

AN ANALYSIS OF AVERAGE PRINCIPALS' SALARIES IN THE
COMMONWEALTH OF VIRGINIA

by

Joseph C. Melvin

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APPROVED:

Robert R. Richards, Chairman

Glen I. Earthman

Jimmie C. Fortune

David J. Parks

Donald A. Peccia

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(ABSTRACT)

The purpose of the study was to identify variables associated with the level of average principals' salaries in the school divisions of Virginia. Predictions were on the variables found to be associated with average principals' salaries--fiscal capacity, average daily membership, the education level of citizens, per pupil expenditure, and average household income. Data from 133 school divisions for the 1994-95 school year were used in the analysis.

Stepwise regression method was employed. Residuals were used to form three groups of school divisions: those divisions paying constantly more than their predicted average adjusted salary (12,600 to 2716); those paying

about their predicted average salary (2715 to -2785); and those paying considerably less than predicted (-2786 to -14212). The groups were plotted on a map of Virginia to determine whether clusters of high positive, middle and, high negative residual divisions were evident. The clusters were reviewed to interpret whether contiguous divisions adjusted their salary levels to be competitive with their neighbors. Twenty-four school superintendents or personnel administrators were randomly selected from the clusters and interviewed to help identify the variables school divisions used to set salaries of principals, and how the data in this study might be used.

Fifty-nine percent of the variance in average principals' salaries was explained by average daily membership, average education level, per pupil expenditure, and average household income. Except for local fiscal capacity, all variables were found to have a significant relationship ($p \leq .01$) to average division principals' salaries. Grouping of residuals by size and proximity revealed clusters of division salaries appeared to be adjusted to be competitive with neighboring divisions. The interviews from the superintendents or personnel directors revealed similar results of setting

salaries by comparing to neighboring divisions. At all residual levels, salaries in comparing neighboring divisions appeared more often as a theme from the interviews when setting salary schedules for principals. Further results from the interviews revealed, the data might be used to compare average principals' salaries with divisions which are competitive and contiguous.

Based on the data, a large number of school divisions did not pay average principals' salaries according to their predicted levels; they appeared to base principals' salaries on other variables, including the desire to stay competitive with contiguous or neighboring divisions.

DEDICATION

In Loving Memory

This dissertation is dedicated to my grandparents the late Mr. Joseph Naomi and Mrs. Lillian Bowden Brown. May they rest in peace. To my mother, Mrs. Delores Melvin, I give all my thanks to you.

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CHAPTER ONE

INTRODUCTION

School districts are faced with establishing fair salaries paid to school principals. Some principals are concerned that their salaries are not competitive and they are paid far less than they should be paid. What determines districts' willingness to pay school principals the competitive salaries?

School boards have an exhausting task in establishing salary levels that are competitive and acceptable. Dyer (1997), Director of the National Association of Secondary School Principals (NASSP), wrote, "Considering the long days, including weeks, that principals work; the high pressure of managing a school building and staff; the responsibility of ensuring the well being of their students; and the importance of being immediately accessible to parents, school boards and the community, the pay they receive is pitifully low" (p.3).

To attract the most qualified principals, school districts must pay principals competitively. The willingness to pay well may be associated with such variables as the number of students or the fiscal position of a school district. These variables can be common or may be related to factors which are unique to several school districts.

Statement of the Problem

School boards have the responsibility to set salaries of principals' salaries and determine whether they are acceptable or competitive. These salary levels may attract qualified principals to school divisions. This study was done to investigate the variables associated with the level of principals' salaries in Virginia. It has two parts: (1) a quantitative analysis of principals' salaries and the variables associated with the variation in those salaries and, (2) a qualitative analysis of interview data on variables school divisions use to set principals' salaries, and how school divisions might use the data from this study.

Research Question

The following research questions were investigated in this study:

1. To what extent do the following variables help to predict average principals' salaries in the school divisions in Virginia:
 - A. Local fiscal capacity
 - B. Average daily membership
 - C. Average division education level
 - D. Per pupil expenditure
 - E. Average division household income
2. What are the factors used by school divisions in setting the salary schedule for principals?
3. How might school divisions use the data in this study?

The Purpose of the Study

The purpose of the study was to identify variables associated with the average principals' salaries in school divisions in Virginia. School superintendents and school boards can utilize these variables to assist in

setting competitive salary levels in school divisions. Data in the study may benefit school divisions when recruiting principals.

Definition of Terms

The following terms were used in this study:

1. Local fiscal capacity-- the ability of a school division, measured by its wealth, to support education within the locality. The operational definition is the local composite index for the 1994-95 school year as reported in the Superintendent's Annual Report of Virginia (Virginia Department of Education, 1995).
2. Average daily membership-- Is the average number of students enrolled in a school division during the 1994-95 school year, as of March 31, reported in the Superintendent's Annual Report of Virginia (Virginia Department of Education, 1995).
3. Level of education in community-- Is the percentage of residents in a school division who are 25 years or older with a bachelor's degree or more. Data were taken from the Statistical Abstract of Virginia (1995).

4. Per pupil expenditure-- Is the amount of money spent on each student in a school division for the 1994-95 school year as reported in the Superintendent's Annual Report of Virginia (Virginia Department of Education, 1995).
5. Household income-- The average amount of income of families in a school division as reported in the Superintendent's Annual Report of Virginia (Virginia Department of Education, 1995).
6. Average principals' salary-- The average annual salary paid to principals within a school division during the 1994-95 school year. Data were taken from the Superintendent's Annual Report of Virginia (Virginia Department of Education, 1995).
7. School division-- School divisions in the Commonwealth of Virginia including cities, counties and towns. The school divisions of James City, Clifton Forge, Fairfax City, Emporia, and Bedford City were included in this study with Williamsburg, Allegheny Highlands, Fairfax County, Greensville, and Bedford County, respectively. (Virginia Department of Education, 1995).

Limitations of the Study

The study is limited to the school divisions in the Commonwealth of Virginia.

Organization of the Study

This report has five chapters. Chapter I has an introduction, a statement of the problem, research questions, the purpose of the study, definitions of key terms, limitations of the study, and the organization of the study. Chapter II is a review of the literature on local fiscal capacity and principals' salaries, division size (average daily membership) and salaries, level of education in the community and principals' salaries, per pupil expenditure and principal salaries, household income and principal salaries, developing principals' salaries, structure of the schedule, and summary. Chapter III consists of a description of the research methodology and the approach used to analyze the data. Chapter IV contains the findings of the study. Chapter V consists of a summary, conclusions, discussion, recommendations for practice, and implications for further research.

CHAPTER TWO

REVIEW OF THE LITERATURE

This chapter is a review of the body of research pertinent to this study. The chapter is divided into the following sections: local fiscal capacity and principals' salaries, average daily membership and principals' salaries, level of education in the community and principals' salaries, per pupil expenditure and principals' salaries, average household income and principals' salaries, developing principals' salaries, structure of principals' salary schedules, and the last section is a summary of the chapter.

No studies were found relating simultaneously to all of the variables of interest in this study-- fiscal capacity, average daily membership, average education level, per pupil expenditure, and average household income-- to average principals' salaries. Studies were found relating teachers' salaries to each of the variables separately. These studies were reviewed to get an

indication of the relationship that might be found between principals' salaries and the independent variables.

Local Fiscal Capacity and Principals' Salaries

Local financial support for education should be provided because: (1) it promotes an interest in schools, and (2) citizens will share the costs and develop economical ways for schools to operate. However, the wealth of local districts and their willingness to share a portion for public education determines the level of support (Johns, Morphet & Alexander, 1975).

Garnes (1978), defined local fiscal capacity as the ability of any district to raise property tax revenues on wealth available in a school district and the extent to which residents are willing to tax existing wealth.

According to Johns, Morphet, & Alexander (1983), local fiscal capacity is measured by determining taxpaying ability by using the available tax base and income. The tax-base used in most districts to determine fiscal capacity is real property. The assess value of property wealth and income may not be enough to measure fiscal capacity. The number of pupils to be served by school districts help to determine the level of fiscal capacity. Other

measures used are sales taxes and non-property sources as a portion of fiscal capacity. An alternate method is indexing taxpaying ability by using variables as predictors of equalized valuation of property. This method is not always reliable because of the problem of getting accurate assessed values on property. The economic indicator approach uses income, wealth, and consumption to measure fiscal capacity. This method does not exclude a tax base (real property) to measure fiscal capacity. It is a combination of indicators to determine the measure of fiscal capacity. The combination may include several or all indicators in a formula to determine fiscal capacity. According to Verstegen (1988), Virginia's formula for fiscal capacity includes real property, sales taxes, and gross income.

Disparities in fiscal capacity among local school districts is a concern, according to Johns & Morphet (1975), and should be handled fairly by states to ensure equal opportunity for education. States use different methods to determine equalization based on fiscal capacity. Mort, Ruesser, and Polley (1960), noted the most common approach is the foundation program developed by George Strayer and Robert Haig in 1923.

The purpose of foundation program is to provide the minimum level of educational and equal opportunity for all students through fiscal support by states. Webb, Metha, and Jordan (1996) described the foundation program as the difference between a fixed amount per pupil and the amount the school district can obtain from a local uniform tax rate. For example, if a state plan provides for \$5,000 dollars per pupil and a yield from a tax rate by a locality of \$3,500 dollars, the state payment would be \$1,500 dollars. The payment by the state will be adjusted based on the local required effort.

Alexander and Salmon (1995) indicated that flat grants are sometimes used for fiscal equalization; however, they tend to be a poor alternative for fiscal equalization because they are not tied to need. They can be used to provide some funding for localities through the number of pupils in a school district. Flat grants are widely used by most states as supplementary categorical aid. In 1995, Delaware, North Carolina, and Nebraska used flat grants exclusively as their fundamental program for distributing state aid.

Odden and Pincus (1992) suggested that both wealthy and poorer districts are dependent on state support for funding. They also indicated that

school districts are required to pay salaries to employees, and the fiscal capacity of a district may influence the level of pay.

Watt (1990) investigated district property wealth and salaries in Georgia and found that property wealth was related to the level of teachers' salaries. One hundred eighty-six school districts were used in the study. The mean salary of contiguous districts for eight salary categories of experience and degree were computed. The correlation between the mean salaries for contiguous districts and the salaries in individual districts ranged from a low $r=.44$ to a maximum of $r=.58$. Watt concluded the following: (1) if salaries in contiguous districts are raised, the salaries in the neighboring districts will tend to be raised, (2) If districts have greater revenue potential than the contiguous districts, they will tend to pay higher teachers' salaries than those districts that join them, and (3) If districts have greater revenue-generating potential than contiguous districts, they may choose to spend more money in various ways one of which is to pay higher teachers' salaries.

Matthews, Watt, Brown and Dayton (1992) researched local wealth and salaries in Pennsylvania. The study consisted of 491 school districts. The

variables used were teachers' salaries and property wealth per pupil. A multiple regression analysis was used. The predicted salaries for every school district were calculated from the regression equation. T-tests were performed on the property wealth per pupil and the personal income between those districts paying teachers' salaries higher than predicted from the regression equations and those paying less than predicted. They were all found to be statistically significant ($p < .005$). A statistically significant positive correlation ($r = .87$, $p < .005$) was found between mean average teachers' salaries of contiguous districts and average teachers' salaries of individual districts. Matthew et. al. concluded that higher property wealth and higher personal income did predict significant differences in salaries. Salaries were affected by neighboring districts, the local tax base, and the willingness of school boards to pay teachers.

Average Daily Membership and Principals' Salaries

Schools are in the business to educate children, and the services needed to accomplish this can be costly. Compensation of employees are

associated with the cost for services to educate students. The number of students, cost of materials, and what the community will accept could also determine the cost to educate students. According to Levin (1970), the size of the school enterprise may affect the economic efficiency of the delivery of educational services. Thompson, Wood and Honeyman (1994) indicated the number of students in a district will affect it's financial position. An increase in students can improve the amount of funding school districts receive. In most states, school enrollment is the major determinant of school funding.

