DOCUMENT RESUME

ED 318 710 SP 032 227

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TITLE An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1989 Update. Research Report.
INSTITUTION Southeastern Educational Improvement Lab., Research Triangle Park, NC.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 90
CONTRACT 400-86-0007
NOTE 51p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Career Choice; *College Graduates; Comparative Analysis; Higher Education; Teacher Employment; *Teacher Salaries; *Teaching (Occupation)

ABSTRACT

Based on data compiled from the U.S. Census Bureau "Current Population Survey" (March 1989), this report compares the average annual earnings of teachers to the average annual earnings of college graduates in full-time, salaried, nonteaching positions in six states: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina. In addition to comparing average earnings, the report presents several other comparisons between teachers and other college educated workers, e.g., executives, administrators, and managerial supervisors. One of the comparisons concerns the growth of earnings throughout a career. Individuals considering an occupation are interested in how they will be rewarded for increased experience. Another comparison is made of the distribution of earnings by age for teachers and for other college educated workers. The relationship between low teacher salaries and the dwindling pool of teachers is discussed. This report is the sixth in a series of annual analyses of wage comparability. (JD)

08-017

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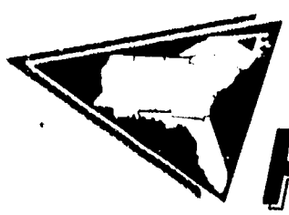

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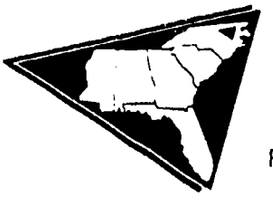

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This publication is based on work sponsored wholly, or in part, by the Office of Educational Research and Improvement of the United States Department of Education, under Contract Number 400-86-0007. The content of this publication does not necessarily reflect the views of the Office of Educational Research and Improvement, the Department, or any other agency of the U.S. Government.

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Executive Summary

An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1989 Update

by Joseph F. Haenn and Ronald E. Bird

Despite increases in teacher salaries over the last six years, the earnings of teachers compared to those of other college graduates in the Southeast have changed very little. Policymakers can help improve both the quantity and quality of available teachers by providing earnings, at all stages of a teaching career, that are competitive with those in other occupations.

Based on data compiled from the latest U.S. Census Bureau's Current Population Survey (March 1989), this report compares the average annual earnings of teachers to the average annual earnings of college graduates in full-time, salaried, nonteaching positions in the six states (Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina) served by the Southeastern Educational Improvement Laboratory (SEIL). This report is the sixth in a series of annual analyses of wage comparability studies.

Public school teacher salaries in the Southeast, especially those of beginning teachers, have risen steadily during recent years. Although average teacher salaries have increased by $8,535 from the 1982-83 school year to the 1988-89 school year, the earnings of other college-educated workers also have been increasing. The average for other college-educated workers has increased by $8,446 during this period; thus, the net gain for teachers is only $89. In percentage terms, teachers have moved from earning 64.8 percent of the earnings of other college-educated workers in 1982-83 to 73.5 percent in 1988-89.

Table 1 shows that while the average teacher in the Southeast earned a salary of $25,920 during the 1988-89 school year, other college-educated workers are projected to earn over 35 percent more than teachers. The average income difference of more than $9,300 per year may be a strong disincentive for

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Table 1
Growth of Average Earnings of Teachers and Nonteachers in the Southeast

	School Year						
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Teachers	$17,385	$18,288	$20,489	$22,128	$23,637	$24,543	$25,920
Other College-Educ. Workers	$26,828	$27,753	$29,688	$31,019	$32,674	$33,583	$35,274*

*Estimated value based on income growth trend of 1982-1987 data.

Sources: American Federation of Teachers, Survey and Analysis of Salary Trends, 1989 and U. S. Bureau of the Census, Current Population Survey, machine-readable data file, March 1983-1989.

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attracting many competent persons into the teaching profession. It also may encourage talented teachers to leave the teaching profession for other careers.

In addition to comparing average earnings, this report presents several other comparisons between teachers and other college-educated workers. One important comparison is the growth of earnings throughout a career because individuals considering an occupation are interested in how they will be rewarded for increased experience. Table 2 presents a comparison of the distribution of earnings by age for teachers and other college-educated workers. Although the earnings of teachers in the age 20-29 category lag by $5,579, the gap is at least twice as large for every other 10-year age group. By the time teachers are in the preretirement 50-59 age category, they earn an average of almost $13,000 less per year than other college-educated workers in the Southeast.

Table 2
Comparison of Earnings of Teachers and Other College-Educated Workers in the Six Southeastern States by Age, 1988

Age Cohort:	20-29	30-39	40-49	50-59	60+
Teachers	$17,527	$21,164	$26,414	$26,394	$32,452
Other College-Educated Workers	$23,106	$32,319	$40,913	$39,217	$44,200
Difference	$ 5,579	$11,155	$14,499	$12,823	$11,748

Source: U.S. Census Bureau, Current Population Survey, March 1989.

When the average earnings of teachers are compared with those of college graduate salaried workers in other occupations, teachers fare especially poorly. They earn an average of almost $17,000 per year less than persons in the occupational category of Executives, Administrators, and Managerial Supervisors. Teachers earn almost $13,000 annually less than those in Sales Occupations. When compared to employees in the Professional Services category (where public school teachers are placed), teachers earn an average of almost $12,000 less per year. Teachers even earn over $750 less per year than the category of Technical, Clerical, and Other Workers despite the fact that many occupations in this category do not require a college degree. When compared to other specific occupations, public school teachers also earn less each year on the average than: postsecondary teachers (almost $16,000 less); salaried accountant/auditors (almost $10,000 less); math and computer scientists (almost $6,000 less); and government employees except teachers (over $6,500 less).

Lower salaries for teachers have been justified by some policymakers because most teacher contracts are only for 10 months or less of the year. However, as illustrated by Table 3, even after adjusting the earnings of other college-educated workers to reflect a 10-month period, the average teacher earns significantly less. Across the southeastern states, average teacher earnings in 1988 were between 80.5 and 94.5 percent of the average earnings of other college-educated workers even when adjusted on a 10-month basis. On a 12-month

Table 3
Comparison of Average Earnings of Teachers and Other College-Educated Workers by State, 1988

	AL	FL	GA	MS	NC	SC
Teachers*	$23,320	$25,198	$25,736	$20,562	$24,900	$24,403
Other College-Educated Workers**						
10-month salary	$28,968	$29,090	$30,867	$24,831	$26,870	$25,812
12-month salary	$34,761	$34,908	$37,040	$29,797	$32,244	$30,975

*American Federation of Teachers, Survey and Analysis of Salary Trends, 1989.

**U.S. Census Bureau, Current Population Survey, March 1989.

basis, teachers earned only 67.1 to 78.8 percent of the income of other college-educated workers, with a regional average of 67.9 percent.

Average annual salaries for the 1990-91 school year that are competitive with the earnings of other college-educated workers were computed for each of the six states served by the Southeastern Educational Improvement Laboratory. These average salaries, based on projections from Census Bureau data of the average earnings potential in other occupations employing college-educated workers, are presented in Table 4. Both 10-month and 12-month state average competitive teacher salaries are presented. For those states that base teacher salaries on the regional average, the averages for the Southeast also are provided.

