

**PUBLIC EDUCATION:
A MAJOR AMERICAN GROWTH
INDUSTRY IN THE 1990'S**



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Contents

Second Largest American Industry Exceeds Private Sector Job Growth	4
Education the Largest Component of Governments.	4
Public Education Jobs Growth Accelerates in the Nineties	5
Private Education Expansion Slows	7
Job Increases Double in Public Elementary and High Schools	9
Nation Adds a Million Public School Teachers and Other Instructional Staff.	11
Increases Strongest in South and West.	12
Public Colleges and Universities Have 80 Percent of Enrollment	12
Sharp College Employment Rise in 13 States	14
Substantial Growth in Public Education Seen Ahead	14
The Making of a Crunch	15
Fewer Young Workers in Education	16
Facing Up to a Decade of Demographic Transition	17
Conclusions.	17
 Table 1. Industries Adding 500,000 or More Jobs, 1988-98	 3
Table 2. Major Functional Sectors in State and Local Government Employment, 1998	4
Table 3. Components of Public Education Employment, 1998	4
Table 4. Public Education Employment, State and Local Government, by State, 1988-98	8
Table 5. Percent Distribution of School Age Population 15-17 and Elementary and High School Employment, 1998	9
Table 6. Public Elementary and Secondary Education Employment, State and Local Government, By State, 1988-98	10
Table 7. Regional Distribution of Population 18-24 and Employment in Public Colleges and Universities, 1998	12
Table 8. Public Higher Education Employment, State and Local Government, By State, 1988-98	13

Figure 1. Employment Increases in Public Education, 1978-1998	6
Figure 2. Distribution of Employment Increases in Public Education, 1980's and 1990's.	6
Figure 3. Comparative Increases in State and Local Government Education Employment, 1978-98	7
Figure 4. Regional Increases in Elementary and High School Employment, 1988-1998	11
Figure 5. Older and Younger Workers in Education and the Private Sector, 1999	15

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PUBLIC EDUCATION:

A MAJOR AMERICAN GROWTH INDUSTRY IN THE 1990'S

Public education, very much in the forefront of American concerns, has been a major growth industry in the 1990's, expanding its employment by 23.7 percent from 1988 to 1998, well above the 20.7 percent increase for the overall private economy. The 1.8 million jobs added in state and local government education functions placed this sector third among America's growth industries in the sheer magnitude of its employment rise. The largest increase came in business services, with nearly 4 million more jobs in the 1990's; the second largest increase was health services.

This Rockefeller Institute Report examines the record of the 1990's, comparing it to the experience of the 1980's. It reviews developments in public education overall, and separately at the state and local levels, in elementary and secondary education, with comparisons for instructional and other staff, and in higher education, libraries and other educational activities. It also explores comparative developments in educational services in the private sector, combining both nonprofit and profit-making education activities. Finally, It looks ahead to some key workforce challenges facing the educational enterprise at the outset of a new decade of demographic transition.

Table 1
Industries Adding 500,000 or More Jobs, 1988-98

<i>Industry</i>	<i>Increase (in Thousands)</i>
Business Services	3,946
Health Services	2,740
Public Education	1,809
Eating and Drinking Places	1,502
Social Services	1,092
Engineering and Management services	955
Construction Special Trade Contractors	769
Amusement and recreation Services	624
Membership Organizations	621
Private Educational Services	610

The data on employment in public education are drawn from an annual survey of government employment conducted by the U.S. Bureau of the Census for March of each year. Prior to 1997, the survey reference month was October. The data on private education and other industries are based on the current employment statistics (CES) survey conducted monthly by the U.S. Bureau of Labor Statistics (BLS) in cooperation with state labor departments. Labor force, occupational and industry projections are likewise from BLS.

Table 2 Major Functional Sectors in State and Local Government Employment, 1998		
<i>Sector</i>	<i>Employment (In Thousands)</i>	<i>Distribution</i>
TOTAL	17,089	100.0
Education	9,436	55.2
Social Services and Income Maintenance	2,030	11.9
Public Safety	1,932	11.3
Government Administration	1,171	6.9
Transportation and Utilities	1,057	6.2
Environment and Housing	916	5.4
All Other	547	3.2

Second Largest American Industry Exceeds Private Sector Jobs Growth

Public education, the educational activities of state and local government, comprised some of 9 ½ million jobs in 1998, making it one of the very largest sectors of employment on the American scene. Among the array of major industries, only health services exceed public education in the number of jobs. The 1.8 million increase for the years 1988-1998 represented an expansion of 23.7 percent, exceeding the gain in the private sector economy, where job increases came to 20.7 percent for the 10-year period.

Education the Largest Component of Governments

Measured by employment, education is the primary activity of government. In employment, public education is by far the largest component of state and local government, accounting for more than half (55 percent) of the 17 million state and local jobs. No other function of government has as

Table 3 Components of Public Education Employment, 1998		
<i>Component</i>	<i>Employment (In Thousands)</i>	<i>Percent Distribution</i>
TOTAL	9,436	100.0
Elementary and Secondary	6,653	70.5
Instruction	4,488	47.6
Other	2,165	22.9
Higher Education	2,517	26.7
Instruction	892	9.5
Other	1,625	17.2
Libraries	160	1.7
Other Education	107	1.1

much as a quarter of the employment in public education. It accounts for nearly 3 in 5 jobs at the local level and close to half (45 percent) at the state level.

