DOCUMENT RESUME

ED 294 851 SP 030 210

AUTHOR Bird, Ronald
TITLE An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast. 1987 Update. Research Report 07-010.
INSTITUTION Southeastern Educational Improvement Lab., Research Triangle Park, NC.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Feb 88
NOTE 42p.
PUB TYPE Reports - Research/Technical (143) -- Statistical Data (110)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *College Graduates; *Comparative Analysis; Elementary Secondary Education; *Professional Occupations; Public Schools; *Teacher Salaries

ABSTRACT

Based on data compiled from the latest U.S. Census "Survey of Income and Employment" (March 1987), this report compares the average annual earnings of teachers to the average annual earnings of college graduates in full-time, salaried, non-teaching positions in the six states served by the Southeastern Educational Improvement Laboratory. This report is the fourth in a series of annual analyses of earnings opportunities for college graduates in Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina. This research was undertaken to determine what teachers should be paid in order to make their salaries equivalent to the earnings of college graduates with similar education and work experience in other occupations in the Southeast. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED294851

07-010

AN ANALYSIS OF THE COMPARABILITY OF TEACHER SALARIES TO THE EARNINGS OF OTHER COLLEGE GRADUATES IN THE SOUTHEAST 1987 UPDATE

by Ronald Bird

February 1988

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

S. T. Bagenstos

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

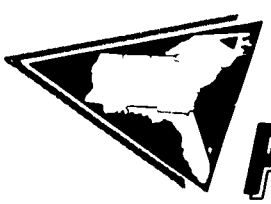
U S DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

SP030210



SOUTHEASTERN EDUCATIONAL IMPROVEMENT LABORATORY

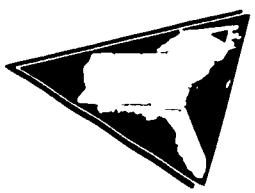
RESEARCH REPORT

ERIC

BEST COPY AVAILABLE

OERI

Sponsored by the Office of Educational Research and Improvement, United States Department of Education



SOUTHEASTERN EDUCATIONAL IMPROVEMENT LABORATORY

P O Box 12746 200 Park Offices Suite 204
Research Triangle Park North Carolina 27709
(919) 549 8216

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

ERIC

RESEARCH REPORT

07-010

AN ANALYSIS OF THE COMPARABILITY OF TEACHER SALARIES TO THE EARNINGS OF OTHER COLLEGE GRADUATES IN THE SOUTHEAST 1987 UPDATE

by Ronald Bird

February 1988

Southeastern Educational Improvement Laboratory
200 Office Park, Suite 204, P.O. Box 12746
Research Triangle Park, NC 27709

919/549-8216 800/237-4829

Table of Contents

List of Tables

List of Figures

Executive Summary

An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1987 Update

by Ronald Bird

Despite conflicting evidence on the extent of a general shortage of teachers, states are concerned about filling shortages in critical subject and geographical areas with quality teachers. One way policymakers can help to improve the quantity and quality of teachers is by improving teacher salaries. Teacher salaries that are competitive with those available in other occupations requiring a college degree and similar experience are needed to attract and retain professionally committed teachers.

Based on data compiled from the latest U.S. Census Survey of Income and Employment (March 1987), the report compares the average annual earnings of teachers to the average annual earnings of college graduates in full-time, salaried, non-teaching positions in the six states served by the Southeastern Educational Improvement Laboratory. This report is the fourth in a series of annual analyses of earnings opportunities for college graduates in Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina.

Recently, much progress has been made in improving public school teacher salaries in the Southeast. Salaries have risen more than $6,100 from 1983 to 1987. However, because salaries of other college-educated workers in the region also have been increasing, more progress is needed in order to achieve parity.

Table 1 shows that while the average teacher in the Southeast earned $22,359 during the 1986-87 school year, it is estimated that the average college graduate working in other occupations earned $32,560. The expected difference of more than $10,000 in average earnings each year may be an important factor that discourages many capable persons from entering the teaching profession and encourages talented teachers to leave the profession for other careers.

Table 1
Growth of Average Annual Earnings of College-Educated Workers in the Six Southeastern States, 1982-87

School Year:	1982-83	1983-84	1984-85	1985-86	1986-87*
Teachers	$16,238	$17,423	$18,940	$20,640	$22,359
Other College-Educated Workers	$26,828	$27,753	$29,688	$31,019	$32,560

*Estimates based on trend analysis of 1983-1986 data.

Source: U.S. Bureau of the Census, Survey of Income and Employment, machine readable data file, March 1983-1986.

In addition to comparing average teacher earnings to the average earnings of college graduates in all other occupations, the report presents several other comparisons. One important comparison is the growth rate of earnings potential. In addition to beginning salary levels and average earnings, individuals considering a specific occupation are interested in how they will be rewarded for increased experience. Table 2 presents the distribution of earnings by age for teachers in comparison to other college-educated workers in the Southeast. The salaries of teachers in the 20-29 age category already lag behind those of their college-educated counterparts by $3,500. However, the gap increases nearly three- and five-fold for the next two age categories, respectively. By the time they are 40-49 years old, teachers earn more than $15,000 less than non-teachers.

Table 2
Comparison of Earnings of Teachers and Other College-Educated Workers in the Six Southeastern States by Age, 1986

Age Cohort:	20-29	30-39	40-49	50-59
Teachers	$17,480	$19,804	$22,378	$23,355
Other College-Educated Workers	$20,981	$29,841	$37,463	$39,474

Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

Lower salaries for teachers are justified by some observers on the grounds that most teachers work for only 10 months of the year. However, even after adjusting the salaries of other college-educated workers to reflect earnings for a 10-month period, the average teacher salary remains significantly lower. Table 3 illustrates this point.

Table 3
Comparison of Average Earnings of Teachers and Other College-Educated Workers by State, 1986

	AL	FL	GA	MS	NC	SC
Teachers*	$22,934	$22,250	$23,046	$18,472	$22,476	$21,428
Other College-Educated Workers**						
10-month	$25,844	$26,687	$26,349	$25,081	$24,839	$27,352
12-month	$31,013	$32,024	$31,619	$30,097	$29,807	$32,822

*American Federation of Teachers, Survey and Analysis of Salary Trends, 1986.
**U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

Average annual salary recommendations for the 1988-89 school year were computed for each of the six states served by the Southeastern Educational Improvement Laboratory using Census Bureau data. These recommended average salaries, based on projections of the average earnings potential in other occupations employing college-educated workers, are presented in Table 4. Both 10-month and 12-month recommended state average salaries are presented. For those states that base teacher salaries on the regional average, the averages for the Southeast region also are provided.

