0	43.3	35.1	35.5
333	28.2		19.4	19.3
334	44.0		36.2	
341	44.9		43.7	44.3
342	45.0		44.9	
343	45.0		44.9	
344	45.0		44.9	
345	45.0		44.9	
350	45.0		44.9	
355	45.0		44.9	
360	44.0		41.2	41.3
361	44.7	44.6	42.3	42.4
362	44.0		36.2	
363	67.8		43.0	
364	44.0		37.1	38.9
370	61.0		45.8	
371	61.0		45.8	
372	61.9	61.0	46.5	45.8
374	24.2	24.1	29.9	
375	43.7	43.9	35.8	36.0
376	61.0		43.3	
381	44.0	43.9	25.0	25.2
382	63.2	62.4	49.3	48.8
383	22.0		29.8	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
384	47.0		43.5	
385	45.0		40.4	
390	59.8		35.4	
391	61.0		41.3	
392	41.9	41.8	35.5	35.4
394	43.7		36.2	36.5
395	44.0		36.2	
401	21.6		32.5	
402	21.9	21.7	34.0	33.8
403	16.0		35.5	
404	32.6		30.6	
405	39.0	38.0	31.3	31.4
410	27.0		35.7	
411	32.0		40.8	
412	19.7		32.3	
413	22.3		38.1	
415	18.9		39.7	39.6
416	31.0		40.8	
420	12.0		32.8	
421	19.0		31.6	
422	52.0		38.0	
423	40.0		40.8	
424	21.0		38.7	
425	40.0		37.4	
426	48.0		61.0	
430	44.0		49.2	
431	37.0		40.8	
433	49.0		39.2	
434	55.0		38.0	
435	47.0		41.2	
436	22.8		31.5	
440	17.3	17.4	31.4	31.8
441	49.7	49.5	45.3	45.3
442	23.0	22.8	35.5	
443	17.8		29.1	
444	39.5	33.4	35.2	32.3
445	25.2	25.3	26.7	
446	21.7		35.3	
450	22.4	22.5	31.0	
452	41.2	41.0	31.3	
453	36.4		37.5	37.5
454	33.5		46.4	
455	57.8		50.8	
456	45.0		36.2	
461	32.9		47.7	
462	41.0		40.8	
470	27.0		36.7	
471	48.0		48.2	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
472	19.0		36.7	
473	19.0		36.7	
474	25.0		40.8	
480	27.0		32.6	
481	26.6		32.8	
482	27.0		32.6	
483	10.0		30.4	
484	35.9		33.8	
485	36.0		35.0	
486	20.5		35.6	
491	34.0		40.8	
492	26.5		32.8	
495	27.0		32.6	
501	19.0		25.2	
502	31.0		40.3	
503	12.0		39.1	
504	33.0		40.8	
505	43.0		33.9	
506	39.0		51.4	
510	16.4		29.9	29.8
511	29.0		40.8	
512	13.7	13.5	27.7	27.5
514	43.0		38.7	38.7
515	63.0	61.1	40.1	39.7
516	38.0		32.0	
520	25.0		33.2	
521	29.0		40.8	
522	34.0		40.6	
523	33.0		40.8	
525	50.0		38.8	
530	46.3	45.6	39.3	39.1
531	40.0		40.8	
533	22.0		36.0	
534	15.1		31.5	
535	33.0		36.8	
536	33.0		40.8	
540	34.0		35.5	
542	12.0	11.9	32.6	
543	16.9	16.8	30.7	
545	45.2		34.9	32.9
546	24.0		31.7	
550	33.7	33.4	35.6	
551	22.0	21.4	34.0	
552	48.8		39.1	
554	49.0		39.2	
560	28.2		38.4	
561	49.2		42.3	
562	41.0		40.8	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
563	21.1	21.2	29.9	
571	34.5	34.6	40.8	
572	39.0		40.8	
575	25.7	25.3	42.1	41.7
601	32.0		28.4	
602	17.2		27.5	
603	11.0		32.1	
604	18.4	16.1	23.3	23.5
605	25.0		39.4	
610	19.2	18.4	36.1	
611	17.8	16.8	21.9	20.7
612	18.8	18.9	28.8	28.5
613	23.0	22.4	31.7	31.0