Most of the jobs in public education are elementary and secondary schools, over 70 percent of the total. This component, with nearly 6.7 million jobs, includes all activities involved in building and operating public elementary, secondary and local vocational-technical schools; special education such as classes for the handicapped; and auxiliary services such as pupil transportation and food services.

About two thirds of the elementary and secondary education employment comprises instructional staff, including teachers, principals, supervisors, librarians, teacher and library aides and guidance personnel. The other 2.2 million employees include administrative personnel, clerical staff, plant operation and maintenance personnel, health and recreation workers, and transportation and food service staff, as well as any student employees.

Public higher education, the state and local degree-granting institutions, included 2.5 million jobs in 1998. In contrast to elementary and secondary education, where teachers and other instructional staff predominate, only a little over one-third of the jobs in higher education, 35.4 percent, are in teaching and related academic research. Part-time workers play a major role in higher education, a majority of both the 900,000 instructional and the 1.6 million other workers.

Public libraries, with 160,000 employees nationwide, are operated for the use of the general public by local governments. They are a state function only in Hawaii. The data do not include school – or court libraries.

On the division between state and local responsibility, education is predominantly a function of local government. Local authorities account for over three-fourths of public education employment. State government are also major providers of education services, with well over 2 million jobs, primarily in higher education, but also playing a key role and over 100,000 jobs in training and education for the handicapped, programs for adult education and vocational rehabilitation as well as education outside school systems.

Local governments account for practically all of elementary and secondary education, and virtually all of the government jobs in public libraries. Local libraries, it should be noted, also have employees financed by non-governmental funding sources.

Local governments also have about a half million jobs in institutions of higher education, about one-fifth of the public employment in higher education. The one exception to this pattern is the state of Hawaii, where all public education employment is reported for the state government.

The 107,000 workers in “other education” are entirely state employees. They include government special programs and institutions primarily for the training and education of the visually handicapped; deaf and other handicapped; programs for adult, vocational, technical and other education outside school systems; state school building authorities; and supervision and administration of state education activities.

Public Education Jobs Growth Accelerates in the Nineties

Public education has been the major growth sector in government in the 1990’s, accounting for over two-thirds of the new jobs. 1.8 million of a total of 2.6 million, more than in the 1980’s. The job rise accelerated from 14.7 to 23.7 percent.

Public education employment increases in the 1990’s have been driven by sharply higher enrollments. The children of the baby boom echo generation swelled the nation’s school-age

Figure 1
Employment Increases in Public Education, 1978-1998

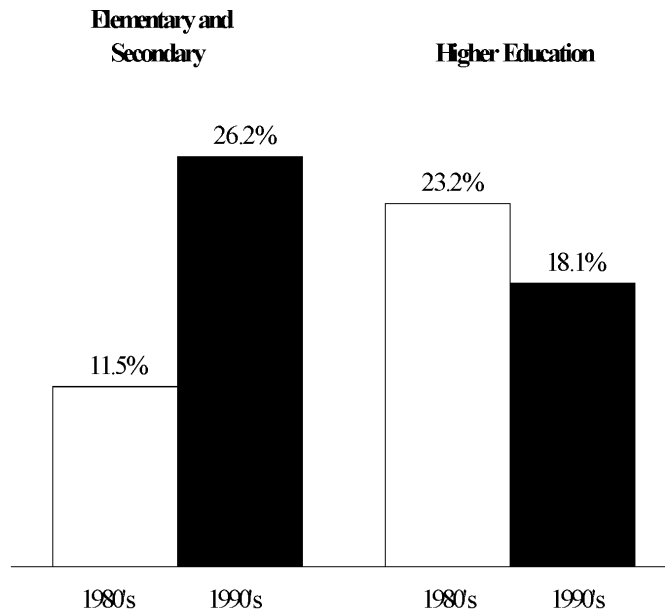


Figure 2
Distribution of Employment Increases in Public Education, 1980's and 1990's

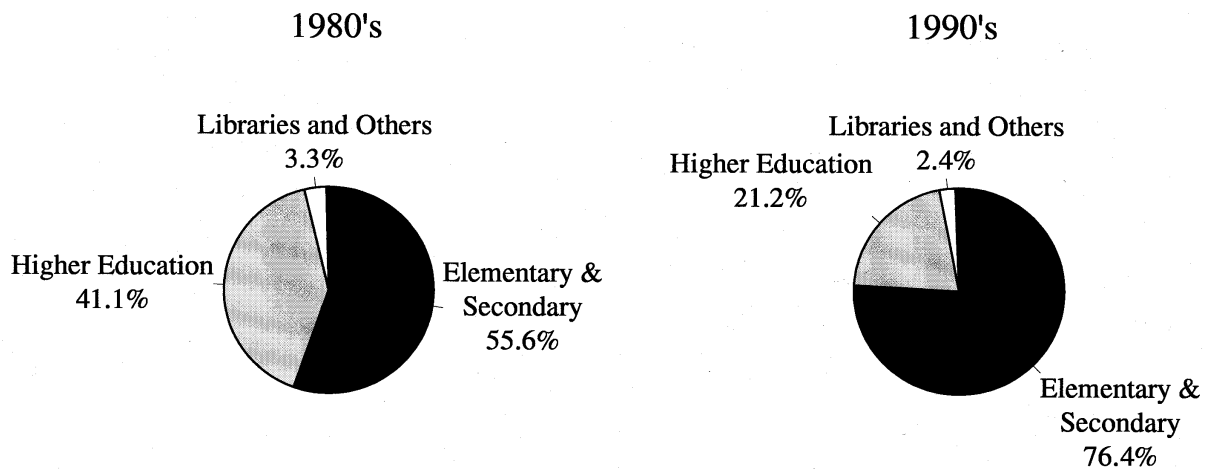
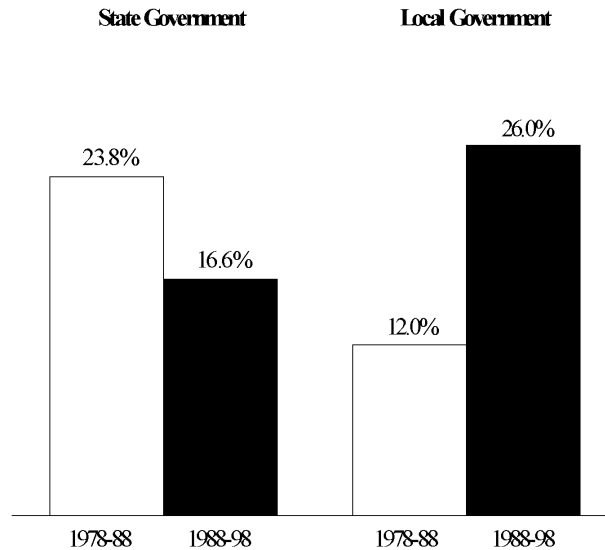


