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ABSTRACT

Section one of this report deals with the supply of teachers in the southern part of the United States and offers projections for the number of beginning teachers in the region in 1985. The demand for teachers from present to 1995 in the region is analyzed in section two. Consideration is given to the number of teachers now employed, pupil-teacher ratios, changing school-age population, and turnover rates of teachers. The third section combines the projected ranges of supply and demand, and highlights the factors that account for ranges in the projections rather than for definitive numbers. The final section discusses trends in enrollment of advanced degree candidates in teacher education. (JD)

The Changing Labor Market for Teachers in the South

Southern Regional Education Board

Highlights

- The supply of new teachers in the Southern region to the mid-Eighties will be in closer balance with demand than has been the case in recent years. In some specialties, including mathematics, there are already indications of shortages in some sections of the South.

- Tighter selection standards by states in choosing new teachers could reduce the supply of new teachers, and thereby contribute to a possible reversal of the oversupply that has characterized the market for teachers in recent years.

- The outlook for new teachers beyond the mid-Eighties is less certain. If teacher turnover rates are nearer an 8 than a 6 percent range, and if college students continue to steer away from preparation to teach, a shortage of teachers could develop by the end of the decade. Rising enrollments in elementary schools may again be expected later in the decade, which will provide some additional demand for teachers. The bulk of the openings for teachers, however, are created by replacement needs.

- Current data from state education agencies shed little light on what is happening to the crucial teacher turnover rate. Development of a consistent data system to monitor teacher separations, in conjunction with other information about the flow of graduates prepared to teach, would reduce uncertainty about future supply and demand balances.

- Teacher education programs in recent years have depended on a tremendous surge in enrollments of teachers at advanced degree levels. Advanced formal courses no longer constitute the sole route to recertification, and the emphasis on demonstrated competency loosens the automatic tie between pay and the teacher's level of preparation. Under the changing incentives for graduate education of teachers, advanced enrollments in schools of education may decline, thus no longer offsetting losses at the undergraduate level.

The Changing Labor Market for Teachers in the South

Eva C. Galambos

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SREB

Southern Regional Education Board

Foreword

Spokesmen for higher education sometimes attribute poor performance by some college students to inadequate elementary and secondary education. The irony is, of course, that teachers and school administrators are themselves products of higher education. The responsibility of the colleges and universities in staffing the schools is emphasized in the realization that college-trained school personnel have ordinarily controlled some 12 years in the formal educational life of each college freshman. This is a task which involves problems both of quantity and of quality.

A 1975 SREB publication, *The Market for Teachers in the Nation and in the Southern Region*, reported that many college students in the South were "bound to be disappointed if they seek employment as teachers," since demand for new teachers projected at that time would not absorb the projected supply. Dissemination of *quantitative* manpower information is one strategy to help turn around imbalances in a given occupational field. The present report by Eva Galambos provides evidence that the teacher supply and demand situation in the South has indeed entered a new period, although predictions of general regionwide shortages of teachers may not yet be in order. Information contained in reports like the 1975 SREB study very likely have served to signal career counselors and college students about employment trends, thus helping to dampen the overproduction of teachers which threatened during the mid-Seventies.

The present report on future supply and demand for teachers comes at a time when questions about *quality* of the supply have moved into the forefront. Several Southern states are in the process of evaluating the teacher education programs of their collegiate institutions. It would be well that steps for improvement of teacher education and upgrading of teacher competency be put into practice while the supply of teachers is still generally adequate to meet current demands. The present report follows closely upon a recent SREB publication which deals with this qualitative dimension, *Teacher Education and Certification: State Actions in the South* by Robert E. Stoltz, and precedes a forthcoming report on further progress to improve the teacher education pipeline.

Winfred L. Godwin
President

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Introduction

Conventional wisdom in recent years has held that college graduates prepared for teaching encounter great difficulty in finding teaching jobs, and that school systems are deluged with applicants. While this situation was certainly true in the earlier years of the Seventies, recent information points to a less drastic imbalance.

The National Education Association (NEA) supply and demand analysis for 1978 indicates a nationwide 50 percent excess of new teachers over available positions.[1] On the other hand, some school districts do report difficulty in filling jobs, particularly positions in mathematics, science, industrial arts,* and bilingual teachers. Some types of special education teachers are often included on the list. The NEA analysis, despite its overall conclusion that there is a general surplus of teachers, concurs that the supply is least adequate in trade-industrial, agriculture, mathematics, sciences, and distributive education.

The National Center for Education Statistics (NCES), while also stressing the continuing general surplus of teachers in its 1978 review, points to possible shortages in the same specialties, and adds bilingual and learning disability special education teachers. The NCES report calls attention to the long-standing shortage of mathematics teachers during an entire decade of a general surplus of teachers.[2] Unlike the other fields in which there are shortages, there has been little federal activity to promote preparation of mathematics teachers.

Despite recurring gloomy assessments of the market for teacher education graduates, follow-up surveys of college graduates indicate a brighter outcome. An SREB report recently assembled the findings of follow-up surveys conducted by various institutions and higher education coordinating agencies in the 14 Southern states in 1977 and 1978. Among the items compared was the percentage of graduates, by majors, who found jobs directly related to their majors. The median percentage reported for education baccalaureates was 80 percent. The medians for all majors were 61 and 51 percent, respectively, for graduates of public and private colleges. The findings of nationwide surveys of college graduates conducted for the NCES bear out the regional findings. "Underemployment" and unemployment for education baccalaureates is not as grave a problem as for many other majors.[3]

The relatively successful outcomes for education majors are thus not in congruity with the dire predicament they supposedly face in the job market. These contradictions suggest that evaluation of the future labor market for teachers is fraught with uncertainties, in terms of both supply and demand. The major uncertainties are summarized below:

Supply	Demand
How many students will choose education as a major in the ensuing years?	Will pupil-teacher ratios change?
Will tighter selection standards for beginning teachers significantly affect their real supply?	What *is* the turnover rate of teachers, which measures replacement needs?

* The shortage of teachers in industrial arts and vocational subjects may be unrelated to the output of teacher education programs, since teachers in these areas often are recruited from industry rather than the educational sector.

Section I of this report deals with supply. Past trends in the production of teacher education graduates are examined, and projections are then presented for the number of beginning teachers in the region in 1985. The effects of recent state actions to tighten the selection of teachers are summarized for the purpose of evaluating their possible reduction on the future number of teachers.

Section II analyzes the demand for teachers to 1995. Three factors are crucial to the analysis. (a) the number of teachers now employed in the region, and pupil-teacher ratios as a baseline for projecting openings, (b) the changing school-age population, to determine openings for growth, and (c) turnover rates of teachers to estimate replacement needs—the major component of total openings for beginning teachers.

Section III combines the projected ranges of supply and demand and highlights the factors that account for *ranges* in the projections, rather than definitive numbers.

Finally, Section IV discusses possible trends of enrollments of advanced degree candidates in schools of education resulting from changed state recertification regulations and greater input by teachers in the design of their in-service programs.

I. The Supply of Beginning Teachers

Past Trends

The number of college graduates in the field of education has declined absolutely and as a percentage of total baccalaureates during recent years. These trends are documented in Table 1. In 1972, 25 percent of all baccalaureates in the region were in the field of education, but by 1977, this proportion had dropped to 20 percent. The absolute number of baccalaureate degrees in education had declined 13 percent. The decline in the region has not been as precipitous as for the United States, where a 25 percent decline in absolute numbers has occurred.