Easton (1993) found that enrollment declines lead to higher levels of per pupil spending in a study of Oregon school districts. Easton identified three factors that appeared to affect the increase of spending per pupil: (1) a reluctance, initially, to reduce staff to match declines in enrollment; (2) the cost per pupil may rise despite staff reduction and compensation costs because faculty tenure will continue to increase if there are no layoffs or new hires, and (3) administrators may use the opportunity to improve the quality of services provided to their students.

Loomis (1981) related teachers' salaries to student enrollment in Missouri. Data were collected from 375 school districts. Descriptive statistics were used in this study. Districts with larger enrollments were found to offer higher salaries than districts with smaller enrollments. Districts with enrollments of 3,001-10,000 experienced the highest percentage increase in mean salaries (Table 1).

Table 1

Absolute and Percent of Salary Change 1976-1981 by Enrollment

Enrollment	Mean Salary and Percent Salary Change
0-1,000	2,200 (29.9) ^a
1,001-3,000	2,514 (31.4)
3,001-10,000	2,950 (36.0)
10,001-plus	2,270 (25.5)

^a Numbers in parenthesis represent percent salary change.

The very large districts (over 10,000) experienced the slowest percentage growth in mean salaries. Loomis concluded that small districts with enrollments of 1,001-3,000 experienced the higher percentage increase in

mean salaries. The very small districts (less than 1,001) and the very large districts (over 10,000) have experienced the smallest percentage gains in teachers' salaries.

Hoyt (1981) related teachers' salaries in Iowa to size and per pupil assessed property valuation. The study consisted of 434 school districts. A stepwise regression analysis was used. School district size was grouped into seven enrollment categories to study the relationship to teachers' salaries. Size yielded an r^2 of .24. The assessed property valuation was found to produce an r^2 of .09. Hoyt concluded that size is the best predictor of teachers' salaries in Iowa. When assessed property valuation was added to the size factor, the variance accounted for by the two variables increased to .34. Factors other than school district size, assessed property valuation, and wealth contributed to the majority of the variance in teachers' salaries among districts in Iowa.

Callas and McCormick (1993) associated a set of variables (average daily membership, median income, cost per pupil, and average teacher experience) to average teachers' salaries in a study in Vermont. The Pearson

correlation coefficient was used to measure the relationship between the variables. Data from 181 school districts were included in the study. A strong positive relationship was found between average teachers' salaries and average daily membership with a coefficient of +.61 (Table 2).

Table 2

Pearson Correlation Coefficients for Independent Variables and Average Teachers' Salaries in Vermont, 1993

Variable	r
Average daily membership	.61
Median income	.39
Cost per pupil	.50
Teacher experience	.60

Callas and McCormick concluded that in Vermont high salaries were not just a indication of wealth in a community but of the level of education, and other socio-economic factors.

Gold (1992) found there were significant correlations between teaching salaries in Indiana at six respective salary levels (the beginning

bachelor's level, the bachelor's and five years experience level, the maximum bachelor's level, the beginning master's level, the master's and ten years of experience, and the maximum master's level) and average daily membership. The study consisted of 291 school corporations. T-tests were performed to analyze the data. It was found that all correlations were positive (Table 3). All tests were significant at the $p < .05$ level with the exception of the master's degree minimum level experience. It was concluded that school corporations with larger average daily membership paid teachers better salaries.

Table 3

Pearson Correlations (r) and Probabilities (p) of Teachers' Salaries and Average Daily Membership, 1990

	^a BS	^b BS-5	^c BS-Max	^d MS-Min	^e MS-1	^f MS-Max
r	.31	.31	.25	.26	.29	.39
p	.00	.00	.00	.00	.00	.00

^a BS = bachelor's degree, ^bBS-5= bachelor's degree and five years, ^cBS-Max= bachelor degree maximum, ^dMS-Min= Master's degree minimum, ^eMS-10=Master's degree and ten years, ^fMS-Max= Master's degree maximum.

Level of Education and Principals' Salaries

Strong educational qualifications are needed for certain high paying careers; and it is reasonable to believe that an increase in the level of education in the community would affect the amount of wealth and educational services in a district. The U.S. Department of Education (1994a) revealed that earnings varied with educational attainment and increased as the level of educational degree advanced. They reported that more than 27 percent of adults in the U.S. obtained a degree beyond the high school diploma. In 1994, research by the National Center for Statistics showed the median incomes in the United States for men and women with a high school diploma were \$22,000 dollars and \$14,000 dollars, respectively. When they reviewed the data for college graduates, the figures were \$34,000 and \$26,000.

Arons, Arons and Lee (1990) found that lower and higher educational levels in a community both resulted in an increase in financial commitment for educational services. School districts in Michigan were used in the study.

Districts with lower educational levels had high federal and state revenues, and districts with higher educational levels had high local revenues.

Kitchen (1983) investigated the relationship between teachers' salaries and socio-economic variables of 285 cluster sampled districts in Texas . A multiple regression and correlation analysis were performed. Nineteen of the twenty-one correlation coefficients of salary and local wealth were positive and significant ($p=.01$). Wealth accounted for 56 percent of the variance. Teacher education and school size were positively correlated with both salary and local wealth.

Per Pupil Expenditure and Principals' Salaries

Per pupil expenditure is measured by a dollar value of the costs to educate a child adequately. The number of students establishes the amount of finances needed to sufficiently fund education.

Musgrave (1982) indicated that a decline in population of a community resulted in a decline in student enrollment in schools. This decline resulted in

an absence of per pupil expenditures and a decline of total funding for schools and the community.

Simmons (1992) studied the relationship between property wealth per pupil, personal income per pupil, and teachers' salaries among neighboring school districts in South Carolina. There were 91 school districts used in this study. Data were organized in 10 categories by experience and degree. Regression lines were completed between teachers' salaries in individual districts and the mean salaries in neighboring districts for each category of experience and degree. Simmons found there was a significant relationship between district teachers' salaries and the mean teachers' salaries of neighboring districts. Significant relationships were also found between salaries and personal income, and between property wealth and personal income.

Johns, Alexander, and Jordan (1971), in a report to the National Educational Finance Project, suggested that costs of instructional services and special programs were assessments of per pupil expenditures. Verstegen (1988) indicated there are special programs which compensate educationally

deprived or low income pupils. Programs for disadvantaged students which receive additional funding from the state and federal government to equalize educational opportunity.

Swanson & King (1991) believed states vary in their approaches to determine per pupil costs. Numerous states use the weighted pupil approach derived by Paul Mort. The weighted pupil approach measures the difference in cost related to the measure of weight.

Berne & Stiefel (1984) indicated:

There is no question that each unit of analysis embodies different values about what is important in equity analysis. The pupil unit of analysis focuses on the pupils in the state; thus districts that have greater numbers of pupils have greater influence on the equity assessment compared to smaller districts. Basically, each pupil receives equal weight in the pupil unit of analysis. The district unit of analysis ignores district size and gives equal weight to each district in the state. This implies that each pupil in the larger districts has a

relatively smaller influence on the equity assessment than each pupil in the smaller districts. (p.59)

Household Income and Principals' Salaries

School districts' average household income may influence the amount school principals are paid. Average household income can be measured by income per capita, a product of the share of the population in the labor force, or the average income generated by each working person (Musgrave, 1982).

Odden, as quoted by Beck (1979), presents three reasons for using an income measure in determining school district wealth:

First, in states where school districts can levy income taxes such as Maryland and Kansas, the relative income to fiscal capacity is clear.

Odden's second reason applies even to states where districts can only tax property, "income is the best single explanatory variable for government expenditures and should, therefore, be used as a measure of fiscal capacity". Property value, per pupil is not a satisfactory proxy for income because the relation with districts' median family income is

variable, with positive correlations in some states and negative correlations in others. Odden's third reason is that as an indicator of ability to pay, income links taxes raised which burdens taxes placed on the community and its citizens. Regardless of the base on which taxes are paid out of income. The ratio of local tax revenues to income is then an indicator of the tax burden on the local school district (p.312).

It is reasonable to deduce in Virginia, when personal income is higher within a district, its taxpaying ability is high. In Virginia, a wealthy local district has the ability to raise local leeway dollars which can exert more tax paying ability than a less wealthy district for public education (Alexander & Salmon, 1995). Johns, Alexander & Jordan (1971) wrote, "property value per pupil or per capita is not closely related to income, although presumably all taxes must eventually be paid from income" (p.232).

The differences in household income and personal property can pose problems of equity of educational opportunity among school districts. It can have an effect on what school districts will pay school teachers and

administrators. According to Kirby, Holmes, Matthews and Watt (1993), principals' salaries are indexed by teachers' salaries and may be affected by the cost of living, the wealth of a district, shortages or surplus of teachers, and local salary levels. Kirby et al. surveyed 186 superintendents in a southern state (not identified) and asked them to rank order four factors (salaries paid in nearby districts, wealth of district, other wages in the community, and cost of living) influencing salary decisions. Eighty-five percent of the superintendents responded to the survey. Of the 85 percent, eighty-five superintendents considered wealth of the district as their primary factor for salary development. Only 16 superintendents regarded cost of living as the main factor .

Matthews (1980) believed that cost of living was not related to employee salaries. He considered other factors, such as the support of the community for education, significantly affected school employees' salaries, and personal income was an unpredictable method to measure salaries.

Poss (1995) examined that teachers' salaries in Florida would increase more rapidly in high cost of living districts than in low cost of living districts.

Sixty-seven school districts in Florida were used in this study. Descriptive statistics were used to analyze the data. T-tests were used to compare the means. Differences between the means were statistically significant at the $p < .05$ level of significance. The critical t-value was -3.875 and the p-value was .00025. Poss found that teachers' salaries were increasing at a significantly greater rate in high cost of living districts than in low cost of living districts.

Gurthie & Garmes, (1988) noted that school districts are faced with three major inequalities (1) wealth, (2) educational cost, and (3) educational needs. Property taxes are the major indicator of wealth in most districts. A rich district with a lower tax rate will be able to finance educational costs better than a poor district with an high rate of taxation. They further stated,

Salaries constitute seventy to eighty percent of the average school district's budget. The differences in the cost of living and retaining employees of equivalent quality are even more important than differences in the cost of supplies. (p.147)

Developing Principals' Salaries

The base salary is usually determined in most states by the use of the statistical measure derived by the Education Research Service called the Composite Indicator of Changes in Average Salaries and Wages Paid by Public School Systems (Education Research Service, 1993). The Composite Indicator of Changes is designed to reflect overall changes in average salaries and wages paid by public school systems. It is useful to school divisions to provide a measure of salaries and wages relating to the level of economic changes in our nation. There are several ways to determine the base of principals' salaries: (1) they are independent from teachers' salaries, (2) the salary can be related to the superintendent's salary, (3) the base of the salary may be related to neighboring districts or the regional average paid to principals, and (4) salaries can be related to school board established methods, such as, performance evaluation and individual negotiation. In many school districts, administrators' salaries are determined by indexing teachers' salaries (Education Research Service, 1993).

Principals' salaries will change when they are indexed to teachers' salaries. In the 1980's, the average national teacher salary rose in relationship to an increase in our national economy. During that period, principals' salaries also increased (U.S. Department of Education, 1994b).

Structure of the Schedule

The structure of the salary schedule is most often made up of step levels which are advanced by degrees determined by years of service or educational levels. Each position in the school district is assigned to one of the salary ranges and each employee is assigned a salary level based on performance. Advancement from one salary range to another is usually based on either promotion or an increase in educational qualifications (Shockley, 1992).

The economic position of the community and the political nature of the school board may also have much to do with the final level of the salary structure for administrators. Once school boards agree on administrative salary structure, the system will take effect.(Castetter, 1971).

In most states, additional revenues can be obtained only through tax-levy increase which, of course, requires voter approval. Therefore, a board of education may be unable to approve a recommendation of a salary scale if it is unrealistically high (Rebore, 1987). Burrup & Brimley (1982) stated,

Many board members have never had direct experience of their own with incomes of the size of those of administrative and supervisory employees; they tend to establish salaries having some relation to their own degree of affluence. (p.396)

Salaries should be closely related to the standard of living in a district. If salaries are to be competitive and comparable enough to sustain a reasonable standard of living for school district employees, they must be relative to the salaries received by other individuals living in the community (Rebore, 1987).