Figure 3
Comparative Increases in State and Local Government Education Employment, 1978-1998



population as did the higher birth rates of rapidly increasing and relatively young immigrant population. Public elementary and high school enrollments, including nursery schools, rose by 6.6 million of 16.4 percent. Enrollment in public nursery schools nearly doubled to 2.2 million.

Elementary school enrollment, pre-k to 8, increased 18 percent in the nineties, after a decade of basically no change. High school enrollments were up 14 percent in the nineties after declining 14 percent in the 1980's. Enrollment in public colleges and universities increased strongly in the 1980's, by nearly 16 percent from 1978-88, continued growth irregularly and more slowly in the nineties.

Population changes were a key element in school enrollment but far from the whole story. A second significant factor was the expansion of pre-primary programs, by 1996, three-fifths of all children 3-5 years of age were in school. Enrollment in public nursery schools nearly doubled to 2.2 million by 1997, sustaining the high growth rate of the previous decade. Enrollment in private nursery programs, it may be noted, showed only slight change.

The accelerated employment increases in public education have also been propelled by the need to accommodate young people staying in school longer, the continued strong expansion by local governments of community colleges, although a somewhat slower pace than in the 1980's, and the shift of the enrollment mix to the high schools, where classes tend to be smaller. Nationwide, changing student/teacher ratios were not a factor expanding employment in the 1990's. The number of students per teacher was relatively stable, after declining for several decades, the ratio was 17.2 in 1998, little different from 17.3 ten years earlier.

Private Education Expansion Slows

While the expansion of public education employment accelerated in the nineties, it slowed in private education. The increase for public elementary and high school teachers was 9.8 percent for

Table 4
Public Education Employment
State and Local Government, by State, 1988-98

<i>Region and State</i>	<i>Full-Time Equivalent Employment (in 000s)</i>		<i>Percent Change</i>
	<i>1988</i>	<i>1998</i>	<i>1988-98</i>
United States	6,215.4	7,605.9	22.4
Northeast	1,193.0	1,386.5	16.2
Connecticut	79.4	88.1	11.0
Maine	34.1	40.5	19.1
Massachusetts	137.0	159.2	16.2
New Hampshire	25.7	32.4	26.3
New Jersey	196.1	235.6	20.2
New York	441.9	508.2	15.0
Pennsylvania	238.5	276.2	15.8
Rhode Island	22.5	27.0	20.0
Vermont	17.8	19.1	7.3
North Central	1,543.2	1,838.6	19.1
Illinois	258.8	325.4	25.8
Indiana	154.7	180.7	16.8
Iowa	92.6	98.4	6.2
Kansas	78.2	95.2	21.9
Michigan	253.7	282.4	11.3
Minnesota	106.2	153.3	44.3
Missouri	119.5	157.7	32.0
Nebraska	47.2	55.6	17.7
North Dakota	20.5	19.9	-2.5
Ohio	263.1	294.2	11.8
South Dakota	19.6	22.8	16.3
Wisconsin	129.2	153.0	18.4
West	1,241.6	1,546.2	24.5
Alaska	17.5	20.5	17.4
Arizona	93.2	127.7	37.0
California	625.9	759.2	21.3
Colorado	92.7	121.8	31.3
Hawaii	26.0	31.0	19.5
Idaho	28.6	39.5	38.1
Montana	23.4	30.5	30.4
Nevada	23.5	37.8	60.8
New Mexico	49.0	63.2	28.9
Oregon	77.0	88.5	14.9
Utah	49.0	66.5	35.7
Washington	117.0	140.4	20.0
Wyoming	18.9	19.8	5.0
South	2,237.7	2,834.5	26.7
Alabama	105.6	128.2	21.4
Arkansas	63.1	80.2	27.0
District of Columbia	13.0	10.9	-16.2
Delaware	18.4	20.5	11.1
Florida	261.7	346.3	32.3
Georgia	165.9	227.5	37.1
Kentucky	99.9	126.1	26.2
Louisiana	118.8	135.3	13.9
Maryland	113.9	140.4	23.3
Mississippi	75.6	88.2	16.6
North Carolina	182.0	224.4	23.3
Oklahoma	90.8	112.6	24.0
South Carolina	96.2	122.4	27.2
Tennessee	115.2	142.8	24.0
Texas	494.9	662.8	33.9
Virginia	167.7	209.9	25.1
West Virginia	54.9	56.0	2.0

the 1980's and 13.8 percent for the nineties, through 1998. In private schools, the increase slowed from 17.9 percent to 12.4 percent.