Table 4
Recommended Average Teacher Salary by State and Region for 1988-89

	AL	FL	GA	MS	NC	SC	South-east
10-month	$31,983	$31,156	$31,118	$33,170	$29,963	$31,758	$30,930
12-month	$38,380	$37,387	$37,341	$39,804	$35,956	$38,109	$38,109

Finally, Table 5 provides a recommended teacher pay schedule for 1988-89 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 March 1986 earnings data using the 1982-86 income growth trend for college graduates in full-time, salaried, non-teaching positions in the Southeast. For each cell in the table, the top figure is based on average earnings for a 10-month period, the length of a typical teaching contract. The bottom figure in boldface is based on earnings for a 12-month period. The full report also provides estimates of the cost to each state of implementing the recommended salary scale.

Table 5
Recommended Teacher Salary Scale for 1988-89

Education	Years of Experience						
	0	5	10	15	20	25	30
B.A.	$17,509	$21,988	$25,765	$28,839	$31,212	$32,881	$33,848
Only	**$21,011**	**$26,386**	**$30,918**	**$34,607**	**$37,454**	**$39,457**	**$40,617**
B.A.+	$18,479	$22,958	$26,735	$29,809	$32,181	$33,850	$34,818
18 hrs	**$22,175**	**$27,550**	**$32,082**	**$35,771**	**$38,617**	**$40,620**	**$41,781**
M.A.	$19,448	$23,928	$27,704	$30,779	$33,151	$34,820	$35,787
completed	**$23,338**	**$28,713**	**$33,245**	**$36,935**	**$39,781**	**$41,784**	**$42,944**
M.A.+	$20,742	$25,221	$28,998	$32,072	$34,443	$36,113	$37,080
24 hrs	**$24,890**	**$30,265**	**$34,797**	**$38,486**	**$41,332**	**$43,336**	**$44,496**
Doctorate	$21,388	$25,868	$29,644	$32,718	$35,090	$36,759	$37,727
completed	**$25,665**	**$31,041**	**$35,573**	**$39,262**	**$42,108**	**$44,111**	**$45,272**

An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1987 Update

by Ronald Bird

Introduction

Education policymakers throughout the nation have come to recognize that increased teacher compensation is an important issue on the agenda of education reform. Improved public education opportunities for our children today and for future generations of Americans depend on our ability to attract and retain teaching professionals who are adequate in total number and excellent in their qualifications. To attract and retain such teachers, public school authorities and state legislatures are attempting to establish teacher compensation levels that are competitive with the earnings opportunities of college graduates in other occupations.

In past years, it may have been possible for schools to compete effectively for the services of capable people without offering salaries equal to teachers' alternative earnings opportunities. Social custom and family responsibilities ensured that large numbers of highly qualified women and minorities found few practical employment alternatives to teaching.

Today the situation is different. Women and minorities have new and exciting career opportunities that were not open to them just thirty years ago. New career opportunities make it necessary for public schools to offer greater earnings opportunities to college graduates. In order to be competitive with other occupations in attracting qualified people, the teaching profession should offer salaries that at least match the earnings of college graduates in other full-time, salaried positions. Furthermore, schools should offer the prospect of career-long earnings growth that is equal to career earnings growth opportunities in other occupations in order to retain qualified teachers. If

schools wish to attract and retain truly excellent 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, extraordinary persons will seek extraordinary earning alternatives in nonteaching occupations.

The southeastern states have made significant strides to improve teacher salaries in recent years. Table 1 shows the increase of teacher salaries over the past five years for each of the six states served by the Southeastern Educational Improvement Laboratory. Between the 1982-83 and 1986-87 school years, average teacher salaries rose from $17,385 to $23,489. These figures indicate an average annual regional growth rate of almost 8.8%.

Table 1
Average Annual Teacher Salaries in the Six Southeastern States, 1982-87

	School Year				
	1982-83	1983-84	1984-85	1985-86	1986-87
Alabama	$17,850	$18,600	$20,295	$22,934	$23,500
Florida	$18,275	$19,497	$20,836	$22,250	$23,833
Georgia	$17,412	$18,631	$20,606	$23,046	$24,632
Mississippi	$14,320	$15,812	$15,924	$18,472	$19,448
N. Carolina	$17,585	$18,311	$20,812	$22,476	$23,775
S. Carolina	$16,523	$17,384	$20,143	$21,428	$23,039
Regional Average	$17,385	$18,288	$20,489	$22,128	$23,489

Sources: American Federation of Teachers, Survey and Analysis of Salary Trends, 1987 (state salary data). Annual regional averages are weighted by the number of teachers in each state at that time. Number of teachers was obtained from the Southeastern Educational Information System data files.

While the growth of teacher salaries is cause for optimism, it is important to put this growth into perspective. First, the magnitude of the average annual growth rate for teacher salaries during the past five years was largely depen.. on a growth rate of 12% betwee.. 1983-84 and 1984-85. Since then, the annual growth rate of teacher salaries has actually been declining. Based on regional average salary figures reported in Table 1, growth between 1984-85 and 1985-86 was 8%, while growth between 1985-86 and 1986-87 was 6.2%.

In addition to a declining growth rate, inflation of consumer prices also tempers optimism about the gains made in teacher salaries. Almost half of the increase between the 1982-83 and 1986-87 school years has been offset by inflation of consumer prices. Meanwhile, the earnings opportunities of college graduates in other occupations have also been rising. Based on the data compiled for this study, average annual growth of the earnings of these ot ıer college graduates is estimated to be 5.32% for the perio(of 1982 to 1987. Therefore, in real terms, teacher salar .s have grown by less than 3.5% over the earnings of other college graduates.

So despite real growth in salaries, teachers remain at a relative disadvantage in earnings compared to other college-educated workers. This disadvantage has a negative impact on the quantity and quality of teacher supply. However, to focus only on the percentage growth of teacher salaries is to miss half of the problem--what absolute amount of money should teachers be paid today to achieve parity between teacher salaries and the earnings opportunities available to them in other occupations? This research was undertaken to determine what teachers should be paid in order to make teacher salaries equivalent to the earnings of college graduates with similar education and work experience in other occupations in the Southeast.

Sample Data

The present analysis is based upon data compiled from the U.S. Bureau of the Census, Survey of Income and Employment, which is conducted in March of each year and reflects earnings experience for the prior twelve months. The most recent data available at the time of this analysis were collected in March 1986 and published in March 1987. The data provide estimates of unemployment, employment trends, and household income for Federal economic policy and informational purposes. Over 100,000 subjects are drawn from fifty states to represent all categories of educational attainment, occupation, age, and employment status.