School employees tend to see salaries as a statement of worth to the organization while management tends to approach wages in strictly economic terms (Shockley, 1992). Everyone is interested in how much he or she will be

paid and how this compares to others in an organization. Consequently, salary and salary scales have far-reaching implications with regard to employee performance. Pay scales can contribute to employee morale if they are perceived as fair and equitable and if there is a review process to adjust for the inevitable evolution of duties and responsibilities (Shockley, 1992).

Summary

The administrative and supervisory staff of any school system represents its leadership potential. If school districts are to find knowledgeable, resourceful leaders to provide a quality educational program to their communities, the salaries must be of such proportions that they will attract and retain those best qualified. Opinions on education within a community may affect principals' salaries. Communities are of different wealth and it is reasonable to expect education to be financed at different levels. Salaries of principals may be directly related to these varying differences of wealth and community variables.

CHAPTER THREE

METHODOLOGY

Presented in this chapter are the research design , the population, the data collection procedures, and all the methods of data analysis.

The purpose of the study was to identify variables associated with the level of average principals' salaries in school divisions in Virginia. School superintendents and school boards can utilize these variables to assist in setting competitive salary levels in their school divisions. Data in the study may benefit school divisions when recruiting principals.

Populations and Samples

The total population consists was the 133 school divisions in the Commonwealth of Virginia, which includes the cities, counties and towns. The school divisions of James City, Clifton Forge, Fairfax City, Emporia, and Bedford City were included in this study with Williamsburg, Allegheny Highlands, Fairfax County, Greensville, and Bedford County, respectively.

The population was subdivided into clustered and non-clustered divisions and furthered divided into high-positive, medium, and, high-negative residual divisions (see Table 4). Samples of the clustered high-positive, medium and high-negative divisions were selected randomly for collecting data on factors used by school divisions in setting principals' salaries.

Table 4

Populations and Samples by Level of Residual and Cluster Status

Residual Level	Population		Sample	
	N	%	N	%
(Clustered divisions)				
High positive	14	11	4	17
Medium	59	44	17	71
High negative	22	17	3	13
Non-clustered	38	28	0	0
Total	133	100	24	101

^a Divisions were either clustered or not clustered. Clustered divisions were contiguous and were clustered according to the level of the differences between the mean predicted and actual principals' salaries. The difference is the residual.

Twenty-four school division superintendents or personnel administrators were randomly selected to identify the variables considered when setting principals' salary schedules, and to determine how the data might be used in this study. The school divisions were separated into high-positive, medium, and high-negative residual school divisions. Four divisions were selected from the high-positive residual divisions, 17 were selected from the medium residual divisions, and three from the high-negative residual divisions.

Data Collection Method

Data for the predictor and criterion variables were collected from the Superintendent's Annual Report of Virginia (Virginia Department of Education, 1995), and the Statistical Abstract of Virginia (University of Virginia, 1995). An interview questionnaire was developed to collect data on factors used by school divisions on setting principals' salaries. An initial set of items was prepared by the researcher and reviewed by those members of the dissertation committee. These questions were asked: (1) Tell me how the salary schedule is set for principals in your school division?; (2) Probing

question: Which are the following factors affecting principals' salaries in your school division? -level of teachers' salaries,-income in community,- experience of principal,-wealth of school division; and (3)How would you use the data in this study? A copy of the interview questions is provided in Appendix 1

Analysis of Data

The computerized Statistical Package Software System program was utilized to analyze the data. The data used was aggregate data. No evidence of error in variance suspected. Collinearity diagnostics were first computed to test for intercorrelations among the independent variables. Pearson's product moment correlation coefficient was also computed to test whether high correlations existed among the variables. An analysis of variance was computed on all independent variables against the dependent variable to test for linearity. A stepwise multiple linear regression analysis was used to determine the relationship between the predictors (local fiscal capacity, average daily membership, per pupil expenditure, level of education in the community, average household income) and the criterion, average principals'

salaries. Predicted salaries were computed from the regression equation, and residuals were grouped by high-positive residual divisions, medium residual divisions, high-negative residual divisions, and clustered by contiguous divisions. The clusters were reviewed to interpret a division's willingness to pay principals above, at, or below their average predicted level. The results are displayed in figures and tables in Chapter IV along with a description of each procedure and explanation of the data. Twenty-four school division superintendents or personnel administrators were randomly selected from clusters of high positive, medium, and high negative level of residual divisions.

The interviews were taped, transcribed, and analyzed thematically. Analysis of the data related to factors used by school divisions to set principals' salaries, and how the data might be used was as follows: (1) Key words related to factors used by a division in setting principals' salaries, and how the data might be used were identified from each transcript and recorded on a chalkboard. (2) Once key words (factors) had been identified, the words that were the same were underlined and combined. The combined categories

were the factors used by the school divisions in setting principals' salaries, and how the data in the study might be used. (3) The interview responses were then grouped by high positive, medium, and high negative residual divisions and the number of times a key word appeared for the division in each category was recorded. (4) The factors used by each type of division in setting principals' salaries, and how the data might be used in the study emerged from the transcript. The data are reported in tables.

Test for Nonlinearity

To address the potential for nonlinearity in the data, an analysis of variance was performed. The purpose for comparing the two methods, the linear multiple regression and the analysis of variance, is to examine whether the relationship between the independent variables and average principals' salaries is linear or not. When using multiple linear regression for analysis, one must assume a linear relationship exists between each of the predictor variables and the criterion variable (Pedhazur, 1982).

Summary

The intent of this chapter was to present the methodology used in this study to identify the association of variables to the level of average principals' salaries in the state of Virginia. The method will be used to assist the researcher to analyze data to determine whether divisions may be willing to pay competitive salaries to principals.

CHAPTER FOUR

ANALYSIS OF THE DATA

This chapter includes descriptive statistics, correlation analyses, and regression analyses related to the variables associated with average principals' salaries in Virginia for 1994-95. Data are displayed in figures and tables.

Descriptive Statistics for Variables

Means and standard deviations for average principals' salaries and the independent variables are in Table 5. The data show wide ranges between the minimums and maximums for all of the variables.

The average daily membership of the 133 school divisions in Virginia was just over 7500 in 1995. Only nine school divisions fell in the range of 25,000 to 128,768. Six divisions had more than 39 percent of their residents with a bachelor's degree or more, and over 100 districts had less than 21 percent of their residents 25 years or older with a bachelor's degree or more.

Table 5

Summary of Descriptive Statistics for Average Principals' Salaries in VA (1994-95) and Independent Variables, (N=133)

Variable	<u>M</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>
Local Composite Index	.38	.15	.16	.88
Division education level ^a	15.93	9.67	4.20	52.80
Per pupil expenditure	5338.00	894.68	4315.00	9513.00
Average daily membership	7502.11	14416.19	377.00	128768.00
Division household income	32735.51	8924.42	15603.00	66287.00
Principals' salaries	52201.47	6783.16	40076.00	79668.00

^a Percentage of residents 25 or older with a bachelor's degree.

Correlations Among Variables

Pearson correlation coefficients for relationships among the independent variables and between the independent variables and average principals' salaries are in Table 6. Moderate relationships between average principals' salaries and local composite index, average daily membership, average division education level, per pupil expenditure, and average division household income are evident. Moderate correlations also were found between the local composite index and average division education level, local composite index and per pupil expenditure, average division education level and per pupil expenditure, and average division education level and average division household income. All of these correlations were positive and significant ($p \leq .01$). No correlation was found between local composite index and average daily membership, local composite index and average division household income, average daily membership and per pupil expenditure, and per pupil expenditure and average division household income.

Table 6

Pearson Correlation Coefficients Among the Independent Variables and Between the Independent Variables and Average Principals' Salaries in Virginia, 1994-95, (N=133)

Variable	2	3	4	5	6
1. Principals' salaries	.40**	.52**	.68**	.44**	.54**
2. Local Composite Index		.13	.51**	.54**	.17
3. Average daily membership			.35**	.10	.35**
4. Division education level				.56**	.57**
5. Per pupil expenditure					.11
6. Division household income					

** $p \leq .01$

Tests for Multicollinearity

To test for multicollinearity, the intercorrelations among average principals' salaries, local fiscal capacity, average daily membership, per pupil expenditure, average division education level, and average division household income were measured (see Table 7). Although there are several cases in which the predictors were moderately intercorrelated, collinearity diagnostics

indicated that no serious collinearity problem existed within the data (see Table 7). The highest calculated condition number of 26.40 would be considered “extreme”; however, an inspection of the variance proportions given in Table 7 of the highest condition indices shows that no variable contributes strongly to the variance of more than one component variable of the table (Besley, Kuh, & Welsch, 1980)).

Table 7

Collinearity Diagnostics for the Independent Variables

Variable	1	2	3	4	5	6	Index
1. Constant	.00	.00	.00	.00	.00	.00	1.00
2. Local composite index	.00	.00	.83	.00	.00	.00	2.66
3. Average daily membership	.01	.00	.08	.44	.00	.00	5.70
4. Division education level	.00	.64	.04	.06	.00	.11	7.50
5. Per pupil expenditure	.00	.32	.02	.12	.13	.54	12.10
6. Division household income	.95	.01	.00	.35	.86	.32	26.40

Results of Tests for Nonlinearity

Analysis of variance was used to assess the potential for nonlinearity of the relationships between the predictors and average principals' salaries. The school divisions were grouped into high positive, median, and high negative categories for each of the predictors.

There was a significant relationship ($p \leq .01$) between the local composite index and average principals' salaries (see Table 8). Deviation from linearity was not significant ($p = .46$). A curvilinear relationship between local composite index and average principals' salaries was not present.

There was a significant relationship ($p \leq .01$) between the average daily membership and average principals' salaries (see Table 9). Deviation from linearity was not significant ($p = .47$). A curvilinear relationship between average daily membership and average principals' salaries was not present.

Table 8

Analysis of Variance Test for Nonlinearity of the Relationship Between
Average Principals' Salaries and Local Composite Index

Source	df	SS	MS	F	p
Between	2	4746.16	2373.08	5.51	.00
Deviation	1	2276.20	2276.20	.53	.46
Within	130	5598.87	4306.82		
Total		6073.49	132		

		Local composite index		
	Number of divisions	Mean salary	<u>Min</u>	<u>Max</u>
Group 1	48	50,302	.16	.30
Group 2	39	51,592	.31	.38
Group 3	46	54,699	.39	.88
Total	133	52,201	.16	.88

Table 9

Analysis of Variance Test for Nonlinearity of the Relationship Between
Average Principals' Salaries and Average Daily Membership

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between	2	2041.84	1020.92	32.91	.00
Deviation	1	1602.42	1602.42	.52	.47
Within	130	4031.64	3101.26		
Total	130	6073.49			

	Number of divisions	Mean salary	Average daily membership	
			<u>Min</u>	<u>Max</u>
Group 1	114	50,656	377	9999
Group 2	10	58,922	10,000	24,999
Group 3	9	64,302	25,000	128,768
Total	133	52,201	377	128,768

There was a significant relationship ($p \leq .01$) between the average division education level and average principals' salaries (see Table 10).

Deviation from linearity was not significant ($p = .60$). A curvilinear relationship between average division education level and average principals' salaries was not present.

Table 10

Analysis of Variance Test for Nonlinearity of the Relationship Between Average Principals' Salaries and Average Division Education Level

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between	2	2434.16	1217.08	43.47	.00
Deviation	1	2426.62	2426.62	.27	.60
Within	130	3639.32	2799.48		
Total	132	6073.49			

	Number of divisions	Mean salary	Average division education level ^a	
			<u>Min</u>	<u>Max</u>
Group 1	106	50,229	04	21
Group 2	21	57,874	22	38
Group 3	6	67,181	39	52
Total	133	52,201	04	52

^a Percentage of residents 25 or older with a bachelor's degree.