We see similar trends in higher education, based on the records of the U.S. Department of Education. As a result the proportion of all teachers and other instructional staff employed by private schools and colleges has changed little in the 1990's, after increasing in the 1980's. The proportion of teachers at private elementary and secondary schools and colleges rose from 15.5 percent in 1980 to 17.5 percent in 1989, and was 16.7 percent for 1998. The tendency toward educational privatization has apparently not intensified in the 1990's; indeed it seems to have lost some of the vigor evident in the previous decade.

Job Increases Double in Public Elementary and High Schools

The more rapid increases in public education employment in the nineties came entirely in elementary and secondary education, while slowing in higher education. The employment increases in elementary and secondary education more than doubled from 12 percent in the 1980's to 26 percent, while expansion of colleges and universities slowed from 23 to 18 percent. As a result, three-fourths of the total increase in public education employment came in elementary and secondary education, up from 56 percent in the 1980's, while the college and university share of new jobs in public education dropped from 41 to 21 percent.

A major factor reshaping public education employment patterns in the nineties was the changing configuration of enrollment increases. The nineties saw rapid expansion in pre-K to 8, a shift from sharp decline to strong increase in high school enrollment and, on the other hand, a slower enrollment rise in the nation's colleges and universities, particularly among 4-year colleges.

The enrollment shifts also affected relative job growth of local and state government, since virtually all public elementary and secondary education is a local government function, while 80 percent of higher education staffs are state employees. The shift of increases to elementary and high schools thus also involved a more rapid employment buildup in local government in the 1990's, while employment expansion slowed at the state level. The 10-year increase in local education employment totaled 26 percent in the nineties, more than double the 12 percent increase of the 80's while state increases slowed from 24 percent to 17 percent.

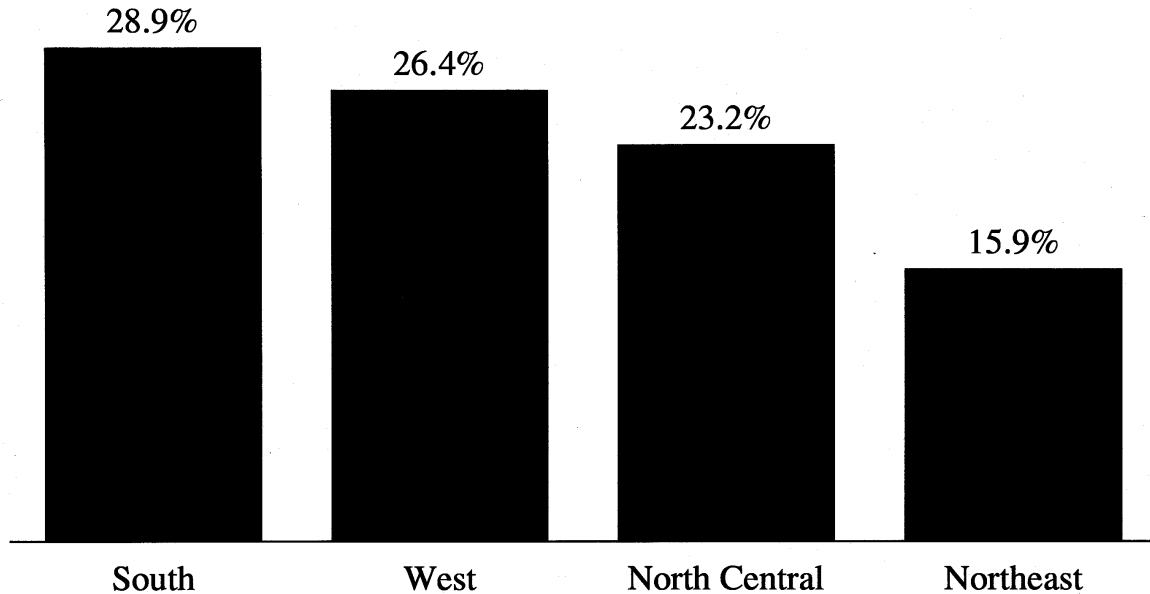
Table 5
Percent Distribution of School Age Population 15-17
and Elementary and High School Employment, 1998

<i>Region</i>	<i>Percent Distribution</i>	
	<i>Population 15-17</i>	<i>Elementary and High School Full-Time Equivalent Employment</i>
Northeast	18.0	19.5
North Central	23.7	23.5
South	35.1	37.8
West	23.2	19.2

Table 6
Public Elementary and Secondary Education Employment,
State and Local Government, By State, 1988-98