Table 4
Competitive Average Teacher Salaries for 1990-91, by State and Region

	AL	FL	GA	MS	NC	SC	South-east
10-month	$31,217	$31,262	$31,438	$30,210	$31,255	$30,849	$31,153
12-month	$37,461	$37,514	$37,725	$36,251	$37,506	$37,019	$37,384

Table 5 provides a teacher pay schedule for the 1990-91 school year that would make teacher salaries competitive with the earnings opportunities of college-educated workers in the Southeast. The figures are based on an analysis of growth in earnings using the March 1982-March 1988 Census Bureau data for college graduates in full-time, salaried, nonteaching positions in the Southeast. For each cell in the table, the top figure (in boldface) is based on average earnings for a 10-month period, the length of a typical teaching contract. The bottom figure is based on earnings for a 12-month period.

Table 5
Competitive Teacher Salary Scale in the Southeast for 1990-91

Education Level	Years of Experience						
	0	5	10	15	20	25	30
B.S./B.A.	**$18,881**	**$23,199**	**$26,859**	**$29,864**	**$32,211**	**$33,903**	**$34,938**
Only	$22,658	$27,838	$32,231	$35,836	$38,654	$40,683	$41,925
B.S./B.A.	**$19,519**	**$23,837**	**$27,498**	**$30,502**	**$32,850**	**$34,541**	**$35,576**
+18 hours	$23,423	$28,604	$32,997	$36,602	$39,420	$41,449	$42,691
M.S./M.A.	**$20,158**	**$24,475**	**$28,136**	**$31,140**	**$33,488**	**$35,179**	**$36,214**
completed	$24,189	$29,370	$33,763	$37,368	$40,185	$42,215	$43,457
M.S./M.A.	**$21,009**	**$25,326**	**$28,987**	**$31,991**	**$34,339**	**$36,030**	**$37,065**
+24 hours	$25,210	$30,391	$34,784	$38,389	$41,206	$43,236	$44,478
Doctorate	**$21,434**	**$25,751**	**$29,412**	**$32,416**	**$34,764**	**$36,455**	**$37,490**
completed	$25,721	$30,902	$35,294	$38,900	$41,717	$43,747	$44,988

To achieve these competitive levels of teacher salaries would require a substantially increased investment in educational funding. For teachers in the Southeast to reach parity in earnings on a 10-month basis (83.3 percent parity) would cost more than $405 million across the region. To achieve full earnings parity with other college-educated workers (i.e., earnings on a 12-month basis) would cost over $2.5 billion. The estimated costs to achieve different levels of earnings parity by state are presented below in Table 6.

Table 6
Estimated Additional Annual Expenditures Necessary to Reach Various Teacher Pay Parity Targets

	80 Percent Parity	90 Percent Parity	100 Percent Parity
Alabama	$ 76,141,220	$207,260,449	$338,379,678
Florida	$ 25,067,167	$363,295,009	$701,505,102
Georgia	$ 27,122,547	$241,000,346	$454,878,144
Mississippi	$101,416,629	$191,333,644	$281,250,659
North Carolina	$ 95,428,476	$305,471,224	$515,513,970
South Carolina	$ 63,889,762	$184,260,684	$304,631,607
Regional Totals	$386,165,623	$1,489,377,087	$2,592,588,549

Acknowledgements

SEIL acknowledges the contributions of many persons for the development of this report. We especially thank those persons who served as external reviewers of this document. John Coulson, SEIL's institutional liaison at the Office of Educational Research and Improvement (OERI) of the U.S. Department of Education, provided many useful comments. Bill Deaton, associate dean of education at Auburn University, provided feedback based on a technical review of the draft document. Mary Greene, a government relations specialist, South Carolina Education Association, reviewed the draft document, providing a practitioner's point of view.

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An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1989 Update

by Joseph F. Haenn and Ronald E. Bird

Introduction

The amount of money that a teacher can earn strongly affects the ability of public school systems to attract and retain adequate numbers of qualified professionals to teach the children in the Southeast. Of course, there are other factors that attract persons into teaching, such as a need to help others, love of subject matter, desire to work with young minds, job security, etc. However, to attract and retain truly good teachers, states in the region must make teachers' salaries competitive with the earnings opportunities of college graduates in other occupations. "Competitive" means approximately equal in average income and career earnings growth potential. For schools to attract and retain outstanding teachers--that is, persons of greater talent than the average college graduate--schools may have to pay salaries that are even higher than the earnings opportunities of the average college graduate. Otherwise, more highly qualified persons may seek nonteaching alternatives because of higher earnings potential.

At the heart of the issue is the question: How much compensation is really enough? What absolute amount of money do teachers have to be offered today to be comparable with the earnings opportunities available to them in other occupations? The purpose of this research is to determine what amounts teachers need to be paid to make their salaries equivalent to the earnings of college graduates with similar education and work experience in other occupations in the six southeastern states.

This report describes an analysis of data derived from the U.S. Census Bureau's Current Population Survey (CPS), March 1989, the American Federation

of Teachers' Survey and Analysis of Salary Trends, 1989, and other sources to provide an update of information regarding the comparability of public school teacher salaries in southeastern states to the earnings opportunities of similarly educated persons in other occupations.

There are additional considerations that should be taken into consideration in the final development of any policy aimed at ensuring that teacher salaries are sufficient to attract and retain qualified teachers for our children. This report only addresses one of these issues (i.e., wage comparability) and does not provide a comprehensive look at the entire issue of teacher compensation. This paper also does not address issues such as beginning teacher salaries, the nature of the teacher labor market, the quality of the teaching force, teacher fringe benefits, supplemental earnings of teachers, or the economic feasibility of implementing competitive teacher salaries.

The Southeastern Educational Improvement Laboratory (SEIL) and other organizations have addressed many of these issues in other reports. For example, a recent study of the supply side of the teacher labor market sponsored by SEIL (Cartledge and Halverson, 1989) reported that a much smaller percentage of newly hired teachers in the Southeast are new college of education graduates. This same study also found that, although teacher turnover rates have increased only slightly, the percentage of new teachers being hired are even higher. This is due, at least in part, to the increased demand for additional teachers created by the implementation of new educational reforms. In other words, the supply of new teachers graduating from colleges of education is less than the demand for new teachers, forcing a much larger percentage of the newly hired teachers to be hired out of a dwindling reserve pool of teachers. One policy initiative that could help reverse this trend is

to increase the attractiveness of the teaching profession by making teacher salaries more competitive with the earnings of other college-educated workers.

It should be noted that because the sample size of the observations reported here is determined by the U.S. Census Bureau's Current Population Surveys, the number of teachers in the sample is limited. Although a regional sample size of over 200 teachers provides an adequate estimate of teacher earnings, we have chosen to use the higher average teacher salaries estimated by the American Federation of Teachers in its annual survey of teacher salaries. Because these estimates are higher, they provide a more conservative estimate of the discrepancy between the earnings of teachers and other college-educated workers.

This report is the sixth in the series on teacher wage comparability sponsored by the Southeastern Educational Improvement Laboratory and its predecessor organization, the Southeastern Regional Council for Educational Improvement. Except for minor refinements in data definitions and analytical format, this report follows the methods and approaches described in the earlier reports in the series. Data analysis is confined to the six states served by the Southeastern Educational Improvement Laboratory: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina.