There was a significant relationship ($p \leq .01$) between the per pupil expenditure and average principals' salaries (see Table 11). Deviation from linearity was significant ($p = .04$). A curvilinear relationship between per pupil expenditure and average principals' salaries was present. A Scheffe` post hoc comparison was conducted and the results show significant differences in group 3.

Table 11

Analysis of Variance Test for Nonlinearity of the Relationship Between
Average Principals' Salaries and Per Pupil Expenditure

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between	2	1259.05	6295.26	16.99	.00
Deviation	1	1468.53	1468.53	3.96	.04
Within	130	4814.43	3703.41		
Total	132	6073.49			

	Number of divisions	Mean salary	Per pupil expenditure	
			<u>Min</u>	<u>Max</u>
Group 1	120	51,429	4315	6499
Group 2	9	55,077	6500	7999
Group 3	4	68,883	8000	9513
Total	133	52,201	4315	9513

Scheffe` post hoc comparisons

<u>Expenditure groups</u>	<u>N</u>	<u>Mean</u> <u>Salary</u>	<u>SD</u>	<u>Expenditure groups</u>		
				<u>1</u>	<u>2</u>	<u>3</u>
1. \$4315- \$6499	120	\$51,429	5676			*
2. \$6500- \$7999	9	\$55,077	9608			*
3. \$8000- \$9513	4	\$68,883	8965			

There was a significant relationship ($p < .01$) between the average division household income and average principals' salaries (see Table 12). Deviation from linearity was not significant ($p = .18$). A curvilinear relationship between average division household income and average principals' salaries was not present.

Table 12

Analysis of Variance Test for Nonlinearity of the Relationship Between Average Principals' Salaries and Average Division Household Income

Source	SS	df	MS	F	p
Between	1276.37	2	6381.89	17.29	.00
Deviation	6672.75	1	6672.75	1.80	.18
Within	4797.11	130	3690.08		
Total	6073.49	132			

	Number of divisions	Mean salary	Average division household income	
			Min	Max
Group 1	83	50,275	15,603	32,999
Group 2	38	53,698	33,000	47,999
Group 3	12	60,781	48,000	66,287
Total	133	52,201	15,603	66,287

Stepwise Regression Analysis

The results of a forward step-wise regression analysis of the data is in Table 13. The first four independent variables – average division education level, average daily membership, average division household income, and per pupil expenditure accounted for 59 percent of the variance in average principals’ salaries. Average division education level and average daily membership accounted for 55 percent of the variance. When average division household income and per pupil expenditure entered the regression, they accounted for an additional four percent. An increase in the proportion of the variance in average principals’ salaries is accounted for by each predictor, except Local composite index.

Analysis of Residuals

The average principals’ salary for each school division, the predicted average principals’ salary, and the residuals were computed for all school divisions. The residuals are the differences between the average principals’ salaries and the predicted average principals’ salaries. The residuals are listed in descending order (see Table 14).

Table 13

Step-wise Multiple Regression of Virginia Principals' Salaries on the Independent Variables, 1994-95, N=133

Step	Variable Entered	<u>R</u>	Increase in R ²	R ² adj	R ²	<u>b</u>	<u>SE</u>	<u>β</u>	<u>t</u>
1.	Division education level ^a	.68	--	.46	.46	234.18	62.35	.33	3.76**
2.	Average daily membership	.74	.09	.55	.55	.14	.03	.30	4.93**
3.	Average household income	.76	.01	.56	.56	.16	.05	.21	2.99**
4.	Per pupil expenditure	.77	.03	.58	.59	1.52	.55	.20	2.78**
	(Constant)					33821.00	3232.59		10.46**
----- Not in the Equation									

Local Composite Index

^a Percentage of residents 25 or older with a bachelor's degree. ** $p \leq .01$

Table 14

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Northumberland	62,055	49,394	+12,660
Norfolk	66,870	54,995	+11874
Arlington	79,668	69,940	+9727
Amelia	57,183	48,709	+8473
Winchester	61851	53424	+8426
Accomack	56,512	48,434	+8077
Hopewell	57,250	49,354	+7895
Norton	57,332	50,034	+7297
Wise	56,099	49,822	+6276
Richmond	65,412	59,391	+6020
Henrico	67,054	61,035	+6018

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Salem	57,960	52,426	+5533
Hanover	60,480	55,071	+5408
Louisa	55,607	50,214	+5392
Colonial Heights	58,702	53,483	+5218
Danville	54,369	49,156	+5212
Franklin City	55,062	50,143	+4918
Stafford	61,262	56,552	+4709
Petersburg	53,390	48,775	+4614
Prince William	68,618	64,091	+4526
Prince George	55,668	51,152	+4515
Augusta	54,824	50,336	+4487

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for
Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Manassas	62,922	58,900	+4021
Frederick	55,900	52,058	+3841
Lynchburg	57,096	53,388	+3707
Chesapeake	59,217	55,770	+3446
Falls Church	71,270	67,904	+3365
Waynesboro	54,256	50,966	+3289
Bland	50,616	47,659	+2956
Spotsylvania	56,813	53,899	+2913
Manassas Park	53,567	50,677	+2889
Suffolk	53,742	50,952	+2789
Sussex	53,293	50,573	+2719

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for
Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Bristol	51,707	48,990	+2713
Orange	53,826	51,337	+2488
Newport News	57,351	54,892	+2458
Giles	51,105	48,839	+2265
Tazewell	51,767	49,655	+2111
Amherst	50,919	48,851	+2067
Rockingham	53,576	51,537	+2038
Fredericksburg	57,215	55,336	+1878
Harrisonburg	56,264	54,422	+1841
Caroline	51,018	49,274	+1743
Lunenburg	50,137	48,404	+1732

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Staunton	52,684	51,024	+1659
Galax	49,868	48,226	+1641
Isle of Wight	52,514	50,900	+1613
Smyth	50,166	48,566	+1599
Portsmouth	52,858	51,335	+1522
Dinwiddie	49,605	48,362	+1242
Russell	49,611	48,386	+1224
Campbell	51,950	50,837	+1112
Shenandoah	50,107	49,235	+871
Williamsburg	60,034	59,197	+836
King and Queen	50,429	49,701	+727
Northhampton	49,190	48,538	+651

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
York	57,543	57,019	+523
Martinsville	50,997	50,629	+367
Henry	49,016	48,655	+360
Richmond	50,020	49,753	+266
Roanoke City	52,723	52,550	+172
Covington	49,322	49,241	+80
Nottoway	49,050	49,046	+3.44
Roanoke	56,036	56,313	-277
Radford	53,615	53,860	-245
Brunswick	47,431	47,676	-245
Hampton	54,067	54,291	-224
Washington	49,709	50,150	-441

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Warren	49,277	49,724	-447
Powhatan	51,291	51,811	-520
King George	56,030	56,608	-578
Scott	45,914	46,550	-636
Grayson	46,019	46,662	-643
Pittsylvania	47,652	48,321	-669
Va. Beach	62,915	63,724	-809
Pulaski	49,793	50,608	-815
Charlottesville	58,273	59,395	-1122
Carroll	46,570	47,732	-1162
Surry	50,441	51,621	-1180
Buena Vista	46,993	48,176	-1183

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Charles City	50,233	51,431	-1198
New Kent	51,937	53,144	-1207
Prince Edward	48,587	49,946	-1359
Poquoson	54,636	56,226	-1590
Floyd	46,268	47,888	-1620
Loudoun	60,986	62,708	-1722
Greensville	45,918	47,781	-1863
Montgomery	53,150	55,025	-1875
Gloucester	49,004	50,980	-1976
Botetourt	48,699	50,759	-2060
Wythe	46,421	48,543	-2122
Southampton	46,621	48,826	-2205

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted Mean salary	Residual
Essex	48,598	50,849	-2251
Lancaster	48,630	51,023	-2393
Alleghany	47,338	49,787	-2449
Alexandria	66,323	68,848	-2525
Appomattox	45,884	48,442	-2558
Mecklenburg	47,144	49,713	-2569
King William	48,221	50,946	-2725
Culpeper	50,479	53,264	-2785
Cumberland	45,290	48,240	-2950
Middlesex	59,832	48,074	-2644
Charlotte	44,094	47,286	-3192

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted Mean salary	Residual
Page	44,687	47,940	-3253
Chesterfield	59,832	63,133	-3301
Patrick	44,663	48,663	-3468
Craig	43,869	47,486	-3617
Lee	44,589	48,222	-3633
Colonial Beach	50,470	54,291	-3821
Fauquier	54,477	58,313	-3836
Westpoint	48,633	52,610	-3977
Franklin	44,797	48,794	-3997
Nelson	46,127	50,131	-4004
Rockbridge	45,291	49,347	-4056
South Boston	44,265	48,377	-4112

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Clarke	49,941	54,117	-4176
Greene	46,549	50,805	-4256
Halifax	43,787	48,432	-4645
Westmoreland	44,785	49,583	-4798
Bedford	46,214	51,139	-4925
Dickerson	42,050	47,374	-5324
Madison	45,713	51,187	-5474
Matthews	44,745	50,247	-5502
Goochland	50,838	56,360	-5522
Fluvanna	45,127	50,920	-5793
Buckingham	41,434	47,708	-6274
Bath	47,107	53,474	-6367

(table continues)

Table 14 (Continued)

Summary of Average Salaries, Predicted Average Salaries, and Residuals for Principals in Cities and Counties in the Commonwealth of Virginia, 1994-95^a

Division	Mean salary ^b	Predicted mean salary	Residual
Albermarle	54,335	60,811	-6476
Buchanan	42,745	49,378	-6633
Rappahannock	45,771	52,809	-7038
Highland	40,076	48,984	-8908
Fairfax	71,456	81,681	-10225
Lexington	41,550	55,762	-14212

^a The mean principals' salary in Virginia was \$52,201. ^b Mean principals' salaries were taken from the 1994-95 Superintendent's Annual Report for Virginia.

Using the data in Table 14, the school divisions were classified into high-positive, medium, and high-negative residual groups (see Table 15). The levels were set by (1) grouping the residuals into descending order, and (2) computing the 75th percentile and the 25th percentile. Those at and above the 75th percentile were the high-positive residual divisions, those between the 75th and 25th percentiles were the medium-residual divisions, and those at and below the 25th percentile were the high-negative-residual divisions. The divisions were placed on maps of Virginia according to the levels (see Figures 1-3) and the resulting arrays were reviewed to see if there were any meaningful clusters of school divisions. A meaningful cluster might be a set of school divisions paying average salaries much higher than predicted because they are near a high-wealth, high-paying school division.

Table 15

Number of School Divisions in Virginia by Level of Residual, 1994-95

Level	Range	Number of divisions
High positive	+12,660 to +2716	33
Medium	+2715 to -2785	68
High negative	-2867 to -14,212	32

Principals' Salaries in High Positive School Divisions

As shown in Figure 1, when the high-positive residual divisions were highlighted on the map, two clusters of three or more divisions were formed in the northeastern and central areas of Virginia (see Table 16). One cluster of seven divisions was in Northeastern Virginia, and all members were in proximity to Fairfax County, one of the wealthiest divisions in the state. The members of this cluster were paying principals from \$2889 (Manassas Park) to \$9727(Arlington) more than predicted by the regression equation. These divisions may be paying over their predicted salaries because of the high cost of living in Northern Virginia and the competitiveness of such high paying

divisions as Fairfax (\$71,456), Arlington (\$79,668), and Falls Church (\$71,270).

In discussing salaries of principals in Northern Virginia with Ken Magill (personal communication, March 27, 1998), an administrator in the Virginia Department of Education, he stated, “The northeastern divisions are prosperous with high social-economic conditions and should be conducive to increases in salary levels for principals.” The divisions, except for Fairfax, were all above their predicted levels, all are in close proximity to each other, and all compete among themselves for personnel. The smaller and poorer northern divisions in this cluster (Stafford, Manassas Park, Manassas, and Spotsylvania) had lower salaries that were closely competitive with each other.