614	21.6		26.2	
615	24.5	24.4	36.4	36.3
620	12.0		25.0	
621	18.7	18.7	23.1	23.5
622	18.1		32.9	
623	17.9		21.2	
624	17.0	16.6	32.9	32.6
625	12.2	13.7	23.6	24.5
626	29.0		32.9	
630	15.0		18.2	
631	28.8		32.0	
633	16.4	16.2	23.6	23.5
634	18.0		19.4	
635	19.8	19.7	30.3	30.2
636	46.0		33.4	
640	16.5	16.5	26.4	
641	17.6	17.3	27.5	27.3
642	15.0		24.2	
643	18.0	18.1	19.5	
644	18.1		29.0	28.8
645	12.1	41.2	35.9	35.5
650	21.8	22.0	31.7	31.8
651	21.9		19.0	
652	21.5	21.6	31.9	31.9
653	21.0	20.9	31.1	
656	19.4	19.5	30.4	30.3
660	20.1	20.6	31.6	31.5
661	16.0		33.7	
662	04.9		27.6	
663	18.2		25.2	25.1
664	09.2		31.6	
665	23.8	24.4	35.4	36.1
666	16.6		31.7	
670	03.1	03.3	28.9	
671	21.0		29.4	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
672	03.8	04.1	28.2	
673	05.9		25.0	25.1
674	06.1	08.6	28.8	
680	24.0		40.1	
681	19.6	21.7	32.0	33.6
690	19.0		28.4	28.5
692	19.3	19.3	29.3	
694	19.2	18.8	29.1	28.9
695	19.2	19.5	29.1	
701	24.0		36.8	
703	24.0	24.0	32.4	
704	32.5		28.0	
705	31.0		28.2	28.3
706	16.8	16.8	28.4	28.4
710	03.0		27.2	
711	18.8		22.0	
712	42.0		34.7	
713	44.0		32.8	
714	10.0		21.5	
715	15.1		32.1	
740	16.9	17.5	28.7	30.3
750	07.2	23.0		
751	07.1	07.1	74.4	
752	10.6	30.3		
753	08.7	08.9	18.8	19.0
754	06.0	06.0	17.3	
755	10.9		22.1	
760	11.0		24.4	
761	04.1		25.9	
762	16.7	17.3	20.6	20.7
763	08.0		12.2	
764	08.6	08.6	18.5	18.5
770	08.3		20.3	
780	08.2	08.2	19.1	
785	08.3	08.3	17.5	
801	14.0		40.7	
802	36.0		43.7	
821	20.0		35.0	
822	06.3		18.9	18.8
823	17.0		18.4	18.5
824	22.0		26.8	
901	13.4	11.6	16.6	14.1
902	07.8	09.8	18.4	17.4
903	12.7	12.5	19.5	19.3
910	19.0		19.9	
911	11.0		14.4	
912	15.0		26.4	
913	11.0		21.8	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
914	17.0		15.4	
915	16.0		20.3	
916	11.0		20.9	20.8
921	38.0		47.8	
922	25.0	29.4	26.3	40.5
923	51.0		45.1	
924	37.0		23.3	
925	13.7	13.5	36.8	36.4
926	22.0		41.9	
931	31.0		36.1	
932	19.1	19.5	15.6	16.4
933	26.3	28.8	21.7	22.5
934	07.8	07.9	17.5	
935	17.0		37.9	
940	30.0		22.1	
941	08.0		09.3	
942	28.2		24.0	24.1
943	10.0		20.9	
944	17.0		33.2	
945	31.0		40.8	
950	31.0		36.4	
952	26.0		14.1	
953	25.0		14.9	
954	11.0		14.4	
960	17.9	17.5	25.3	24.5
961	37.0		43.8	
962	18.2		22.2	22.3
963	21.0		45.8	
964	40.5	40.4	47.7	
965	34.0		55.0	
980	07.0		22.6	22.9
981	07.0		18.0	
982	10.7	18.6	20.1	24.7
983	12.0		17.6	
984	07.0		18.0	
052	80.0		67.2	
073	58.0		36.7	
092	81.0		71.4	
094	81.0		71.4	
131	72.0		53.2	
156	53.0		46.8	
280	49.4		35.4	
311	44.0		31.4	
475	27.0		40.8	
775	07.9		17.5	
782	07.6		19.1	
795	07.9		17.5	