The Census data have several advantages for the present analysis. First, because the file is compiled annually, it is possible to update the analysis yearly and to provide policymakers with forecasts of competitive salary levels. Second, the income and employment file provides data that are representative of all households and workers by region and for the nation as a whole The size of the sample is large enough to ensure statistically significant estimates of earnings by occupation, educational attainment, and age. Third, each observation is distinguished by state of residence so that recommendations can be adjusted to reflect significant differences between states within a region. Finally, each observation is identified by a three digit occupation code which enables comparison of earnings across major categories of college-educated workers.

For the purposes of this report, a subset of the national sample was created to include full-time, college-educated workers in the six southeastern states served by the Southeastern Educational Improvement Laboratory. The subset contains observations for 203 public school teachers and 1167 other

college graduates. These observations were drawn from the March 1986 income and employment file and correspond to the following criteria:

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

Table 2 summarizes the demographic characteristics of the resulting samples of teachers and nonteachers.

Table 2
Demographic Characteristics of Sample, 1986

	Teachers (n = 203)	Other College Educated Workers (n = 1167)
Mean Age	39.01	38.61
Gender (% female)	77.00%	32.00%
Race (% black)	24.00%	9.00%
Residence (% rural)	35.00%	21.00%
Education (# yrs post-BA)	.91	.64

Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

Subjects under 21 and over 65 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 income were excluded from the data set because th r earnings include an implicit compensation for risk bearing and a return to self-supplied capital. Because of these additional elements, the earnings of self-employed individuals could not be easily

compared to the earnings expectations for a salaried position as a public school teacher.

The coding of the data in the Census file lists years of education on a scale that counts completion of high school as 13 and completion of four years of college as 17. Only observations showing 17 or more years of education were included in the study data set. Observations were excluded if the subject claimed 17 years of education but responded negatively to the question regarding completion of degree program. This procedure produced a study data set that represents only actual college graduates. This restriction was adopted since 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 35 hours per average week were excluded because their labor force participation was deemed to be essentially part-time and substantially different from the behavior patterns and earning opportunities of full-time workers.

The data set was further refined to remove a small number of anomalous observations which showed earnings relative to weeks and hours of work too low to be consistent with minimum wage laws. Observations having missing or out of range values for key variables were also edited from the study data set.

Since 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 it and interpreting the results. First, data reported by individuals are always subject to errors of memory or misunderstanding. Random sampling error is another possible limitation to the representativeness of the data. The characteristics of the sample may not truly match the underlying population about which information is sought. For example, the mean of

earnings of college-educated workers in the sample may differ from the true population mean. Fortunately, the probable degree of such error becomes smaller as the sample size increases. The samples analyzed in this report (n^1 = 203 teachers; n^2 = 1167 other college-educated workers) are large enough to provide highly reliable estimates of the characteristics of the underlying populations at the regional level.

For some of the states in the region, the sample sizes may not be large enough to make independent inferences about state level earnings of nonteacher college graduates. Observations in the study data set include the following numbers of teachers and other college-educated workers for each state:

State	Teachers	Other College-Educated Workers
Alabama	15	80
Florida	66	434
Georgia	16	117
Mississippi	25	75
N. Carolina	59	358
S. Carolina	22	93

Caution with regard to state sample sizes especially applies to the Alabama, Georgia, and Mississippi data. These states have the smallest samples relative to their populations. Also, the Alabama and Mississippi samples are hampered by the inability to obtain observations for rural residents in those states.

Because of the sample size limitations for some states, this report deals primarily with regional level analysis. State level data is presented subject to the caveat regarding sample size and is only intended to suggest the dimensions of possible differences between individual states. Fortunately, inference from Census data on teacher earnings by state is not necessary since

reliable information on teacher earnings by state is available from other sources, such as state education department records and the American Federation of Teachers' annual survey of teacher salaries.

Another shortcoming of the data is the lack of a direct measure of years of work experience. 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 Census data do not include information regarding years of work experience. For this reason, age is used as a proxy for experience. Actual experience may be expected to increase somewhat more slowly than chronological age because of periods of nonemployment in a worker's history. This bias in the data would be important only if teachers experienced significantly more time out of the labor force relative to age than nonteachers. For example, if it were the case that the average college-educated worker at age 40 had 15 years of relevant work experience, but the average teacher at age 40 had only 10 years of relevant work experience, then the analysis of the data should adjust for the 5-year difference and compute a competitive salary for a 40 year old teacher as equivalent to the earnings of 35 year old workers (i.e. having 10 years of experience) in nonteaching occupations. Since no data is available upon which to compare age/experience ratios, no such adjustment was made for the analysis described in this report.

In previous reports in this series, a proxy experience variable was created by subtracting education from age. Subsequent examination of that procedure revealed that it introduced an element of multicollinearity into the regression analysis of the data, since education is also specified as an independent variable. That error has been corrected in the present report, and

the analysis of the March 1986 Census survey data was conducted using an unadjusted age variable to represent the experience factor as a predictor of earnings.

Data Analysis

Four levels of analysis are reported here. First, average annual earnings of teachers versus other college-educated workers were calculated for the region as a whole, by state, and by various demographic characteristics. Average annual earnings of college-educated nonteachers were also calculated by specific occupational categories. Second, indices of variation of earnings were calculated for each of these occupational categories to compare the variability of career earnings of teachers to that of other college-educated workers. Third, a regression model was devised to test the effects of specific demographic variables and occupational categories on the earnings of college graduates in nonteaching occupations. And finally, a trend analysis was conducted using Census data for 1982 through 1986 to estimate the growth of earnings of nonteacher college graduates and thereby derive forecasts of competitive teacher salaries through 1989.

Average Annual Earnings

Table 3 shows the average annual earnings of teachers compared to those of college-educated workers in occupations other than teaching. With the exception of the AFT figure, teacher and nonteacher earnings for 1986-87 were estimated by applying the average annual growth rate of nonteachers' earnings for 1982-1986 (4.967%) to the actual March 1986 observation of average earnings of nonteacher college graduates. The table also shows the annual percentage change for each of the amounts.

Table 3
Growth of Earnings of Teachers and Other College-Educated Workers in the Six Southeastern States, 1982-87

	School Year				
	1982-83	1983-84	1984-85	1985-86	1986-87
Teachers (Census)	$16,238	$17,423	$18,940	$20,640	$22,359*
Percent Change		7.3%	7.0%	9.0%	8.3%
Teachers (AFT)	$17,385	$18,288	$20,489	$22,128	$23,489
Percent Change		5.2%	12.0%	8.0%	6.2%
Other College-Educated Workers	$26,828	$27,753	$29,688	$31,019	$32,560*
Percent Change		3.4%	7.0%	4.5%	4.9%
Salary Deficiency	$9,443	$9,525	$9,199	$8,891	$9,071*
Percent Change		2.0%	-3.4%	-3.4%	2.0%

*Estimates based on the average annual growth rate for 1982-1986.