In the central Virginia cluster of high residual school divisions, Richmond and Henrico County paid the highest salaries and appeared to be competitive with each other. The remaining five divisions appeared to be competitive with each other and paid from about \$9,000 to \$13,000 less than Henrico County. Henrico is a wealthy division and had the highest average salary (\$67,054), education (28% of its residents 25 or older with a bachelor’s

degree), and household income (\$47,022) in its cluster in 1994-95 (see Table 16). Magill stated, “The divisions are not rich but must maintain high salaries to compete” (K. Magill, personal communication, March 27, 1998). The rural and poor central divisions paid competitive salaries among themselves, but they were not competitive with Henrico County and Richmond.

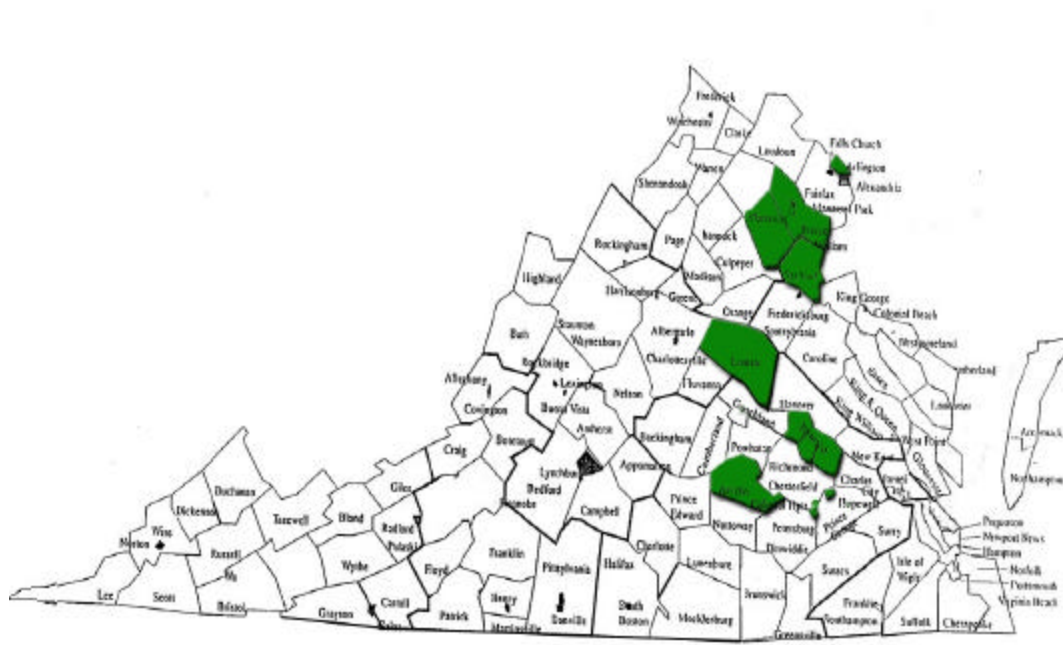


Figure 1 Clusters of school divisions in Virginia with high positive residuals (+12,660 to +2716). Data for the school divisions in the clusters are in Table 16.

Table 16

Division Average Education Level, Average Household Income, Average Principals' Salary and Residuals for High -Positive School Divisions in the Northeastern and Central Region of Virginia, 1994-95

Region and division	Salary ^a	Residual	Education ^b	Household income ^c
Northeastern				
Arlington	\$79,668	9747	52.30	\$45,465
Stafford	\$61,262	4709	21.60	\$50,958
Prince William	\$68,618	4526	27.60	\$57,150
Manassas	\$62,922	4021	25.80	\$57,380
Falls Church	\$71,270	3365	52.80	\$43,001
Spotsylvania	\$56,813	2913	19.00	\$41,171
Manassas Park	\$53,567	2889	7.90	\$43,140
Mean	\$64,874	4595	29.5	\$48,323
Standard dev	\$8,976	2385	16.9	\$6,848
Range	\$26,101	6858	44.9	\$16,209

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

(table continues)

Table 16 (Continued)

Region and division	Salary ^a	Residual	Education ^b	Household income ^c
Central				
Amelia	\$57,183	8473	7.20	\$33,834
Hopewell	\$57,250	7895	10.00	\$27,068
Richmond	\$65,412	6020	24.00	\$31,360
Henrico	\$67,054	6018	28.00	\$47,022
Louisa	\$55,607	5392	8.7	\$30,708
Colonial Heights	\$58,702	5218	16.70	\$38,002
Petersburg	\$53,390	4614	13.50	\$22,003
Mean	\$59,228	6232	15.44	\$32,856
Standard dev	\$5,083	1427	7.5	\$8,023
Range	\$13,644	3859	20.8	\$25,019

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Principals' Salaries in Medium Residual School Divisions

The medium residual divisions formed six clusters (see Figure 2). The clusters appeared in the southwestern, eastern, midwestern, northwestern, south central, and Tidewater regions (see Table 17). With the exception of a few divisions, the average principals' salaries were similar across the clusters and close to the state principals' average of \$52,201. On average, school divisions in the Tidewater cluster paid the highest salaries, and those in the south central cluster paid the lowest salaries. If the range of average division salaries within a cluster is used as a measure of competitiveness among divisions (a small range representing more homogeneous salaries and possibly a willingness to match the competition), the midwestern and south central divisions are more competitive among themselves than the divisions in the other regions. Comparatively, the southwestern and northwestern clusters are moderately competitive within their clusters and the eastern and Tidewater regions are the least competitive in their clusters. Magill commented, "The divisions do not have a lot of money, and it is difficult for them to give adequate salaries" (K. Magill, personal communication, March 27, 1998).

In these medium residual divisions, higher salaries were paid in divisions where the average division education levels was high (Montgomery, Radford, Charlottesville, Harrisonburg, Fredricksburg, Roanoke, King George, York, Poquoson, Williamsburg, and Virginia Beach; see Tables 18-23). In the eastern region of the medium clusters (see Table 18), King George County had the second highest average salary and the highest education level. In the mid-western (see Table 19), and northwestern (see Table 20) regions, Roanoke and Charlottesville had the highest average salaries and highest education levels.

Given the variables in the regression equation, some school divisions in these medium residual clusters are putting forth much greater effort to keep principals' salaries at levels that will retain and attract principals than others. Particularly notable are Tazewell and Giles counties (see Table 17) in the southwestern region (over \$2000 above their predicted salaries); Amherst (see Table 19) in the midwestern region (over \$2000 above its predicted salary); Caroline (see Table 18) in the eastern region (over \$1700 above its predicted salary); Orange and Rockingham (see Table 20) in the northwestern region (over \$2000 above their predicted salaries); Lunenburg (see Table 21) in the south central region (over \$1700 above its predictive salary); and Newport

News (see Table 22) in the Tidewater region (over \$2000 above its predicted salary).

Conversely, some divisions are paying their principals considerably less than predicted by the variables in the regression equation. Particularly notable are Culpeper (over \$2700 less) and Charlottesville (over \$1100 less) in the northwestern region; Cumberland and Mecklenburg (over \$2500 less) in the south central region, Hampton (over \$1500 less) in the Tidewater region; Montgomery (over 1860 less) and Carroll (over \$1100 less) in the southwestern region; Appomattox, Wythe, and Botetourt (lower \$2000 less) in the midwestern region; and Middlesex, King William, Lancaster, Essex, and Gloucester in the eastern region (over \$1900 less).

With respect to the Tidewater cluster (see Table 22), Norfolk, a high residual division, had the highest average salary level in the region at \$66,870. All except two of the Tidewater divisions (Hampton and Virginia Beach) paid average principals' salaries higher than predicted by the regression equation. This greater effort on the part of these divisions may be necessary to retain or attract principals. Virginia Beach, however, is the highest paying division in the cluster; thus, its salary would seem to be sufficient to retain and attract

Table 17

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for Medium Residual School Divisions in the Southwestern Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Montgomery	\$53,150	-1875	31.60	\$26,319
Radford	\$53,615	-245	29.10	\$31,767
Washington	\$49,709	-411	12.20	\$29,738
Galax	\$49,611	1641	11.30	\$25,645
Tazewell	\$51,767	2111	9.10	\$32,999
Giles	\$51,105	2265	8.90	\$28,711
Smyth	\$50,166	1599	7.80	\$28,170
Russell	\$49,611	1224	6.70	\$30,012
Carroll	\$46,570	-1162	6.50	\$26,833
Scott	\$45,914	-636	5.90	\$20,279
Grayson	\$46,019	-643	4.20	\$23,534
Mean	\$49,748	351	12.1	\$27,637
Standard dev.	\$2,671	1445	9.3	\$3,669
Range	\$7,701	4140	27.4	\$12,720

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Table 18
Average Education Level, Average Household Income, Average Principals' Salary, and Residual for Medium Residual School Divisions in the Eastern Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
King George	\$56,030	-578	32.90	\$39,906
Poquoson	\$54,636	-1590	29.40	\$52,477
York	\$57,543	523	28.90	\$49,924
Lancaster	\$48,630	-2393	18.90	\$31,970
Essex	\$48,598	-2251	16.40	\$29,255
Middlesex	\$45,897	-2996	14.70	\$24,559
Gloucester	\$49004	-1976	14.70	\$35,346
New Kent	\$51,937	-1207	13.40	\$47,894
King William	\$48,211	-2725	13.00	\$34,311
Richmond Co.	\$50,020	266	11.80	\$28,976
Surry Co.	\$50,441	-1180	11.00	\$28,683
Charles City	\$50,233	-1198	8.40	\$35,111
King & Queen	\$50,429	-727	7.50	\$26,244
Caroline	\$51,018	1743	6.50	\$26,833

(table continues)

Table 18 (Continued)

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Mean	\$50,901	-1163	16.25	\$35,106
Standard dev.	\$3,203	1136	8.41	\$9,155
Range	\$11,646	4739	26.4	\$27,918

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Table 19

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for Medium Residual School Divisions in the Midwestern Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Roanoke	\$50,036	172	22.60*	\$43,121
Botetourt	\$48,699	-2060	13.60	\$35,893
Campbell	\$51,950	1112	12.90	\$36,594
Pulaski	\$49,793	-815	11.50	\$33,393
Amherst	\$50,919	2067	10.70	\$31,331
Floyd	\$45,127	-1620	10.40	\$33,161
Wythe	\$46,421	-2122	10.00	\$28,135

(table continues)

Table 19 (Continued)

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Appomattox	\$45,884	-2554	8.70	\$32,534
Buena Vista	\$46,993	-1183	8.00	\$28,425
Mean	\$48,424	-778	12.04	\$33,620
Standard Dev.	\$2,413	1582	4.34	\$4,583
Range	\$6,823	4621	14.60	\$14,986

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Table 20

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for Medium Residual School Divisions in the Northwestern Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Charlottesville	\$58,273	-1122	34.10	\$29,569
Harrisonburg	\$56,264	1841	28.70	\$27,322
Fredericksburg	\$57,215	1878	26.10	\$29,891
Staunton	\$52,684	1659	17.80	\$29,127
Orange	\$53,826	2488	16.10	\$33,102
Culpeper	\$50,479	-2784	14.90	\$41,792
Rockingham	\$53,576	2038	14.60	\$31,303
Warren	\$49,277	-447	11.80	\$35,455
Shenandoah	\$50,107	871	11.20	\$29,364
Mean	\$53,522	710	19.47	\$31,880
Standard Dev.	\$3,230	1784	8.1	\$4,427
Range	\$8,996	5272	22.9	\$14,470

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Table 21

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for Medium Residual School Divisions in the South Central Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Prince Edward	\$48,587	-1359	14.20	\$29,616
Powhatan	\$51,291	-520	12.20	\$46,775
Cumberland	\$45,290	-2950	11.20	\$22,748
Mecklenburg	\$47,144	-2569	10.00	\$31,538
Dinwiddie	\$49,605	1242	8.40	\$29,737
Brunswick	\$47,431	-245	7.00	\$24,875
Lunenburg	\$50,137	1732	6.60	\$26,614
Greensville	\$45,918	-1863	5.30	\$24,077
Mean	\$48,175	-816	9.36	\$29,497
Standard dev.	\$2,097	1697	3.06	\$7,628
Range	\$6,001	4682	8.9	\$24,027

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Table 22

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for Medium Residual School Divisions in the Tidewater Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Williamsburg ^e	\$60,034	836	42.90	\$31,851
Virginia Beach ^e	\$62,915	-809	25.50	\$38,141
Hampton ^e	\$54,067	-1590	19.10	\$34,670
Newport News ^e	\$57,351	2458	18.40	\$30,652
Portsmouth	\$52,858	1522	11.60	\$25,562
Norfolk ^{d,e}	\$66,870	11874	16.80	\$22,790
Chesapeake ^d	\$59,217	3446	16.90	\$36,982
Mean	\$57,445	483	23.5	\$32,175
Standard dev.	\$4,155	1663	11.9	\$4,689
Range	\$10,057	4048	31.3	\$12,579

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division. ^d Norfolk and Chesapeake high-residual division and are included for comparative purposes.