<i>Region and State</i>	<i>Full-Time Equivalent Employment (In 000s)</i>		<i>Change 1988-98</i>	
	<i>1988</i>	<i>1998</i>	<i>Number</i>	<i>Percent</i>
United States	4,606.9	5,729.4	1,122.5	24.4
Northeast	965.5	1,119.2	153.7	15.9
Connecticut	61.0	71.5	10.5	17.3
Maine	26.8	33.3	6.5	24.4
Massachusetts	108.9	132.4	23.5	21.6
New Hampshire	19.7	26.3	6.6	33.5
New Jersey	156.6	189.8	33.2	21.2
New York	365.1	416.0	50.9	13.9
Pennsylvania	198.4	215.5	17.1	8.7
Rhode Island	15.7	20.2	4.5	28.7
Vermont	13.4	14.3	0.9	6.4
North Central	1,091.0	1,344.2	253.2	23.2
Illinois	186.5	239.0	52.5	28.1
Indiana	107.0	130.3	23.3	21.8
Iowa	59.5	66.5	7.0	11.8
Kansas	55.2	69.7	14.5	26.4
Michigan	181.3	201.3	20.0	11.0
Minnesota	72.7	114.9	42.2	58.1
Missouri	90.2	122.4	32.2	35.7
Nebraska	33.3	41.9	8.6	25.6
North Dakota	13.6	12.9	-0.7	-5.4
Ohio	191.7	215.7	24.0	12.5
South Dakota	15.1	17.3	2.2	14.9
Wisconsin	84.9	112.2	27.3	32.1
West	871.3	1,101.6	230.3	26.4
Alaska	13.3	15.7	2.4	17.8
Arizona	65.0	88.7	23.7	36.5
California	450.7	560.1	109.4	24.3
Colorado	63.4	82.8	19.4	30.5
Hawaii	18.8	23.5	4.7	25.0
Idaho	19.9	29.2	9.3	46.4
Montana	16.9	21.4	4.5	26.7
Nevada	17.3	29.7	12.4	71.5
New Mexico	33.0	42.0	9.0	27.2
Oregon	52.0	63.0	11.0	21.2
Utah	31.3	41.6	10.3	33.0
Washington	76.0	89.4	13.4	17.6
Wyoming	13.5	14.5	1.0	7.1
South	1,679.1	2,164.4	485.3	28.9
Alabama	74.4	91.1	16.7	22.4
Arkansas	47.7	60.2	12.5	26.2
District of Columbia	11.2	9.9	-1.3	-11.0
Delaware	11.7	13.2	1.5	12.9
Florida	205.7	274.9	69.2	33.6
Georgia	132.0	180.5	48.5	36.8
Kentucky	74.2	94.8	20.6	27.8
Louisiana	88.3	100.6	12.3	13.9
Maryland	80.5	100.3	19.8	24.5
Mississippi	56.4	62.4	6.0	10.6
North Carolina	127.7	161.2	33.5	26.2
Oklahoma	65.2	83.7	18.5	28.4
South Carolina	69.0	92.1	23.1	33.5
Tennessee	85.8	105.2	19.4	22.6
Texas	382.9	534.5	151.6	39.6
Virginia	123.5	157.4	33.9	27.4
West Virginia	42.8	42.3	-0.5	-1.1

Figure 4
Regional Increases in Elementary and High School Employment, 1988-1998



Nation Adds a Million Public School Teachers and Other Instructional Staff

Employment in public elementary and secondary education totaled 6.7 million in 1998, an increase of nearly 2 million over the past 20 years. The increase in the 10 years ending in 1998 came to 26 percent, more than double the 12 percent figure of the 1980's.

Teachers and other instructional staff comprise two-thirds of all elementary and secondary school employees the instructional category of 4.5 million includes principals, supervisors of instruction, librarians, teaching and library aides, and guidance and psychological personnel.

The other 2.2 percent include administrative personnel, clerical and secretarial staff, plant operations and maintenance workers, health and recreation staff, transportation and food service personnel, and student employees.

Instructional staff increases have exceeded those of other school employees over the past 20 years, the increases for instructional staff totaled 46 percent, half again as large as the 30 percent rise for other employees. In the past decade alone, the number of teachers and other instructional staff increased by 1 million. The higher increases for instructional staff are particularly significant for gauging the flow of resources into education since teachers and other instructional staff are more likely to be engaged on a full-time basis, while other staff are more likely to work part-time.

About one in six teachers and other instructional employees are hired on a part-time basis. For other employees, it is more than double that ratio: part-time workers comprise well over one-third (37 percent) of non-instructional personnel in public schools. Overall, the increase for part-time

Table 7
Regional Distribution of Population 18-24 and Employment
In Public Colleges and Universities, 1998 (Numbers in Thousands)

<i>Region</i>	<i>Population 18-24</i>		<i>Full-Time Equivalent Employment</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
United States	25,470	100.0	1,669	100.0
North Central	5,963	23.4	442	26.5
Northeast	4,397	17.3	229	13.7
South	9,192	36.1	405	35.5
West	5,919	23.2	593	24.2

workers has exceeded that for full-time employees in both the 1980's and the 1990's. Part-time work is common for school bus drivers, adult education teachers, and teacher and library aides.

Increases Strongest in South and West

The Geographic distribution of public elementary and high school employment is broadly related to the distribution of the population of school age, but with some variations for the four broad regions of the country. When we look at the distribution of the population 5-17 years of age and compare it to the regional distribution of 1998 employment in elementary and high schools, we find almost a perfect balance in the North Central region, with 23.5 percent of the nation's school jobs and 23.7 percent of the school age population. But the South and Northeast have relatively more of the employment while the West has relatively more youngsters of school age. If the West's share of employment matched its share of the school age population, it would have over 200,000 more jobs in elementary and high schools. The disparity continues even though the West expanded education employment more rapidly than the national average in both the 80's and the 90's, increasing its share of elementary and high schools jobs from 17.7 percent to 19.2 percent.