Background

The southeastern states have made progress in the improvement of teacher salaries in recent years. Table 1 shows the increase of teacher salaries between the 1982-83 and 1988-89 school years for each of the six states served by Southeastern Educational Improvement Laboratory. Average teacher salaries have risen from $17,385 in 1982-83 to $25,920 during the 1988-89 school year.

The overall growth has been at an average annual rate of over 8.18 percent for the region. If this growth trend continues, average teacher salaries in the region will reach $30,334 by the 1990-91 school year.

While the increase in teacher salaries has been significant, almost half of the increase has been offset by inflation of consumer prices. In real terms (i.e., adjusted for inflation), teacher salaries have grown at an average rate of only 4.37 percent.

Table 1
Average Annual Teacher Salaries
in the Six Southeastern States

	School Year						
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Alabama	$17,850	$18,600	$20,295	$22,934	$23,500	$23,320	$25,190
Florida	$18,275	$19,497	$20,836	$22,250	$23,833	$25,198	$26,971
Georgia	$17,412	$18,631	$20,606	$23,046	$24,632	$25,736	$26,920
Mississippi	$14,320	$15,012	$15,924	$18,472	$19,448	$20,562	$22,579
North Carolina	$17,585	$18,311	$20,812	$22,476	$23,775	$24,900	$25,650
South Carolina	$16,523	$17,384	$20,143	$21,428	$23,201	$24,403	$25,060
Region	$17,385	$18,288	$20,489	$22,128	$23,637	$24,543	$25,920

Source: American Federation of Teachers, Survey and Analysis of Salary Trends, 1989. Regional Composite computed as weighted average of state amounts using numbers of teachers in each state as weights.

Rising teacher salaries, even with inflation adjustments, might have improved the chances of attracting and retaining excellent teachers. However, these modest increases have been offset by the increasing earnings opportunities for college graduates in other occupations. Based on data compiled for

this study and compared to the average annual 8.18 percent increase in average teacher salaries, the earnings of college-educated workers in other occupations in the Southeast have risen at an average annual rate of 5.04 percent. In absolute terms, teacher salaries have risen by only 3.14 percentage points over the earnings of other college-educated workers during the past six years.

Furthermore, the magnitude of the average annual growth rate for teacher salaries during the past six years was largely influenced by the 12 percent increase in teacher salaries between 1983-84 and 1984-85. Since then, the annual growth rate of teacher salaries has declined steadily, with the exception of an upturn for 1988-89. The gains in average teacher salaries were smaller every year from 1984-85 to 1987-88. These increases were 8 percent from 1984-85 to 1985-86, 6.8 percent from 1985-86 to 1986-87, 3.8 percent from 1986-87 to 1987-88, but 5.6 percent from 1987-88 to 1988-89.

Despite some real growth in salaries, teachers remain at an earnings disadvantage compared to other college-educated workers. This disadvantage may negatively impact the quantity and quality of teachers. Focusing only on the percentage growth of teacher salaries without looking at comparative growth misses the heart of the issue.

Sample Data

The analysis presented in this report is based upon data compiled from the U.S. Bureau of the Census, Current Population Survey (CPS), which is conducted on a monthly basis and reported annually each March. The CPS data reflect the earnings experience of survey participants for the prior 12 months and are reported to the public the following March. The most recent data available for analysis were collected through March 1988 and published in March 1989. These

data provide estimates of unemployment, employment trends, and household income for federal economic policy and information purposes. About 56,500 households, "...scientifically selected on the basis of area of residence to represent the nation as a whole" (U.S. Bureau of the Census, 1989, p. 5), were surveyed from all 50 states. All categories of educational attainment, occupation, age, and employment status were included in the sample.

Use of these CPS data for this series of salary analyses is advantageous for several reasons. First, because the survey is reported annually, it enables the analysis of earnings of nonteacher college graduates to be updated each year, providing policymakers with forecasts of competitive salary levels based on actual (and current) Census data. Second, the CPS data are representative of all households and workers, both nationally and regionally. The size of the total regional sample (N = 1,378 observations) ensures statistically significant estimates of earnings by occupation, educational attainment, and age. Third, each observation is reported by state of residence so that recommendations can be adjusted to reflect any significant differences among states within the region. Finally, each observation has a three-digit occupation identification code for each respondent, which allows for comparisons of earnings across major categories of college-educated workers.

Sample Characteristics

This report is based on a subset of the national sample that describes full-time, college-educated workers in the six southeastern states served by the Lab. As in previous reports in this series, the data set was analyzed in terms of the average earnings of teacher and nonteacher college graduates relative to age, education, residence (urban versus rural), gender, and race.

From the March 1988 CPS data tape (released in March 1989), all observations were extracted of workers who met the following criteria:

* Resided in Alabama, Florida, Georgia, Mississippi, North Carolina, or South Carolina.
* Was 21 to 65 years of age.
* Was employed on a wage or salary basis--not self-employed.
* Completed at least a four-year college degree.
* Worked at least 40 weeks and an average of at least 35 hours per week during the previous year.

Persons under 21 and over 65 years of age were excluded from the data set because their labor market participation patterns are heavily influenced by factors not relevant to the concerns surrounding the teacher labor market.

Individuals who reported self-employment earnings as their principal source of income were excluded from the data set because their earnings include an implicit compensation for risk bearing and a return of self-supplied capital. Because of these additional elements, the earnings of self-employed individuals cannot be compared easily to the earnings expectations for salaried positions such as those of public school teachers.

The coding of the data in the CPS file lists years of education on a scale that indicates attendance in the 12th grade of high school as 13 and attendance of four years of college as 17. Answering a separate question, respondents indicated whether or not they completed the highest grade attended. Only observations showing completion of 17 or more years of education were included in the data set. Therefore, observations were excluded if the subject claimed 17 years of education but responded negatively to the question regarding completion of the highest grade attended. This procedure produced a data set that represents only actual college graduates. This restriction was adopted

because certified public school teachers are required to be college graduates in every southeastern state.

Persons who worked fewer than 40 weeks per year or less than an average of 35 hours per week were excluded because their labor force participation was deemed to be essentially part-time and substantially different from the behavior patterns and earnings opportunities of full-time workers. The data set was further refined to eliminate a number of observations (3 teachers and 18 nonteachers) that showed earnings relative to weeks and hours of work inconsistent with minimum-wage laws.

The result of the data compilation process was a data set of 1,180 observations of college graduates who were employed in occupations other than teaching during the year prior to March 1988 and 198 observations of college graduates who were employed as public school teachers. The observations were analyzed in terms of the following variables: occupational category, education, age, race, gender, residence by state and standard metropolitan statistical area (SMSA), number of weeks worked during the previous year, and average hours worked per week. Four broad occupational categories were defined as follows: Management (including executive, administrative, and managerial occupations, such as legislators, chief executive officers, accountants, and personnel specialists); Professional Services (including physicians, lawyers, engineers, social workers, clergy, and college professors); Sales Occupations (including brokers, agents, and sales representatives); and Technical, Clerical and Other Occupations (including equipment repair and maintenance workers, computer operators, secretaries, and all other occupations not included in the first three categories).

Data Limitations

Because the Census data used for this report are based on a survey of individuals, there are certain limitations and cautions that should be observed when analyzing them and interpreting the results. First, the survey is based on personal interviews of individual workers. Therefore, respondents' answers may be subject to errors of memory or misunderstanding.