Graduates in the field of "education" do not constitute the total supply of beginning teachers, since many students major in other subjects but take enough education courses to obtain teacher certificates, and are classified as "teacher education" graduates. Since 1972, the peak year for these teacher education graduates in the United States, the number has declined nationally by 40 percent.[4] The more rapid decline of "teacher education" graduates than of baccalaureates in the field of education reflects a diminished tendency for other majors to include teaching courses in their curriculum.

The decline of baccalaureates in education, and the even sharper drop of "teacher education" graduates, mirrors the tight labor market of the 1970s. As students learned of the poor job prospects and oversupply of beginning teachers, they adjusted their curriculum plans accordingly.

Although baccalaureates in education and beginning teacher education graduates have declined, the number of advanced degrees in education has climbed sharply. In 1977, for the region, the number of master's degrees in education was three-fourths more than it had been just five years earlier. Indeed, the number of advanced degrees in education has begun to approach the number of baccalaureates granted in any one year, a vast change from 1972 when the proportion was one-half.

Some of this mushrooming of master's graduates in education contributes to the supply of beginning teachers, especially in the special education areas. But almost all of these advanced degree holders represent currently or previously employed teachers who are upgrading their credentials.[5]

The incentive to obtain advanced degrees is built into the certification and payment schedules of most state education systems. Teachers who obtain advanced degrees, or even a given number of credits toward such degrees, obtain automatic pay increases which are much larger than any increase they obtain through normal longevity increases. Renewal of certificates depends upon teachers continuing their education and, in years past, many met this requirement by taking advanced college courses and gradually accumulating sufficient credit for a master's degree.

TABLE 1
Trends in the Supply of Teaching Graduates

Section A. "Education" *Degrees as Percent of Total Degrees, SREB Region and United States, 1971-72 and 1976-77

	Baccalaureates		Master's		Doctorates	
	1971-72	1976-77	1971-72	1976-77	1971-72	1976-77
SREB Region	25%	20%	45%	50%	24%	32%
United States	22	16	40	40	21	24

Section B. Number of Baccalaureates in "Education," *SREB Region, Selected Years

1971-72	56,039
1973-74	57,784
1975-76	51,955
1976-77	48,957

Section C. Percent Change in Number of "Education"*Degrees, SREB Region and United States, 1971-72 to 1976-77

	Baccalaureates	Master's	Doctorates
SREB Region	13%	+72%	+49%
United States	25	+29	+13

Section D. Number of Graduates Completing Preparation for Standard Teaching Certificate for the First Time, SREB Region, 1977 and 1978

	Elementary	Secondary	Special Education	Total
1977	25,445	32,294	6,019	63,758
1978	24,384	31,500	5,978	61,862
Percent Change SREB Region	4.2%	2.5%	.7%	3.0%
Percent Change United States	2.8	4.7	4.1	3.9

Source: Sections A, B, and C: NCES reports.
Section D: NEA.

* This caption reflects the current HEGIS designation. It does not include majors in other fields who also earn teacher certificates and are included in Section D of this table.

Projections of Teacher Education Graduates

Two methods of projecting the number of teacher education graduates to be expected in the region in 1985 have been developed for this report. The first method projects education baccalaureates and translates these into a larger number of "graduates prepared to teach for the first time" on the basis of the 1977 relationship between these two variables. The second method develops separate projections of education baccalaureates, master's in education who constitute first-time teachers, and of non-education baccalaureates prepared to teach.

Many factors will affect the supply of entering teachers, and different assumptions about such variables may have large effects on the projected supply. For example, what will be the total pool of college graduates from which the number of education graduates is drawn? What will be the likelihood of non-education majors taking education courses to earn teaching certificates? Will education as a major become more or less popular with students? Will qualified beginning teachers apply for teaching jobs, or look elsewhere in the labor market? The factors taken into consideration in this analysis, and the assumptions for each factor, are detailed in Appendix A.

The two projection methods yield the following ranges for first-time applicants for teaching jobs in the region in 1985.

First projection:	43,200-59,100
Second projection:	48,800-59,200

The lower bound of the projections incorporates all the minimum assumptions about component variables, while the opposite is true of the upper bounds. The uncertainty about the supply of teachers that is evidenced from the variation in the lower bound projection results reflects the underlying state of flux of the supply components. The forecast is further clouded by an additional variable: How many prospective teachers will be ineligible for certification because of recent state actions to tighten selection of teachers?

Tightened Selection of Teachers

In the past, all who finished teacher education training and who sought certification would have been considered as part of the supply of beginning teachers. Whether this situation will be true in the future is now questionable. Recent moves to test graduates of teacher education programs as part of the certification process could reduce the supply.

SREB states that have had experience with administering exams to screen teachers for certification are Georgia, North Carolina, South Carolina, Louisiana, and Mississippi. Arkansas, Tennessee, Virginia, and Florida are slated to join these ranks in the early 1980s. Some states have used the National Teacher Examination (NTE). Others are turning in a different direction to tighten selectivity, partially in recognition of the controversy engendered by the application of NTE in some states. The degree to which testing may reduce the supply of teachers varies considerably; the results to date are summarized in Table 2.

In South Carolina, the State Board of Education concluded that when estimates of the number of teacher education graduates are corrected for the percentages expected to earn the required higher NTE scores, the supply would fall at least 30 percent short of anticipated 1979 demands for new teachers. The report concluded that ". . . retention of the present score requirements will result in a gradual reduction of the pool of candidates for certification as teachers in South Carolina . . . [and] that there will be a sharp reduction in the supply of black candidates for certification as teachers."[6]

A survey of school districts in January 1979, concluded that a shortage of certified teachers existed in Louisiana.[7] This finding preceded the NTE requirement, suggesting that the testing results would have worsened what was already perceived as a shortage.

The long-run approach toward improving the caliber of new teachers is to improve the teacher education programs, and to attract better students to the programs in the first place. Florida and North Carolina are stressing this approach. North Carolina has reviewed all its

TABLE 2

Experience in the SREB Region with Testing Teacher Applicants

	Type of Test Used	Results	Current Status
Florida	At sophomore level, college entrance examination 40th percentile requirement	State Board of Education may waive, and has waived, the requirement for up to 10 percent of applicants to any one program.	State Department is to develop competency tests for teacher applicants prior to certification.
Georgia	Set of competency tests	20 percent of 3,500 applicants failed.	State Board of Education allowed those who did not pass to teach provisionally for one year.
Louisiana	NTE. Varying cut-off scores, most specialty areas near national 25th percentile	47 percent failed in December 1978, 33 percent failed in May 1979.	Local superintendents may temporarily hire teachers for one year if they score within 10 percent of required grade.
Mississippi	NTE	Passing score has been established at a relatively low level and few applicants are eliminated.	
North Carolina	NTE composite score of 950	7 to 8 percent failure rate. Rate has exceeded 50 percent for graduates of predominantly black colleges.	Long-run approach is to improve teacher education programs and to tighten selection of students to these programs.
South Carolina	NTE composite score raised above 975 after 1976 Court decision	Since 1976, 56 percent of applicants have failed. At 975, 35 percent would have failed. Problem is especially grave for graduates of predominantly black colleges.	General Assembly in 1979 legislated development of competency tests, as in Georgia.

Source: Robert L. Stoltz, *Teacher Education and Certification: State Actions in the South* (Atlanta: Southern Regional Education Board, 1979), and personal communications with state education agencies.

teacher education programs in public colleges and eliminated 76 of them. This tightening of standards has not cut *all* teacher preparation at any one college but has eliminated specialty areas or degree levels.