Sources: American Federation of Teachers, Survey and Analysis of Salary Trends, 1987 (teacher salary data 1982-87) and U.S. Bureau of the Census, Survey of Income and Employment, March 1983-86 (nonteacher earnings data).

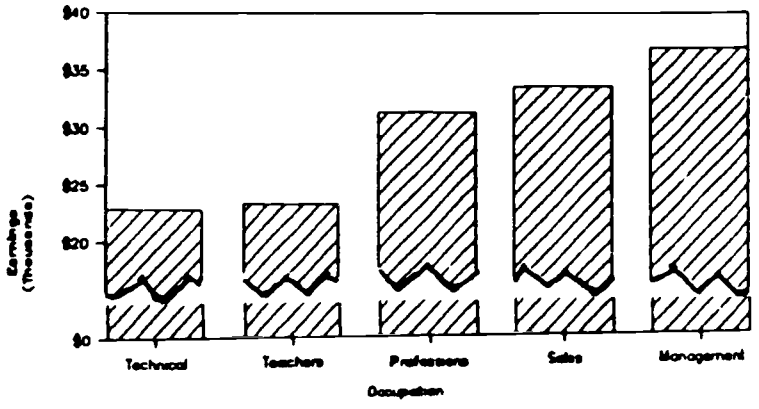
Table 3 includes two entries for average teacher earnings for each year. The first entry is the average earnings of teachers reported by the annual March Census survey. The second entry is the regional salary average based on the American Federation of Teachers' (AFT) annual survey of teacher salaries. The two amounts differ by an average of 6.7% each year, and the Census figures are consistently lower. The AFT figures are a better estimate of actual average teacher salaries, because they are based on a comprehensive collection of state reports of salaries for all teachers. Census figures, on the other hand, are derived from a much smaller sample of teachers. Only 203 could be analyzed for this report using March 1986 data. The Census data are also biased downward by sample observations of teachers who may have worked only part of the year, while the AFT data shows teacher salaries on a full annual contractual basis. By comparing the Census data estimates of nonteacher (other

college-educated worker) earnings to the AFT estimates of teacher salaries, one obtains a conservative estimate of the deficiency of teacher salaries compared to the earning opportunities of nonteacher college graduates.

The figures in Table 3 show that despite large percentage gains each year since 1982, a significant pay gap remains between the earnings of teachers and the earnings of other college graduates. In 1986, the deficiency of teacher pay compared to other college-educated workers was $8,891, a gap of 40% over average teacher salary. For 1986-87, the gap between reported average teacher pay and estimated earnings of other college-educated workers grew to $9,071. From 1982-83 to 1985-86, the earnings of other college-educated workers grew at an average annual rate of 4.97%. Therefore, since 1982, teacher salaries have grown annually at an average of only three percentage points faster than the earnings of other college-educated workers.

Earnings data for college-educated workers in the Southeast were analyzed by a number of specific categories of occupations. Figure 1 illustrates the relationship of average earnings among the occupational categories.

Figure 1
Comparison of Earnings by Occupations, 1986



Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

Table 4 shows the actual results of this analysis.

Table 4
Average Earnings by Occupation of Salaried College Graduates in the Southeast, 1986

Public School Teachers		
AFT Data		$22,128
Census Data		$20,640
All Other Salaried College Graduates		$31,019
Managers, Administrators and Administrative Support Services		$36,972
Accountants	$31,388	
Professional Services Other Than Public School Teaching		$31,443
Physicians	$51,884	
Lawyers	$53,134	
Post-Secondary Teachers	$27,302	
Engineers	$37,116	
Math and Computer Scientists	$31,439	
Sales Occupations		$33,662
Manufacturer and Distributor Sales Representatives	$39,497	
Technical and Clerical and all other		$22,949
All Private Sector		$36,125
Government Employees Except Teachers		$27,023

Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

Physicians and lawyers led the non-teacher 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 various categories of assistant managers and administrative service workers. In the subcategory of administrative support services, the accounting occupation was found to have an average income of only $31,388. This amount may seem low until one considers that the category includes other types of accounting workers besides certified public accountants (CPAs). Many accounting jobs in government and industry held by college graduates involve less training and responsibility than those associated with the CPA designation.

The high earnings of persons in sales occupations ($33,662), particularly those in the subcategory of manufacturer and distributor sales representatives ($39,497), are noteworthy because such occupations appear to attract persons with strong interpersonal skills. These are skills that are also demonstrated by good teachers.

The category of professional services is noteworthy for comparison to teaching, because it is the category within which public school teachers fall in the Census Bureau's organization of occupational codes. The average earnings of professional service workers other than public school teachers ($31,433) was significantly higher than average teacher salaries earned during the 1985-86 school year.

Table 5 shows the average earnings by state of all nonteacher college graduates and nonteaching professionals. In all cases, the earnings of nonteachers were at least a third or more greater than average teacher salaries reported by the AFT for the 1985-86 school year.

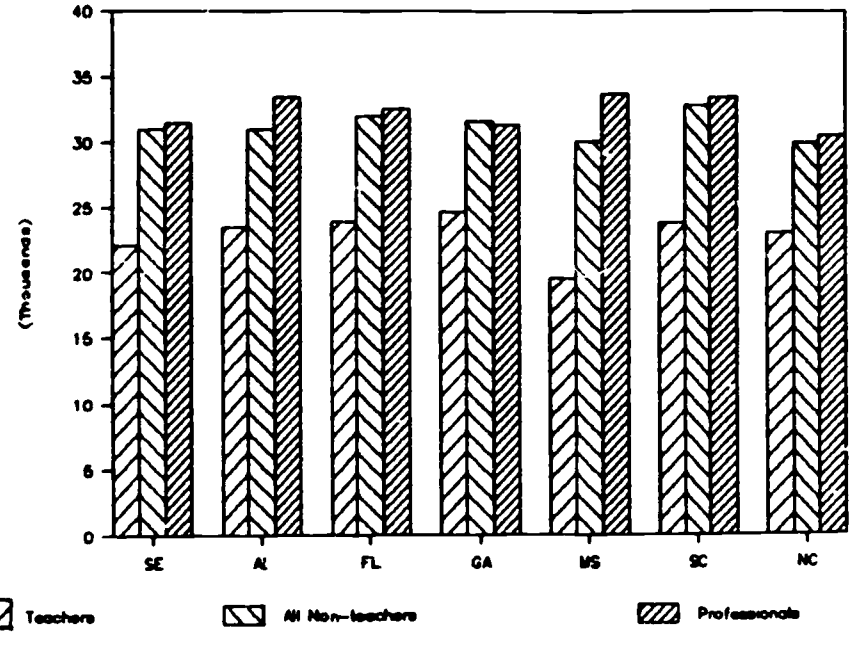
Table 5
Comparison of Average Earnings of College Graduate Salaried Workers by State, 1986

	All Nonteachers	Professional Services	Public School Teachers
Alabama	$31,013	$33,454	$22,934
Florida	$32,024	$32,562	$22,250
Georgia	$31,619	$31,323	$23,046
Mississippi	$30,097	$33,662	$18,472
N. Carolina	$29,807	$30,416	$22,476
S. Carolina	$32,822	$33,431	$21,428

Sources: U.S. Bureau of the Census, Survey of Income and Employment, March 1986 (nonteacher data); and American Federation of Teachers, Survey and Analysis of Salary Trends, 1987 (teacher data).