The state and regional data on education employment, it should be noted, are on a full-time equivalent basis. These statistics are computed by the census bureau. Since 1985 the formula is based on hours worked by part-time employees. A payroll-based formula was used prior to 1985. The change may have affected the comparability of the data for individual states. For this reason, the state data tables presented focus on the period 1988-98.

In the 1990's, the largest employment increase was in the South, and the smallest, in the Northeast. In all regions the employment increases have been substantially higher than increases in enrollment, suggesting the increased flow of resources into education.

Public Colleges and Universities Have 80 Percent of Enrollment

Employment in public colleges and universities totaled 2.5 million in 1998, an increase of some 800,000 or 45 percent over the past 20 years. The increase in the ten years ending 1998 was 18 percent, down from 23 percent in the 1980s, mainly because of a tapering-off in enrollment increases in 4-year college programs.

Table 8
Public Higher Education Employment, State and Local Government, By State, 1988-98

<i>Region and State</i>	<i>Full-Time Equivalent Employment (In 000s)</i>		<i>Change 1988-98</i>	
	<i>1988</i>	<i>1998</i>	<i>Number</i>	<i>Percent</i>
United States	1,423.3	1,668.7	245.4	17.2
Northeast	190.0	229.4	39.4	20.8
Connecticut	13.4	12.3	-1.1	-8.1
Maine	5.8	5.8	0.0	0.1
Massachusetts	23.2	22.4	-0.8	-3.7
New Hampshire	5.3	5.2	-0.1	-1.7
New Jersey	32.1	37.6	5.5	17.1
New York	64.7	79.6	14.9	23.0
Pennsylvania	36.1	56.5	20.4	56.5
Rhode Island	5.5	5.9	0.4	6.9
Vermont	3.9	4.3	0.4	8.7
North Central	402.0	441.7	39.7	9.9
Illinois	63.6	75.0	11.4	17.9
Indiana	39.4	44.9	5.5	13.9
Iowa	30.9	29.3	-1.6	-5.1
Kansas	21.4	23.9	2.5	11.8
Michigan	66.0	76.8	10.8	16.4
Minnesota	29.7	32.4	2.7	8.9
Missouri	24.9	30.4	5.5	21.9
Nebraska	12.6	12.3	-0.3	-2.5
North Dakota	6.4	6.6	0.2	3.3
Ohio	62.7	68.8	6.1	9.8
South Dakota	3.7	4.8	1.1	28.6
Wisconsin	40.8	36.8	-4.0	-9.9
West	336.5	404.6	68.1	20.3
Alaska	3.5	4.1	0.6	18.5
Arizona	24.8	34.8	10.0	40.2
California	159.7	182.7	23.0	14.4
Colorado	27.0	35.9	8.9	33.1
Hawaii	6.4	6.8	0.4	5.8
Idaho	7.8	9.2	1.4	17.7
Montana	5.9	8.2	2.3	39.8
Nevada	5.4	7.2	1.8	34.5
New Mexico	14.8	19.7	4.9	33.2
Oregon	23.2	22.9	-0.3	-1.3
Utah	16.3	23.2	6.9	41.9
Washington	36.7	45.0	8.3	22.6
Wyoming	5.0	4.9	-0.1	-1.0
South	494.9	592.9	98.0	19.8
Alabama	26.6	32.8	6.2	23.2
Arkansas	12.6	16.4	3.8	29.9
District of Columbia	1.4	0.6	-0.8	-59.0
Delaware	6.4	6.8	0.4	6.8
Florida	51.3	64.6	13.3	26.0
Georgia	29.6	37.8	8.2	27.6
Kentucky	20.7	26.2	5.5	26.1
Louisiana	25.2	29.1	3.9	15.6
Maryland	28.6	35.4	6.8	23.9
Mississippi	17.6	23.4	5.8	33.1
North Carolina	49.3	57.8	8.5	17.3
Oklahoma	23.0	25.6	2.6	11.4
South Carolina	23.5	26.2	2.7	11.6
Tennessee	26.5	34.2	7.7	28.8
Texas	103.5	118.0	14.5	14.1
Virginia	39.0	46.1	7.1	18.4
West Virginia	10.2	12.0	1.8	17.2

Public higher education has traditionally been a state function and about 80 percent of jobs are at the state level. Local governments have a major role in the vocationally oriented community colleges that have been the most rapidly expanding sector of higher education in the 1990's.

Public institutions are the primary mode of higher education in the United States. They account for nearly 80 percent of all enrollments in higher education, a proportion that has not materially changed since the 1970's. The major change has been a significant shift from 4-year to 2-year institutions. In part, the shift to 2-year programs reflects the greater enrollment of part-time students in public institutions. But even when we adjust for this factor, we find that the proportion of enrollment in public institutions is about 75 percent, only a bit lower. It is two-thirds of the enrollment in all 4-year schools and over 90 percent in the 2-year colleges.

Professors and other instructional staff totaled nearly 900,000 in 1998, accounting for 35 percent of the jobs. Instructional staff also includes academic research as well as teachers at hospitals and agricultural experimental stations. Slightly more than half of all instructional staff, as well as other employees, work on a part-time basis.