^e Divisions with a four year college or university

Principals' Salaries in School Divisions with High-Negative Residuals

The school divisions with high-negative residuals (those paying much less than predicted by the regression equation) formed three clusters (see Figure 3). The clusters were in the central, west central, and the middle south of Virginia. On average, school divisions with higher principals' salaries had higher average division education levels. The divisions with the lowest principals' salaries (Buckingham, Halifax, Charlotte, and Page) had low average division education levels and low average household incomes. The majority of the divisions did not pay strong salaries, but the salaries are relatively equal. Magill stated in support of the finding, "With the exception of Albermarle, the divisions are poor, and it's difficult for them to increase salary levels" (K. Magill, personal communication, March 27, 1998).

The central Virginia cluster (see Table 23) was geographically widespread and extended from Clarke County in the North to Fluvanna and Buckingham in central Virginia. Rappanhannock, Buckingham, Albermarle, Fluvanna, Goochland, and Madison counties had the largest negative residuals. With the exception of Albemarle, all are small (in population), rural counties and all paid below the state average principal's salary (\$52,201) in 1994-95.

Only two (Fauquier and Albemarle) in the entire cluster paid principals above the state average. Both have to compete with higher paying neighboring divisions (Fairfax and Prince William for Fauquier, and Charlottesville for Albemarle) for principals. Such smaller divisions have less need for principals, thus the need to maintain competitive salaries is less pressing.

The west central Virginia cluster (see Table 24) contained four geographically close divisions. Lexington had the highest negative residual of \$14,212. Such a high-negative residual is to be expected in a division without a high and middle schools. Both Highland and Bath counties are isolated and small; thus their need for principals is small, and they do not have to pay high salaries to retain and attract principals. Rockbridge had the lowest residual, yet was paying principals on average about \$7000 less than the state average. Based on household income and education level, Rockbridge is a relatively poor county as are three of the four members of the cluster. Lexington is an exception in that 32.1% of its population of 25 years or older had at least a bachelor's degree in 1994-95. Both Washington and Lee University and Virginia Military Institute are located in Lexington. Further, Rockbridge is located in the Shenandoah Valley, a highly desirable place to live.

Table 23

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for High-Negative Residual School Divisions in the Central Region of Virginia, 1994-95

Division	Mean salary ^a	Residual	Education ^b	Household income ^c
Albermarle	\$54,335	-6476	39.4	\$42,398
Fauquier	\$54,477	-3836	21.5	\$54,477
Goochland	\$50,838	-5522	19.3	\$48,807
Rappahanock	\$45,771	-7038	18.9	\$38,715
Clarke	\$49,941	-4176	18.6	\$40,871
Fluvanna	\$45,127	-5793	16.3	\$33,161
Madison	\$45,713	-5474	15.4	\$35,911
Nelson	\$46,127	-4004	13.4	\$28,642
Greene	\$46,549	-4256	12.7	\$34,735
Cumberland	\$45,290	-2950	11.2	\$22,748
Page	\$44,687	-3253	7.9	\$26,276
Buckingham	\$41,434	-6274	7.9	\$24,845
Mean	\$47,524	-4921	16.8	\$35,965
Standard dev.	\$4,007	1343	8.4	\$9,704
Range	\$13,043	4088	31.5	\$31,729

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree.

Table 24

Average Education Level, Average Household Income, Average Principals' Salary, and Residual for High-Negative Residual School Divisions in the West-Central and Mid-South Regions of Virginia, 1994-95

Region and Division	Mean salary ^a	Residual	Education ^b	Household Income ^c
West Central:				
Lexington	\$41,550	-14,212	32.1	\$27,641
Rockbridge	\$45,291	-4056	12.9	\$27,083
Highland	\$40,076	-8908	13.0	\$15,603
Bath	\$47,107	-6367	12.8	\$22,251
Mean	\$43,506	-8385	17.7	\$23,144
Standard dev.	\$3,252	4360	9.6	\$5,579
Range	\$7,031	10156	19.3	\$12,038

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

(table continues)

Table 24 (Continued)

Region	Mean salary ^a	Residual ^b	Education	Household Income ^c
Division				
Mid South:				
Bedford	\$46,212	-4925	15.6	\$34,597
South Boston	\$44,265	-4112	14.5	\$26,197
Patrick	\$44,663	-3468	7.0	\$29,594
Charlotte	\$44,094	-3192	6.5	\$24,396
Halifax	\$43,787	-4645	6.4	\$28,786
Mean	\$44,604	-4068	10.0	\$28,714
Standard dev.	\$952	741	4.6	\$3884
Range	\$2425	1733	9.2	\$10,201

^a Salary is the average division salary for principals. ^b Education is the percentage of residents with a bachelor's or higher degree. ^c Household income is average household income in the division.

Variables Used by School Divisions in Setting Principals' Salaries

Although 59% of the variance in average division principals' salaries was accounted for by the four variables that entered the regression equation (division education level, per pupil expenditure, average daily membership, and average division household income), the exploration of other variables may have contributed to differences in average principals' salaries. Superintendents and personnel administrators were first asked to tell the interviewer how the salary schedule was set for principals in their school division. They were then asked if particular variables affected principals' salaries in their divisions.

Data from the interviews were placed in a raw data matrix (see Table 25) for analysis. Themes were drawn from the raw data and are in Table 26. These themes are reported by level of residual. Several variables evolved from the data. At all residual levels, salaries in neighboring divisions appeared as a variable in setting principals' salaries and was most frequently used by large and medium residual divisions. Some medium residual divisions set principals' salaries by negotiation.

Table 25

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia by School Division

School division	Variables
Louisa (H)	“We compare our principals’ salaries with surrounding divisions to keep them in line.”
Colonial Heights (H)	“Our salaries are tied to teachers’ salaries. We do it so that we don’t have to give separate increases. Salaries are fair in Colonial Heights compared to other divisions, but not higher than larger divisions as Chesterfield or Henrico County. But we sell our smaller district and it is the quality of life. We are not going to pay top dollar or bottom dollar.”
Norfolk (H)	“We often review school divisions in our local area and other urban school divisions like Richmond to set our salary levels.”

(table continues)

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia by School Division

School division	Variables
Arlington (H)	<p>“Our salaries are based and compared with adjoining counties. And we have a salary range for secondary and elementary principals. We look at Fairfax, Loudoun, Prince William, Alexandria, and Montgomery County, MD.”</p>
Portsmouth (M)	<p>“Our school division tries to be competitive with the divisions in Hampton Roads. We set our salaries to be competitive, but it has been difficult to stay close to those divisions.”</p>
<p><u>(table continues)</u></p>	

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia by School Division

School division	Variables
Hampton (M)	<p>“We used an independent research firm in 1993 to study the region levels for principals and our own salary schedule. We set our principals’ salaries to be fair according to other jobs within the division and competitive with neighboring school divisions of similar size.”</p>
Culpeper (M)	<p>“We collect data and do comparisons of ten school districts every year. The districts include Urbanna, Stafford, King George, Rapahannock, et cetera. It is not just for principals; we compare for all positions and adjust our salaries accordingly and as our budget permits.”</p>

(table continues)

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia by School Division

School division	Variables
Washington (M)	“Principals are paid from teacher salaries. We are competitive in the area and adjust our salaries as our budget allows.”
Martinsville (M)	“We use several criteria to arrive at the salary. Each level (high school, middle, school, and elementary school) has a pay grade. The grade is related to City of Martinsville pay scales.”
Page (M)	“The salary scale set by the board is done by merit. We look at surrounding salaries and review them with the board and superintendent.”

(table continues)

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia

School division	Variables
Greensville (M)	<p>“Our principals’ salaries are not tagged to teacher salary scales. It is a combination of what they are paid in the past and what surrounding districts are paid. Those surrounding districts include Southhampton, Suffolk, Mecklenburg, Lunenburg, and Amelia.”</p>
King William (M)	<p>“We use an administrative scale. We are very competitive with neighboring divisions and can afford it. We only have three principals with 1700 students. Principals’ salaries are tied to teachers’ salaries.”</p>
<p>(table continues)</p>	

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia

School division	Variables
Surry Co. (M)	“Principals’ salaries have been negotiated two years. They got across-the-board increases over the years. A surrounding study was done. We were not outrageously out of line.”
King and Queen (M)	“We do not have a schedule for principals, we negotiate base on experience and education. We do survey the local districts to make sure we are in the range.”
Roanoke City (M)	“The district looks at neighboring school divisions and we try to be reasonable with what we are able to pay.”
(table continues)	

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia

School division	Variables
Staunton (M)	“We do not use a salary schedule; we negotiate our salaries and keep it close to counties near us.”
Powhatan (M)	“We negotiate our salaries based on experience and education. We keep our salaries around the general range of surrounding counties.”
Buena Vista (M)	“We use a salary schedule, and it is set by looking at the education level and experience of the applicant. We try to keep our salaries close to the divisions nearby.”
Loudoun (M)	The salary schedule is set closely around surrounding divisions. We negotiate our salaries, mainly when we hire outside the division.”

(table continues)

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia

School division	Variables
Tazewell (M)	“We are a poor district and pay according to what we are able to pay. We try to stay in the ballpark of nearby districts.”
Dinwiddie (M)	“The salary schedule is developed by looking at what is fair in the area. We also take into account the qualifications of the principal applicant.”
Franklin (N)	“We are not competitive with Norfolk, Portsmouth, Suffolk but we are competitive with Southhampton County, Sussex, and Greenville.”
<u>(table continues)</u>	

Table 25 (Continued)

Raw Data Matrix: Variables Associated with Setting Salary Schedules for Principals in Virginia

School division	Variables
Highland (N)	<p>“When we get a salary percentage increase; we try to raise it in line with nearby divisions. We pay the lowest in the state, and have a difficult time keeping our high school principal because we are not able to compete. They leave for more money.”</p>
Fluvanna (N)	<p>“We have no salary schedule for administrators. We look at surrounding divisions and look at their education level and years in education.”</p>

(N) is high negative residual division, (M) is medium residual division, and (H) is high positive division.