Figure 2 shows the comparison of earnings of teachers, all nonteachers, and nonteaching professionals by state. "Professional Services" refers to

Figure 2
Comparison of Earnings by State, 1986



Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

college graduates in professional service occupations other than public school teaching. This group includes physicians, lawyers, engineers, and other professional occupations. The category is a subset of the category of all nonteaching college graduates, also shown in Figure 2. Note that in the case of Mississippi, the salaries of nonteaching professionals and those of all nonteachers are competitive with those of their counterparts across the region, while teacher salaries lag far behind the regional average.

Table 6 summarizes the comparison of teacher and other college-educated worker earnings categorized by various demographic characteristics of study

Table 6
Earnings Categorized by Demographic Characteristics in the Southeast, 1986

	Teachers	Other College-Educated Workers
Earnings by Gender		
Female	$19,820	$20,906
Male	$23,362	$35,883
Earnings by Race		
Black	$21,434	$21,119
White	$20,394	$32,018
Earnings by Residence		
Rural	$19,322	$28,163
Urban	$21,364	$31,366
Earnings by Education		
BA Degree only	$19,496	$28,915
BA plus one year	$19,630	$29,041
BA plus two years	$22,729	$36,545
Earnings by Age		
20-29	$17,480	$20,981
30-39	$18,804	$29,841
40-49	$22,378	$37,463
50-59	$23,355	$39,474

Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

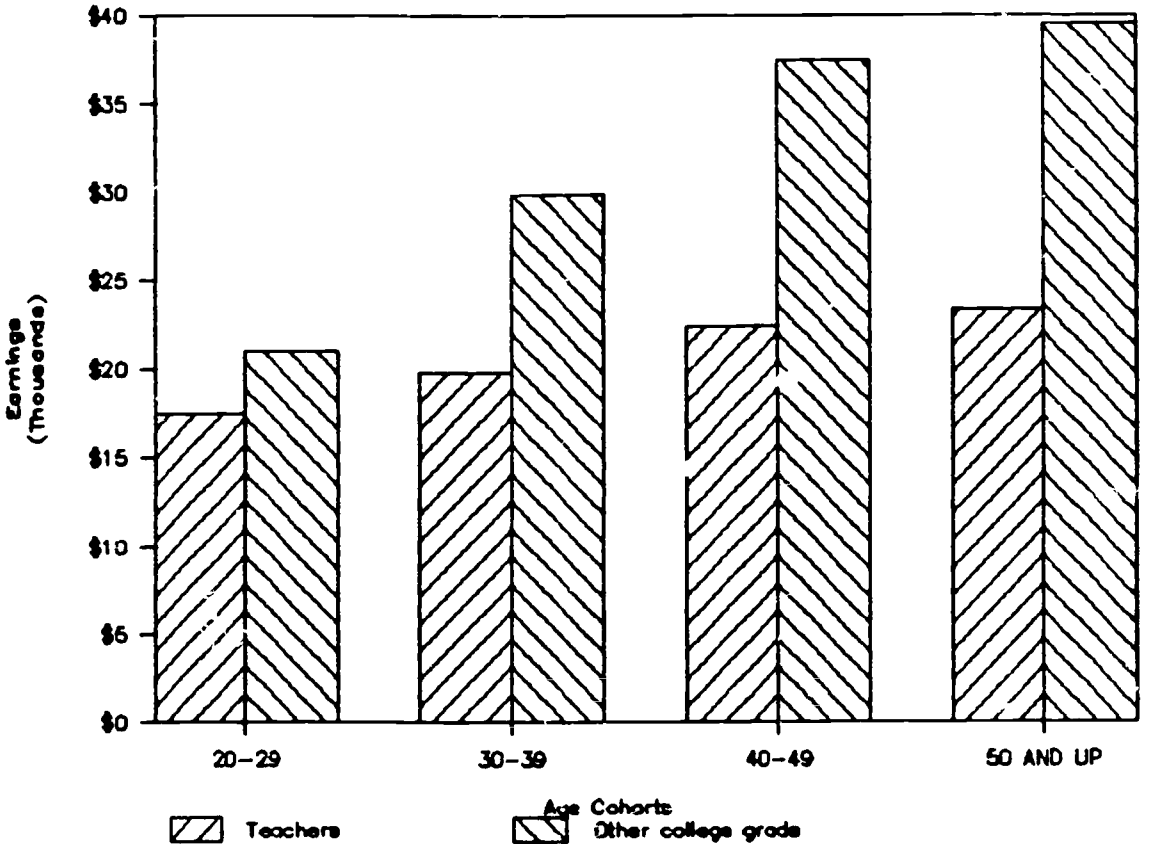
subjects. Data for both teachers and other college-educated workers were tabulated from the March 1986 Census survey. Only the comparison by racial background indicates teachers earning more than other college-educated workers in 1986. Black college graduates earned an average of $21,434 as public school teachers during 1985-86, but they only earned an average of $21,119 in nonteaching occupations. This observation 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 on average younger (35.7 years compared to 38.9 years) than other college graduate workers. Few blacks over age 40 were represented among nonteachers in the sample. However, black teachers tend to be older on average (40.3 years) than white teachers (38.6 years) in the sample.

The actual gap between teachers' salaries and their earnings opportunities in other occupations may be wider than implied by a simple comparison of group average earnings. Teachers typically have completed more years of post-baccalaureate education than other college graduates. Because incomes generally rise with educational attainment, the difference between the salaries of teachers and other college-educated workers should be positive. However, the data in Table 6 reflect only negative differences.

The distribution of earnings by age also reveals relatively poor earnings growth potential for teachers over the course of a teaching career. Figure 3 compares the age distribution of earnings of teachers and other college graduates. During the 1985-86 school year, the average teacher aged 20 to 29 earned $17,080, while the average nonteacher earned $20,981. Among 30-39 year olds, the average teacher earned $18,804, while the average nonteacher earned $29,841. The earnings difference for persons in the 40-49 age group grew to

more than $15,000. Greater opportunity for income growth may be a factor that influences capable individuals to pursue careers other than teaching.

