DISTRICT REVENUE AND TEACHERS’ SALARIES

IN SELECTED GEORGIA COUNTIES

by

MATTHEW PARVIN WAYMACK

(Under the direction of L. DAVID WELLER, JR.)

ABSTRACT

The purpose of this study was to examine district revenue and teachers’ salaries in selected Georgia counties. This study examined whether a district that has greater revenue per FTE than its neighbors tends to pay higher teacher salaries than its neighbors. This study used data collected from school districts that indicate the pay of teachers at eight levels on the teacher salary schedule: (a) beginning bachelor’s, (b) experienced bachelor’s, (c) beginning master’s, (d) experienced master’s, (e) beginning educational specialist’s, (f) experienced educational specialist’s, (g) beginning doctor’s degree, and (h) experienced doctor’s degree. These salaries were compared to the neighboring school districts at each salary level. A comparison was made at each degree-experience level between the revenue per FTE pupil of those districts that paid more than predicted with those districts that paid less than predicted.

Regression lines were generated between the salaries of individual districts and the mean salaries of their neighboring districts on the levels of degree earned and experience. School districts that fall above the regression line have higher salaries than predicted from the average of their neighboring school districts, and school districts that fall below the regression line have lower salaries than predicted from the average of their neighboring school districts. A one-way analysis of variance (ANOVA) test at the 0.05 level was performed on revenue per FTE pupil of the school districts falling above the regression line and the revenue per FTE pupil of the school districts falling below the regression line for each of the degree-experience levels.

The study found Georgia counties that pay higher beginning teachers’ salaries than their neighbors have higher revenue per FTE than school districts that pay lower than their neighbors. School districts that pay experienced teachers with advanced degrees higher salaries than their neighbors do not have statistically significant higher revenue per FTE than school districts that pay experienced teachers with advanced degrees lower than their neighbors.

INDEX WORDS: Teacher salary, Public schools, Secondary education, Teacher supply demand, Cost indices, School finance, Teacher compensation, Income, Tax effort
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CHAPTER 1

INTRODUCTION

Education has received increased attention since the 1980’s. During this time the National Commission on Excellence in Education published *A Nation At Risk* that criticized education on the United States. This document declared a crisis in education and stimulated a great deal of concern. Several of the recommendations from *A Nation At Risk* are related to teacher compensation. The commission recommended that salaries of the teaching profession be increased and should be professionally competitive, market-sensitive, and performance-based. Furthermore, incentives, such as grants and loans, should be made available to attract outstanding students to the teaching profession, particularly in those areas of critical shortage (United States Department of Education, 1984). These recommendations and growing concern have led to laws being passed in Georgia to improve the quality of education that students receive.

The State of Georgia initially responded to the challenge to improve education by enacting the Quality Basic Education Act (QBE) during the 1985 legislative session. The Quality Basic Education Act (1985) provides a method for the governor to calculate and set the minimum salary for a beginning teacher in Georgia with a bachelor’s degree. Recent graduates of the University System of Georgia who hold positions in the state are interviewed annually to determine salaries. The beginning teacher salary is extrapolated from 10 to 12 months, and compared to the average of salaries of recent graduates.
Georgia lawmakers base the state salary schedule on competition within their geographical region. The teacher salary schedule is developed annually, and it sets minimum salary requirements that systems must pay. Local systems may supplement the salary schedule set by the state, but cannot pay less than the schedule. This creates a state teacher salary schedule based on the competition within its geographic region.

In 1984, the Governor of Georgia, Joe Frank Harris, sought to bring teachers’ salaries up to the average pay of other beginning professionals with a bachelor’s degree. To accomplish this, across the board pay increases of 10 percent were given to teachers for the 1984-85 and 1985-86 school years. It is important to realize, however, that these pay raises were only for base pay in Georgia. School districts may provide a local supplement to the State base pay if they wish, and is not regulated by State base pay increases.

Because the QBE act raised the amount of revenue available to local school districts, local school districts gained the option of raising salaries further through local supplements. Matthews and Holmes (1984) found that in a study conducted in Florida, local school boards tended to approve salaries that are relatively close to that of their neighboring school districts. Also, school districts with higher revenue potential tended to pay their teachers higher salaries than the average salaries of their neighbors.

Continued concern over the quality of education in Georgia led to the passing of the A+ Education Reform Act of 2000. This legislation does not directly address salary formulation, but the focus on teacher and school accountability affects the value placed on teachers and teaching itself. Its long-term effects on teachers’ salaries have yet to be determined.
The salaries that teachers are paid are related to supply and demand. During the first half of the 1990’s, the supply and demand for teachers was balanced. However, beginning in the fall of 1998, reports of school districts facing teacher shortages began to appear across the country. There are three main reasons that a teacher shortage is imminent: (a) A strong market for college graduates in the late 1990’s, (b) a rapidly aging teaching force, and (c) increasing student enrollments. To further compound the problem, teachers’ salaries lag behind that of other professions. To keep up with demand, school districts have responded in a number of ways, including issuing emergency credentials and increasing pay (American Federation of Teachers, 1998).

Average teachers’ salaries in Georgia have steadily increased in relation to the national average because of a multi-year commitment that the State has established. Since Georgia’s goal for the average teacher salary to reach the national average was adopted in 1995, the state average teacher salary as gone from 88.2 to 98.4 percent of the national average for the 2000-2001 school year. In fact, when adjusted for the cost of living, Georgia’s averages are above the national average salary (Gaines, 2001).

Justification for the Study

This is a study that examines district revenue per FTE pupil and teachers’ salaries in the state of Georgia. This study sought to build upon the conclusions drawn by Watt (1989) on the relationship between district revenue potential and teachers’ salaries in Georgia. However revenue per FTE was examined instead of revenue potential per FTE. The findings of Watt (1989) demonstrated that there was a statistically significant difference between the revenue potential per FTE pupil between districts that paid more than predicted and districts that paid less than predicted. This led to the conclusion that
during the 1988-1989 school year, school districts in Georgia paying higher salaries than predicted from the salaries paid in neighboring districts do have statistically significantly higher property wealth per pupil than those paying lower teacher salaries than predicted from the salaries paid in neighboring districts. Watt (1989) recommended that further studies into the determination of teacher salaries be conducted, and that his study be replicated and compared to his results.

The results obtained in this study add to the knowledge about teacher salary decisions. The implications and conclusions that can be drawn from this study along with those of Matthews and Holmes (1982), Watt (1989) and Rahn (1994) may influence the educational financing policies of Georgia and other states. In particular, it may influence the future design of cost related indices designed to promote finance equity. Results of this study may show that state aid formulas must consider local revenue in order to develop a fair distribution of state funds.

This study builds upon the statement by Matthews and Holmes (1983) that “Districts which have greater revenue potential than their neighbors will tend to pay higher teacher salaries than their neighbors” (p. 41). However, revenue was examined instead of revenue potential. This study examined whether a district that has greater revenue than its neighbors tends to pay higher teacher salaries than its neighbors. If this proposition holds true, then it will add to the existing knowledge of salary determinations in Georgia. Study of this issue may also generate additional finance equity questions that examine district revenue and quality of teachers, and teacher supply and demand.
Background Information

The design of this study is based on the assumption that school districts are influenced by what their neighboring school districts do. Therefore, school districts are in competition with surrounding school districts for teachers rather than other parts of the state or country. Teachers are more likely to move to the next district than they are another part of the state for a given salary. For example, school districts in metropolitan Athens-Clarke County do not compete with south or central Georgia, but with the districts that are contiguous to it and the other counties of Athens-Clarke County. The logical extension of this is that the districts surrounding Athens-Clarke will be primarily concerned with its neighbors’ salary schedules when determining its own salary schedule because of the assumption that teachers’ salaries are determined by what the competition pays.

The literature suggests that the best-qualified teachers will take jobs in districts that offer the best pay. This puts districts with less wealth at a disadvantage when trying to attract quality teachers. Consider a teacher who has recently graduated from the University of Georgia who has chosen to live in Athens. This new teacher has been offered jobs in two counties, Gwinnett and Wilkes, for the 2002-2003 school year. The teacher must chose whether to drive to a high paying county such as Gwinnett and make $34,730, or make a comparable drive to Wilkes County and make $29,459. In this case, Gwinnett County has an advantage over Wilkes County because it is able to offer a higher salary.
Statement of the Problem

This study examines district revenue per FTE and teachers’ salaries in the state of Georgia. The specific problem examined is whether school districts that pay teachers higher salaries than their neighboring districts have more revenue per FTE than their neighboring school districts.

Hypotheses

H0:1. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning bachelor’s degree teachers.

H0:2. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced bachelor’s degree teachers.

H0:3. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning master’s degree teachers.

H0:4. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of
teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced master’s degree teachers.

H0:5. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning educational specialist’s degree teachers.

H0:6. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced educational specialist’s degree teachers.

H0:7. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning doctor’s degree teachers.

H0:8. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced doctor’s degree teachers.
Definitions

The following definitions are provided for terms that have direct application for this study.

**Beginning salary.** The salary paid to a teacher at the lowest step of the pay scale with a bachelor’s, master’s, educational specialist’s, or doctor’s degree. It includes the local supplement, but no other supplements for such factors as extended day, coaching, or extracurricular duties.

**Maximum salary.** The salary paid to a teacher at the highest step of the pay scale with a bachelor’s, master’s, educational specialist’s, or doctor’s degree. It includes the local supplement, but no other supplements for such factors as extended day, coaching, or extracurricular duties.

**Property wealth per FTE pupil.** The equalized adjusted local property wealth per full-time-equivalent (FTE) pupil. Although this measure does not take into consideration variation in state aid per FTE pupil, any possible distortion is considered to be minimal.

**Revenue per FTE pupil.** The total amount of revenue a school district receives divided by the number of FTE pupils. Although this measure does not take into consideration variation in state aid per FTE pupil, any possible distortion is considered to be minimal.

**Neighboring districts.** These include all districts within Georgia, including city districts, which are contiguous to a particular district. For city districts the counties that are contiguous counties were considered to be districts neighboring city school districts.
Limitations of the Study

1. This study is confined to school districts in the state of Georgia including Athens-Clarke County, the districts contiguous to Athens-Clarke County, and those districts contiguous to the contiguous districts of Athens-Clarke County (see Figure 1).

2. This study is limited to teachers with bachelor’s, master’s, educational specialist’s, and doctor’s degrees.

3. The local revenue used in this study is based exclusively on a measure of revenue per FTE pupil as supplied to the superintendent by the Georgia Department of Education.