1970 Census occupation code	Duncan SEI[a]		Siegel (1965 NORC) Prestige[a]	
	Male scores	Total scores	Male scores	Total scores
796	07.9		17.5	
805	17.0		18.4	
882	06.3		18.9	

[a] These scores reflect the male composition of the civilian labor force ("male scores"), scores reflecting the composition of total persons in the civilian labor force are marked "total scores" only in those cases where the latter differ from "male scores." No scores appear for codes 580 (Armed Forces) or 995 (Not ascertained).

APPENDIX B

Survey of Elementary School Principals

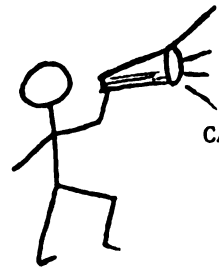
SURVEY OF ELEMENTARY SCHOOL PRINCIPALS

June 1977

College of Education
Michigan State University

Patsy Hashey
1105 West Willow Street
Carbondale, Illinois 62901

staple here



S.O.S.

CALLING ELEMENTARY SCHOOL

PRINCIPALS

HELP! HELP! HELP!

Who is calling?

I am Patsy Hashey of 1105 West Willow Street, Carbondale, Illinois, 62901, working on a doctorate in Educational Administration at Michigan State University under the guidance of Professor Stanley Hecker.

I need your help in responding to the enclosed questionnaire. You were selected from membership in the National Association of Elementary School Principals and your cooperation will be greatly appreciated.

This will require about ten or so minutes of your time. Won't you do this now and send it on while it is in front of you?

Your data are significant! All responses are anonymous.

Sincerely,

Patsy Hashey

Research Instrument

1. Are you an elementary school principal? a.___ yes b.___no

PERSONAL DATA

2. Sex: a.___male
   b.___female

3. Age: a.___ 25 or under
   b.___ 26-35
   c.___ 36-45
   d.___ 46-55
   e.___ 56 or over

4. Current marital status:
   a.___ married, living with spouse
   b.___ married, separated from spouse
   c.___ widowed
   d.___ divorced
   e.___ never married

5. Do you have children? a.___ yes b.___ no
   If yes, A. how many:
   c.___ 1 to 3
   d.___ 4 to 6
   e.___ more than 6

   B. within which age range does your youngest child fall:
   f.___ under six years
   g.___ 6 to 18 years
   h.___ over 18 years

6. Highest earned college degree:
   a.___ no college degree
   b.___ Associate (2 years)
   c.___ Bachelor
   d.___ Master
   e.___ Education Specialist
   f.___ Doctorate

7. Area of specialization (highest degree held):
   a.___ Elementary Education
   b.___ Secondary Education
   c.___ Supervision/Educational Administration
   d.___ Counseling and Guidance
   e.___ Social Studies or other content area
   f.___ Other (please specify): _____

WORK EXPERIENCE

8. Were you a teacher before becoming an elementary principal:

   a.___ yes b.___ no

   If yes

   A. How many years did you teach:

   c.___ 0 to 1
   d.___ 2 to 5
   e.___ 6 to 10
   f.___ 11 to 15
   g.___ 16 or more

   B. At what level/levels did you teach:

   h.___ elementary
   i.___ junior high/middle
   j.___ senior high
   k.___ college
   l.___ other (please specify):

   _____

9. Number of years as an elementary school principal:

   a.___ less than 5 years
   b.___ 5 to 14 years
   c.___ 15 or more years

10. Age at first principalship:

   a.___ 25 or under
   b.___ 26 to 35
   c.___ 36 to 45
   d.___ 46 to 55
   e.___ 56 or over

11. Highest earned college degree at <u>first</u> principalship:

   a.___ no college degree
   b.___ Associate (2 years)
   c.___ Bachelor
   d.___ Master
   e.___ Education Specialist
   f.___ Doctorate

12. Number of schools currently under your direction:

   a.___ 1
   b.___ 2
   c.___ 3 or more

13. Total enrollment in the school/schools under your direction:

   a.___ under 200 pupils
   b.___ 200 to 399 pupils
   c.___ 400 to 599 pupils
   d.___ over 600 pupils

14. Total school system enrollment:

   a.___ less than 300
   b.___ 300 to 2,999
   c.___ 3,000 to 24,999
   d.___ 25,000 or more

15. Regular salary for the 1976-77 school year:

   a.___ less than $8,000
   b.___ $8,000 to $11,999
   c.___ $12,000 to $15,999
   d.___ $16,000 to $19,999
   e.___ $20,000 to $23,999
   f.___ $24,000 to $27,999
   g.___ $28,000

16. How many months are you on contract:

   a.___ 9
   b.___ 10
   c.___ 11
   d.___ 12
   e.___ Other (please specify): _____