Greater selectivity for admission into teacher education programs may reduce the Scholastic Aptitude Test (SAT) differential that has been found in North Carolina among education graduates as compared to graduates of all programs. For eight of 15 colleges of the University of North Carolina system, the average SAT score of teacher education graduates was at least 7 percent lower than the average of graduates in all majors.[8] To the extent that improvement in the pipeline that produces teachers takes place at an earlier stage than elimination at certification, the recent certification failure rates may eventually be counterbalanced.

Weaver recently reviewed various test scores for education and non-education college students, and concluded that education majors were at the bottom and getting worse. He concludes that "teacher education is the field showing the *least* selectivity, from college-bound applicant to completion of degree," and suggests that teacher education programs have aggravated this trend in their quest to boost enrollments.[9] A particularly worrisome finding is that mathematics is the field in which teacher education students show the greatest deficits relative to other majors. This finding, compounded with the shortage of mathematics teachers in the schools, is an ill omen for improving the teaching of mathematics for the next generation.

The short-run effect of tightening the selectivity of teacher candidates early during the pipeline of their preparation/certification is bound to further reduce the supply of teacher education graduates. In the long run, as the field of teacher preparation becomes more selective, it may benefit from an improved image, and thereby appeal to students who in the past may have looked askance at a field that attracted many of their least competent peers. Such a turnaround, however, will take time.

The emphasis on scores on the NTE or SAT implies that there is a proven relationship between higher scholastic achievement and better teaching. This is only partially so. To the extent that poor scores on such tests indicate a lack of knowledge about the content to be transmitted to school children, the focus on scores makes sense. A teacher who knows no grammar cannot teach it. But mere knowledge of the material to be taught does not guarantee an ability to "put it over," and tests available to date do not measure the affective elements of teaching.

II. The Demand for School Teachers

Projecting openings for teachers depends initially on determining the total number of teachers employed, and the size of the current school-age population. From this, it is then possible to develop current pupil-teacher ratios, and to project openings that may be expected from changes in the number of school-age children. The last component, and the one of greatest magnitude in terms of demand for new teachers, is the estimation of replacement needs for teachers who retire, or leave the profession for other reasons.

Current Number of Teachers Employed

In the absence of a uniform reporting system from state education agencies, two data sources have been used here to estimate the current number of teachers employed in elementary and secondary education in the region, as a base from which to project future demands: (1) the reports of the state employment security agencies (ESA),* (2) annual statistics published by the National Education Association (NEA).[10] The former source includes public and private school teachers, while the latter deals only with the public systems.

Regional employment estimates for teachers, according to the two data sources, are compared in Table 3. The ESA classifications of "adult education teacher" and "other teachers, except college" include a wide assortment of teachers. For some, for example, "bridge, floral design, or navigation teachers," teacher education preparation does not appear to be pertinent. But for others, for example, private music and dance teachers, as well as teachers of vocational subjects in proprietary schools,** teacher education preparation could very well be relevant.

School-Age Population Trends

The number of teachers hired each year depends on two major factors: (a) changing levels in the total number of teachers, as determined by the school-age population and the ratio of pupils per teacher, and (2) replacement needs for teachers who have separated for various reasons.

The number of school-age children in the United States and in the region has declined, and will continue to do so until 1985 (see Figure 1). This decline is a direct result of the recent tendency toward smaller families. The school-age population in the region is projected to decline 8 percent from 1975 to 1985. The comparable decline for the United States

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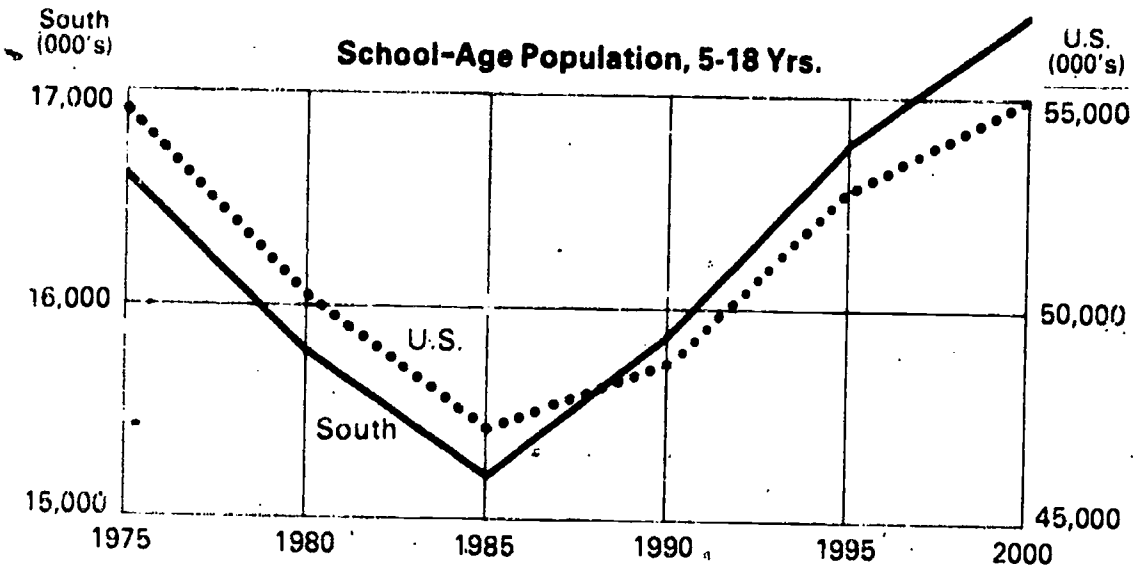
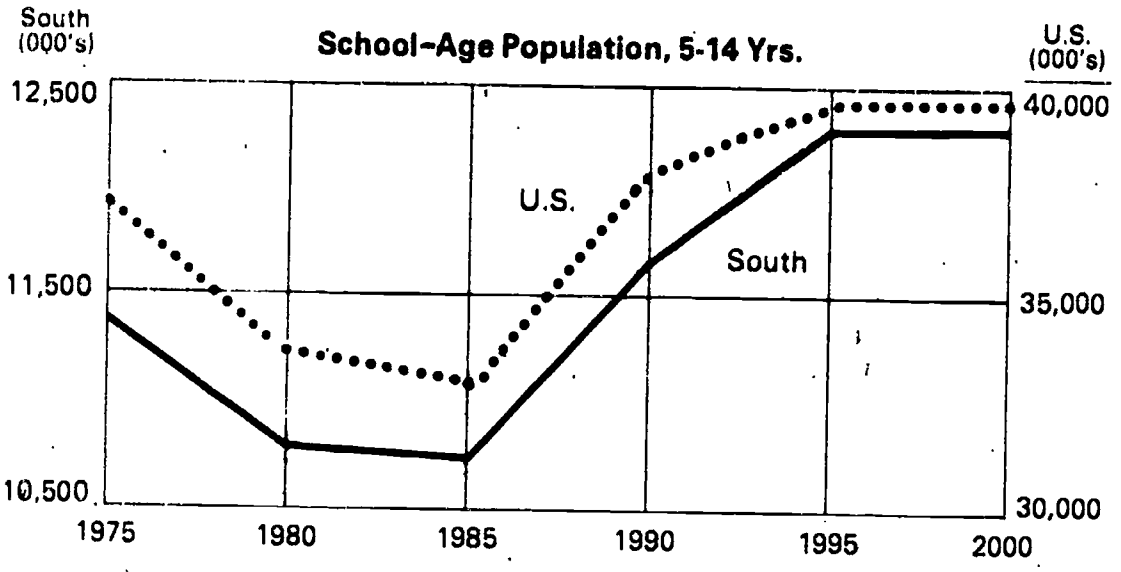
* Each state employment security agency publishes occupational employment statistics data showing employment and job openings by occupation.