4. The study cannot account for the number of students living outside the attendance zone of the school they attend. For example, students living outside of Buford City Schools may attend if they pay tuition.

5. The study is limited to k-12 school districts.

Organization of the Study

This study is organized into five chapters. Chapter I is the introductory chapter and includes the statement of the problem, the purpose of the study, the justification of the study, hypotheses, definitions of key terms, limitations of the study, and organization of the study. Chapter II presents in-depth review of the related literature on the topic. A brief history of teacher supply and demand, social worth of teaching, geographical pay differences, and cost indices is presented. The chapter then examines revenue and salary at length, and focuses on similar studies to this one since 1989. The methodology that used to collect, interpret, and analyze the data is presented in chapter III. Chapter IV
reports the findings and Chapter V includes the summary, conclusions, and recommendations for further study.
CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

This chapter presents a review of literature and research relevant to district revenue and teachers’ salaries in selected Georgia counties. Other related areas reviewed include teacher supply and demand, differences in educational costs throughout different geographical regions, and the social worth of teaching. In order to study district revenue and teachers’ salaries in selected Georgia counties, it is useful to understand the historical perspective concerning salary and revenue, as well as factors that are related to them. It is also important to study revenue and salary because it will add to the existing base of knowledge about salary decisions in Georgia. In addition, this may lead to additional studies in the area of finance equity, such as the relationship between revenue and the quality of instruction.

It is necessary to realize that teachers’ salaries are affected by a number of variables such as supply and demand, geographical salary differences, and the worth placed on teaching. Competition for teachers tends to be at a state or local level rather than a national one, and the salaries that teachers are paid affect the supply of teachers and vary throughout geographical regions. An increase in the salary of teachers causes the supply of teachers to increase (Zarkin, 1985). However, salary alone does not dictate teacher supply. Factors such as opportunity costs and other non-monetary benefits factor into the attractiveness of teaching and the retention of teachers (Murnane & Olsen, 1989).
Salary is obviously important to teachers, and even though measures have been taken to ensure an equitable rate of pay, teachers’ salaries lag behind other professions. The state of Georgia uses a formula to compare the beginning salaries of recent graduates of the University System who are employed in the state, and sets the state base teacher salary by extrapolating from 10 to 12 months (The Quality Basic Education Act, 1985). The people who set the salary schedule can positively affect the supply and quality of teachers by setting salaries that are competitive with those of other professions (Bird, 1989).

School districts use salary as a means to compete for teachers. Researchers such as Matthews and Holmes (1988) have completed studies with the original assumption that school districts all competed on one salary level, the beginning bachelor’s degrees, but have concluded that some districts chose to compete at different levels, such as experienced master’s degree teachers. Watt (1989) found this to be true as well, however, competition levels can be difficult to assess because many districts in Georgia pay only the state minimum salaries. McKinney (1991) found that competition for teachers’ salaries was based on both the beginning bachelor’s and beginning master’s levels.

Districts with higher revenue have an advantage over their neighboring districts because they may to be able to pay their teachers more. Research has been conducted to examine the salaries of districts compared to their contiguous districts based on degree level and the experience on which the superintendents wish to compete. In a series of studies regarding this topic, Matthews and Holmes (1982) found that revenue potential does not necessarily dictate whether the district will pay salaries higher or lower than its neighbors will. However, boards of education tend to pay higher salaries than the mean of
neighboring districts if they had higher revenue potential, and tend to raise salaries as neighboring districts raise theirs (Matthews & Holmes, 1983). In a related study, Matthews and Holmes (1984) found that revenue potential is best determined by examining the upper end of the salary schedule because districts pay more when they receive more revenue.

Several studies have been conducted to determine if school districts which pay higher salaries than neighboring districts also have higher property wealth per full-time-equivalent (FTE) student. In the first of these studies, Watt (1989) found that this was indeed the case. Similar results were found in South Carolina by Simmons (1992), and in Tennessee by Rahn (1994). A similar study by Kirby, Holmes, Matthews, and Watt (1991) found that salary and pay increases tend to be associated mainly with salaries of contiguous districts and property wealth.

Most of the reviewed literature is dated 1985 to the present, and is an update from a similar study done by Watt (1989). Some of the sources used by Watt (1989) prior to 1985 that are related to the area of revenue potential have been re-reviewed because they form a basis for this and other related studies.

Teacher Supply and Demand

The problem of economic incentives concerning the recruitment of teachers has been examined. A study done by Zarkin (1985) found an increase in elementary and secondary school attendance coupled with a simultaneous decrease in college-age population. Two issues were addressed: (a) the role of economic factors in determining the number of teachers certified; and (b) the responsiveness of teachers in the “reserve pool” to current teacher salaries.
Because similar demographic trends existed in the past, time series data from 1950 to 1979 was examined to develop an economic model of the decision to receive teacher certification, and the decision that follows to participate in teaching once certified. Structural parameters of this model were estimated, and the results indicate an important role for economic factors in the public school teachers market. Zarkin (1985) found that the point estimate of the wage elasticity of the supply of teachers already trained is 0.72 for secondary school teachers and 0.81 for elementary school teachers. This implies that a 20% increase in wages would induce a 14.4% increase in the supply of secondary school teachers. The short-run elasticity of teacher certification with respect to a permanent change in the expected wage is 1.36 and 1.80 for secondary and elementary schools respectively, allowing for changes in the behavior of college-bound students in response to the expected wage for teachers. He concluded that these results suggest a substantial wage response in the public school teachers market.

Jacobson (1989) conducted a study on changes in entry-level salaries and how they affect teacher supply in two regions in New York state. He reported that state policymakers should be more concerned with the even distribution of the “best qualified” teachers rather than just recruiting the best qualified teachers available to them. He believed equalizing teacher salaries would best achieve this, and found that improved entry-level salary rankings were associated with districts recruiting a large share of advanced degree candidates. This resulted in neighboring districts competing to improve the salaries of their advanced degree entry-level candidates.

Teachers with prior experience seemed less responsive to changes in entry-level wages (Jacobson, 1989). Matthews and Holmes (1982) similarly concluded that
experienced teachers are not as likely to relocate because of salary differences, and beginning teachers are more likely to be affected by salary differences. Matthews and Holmes (1984) also pointed out that salaries are raised for reasons other than increasing the supply of teachers or increasing the quality of teachers.

Teacher supply has also been a topic of study. Cartledge and Halverson (1989) conducted a study to examine exactly where newly hired teachers come from. They gathered data concerning newly hired teachers from principals in six southeastern states. They found recent graduates of a school or college of education made up only 30 percent of newly hired teachers. Most of the others were either teachers re-entering the teaching field after taking time off, teachers returning to education after trying another profession, or teachers transferring from somewhere else. This led them to conclude that there is a decreasing percentage of newly hired teachers coming from the school/college/department of education ‘pipeline,’ and a greater reliance is being placed on the recruitment of new teachers from the reserve pool through transfer from other schools, districts, or states.

Opportunity costs refer to the attractiveness of another job requiring the same credentials. Murnane and Olsen (1989) reported that the supply of teacher salaries depends on opportunity costs as well as salaries. They compiled evidence from three states concerning factors influencing length of first teaching spells, and the probability of second teaching spells. The evidence indicated that a teacher’s first employment is highly sensitive to salary and opportunity costs. Thus, this should have considerable relevance in determining teachers’ salaries.
Opportunity costs, salaries, and other benefits of teaching all become more influential after individuals began to teach. Murnane and Olsen (1989) discovered that teachers found that better opportunities existed outside the teaching profession, particularly for upper-level math and science teachers. The duration a teacher spends in teaching depends on the teacher’s subject specialty, academic ability, and the attractiveness of the school district’s salary.

Most school districts pay teachers on a uniform salary schedule based only on education and experience. Murnane and Olsen (1989) suggested that salary incentives must be paid to keep teachers whose subject specialties are in demand. They concluded that opportunity costs should be a factor when developing a theory of salary determinations.

Rollefson and Rohr (1993) conducted a study on the competitiveness of teacher salaries. They examined whether teacher salaries have increased in recent years, how they compare with salaries in other entry-level occupations, and how they vary within and across school districts in the nation.

Teacher salaries are important indicators of the relative economic well being of teachers and of general teacher supply-and-demand conditions in the United States. Rollefson and Rohr (1993) reported teacher salaries kept pace with the increase in the cost of living during 1988-91. Although teachers may find higher salaries in certain regions of the country and in the larger school districts, entry-level teacher salaries are not competitive with salaries paid in other entry-level positions. The real cost in salary to new bachelor’s degree recipients who choose a teaching career, particularly for those in computer science, mathematics, and physical sciences, is high.
Chambers and Bobbitt (1996) used hedonic wage theory to analyze teacher compensation. This study compared public schools with private schools and presented information regarding patterns of variation in salary paid in relationship to personal and job characteristics. They found that, on average, public school teachers earned between 25 and 119% higher salaries than did private school teachers, depending on the private sub-sector. Also, between 2 and 50% of the public-private difference could be accounted for by differences in teacher characteristics, depending on the private sub-sector. Furthermore, white and Hispanic male public school teachers earned higher salaries than their female counterparts.

Hedonic wage theory would predict that teacher salaries would be higher in schools with more challenging, more difficult, and less desirable work environments. Further, schools with higher levels of violence, lower levels of administrative support, and larger class sizes paid higher salaries to compensate teachers for additional burdens. However, some of the findings of Chambers and Bobbitt (1996) contradicted the hedonic wage theory hypothesis. One example of this is that public school teachers working in schools characterized by fewer family problems, higher levels of teacher influence on policy, and higher job satisfaction, also received higher salaries.

The results of the study were consistent with the hypothesis that a complex array of factors underlie the processes of teacher supply and demand, and hence, determination of salaries. Teachers are not all the same; they are differentiated by their attributes. At the same time, districts and schools are differentiated by virtue of the work environment they offer (Chambers & Bobbitt, 1996).
Hardy (2002) reported that demand for teachers is outpacing supply because of retirements, competition from other states, a decreased interest in education careers among young people. There has been a 60 percent increase in the turnover rate in some districts since 1996, and the size of the teacher pool from which some districts can select is shrinking. Because of intense nationwide concern over student achievement high-stakes tests that determine whether students graduate or move to the next grade, now, more than ever, there is a pressing need for competent teachers (Hardy, 2002).