17. Size of city/town of current employment:

   a.___ rural, nonfarm
   b.___ rural, farm
   c.___ small town, 2,500 to 19,999
   d.___ small city, 20,000 to 49,999
   e.___ medium city, 50,000 to 249,999
   f.___ large city, 250,000 or more
   g.___ suburb of a large city

PARENTAL INFORMATION

18. Highest level of education reached by your father:

   a.___ grade eight or less
   b.___ some high school
   c.___ completed high school
   d.___ some college, technical, or special training after high school
   e.___ received Bachelor degree
   f.___ received Master degree
   g.___ received Doctorate or professional degree

19. Highest level of education reached by your mother:

a.___ grade eight or less

b.___ some high school

c.___ completed high school

d.___ some college, technical, or special training after high school

e.___ received Bachelor degree

f.___ received Master degree

g.___ received Doctorate or professional degree

20. Father's occupation-what kind of work did your father do when you were about 16 (please specify title): _____

Father's occupational category:

a.___ professional or scientific

b.___ managerial or executive

c.___ clerical or sales

d.___ skilled craftsman or foreman

e.___ unskilled worker

f.___ farmer

g.___ unemployed

21. Mother's occupation-what kind of work did your mother do when you were about 16 (please specify title): _____

Mother's occupational category:

a.___ professional or scientific

b.___ managerial or executive

c.___ clerical or sales

d.___ skilled craftsman or foreman

e.___ unskilled worker

f.___ farmer

g.___ homemaker

22. At the age of 16 did you live with:

a.___ both parents

b.___ mother only

c.___ father only

d.___ neither parent

23. Brothers and sisters (count brothers and sisters alive now, and those born alive but no longer living. Include also other children who lived in your home, such as step-brothers and/or sisters, and children adopted by your parents):

Were you:

a.___ an only child

b.___ the oldest child with 1 to 3 younger siblings

c.___ the oldest child with 4 or more younger siblings

d.___ the youngest child with 1 to 3 older siblings

e.___ the youngest child with 4 or more older siblings

f.___ a middle child with 2 or 3 siblings

g.___ a middle child with 4 or more siblings

Pat Hashey
1105 West Willow Street
Carbondale, Illinois 62901

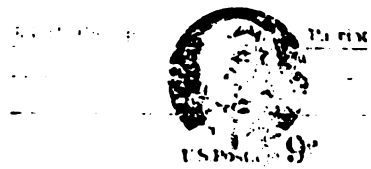
APPENDIX C

Follow-up Postcard

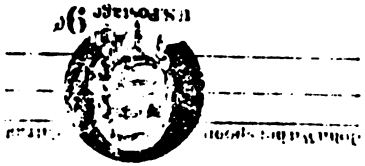
Hi!

Remember me? I am Patsy L. Hashey, 1105 Willow Street, Carbondale, Illinois. I mailed you a questionnaire last summer called Survey of Elementary Principals but your response was not recorded. Your data are significant for the completion of my Ph.D dissertation. Would you take a minute to respond to the attached card and return it to me.

Patsy



Patsy L. Hashey
1105 West Willow Street
Carbondale, IL 62901



Patsy L. Hashey
1105 West Willow Street
Carbondale, IL 62901

Please check one and drop this card in the mail:

____ a. I did respond

____ b. I did not respond because I am not/no longer an elementary school principal

____ c. I prefer not to respond to survey questionnaires

____ d. I lost/never received my questionnaire, but if you send one I will respond

____ e. Other (please specify): _____

_____

APPENDIX D

Frequency Distributions of Descripter Characteristics

Table 21: Were You A Teacher Before Becoming An Elementary Principal?

Teacher	Male n=536	Female n=161	Total N=697
Yes	533 (99.44%)	161 (100%)	694 (99.57%)
No	2 (0.37%)	0 (0%)	2 (0.29%)
Total	535 (76.76%)	161 (23.10%)	696 (99.86%)

Table 22: At What Level/levels Did You Teach

Level(s) of Teaching*	Male n=536	Female n=161	Total N=697
Elem.	360 (67.17%)	116 (72.05%)	475 (68.15%)
Jr. High	185 (34.52%)	47 (29.19%)	232 (35.29%)
Sr. High	105 (19.59%)	13 (8.08%)	118 (16.93%)
College	10 (1.87%)	7 (4.35%)	17 (2.44%)
Other	8 (1.49%)	6 (3.73%)	14 (2.01%)