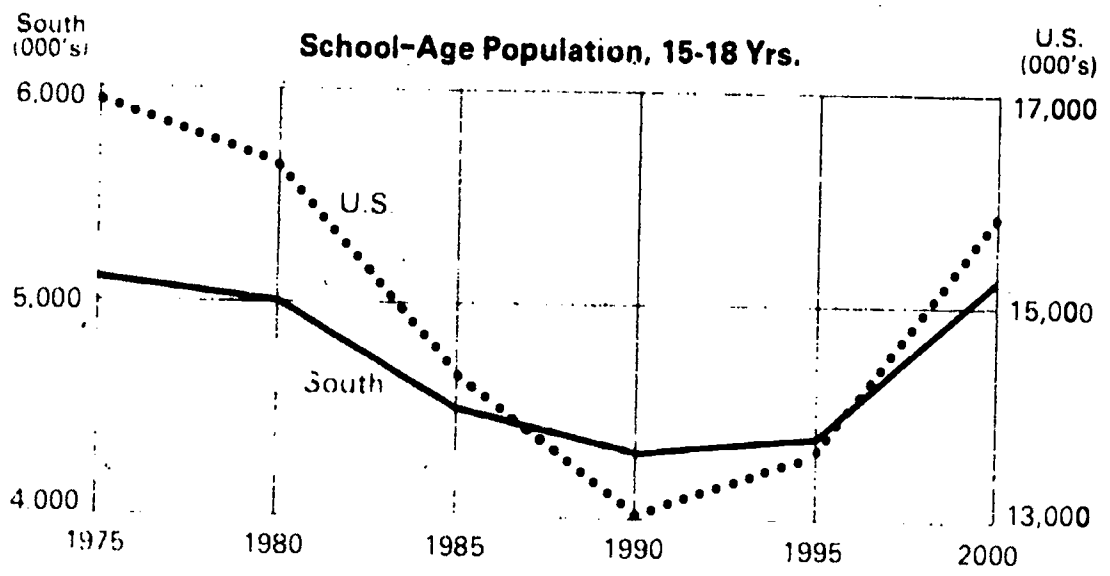
** While demand for vocational education teachers in proprietary schools is relevant for teacher education graduates, unfortunately this is one area in which there is a serious teacher shortage in the public schools, so that the additional openings outside the public school system do little to balance any surpluses of teachers.

Figure 1

Projected School-Age Population
United States and Southern Region, 1975-2000







Source: Calculated from U.S. Bureau of Census *Current Population Survey* P-25, Nos. 796, 721, and 704 -Series IIB Projection-

TABLE 3
Employed Teachers, SREB Region

	1974-75	1977-78	1978-79
National Education Association: Elementary, Secondary and Other Instructional Staff*	688,315	725,100	731,281
State Employment Security Agencies: Preschool, Elementary and Secondary Teachers		729,531**	
Adult Education Teachers		25,745	
Other Teachers, except college		75,126	

* Excludes principals and other school-based certificated supervisors, to improve comparability with the ESA data.

** Employment data for Kentucky, Maryland, Mississippi, and West Virginia refer to 1974, and may thus undercount total employment for the region in 1978. School principals and other administrators are excluded.

is 13.7 percent. The population shift to the Southern states accounts for most of the smaller decline in the region than in the nation.

By 1985, however, the school-age population will again begin to rise. This projected increase is expected, not because of any changes in family size but because of the changing age composition of the population. The post-war baby boom will be producing school children by the mid-Eighties. Because of this demographic factor, as well as the geographic shifts, by 1995, the school-age population in the region will surpass the number in 1975 and continue to climb to the year 2000.

The effect of the post-war baby boom as the children of that generation attend schools during the Eighties is especially apparent when projected school-age population in the elementary and middle school grades is contrasted to that in the high schools. In the region, from 1975 to 1995, 5 to 14 year olds will increase 8 percent, while 15 to 18 year olds will decline by 14 percent.

Pupil-Teacher Ratios

In addition to the increase in school-age population during the next decade, declining pupil-teacher ratios will also contribute to the demand for teachers. Pupil-teacher ratios have continued in a steady decline during the 1970s. For the United States, the average pupil-teacher ratio in 1967 was 23.7:1, while in 1978 it was 19.6:1.[11] The Southern states have participated in this decline of pupil-teacher ratios. In fact, the Southern states have greatly improved their position relative to the national average during the past decade.

Five Southern states now have lower pupil-teacher ratios than the United States average. None fell in this category a decade earlier. Much of the decline in ratios has come about through the addition of specialists rather than a deliberate attempt to lower the number of children in the classroom. In the region's public schools, from 1975 to 1979, elementary teachers have increased by 5 percent, secondary teachers by 6 percent, but other instructional staff by 21 percent.[12] Examples of other instructional staff are special education

teachers, reading specialists, and speech and hearing teachers. Because of unmet needs in many of these specialized areas, it is expected that this group of teachers will continue to increase more rapidly than regular classroom teachers, thus contributing to a continuing decline of the pupil-teacher ratio and, therefore, to the demand for teachers.

Part of the decreased pupil-teacher ratio comes about through the addition of publicly funded kindergartens with kindergarten teachers. The school-age population for purposes of this report includes 5 year olds which inflates the pupil-teacher ratio; but as kindergarten teachers are added, the ratio declines. This influence will continue to depress pupil-teacher ratios in those Southern states that have not gone far in establishing public kindergartens.

Projection of Openings to Account for Enrollment Changes

When the total school-age population in 1980 in the region is divided by the number of public school instructional staff for 1978-79 (the latest available NEA data), an index is created of 20.4 school-age children per public school instructional staff member. This index is not strictly comparable to a pupil-teacher ratio. The latter compares pupils in public schools against staff in the same schools. The index, by relating total school-age population to public school instructional staff, overestimates the actual public school pupil-teacher ratio, but is a useful projection tool.

Public school instructional staff projections for the region, on the basis of maintaining the current 20.4 index, are shown in Table 4.

In 1970, public school enrollments in the region accounted for 93 percent of total enrollments in kindergarten through high school. (For the United States the proportion was 89 percent and remained at that level in 1978.) On the assumption that pupil-teacher ratios in

TABLE 4
Projected Employment of Teachers SREB Region, 1985-95
Projected School Instructional Staff*

	Total Employment	Average Annual Openings Due to Growth		
	Public Schools	Public Schools	Private Schools	All Schools
1978-79	773,591			
1985	747,534	4,342**	327	4,669
1990	781,338	+6,761	+509	+7,270
1995	821,622	+8,057	+606	+8,663

* Principals and other school-based supervisors are included, thus raising the total instructional staff above the 731,281 reported for 1978-79 in Table 2. Since promotions from teaching to fill openings of supervisory positions create openings for teachers, it is appropriate to include principals and other supervisors in the base for calculating openings.

** The average annual openings for the period 1979-1985 represent the change over a six-year period, rather than over the five-year periods for 1985-1995.

the private sector in the region will be the same as for the public schools, the demand for private sector teachers is estimated from its 7 percent share of 1970 enrollments in both public and private schools.

Total public school instructional staff will decline in the early 1980s, producing negative average annual openings to 1985. But during the mid-Eighties, and into the decade of the Nineties, the region will again require additional teachers to maintain the current index of pupils per teacher. By 1990, an average of 8,700 teachers annually will be required to staff the growth of employment, without counting replacements for those who leave teaching.