Second, any sample is subject to random-sampling errors. That is, the characteristics of the sample may not truly match the underlying population. For example, the average of the earnings of college-educated workers in the sample may be different from the true population mean. The magnitude of such error becomes smaller as the sample size increases. The number of observations of teachers and other college-educated workers (i.e, nonteachers) in the study for each state are shown in Table 2. The sample size used for this report (1,378 observations) is large enough to provide highly reliable estimates of the characteristics of the underlying population at the regional level.

Table 2
Number of Observations in Sample

State	Teachers	Other College-Educated Workers
Alabama	10	84
Florida	63	445
Georgia	18	110
Mississippi	19	84
North Carolina	61	348
South Carolina	27	109
Total	198	1,180

These state sample sizes may be inadequate for independent inference of state-level teacher earnings in some states in the region. This caution especially applies to Alabama and Georgia because these states have the smallest teacher sample sizes relative to population. The teacher sample size for North Carolina greatly exceeds expectations in proportion to its population. These sampling anomalies occurred because the Census sampling frame was not based on sampling individual occupations. Also, overall sample sizes for Alabama and Mississippi are quite small, representing these states' smaller populations.

Because of the sample size limitations for some states, this report deals primarily with regional findings. State-level data obtained from an analysis of the CPS data are presented, where practical, only as a matter of interest and are subject to the caveat regarding sample size. Fortunately, inference of teacher earnings by state from the CPS data is not necessary because reliable information on teacher earnings is available from other sources, such as state education department records and the annual American Federation of Teachers' salary survey. The most recent AFT data (American Federation of Teachers, 1989) are used for most comparisons.

Another shortcoming of the data is the lack of a direct measure of years of work experience in the CPS data set. Human capital theory suggests that because of the increased productivity that is developed by on-the-job learning and practice, earnings should increase as a worker accumulates work experience (Becker, 1975, p. 16). Unfortunately, the CPS sample data do not include any information regarding years of experience in the current occupation or even in all occupations. For this reason, age is used as a proxy for experience in the following analyses since it is the only data point available in the CPS data set that relates to the experience factor.

Actual years of work experience may increase more slowly than chronological age because of periods of nonemployment for some workers. Such a bias in the data would exist only if teachers experienced significantly more time out of work than nonteachers, relative to age. Because the teaching profession is predominantly female, it might be reasonable to assume that teachers have fewer years of experience in the paid work force because women, on average, take more time away from paid work (i.e., have less tenure) than do men (Carey, 1988). However, "women with the greatest tenure generally [are] those who [pursue] traditional careers, such as elementary school teachers" (Carey, 1988, p. 5). In addition, the pattern of participation by females in the labor force "has now shifted to an inverted 'U' and thus is very similar to that for men," with the gap between men and women closing rapidly (Shank, 1988, p. 3). Even if there were a tenure bias, no data are available for making such a comparison of age/experience ratios in this present study, and no such adjustment was made for the analysis described in this report.

Data reported in previous reports in this series from the 1982 through 1987 CPS surveys were used in conjunction with the 1988 data to establish a time trend for the growth of earnings of nonteacher college graduates. This time trend was applied to the 1988 data to derive forecasts of earnings levels through 1991 in an effort to provide data relevant to the policy decisions that states need to make to set teacher salary levels for the 1990-91 school year. The report includes estimates of average salary levels, parity ratios between teacher salaries and nonteacher earnings, and increases in state expenditures necessary to bring teacher salaries up to 80 percent, 90 percent, and 100 percent parity with earnings of other college-educated workers.

Data Analysis

Table 3 summarizes the demographic characteristics of teachers and other college-educated workers in the 1988 CPS sample for the southeastern states. The data in Table 3 show that teachers and other college-educated workers are

Table 3
Demographic Characteristics

	Teachers (n = 198)	Other College-Educated Workers (n = 1,180)
Mean Age	38.2	38.3
Gender (% female)	76.8%	33.1%
Race (% black)	22.2%	12.7%
Residence (% rural)	36.9%	19.2%
Education(# years post BA)	.79	.64

Source: U. S. Census, Current Population Survey, March 1989.

similar in age and education levels. The major differences are found in the categories of gender, race, and place of residence. The teacher sample includes more female and black workers and more workers residing in rural areas than the general sample of college-educated workers.

The data in Table 3, compared with data from the five previous studies in the series (See Appendix A), illustrate a teacher population that is slightly younger and better educated, much more rural and female, and more frequently black than other college-educated worker populations in the region. Comparatively, the 1988 CPS sample of teachers from the Southeast is younger and less rural than in previous years.

Average Annual Earnings

Table 4 compares the growth of average earnings of college-educated workers in occupations other than teaching to the earnings of teachers. The nonteacher data were compiled from the CPS data for 1983-1988. The nonteacher earnings for 1989 through 1991 were estimated by adding the average annual growth rate of nonteachers' earnings for 1983-1988 (5.04 percent) to the data for 1987-88 and to each succeeding year. Likewise, the teachers' earnings for 1989-90 and 1990-91 were estimated by adding the average annual growth rate of teachers' earnings for 1982-83 through 1988-89 (8.18 percent) to the data for 1988-89 and the succeeding year.

By comparing the CPS data estimates of nonteacher earnings to the American Federation of Teacher estimates of teacher salaries in Table 4, one obtains an estimate of the deficiency of teacher salaries compared to the earnings opportunities of other college-educated workers. Despite the large percentage gains in teacher salaries since 1982-83, a significant pay gap remains. If recent trends continue, that gap is projected to close very slowly. The data analyzed here indicate a gap of over $9,300 per year for 1988-89, an earnings differential of more than 35 percent for nonteachers compared to teachers.

The earnings data for college-educated workers in the Southeast were analyzed for a number of specific categories of occupations. Table 5 shows the results of that analysis. The first column of the table shows the actual average earnings for each occupation from the March 1989 CPS data. These amounts represent earnings during the previous (1987-88) year. The figures in the second column ("1991") are estimates of earnings for March 1991 based on a projection of the 1983-1988 trends in earnings growth.

Table 4
Growth of Earnings of Teachers and Nonteachers
in the Six Southeastern States

	School Year								
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91
Other College-Educated Workers	$26,828	$27,753	$29,686	$31,019	$32,674	$33,583	$35,274[1]	$37,050[1]	$38,916[1]
Percent Change		3.45	6.97	4.48	5.34	5.04	5.04	5.04	5.04
Teachers	$17,385	$18,288	$20,489	$22,128	$23,637	$24,543	$25,920	$28,040[2]	$30,334[2]
Percent Change		5.19	12.04	8.00	6.82	3.83	5.61	8.18	8.18
Salary Deficiency	$ 9,443	$ 9,465	$ 9,199	$ 8,891	$ 9,037	$ 9,040	$ 9,354	$ 9,010	$ 8,582
Percent Change		0.23	-2.81	-3.35	1.64	0.03	3.47	-3.68	-4.75

[1]Estimated value based on average annual growth rate of other college-educated workers, 1982-1987.
[2]Estimated value based on average annual growth rate of teachers, 1982-83 through 1988-89.

Sources: American Federation of Teachers, Survey and Analysis of Salary Trends, 1989 (for teacher salary data 1982-83 through 1988-89) and U. S. Bureau of the Census, Current Population Survey, machine-readable data file, March 1983-1989 (other college-educated workers data).