Table 23: Number of Years As An Elementary School Principal

Years a Principal	Male n=536	Female n=161	Total N=697
5 years	101 (18.84%)	53 (32.92%)	154 (22.10%)
5-14 years	284 (52.99%)	77 (47.83%)	361 (51.79%)
15 or more	151 (28.17%)	31 (19.26%)	182 (26.11%)
Total N = 697	536 (76.90%)	161 (23.10%)	697 (100.0%)

Table 24: Highest Earned College Degree

Highest	Male n=536	Female n=161	Total N=697
No college	0	0	0
Associate	0	0	0
Bachelor	7 (1.31%)	4 (2.48%)	11 (1.58%)
Master	404 (75.38%)	134 (83.23%)	538 (77.19%)
Educ Spec	102 (19.03%)	19 (11.80%)	121 (17.36%)
Doctorate	19 (3.55%)	2 (1.24%)	21 (3.01%)
Total	532 (76.33%)	159 (22.81%)	691 (99.14%)

*Respondents were allowed to check more than one category, therefore, percents do not equal 100.

Table 25: Area of Specialization (highest degree held)

Area	Male n=536	Female n=161	Total N=697
Elem Educ	107 (19.96%)	44 (27.33%)	151 (21.66%)
Sec Educ	6 (1.12%)	1 (0.62%)	7 (1.00%)
Supervision/ Educ Admin	380 (70.90%)	95 (59.01%)	475 (68.15%)
Counseling	10 (1.87%)	7 (4.35%)	17 (2.44%)
A Content Area	7 (1.31%)	3 (1.86%)	10 (1.44%)
Other	22 (4.10%)	9 (5.59%)	31 (4.45%)
Total	532 (76.33%)	159 (22.81%)	691 (99.14%)

Table 26: Number of Schools Currently Under Your Direction

Schools	Male n=536	Female n=161	Total N=697
1	444 (82.84%)	129 (86.34%)	583 (83.64%)
2	65 (12.13%)	19 (11.80%)	84 (12.05%)
3 or more	25 (4.66%)	2 (1.24%)	27 (3.87%)
Total	534 (76.61%)	160 (22.96%)	694 (99.57%)

Table 27: Age At First Principalship

Age	Male n=536	Female n=161	Total N=697
25 or less	43 (8.02%)	5 (3.11%)	48 (6.89%)
26 - 35	368 (68.66%)	59 (36.65%)	427 (61.26%)
36 - 45	104 (19.40%)	63 (39.13%)	167 (23.96%)
46 - 55	19 (3.55%)	31 (19.26%)	50 (7.17%)
56 or more	1 (0.19%)	2 (1.24%)	3 (0.43%)
Total	535 (76.76%)	160 (22.96%)	695 (99.71%)

Table 28: Total Enrollment In The School/schools Under Direction

Enrollment	Male n=536	Female n=161	Total N=697
Under 200	30 (5.60%)	16 (9.94%)	46 (6.60%)
200 - 399	176 (32.84%)	65 (40.37%)	241 (34.58%)
400 - 599	225 (41.98%)	48 (29.81%)	273 (39.17%)
Over 600	103 (19.22%)	30 (18.63%)	133 (19.08%)
Total	534 (76.61%)	159 (22.81%)	693 (99.43%)

Table 29: Total School System Enrollment

Enrollment	Male n=536	Female n=161	Total N-697
Under 300	5 (1.83%)	7 (4.35%)	12 (1.72%)
300 - 2,999	192 (35.82%)	44 (27.33%)	236 (33.86%)
3,000 - 24,999	281 (52.43%)	76 (47.21%)	357 (51.23%)
25,000 or more	55 (10.26%)	31 (19.26%)	86 (12.34%)
Total	533 (76.47%)	158 (22.67%)	691 (99.14%)

Table 30: Regular Salary For The 1976-77 School Year

Salary	Male n=536	Female n=161	Total N=697
Under $8,000	0	20 (12.42%)	20 (2.87%)
$8,000 - 11,999	5 (0.93%)	7 (4.35%)	12 (1.72%)
$12,000 - 15,999	34 (6.34%)	15 (9.32%)	49 (7.03%)
$16,000 - 19,999	168 (31.34%)	39 (24.22%)	207 (29.70%)
$20,000 - 23,999	197 (36.72%)	44 (27.33%)	241 (34.58%)
$24,000 - 27,999	105 (19.59%)	25 (15.53%)	130 (18.65%)
$28,000 or more	22 (4.10%)	10 (6.21%)	32 (4.59%)
Total	531 (76.18%)	160 (22.96%)	691 (99.14%)

Table 31: How Many Months Are You On Contract?