Sharp College Employment Rise in 13 States

Looking at the four broad regions of the country, in the South and West the geography of employment in public colleges and universities follows closely the distribution of the population 18-24 years of age. The South and West combined have 59.3 percent of the country's 18-24 year olds and 59.7 percent of the jobs in public colleges and universities.

In the other two broad regions, there are some notable variations, with relatively more jobs in public colleges and universities as compared to the prime college age market in the North Central region and relatively fewer jobs in public higher education in the Northeast. The differences are substantial. If the Northeast had proportionately as much public higher education employment as its share of the 18-24 population, the number of such jobs would total nearly 300,000 about 25 percent more than the actual figure.

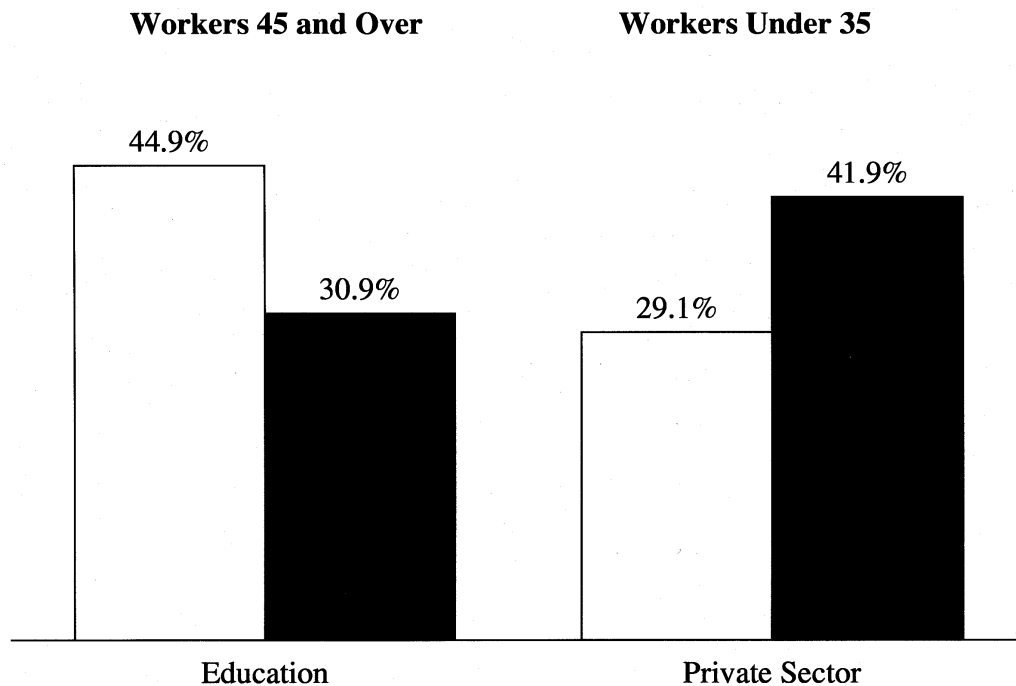
Employment in public institutions of higher education increased in most states in the 199's, but there were declines in eight states, six of them in the North. On the other hand, employment increased by over 25 percent in 13 states: Arizona, Arkansas, Colorado, Florida, Georgia, Kentucky, Mississippi, Montana, Nevada, New Mexico, South Dakota, Tennessee and Utah. All but one of these states, it may be noted, were in the Southwest.

Substantial Growth In Public Education Seen Ahead

With 1 in 4 Americans in school and a widespread recognition of the growing importance of a trained and educated workforce for the nation's wellbeing, improving the quality of education tops the list of current American public concerns. A rising school age population and a broad range of initiatives to improve educational outcomes are expected to generate substantial growth in public education employment in the years ahead. A related factor is the increasing emphasis on developing marketable skills focused on communications, decision-making, problem-solving and the computer.

The 9 million jobs in state and local education are expected to increase by 1.2 million by 2008, a rise of 13 percent, according to BLS projections. Public education ranks fifth among the industries with the largest job growth, exceeded only by computer and data processing services, retail trade,

Figure 5
Older and Younger Workers in Education and the Private Sector, 1999



personnel supply services and restaurants. In percentage terms, the increase is projected to be less than it was in the nineties, slowing from an annual average rate of growth of 2.1 percent to 1.3 percent. The public education rise for the first decade of the new century is about in line with that for the economy as a whole, as measured by nonfarm wage and salary employment.

The number of teachers, librarians and counselors is projected to rise from 6.9 to 8.2 million. This rise of 19 percent is substantially above the 14 percent increase for all occupations combined. These projections, it should be noted, cover both public and private education, with the latter accounting for 1 in 5 jobs. The projections show particularly rapid increases for pre-school, special ed, high school and college teachers, counselors, and teaching assistants.

In addition to meeting expansion needs, the demand for workers in educational fields also reflects the need to replace teachers and others who leave their jobs to enter other occupations, retire or leave the labor force for other reasons. Job openings resulting from replacements typically exceed those resulting from growth. For teachers, librarians and counselors, job openings are projected to total 2.8 million for 1998-2008, more than double the 1.3 million arising from growth alone.