Table 5
Average Earnings by Occupation Category
College Graduate Salaried Workers
Southeastern Region
Based on CPS Survey Data

	March 1988	Estimated 1991
Public School Teachers*	$22,807	$26,432
All Nonteacher College Graduate Salaried Workers	$33,583	$38,921
Executives, Administrators and Managerial Supervisors	$39,690	$45,999
Salaried Accountants/Auditors	$32,681	$37,876
Professional Services other than Teaching	$34,681	$40,193
Salaried Physicians	$57,410	$66,535
Salaried Lawyers	$48,957	$56,739
Postsecondary Teachers	$38,770	$44,932
Engineers	$40,379	$46,797
Math and Computer Scientists	$28,589	$33,133
Sales Occupations	$35,681	$41,352
Sales Representatives	$40,721	$47,194
Technical, Clerical, and Other	$23,526	$27,265
All Private-Sector Employees	$34,287	$39,737
Government Employees Except Teachers	$29,450	$34,131

*The estimate of teacher salaries for 1987-88 by the American Federation of Teachers was $24,543.

Source: U. S. Bureau of the Census, Current Population Survey, March 1989, machine-readable data file.

Physicians and lawyers lead the nonteacher group in earnings. The "Manager" category is a broad grouping of specific occupations including executive officers, office and program administrators, managers of operational facilities (e.g., a single store location) and management-related occupations. In the subcategory of management-related occupations, the accountant and auditor classification had an average income of $32,681. This may seem low unless one considers that there are noncertified types of accounting workers and auditors in addition to certified public accountants (CPAs). Many accounting and auditing jobs held by college graduates in government and industry involve less training and responsibility than that associated with CPAs.

The high earnings of persons in "Sales Occupations" ($35,681), particularly those in the subcategory of sales representatives ($40,721), are noteworthy because employers in these fields recruit persons with strong interpersonal skills. These characteristics also are associated with good teachers. If current trends continue, the earnings of persons in sales occupations will average $41,352 by March 1991.

The category of "Professional Services" is particulary noteworthy because it is the Census Bureau's occupational category that includes public school teachers. The average earnings of professional service workers other than public school teachers reported in March 1988 ($34,681) was significantly higher than average teacher salaries in the 1987-88 school year ($22,807).

Two occupational subcategory comparisons are appropriate since they generally employ persons with about the same levels and types of training. Postsecondary teachers earn an average of almost $16,000 more per year than public school teachers. On the average, government employees, except those who are teachers, earn $6,500 more per year than public school teachers.

Table 6 compares CPS data on the average earnings of nonteaching college graduates with AFT data on average teacher salaries for each southeastern state. The ratios of the earnings of teachers to those of nonteachers indicate that teacher salaries are not equivalent to 79 percent of the earnings of other college-educated workers in any state and are less than 70 percent in three states. This deficiency may have negative repercussions for teacher recruitment and retention in the Southeast. However, several states (e.g., South Carolina and Mississippi) demonstrated substantial increases in average teacher salary relative to the earnings of other college graduates from 1987 to 1988, reducing these ratios in those states.

Table 6
Comparison of Average Earnings of College Graduate Salaried Workers by State, 1988

	Teachers	Other College-Educated Workers	Difference	Ratio*	Change in Ratio 1987-88
Alabama	$23,320	$34,761	$11,441	.671	-.022
Florida	$25,198	$34,908	$ 9,710	.722	+.014
Georgia	$25,736	$37,040	$11,304	.695	-.067
Mississippi	$20,562	$29,797	$ 9,235	.690	+.076
North Carolina	$24,900	$32,244	$ 7,344	.772	+.011
South Carolina	$24,403	$30,975	$ 6,572	.788	+.103
Southeast	$24,543	$33,583	$ 9,040	.731	---

*Ratio = $\frac{\text{Teacher Salary}}{\text{Earnings of Other College-Educated Workers}}$

Sources: American Federation of Teachers, Survey and Analysis of Salary Trends, 1988 (teacher data) and U. S. Bureau of the Census, Current Population Survey, March 1989, machine-readable tape records (other college-educated workers).

CPS data also were analyzed for teachers and other college-educated workers in other regions (Table 7). Teacher earnings in this table were

Table 7
Comparison of Average Earnings of College Graduate Salaried Workers by Region, 1988

	Teachers	Other College-Educated Workers	Difference	Ratio*
Northeast (CT, ME, MA, NH, NY, RI, VT)	$29,339 [261]**	$36,592 [1,904]	$ 7,253	.802
Mid-East (DE, DC, MD, NJ, PA)	$27,053 [185]	$37,420 [1,495]	$10,367	.723
Appalachia (KY, TN, VA, WV)	$23,558 [74]	$35,025 [428]	$11,467	.673
Southeast (AL, FL, GA, MS, NC, SC)	$22,807 [198]	$33,583 [1,180]	$10,776	.679
North Central (IL, IN, IA, MI, MN, OH, WI)	$27,226 [240]	$36,998 [1,621]	$ 9,732	.736
Mid-Continent (CO, KS, NE, MO, WY, ND, SD)	$22,389 [192]	$32,024 [777]	$ 9,635	.699
Southwest (AK, LA, NM, OK, TX)	$22,959 [173]	$36,195 [829]	$13,236	.634
Northwest (AK, HI, ID, MT, OR, WA)	$27,074 [146]	$34,771 [639]	$ 7,697	.779
Far West (AZ, CA, NV, UT)	$29,304 [152]	$38,823 [1,234]	$ 9,519	.755
United States	$25,992 [1,621]	$36,135 [10,107]	$10,143	.719

*Ratio = $\frac{\text{Teacher Salary}}{\text{Earnings of Other College-Educated Workers}}$

**Numbers in brackets refer to the number of observations in the CPS data.

Source: U. S. Bureau of the Census, Current Population Survey, March 1989, machine-readable tape records.

computed using CPS data, not the AFT data included in the previous table. Regional average teacher earnings range from less than $23,000 in the southeastern, southwestern, and mid-continental regions to more than $29,000 in the Far West and the Northeast. However, a different pattern exists for the average earnings of other college-educated workers. While teachers earn only about 63 percent of the earnings of other college-educated workers in the Southwest, they earn about 80 percent of the earnings of nonteachers in the Northeast. Overall, teachers earned about 72 percent of the earnings of other college-educated workers in the U.S. and about 68 percent of the earnings of nonteachers in the Southeast.

Variability of Career Earnings

Another consideration that may affect the ability of schools to recruit qualified teachers is the variation in earnings among persons within occupational categories. The variation of earnings within a sample may indicate the range of earnings growth that a person in an occupation can expect over the course of a career.

Table 8 provides a variation index for earnings of teachers compared to those of other college-educated workers in the Southeast. This index is computed by dividing the standard deviation of the earnings for each occupational category by the standard deviation of earnings for teachers in the sample data. The earnings of professional service workers other than teachers showed 2.16 times more variation than teacher earnings. The earnings of workers in sales occupations varied 2.7 times more than teacher earnings. These results indicate that a person entering a career in engineering, accounting, management, sales, or other fields can expect to realize much larger

income growth over the length of a career than can teachers. In other words, the range of teacher salaries is more restricted, and there is less variability in growth of teacher income.