Months	Male n-536	Female n=161	Total N=697
9	10 (1.87%)	8 (4.97%)	18 (2.58%)
10	265 (49.44%)	88 (54.66%)	353 (50.65%)
11	132 (24.63%)	30 (18.63%)	162 (23.24%)
12	97 (18.10%)	27 (16.77%)	124 (17.79%)
Other	29 (5.41%)	8 (4.97%)	37 (5.31%)
Total	533 (76.47%)	161 (23.10%)	694 (99.57%)

Table 32: State of Employment

State	Male n=536	Female n=161	Total N=697	Original N=977
Illinois	55 (10.26%)	25 (15.63%)	80 (11.48%)	125 (12.79%)
Indiana	68 (12.69%)	9 (5.63%)	77 (11.05%)	111 (11.36%)
Iowa	37 (6.90%)	12 (7.50%)	49 (7.03%)	77 (7.88%)
Kansas	31 (5.78%)	7 (4.38%)	38 (5.45%)	49 (5.02%)
Michigan	113 (21.08%)	37 (23.13%)	150 (21.52%)	212 (21.70%)
Minnesota	38 (7.09%)	11 (6.88%)	49 (7.03%)	68 (6.96%)
Missouri	39 (7.28%)	10 (6.25%)	49 (7.03%)	61 (6.24%)
Nebraska	21 (3.92%)	7 (4.38$)	28 (4.02%)	30 (3.07%)
North Dakota	10 (1.87%)	1 (0.63%)	11 (1.58%)	17 (1.74%)
Ohio	64 (11.94%)	24 (15.00%)	88 (12.63%)	134 (13.72%)
South Dakota	8 (1.49%)	3 (1.88%)	11 (1.58%)	16 (1.64%)
Wisconsin	48 (8.96%)	12 (7.59%)	60 (8.61%)	77 (7.88%)
Total	532 (76.33%)	158 (22.67%)	690 (99.00%)	977 (100.0%)

APPENDIX E

Frequency Distributions of Background Characteristics

Table 33: Father's Occupational Category

Category	Male n=536	Female n=161	Total N=697
Professional	48 (8.96%)	12 (7.45%)	60 (8.61%)
Managerial	67 (12.50%)	29 (18.01%)	96 (13.77%)
Clerical	41 (7.65%)	21 (13.04%)	62 (8.90%)
Skilled	172 (32.09%)	38 (23.60%)	210 (30.13%)
Unskilled	90 (16.79%)	19 (11.80%)	109 (15.64%)
Farmer	104 (19.40%)	41 (25.47%)	145 (20.80%)
Unemployed	3 (0.56%)	0	3 (0.43%)
Total	525 (75.32%)	160 (22.96%)	685 (98.28%)

Table 34: Mother's Occupational Category

Category	Male n=536	Female n=161	Total N=697
Professional	43 (8.02%)	13 (8.08%)	56 (8.03%)
Managerial	11 (2.05%)	4 (2.48%)	15 (2.15%)
Clerical	41 (7.65%)	19 (11.80%)	60 (8.61%)
Skilled	13 (2.43%)	0	13 (1.87%)
Unskilled	30 (5.60%)	10 (6.21%)	40 (5.74%)
Farmer	10 (1.87%)	3 (1.86%)	13 (1.87%)
Unemployed	380 (70.90%)	111 (68.95%)	491 (70.45%)
Total	528 (75.75%)	160 (22.96%)	688 (98.71%)

Table 35: Higher Level of Education Reached By Your Father

Father's Educ.	Male n=536	Female n=161	Total N=697
Grade 8 or less	246 (45.90%)	65 (40.37%)	311 (44.62%)
Some High School	88 (16.42%)	26 (16.15%)	114 (16.36%)
High School	91 (16.98%)	34 (21.21%)	125 (17.93%)
Some College	60 (11.19%)	21 (13.04%)	81 (11.62%)
Bachelor	20 (3.73%)	10 (6.21%)	30 (4.30%)
Master	14 (2.61%)	2 (1.24%)	16 (2.30%)
Doctor/Prof	15 (2.80%)	2 (1.24%)	17 (2.44%)
Total	534 (76.61%)	160 (22.96%)	694 (99.57%)