The Making of a Crunch

Public education will be contending with two fundamental constraints that promise to make this a crunch period for meeting their staffing needs. First, while overall labor force growth is projected only slightly less than in the 90's, there will be some real differences in key age groups. It shapes up

as a decade of sharply changing labor force composition, as the baby boom generation get inexorably older and begins to move toward retirement. While young workers under 25 increase more rapidly, and more mature and experienced workers 25-44 actually decline by 3 million; reducing that pool of potential new education workers and therefore increasing the competition for this prime age labor force group.

The second fundamental is the age structure of workers in education, and more broadly in government generally. Workers in education tend to be older than average. In 1999, 45 percent were 45 years of age or older, compared to 31 percent among private wage and salary workers. The comparison covers all nonfarm industries other than private households. It is based on a new analysis of unpublished employment data from the current population survey (CPS) regularly conducted by the U.S. Bureau of Census for the U.S. Bureau of Labor Statistics.

This striking 45 percent differential between education and the private sector in the concentration of older workers points up the special vulnerability of educational institutions to an upsurge of retirements in the first decade of the new century, particularly given the widespread eligibility of teachers for pensions well before the age of 65. School boards and administrators will be under the guns of these demographics imperative to develop new approaches to attract new and younger blood and to encourage teachers and other school employees to extend their working lives in education beyond the traditional career span.

The pronounced tilt of education workers toward the older age groups is entirely among workers 45-64. This grouping accounts for 28.5 percent of all private sector workers but 42.4 percent of education workers overall. The numbers are even a bit higher for high school teachers (46.6 percent) and at the college level (43.0) percent) whose institutions are projected to be the focal points of rising enrollments in the years ahead. Workers 65 years of age or over comprise 2.4 percent of private sector workers, just about the same as the 2.5 percent in education. For elementary, high school and college teachers, however, the proportion is somewhat lower at 1.9 percent.

The substantially larger role of older workers in education is traceable in part to the higher levels of educational preparation required for education employment. But the magnitude of the older worker concentration suggests the presence of other factors not so immediately apparent. The proportion of 45-64 year olds among teachers (43.5 percent) is substantially higher than among other professional workers (34.8 percent) a differential of 35 percent. Among computer scientists and system analysts, it may be noted, the proportion 45-64 is only 24.8 percent, reflecting perhaps the extraordinarily rapid growth and competitive attractiveness of these relatively young occupations. These comparisons suggest that there is a good deal more to the story.

What is clear is that we are entered on a new decade when public education will be facing an unprecedented wave of retirements in a national demographic setting where the main labor force increases are projected for older workers and young workers under 25.

Fewer Young Workers in Education

And that brings us to the other side of the coin: the relative dearth of young workers in the field of education. Overall, workers under 35 comprise less than 1 in 3 education workers, 29 percent in 1999, as against 42 percent of private sector workers.

Education hires few teenagers. Workers 16-19 comprise 3 percent of the education workforce, as against 6 percent in the private sector. But teenagers are a relatively small part of the picture.

The other differences are more significant. The private sector has 11 percent of its workforce in the age group 20-24, compared to 8 percent in education and 6 percent among teachers. It may be

noted that this age group, which declined in overall labor force numbers in the 90's, is projected to increase by some 2 million this decade, a significant portion of labor force growth.

Difference between the labor force composition of education and the private sector continue substantial among the more mature younger workers aged 25-34. They comprise 25 percent of all private sector workers but only 19 percent of workers in education. Teachers are closer to the private sector pattern, with 23 percent in this age group. But that is less than among other professional workers (26 percent) of computer scientists and systems analysts (36 percent). The competition for workers in this age group will heighten as the number of workers 25-34 is projected to shrink somewhat and as the private sector seeks more workers in this age group to make up for the smaller cohort of workers available age 35-44.

Facing Up to a Decade of Demographic Transition

Public education faces the particularly urgent challenge to recruit, train, develop and integrate competent staff within the constraints of the new demographics and the pressures for improved educational performance.

The age structure of the education workforce, its heavy reliance on older workers and the relatively small traditional role of younger workers will test the adaptiveness of the educational enterprise as we experience the fast-moving demographic currents of the new decade. It may need to look again at its use of younger workers, to explore whether it may not be advantageous to tap more strongly into the growing supply of 20-24 year olds that will increase by some 2 million for the period 1998-2008, a rise of 16 percent. It may find it desirable to examine how it can improve its competitiveness in attracting workers from the shrinking supply of more mature younger workers. Finally, it may need to take a new look at career patterns of education workers with a view to developing more flexible arrangements that will encourage teachers, administrators and other education workers to extend their work in the field past the traditional retirement age.

Conclusions

Public education, a major growth industry in the 1990's, is one of the very largest employers on the American scene. Measured by employment, education is the primary activity of government, particularly at the local level, where it accounts for nearly 3 in 5 jobs.

The expansion of public elementary and high school employment accelerated in the 90's, with the largest increase in the South and the smallest in the Northeast. Employment in public institutions of higher education increased in most states in the 1990's, with the largest increases virtually all in the South and West.

Substantial growth in public education employment is projected in the years ahead. Public education ranks fifth among American industries with the largest job growth. Job openings for teachers, librarians and counselors are projected to total 2.8 million for 1998-2008.

It shapes up as a crunch decade for education. With its heavy reliance on older workers, it will be particularly vulnerable to an upsurge of retirements even as the nation's pool of potential new education workers 25-44 actually shrinks by 3 million. The fast-moving demographic currents of the new decade promise an unprecedented test of the adaptiveness of public education to improve its competitive attractiveness to the new workers it will need.