Geography

In a study conducted on costs in school districts, Matthews (1979) found teachers in Standard Metropolitan Statistical Areas (SMSAs) in Georgia were generally paid beginning salaries above the median while the districts outside the SMSAs were generally paid below the median. He found that the local per capita personal income had a statistically significant, independent relationship with the salaries paid to beginning teachers.

It is assumed that per capita income is a measurement of the cost of living, or that it is an indicator of the willingness and ability of a school district to pay teachers. However, Matthews (1979) argued that there is insufficient evidence for claiming that teacher salaries are affected by local costs of living. Furthermore, Matthews found that beginning teacher salaries accounted for more than 88% of the variance in educational resource cost indices he computed. Custodial and beginning salaries for teachers were the only two resources found to have a statistically significant, independent impact on the indices. A cost of education index has been used by some states to distribute funds. Money from these states was distributed based on the assumption that certain geographic
locations had higher costs of living than other locations within the respective state (Matthews, 1979).

Chambers (1981) reported that school districts recognize teachers likely remain in a district for an extended period of time instead of being employed on a year-to-year basis. The main reason for this is seniority because it is generally not transferable to another district. Additionally, teachers are generally subjected to the rule that the last hired is the first fired or involuntarily transferred (Chambers, 1981).

Fournier and Rasmussin (1986) conducted a study on the impact of geographic cost-of-living differentials on public education salaries. It was found that the rankings of salaries among the states change significantly when cost-of-living adjustments were factored in. They reported that states should strongly consider the influence of cost of living when setting salaries if they wished to be competitive with other states, and concluded that there are significant differences in the cost of living across regions.

Data from 181 local education agencies were used for the study by Callas and McCormick (1993) of factors affecting differences in teachers’ salaries among Vermont school districts. A set of factors was examined that included family, community, and school information to determine what influences teacher salaries. They reported the following findings:

1. Average teacher salaries across districts range from a high of $43,958 to a low of $21,515.

2. Five factors were associated with average teacher salaries: average teachers’ education, ranked average daily membership, median income, cost per pupil, and average teachers’ experience (as these increase, teacher salary increases).
3. Larger school districts generally have higher average teacher salaries and better-educated, more experienced teachers.

4. Lack of educational opportunities for teachers in areas far from colleges with graduate education programs may adversely affect their salary scale, promotion, and general staff development.

5. Several indirect factors are associated with average teacher salary, such as education level of parents, percent of children on food stamps, and child abuse rate. Overall teacher salaries were found to be not simply a reflection of wealth in a community, but also of the level of education in the community, the child abuse rate, and other socio-economic factors.

A hedonic wage model has been used to develop a national, geographical teacher cost index (TCI). Chambers and Fowler (1995) conducted a study to determine the public school teacher cost differences across the United States. The purpose of their research was to extend the analysis of teacher compensation to include not only the variables that reflect the geographic cost of living, but also the amenities of the labor markets in which the public school districts were located. An estimated average teacher-salary cost index for each state and regions in each state was developed.

A sample of 40,484 public school teachers derived from the Schools and Staffing Survey (SASS) database for 1990-91 was used for data collection. The study examined three variables: (a) discretionary factors, the effects of teacher and job characteristics on patterns of variation in teacher salaries; (b) cost factors, the regional and school district characteristics beyond local control; and (c) teacher cost differences by the type of school
Chambers and Fowler (1995) then compared data with two alternative models and presented the following findings:

1. The data showed a salary difference that favored males.
2. Some evidence pointed to lower salaries being paid to minorities of the same gender.
3. Teachers with higher degree levels received higher salaries.
4. Larger districts in more urbanized settings tended to pay higher teacher salaries for teachers with the same qualifications.
5. The average TCI tended to be lowest in southern states and highest in northeastern states.
6. Large urban school districts tended to have higher teacher costs.
7. Compensating differentials were necessary to attract teachers to remote regions.

Chambers and Fowler (1995) concluded that the TCI includes important factors beyond the costs of living that should be considered in examining how much more or less it costs to recruit and employ comparable teachers.

Geographic variation in public schools’ costs was examined by Chambers (1998) in order to determine how much more or less it costs to provide the same level of educational resources across different geographic locations in the United States. He developed a comprehensive geographic cost-of-education index (CGEI) that focused on the prices of inputs (personnel and non-personnel items) that were used in the provision of school services purchased by schools. This study used a hedonic wage model that was used in a previous study that examined overall patterns in variation of the salaries and
benefits of certified and non-certified personnel. These models provided a means of understanding and interpreting the various factors that underlie variations in the patterns of employee compensation. A comprehensive CGEI was developed for the school years 1987-88, 1990-91, and 1993-94 for each of the school districts studied.

Differences were found across states in the access to educational resources and services, and the relationship between actual and real (cost-adjusted) spending. Furthermore, the highest cost district in the U.S. spends more than 2.6 times as much money as the lowest cost district to recruit and employ similar school personnel (Chambers, 1998).

Walden and Sogutlu (2001) conducted a study on the determinants of teacher salaries across states. They found that local teacher salaries in North Carolina are related to cost-of-living measures. Furthermore, after accounting for education and experience characteristics, local teacher salaries are higher in districts having a greater proportion of secondary teachers, larger school sizes, and a greater demand for education.

Social Worth of Teaching

Georgia’s Quality Basic Education Act (1985) provides a method for the governor to calculate and set the minimum salary for a beginning teacher in Georgia with a bachelor’s degree. Recent graduates of the University System of Georgia who hold positions in the state are interviewed annually to determine salaries. The beginning teacher salary is extrapolated from 10 to 12 months, and compared to the average of salaries of recent graduates.

Georgia lawmakers base the state salary schedule on competition within their geographical region. The teacher salary schedule is developed annually, and it sets
minimum salary requirements that systems must pay. Local systems may supplement the salary schedule set by the state, but cannot pay less than the schedule. Thus, Georgia lawmakers elected to have the state schedule based on the competition within their geographic region.

Teachers’ salaries tend to lag behind other professions. Salary levels for public school teachers in the southeastern United States was examined by Bird (1985). He used earning data from the U.S. Census Bureau’s 1984 Survey of Income and Employment that estimated annual salaries of persons in teaching and non-teaching occupations. Data was analyzed using the variables of education, work experience, sex, race, marital status, weeks worked annually, hours worked weekly, urban or non-urban residence, and college degree holder status. Several bases of comparison through a range of earning alternatives were used. These included characteristics of the existing teacher work force, characteristics of the general non-teacher work force, and characteristics of the white male college-educated work force.

Bird (1985) found that current teacher salaries are below alternative earning opportunities in other occupations by $6,718 for persons with the same socio-demographic characteristics as teachers. Further, when compared with non-teaching college-educated workers with the same socio-demographic characteristics, the figure was $10,268 less. When compared to the estimated alternative earning opportunity of white male college-educated workers in non-teaching jobs, the amount was $16,563 less. School systems interested in improving teacher performance, effectiveness, and job satisfaction while reducing turnover rates might do better to seek ways to enhance the intrinsic rewards of teaching rather than implement such extrinsic motivators as merit pay
plans and career ladders. Dunwell (1986) conducted a study that examined career ladders and professionalization of teaching. After a review of the research, he found that:

1. Teachers tend to oppose merit pay plans, though they may accept a performance-based component among several criteria-determining salary increases.
2. The success of merit pay plans in the private sector is debatable.
3. Money is an uncertain motivator among teachers.
4. Teachers are not all motivated by the same needs and desires.
5. Conditions influencing motivation are continually changing.
6. People often enter the teaching profession to obtain intrinsic rewards related to service and self-esteem.
7. The availability of external motivation often inhibits the effects of intrinsic motivation.
8. Merit pay and career ladders tend to deprofessionalize teaching.

Dunwell (1986) concluded that intrinsic motivation for teachers as professionals can be enhanced through several processes. Some of these processes include performance appraisal interviews, appraisal and development of potential, feedback and performance coaching, career planning, training, organizational development, rewards for specific contributions, employee welfare programs, and use of human resources databanks.

In a later study, Bird (1989) compared the salaries of teachers with other college graduates, and sought to generate a competitive teacher salary schedule for six states in the southeast. His salary schedule was created using a regression model that used variables such as occupational categories, place of residence, gender, ethnic characteristics, age, years of postgraduate education, and time working on the job.
Salaries paid to graduates not in teaching affect the supply and retention of qualified teaching personnel. Those who set the salary schedule can help to improve both the quantity and quality of teachers available by providing earnings, at all stages of a teaching career, that are competitive with those in other occupations.

In order to provide for enough qualified teachers, Bird (1989) concluded that teacher salaries must be competitive with comparable non-teaching jobs. Beginning teacher salaries are already near or within the indicated range in most states in the southeast. However, a need exists for compensation policies that provide more room for income growth during the professional career of a teacher. Without such policies, the retention of teachers may become an even more serious problem than the recruitment of teachers.

Chambers (1998) conducted a study of patterns of variation in the salaries of school personnel. The study examined school personnel in relation to discretionary and cost factors. He found that educators with greater educational preparation and experience, who exert greater effort and attended selective colleges, earn higher salaries. Another finding was that urban and high-crime areas paid higher salaries.

The UTD Texas School Project investigated how shifts in salary schedules affect the composition of teachers within a district. In analyses both of teacher mobility and of student performance, teacher salaries were shown to only have a modest impact. Teacher mobility was more affected by characteristics of the students such as income, race, and achievement rather than by salary schedules. Salaries were also weakly related to performance on teacher certification tests, and appeared to be relevant only in districts doing high levels of hiring (Hanushek, Kain, & Rivkin, 1999).
Continued concern over the quality of education in Georgia led to the passing of the A+ Education Reform Act of 2000. This legislation does not directly address salary formulation, but the focus on teacher and school accountability affects the value placed on teachers and teaching itself. Its long-term effects on teachers’ salaries have yet to be determined.

Bolisch (2001) sought to develop strategies for retaining beginning teachers. His research indicated that after 5 years, nearly half of new teachers leave teaching in the state where they first taught. Helping new teachers become veterans is an important step in addressing teacher shortages. New teachers tend to leave because of such factors as inadequate pre-service preparation, difficult workplace conditions such as lack of support and guidance and placement in difficult assignments, and poor salaries and benefits. Some states are working to keep new teachers in the classroom by providing quality mentoring or induction programs and by offering financial incentives to recruit and retain new teachers such as scholarships and forgivable loans. Districts should be familiar with who is in the teacher preparation pipeline, and provide prospective teachers with quality teaching for content and classroom management experiences in teacher preparation programs. Work conditions should be established that will help beginning teachers succeed, and information should be collected on the effectiveness of approaches and programs that support beginning teachers (Bolich, 2001).