Figure 3
Comparison of Earnings by Age, 1986



Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

Variability of Career Earnings

Another way to look at the relative variability of teacher earnings is to consider the variation in earnings among persons within occupational categories. The variation of earnings among people of all ages within an occupational category indicates the range of earnings growth that one can expect in that occupation over the length of a career. Expected earnings

growth, beginning salary level, and overall average earnings of persons in an occupation are all important factors affecting individual career choices. The standard deviation of earnings relative to the mean of earnings provides one measure of earnings variation.

Table 7 displays variation indices for teacher earnings relative to nonteacher college graduate earnings in the Southeast. Each index is the ratio of the standard deviation of the earnings of an occupational category to the standard deviation of earnings of teachers in the sample data.

Table 7
Variation of Earnings by Occupation in the Southeast, 1986

Occupation	Variation Index*
Teachers	1.00
Professional Services Other than Teaching	3.50
Management and Administration	3.88
Sales Occupations	3.99
All Private Sector	3.81
Government except Teachers	2.40

*Ratio of the standard deviation of earnings in each category to the standard deviation of earnings of teachers.

Source: U.S. Bureau of the Census, Survey of Income and Employment, March 1986.

The earnings of nonteacher professional service workers showed 3.5 times more variation than teacher earnings. Management occupations showed 3.88 times more variation than teacher earnings, and sales occupations showed 3.99 more earnings variation than teaching. These results show 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 teachers can expect.

Regression Analysis

A multiple regression analysis of the data was performed to develop a model which controls for the impact of education, experience, and demographic and economic variables on the earnings opportunities of college graduates in other nonteaching occupations. By substituting independent variable values specific to the teacher workforce into the regression model, an estimate of the alternative earning opportunity of the average teacher can be estimated. Average teacher salaries should equal this estimated earning opportunity in order to make teaching financially competitive with other occupations.

Table 8 presents the statistical results of the multiple regression analysis performed on the 1,167 observations of nonteacher college graduates. Several different functional forms (linear, logarithmic, and exponential) were tested. Explanatory variables other than the ones shown were also included in the testing procedures. These variables (including marital status, number of children in the household, and identification of government employees) were not found to be statistically significant. The results shown in Table 8 represent the functional form and specification of explanatory variables that were found to provide the best fit to the data based on the R^2 statistic generated for the equation and the t-statistics for the individual coefficients. The equation describes the relationship between the characteristics of a college-educated worker and the amount which that worker is predicted to earn in nonteaching occupations in the Southeast.

In the previous reports in this series, the regression equations that best fit the data were log-linear. The R^2 for the present model was .299, while the R^2 for the log-linear model was .276. The difference between

Table 8
Linear Multiple Regression Model of College Graduates' Earnings Opportunities in Nonteaching Occupations in the Southeast, 1986

Dependent Variable: Annual Earnings (Mean= 31018.7)

Number of Observations: 1,167

Constant term -102102.000

Variable	Mean	Coefficient	t-Statistic
MGMT	.276	7929.102	5.7356
PROF	.316	5223.590	3.8186
SALES	.141	5618.420	3.4077
RURAL	.207	-4034.620	-3.0428
GENDER	.322	-10038.500	-9.0259
ETHNIC	.092	-5104.410	-2.9196
AGE	38.60	1646.962	4.9797
AGESQR	1613.00	-14.605	-3.7857
GRAD	17.60	1344.087	2.2183
WEEKS	51.50	1086.838	4.2302
HOURS	44.40	373.472	5.6410
NC	.307	-4570.760	-2.2017
SC	.079	-3190.530	-1.2813
GA	.100	-3142.860	-1.2621
FL	.372	-3101.780	-1.4459
AL	.069	-1999.440	-.07424

Standard Error of Estimate = 16719.14

R^2 = 0.299367

---

the models is not significant enough to prevent comparisons of trends among estimates generated by earlier reports in the series.

Independent variables were selected on the basis of their theoretical relevance to a model of income determination. Economic theory and empirical evidence from other studies suggests that variables representing experience (AGE and AGESQR), education (GRAD), sex (GENDER), race (ETHNIC), and residence (RURAL) should be included in the model. AGE and AGESQR represent age in years

and the square of age in years, respectively. Age serves as an analytical proxy for total years of work experience. AGESQR was included in the model to capture the nonlinear relationship between age and income. GRAD is the number of years of post-graduate education achieved by subjects. GENDER, ETHNIC, and RURAL are dummy variables. These variables each take the value of 1 when GENDER = female, ETHNIC = black, and RURAL = residence outside a standard metropolitan statistical area.

Variables indicating average hours worked per week (HOURS) and average weeks worked per year (WEEKS) were included to distinguish between part-time and full-time workers. State of residence (AL, FL, GA, NC, and SC) was included to reveal systematic differences which might exist in the labor markets of the different states in the region. The omitted category for the state of residence dummy variables is Mississippi. Occupational categories (MGMT, PROF, and SALES) were included to enable predictions of earnings for specific occupational groups in addition to predictions of earnings for all college graduates in occupations other than public school teaching. The omitted category for the occupational variable is all other nonteaching occupations requiring a college degree, including clerical and technical occupations.

The mean values of each of the occupational variables indicate the proportion of total observations falling within each category. 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. For example, the coefficient of the variable MGMT indicates a $7,929 addition to predicted annual income for a college graduate employed in a management occupation over

the amount earned by an otherwise similar worker in all other nonteaching occupations, besides professional or sales occupations.

The mean value of the variable RURAL indicates that 20.7% of the observations of college graduates in occupations other than teaching reside outside metropolitan areas. The coefficient of -4,034 indicates the negative impact in dollars of rural residence on predicted income.

The mean value of the variable GENDER indicates that 32.5% of the subjects observed in the sample are female. The coefficient for the variable GENDER (-10,038.5) indicates the magnitude of the difference in predicted earnings between female and male college graduates. The average male college graduate in the sample is predicted to earn an annual income of $10,038.30 more than a woman of similar age, education, and other characteristics.

The mean value of the variable ETHNIC indicates that only 9.2% of the nonteaching college graduates in the sample are black. The coefficient of this variable indicates that the predicted annual income of a black college graduate in nonteaching occupations is $5,104 less than the predicted annual income of otherwise similar college graduates.

The mean value of AGE is 38.6 years. The coefficient of AGE is positive, indicating an increase of $1,646.96 per additional year of work experience. On the other hand, the coefficient of AGESQR is -14.605, indicating a slight slowing of the rate of income growth as age increases.