Table 36: Highest Level of Education Reached By Your Mother

Mother's Educ	Male n=536	Female n=161	Total N=697
Grade 8 or less	155 (28.92%)	46 (28.57%)	201 (28.84%)
Some High School	112 (20.90%)	28 (17.39%)	140 (20.09%)
High School	147 (27.43%)	43 (26.71%)	190 (27.26%)
Some College	73 (13.62%)	30 (18.63%)	103 (14.78%)
Bachelor	37 (6.90%)	9 (5.59%)	46 (6.60%)
Master	7 (1.31%)	3 (1.86%)	10 (1.43%)
Doctorate/Prof	1 (0.19%)	1 (0.62%)	2 (0.29%)
Total	532 (76.33%)	160 (22.96%)	692 (99.29%)

Table 37: Sex

Sex	Male n=536	Female n=161	Total N=697
	536 (76.90%)	161 (23.10%)	697 (100.00%)

Table 38: Age

Age	Male n=536	Female n=161	Total N=697
25 or less	2 (0.37%)	0	2 (0.29%)
26 - 35	101 (18.84%)	20 (12.42%)	121 (17.36%)
36 - 45	196 (36.57%)	43 (26.71%)	239 (34.29%)
46 - 55	169 (31.53%)	54 (33.54%)	223 (31.99%)
56 or more	57 (10.63%)	39 (24.22%)	96 (13.77%)
Total	525 (75.32%)	156 (22.38%)	681 (97.70%)

Table 39: At The Age of 16 Did You Live With

Residence	Male n=536	Female n=161	Total N=697
Both	474 (88.43%)	141 (87.58%)	615 (88.24%)
Mother Only	38 (7.01%)	15 (9.32%)	53 (7.60%)
Father Only	14 (2.61%)	0	14 (2.01%)
Neither	7 (1.31%)	5 (3.11%)	12 (1.72%)
Total	533 (76.47%)	161 (23.10%)	694 (99.57%)

Table 40: Brothers and Sisters

Number Siblings Sibling Placement	Male n=536	Female n=161	Total N=697
Only Child	46 (8.58%)	11 (6.83%)	57 (8.18%)
Oldest of 1-3	138 (25.75%)	46 (28.57%)	184 (26.40%)
Oldest of 4 or more	26 (4.85%)	7 (4.35%)	33 (4.74%)
Youngest of 1-3	109 (19.40%)	20 (12.42%)	124 (17.79%)
Youngest of 4 or more	32 (5.97%)	14 (8.70%)	46 (6.60%)
Middle of 2-3	82 (15.30%)	29 (18.01%)	111 (15.93%)
Middle of 4 or more	105 (19.59%)	32 (19.88%)	137 (19.66%)
Total	533 (76.47%)	159 (22.81%)	692 (99.28%)

APPENDIX F

Frequency Distributions of Intervening Characteristics

Table 41: Marital Status

Status	Male n=536	Female n=161	Total N=697
Married w/ Spouse	494 (92.16%)	76 (47.20%)	570 (81.78%)
Married w/o Spouse	2 (0.37%)	1 (0.62%)	3 (0.43%)
Widowed	5 (0.93%)	10 (6.21%)	15 (2.15%)
Divorced	10 (1.87%)	16 (9.94%)	26 (3.73%)
Never Married	22 (4.10%)	56 (34.78%)	78 (11.19%)
Total	533 (76.47%)	159 (22.81%)	692 (99.28%)

Table 42: Do You Have Children

Children	Male n=536	Female n=161	Total N=697
Yes	474 (88.43%)	85 (52.80%)	559 (80.20%)
No	57 (10.63%)	74 (45.96%)	131 (18.80%)
Total	531 (76.18%)	159 (22.81%)	690 (99.00%)

Table 43: If You Have Children, How Many

Number Children	Male n=536	Female n=161	Total N=697
1 - 3	383 (71.46%)	71 (44.10%)	454 (65.14%)
4 - 6	79 (14.74%)	14 (8.79%)	93 (13.34%)
More Than 6	11 (2.05%)	0	11 (1.58%)
Total	473 (67.86%)	85 (12.20%)	558 (80.06%)

Table 44: Within Which Age Range Does Your Youngest Child Fall

Age Youngest	Male n=536	Female n=161	Total N=697
Under 6	86 (16.50%)	4 (2.48%)	90 (12.91%)
6 - 18	223 (41.60%)	24 (14.91%)	247 (35.44%)
Over 18	95 (17.72%)	47 (29.19%)	142 (20.37%)
Total	404 (57.96%)	75 (10.76%)	479 (68.72%)