Hardy (2002) examined issues concerning teacher quality and teacher shortage. It has been reported that in the coming decade, the United States must hire 2 million new teachers to keep up with teacher retirements and enrollment increases. There is more to
this statement however; it is true, but misleading. America will need to hire more teachers in the coming decade, but not at a significantly greater rate than are being hired now.

There is a teacher crisis right now that concerns quality as much as quantity. Whether this crisis affects a district depends on what type of teachers being sought, rate of increase in enrollment, and the socioeconomic status of the districts students. Hardy (2002) reports that the quality and quantity of teachers in inner city schools has diminished in the past two years because teachers are either unavailable or unprepared to teach in these districts. The quality shortage has broad implications because numerous studies have shown that, except for family background, teacher quality is the biggest determinant of academic success. A smaller pool of prospective teachers leads to fewer choices for some districts. Thus, a less qualified teaching staff in those districts, and lower student achievement Hardy (2002).

Cost Indices

Matthews and Brown (1980) conducted a study to determine the relationship between Consumer Price Indices (CPIs) and beginning teacher salaries in 474 districts in 19 Standard Metropolitan Statistical Areas (SMSAs). Superintendents ranked in importance what factors they used to determine salary schedules. The highest priority reported by the superintendents in setting salaries was money available, followed by cost of living in other school districts. In fact, money available had almost twice as many votes as the other two combined. Within SMSAs, salary rank infrequently had a dramatic shift from year to year. This led them to conclude that this stability of rankings may be strong enough for changes in the cost of living not to have a strong effect on salaries.
Also, changes in the CPI apparently are not a major priority to school districts when setting salary schedules.

Changes in the cost of living alone within SMSAs do not have a strong effect on wages paid to teachers. Furthermore, changes in beginning teacher salaries were consistently related to changes in the CPI. Matthews and Brown (1980) found that local districts do have control over teacher salaries as much as district revenue potential allows. Salary schedules for teachers were more dependent on the salary status of the local district policies than on changes in the cost of living.

Distributing state funds to school districts based on cost of living or CPIs may give an unfair advantage to high CPI districts in the recruitment of teachers. This is because metropolitan school districts often pay the highest salaries while being the highest cost districts. This would allow them to further increase teacher salaries, thus forcing the other following school districts to cut services in order to maintain competitive salaries (Matthews & Brown, 1980).

In response to the Texas State legislature’s request for finance reform, a cost-of-education index was created by Monk and Walker (1991). They sought to provide the equity necessary to resolve the constitutionality questions concerning the system of finance in Texas schools. The main focus was human resource inputs concerning compensation of teachers because schools are labor intensive, and by far the largest expense category for school districts. Monk and Walker (1991) stated that competition between districts for these resources could force higher salaries to be paid.

Both controllable and uncontrollable problems arise with the creation of an index, and it might be difficult to distinguish between the two. In order to avoid this problem,
Monk and Walker (1991) tried to establish an index that would adjust for wage relevant attributes over which districts have little or no control. Some attributes reported as uncontroable were: (a) contiguous counties; (b) beginning teacher average salary; (c) location in a rural county (population less than 40,000); (d) district type (suburban, independent town, rural); and (e) district size in terms of student population. Controllable attributes listed by Monk and Walker (1991) were: (a) teacher benefit level per pupil; (b) graduation rate; (c) percent minority teachers; (d) non-salary expenditures; (e) property wealth per teacher; and (f) total effective tax rate.

Picus and Hertert (1992) argued that Monk and Walker’s plan discriminated against poorer school districts. This contributed to the Texas Supreme Court ruling in 1992 that Monk and Walker’s (1991) index for the state’s school finance plan was unconstitutional. The court found that the taxes levied by the County Education Districts were unconstitutional state taxes. They also found that the new index approach would not work without the CED taxes. It should be noted that the court did not object to the index itself, but to the method of taxation of the CEDs.

Widerquist (2001) conducted a study on the school funding practices of the state of New York. Despite having its most expensive district spend 1.56 times more than its least expensive district, the state of New York has not used a cost index to determine the distribution of aid to school districts, except for Building Aid. The Consumer Price Index (as suggested by the Regents, Governor Pataki, State Comptroller McCall, and the Midstate Consortium) is calculated for metropolitan areas and is based on typical consumer purchases, not those of a school district. Low cost of living in rural areas may
not be reflected in teacher salaries. However, indexes based on teachers' salaries or the "hedonic wage model" (Chambers, 1998) ignore the noncompetitive nature of the market for teachers.

The amount that districts spend may not indicate what they need to spend. Indexes based on the pay of comparable professionals in an area reflect the reality of teachers' leaving districts for other professions, rather than moving to higher paying districts. Using cost and academic performance as an index could create eight regions that have similar costs and contain demographically similar student bodies. A compromise proposal could take into account both local costs and the district's ability to meet those costs, accompanied by a regional cost index and a measure of student need (Widerquist, 2001).

Revenue

The salaries of beginning teachers holding bachelor’s degrees in Florida for the 1973-74 school year through the 1979-80 school year was studied by Matthews and Holmes (1982). They sought to determine whether there were certain school districts in the state that were consistent regional leaders year after year. The salaries were plotted on a map and found only one district that was a regional salary leader every year. It was found that 30 of the 67 districts were regional leaders at least once during the time periods studied.

The same school districts were also studied based on their revenue potential. Again, Matthews and Holmes (1982) found that only one district was a regional leader in revenue potential during the time periods studied. Furthermore, 32 of the 67 districts
were regional leaders at least once. They concluded that neither salary nor revenue potential was a salary determinate by itself.

The salaries of the revenue potential leaders were compared to the mean salaries of the contiguous districts. In 56 of the 94 comparisons, the revenue potential leaders paid higher salaries than the mean of the contiguous districts. Furthermore, 22 of the 37 districts that were never regional salary leaders during the years studied were also not revenue potential leaders (Matthews & Holmes, 1982).

School districts that may have higher revenue potential than their neighbors do not always choose to pay higher salaries, and it is possible for school districts with less revenue than their neighbors to pay higher salaries. Matthews and Holmes (1982) recommended that the relationship of revenue potential of school districts to teacher salary schedules be studied more in the future.

They also investigated the revenue potential of the school district and what the board of education perceives as fair and reasonable limit salary schedules. Salary schedules tend to be set close to, if not higher than, salary schedules for other districts in the area as long as the superintendent believed the salary schedule could be approved. If salaries in contiguous districts are raised, then the superintendents attempted to give a similar raise to their district (Matthews & Holmes, 1983).

Also, if a superintendent submits a salary schedule that is reasonable and affordable, the board of education would probably approve it. Local boards of education were found to approve salaries close to the mean of the neighboring districts. Also, the boards of education tend to pay higher than the mean of their neighboring districts’
salaries if they had higher revenue potential than the neighboring districts (Matthews & Holmes, 1983).

Matthews and Holmes (1983) concluded that teacher salaries would be changed as a result of a change in the revenue of the school district. This would be amplified when cost adjustments in state aid based on differences in teacher salaries, and would result in even greater differences in teacher salaries in the future. Those districts with higher salaries when they receive more state aid will further increase salaries, and those with lower salaries would have to lower salaries or cut the budget.

A study was conducted by Matthews and Holmes (1984) 13 school districts within one SMSA to try to find salary determination practices. They found that these 13 districts could be grouped into three categories: (a) the competitive elite (three districts); (b) the normalizers (six districts); and (c) the laggards (four districts). The competitive elite districts seek to pay teachers the most on their salary schedule, normalizers were districts that paid close to the mean salaries of the area, and laggards were districts that paid teachers substantially below the competitive elite.

The districts were compared to each other on certification level, experience of teachers, and the revenue potential (assessed value) of the district. A strong positive relationship was found between teachers’ salaries toward the top end of the pay scale and revenue potential. However, salaries for beginning teachers with bachelor’s degrees correlated only moderately with the revenue potential of their district (Matthews & Holmes, 1984). It was found that revenue potential has little effect on the salaries of the groups studied, and that the school officials competed as much as possible for the beginning teachers. The revenue potential of a school district is better determined by
examining the upper end of the salary schedule because districts pay higher teacher salaries when they receive more revenue (Matthews & Holmes, 1984).

Matthews and Holmes (1988) conducted a study similar to the one they conducted in 1983 on Georgia school districts. They sought to determine if a school district will tend to raise their salaries when contiguous districts raise mean salary, and to determine if the school districts with higher revenue potential than contiguous districts will tend to pay higher salaries than those contiguous districts.

Beginning teacher salary data and revenue potential was used from 1973-74 for each of the 187 school districts in Georgia. They found that almost 60% of the variance in beginning teacher salaries in school districts in Georgia was associated with the variance in the mean of the beginning teacher salaries in the contiguous districts. Although they found all districts do not choose to compete with their neighbors for beginning teachers with bachelor’s degrees, this still supported the conclusion that there are regional markets for teachers. The second proposition concerning the relationship of revenue potential and teacher salaries was not supported. No significant difference in revenue potential between those districts paying salaries higher than neighboring districts was found (Matthews & Holmes, 1988).

Matthews and Holmes (1988) concluded that all districts do not compete for beginning teachers, but compete for different experience or degree levels in teachers. They recommended that further studies should be conducted comparing teacher salaries that examine the level at which the district chooses to compete with its neighbors, and to determine if revenue potential does have an effect on the salaries paid by a school district.
The relationship between teachers’ salary and revenue potential was studied next. Watt (1989) conducted a study to determine if school districts that pay higher salaries than neighboring districts also have higher property wealth per full-time-equivalent (FTE) pupil than the neighboring districts. Superintendents were asked to indicate their primary concern when setting salary schedules for their districts. The choices were minimum or maximum pay at the bachelor’s, master’s, educational specialist’s, or doctoral degree levels. The salaries were compared at the reported primary levels of concern to a salary predicted from those of the neighboring districts. Watt then compared the revenue potential per FTE pupil of those districts that paid more than predicted with those districts that paid less than predicted.