TABLE 5

Indications of Turnover Rates from Various Sources

Florida	On the average, elementary school faculty are replaced every 10.23 years, and secondary school staff every 14.03 years; translating into average turnover rates of 9.8 and 7.1 percent, respectively.
Georgia	Turnover rate was 6.8 percent in 1978 and 6.7 percent in 1977. This is the difference between total number of new teachers hired from the change in the number of employed teachers from one year to the next, divided by the total number employed.
Mississippi	Turnover rate declined from 5.8 percent and 6.7 percent for elementary and secondary teachers, respectively, in 1976, to 3.1 percent and 4.6 percent in 1979. (Same method as described for Georgia.)
North Carolina	In 1978-79, 7.2 percent of the public school teachers had not taught in the state the previous year. (This is reduced to 6.2 percent when out-of-state hirees are excluded.) Since total employment of teachers declined from the previous year, these newly hired teachers must represent replacement needs, and are an indication of turnover.
Virginia	An average 7.5 percent was the turnover rate for 1978. (Same method as described for Georgia.)
National Education Association	An 8.3 percent turnover rate is implied from the fact that in 1978-79 the average teacher had 12 years of teaching experience. The 12 years average teaching experience is slightly longer than in earlier years, thus implying a possible decline in the turnover rate. However, at any time, the average years of teaching experience of the current staff reflects not only past replacement hirees, but also those teachers who were employed to fill new positions. Since more new positions were being created in the 1960s than a decade later, it is reasonable that the earlier average years of experience should be lower than the current one, without necessarily signifying a declining turnover or replacement rate.

Sources: Georgia, North Carolina, and NEA data: personal communication with state agencies and with William S. Graybeal, NEA.

Florida: Florida State Department of Education, *Training for In-service Educational Personnel*, Progress Report (Tallahassee, February 1, 1979), p. 14.

Mississippi: Mississippi State Department of Education, *Teacher Supply and Demand in Mississippi*, August 1979.

Virginia: Department of Education, Commonwealth of Virginia, *Virginia's Supply of Public School Instructional Personnel*, January 1979.

Projected Openings for Replacement Needs

The second and quantitatively more important--component of demand for teachers in any year is for replacement needs. Teachers who retire or leave teaching for other reasons cause openings. Likewise, teachers promoted to administrative positions create openings for new teachers. From a statewide perspective, teachers who transfer out-of-state also create openings for new teachers.*

The National Education Association and the National Center for Educational Statistics (NCES) assumed the average turnover rate for teachers during the late 1970s for the United States to be approximately 6 percent.[13] Poor job prospects for teachers have been invoked to explain this rather conservative estimate of the turnover rate. The NCES teacher demand projections for the mid-Eighties do incorporate an alternative 8 percent turnover rate.

Discipline problems in the schools, relatively low pay, and bureaucratic demands upon teachers are often cited in news stories to explain the disenchantment of "burnt-out" teachers who allegedly are fleeing the profession in droves. Yet there is little hard information to document either the 6 or the 8 percent turnover rate. The difference between assuming a 6 percent versus an 8 percent turnover rate produces a considerably higher total demand for teachers in any one year.

Spotty data obtained for this report from various state departments of education in the region are summarized in Table 5. The data are inconclusive as to whether the higher or lower turnover rate is justified.

A study of the "survival rate" in teaching, of the annual cohorts of public school teachers hired from 1968 through 1975 in St. Louis, shows that those hired in later years had higher retention rates.[14] This would suggest that the lower turnover rate might be the more appropriate one for projecting teacher demand.

Average annual replacement needs estimated by applying the 6 and 8 percent rates, respectively, to current and projected total employed teachers in the region in both the public and private schools are shown below:

Average Annual Openings for Replacement Needs

Period	6% Rate	8% Rate
1978-1985	48,900	65,100
1985-1990	49,300	65,800
1990-1995	51,700	68,900

(See Appendix B for derivation.)

Total Projected Job Openings for Teachers

The projections of average annual openings developed to account for a change in school enrollments and replacement needs are combined in Column 1, Table 6. Also shown, in Column 2, are the projected average annual openings for 1978-85, as obtained from the employment security agencies of the 14 Southern states. The data in Column 2 do not include the 7,500 openings in the additional classifications of "adult education teacher" and "other teachers, except college."

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* From a regional perspective, however, turnover caused by openings in one SREB state when a teacher transfers to another SREB state creates no net regional openings. Unfortunately no data are available on the interstate movements of teachers. Individual state turnover rates may thus overstate regional openings to the extent that any of this turnover represents teacher transfers among Southern states.

TABLE 6

Average Annual Openings for Teachers, Kindergarten-12th Grade SREB Region, 1985-1995

	Total Openings		
	SREB Projections*	State Employment Security Agency Projection**	Openings to be Filled by Beginning Teachers***
	(1)	(2)	(3)
1978-1985	42,200-60,400	44,100	30,900-42,300
1985-1990	56,600-73,100		39,600-51,200
1990-1995	60,400-77,600		42,300-54,300

* The range of the projections reflects the differential results obtained by applying the 6 and 8 percent turnover rate assumptions.

** For four states, the projection period is 1974-85.

*** SREB projection.

School districts fill openings for teachers by hiring beginning teachers as well as those previously employed. The latter includes those who were temporarily out of teaching and transfers from out-of-state. The many teacher education graduates who during recent years either could not find a teaching job or chose not to apply for one, represent another potential but indeterminate supply of teachers with whom new graduates may be competing for openings.

The National Center for Education Statistics estimates the distribution of beginning versus experienced teachers among those hired by school districts to be 70 percent to 30 percent, respectively.[15] The NEA 1978 projection uses a mix of 64 percent beginning and 36 percent reentering teachers.[16] Spotty data obtained for this report from some states suggest a wide range in this mix: 57 percent beginning teachers in North Carolina in 1978-79 (calculated as the percent beginning teachers of all teachers not employed in the state the previous year), 83 to 78 percent in Mississippi from 1975 to 1979; 82 percent in Virginia for 1978-79, and 62 percent for Kentucky for 1977-78.

III. Comparison of Supply and Demand Projections

The intermediate values of the two alternative supply projections developed in page 5 are 51,150 to 54,000 new teacher education graduates in 1985 who are expected to seek teaching jobs. This exceeds by at least 16 percent the top of the range of average annual job openings until 1985. Thus, signs point to a mild surplus of new teachers until the mid-Eighties.

However, by the late Eighties and early Nineties the outlook for teachers should improve. If turnover rates, for which current data are quite uncertain, are near the 8 percent level, and if the proportion of college students choosing education continues to decline, then conceivably there could be a teacher shortage again by the late 1980s.

Under the "low" supply assumptions (declining growth rate of total baccalaureates and a decline from the current regional 20 percent proportion education majors to the current national 16 percent), the two alternate supply projection methods produce 43,200 to 48,800 beginning teachers who will apply for jobs in 1985. No adjustment has been made for possible attrition if testing and tighter selection processes eliminate some of the applicants. Such attrition may result in a lower actual supply that is below the demand for beginning teachers estimated at 51,000 to 54,000 for the 1985-1995 period if turnover rates are on the high side of the range. The results of the projections of supply for 1985 as compared to demand for 1978-1995 are shown in Figure 2.

To orient the reader in evaluating the projections for 1985 and later periods, the assumptions which have the effect of either balancing or unbalancing the supply and demand relationships are reviewed in Table 7.

The assumptions with the greatest effect on the outcomes are Numbers 1, 4, and 7. Simultaneous reinforcement of effects from these alternate assumptions could well swing the results in the late 1980s either to a real shortage or to a continuation of the surplus. Unfortunately, because of the lack of standardized data collection by state departments of education, there is not much guidance as to what the effects will be from turnover rates. However, data on the effects of items "4" and "7" (choice of education as a major, and severity of the tightened selections) will be readily available for a continuing evaluation of the supply and demand outlook.