The mean value of GRAD (17.64) indicates that the average college-educated worker in the Southeast has completed almost two-thirds of a year of graduate study beyond the baccalaureate. The coefficient of GRAD indicates that each additional year of post-graduate study adds $1,344 to predicted earnings.

Because a nonlinear relationship of education to income is often observed in empirical data, a version of the model including squared years of education was tested. The squared term's coefficient was not found to be statistically significant. Therefore, a strictly linear representation of education better describes the relationship between education and income in this data.

The mean of WEEKS is 51.5 weeks worked per year, and the mean of HOURS is 44.4 hours worked per week. The coefficients indicate that a change in weeks worked increases or decreases predicted annual income by $1,089.84 for each week added or subtracted. Similarly, a change in hours worked increases or decreases predicted annual income by $373.47 for each hour added or subtracted.

The regression equation coefficients for all of the variables listed above were computed to have t-statistics of +/- 2.0 or greater. These values indicate statistical significance beyond the .025 level for each of the variables. The remaining variables were the state of residence dummy variables. Except for the North Carolina variable, the coefficients of the state variables were not as statistically significant as the other explanatory variables. Despite the lack of good fit of the state 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 produce state-specific predicted earnings is desirable.

The mean values of the state variables indicate the proportions of the total sample represented by each state. After controlling for the other explanatory variables, nonteacher college graduates living in Mississippi have a higher average income than the other states. This finding may be influenced by normal sampling error either because the Mississippi sample is relatively

small or because the Mississippi observations are exclusively urban. Consequently, the coefficients of the five state dummy variables are negative, indicating lower dollar amounts of predicted annual income for subjects in those states compared to Mississippi.

The regression model was used to estimate the income that teachers in the Southeast could have earned in nonteaching occupations during the 1985-86 school year. These estimates may be interpreted as the target that average teacher salaries must reach in order for the teaching profession to compete for college graduates on an equal footing with other occupations. To produce estimates of competitive teacher salary levels, the average age and education of public school teachers in the Southeast were entered into the regression equation. Values for occupation and state were entered at levels which reflect the relative proportions of each occupational and state category in the total sample of nonteacher observations for the region. Values for sex, race, and residence (rural vs. urban) were entered into the equation according to the average value of these variables for nonteachers in the sample. The values for the variables WEEKS and HOURS were entered to reflect a work schedule of 52 weeks and 40 hours per week.

The salary computed using the regression equation equals $32,282. This figure represents the amount that a college graduate with the average age and education of a teacher could have earned in nonteaching occupations in the Southeast during the 1985-86 school year. Compare this with the actual regional average nonteacher salary of $31,019. The difference in these figures is due to the different distributions of age and education among teachers and nonteachers.

Forecasted Salaries

Since education policymakers need information regarding competitive teacher salary levels for the future, the regression equation was used to forecast competitive salary levels for the 1988-89 school year. Two kinds of forecasts were computed: 1) state and regional average salaries and 2) a salary scale for the region by education and years of work experience. In both cases, the regression equation was used to estimate competitive earnings for the 1985-86 school year. Next, these estimates were multiplied by 4.97%, the growth trend of nonteacher earnings for 1982-86, to produce forecasts for subsequent years through 1988-89. Finally, each estimate was multiplied by 10/12s to compute earnings for a 10-month period, the length of a typical teaching contract.

Table 9 shows the results derived from the regression model for the region and for each of the six southeastern states. In the table, salary estimates are presented in pairs. The smaller figure in each pair represents average earnings estimated for a 10-month period. The larger figure indicates average earnings estimated for a 12-month period. The estimated figures represent the average earnings that persons with the same years of education and experience as teachers could find in nonteaching occupations.

By successively varying the values of education and age entered into the regression equation, one can derive a set of earnings estimates that constitute a recommended salary scale for teachers. Table 10 is a recommended salary scale indicating appropriate variation in teacher salaries by education and experience in order for teaching to compete with other occupations. Because the regression equation only accounts for 30 percent of the variation in annual salary, the figures presented in Table 10 should be viewed with some caution.

Table 9
Estimated Average Earnings Alternatives for Public School Teachers by State, 1986-1989

	School Years			
	1985-86	1986-87	1987-88	1988-89
Southeast	**26,903**	**28,221**	**29,603**	**31,054**
	32,283	33,865	35,523	37,265
Alabama	**27,903**	**29,065**	**30,489**	**31,983**
	33,483	34,878	36,587	38,380
Florida	**26,908**	**28,313**	**29,701**	**31,156**
	32,389	33,976	35,641	37,387
Georgia	**26,958**	**28,278**	**29,664**	**31,118**
	32,349	33,934	35,597	37,341
Mississippi	**28,735**	**30,144**	**31,621**	**33,170**
	34,482	36,173	37,945	39,804
N. Carolina	**25,957**	**27,229**	**28,563**	**29,963**
	31,148	32,675	34,276	35,956
S. Carolina	**27,513**	**28,862**	**30,274**	**31,758**
	33,015	34,632	36,329	38,109

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

Also, the data set from which the figures were generated includes some extremely high salary values which somewhat inflate the recommended salaries. Nevertheless, the figures in Table 10 do reflect important trends in nonteacher salaries -- they are higher and they vary more with education and experience than teacher salaries.

To derive the salary scale shown in Table 10, years of education were converted to more familiar degree equivalents. In the regression equation, education was set to 17 to derive the B.A. degree salary levels, 17.75 for a

Table 10
Recommended Teacher Salary Scale for 1988-89

Education Level	Experience						
	0	5	10	15	20	25	30
B.A.	**$17,509**	**$21,988**	**$25,765**	**$28,839**	**$31,212**	**$32,881**	**$33,848**
Only	$21,011	$26,386	$30,918	$34,607	$37,454	$39,457	$40,617
B.A.+	**$18,479**	**$22,958**	**$26,735**	**$29,809**	**$32,181**	**$33,850**	**$34,818**
18 hrs	$22,175	$27,550	$32,082	$35,771	$38,617	$40,620	$41,781
M.A.	**$19,448**	**$23,928**	**$27,704**	**$30,779**	**$33,151**	**$34,820**	**$35,787**
completed	$23,338	$28,713	$33,245	$36,935	$39,781	$41,784	$42,944
M.A.+	**$20,742**	**$25,221**	**$28,998**	**$32,072**	**$34,443**	**$36,113**	**$37,080**
24 hrs	$24,890	$30,265	$34,797	$38,486	$41,332	$43,336	$44,496
Doctorate	**$21,388**	**$25,868**	**$29,644**	**$32,718**	**$35,090**	**$36,759**	**$37,727**
completed	$25,665	$31,041	$35,573	$39,262	$42.108	$44,111	$45,272

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.