The degree and experience level that superintendents considered most important when setting salaries is not always the beginning bachelor’s degree level. Watt (1989) found that the most frequently mentioned level was that of experienced teachers with a master’s degree. Thirty-three percent of superintendents reported considering more than one degree and salary level when setting salary schedules.

Georgia sets a salary scale for all districts relatively high in comparison to the salaries actually paid. In fact, Watt (1989) found that the minimum salary required was the actual salary paid by a number of districts. The number of districts that paid the required Georgia minimum were as follows:

1. Beginning bachelor’s degree – 40
2. Experienced bachelor’s degree – 29
3. Beginning master’s degree – 40
4. Experienced master’s degree – 28
5. Beginning specialist’s degree – 41
6. Experienced specialist’s degree – 28
7. Beginning doctor’s degree – 42
8. Experienced doctor’s degree – 29

An artificially high salary scale may exist in some districts because the state required the districts to pay more than the districts otherwise would be willing to compensate their teachers. Furthermore, many of the districts paid a local supplement of less than $1000.

He concluded that during the 1988-89 school year, school districts paying higher salaries than predicted from the salaries paid in neighboring districts do have higher property wealth per pupil than those paying lower teacher salaries than predicted from the salaries paid in their neighboring districts. It was recommended that further studies in the determination of teacher salaries be conducted (Watt, 1989).

Kirby, Holmes, Matthews, and Watt (1991) conducted a study that examined the priorities that superintendents and school board presidents use in setting teacher salaries. Superintendents and school board presidents responded similarly. Local tax base was the highest-ranking consideration. The considerations that followed, in order of priority, were salaries paid in other districts, cost of living, and salaries paid to others in the community. It was emphasized that cost of living and other local wages were given relatively minor regard.

The same methods developed by Watt (1989) were used to analyze data concerning teacher salaries at each degree level, assessed property value per pupil, per capita income, and the average teacher salary paid in contiguous districts at each degree
level. This study built upon previous work by Matthews and Holmes (1984), and five propositions for support of the determination of teacher salaries were proposed:

1. If salaries of teachers in contiguous districts are raised, the salaries of teachers in adjoining districts will be raised.

2. If districts have greater or equal revenue generating potential per pupil than contiguous districts, they will tend to pay teacher salaries about equal to those districts that adjoin them.

3. If districts have greater or equal per capita personal income as contiguous districts, they will tend to pay teacher salaries about equal to those districts that adjoin them.

4. If districts have either lower property wealth or lower per capita personal income than contiguous districts, they will pay teachers less than those districts that adjoin them.

5. If districts have both greater tax-paying ability and greater willingness to support education than neighboring districts, they will tend to pay teachers higher salaries than contiguous districts.

They found teacher salaries at all degree and experience levels were significantly related to salaries of contiguous districts. Their results suggested that districts pay higher teacher salaries than their neighbors also tend to have higher property wealth. They also found that districts tend to pay higher teacher salaries than adjacent districts when both per capita income and property wealth are higher (Kirby, Holmes, Matthews, & Watt, 1991).
They indicated districts with higher per capita income, but lower property wealth than their neighbors, were almost equally divided into those that paid salaries above their neighbors and those that paid below their neighbors. They also found that the number of districts with higher property wealth but lower per capita personal income than their neighbors were also almost equally divided between those that paid higher salaries than their neighbors and those that paid lower salaries than their neighbors. Furthermore, they indicated that districts with lower property revenue or lower per capita income were more likely to pay lower teacher salaries. When equity adjustments are made based on cost of living alone, greater inequities may occur. They also found that salary and pay increases tend to be associated more with factors such as salaries of contiguous districts and property wealth (Kirby, Holmes, Matthews, & Watt, 1991).

The influence of per capita personal income is less obvious than local property wealth. Kirby, Holmes, Matthews, and Watt (1991) concluded that the relative ability of the local population to pay taxes is influenced by the per capita personal income. Also, per capita personal income is an imprecise measure of socio-economic status, and considered to be a factor in the willingness of a population to support education.

McKinny (1991) conducted a study that examined school district revenue and teachers’ salaries in Indiana. He found that beginning salary levels of Indiana teachers are impacted by district revenue as determined by assessed valuation. The wealthier districts, as measured by local property assessment, will spend more for beginning teachers. Furthermore, Indiana school districts compete with their neighboring school districts at the beginning bachelor’s level and master’s level. Salaries other than the beginning level
were influenced more by schedule indexing and previous salary schedule amounts rather than by assessed valuation or contiguous districts.

A related study was done on the schools in Pennsylvania. Matthews, Watt, Brown and Dayton (1992) conducted a study that examined local wealth and teacher salaries of the state. A statistical analysis of 491 Pennsylvania school districts that involved regression, t-tests, and chi-square was conducted. Two factors had a statistically significant impact on local teacher salaries: (a) the salaries paid to teachers in contiguous districts, and (b) local wealth. However, higher property wealth or higher income per pupil alone had no significant effect on local teacher salaries. Teacher salaries appeared to be affected by a balance of several factors: regional markets (salaries paid in contiguous districts); local tax base (property wealth per pupil); tax paying ability (personal income per pupil); and willingness of local boards to pay higher salaries.

While studying the school districts of South Carolina, Simmons (1992) found that districts that paid higher salaries than predicted from the mean of their neighbors have more property wealth per pupil than those school districts that paid salaries less than predicted from their neighbors. Districts that pay higher teacher salaries than predicted from their neighbors have higher personal income per pupil than districts that pay lower salaries than predicted. Other relationships were found between: (a) district teacher salaries and mean of neighboring teacher salaries, (b) district teacher salaries and district property wealth, (c) district teacher salaries and personal income, (d) district wealth and district personal income.

A study that was similar to Watt’s (1989) was conducted in Tennessee by Rahn (1994) who examined school district revenue potential and teacher salaries. The question
of study was: “Do districts that pay teachers higher salaries than predicted have higher local property wealth, higher personal income, or higher local option sales tax revenue per pupil than their neighbors?”

Several variables had a statistically significant relationship with teacher salaries paid by an individual district. These were: (a) the salaries paid in contiguous districts for beginning, master’s, and beginning education specialist’s degrees; (b) property wealth per pupil; (c) per pupil personal income; and (d) local option sales tax revenue (Rahn, 1994).

Rahn reported that districts with higher salaries than predicted from mean salaries of neighboring districts tended to have higher property wealth per pupil or higher personal income than their neighbors. Also, districts with both higher property wealth per pupil and higher per pupil personal income than the mean of their neighbors tended to pay higher salaries than the mean of their neighbors at a rate of almost 2:1. Districts with both lower property wealth per pupil and lower personal income per pupil than their neighbors tended to pay lower salaries than their neighbors at a rate of almost 3:1.

School finance plans that attempt to compensate local school districts for the higher “costs” of teachers are likely to subsidize those districts with higher property wealth, higher personal income, and lower tax rates than those districts with lower property wealth, lower personal income, and higher tax rates. Rahn (1994) concluded that such results are counterproductive because those with higher levels of wealth have options not available to those with lower levels of wealth, and to provide subsidy to the wealthier districts simply extends existing levels of inequity.

Poss (1995) conducted a study designed to examine the assumption that, because districts in Florida with high cost-of-living indices receive proportionally more revenue
per pupil from the state, teachers’ salaries in these districts would increase more rapidly than in districts with lower cost of living indices. Differences in the mean rates of increase in beginning teacher salaries in districts with district cost differentials above the median for the state and salaries in those districts below the median were statistically significant. Beginning teachers’ salaries in those districts receiving more money from the state through cost adjustments increased at a higher rate than those receiving proportionally less money from the state. Teacher salaries increase more rapidly in the high cost-of-living districts, and the differences between the salaries in high-cost districts and low-cost districts went from an inconsequential amount to a difference of both statistical and practical significance. He concluded that this has a profound consequence on equality of educational opportunity for pupils. Those districts with higher levels of per pupil funding from the state had the potential, through their higher teacher salaries, to employ the teachers whose qualifications were superior to those employed by lower paying districts (Poss, 1995).

Summary

This chapter is a review of the literature related to the area of district revenue and teachers’ salaries in selected Georgia counties. Additional areas researched and discussed are teacher supply and demand, geographical considerations, the social worth of teaching, and cost indices. A historical perspective is presented in each category in order to establish the importance of studying district revenue potential and teachers’ salaries.

Salary considerations are important in the recruitment of teachers, especially new teachers. However, salary is not the only factor to be considered when trying to retain teachers with experience. Opportunity costs and other considerations are important and
should be considered when setting a salary schedule (Murnane & Olsen, 1989). Teachers’ salaries are subject to the laws of supply and demand, and entry-level teachers’ salaries lag behind that of other positions, especially in the areas that are in demand (Rollefson & Rohr, 1993).

Since school districts compete on a local or state level rather than on a national level, it is important to compare salaries of neighboring school districts. The research has shown that school districts do not all compete for teachers on the same salary level. Some authors such as Matthews and Holmes (1988), Watt (1989) and McKinney (1991) have started with the assumption that all districts compete on the level of beginning bachelor’s degrees, but concluded that it appears that districts compete on different levels such as master’s degree teachers or experienced teachers.

In order to understand better how districts compete for teachers, studies on district revenue and teachers’ salaries have been conducted. Studies on district revenue and teachers’ salaries have shown that teacher salaries at all levels are significantly related to the salaries of contiguous districts (Kirby, Holmes, Matthew, & Watt, 1991). A relationship has been found between property wealth and teachers’ salaries, and it has been suggested that raises in teachers’ salaries are related factors such as pay increases of contiguous districts and local property wealth.

This review focuses on literature and research relevant to district revenue and teachers’ salaries in selected Georgia counties. The sources used are related to the subject of revenue as studied by Watt (1989), McKinney (1991), Simmons (1992), and Rahn (1994). The relationship between revenue and teachers’ salaries that has been shown in this review should further be compared with revenue per full time equivalent (FTE) pupil.
CHAPTER 3

METHOD

This chapter will present the research design and procedures used.

Background

Because of negative attention concerning the quality of education in the United States laws have been passed in Georgia to improve the quality of education that students receive. The State of Georgia initially responded to the challenge to improve education by enacting the Quality Basic Education Act (QBE) during the 1985 legislative session which provides a method for the governor to calculate and set the minimum salary for a beginning teacher in Georgia with a bachelor’s degree. The teacher salary schedule is developed annually, sets minimum salary requirements that systems must pay in Georgia, and is based competition within Georgia’s geographical region. Local systems may supplement the salary schedule set by the state, but cannot pay less than the schedule. This creates a state teacher salary schedule based on the competition within its geographic region.