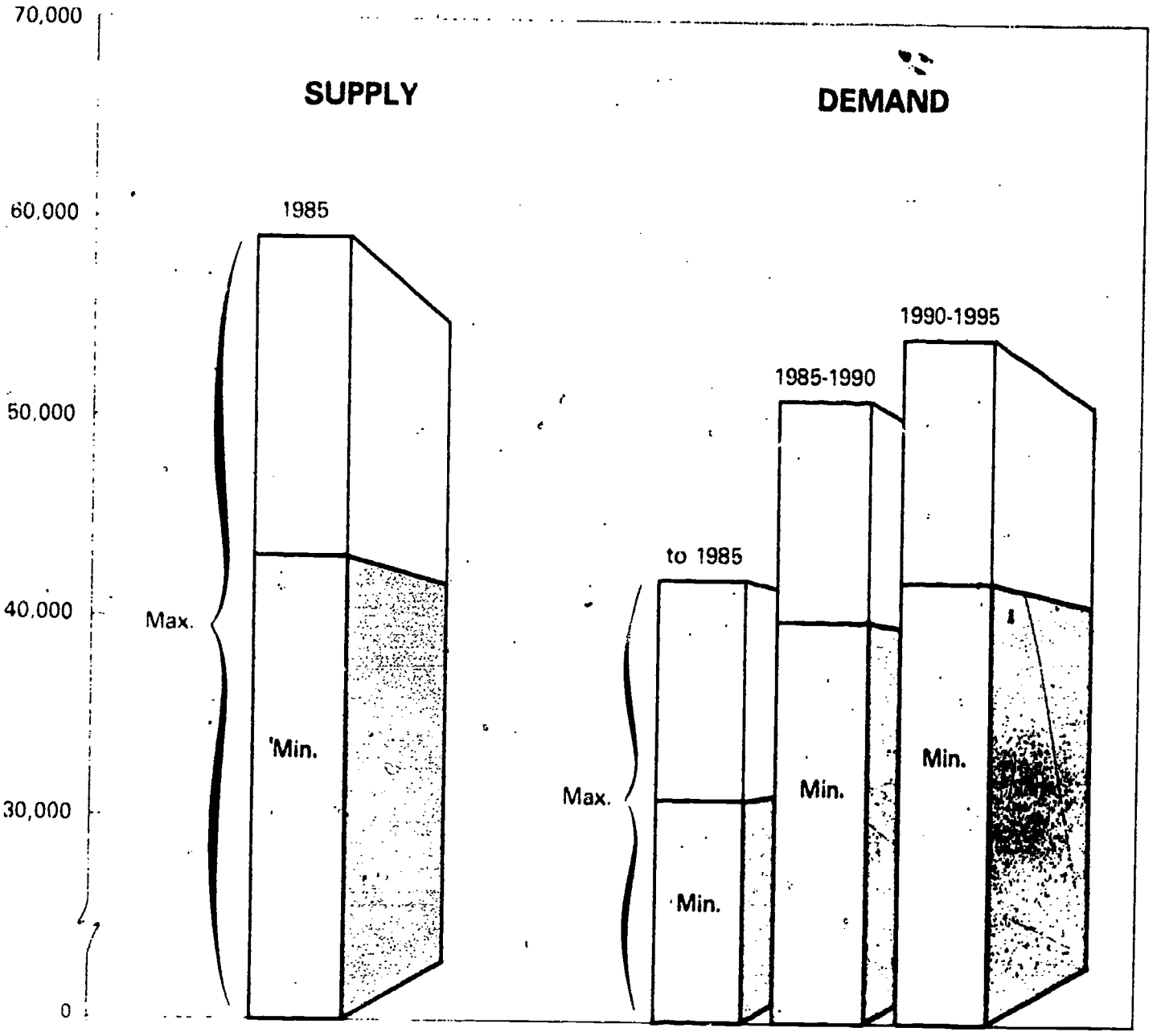
TABLE 7

Conflicting Assumptions for Analysis of New Teacher Supply

Assumptions Making for a Deficit of Teachers in Late 1980s.	Assumptions Making for a Surplus of Teachers in Late 1980s
1. Teacher turnover rates are 8 percent or higher.	1. Teacher turnover rates are 6 percent or lower.
2. Beginning teachers account for more than 70 percent of those employed by school districts.	2. Beginning teachers account for fewer than 70 percent of those employed by school districts.
3. (Corollary to No. 2) The so-called reserve pool of teachers who decide to enter or reenter teaching is not large.	3. (Corollary to No. 2) The reserve pool of teachers who decide to enter or reenter teaching is large.
4. The proportion of education majors at the baccalaureate level in the region will decline to 16 percent which is the current national proportion.	4. The proportion of education majors at the baccalaureate level in the region will remain at the current 20 percent level.
5. The number of baccalaureate degrees in the region will be approximately 270,000 in 1985 which, when combined with assumption 4, has a considerable impact on the number of new teachers.	5. The number of baccalaureate degrees in the region will be approximately 280,000 in 1985 which, when combined with assumption 4, has a considerable impact on the number of new teachers.
6. Pupil-teacher ratios will decline from the current level.	6. Pupil-teacher ratios will remain at the current levels.
7. Selectivity of students admitted to education programs and testing of certificate applicants will eliminate substantial numbers who would otherwise constitute a supply of beginning teachers.	7. Selectivity of education majors will not increase, nor will testing requirements eliminate applicants.
8. Non-education majors will continue their trend of showing less interest in obtaining teaching certificates.	8. Non-education majors will become more interested in preparing themselves to teach.

Figure 2

Supply and Demand for New Teachers SREB Region, 1985-1995



Maximum: Supply — 20% of baccalaureates are Education majors
Demand — 8% turnover rate

Minimum: Supply — 16% of baccalaureates are Education majors
Demand — 6% turnover rate

IV. Teacher Education Programs and Advanced Preparation

The decline of enrollments in beginning teacher preparation programs in most colleges has been more than offset in recent years by burgeoning enrollments of graduate students. The increase in master's degrees in education reflects this transformation. While for the region, at the baccalaureate level, degrees in education declined by 7,064 from 1972 to 1977, at the master's level they rose 17,183, and this increase in advanced degrees in education does not reflect additional graduate enrollments of individuals who amass graduate credits without earning degrees. Approximately 10 percent of the education graduates at the master's level are estimated to be beginning teachers, while the rest are currently or previously employed teachers.

Incentives built into the public education system have helped fill the schools of education with graduate students, but there is the possibility that some of these incentives are weakening. Traditionally, the path to promotions and higher salaries of public school teachers has been tied to educational levels; the higher the degree of the teacher, the higher the pay. Indeed, most state and local system teacher salary schedules specify a salary increase when a teacher has accumulated a given number of college credit hours toward an advanced degree, even if the degree has not been earned.

This rigid connection between degree and pay, which fuels graduate enrollments in schools of education, reflects two strong currents in our society. The first is that pay is increasingly being institutionalized rather than tied to individual evaluations of merit. Teachers' organizations as well as the bureaucratization of public education have encouraged this homogeneous treatment.

The second factor is the universal faith that ever more education is bound to produce better professionals, whether they be teachers or doctors. For teachers this faith is an extension of the experience of earlier decades when teachers who were not college graduates were replaced by those with degrees. If teaching by college graduates was better than that of non-graduates, then surely teaching by persons with master's degrees must be even better.