(table continues)

Table 26

Summary of Variables Associated with Setting Salary Schedules for Principals
in Virginia by Residual Size

Variables	Divisions
Divisions with high positive residuals (+12,600 to +2716):	
Comparison to neighboring school divisions	(Arlington, Louisa, Norfolk)
Level of teachers' salaries	(Colonial Heights)
Selling of the quality of life in a small division	(Colonial Heights)
Aiming for a mid range salary and not going to pay top dollar or bottom dollar.	(Colonial Heights)
Salaries are fair to principals	(Colonial Heights)
Divisions with medium residuals(+2715 to -2785):	
Comparison to neighboring divisions	(Portsmouth, Greenville, Tazewell, Surry, Culpeper, Staunton, Loudoun, Page Roanoke City, Buena Vista)
Competition to neighboring divisions	(Portsmouth, Washington, Hampton, King William, Powhatan)
<u>(table continues)</u>	

Table 26 (Continued)

Summary of Variables Associated with Setting Salary Schedules for Principals
in Virginia by Residual Size

Variables	Divisions
Divisions with medium residuals(+2715 to -2785):	
Related to what principals are paid	(Greensville)
Related to education and experience	(Buena Vista, Dinwiddie, Surry, Page)
Salaries set by merit	(Page)
Salaries related to what budget will permit	(Culpeper, Washington, Roanoke City, Tazewell)
Salaries are fair to principals	(Hampton, Dinwiddie)
Salary level related to teachers' salaries	(Washington, Greensville, King William)
Related to municipality salary scale	(Martinsville)
Salaries are negotiated	(Surry, King and Queen, Staunton, Powhatan, Loudoun)
<u>(table continues)</u>	

Table 26 (Continued)

Summary of Variables Associated with Setting Salary Schedules for Principals
in Virginia by Residual Size

Variables	Divisions
Divisions with high negative residuals (-2867 to -14,212):	
Competition to neighboring divisions	(Franklin)
Comparison to neighboring divisions	(Fluvanna)
Related to education and experience	(Fluvanna)
Related to what budget permits	(Highland)

Suggested Uses of the Data in This Study

Through telephone interviews, superintendents and personnel administrators were also asked how their school division might be able to use the data in this study. Their responses are in Table 27. Themes were derived from the raw data and are reported by level of residual in Table 28. At all residual levels, superintendents or personnel administrators felt the data might be used to compare salary levels with the competition and to “get a feel” for what the market is paying. A couple of respondents in the medium and low residual divisions believed the data are readily available or were not useful to their division.

Table 27

Raw Data Matrix: Uses of the Data in This Study

School division	Variables
Louisa (H)	“Possibly, the data in your study would be useful to us to view what our competition is paying their principals.”
Colonial Heights (H)	“It can be used as an indicator for us.”
Arlington (H)	“The data can be used to compare with several other sources to determine what our competitors pay salaries of principals.”
Norfolk (H)	“We do an external study to be sure we are paying what the market pays. Typically, adjustments are made. If we find surrounding districts are paying higher (urban districts like ours) we will adjust. Year to year we monitor this. Your data may assist us in this process.”

(table continues)

Table 27

Raw Data Matrix: Uses of the Data in This Study

School division	Variables
Portsmouth (M)	“It will be beneficial during budget times. We do long-term projections relating to principals’ salaries. Salary projections help us improve. Your data could be used as comparative data which would help us make better projections.”
Hampton (M)	“Getting a feel of what the market is paying. We do an external study to stay competitive with the market, basically in this area. Your study can give us those external factors.”
Culpeper (M)	“We collect data and look at the ten districts. We use the information for comparisons coupled with the other information we gather. However, the information is readily available from the VEA and other sources.”

(table continues)

Table 27

Raw Data Matrix: Uses of the Data in This Study

School division	Variables
Washington (M)	“Your data could be used to review what other districts are paying principals in our surrounding area.”
Martinsville (M)	“The information would not be useful to us. As I mentioned, we set our salaries related to the city of Martinsville pay scales.”
Page (M)	“The data would be useful because we can compare our principals’ salaries with the surrounding districts.
Greensville (M)	“We would be able to use the data to compare what other districts are paying.”
King William (M)	“Basically, I can see us using your data to compare principals’ salaries in neighboring districts with ours.”
<u>(table continues)</u>	

Table 27

Raw Data Matrix: Uses of the Data in This Study

School division	Variables
Surry (M)	“The data can be used as a reference to observe what surrounding districts are paying principals.”
King and Queen (M)	“It can be used to help us survey principals’ salaries in our nearby local districts.”
Roanoke City (M)	“In order for us to be fair in what we pay principals, the data can help us see what others are paying.”
Staunton (M)	“It may help us during negotiations. The data can be used as a source of principals’ salaries.”
Powhatan (M)	“In order to keep our salaries near our neighbors, we must know what they are paying. Your data could help us do that.”
<u>(table continues)</u>	

Table 27

Raw Uses of the Data in This Study

School division	Variables
Buena Vista (M)	“The data would be very useful in that it would give us an accurate level of what principals are being paid. We can use this information when we make decisions.”
Loudoun (M)	“I believe we could use the data. It can help us compare salaries with districts around us.”
Tazewell (M)	“We probably could not use the data. We pay what we can. We would be able to see if we are way off.”
Dinwiddie (M)	“It can be used as comparative data.”

(table continues)

Table 27

Raw Data Matrix: Uses of the Data in This Study

School division	Variables
Franklin (N)	“The information would be useful to look at and to analyze but would probably not make much of a difference.”
Highland (N)	“I don’t think the information is useful to us but as a guide to salary levels of districts around us.”
Fluvanna (N)	“Well, we can use the data as a comparison with other data we receive to make decisions.”

(N) is high negative residual division, (M) is medium residual division, and (H) is high positive division.

Table 28

Summary of How the Data Might Be Used

Summary	Divisions
Divisions with high positive residual (12,600 to 2716):	
Comparison with competition	Louisa, Colonial Heights Arlington, Norfolk
Monitoring, adjusting salaries	Norfolk
Market analysis	Arlington
Bench marking salaries	Colonial Heights
Divisions with medium residuals (2715 to -2785):	
Comparison with competition	Hampton, Roanoke City, Dinwiddie, Buena Vista
Compare to proximity	Washington, Page, King William, Greenville, King and Queen, Loudoun, Powhatan
Comparison projections	Portsmouth
Information is not useful	Culpeper, Martinsville, Tazewell
Bench marking salaries	Staunton, Surry
<u>(table continues)</u>	

Table 28 (Continued)

Summary of How the Data Might Be Used

Variables	Divisions
Divisions with high negative residuals (-2784 to -14,212):	
Comparison with competition	Fluvanna
Information not useful	Franklin, Highland

CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSIONS, DISCUSSION, AND
RECOMMENDATIONS FOR PRACTICE

In this chapter (1) the purpose of the study is reviewed; (2) the research design is presented, (3) findings are summarized, (4) conclusions are drawn, (5) findings are discussed, (6) recommendations for practice are suggested, and (7) implications for further research are introduced.

The Purpose of the Study

The purpose of the study was to identify variables associated with average principals' salaries in school divisions in Virginia. School superintendents and school boards can utilize these variables to assist in setting competitive salary levels in their school divisions. Data in the study may benefit school divisions when recruiting principals.

Research Design

This is a mixed-method study. Both quantitative and qualitative data were collected and analyzed. A stepwise regression analysis was performed to predict

average principals' salaries from local fiscal capacity, average daily membership, average division education level, per pupil expenditure, and average household income. One hundred and thirty-three school divisions in Virginia were included in the study. Residuals for all school divisions were obtained from the regression analysis. School divisions were grouped into high-positive residual divisions, medium residual divisions, and high-negative residual divisions. Each group was then plotted on a map of Virginia to determine if there was a relationship between geographic proximity and level of residual. Several patterns emerged. Twenty-four school division superintendents and personnel administrators were then randomly selected for interviews from three clusters. Interviewees were asked questions about the variables they used to set principals' salaries and the potential usefulness of the data in the study.

Summary of Findings

Average daily membership, average division education level, per pupil expenditure, and average division household income were significant predictors ($p \leq .01$) of average principals' salaries. Local fiscal capacity was not a significant predictor of average principals' salaries. Fifty-nine percent of the variance in average principals' salaries was explained by the four significant variables.

The relationship between average principals' salaries and a division's ability to pay competitively was reviewed by (1) ordering the residuals (the difference between a school division's average principal salary and the average principal salary predicted from the independent variables) from high-positive to high-negative; (2) classifying school divisions into categories--high-positive residual divisions, medium residual divisions, and high-negative residual divisions (grouping the residuals in descending order, and computing the 75th percentile and the 25th percentile, those at and above the 75th percentile were the high-positive, those between the 75th and 25th were the medium-residual divisions, and those at and below the 25th were the high-negative residual divisions); and (3) clustering school divisions by level of residual (the divisions were placed on a Virginia map according to level of residuals and observed for three or more school divisions to see if any meaningful clustering appeared according to proximity or neighboring divisions). A meaningful cluster might be a set of school divisions paying average salaries much higher than predicted because they are near a high wealth, high-paying school division.

The analysis of residuals, including the plotting of school divisions on maps of Virginia by level of residual, resulted in several clusters of divisions. Clustered divisions were reviewed to determine whether those divisions were

paying salaries above, at, or below their predicted levels. If divisions in a cluster paid higher salaries than expected, one reason could be the need to be competitive with neighbors. A case in point is the Northeastern Virginia cluster of high-positive residuals consisting of Arlington, Manassas, Manassas Park, Falls Church, Spotsylvania, Prince William County, and Stafford. In this case, it appears that these divisions in proximity of Fairfax County are all paying higher salaries than predicted by the regression equation. They may be paying these higher than predicted salaries to compete with Fairfax County or to keep up with the cost of living in Northern Virginia which is considered high in Virginia.

The medium residual clusters were similar with the state average principals' salary level of \$52,201. The clusters appeared in the southwestern, eastern, northwestern, south central and Tidewater regions of Virginia. The midwestern and south central salaries were in line with their cluster, and appeared to be more competitive. Division education levels were also related to higher salaries within several clusters (eastern, northwestern, and midwestern) in which King George, Radford, Montgomery, and Charlottesville all had high salaries. Related to the variables in the regression equation, some divisions in the medium residual clusters (with positive residuals) were putting more effort to stay competitive (Tazewell, Giles, Caroline, Orange, Rockingham,

Lunenburg and Newport News). However, other divisions (with negative residuals) did not put forth great efforts to be competitive (Charlottesville, Montgomery, Virginia Beach). Moreover, those divisions paying lower average principals' salaries were either unable to maintain competitive salaries or not willing to do so.

In the high-negative residual division clusters, all average principals' salaries were below the predicted levels as measured by the independent variables and below the state average. Among a majority of the divisions offering limited support for schools, principals' salaries were competitive. Another point observed through clustering, and confirmed regression analysis, is that divisions with the highest average principals' salaries were those with the highest average education levels.

Telephone interviews with superintendents and personnel administrators from a sample of twenty-four school divisions resulted in information that helped explain the patterns found in the analysis of residuals. Neighboring school divisions often collect information by comparing salaries from contiguous divisions. They do this to benchmark their salaries and remain competitive in retaining and attracting principals. Although some school divisions do index principals' salaries to teachers' salaries (Colonial Heights,

Washington Co.) those teachers' salaries are often compared to those neighboring divisions. In small divisions where there are few principals, salaries are often set through individual negotiations. These divisions tend to pay less and have medium residuals (Surry, King and Queen, Powhatan). In these cases, school divisions that do not pay high salaries and have high-negative residuals, sell the quality of life in their division. It's the equivalent of paying part of one's salary in "sunshine" in Virginia and other desirable locations.

Superintendents and personnel administrators were also asked how the divisions might use the data in this study. The primary response was to identify what the competing nearby divisions were paying principals. In medium and high-negative residual cluster divisions, some of the respondents indicated that the data were readily available from other sources and not useful to them (Franklin, Highland, Culpeper, Martinsville).

Conclusions

Conclusions obtained from the analysis are as follow:

1. Based on the variables in this study, all were significant to predict average principals' salaries, except local fiscal capacity. Average community education level was the best predictor of average principals' salaries. This could be

because of a stronger commitment to education and an ability to afford highly competitive salary levels.

2. Local fiscal capacity was not a significant predictor of average principals' salaries. This might mean that some school divisions do not need to exert a great effort to pay competitive salaries or may be unwilling to do so. Some divisions may be comfortable providing salaries at a level around a competitive range of neighboring divisions.

3. The factors found most often was adjusting salaries close to the competition according to proximity of school divisions and comparing salaries to neighboring divisions. This factors were identified by clustering size of residuals from the regression equation according to residuals of school divisions, and by themes derived from responses of a sample of twenty four superintendents or personnel administrators. It was observed that salaries of principals in surrounding or neighboring divisions were often compared with each other, and considered when setting salary schedules. Other considerations found in setting principals' salaries were through salary negotiation, by the level of teachers' salaries, what divisions were willing to pay, and what the budget would allow.