Average teachers’ salaries in Georgia have steadily increased in relation to the national average because of a multi-year commitment that the State has established. In 1984, the Governor of Georgia, Joe Frank Harris, sought to bring teachers’ salaries up to the average pay of other beginning professionals with a bachelor’s degree. To accomplish this, across the board pay increases of 10 percent were given to teachers for the 1984-85 and 1985-86 school years. In 1995, Georgia reestablished a goal for the
average teacher salary to reach the national average. Since then the state average teacher salary as gone from 88.2 to 98.4 percent of the national average for the 2000-2001 school year. When adjusted for the cost of living, Georgia’s averages were above the national average salary (Gaines, 2001). It is important to realize, however, that these salary figures are only for base pay in Georgia. School districts may provide a local supplement to the State base pay if they wish, and is not regulated by State base pay increases.

Because the QBE act raised the amount of revenue available to local school districts, local school districts gained the option of raising salaries further through local supplementation. Matthews and Holmes (1984) found that in a study conducted in Florida, local school boards tended to approve salaries that are relatively close to that of their neighboring school districts. Also, school districts with higher revenue potential tended to pay their teachers higher salaries than the average salaries of their neighbors.

Purpose of the Study

This is a study that examines district revenue and teachers’ salaries in selected Georgia counties. This study builds upon the statement by Matthews and Holmes (1983) that “Districts which have greater revenue potential than their neighbors will tend to pay higher teacher salaries than their neighbors” (p. 41). However, revenue was examined instead of revenue potential. This study examined whether a district that has greater revenue per FTE than its neighbors tends to pay higher teacher salaries than its neighbors. More specifically, do school districts that pay higher teacher salaries than their neighbors have higher revenue per FTE pupil than their neighboring school districts?

If this proposition holds true, then it will add to the existing knowledge of salary determinations in Georgia. The implications and conclusions that can be drawn from this
study along with those of Matthews and Holmes (1982), Watt (1989), McKinney (1991), Simmons (1992), and Rahn (1994) may influence the educational financing policies of Georgia and other states. In particular, it may influence the future design of cost-related indices designed to promote finance equity. Results of this study may show that state aid formulas must consider local revenue in order to develop a fair distribution of state funds. Study of this issue may also generate additional finance equity questions that examine district revenue and quality of teachers, and teacher supply and demand.

Research Design

This study will use data collected from school districts that indicate the pay of teachers at eight levels on the salary schedule: (a) beginning bachelor’s, (b) experienced bachelor’s, (c) beginning master’s, (d) experienced master’s, (e) beginning educational specialist’s, (f) experienced educational specialist’s, (g) beginning doctor’s degree, and (h) experienced doctor’s degree. These salaries will be compared to the neighboring school districts at each salary level.

Salary data for the 2002-2003 school year was obtained from each of the twenty-one public school districts of the selected counties studied in Georgia. Revenue per FTE pupil was calculated from Revenue and FTE count as supplied by the Georgia Department of Education. Revenue per FTE pupil is defined as the total amount of revenue a school district receives divided by the number of FTE pupils. Although this measure does not take into consideration variation in state aid per FTE pupil, any possible distortion is considered to be minimal.

The revenue per FTE pupil of districts paying more than predicted was compared with districts that pay less than predicted. A one way analysis of variance (ANOVA) test
was performed on the two groups at the 0.05 significance level. The null hypotheses is that there are no differences in the revenue per FTE pupil of districts paying higher teacher salaries than predicted and those paying lower than predicted.

**Null Hypotheses**

H$_0$:1. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning bachelor’s degree teachers.

H$_0$:2. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced bachelor’s degree teachers.

H$_0$:3. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning master’s degree teachers.

H$_0$:4. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning master’s degree teachers.
predicted for those paying teachers salaries lower than predicted for experienced master’s
degree teachers.

H₀:5. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning educational specialist’s degree teachers.

H₀:6. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced educational specialist’s degree teachers.

H₀:7. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning doctor’s degree teachers.

H₀:8. There will be no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced doctor’s degree teachers.
Figure 1. Map of Counties Studied
Population and Sample

The target population is twenty-one selected school districts in the state of Georgia that service grades K-12. This study examines Athens-Clarke County, the districts contiguous to Athens-Clarke County, and those districts contiguous to the contiguous districts of Athens-Clarke County (see Figure 1). There are five municipal and sixteen county public school districts examined in this study.

Data Collection

The salary data was collected from a survey that was mailed to each of the twenty-one selected school districts in Georgia. They were requested to supply the minimum and maximum salaries at the bachelor’s, master’s, education specialist’s, and doctor’s degree levels in their districts. If the district did not wish to fill out a survey, they could submit a copy of their salary schedule. In the event a school district did not supply the requested information, follow up requests and phone contacts were made. The data examined came from the 2002-2003 school year.

The revenue per FTE pupil data of school districts was collected from the Georgia Department of Education. This statistic is the total amount of revenue a school district receives divided by the number of FTE pupils. Although this measure does not take into consideration variation in state aid per FTE pupil, any possible distortion is considered to be minimal.

Data Analysis

To predict a district’s teacher salary for each salary and experience level, the mean teacher salary of contiguous districts and the actual salary paid by the district were plotted for all school districts in Georgia. The mean salaries of contiguous districts were
represented as the x-coordinates, and the actual salaries paid by the district were represented by the y-coordinates.

Regression lines were generated between the salaries of individual districts and the mean salaries of their neighboring districts on the levels of degree earned and experience. School districts that fell above the regression line had higher salaries than predicted from the average of their neighboring school districts, and school districts that fell below the regression line had lower salaries than predicted from the average of their neighboring school districts. A total of eight regression lines were generated: (a) beginning bachelor’s, (b) experienced bachelor’s, (c) beginning master’s, (d) experienced master’s, (e) beginning educational specialist’s, (f) experienced educational specialist’s, (g) beginning doctor’s degree, and (h) experienced doctor’s degree. A one way analysis of variance (ANOVA) test was performed on revenue per FTE pupil of the school districts falling above the regression line and the revenue per FTE pupil of the school districts falling below the regression line for each of the degree and salary levels. The ANOVA tests were performed at the 0.05 significance level.

To calculate the mean salary of neighboring districts for each district, a model developed by Watt (1989) was used.
In order to determine the mean teacher salary of a district’s neighbors, a map of selected Georgia counties showing contiguous school districts was applied to the above model. For example, to calculate the average to be compared to district A, the mean salary of the neighboring districts contiguous to district A will be computed. In this case, districts B, C, D and E are all contiguous to district A, so they are considered neighbors of district A. Similarly, school districts A, B, F, G, H and I are all considered neighbors of district C.

The neighbors of a city system that is completely surrounded by a county will be considered the same as those of the surrounding county. A model developed by Simmons (1991) was used.

For example, district A is a city district that is completely surrounded by district B. District A’s neighbors would not only be district B, but C, D, E and F as well. In this case, district B’s neighbors would be districts A, C, D, E and F.

Summary

Chapter III has included a description of the research design and procedures that will be used in this study. Included in this chapter was the background, purpose of the study, research design, null hypotheses, data collection procedures and data analysis. Chapter IV
reports the findings and Chapter V includes the summary, conclusions, and recommendations.
CHAPTER 4

FINDINGS

The purpose of this study is to examine district revenue and teachers’ salaries in selected Georgia counties. More specifically, this study builds upon a statement by Matthews and Holmes (1983) that “Districts which have greater revenue potential than their neighbors will tend to pay higher teacher salaries than their neighbors” (p. 41). However, instead of examining revenue potential, actual revenue will be examined. This study has sought to determine if school districts that pay higher teacher salaries than their neighboring school districts have higher revenue per FTE than their neighboring school districts. If this proposition holds true, then it will add to the existing knowledge of salary determination in Georgia. Study of this issue may also generate additional finance equity questions that examine district revenue and quality of teachers, and teacher supply and demand. The problem that will be examined is whether districts that pay teachers higher salaries than their neighboring districts have higher revenue per full-time-equivalent (FTE) than their neighboring districts.

Tests of Hypotheses

Hypothesis One

H₀: There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning bachelor’s degree
teachers. Of the 21 districts examined, 9 were above the regression line and 12 were below the regression line (see Figure 2, Appendix A). The null hypothesis was rejected because the probability found was 0.014 (see Table 3, Appendix B).

**Hypothesis Two**

H$_0$:2. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced bachelor’s degree teachers. Of the 21 districts examined, 8 were above the regression line and 13 were below the regression line (see Figure 3, Appendix A). The null hypothesis was rejected because the probability found was 0.006 (see Table 4, Appendix B).

**Hypothesis Three**

H$_0$:3. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning master’s degree teachers. Of the 21 districts examined, 9 were above the regression line and 12 were below the regression line (see Figure 4, Appendix A). The null hypothesis was rejected because the probability found was 0.041 (see Table 5, Appendix B).

**Hypothesis Four**

H$_0$:4. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than
predicted for those paying teachers salaries lower than predicted for experienced master’s degree teachers. Of the 22 districts examined, 10 were above the regression line and 11 were below the regression line (see Figure 5, Appendix A). The null hypothesis was not rejected because the probability found was 0.051 (see Table 6, Appendix B). However, the value of 0.051 at the 0.05 level is considered borderline. Although the null hypothesis was rejected, the mean for the higher group was found to be greater than the mean for the lower group.

Hypothesis Five

H₀:5. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning educational specialist’s degree teachers. Of the 21 districts examined, 9 were above the regression line and 12 were below the regression line (see Figure 6, Appendix A). The null hypothesis was rejected because the probability found was 0.014 (see Table 7, Appendix B).

Hypothesis Six

H₀:6. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced educational specialist’s degree teachers. Of the 21 districts examined, 10 were above the regression line and 11 were below the regression line (see Figure 7, Appendix A). The
null hypothesis was not rejected because the probability found was 0.051 (see Table 8, Appendix B). However, the value of 0.051 at the 0.05 level is considered borderline. Although the null hypothesis was rejected, the mean for the higher group was found to be greater than the mean for the lower group.

Hypothesis Seven

H<sub>0</sub>:7. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning doctor’s degree teachers. Of the 21 districts examined, 8 were above the regression line and 11 were below the regression line (see Figure 8, Appendix A). The null hypothesis was rejected because the probability found was 0.041 (see Table 9, Appendix B).