Unfortunately, evidence on this point is very weak. A Rand Corporation review of research about educational effectiveness in American public schools states: "Studies of teacher characteristics since the 1930s now number in the thousands. In spite of this large implied expenditure of time and money, little is known about the influence of teacher characteristics on student performance."[17] More specifically, the authors summarize, "The educational practices for which school systems have traditionally been willing to pay a premium do not appear to make a major difference in student outcomes. Teachers' experience and teachers' advanced degrees, the two basic factors that determine salary, are not clearly related to student achievement."[18] Indeed, the Rand review of education research concludes that we really have no knowledge of what changes in school resources, processes, structure, and funding affect educational outcomes. The Carnegie Council similarly bemoans that so little is known about how to prepare and select effective teachers.[19]

Changing Incentives for Advanced Preparation

The budding movement to certify teachers according to their "competency," rather than just by recognition of their degrees, may eventually diminish current emphasis on advanced degrees. In 1973, Florida eliminated its state-mandated tie between degree level and pay of teachers, although local school districts continue to use degrees as a determinant of salary. In New York, the emphasis on assessing the competency of the teachers instead of credentialing on the basis of degree level has resulted in eliminating graduate work requirements for certification, a significant shift of policy in that state.

By contrast, some leaders in teacher education support a minimum of five years to prepare beginning teachers. According to Howsam, "If you were to do what our Commission [on the Profession of Teaching] recommends, namely to add a fifth year of preparation to the existing program and require an internship for every person before he or she could be certified, you would see how the surplus would fade away."[20]

The long-time practice of tying recertification of teachers to their having earned college credits in the interim has also promoted graduate attendance in the colleges of education. Each summer, and all year long in areas where teachers have access to colleges, hundreds take graduate education courses to maintain their certificates. This tie between graduate credits and recertification is being loosened. In Georgia, for example, what used to be a requirement of 10 *college credit* hours for recertification every three years is now a requirement for 10 staff development units which may or may not be earned via formal college studies. Many states are moving in this direction. Some allow travel to count as a required unit.

This change will gradually diminish the demand for in-service offerings within the colleges of education. Teachers have been instrumental in gaining more latitude about how their continuing education requirements should be met. To some extent their demands for more choice are a reaction against peripheral courses they had taken that seemed to have no relevance to their classroom performance. According to one expert in teacher education, "Graduate study and in-service education are hardly ever designed to improve teaching performance. . . .Graduate courses, almost always devised by college professors, are a good example of something that someone else does to teachers. Too often, they are shoddily put together, vapid, dreary efforts."[21]

It has been openly admitted by a critic within the educational establishment that no evaluative data exist on the effects of in-service programs. The strong system of incentives which support in-service training of teachers accounts for the lack of evaluation of its results. The system provides salary increases to teachers and indirect subsidies to colleges and universities. "When such public policy decisions have been made and have been in place for decades, it is not surprising that the consequences of these decisions have not been evaluated."[22]

Changing Settings for In-Service Training

Current directions indicate that teachers may be gaining more input into devising their in-service programs. Development of local school system comprehensive plans for in-service education with mandatory participation by teachers, and teacher "renewal" centers within local districts, are examples of the movement to give teachers more control over their in-service training.

Lawrence's recent review of in-service training programs concluded that school-based programs in which teachers participate tend to have greater success than those conducted by college or other outside personnel without the assistance of teachers.[23] Even when the college is the setting for in-service programs, the outcome is judged to be more favorable if school personnel are involved in the planning. School-based or school-specific in-service programs can be tailored to fit teachers and their students. The in-service training needs of teachers in an inner city school are quite different from those in a suburban setting. The school-based programs may also be less abstract, and more apt to address an issue like "How do I teach fractions?" than a generalized and usually unproven learning theory discussed in the college environment.

The emphasis on the school as the setting for in-service training is related to current ideas that the best hope for educational reform lies with the individual school as a total system. Goodlad, in his search of what produces effective educational change, concludes that the individual teacher, no matter how capable, is too constrained to bring about change. On the other hand, the school *system* as a whole is too "depersonalized, complex and amorphous."[24] It is the school unit defined as its community, teachers, principal, and students that constitutes the best hope for educational change. This philosophy implies decentralization and more local control.

If school-based in-service training with greater participation by teachers takes hold, the schools of education will have to accommodate themselves to change. Control over in-service education will be shared and decentralized relative to the current system. Some authors predict that a greater federal role in education will bring more funds for staff development, with an ensuing struggle between teachers' organizations and collegiate schools of education over control of these funds.[25]

Summary

Current evidence about supply and demand balances for teacher education graduates is conflicting. Some of the contradictions may derive from the biases of the sources involved. Schools of education have a stake in teacher shortages. School districts, accustomed during recent years to being able to choose among an army of applicants, may interpret a turnaround in this situation as a shortage instead of a balance. Graduates who cannot obtain teaching jobs, especially in popular metropolitan areas, are more likely to interpret the market as in a state of surplus. Further, perceptions of a prior condition have a way of lingering beyond a change in the market, so that a turnaround from a surplus to a balance may be recognized only after a lag.

Since the pipeline for preparing teachers takes at least four years of college and since it also requires time to change perceptions should the market warrant adjustment to new conditions, it is important to attempt to anticipate a possible turnaround in the labor market for teachers.

The conclusions of this analysis are that until 1985 there should be a fairly balanced situation in the supply and demand situation for teachers. The *lower* bound of the supply projections to 1985 indicates no problem for the region, even when a high (8 percent) teacher turnover rate is assumed. This is not to say that special teaching fields or some geographic areas may not encounter shortages between now and 1985. Indeed, the consistent shortage of teachers for one of the most basic of all disciplines—mathematics – is certainly a current problem that deserves immediate attention.

For the period after 1985, the projections spell much greater uncertainty. If all minimum supply conditions were to prevail, a shortage of beginning teachers might well occur. This change would come at a time when the declining number of college graduates in all disciplines would gain for them an improving job market. Non-education majors or former teachers would then become more difficult to lure into the elementary and secondary schools because other occupations might be open to them.

Better data availability could remove much uncertainty, so that students and educators might successfully anticipate correct postures regarding teacher education beyond the early Eighties. State departments of education produce voluminous computerized information about teachers and students. It should not be difficult to program a component to monitor teacher turnover rates in each state, data which are presently unavailable. Periodic follow-up surveys of college graduates can produce clues about the extent to which teacher education graduates are applying for and obtaining teaching jobs. State teacher certification agencies certainly could share the effects of their newly instituted selectivity requirements on teacher supply. With continuing attention to such variables, in addition to others for which data flow is already available, the outlook beyond the early Eighties could be projected with greater certainty.

Under the changing incentives for graduate education of teachers, advanced enrollments in the schools of education may stop growing and possibly decline. Thus, formal, traditional graduate education, within college halls, may no longer be counted on to offset

enrollment losses at the undergraduate levels. Schools of education, if they wish to accommodate to these changes, will have to adapt to greater decentralization and flexibility in their offerings. While they will no doubt maintain their role in the continuing education of teachers, increasingly they will be called on to share their control over the subject matter that is offered to teachers and over the locale where it is provided.

In some institutions, graduate faculty in the schools of education will engage in research to advance the theoretical base of the teaching profession. But the average classroom teachers who participate in postgraduate education, for credit or non-credit, are more likely to need and seek help on specific content of what they are teaching or about a problem in a given situation than to explore the latest abstract learning theories. With the greater decentralization of continuing education of teachers, college faculty increasingly will be asked to respond to such specific needs of classroom teachers.