Table 8
Variation of Earnings by Occupation
Southeastern Region, 1988

Occupational Category	Variation Index*
Teachers	1.00
Professional Services other than Teaching	2.16
Management and Administration	2.67
Sales Occupations	2.70
Technical, Clerical, and Other Occupations	1.46
All Private Sector Employees	2.49
Government Employees except Teachers	1.62

*Variation Index = $\frac{\text{Standard Deviation for Occupation}}{\text{Standard Deviation for Teachers}}$

Source: U. S. Bureau of the Census, Current Population Survey, March 1989, machine-readable data file.

The relatively poor earnings growth potential for teachers also is revealed in the distribution of earnings across age categories. This difference between earnings potential for teachers and workers in other occupations is important because the opportunity for income growth based on increasing productivity and experience may influence the decision of capable individuals to choose other careers over teaching. Table 9 features a comparison of teacher and nonteacher earnings categorized by age categories, as well as other characteristics. Note that the difference between teacher and nonteacher

earnings is relatively small for young workers but becomes marked for older and more experienced worker groups.

Table 9
Earnings Categorized by Characteristics
Southeastern Region, 1988

	Teachers	Non-teachers	Difference
Earnings by Age			
Age 20-29	$17,527	$23,106	$ 5,579
Age 30-39	$21,164	$32,319	$11,155
Age 40-49	$26,414	$40,913	$14,499
Age 50-59	$26,394	$39,217	$12,823
Age 60+	$32,452	$44,200	$11,748
Earnings by Gender			
Female	$21,055	$23,142	$ 2,087
Male	$28,598	$38,758	$10,160
Earnings by Race			
Black	$24,355	$23,287	-$ 1,068
White	$22,316	$34,762	$12,446
Earnings by Residence			
Rural	$20,450	$29,865	$ 9,415
Urban	$24,184	$34,464	$10,280
Earnings by Education			
BA Degree only	$21,294	$31,496	$10,202
BA plus one full year	$24,429	$32,850	$ 8,421
BA plus two full years	$24,785	$39,067	$14,282

Source: U. S. Bureau of the Census, Current Population Survey, March 1989, machine-readable data file.

Table 9 also compares teacher and nonteacher earnings on the basis of gender, race, place of residence, and educational level. Data indicate that in the year ending March 1988, teachers earned more than nonteachers only in the category of earnings by race. Black college graduates working as public school teachers earned an average of $24,355 in 1988, but their earnings averaged only $23,287 in nonteaching occupations. This finding is not an anomaly in the

data. It has been observed in each of the past six years in CPS survey data. The difference may be partly explained by the differences in the age distribution of black college graduates in teaching and nonteaching occupations. Black college graduates in nonteaching occupations are generally younger and, therefore, probably less experienced, than the average college graduate worker.

Regression Analysis

Calculating the actual difference between teachers' salaries and their earnings opportunities in other occupations is more complex than is implied by the simple comparison of group average earnings. Teachers typically have completed more postbaccalaureate education than other college graduates (see Table 3). This difference should be reflected in any estimation of their earnings alternatives because, although incomes in general tend to rise with educational attainment, they do not do so at the same rate for teachers.

Teachers and the general population of working college graduates also differ in other ways that may affect earnings, such as age or work experience and gender and racial characteristics. Although these characteristics also are linked to earnings differences, it is inappropriate to use differences based on historical gender and race discrimination to set teacher pay.

To analyze these differences and appropriately incorporate them into the estimation of teacher earnings opportunities, a multiple regression analysis of the Census Bureau's 1988 CPS data was performed. This analysis provided the data to develop a model that accounts for the differential impact of education, experience, and demographic and economic variables. The model estimates the earnings opportunities of college graduates in nonteaching occupations by substituting into the regression model values specific to the teacher work

force. These estimates are the amounts that average teacher salaries should equal to make teacher earnings competitive with those of other occupations in which persons with the same demographic characteristics (e.g., average age, gender distribution, racial composition) work.

Table 10 presents the statistical results of the multiple regression analysis performed on the 1988 CPS data. Dummy variables were used for four of the six southeastern states (FL, GA, NC, and SC) to account for differences in average earnings between states, controlling for differences in the demographic and economic characteristics of the observations from each state. Too few observations were included from the other two states (AL and MS) to allow for individual state estimation, and these two states were explicitly defined together. The regression analysis results define a linear equation that relates characteristics of a group to the predicted average earnings in nonteaching occupations. The model includes instrumental variables for three of the four occupational categories: management (MGMT), professional services (PROF), and SALES. The "all others" category was defined implicitly. A dummy variable for teachers (TEACHER) was included among these independent variables.

Other variables in the equation include place of residence status (RURALITY (rural or urban), GENDER (male or female), ETHNICITY (black or nonblack), AGE, the square of age (AGESQR), years of postgraduate education (GRAD), number of weeks worked during the prior year (WEEKS), and average hours worked per week during the prior year (HOURS).

The mean values of each of the variables indicate the proportion of total observations for college-educated workers in each category or the average for that variable. For example, 61 percent of the college-educated workers were male, 12 percent were Black, and their average age was 38.32 years.

Table 10
Regression Analysis Summary
College Graduates' Earnings Opportunities
in Nonteaching Occupations
Southeastern Region, 1988 Current Population Survey

Data for 1,378 observations of college graduate workers in six southeastern states, March 1988. Data compiled from U. S. Census Bureau, Current Population Survey, March 1989, machine-readable data file.

Linear multiple regression model

Dependent Variable: Annual Earnings (Mean = $41,308.85)

Number of Observations: 1,378

Constant term - 67157.7505

Variable	Mean	Coefficient	t-Statistic
TEACHER	.1437	1790.9317	1.155
MGMT	.2518	10700.3303	8.224
PROF	.2830	7121.8895	5.550
SALES	.1139	6861.2172	4.275
RURALITY	.2170	-3824.7965	-3.396
GENDER	.3940	-9273.7188	-9.527
ETHNICITY	.1219	-3146.6069	-2.314
AGE	38.3186	1560.1847	4.750
AGESQR	1570.2808	- 13.5948	-3.457
GRAD	17.6597	881.0299	1.686
WEEKS	51.4964	475.3882	2.107
HOURS	.7547	457.7632	8.166
NC	.2968	-1437.7242	-1.019
SC	.0987	-2674.1638	-1.479
GA	.0929	918.2062	0.495
FL	.3686	- 124.9400	-0.087

Standard Error of Estimate = 15834.49

R^2 = 0.33890

The coefficients of the occupational variables indicate the respective differences in the predicted earnings of management, professional, or sales workers versus the predicted earnings of all other college-educated workers.

The coefficient of the variable MGMT indicates a $10,700 addition to the predicted annual income of a college graduate employed in a management occupation compared to that of workers in nonteaching occupations other than professional or sales occupations. Thus, the model, as formulated, can be used to estimate earnings opportunity in any one of the occupational categories or to predict the earnings for the composite of all nonteaching occupations. The positive coefficients for the occupational categories of teaching, management, professional services, and sales indicate an earnings advantage in comparison with the college-educated workers in the technical, clerical, and other category.