Hypothesis Eight

H<sub>0</sub>:8. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced doctor’s degree teachers. Of the 21 districts examined, 10 were above the regression line and 11 were below the regression line (see Figure 9, Appendix A). The null hypothesis was not rejected because the probability found was 0.243 (see Table 10, Appendix B). However, the mean for the higher group was still found to be greater than that of the lower group.
### Summary of Findings

#### Table 1
Mean Revenue Per Pupil

<table>
<thead>
<tr>
<th>Degree-Experience Level</th>
<th>* Above</th>
<th>** Below</th>
<th>P</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>4min</td>
<td>2819</td>
<td>1956</td>
<td>0.014</td>
<td>Rejected</td>
</tr>
<tr>
<td>4max</td>
<td>2924</td>
<td>1958</td>
<td>0.006</td>
<td>Rejected</td>
</tr>
<tr>
<td>5min</td>
<td>2746</td>
<td>2011</td>
<td>0.041</td>
<td>Rejected</td>
</tr>
<tr>
<td>5max</td>
<td>2693</td>
<td>1992</td>
<td>0.051</td>
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* Above Mean Revenue of Districts Paying More Than Predicted
** Below Mean Revenue of Districts Paying Less Than Predicted
4min = Beginning Bachelor's Salary
4max = Experienced Bachelor's Salary
5min = Beginning Master's Salary
5max = Experienced Master's Salary
6min = Beginning Educational Specialist's Salary
6max = Experienced Educational Specialist's Salary
7min = Beginning Doctor's Degree Salary
7max = Experienced Doctor's Degree Salary

The null hypotheses for the minimum level salaries at all degree levels were rejected, as was the null hypothesis for experienced bachelor’s degree teachers.

Beginning teachers and bachelor’s degree teachers represent the lower end of the teacher salary schedule. The null hypotheses that relate to the upper end of the salary schedule such as experienced master’s degree, educational specialist’s degree, and doctor’s degree were not rejected. However, for experienced master’s and experienced specialist’s the value 0.051 is questionable at the 0.05 test level.
The findings show that the five of the eight degree-experience levels that were found to have a statistically significance difference represent the lower end of the teacher salary scale. Furthermore, the hypotheses pertaining to beginning salary at all degree-experience levels were all found to have statistically significance differences. Only one of the eight clearly had no statistically significant difference. This was the experienced doctor’s degree level that is the highest degree-experience level studied, and represents the highest level of the salary scale.
CHAPTER 5
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V will present the summary, conclusions, and recommendations of the study. This chapter is divided into eight sections: (a) restatement of the problem, (b) summary of the related literature, (c) summary of procedures, (d) summary of the findings, (e) discussion, (f) conclusions, (g) recommendations for further study, and (h) applications of the findings.

Restatement of the Problem

This study sought to examine district revenue and teachers’ salaries in selected Georgia counties. The problem that was be examined is whether districts that pay teachers higher salaries than their neighboring districts have higher revenue per full-time-equivalent (FTE) than the neighboring districts.

Summary of Related Literature

The literature was reviewed to gain information on the area of revenue and teachers’ salaries in selected Georgia counties. Additional areas researched and discussed were teacher supply and demand, geographical considerations, the social worth of teaching, and cost indices. A historical perspective is presented in each category in order to establish the importance of studying district revenue and teachers’ salaries.

Salary considerations are important in the recruitment of teachers, especially new teachers. However, salary is not the only factor to be considered when trying to retain teachers with experience. Opportunity costs and other considerations are important and
should be considered when setting a salary schedule (Murnane & Olsen, 1989). Teachers’ salaries are subject to the laws of supply and demand, and entry-level teachers’ salaries lag behind that of other positions, especially in the areas that are in demand (Rollefson & Rohr, 1993).

Since school districts compete on a local or state level rather than on a national level, it is important to compare salaries of neighboring school districts. The research has shown that school districts do not all compete for teachers on the same salary level. Some authors such as Matthews and Holmes (1988), Watt (1989) and McKinney (1991) have started with the assumption that all districts compete on the level of beginning bachelor’s degrees, but concluded that it appears that districts compete on different levels such as master’s degree teachers or experienced teachers.

In order to understand better how districts compete for teachers, studies on district revenue and teachers’ salaries have been conducted. Studies on district revenue potential and teachers’ salaries have shown that teacher salaries at all levels are significantly related to the salaries of contiguous districts (Kirby, Holmes, Matthews, & Watt, 1991). A relationship has been found between property wealth and teachers’ salaries, and it has been suggested that raises in teachers’ salaries are related factors such as pay increases of contiguous districts and local property wealth.

The review focuses on literature and research relevant to district revenue and teachers’ salaries in Georgia that has been written since 1985, and builds upon the literature from a similar study done by Watt (1989). Some of the sources used by Watt (1989) prior to 1985 have been re-reviewed that are related to the area of revenue because they provide rationale for the original study, and subsequently, other related studies. The
relationship between revenue and teachers’ salaries that has been shown in this review should further be compared with revenue per full time equivalent (FTE) pupil.

Summary of Procedures

This study used data collected from school districts that indicate the pay of teachers at eight degree-experience levels on the salary schedule: (a) beginning bachelor’s, (b) experienced bachelor’s, (c) beginning master’s, (d) experienced master’s, (e) beginning educational specialist’s, (f) experienced educational specialist’s, (g) beginning doctor’s degree, and (h) experienced doctor’s degree. These salaries were compared to the neighboring school districts at each degree-experience level.

Salary data for the 2002-2003 school year was obtained from each of the 21 selected public school districts in the state of Georgia. Revenue and FTE count were collected from the Georgia Department of Education. The revenue per pupil was computed by dividing the total revenue by the FTE count as reported to the State. The revenue per FTE pupil of districts paying more than predicted was compared with districts that pay less than predicted. A one-way ANOVA test was then performed on each of the two groups at the 0.05 significance level. The null hypotheses were that there are no differences in the revenue per FTE pupil of districts paying higher teacher salaries than predicted and those paying lower than predicted.

The salary data was collected from a survey that was mailed to each of the school districts in selected Georgia counties. They were requested to supply the minimum and maximum salaries at the bachelor’s, master’s, education specialist’s, and doctor’s degree levels in their districts. If the district did not wish to fill out a survey, they could submit a copy of their salary schedule. When a school district did not supply the requested
information, follow up requests by phone contacts and email was made. The salary data examined came from the 2002-2003 school year.

The revenue per FTE pupil data of school districts was collected from the Georgia Department of Education. The revenue per FTE pupil is the total amount of revenue a school district receives divided by the number of FTE pupils. Although this measure does not take into consideration variation in state aid per FTE pupil, any possible distortion is considered to be minimal.

To predict a district’s teacher salary for each degree and experience level, the mean teacher salary of contiguous districts and the actual salary paid by the district were plotted for all school districts in the selected Georgia counties. The mean salary of contiguous districts was represented as the x-coordinate, and the actual salary paid by the district was represented by the y-coordinate.

Regression lines were generated between the salaries of individual districts and the mean salaries of their neighboring districts on the levels of degree earned and experience. School districts that fall above the regression line have higher salaries than predicted from the average of their neighboring school districts, and school districts that fall below the regression line have lower salaries than predicted from the average of their neighboring school districts. A total of eight regression lines were generated: (a) beginning bachelor’s, (b) experienced bachelor’s, (c) beginning master’s, (d) experienced master’s, (e) beginning educational specialist’s, (f) experienced educational specialist’s, (g) beginning doctor’s degree, and (h) experienced doctor’s degree. A one-way analysis of variance (ANOVA) test was performed on revenue per FTE pupil of the school districts falling above the regression line and the revenue per FTE pupil of the school
districts falling below the regression line for each of the degree and experience levels. The tests were performed at the 0.05 significance level.

Summary of the Findings

The following are the findings, which represent the results of the testing of the null hypotheses presented in the study. Complete descriptions of the findings are presented in Chapter IV.

H₀:1. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning bachelor’s degree teachers. The null hypothesis was rejected because the probability found was 0.014.

H₀:2. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced bachelor’s degree teachers. The null hypothesis was rejected because the probability found was 0.006.

H₀:3. There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning master’s
degree teachers. The null hypothesis was rejected because the probability found was 0.041.

**H0:4.** There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced master’s degree teachers. The null hypothesis was not rejected, but questionable because the probability found was 0.051.

**H0:5.** There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for beginning educational specialist’s degree teachers. The null hypothesis was rejected because the probability found was 0.014.

**H0:6.** There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced educational specialist’s degree teachers. The null hypothesis was not rejected, but questionable because the probability found was 0.051.

**H0:7.** There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than
predicted for those paying teachers salaries lower than predicted for beginning doctor’s
degree teachers. The null hypothesis was rejected because the probability found was 0.041.

H0: There will be no statistically significant difference in revenue per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted for those paying teachers salaries lower than predicted for experienced doctor’s degree teachers. The null hypothesis was not rejected because the probability found was 0.243.

The findings show that five of the eight degree-experience levels tested were found to have a statistically significance difference. It is important to note that these represent the lower end of the teacher salary scale. One of the eight clearly had no statistically significant difference. This was the experienced doctor’s degree level that is the highest degree-experience level studied.

All four of the hypotheses that pertained to beginning level salaries were found to have statistical significance. Only one of the experienced degree-experience levels, experienced bachelor’s degree, was found to have a statistical significance. The other three experienced degree-experience levels were found to have no statistical significance or were questionable.
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6min = Beginning Educational Specialist's Salary
6max = Experienced Educational Specialist's Salary
7min = Beginning Doctor's Degree Salary
7max = Experienced Doctor's Degree Salary
Discussion

The salary of beginning teachers is very important in the determination of the teacher salary schedule. The literature suggests that salary plays an important role in the recruitment of quality individuals into the teaching profession, and then in the competition for quality teachers by individual school districts.

The findings show that five of the eight degree-experience levels tested were found to have a statistically significance difference. It is important to note that these represent the lower end of the teacher salary scale. One of the eight clearly had no statistically significant difference. This was the experienced doctor’s degree level that is the highest degree-experience level studied.

The remaining two degree-experience levels, experienced master’s and experienced specialist’s are also at the higher end of the teacher salary schedule. Although these two degree-experience levels were found to have no statistical significance, the test value of 0.051 at the 0.05 level can be considered borderline. Thus, the statistical significance of difference in these degree-experience levels is questionable. Although these two null hypotheses were rejected, the mean for the higher group at each degree-experience level is still greater than the mean for the lower group.