The future adequacy of teacher supply, in terms of both quantity and quality, is inextricably tied to a host of other problems that beset the nation's public schools. If progress is made in improving the schools along a variety of fronts, better qualified and additional personnel will be attracted to the teaching profession. On the other hand, just better teachers -- in the absence of more motivated students, more caring parents, and increased community support of the schools will largely be frustrated in their efforts toward improvement of elementary and secondary education.

Notes

1. William S. Graybeal *Teacher Supply and Demand in Public Schools, 1978* (Washington, D.C.: National Education Association, 1979), p. 11.

2. A. Stafford Metz, *Teacher and School Administrator Supply and Demand* (Washington, D.C.: U. S. Government Printing Office, 1979), p. 17.

3. Mark F. Borinsky, *1976 Survey of 1974-75 College Graduates* (Washington, D.C.: National Center for Education Statistics, U.S. Government Printing Office, 1978), and unpublished data from a similar survey of 1976-77 graduates also conducted by NCES.

4. William S. Graybeal, *op. cit.*, p. 4.

5. Mark F. Borinsky, *op. cit.*, p. 8, and unpublished data from the *1978 Survey of 1976-77 College Graduates.*

6. Report Submitted by the State Board of Education to the General Assembly Outlining the Long-Range Impact of Continued Use of the NTE on the Quality and Supply of Public School Teachers in South Carolina. February 1979, p. 9. (Mimeographed.)

7. Harold L. Buckmaster and Vern A. Pitre, *A Determination of Employment Availability of Louisiana Certified Teachers, Academic Year 1978-79* (Thibodaux, La.: Nichols State University, March 1979), p. 21.

8. University of North Carolina General Administration, *A Review and Evaluation of Teacher Education in the University of North Carolina,* Chapel Hill, N.C., October 1977, p. 72.

9. W. Timothy Weaver, "In Search of Quality: The Need for Talent in Teaching," *Phi Delta Kappan* (September 1979), pp. 30-32.

10. National Education Association, *Estimates of School Statistics 1975-76 and 1978-79* (Washington, D.C.).

11. National Education Association, *Rankings of the States, 1968 and 1979* (Washington, D.C.).

12. National Education Association, *Estimates of Schools Statistics 1975-76 and 1978-79* (Washington, D.C.).

13. William S. Graybeal, *op. cit.*, and *Projections of Education Statistics to 1986-87* (Washington, D.C.: National Center for Education Statistics, U.S. Government Printing Office, 1978), p. 62.

14. Jonathan A. Mark and Barry D. Anderson, "Teacher Survival Rates--A Current Look," *American Educational Research Journal* (Summer 1978), pp. 379-383.

15. A. Stafford Metz, *op. cit.*, p. 23.

16. William S. Graybeal, *op. cit.*, p. 11.

17. Harvey A. Averch, et al, *How Effective Is Schooling?* (Englewood Cliffs, N.J.: Educational Technology Publications, 1974), p. 58.

18. *Ibid.*, p. 172.

19. Carnegie Council on Policy Studies in Higher Education, *Giving Youth a Better Chance: Options for Education, Work and Service* (San Francisco: Jossey-Bass, 1979).

20. Robert B. Howsam, "The Profession of Teaching," *Issues in Inservice Education* (Syracuse, N.Y.: National Council of States in Inservice Education, Syracuse University, 1976), p. 12.

21. Roy A. Edelfelt, "The Reform of Education and Teacher Education: A Complex Task," *The Journal of Teacher Education* (Summer 1972), p. 118.

22. Frederick J. McDonald, "Criteria and Methods for Evaluating Inservice Training Programs," *Issues in Inservice Education* (Syracuse, N.Y., 1976), p. 70.

23. Gordon Lawrence, *Patterns of Effective Inservice Education* (Tallahassee, Fl.: Florida Educational Research and Development Program, Florida Department of Education, 1974), pp. 8-12.

24. John I. Goodlad, *The Dynamics of Educational Change: Toward Responsive Schools* (New York: McGraw Hill, 1975), p. 173.

25. Don Davies, "Teacher Education in the Future," *Teacher Education: The Seventy-fourth Yearbook of the National Society for the Study of Education* (Chicago: University of Chicago Press, 1975), pp. 103-110.

Appendix A

Components of Supply Projections

1. Total Number of Baccalaureates in the Region

Projections of the supply of college graduates developed by SREB in 1978 indicate 280,000 baccalaureates for the region in 1985 on the basis of the historical regional share of the one million baccalaureates projected by U.S.O.E. for the United States in 1985. This SREB projection represents an 11 percent increase in degrees in 1985 over the then latest data available which were for 1976. The projection of 280,000 baccalaureates is the high point of the range.

In 1977, the number of baccalaureates in the region and in the United States declined for the first time, instead of following projected growth lines. Therefore, the 1985 projection of 11 percent growth (to reflect projected moderate enrollment increases in the region until decline begins in the early 1980s) was revised downward to a 7 percent increase, and a projected total of 270,000 baccalaureates in the region in 1985. This constitutes the lower limit of the range.

2. Education Baccalaureates as a Share of Total Baccalaureates

The 1977 proportion of education baccalaureates in the South was 20 percent of all baccalaureates, and this constitutes the upper limit for the projection, while the current 16 percent share for the United States represents the lower limit.

3. Percent of Baccalaureate Graduates Applying for Teaching Jobs

According to the U.S.O.E. *1976 Survey of 1974-75 College Graduates*, 78 percent of graduates prepared to teach applied for teaching jobs. The unpublished *1978 Survey* shows this proportion as 77 percent. The use of this proportion implies that the remainder chose not to apply because they preferred other activity. If, on the other hand, the remainder includes graduates who failed to apply only because they thought chances for teaching were nonexistent, then the supply is really larger than the 78 percent implies.

4. Conversion of Education Baccalaureates to Graduates Prepared to Teach

The first projection method uses the 1977 relationship between the 63,758 graduates completing preparation to teach for the first time as reported by the National Education Association for the Southern states, and the corresponding number of education baccalaureates 48,957. The resulting 130 percent proportion is applied to the 1985 projected education baccalaureates to estimate the number of those prepared to teach. For the upper range, a 137 percent proportion is used, to reflect the current relationship for the nation. Indirectly included are non-education baccalaureates and masters in education prepared for initial teaching certificates. The second method projects the supply components that exceed education baccalaureates separately.

5. Master's in Education

In 1977, 41,000 master's degrees in education were earned in the region. This constitutes the lower limit of the projection. The upper limit is 45,000 master's in education in 1985, on the assumption of a 10 percent growth factor.

Only 10 percent of master's level graduates in the field of education in 1976-77 represented newly qualified teachers. The remainder are or have been employed as teachers and are upgrading themselves. (These data stem from an unpublished report on college graduates in preparation by the National Center for Education Statistics.)

6. Non-Education Majors

Unpublished data from the *1978 Survey of 1976-77 College Graduates* show that 7.2 percent of the non-education baccalaureates are prepared to teach. This proportion is applied to the high and low projected total baccalaureates minus the high and low projected education majors.

Appendix B

Projected Average Annual Openings for Replacement Needs
Southern Region 1978-1995

	School Teachers Kindergarten-12				Estimated Replacement Needs	
	Public	Private	All Schools	Moving Average	6%	8%
1977-78	767,155*	57,743	824,898			
1985	747,534	56,266	803,800	814,349	48,861	65,148
1990	781,338	58,810	840,148	821,974	49,318	65,758
1995	821,622	61,843	883,465	861,807	51,708	68,945

* Total instructional staff, including principals and other school-based supervisory personnel, NEA.