4. This study can be used by divisions to assess the market value of principals in surrounding divisions. Divisions paying far less than what were expected, these data seemed to have little value to them.

Discussion

According to an April 1998 article in the NASSP NewsLeader, school systems will find fewer qualified applicants than usual when they need to hire school principals in the next few years. The problem is expected to increase through the year 2005. A recent study by the Education Research Service and NASSP, reported in the NewsLeader (1998), cited meager compensation compared to responsibilities as obstacles to prospective principal applicants. To attract qualified principals, salaries should be competitive and fair.

Fairness and competitive salaries are not the only factors to attract or retain principals to school divisions. Some school divisions offer non-monetary incentives to reduce the stressful duties of the principalship. These job enrichment incentives may be as simple as adding additional pseudo-administrators to the staff, to offering strong fringe benefits as education aid, and flexible time schedule during the summer months.

However, finding and retaining quality applicants for the principalship can be a concern for many superintendents. To improve the “crop” of applicants in some school divisions, with the help of nearby universities, mentor programs are offered and mini-academies to prepare future leaders. Other divisions may hire most of their principals from within to assure their training and effectiveness. Hiring from within has proven to improve morale and may increase the retention rate of principals.

Today, principals are more accountable than ever to improve student achievement, and the pressures by school divisions are overwhelming to achieve results. During this period of accountability, salaries may not be the lone motivator for principals to remain in a school division. However, more school divisions are looking at other enrichments to motivate principals. According to the personnel administrator in suburban Colonial Heights, Virginia, the school division was able to pay competitive salaries but chose to attract principals not with salaries but with the enticement of “quality of life” in the community. In large urban cities, the quality of life may not be an enticement for them, they would need to be more creative.

Recommendations for Practice

The following are recommendations for practice from this study:

1. School divisions which are aware of the need to remain competitive in attracting and retaining competent principals can use this study to compare their own division salaries with those of other divisions.
2. School divisions should consider other enticements such as “quality of life” as inducements in maintaining a qualified administrative force.
3. Divisions wishing to attract and retain competent administrators might look to job enrichment as an alternative or compliment to competitive salaries.

Implications for Further Research

The relationship of average principals’ salaries to several independent variables were investigated in this study. It was established that other variables also may influence the salary averages of principals. The following may explain the differences in salary averages and may be a basis for further research considerations:

1. This study should be duplicated using the median as the measure of central tendency. The median may be a more accurate measure to utilize.
2. There is a need to investigate the relationship between average principals' salaries and the size and level of schools in a division. It is realistic to assume that the more responsibility on a principal, the more salary the principal will receive.
3. There is a question about the level of federal and state funding to divisions with high levels of disadvantaged students. The funding may improve the financial position of school divisions and increase salary levels. A case in point is Norfolk which receives a large amount of state and federal funding. Given the Norfolk division's wealth, the average principals' salary is far above the predicted level.
4. With about forty percent of the variance in average principals' salaries unexplained in this study, other factors should be investigated for their contribution. Teacher salaries, principal turnover, competence of the principal, rural versus urban and

suburban divisions, accountability, student performance, and the attitude of the community may be investigated.

5. Other questions which could be pursued are: (1) Are principals more satisfied in suburban, rural or urban areas?, and (2) Does the salary level make a difference?

There are many variables that could explain the variability of average principals' salaries. Further studies on these variables would provide more conclusive and informative study on salary levels of principals. There is a need for a wider body of research on the competition and satisfaction of salary levels of principals.

References

- Administrators see slight increase in 1997-98 salaries (1998, April) .
Newsleader volume 45, Naasp, 1.
- Alexander, K . & Salmon, R . (1995) . School finance . Boston: Allyn & Bacon.
- Arons, R., Arons, I., & Lee, C. (1990) . Do rich districts and poor districts spend alike. Education Research Quarterly, v14, 22-31.
- Ary, D., & Jacobs, L., (1996) . Introduction to research in education.
Fort Worth: Harcourt Brace.
- Beck, J . (1979) . The effects of power equalizing school and formulas with an income factor . Journal of education finance, 1, Odden (as cited in Beck, 1979).
- Belsley, D., Kuh, E., & Welsch, R. (1980) . Regression diagnostics . New York: John Wiley and Sons.
- Berne, R ., & Stiefel, L. (1984) . The measurement of equity in school finance. Baltimore: John Hopkins.
- Burrup, P ., & Brimley, V. (1982) . Financing education in a climate of change. Boston: Allyn & Bacon, Inc.

Callas, R ., & McCormick, R . (1993) . A study of factors influencing teachers' salaries in Vermont . (ERIC Reproduction Service No. ED 380 435).

Castetter, W . (1971) . Personnel function in education. New York: Macmillian.

Dyer, T . (1997, April) . While school enrollment skyrockets, principals' salaries increase slightly. NewsLeader, 44, 2-3.

Easton, T . (1993) . Enrollment changes and school finance. Journal of education finance, 19, 69-80.

Education Research Service (1993) . Changes in salaries and wages for public school employees. Arlington: Education Research Service.

Garmes, W . (1978) . School finance: The economics and politics of public education. New York: Macmillian.

Gold, A. (1992) . The relationship between teacher salaries and certain wealth and demographics of local Indiana corporations .(Dissertation Abstracts AAG: 9322152)

Gurthie, J ., & Garmes, W. (1988) . School finance and education policy. New York: Prentice Hall.

Hoyt, D . (1981) . A study of the relationship between property wealth and adjusted gross income to teachers' salaries in Iowa school districts.

(Dissertation Abstracts AN: AAG8123324)

Johns, R ., Alexander, K., & Jordan, K. (1971) . Planning to finance education. Gainsville: National Education Finance Project.

Johns, R ., Morphet, E., & Alexander, K. (1983) . The economics and financing of education. New Jersey: Prentice Hall.

Johns, R ., & Morphet. E . (1975) . The economics of financing education. New Jersey: Prentice Hall.

Kirby, P., Holmes, C., Matthews, K., & Watt, D . (1993) . Factors influencing teacher salaries: an examination of alternative models. Journal of education finance, 19, 111-121

Kitchen, W. (1983) . The relationship between local salary enrichment, local wealth, and selected socioeconomic variables in Texas. (Dissertation Abstracts AAG: 0552887)

Levin, H . (1970) . The effects of different levels of expenditure on educational output. Florida: National Education Finance Project.

Loomis, D . (1981) . An analysis of variables related to compensating public school teachers in the state of Missouri.(Dissertation Abstracts, AN: AAG8223694).

Magill, K . (1998) . Personal communication. Richmond: Virginia Department of Education.

Matthews, K. (1980) . An exploratory study of changes in economic conditions and teachers' salaries in metropolitan areas. (Paper presented at the meeting of the American Education Finance Association Conference, March 17)

Matthews, K., Watt, D., Brown, C., & Dayton, J. (1992) . Local wealth and teachers' salaries in Pennsylvania (ERIC Reproduction Service No: 354 602).

Mort, P ., Ruesser, W., & Polley, J. (1960) . Public school finance. New York: McGraw Hill.

Muller, T . (1981) . Cities and stress . New Jersey: Center of Urban Research.

Musgrave, R . (1967) . Classics in the theory of public school finance. New York: Macmillian.

Musgrave, R . (1982) . Public finance in theory and practice. New York: McGraw-Hill.

National Center for Statistics, Digest of Education Statistics (1994, table 77). Washington, D.C.: U.S. Department of Education.

Odden, A ., & Pincus, L. (1992) . School finance: A policy perspective. New York: McGraw Hill.

Pedhazur, E. (1982) . Multiple regression in behavioral research: Explanation and prediction. New York: Holt, Rienhart, and Winston.

Poss, R . (1995) . District cost differentials and teacher salaries in Florida. (Dissertation Abstracts AN: AAI9604098)

Rebore, R . (1987) . Personnel administration in education. New Jersey: Prentice Hall.

Report validates principal applicant shortage (1998, April) . Newsleader volume 45, Naasp, 1.

Shockley, R . (1992) . School administrator's factomatic. New Jersey: Prentice Hall.

Simmons, J . (1992) . School district revenue potential and teachers' salaries in South Carolina. (Dissertation Abstracts AN: AAG9316388)

University of Virginia (1995) . Statistical Abstract of Virginia. Fredericksburg: Bookcrafters.

Swanson, A., & King, R . (1991) . School finance: its economics and politics. New York: Longman.

Thompson, D ., Wood, C ., & Honeyman, D. (1994) . Fiscal leadership for schools. New York: Longman.

U.S. Department of Education, National Center of Education Statistics (1994a). The conditions of education 1994. Washington, D.C. : U.S. Government Printing Office.

U.S. Department of Education, National Center of Education Statistics (1994b) . The digest of education statistics (p.48) Washington, D. C: U.S. Government Printing Office.

Verstegen, D . (1988) . School finance at a glance. Denver: Education Commission of the States.

Virginia Department of Education (1995) . Superintendent's annual report of Virginia . Richmond: Virginia Department of Education.

Watt, D . (1990) . District property wealth and teachers' salaries in Georgia. (ERIC Reproduction Service No. 324 758).

Webb, L., Metha, A & Jordan, K. (1996) . Foundations of american education. New Jersey: Prentice Hall.

Wisconsin State Department of Education . (1993) . Hiring, paying and evaluating school administrators: A cooperative workbook for school boards and administrators. Madison, WI: (ERIC Reproduction Service No. 369 163).

APPENDIX 1
SUPERINTENDENT OR PERSONNEL ADMINISTRATOR
INTERVIEW QUESTIONS

INTERVIEW QUESTIONS

The following questions were selected for the interviews with school superintendents or personnel administrators **to analyze how school districts in Virginia set principals' salaries:**

Introduction:

Hello: My name is **Joe Melvin**, and I am a doctoral candidate in educational administration at **Virginia Tech**. I am working on a study of principals' salaries in Virginia school divisions and would like to ask you some questions on how your school division sets principals' salaries. Your division was selected by random sampling. To be sure that I have accurate information, I would like to tape our conversation. Do you mind?

1. Tell me how the salary schedule is set for principals in your school division.

2. Probing question: Which are the following factors affecting principals' salaries in your division?
 - level of teachers' salaries
 - average family income in the community
 - experience level of principal
 - other(s)
 - wealth of school division
 - public perception of principal's job

3. How would you use the data?

VITA

Joseph C. Melvin
2705 Park Crescent
Norfolk, Virginia 23504
(757) 625-3286

Educational Background

Ed.D.	1999	Virginia Polytechnic Institute and State University, Blacksburg, Virginia Major: Educational Administration
CAGS	1996	Virginia Polytechnic Institute and State University, Blacksburg, Virginia Major: Educational Administration
M.Ed.	1992	Old Dominion University Norfolk, Virginia Major: Education Administration/Principalship
M.B.A.	1987	Hampton University Hampton, Virginia Major: Finance
B.S.	1981	Norfolk State University Norfolk, Virginia Major: Business Administration Emphasis in Management

Professional Work

July 1998 to present	Principal Ingleside Elementary School Norfolk, Virginia
Nov. 1997 to June 1998	Assistant Principal Sewells Point Elementary School Norfolk, Virginia
Nov. 1996 to Nov. 1997	Assistant Principal Ingleside Elementary School Norfolk, Virginia
Aug 1994 to Nov. 1996	Dean of Students William H. Ruffner Middle School Norfolk, Virginia
Aug. 1992 to July 1994	Administrative Intern Benjamin Syms Middle School Hampton, Virginia
Aug. 1989 to July 1992	Math Teacher C. Alton Lindsay Middle School Hampton, Virginia
Mar. 1982 to Aug. 1989	Senior Marketing Research Analyst Dun and Bradstreet Corporation New York, NY.

Professional Organizations

National Elementary School Principals' Association
Virginia Elementary School Principals' Association
Norfolk Elementary School Principals' Association

Signed,