The occupational category including technical and clerical workers was not identified as an explicit independent variable in the regression equation. This category includes all college-educated workers in occupations other than the identified ones (Teacher, Management, Professional Services, and Sales). The positive coefficient for TEACHER indicates that teacher salaries tend to be higher (on average $1,790 more) than salaries of otherwise similar persons in the technical, clerical, and other categories of occupations. However, actual teacher salaries are lower than those for the category of technical, clerical, and other occupations by an average of $719 (see Table 5 on page 15) because of differences in the demographics of these two work forces (e.g., different ethnic and gender composition). Even though many of the occupations in the technical, clerical, and other occupational groups do not require college graduate skills, noncollege graduates were not included in the CPS subsample selected for this analysis. However, college graduates employed in technical, clerical, and other occupations earn more money than do teachers.

The negative coefficient for the variable RURALITY indicates the negative impact of $3,825 less earnings for rural residents. The coefficient of the

variable GENDER indicates the negative impact of $9,274 for females. The coefficient for the variable ETHNICITY indicates the negative impact of $3,147 for blacks.

Therefore, living in a rural area, being female, and being black all had negative effects on earnings. The values indicate the relative income disadvantage associated with those characteristics compared to the null alternatives (not black, metropolitan area resident, and male).

The coefficient of AGE is positive ($1,560), but the coefficient of the square of age (AGESQR) is negative (-$13.59), indicating a slowing of income growth as age increases. The coefficient of GRAD is positive, indicating that each additional year of postgraduate study adds $881 to predicted earnings. The coefficients for WEEKS (worked per year) and HOURS (worked per average week) are both positive, adding $475 and $458, respectively, to predicted earnings.

The t-statistics for MGMT, PROF, SALES, RURALITY, GENDER, AGE, AGESQR, and HOURS each indicate statistical significance beyond the .01 level. The t-statistics for ETHNICITY and WEEKS are significant beyond the .05 level. The t-statistic for GRAD is significant beyond the .10 level. The t-statistic for TEACHER is not significant ($p < .25$). The remaining variables were the state of residence dummy variables. Because of the small numbers of observations from Alabama and Mississippi, neither of these states was explicitly defined in the model (i.e., both states were defined implicitly). None of the coefficients of these explicitly implied state variables was statistically significant. Despite the lack of good fit of the state and TEACHER variables, they were retained in the regression equation because: 1) the adjusted R^2 indicates that inclusion of these variables did increase the overall explanatory power of

the equation statistic and 2) the ability to generate state-specific predicted earnings is a positive feature of the model.

Application of the Regression Model

The regression model was used to estimate the income that teachers in the Southeast could earn in nonteaching occupations. This amount may be interpreted as the target which would make the average teacher salary competitive with the salaries of occupations of other college graduates. The regression equation produces an income estimate relevant for the 1987-88 school year (more precisely, for the 12 months ending March 1988). Because education policymakers need information regarding competitive teacher salary levels for the future, the growth trend of nonteacher earnings for 1982-1988 was applied to the March 1988 earnings estimate to produce forecasts for subsequent years through 1991.

To produce estimates of competitive teacher salary levels, the work week and year were set to the typical 40-hour work week and 52 weeks per year. The education and age (as a proxy for experience) characteristics typical of public school teachers in the Southeast were entered into the regression model. Values for the occupational category variables were entered into the model at levels representing the relative proportions of each of these occupational categories within each state. Values for the variables indicating gender, race, and urban/rural residence were entered into the equation according to the average value of such variables for the nonteachers in the data set.

Using values of gender and race variables characteristic of present teachers was considered, but that approach was rejected for two reasons. First, the teacher work force includes more blacks and women than the general

college-educated work force. In the nonteacher market, blacks and women earn significantly less than whites and males. Use of the teacher work force proportions of blacks and women as variable values in the regression equation would have resulted in a salary schedule with lower amounts than those derived for this report. This bias is inconsistent with established public policy. The fact that women and blacks earn less than other college-educated workers is at least partially due to past practices of discrimination in employment. Stated public policy now eliminates such discrimination. It would be inappropriate to recommend that teacher compensation policies in the South be established on a basis that derives financial savings to government for racial and sexual discrimination. The second reason for using nonteacher gender and racial characteristics, rather than teacher characteristics in the model, concerns the internal economic logic of the model. Women and blacks are more highly represented in the teacher work force because past practices made alternative occupations either impossible or unattractive. To use the proportions of women and blacks presently found in the teacher work force would introduce an element of circularity into the model and include recommendations designed to maintain the status quo.

Table 11 shows the results derived from the regression model and projected for the 1991 school year for the region and for each state in the region. The amounts are presented in pairs. The larger of each pair represents the earnings estimate calculated on a 12-month basis. The smaller amount represents the earnings estimate calculated on a 10-month basis. The amounts represent the estimated average earnings that persons possessing the education and experience characteristic of teachers could find in nonteaching occupations.

Table 11
Estimated Earnings Alternatives
for Public School Teachers
1991

	Earnings in Occupations other than Teaching
Southeast	**$31,153** $37,384
Alabama	**$31,217** $37,461
Florida	**$31,262** $37,514
Georgia	**$31,438** $37,725
Mississippi	**$30,210** $36,251
North Carolina	**$31,255** $37,506
South Carolina	**$30,849** $37,019

Note: Figures printed in boldface are based on earnings for a 10-month period. Nonbold figures are based on earnings for a 12-month period. A fully competitive market-sensitive average teacher salary would fall within this range.

The estimated earnings alternatives in Table 11 are homogeneous and should be interpreted cautiously for several reasons. First, there are small numbers of observations in some states. For example, the regression equation implies that average salaries in Alabama should be higher than the regional average to compete with the nonteacher occupation market. In addition, all of the regression coefficients for individual state instrumental variables showed relatively low statistical significance and added little to the explanatory

power of the equation. In general, the regional composite represents a more accurate basis for estimation of alternative earnings than the state-specific estimations.

The contractual work year of a public school teacher is typically 10 months per year; most other college-graduate workers are employed on a 12-month basis. Because of this difference, it is sometimes argued that teacher salaries could be only 10/12ths of other salaries to be equivalent. That argument ignores the possibility that many workers may not value 2 months of "leisure" highly enough to forego 2/12ths of their pay. This possibility is important if the goal of public policy is to make the teaching profession monetarily competitive with other occupations requiring similar education and experience. Excellent teaching requires study and preparation during the summer even though classes are not in session and the teacher is not required to work at the school building. The 10/12ths view of teacher employment ignores the full dimensions of teachers' professional responsibilities and activities. For these reasons, it is recommended that the full 12-month equivalent earnings alternative derived from the regression model be used as the target for teacher salary improvement.