B.A. plus 18 graduate hours, 18.5 for a Master's degree, 19.5 for a Master's plus 24 graduate hours, and 20 for a completed doctorate. The experience scale was created by substituting AGE=22 into the regression equation to obtain zero experience level salaries. An additional year was added to the AGE variable for each additional experience year shown in the salary table.

As in Table 9, figures in Table 10 are also presented in pairs. Once again, the smaller figure in each pair represents earnings estimated for a 10-month period. The larger figure indicates earnings estimated for a 12-month period. Each pair of figures represents a competitive market range of salary for the indicated experience and education levels. The table indicates that the beginning salary for a teacher with a baccalaureate degree should be between 17,439 and $21,011 in 1988-89 in order to be equivalent to earnings

opportunities in other occupations available to college graduates. For a teacher with ten years experience and a master's degree, the competitive salary range would be between $27,594 and $33,245.

Recommendations

The above analyses point clearly to the following recommendations: 1) competitive teacher salaries should be set within the range estimated by the 10- and 12-month salary recommendations in Table 10 and 2) competitive teacher salary scales should echo the growth potential of salaries earned by college graduates in nonteaching occupations.

More than just setting salaries within the range delimited by the 10- and 12-month figures, competitive teacher salaries should approach the 12-month recommended figures as nearly as possible. Some observers justify lower salaries for teachers on the grounds that teachers work for only 10 months out of the year. This view ignores the full dimensions of teachers' professional responsibilities and activities. First, many workers may not value two months of "leisure" highly enough to forego 2/12ths of their pay. Second, because excellent teaching requires study and preparation during the summer, two months of noncontractual time may not really constitute leisure for the typical teacher. 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.

This report has demonstrated that despite recent growth of teacher salaries in the Southeast, earnings are still too low to attract and retain adequate numbers of qualified teachers. A competitive teacher salary amount in 1988-89 would be 58% higher than the regional average teacher salary level in

1986-87. Table 11 shows the increase in annual state appropriations that would have been necessary in 1986-87 to bring average teacher salaries up to levels commensurate with the compensation of college graduates in nonteaching occupations. To derive cost estimates for each state, the actual average teacher salary for the 1986-87 school year is subtracted from the recommended regional average ($32,283). Then, this figure is multiplied by the estimated number of classroom teachers employed in the state that year. Actual average salaries reported by the AFT (1987) were used to calculate the cost estimates in Table 11. Numbers of teachers in each state were estimated data from the Southeastern Education Information System for 1980-85.

Table 11

Annual Expenditure Increase Needed to Raise Teacher Salaries to Competitive Levels*

Salary Target: $32,283

State	Actual Avg. Salary	Salary Deficit	Number Teachers	Required Added Expenditure
Alabama	$23,500	$8,783	37,064	$325,533,112
Florida	$23,833	$8,450	101,217	$855,283,650
Georgia	$24,632	$7,651	58,026	$443,956,926
Mississippi	$19,488	$12,795	25,550	$326,912,250
N. Carolina	$23,775	$8,508	57,928	$492,851,424
S. Carolina	$23,039	$9,244	35,029	$323,808,076
Total Additional Expenditure for the Region				$2,768,345,438

*Figures represent costs over 1986-87 school year salaries.

To close the gap completely between average teacher salaries and the earnings opportunities of college graduates in other occupations in the Southeast would require a continuing additional annual expenditure of approximately $2.8 billion. State and local governments in the region cannot

be expected to increase salaries enough in a single year to close such a large deficiency. Progress has been made, but the improvement has been relatively small compared to the absolute deficiency of teacher salaries.

During the 1982-87 period, average teacher salaries grew at a rate just under 8% per year. In the meantime, the earnings of other college-educated workers have been growing at a rate of almost 5% per year. If this continues, it will take fifteen years to close the gap between teacher and nonteacher salaries. At present growth rates, it will take nine years just to achieve the recommendations which are based on the 10-month earnings of college-educated nonteachers.

To achieve competitive levels of teacher salaries sooner 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 increase for teachers. It will require perseverance to continue a high rate of salary growth every year for a number of years. For example, a ten percent annual increase in teacher salaries represents an amount that might be a practical goal for most southeastern states. If the states in the region committed themselves to a ten percent annual increase in teacher salaries beginning with the 1988-89 school year, full parity with the forecast 12-month average earnings of nonteachers could be reached by 1995. Thereafter, relatively smaller annual increases would keep teacher salaries at the competitive level.

The key to success in making teacher pay competitive again is commitment to a long term strategy of planned increases. There can be no one-year, quick solution. The problem is too big for that. States should identify a practical rate of annual salary growth and adopt a firm plan to continue that annual

growth for the specific number of years needed to achieve the goal of a competitive teacher salary level.

Higher teacher salaries will not guarantee better schools. Improvement of public education requires creative efforts on many fronts. 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 we offer sufficient compensation to attract and retain the calibre of talented and hard-working people whom we need to successfully implement the educational program.

References

American Federation of Teachers Research Department. Survey and Analysis of Salary Trends 1986. Washington: American Federation of Teachers, 1986.

American Federation of Teachers Research Department. Survey and Analysis of Salary Trends 1987. Washington: American Federation of Teachers, 1987.

Current Population Survey: Survey of Income and Employment, March 1986 Machine-readable Data File. Washington: U.S. Bureau of the Census, 1987.

Becker, Gary, Human Capital. Chicago: University of Chicago Press, 1975.

Bird, Ronald. Competing for Quality: An Analysis of the Comparability of Public School Teacher Salaries to Earning Opportunities in Other Occupations. Monograph. Research Triangle Park, N. C.: Southeastern Regional Council for Educational Improvement, April 1985.

_____. An Analysis of Competitive Salary Levels for Teachers in the Public Schools of the Southeast. Monograph. Research Triangle Park, N. C.: Southeastern Regional Council for Educational Improvement, November 1985.

_____ and Douglas Wakeman. An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast. Monograph. Research Triangle Park, N. C.: Southeastern Regional Council for Educational Improvement, 1986.

Berry, Barnett. A Case Study of Teacher Attrition in a Metropolitan School System in the Southeast. Monograph. Research Triangle Park, N. C.: Southeastern Regional Council for Educational Improvement, 1984.

_____. Understanding Teacher Supply and Demand in the Southeast. Research Triangle Park, N. C.: Southeastern Regional Council for Educational Improvement, 1985.

Darling-Hammond, Linda. Beyond the Commission Reports: The Coming Crisis in Teaching. Washington: The Rand Corporation, 1984.