Table 45: How Many Years Did You Teach

Number Years	Male n=536	Female n=161	Total N=697
0 - 1	6 (1.12%)	1 (0.62%)	7 (1.00%)
2 - 5	188 (35.08%)	21 (13.04%)	209 (30.00%)
6 - 10	237 (44.22%)	46 (28.57%)	283 (40.60%)
11 - 15	71 (13.25%)	44 (27.33%)	115 (16.59%)
16 or more	21 (3.92%)	48 (29.81%)	79 (11.33%)
Total	523 (75.04%)	160 (22.96%)	693 (99.43%)

Table 46: Highest Earned College Degree at First Principalship

Degree	Male n=536	Female n=161	Total N=697
No College	3 (0.56%)	7 (4.35%)	10 (1.44%)
Associate	4 (0.75%)	0	4 (0.57%)
Bachelor	87 (16.23%)	32 (19.88%)	119 (17.07%)
Master	421 (78.54%)	111 (68.94%)	532 (76.33%)
Educ Spec	16 (2.99%)	9 (5.59%)	25 (3.59%)
Doctorate	5 (0.93%)	1 (0.62%)	6 (0.86%)
Total	536 (76.90%	160 (22.96%)	696 (99.86%)

Table 47: Size of City/town Of Current Employment

Size	Male n=536	Female n=161	Total N=697
Rural Nonfarm	20 (3.73%)	5 (3.11%)	25 (3.59%)
Rural Farm	71 (13.25%)	13 (8.08%)	84 (12.05%)
Small Town	158 (29.48%)	30 (18.63%)	188 (26.97%)
Small City	105 (19.59%)	24 (14.91%)	129 (18.51%)
Medium City	84 (15.67%)	35 (21.74%)	119 (17.07%)
Large City	42 (7.84%)	27 (16.77%)	69 (9.90%)
Suburb	53 (9.89%)	26 (16.15%)	79 (11.33%)
Total	533 (76.47%)	160 (22.96%)	693 (99.43%)

APPENDIX G

Definition of Categories of Elementary School Principals' Descripter Characteristics

Table 48: Definition of Categories of Elementary School Principals' Descripter Characteristics

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Age at First Principalship	25 or less 26 - 35	1	35 or under	475
	36 - 45 46 - 55 56 or over	2	36 or over	222
Total Enrollment (school system)	Less than 300 300 - 2,999	1	Less than 3000	248
	3,000 - 24,999 25,000 or more	2	More than 3000	443
Total Enrollment (under direction)	Less than 200 200 - 399	1	Less than 400	287
	400 - 599 Over 600	2	More than 400	406
Salary	Less than $8,000 $8,000 - 11,999 $12,000 - 15,000	1	Less than $16,000	81*
	$16,000 - 19,999	2	$16,000 - 19,999	207
	$20,000 - 23,999	3	$20,000 - 23,999	241
	$24,000 - 27,999 $28,000 or more	4	$24,000 or more	168

*Category contains fewer than 20% of the total sample

Table 48 (cont'd)

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Contract	9 months 10 months	1	10 months or less	371
	11 months 12 months Other***	2	11 months or more, and Other	326
State	Illinois Indiana Michigan Ohio	1	East of Mississippi River	395
	Iowa Kansas Minnesota Missouri Nebraska North Dakota South Dakota Wisconsin	2	West of Mississippi River	295
Level/levels of Teaching	Elementary	1	Elementary only	274
	Junior High/ Middle Senior High College Other	2	More than one level	423

***Although the meaning of "other" as a category was unclear, it was determined preferable to retain the 37 individuals in that category for analysis.

Table 48 (cont'd)

Variable	Original Categories	Recoded Categories	Definition of Recoded Categories	N
Years a Principal	Less than 5	1	Less than 5	154
	5 - 14	2	5 - 14	361
	15 or more	3	15 or more	182
Highest College Degree	No College Associate Bachelor Master	1	Master or less	549***
	Educ Spec Doctorate	2	Over a master's	148*
Area of Specialization	Elementary Educ Secondary Educ Counseling/ Guidance Content Area Other	1	Other	222
	Supervision/Ed Admin	2	Supervision/Ed Admin	475
Number Schools Under Direction	1	1	1	583**
	2 3 or more	2	More than 1	111*

*Category contains fewer than 20% of the total sample
**Category contains more than 80% of the total sample

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