By varying the values of education and age in the regression equation, the model can be used to derive a set of earnings estimates that constitute a competitive salary scale for teachers. The salary scale, shown in Table 12, provides the variation in teachers' salaries that should exist in relation to education and experience to make teaching competitive with other occupations. The amounts in the table are presented as pairs: the larger amount represents a 12-month salary basis, and the smaller amount (**in bold**) represents a 10-month salary basis. Each pair of figures represents an appropriate salary range,

Table 12
Competitive Teacher Salary Scale for 1990-91

Education Level	Years of Experience						
	0	5	10	15	20	25	30
B.S./B.A.	**$18,881**	**$23,199**	**$26,859**	**$29,864**	**$32,211**	**$33,903**	**$34,938**
Only	$22,658	$27,838	$32,231	$35,836	$38,654	$40,683	$41,925
B.S./B.A.	**$19,519**	**$23,837**	**$27,498**	**$30,502**	**$32,850**	**$34,541**	**$35,576**
+18 hours	$23,423	$28,604	$32,997	$36,602	$39,420	$41,449	$42,691
M.S./M.A.	**$20,158**	**$24,475**	**$28,136**	**$31,140**	**$33,488**	**$35,179**	**$36,214**
completed	$24,189	$29,370	$33,763	$37,368	$40,185	$42,215	$43,457
M.S./M.A.	**$21,009**	**$25,326**	**$28,987**	**$31,991**	**$34,339**	**$36,030**	**$37,065**
+24 hours	$25,210	$30,391	$34,784	$38,389	$41,206	$43,236	$44,478
Doctorate	**$21,434**	**$25,751**	**$29,412**	**$32,416**	**$34,764**	**$36,455**	**$37,490**
completed	$25,721	$30,902	$35,294	$38,900	$41,717	$43,747	$44,988

Note: Figures printed in boldface are based on earnings for a 10-month period, the length of a typical teaching contract. The nonbold figures are based on earnings for a 12-month period.

given various levels of experience and education. For example, the table indicates that the beginning salary for a person with a baccalaureate degree should be between $18,881 and $22,658 in 1989-90 to be equivalent to earnings opportunities in other occupations. For a teacher with 10 years of experience and a master's degree, the competitive salary range would be between $28,136 and $33,763

Conclusions

Despite the recent growth of teachers' salaries in the Southeast, earnings are still too low to attract and retain adequate numbers of qualified teachers. As long as there is an adequate supply of qualified teachers, this is not a

problem. However, a recent study has indicated there is a dwindling supply of recent education graduates in the Southeast entering teaching and an increasing draw on the nebulous teacher reserve pool in the region (Cartledge and Halverson, 1989). This is being compounded by lack of interest in teaching by middle school through high school-age students (Berry et. al., 1989).

A competitive average teacher salary amount in the region in 1990-91 would be about 45 percent higher than the actual regional average teacher salary level in 1988-89. State and local governments in the region cannot be expected to increase salaries enough in a single year to correct such a large deficit. Progress has been made, but the improvement has been relatively small compared to the absolute deficiency of teacher salaries. During the 1982-83 through 1988-89 period, average teacher salaries grew at a rate of approximately 8.18 percent per year. At this growth rate and with the earnings of nonteachers continuing to grow at a rate of 5.04 percent per year, it would take 12 years to close the gap between teachers' salaries and the earnings opportunities in competing occupations. It would take five years at this level of commitment just to achieve the lower end of the competitive range indicated by the 10-month salary equivalency.

The problem may be compounded by the recent declining commitment to further raise teacher salaries in the Southeast. Most of the average 8.18 percent per year increase since 1982-83 was due to a 12.04 percent regional teacher salary increase for the 1984-85 school year. Since that time, the percentage of teacher salary increase has not met or exceeded the average of 8.18 percent. The actual average regional teacher salary increase for 1987-88 (the last year for which complete data are available for both teachers and nonteachers) of less than 4 percent is 1.2 percentage points less than the

average increase granted to other college-educated workers. If this trend continues, the salary gap between teachers and other college-educated workers, either in percent of increase or in absolute dollars, would not narrow.

To achieve competitive levels of teacher salaries will require commitment and perseverance. It will require commitment to a competitive salary goal and commitment to a significant, but practical, rate of annual salary increases for teachers. It will require perseverance to continue a high rate of salary growth every year for a number of years because the costs would be too great to assume within one, two, or even five years. However, as an example, a 10 percent increase in teacher salaries each year may be a practical goal for many, if not most, southeastern states. If the states in the region commit themselves to a 10 percent annual increase in teacher salaries beginning with the 1990-91 school year, full parity with the forecasted 12-month average earnings of nonteachers could be reached by 1996 (within seven years). Thereafter, relatively smaller annual increases would keep teacher salaries at the competitive level.

Table 13 shows estimates of increases in annual payroll budgets for public school teachers that each of the southeastern states would need to finance to reach 80 percent, 90 percent, or 100 percent parity of teacher salaries with the 12-month full-time earnings opportunities of college graduates in occupations other than teaching. The estimates are based on comparisons of 1988-89 base-year teacher salaries, numbers of teachers, and alternative earnings opportunities within each state. They do not include years of experience, assuming these to be uniform across states. Any additional impact of inflation would make the actual requirements for future years higher. These figures provide only an estimate of the actual annual expenditures needed for teacher

Table 13

Additional Annual Expenditures Necessary to Reach Teacher Pay Parity Targets

	80 Percent Parity	90 Percent Parity	100 Percent Parity
Alabama	$ 76,141,220	$207,260,449	$338,379,678
Florida	$ 25,067,167	$363,295,009	$701,505,102
Georgia	$ 27,122,547	$241,000,346	$454,878,144
Mississippi	$101,416,629	$191,333,644	$281,250,659
North Carolina	$ 95,428,476	$305,471,224	$515,513,970
South Carolina	$ 63,889,762	$184,260,684	$304,631,607
Regional Totals	$386,165,623	$1,489,377,087	$2,592,588,549

salaries to reach parity with the salaries of other college-educated workers. However, the size of these estimates indicates that a significant shift of public resources would be needed for most states to reach these teacher wage parity targets.

It should be noted that beginning teacher salaries are already near or within the indicated range for most states in the Southeast. However, as was demonstrated by the increasing differences in compensation across age cohorts, there is a need for compensation policies that provide more latitude for income growth during the professional career of a teacher. Without such policies, retention may become an even more serious problem than the recruitment of teachers.

The key to successfully making teacher pay competitive is commitment to a long-term strategy of planned increases. There can be no one-year, quick

solution. States should identify a practical rate of annual salary growth and adopt a firm plan to continue that annual growth for the number of years needed to achieve the goal of a competitive teacher salary level.

Higher teacher salaries alone will not guarantee better schools. Improvement of public education requires creative efforts on many fronts. However, improved salaries are important because human resources are the critical element in all education reform strategies. No strategy of improvement is likely to succeed unless sufficient compensation is offered to attract and retain the calibre of talented and hard-working people needed to successfully implement quality educational programs.

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Appendix A
Comparison of CPS Data Set Characteristics:
Southeastern Region, 1983 - 1988

	Teachers						Other College-Educated Workers					
CPS Dataset:	1983	1984	1985	1986	1987	1988	1983	1984	1985	1986	1987	1988
Number of Observations	N/A	N/A	191	203	210	198	N/A	N/A	991	1,167	1,244	1,180
Average Age (in years)	39.2	38.3	38.7	39.0	39.5	38.2	38.7	39.4	39.2	38.6	38.5	38.3
Gender (percent female)	78.8	79.1	79.1	77.0	71.0	76.8	30.7	31.7	31.1	32.0	32.0	33.1
Ethnicity (percent Black)	21.4	20.3	20.9	24.0	24.0	22.2	12.0	11.3	11.9	9.0	10.0	10.7
Residence (percent rural)	41.6	40.4	37.9	35.0	38.0	36.9	30.3	27.7	29.0	21.0	20.0	19.2
Education Level (B.S.=17.0)	17.7	17.9	17.9	17.9	17.9	17.8	17.6	17.5	17.7	17.6	17.6	17.6

Sources: U. S. Bureau of the Census, Current Population Survey, machine-readable data files, March 1984-1989.