The State of Georgia sets a salary scale for all districts relatively high in comparison to the salaries actually paid. This is most prevalent at the upper ends of the teacher salary schedule where there is less percentage difference in teachers’ salaries across the districts studied.

The higher the degree-level, the lower the local supplement is as a percentage of the total salary paid. When the local supplements at the degree-experience levels
experienced bachelor’s and experienced doctor’s are compared, 13 of the 21 districts’ supplements decrease as a percentage of the total salary paid, five stay the same, but only three increase. Eight of the districts paid an additional local supplement of $100 or less from the Educational Specialist degree level to the Doctors’ degree level, and five do not pay any additional local supplement. This results in the maximum salaries at the Master’s, Specialist’s, and Doctor’s degree levels to approach equalization across the districts studied. In fact, the minimum required salary was the salary actually paid in one of the districts that was studied (table 10, Appendix C).

The base salary scale set by the state of Georgia is set relatively high when compared to the salaries that are actually paid by the local districts. It is possible that Georgia may require the districts to pay more than the districts otherwise would be willing to compensate their teachers. This may lead to an artificially high salary scale in some districts because pay required by the state may be above the minimum that they otherwise would be willing to pay.

Conclusions

The overall results of this study support the literature in the area of revenue and teachers’ salaries. The first conclusion that can be drawn from the findings is that school districts in selected Georgia counties that pay higher beginning teachers’ salaries than their neighbors have higher revenue per FTE than school districts that pay lower than their neighbors. This supports the literature that suggests entry-level teacher salary is very important in the recruitment of teachers and the formulation of the teacher salary schedule. Matthews’ (1979) found that the local wealth had a statistically significant, independent relationship with the salaries paid to beginning teachers, and it is assumed
that this is an indicator of the willingness and ability of a school district to pay teachers. Beginning salaries for teachers were found to have a statistically significant, independent impact on the cost of education indices (Matthews, 1979).

This finding is consistent with the literature that indicates that poor salaries are one of the reasons that individuals are not attracted to the teaching profession. Therefore, districts may compete for teachers at the entry level in order to contend with jobs outside of teaching. Districts also compete for teachers through salary and other financial benefits such as scholarships and forgivable loans (Bolisch, 2001). Bird (1989) found that those who set the salary schedule can help to improve both the quantity and quality of teachers available by providing earnings, at beginning and other stages of a teaching career, that are competitive with those in other occupations. In order to provide for enough qualified teachers, Bird (1989) concluded that teacher salaries must be competitive with comparable non-teaching jobs.

The literature further indicated that improved entry-level salary rankings were associated with districts recruiting a large share of advanced degree candidates. This resulted in neighboring districts competing to improve the salaries of their advanced degree entry-level candidates (Jacobsen, 1989). Murnane and Olsen (1989) found that a teacher’s first employment is highly sensitive to salary. Thus, this should have considerable relevance in determining the teacher salary scale.

The second conclusion that can be drawn is that school districts in selected Georgia counties that pay experienced teachers with advanced degrees higher salaries than their neighbors do not have statistically significant higher revenue per FTE than school districts that pay experienced teachers lower than their neighbors. This supports
the literature that suggests that teachers with experience are less sensitive to salary
differences than beginning teachers.

Jacobsen (1989) found that teachers with prior experience have shown to be less
responsive to changes in entry-level wages (Jacobson, 1989). Similarly, Matthews and
Holmes (1982) concluded that experienced teachers are not likely to relocate because of
salary differences, and beginning teachers are more likely to be affected by salary
differences. Teachers are more likely to move because of characteristics of the students
such as income, race, and achievement rather than because of salary (Hanushek, Kain, &
Rivkin, 1999).

Chambers (1981) further supports this conclusion. He reported that school
districts recognize teachers are more likely to remain in a district for an extended period
of time rather than being employed on a year-to-year basis. The main reason for this is
that seniority is generally not transferable to other districts. Additionally, teachers are
usually subjected to the rule that the last hired is the first fired or involuntarily transferred
(Chambers, 1981).

The findings of this study only partially support the findings of a similar study
done by Watt (1989). He found that there was a statistically significant difference in
property wealth for school districts paying higher salaries than predicted from the salaries
paid in neighboring districts when compared to those paying lower teacher salaries than
predicted. This was found to be true for both beginning and experienced teachers at all
eight degree-experience levels. He concluded that during the 1988-89 school year, school
districts paying higher salaries than predicted from the salaries paid in neighboring
districts do have higher property wealth per pupil than those paying lower teacher salaries than predicted from the salaries paid in their neighboring districts.

Recommendations for Further Study

Further studies should be conducted concerning the determination of teachers’ salaries. Because of the inconsistent results between the lower and higher ends of the degree-experience levels, further study is needed to determine exactly what role degree and experience level play in salary determination.

The school funding arrangements of Georgia and other states should be examined as well. Further studies to determine the role of salaries paid in other districts and local wealth in the decision-making process should be conducted in the future.

A study should be conducted to determine if those districts with the greatest ability do pay the highest salaries to teachers. Further studies should be conducted at all experience-degree levels to determine what factors most influence the salary of teachers. This study should be replicated across the entire state of Georgia and in other states as well. Other areas besides revenue that should be studied are revenue potential per FTE, personal income per FTE, and tax rates, and the relationships between these and revenue per FTE should be examined.

Applications of the Findings

The applications of the findings are as follows:

1. The results obtained from this study add to the knowledge about teacher salary decisions.
2. The conclusions that are drawn from this study may influence the educational financing policies of Georgia and other states. In particular, it may influence the future design of cost-related indices designed to promote finance equity.

3. Results of this study may show that state aid formulas must consider local district revenue in order to develop a fair distribution of state funds.
REFERENCES


$Y = 10534.8 + 0.660126X$

$R^2 = 0.136$

Figure 2. Regression for Beginning Bachelor’s Degree Salaries
\[ Y = 17801 + .61152X \]

\[ R-Sq = .108 \]

Figure 3. Regression for Experienced Bachelor’s Degree Salaries
\[ Y = 7921.30 + 0.777220X \]

\[ R-Sq = 0.198 \]

Figure 4. Regression for Beginning Masters’s Degree Salaries
$Y = 7406.89 + 0.858611X$

R-Sq = 0.198

Figure 5. Regression for Experienced Master’s Degree Salaries
$Y = 8641.66 + 0.784819X$

R-Sq = 0.212

Figure 6. Regression for Beginning Educational Specialist’s Degree Salaries
\[ Y = 8152.61 + 0.862151X \]

R-Sq = 0.199

Figure 7. Regression for Experienced Educational Specialist’s Degree Salaries
Figure 8. Regression for Beginning Doctor’s Degree Salaries

\[ Y = 10391.3 + 0.766560X \]

R-Sq = 0.198
Figure 9. Regression for Experienced Doctor's Degree Salaries
APPENDIX B
Table 3

Analysis of Data for Null Hypothesis 1: Beginning Bachelor’s Level

Analysis of Variance

<table>
<thead>
<tr>
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Individual 95% CIs For Mean
Based on Pooled StDev

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<th></th>
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</thead>
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<td>12</td>
<td>1956.3</td>
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<td>(-----------*--------)</td>
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Pooled StDev = 724.8

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Analysis of Data for Null Hypothesis 2: Experienced Bachelor’s Level

Analysis of Variance

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Individual 95% CIs For Mean Based on Pooled StDev

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<td>13</td>
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1800 2400 3000 3600
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Analysis of Data for Null Hypothesis 3: Beginning Master’s Level

Analysis of Variance

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Individual 95% CIs For Mean Based on Pooled StDev

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Pooled StDev = 761.9
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Analysis of Data for Null Hypothesis 4: Experienced Master’s Level

Analysis of Variance

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Individual 95% CIs For Mean Based on Pooled StDev

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Analysis of Data for Null Hypothesis 5: Beginning Specialist’s Level

Analysis of Variance

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Individual 95% CIs For Mean

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Analysis of Data for Null Hypothesis 6: Experienced Specialist’s Level

Analysis of Variance

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Individual 95% CIs For Mean Based on Pooled StDev

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Table 9

Analysis of Data for Null Hypothesis 7: Beginning Doctor’s Level

Analysis of Variance

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Individual 95% CIs For Mean Based on Pooled StDev

| N   | Mean | StDev | ---------+---------+---------+------- |
|-----|------|-------|---------+---------+---------+-------|
| 9   | 2746.0| 918.9 | (----------*----------) |
| 12  | 2011.1| 623.4 | (--------*--------) |

Pooled StDev = 761.9

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Table 10

Analysis of Data for Null Hypothesis 8: Experienced Doctor’s Level

Analysis of Variance

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Individual 95% CIs For Mean Based on Pooled StDev

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Pooled StDev = 821.6

2000   2500   3000
APPENDIX C
Table 11

Salary and Local Supplements of Districts Studied

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<th>SYSTEM NAME</th>
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<th>5MIN</th>
<th>5MAX</th>
<th>6MIN</th>
<th>6MAX</th>
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<th>7MAX</th>
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<td>30721</td>
<td>44872</td>
<td>35330</td>
<td>51581</td>
<td>39923</td>
<td>58310</td>
<td>44314</td>
<td>64723</td>
</tr>
<tr>
<td>(Local Supplement)</td>
<td>1462</td>
<td>2137</td>
<td>1682</td>
<td>2436</td>
<td>1901</td>
<td>2777</td>
<td>2110</td>
<td>3082</td>
</tr>
<tr>
<td>(% of total salary)</td>
<td>4.76%</td>
<td>4.76%</td>
<td>4.76%</td>
<td>4.72%</td>
<td>4.76%</td>
<td>4.76%</td>
<td>4.76%</td>
<td>4.76%</td>
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<tr>
<td>Barrow County</td>
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<td>(Local Supplement)</td>
<td>1000</td>
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<td>2200</td>
<td>1200</td>
<td>2000</td>
<td>1200</td>
<td>2200</td>
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<tr>
<td>(% of total salary)</td>
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<td>4.47%</td>
<td>3.44%</td>
<td>4.28%</td>
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<tr>
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<td>(Local Supplement)</td>
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<td>4.71%</td>
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<td>(Local Supplement)</td>
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<td>1.46%</td>
<td>3.39%</td>
<td>1.55%</td>
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