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America's Teachers: Profile of a Profession

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America's Teachers: Profile of a Profession

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FOREWORD

In 1987–88, the National Center for Education Statistics (NCES) conducted six major surveys that collected information on various aspects of the teaching profession. Each survey focused on different elements of the educational system, and thus provides a unique perspective on the teaching work force. The surveys included: the Schools and Staffing Survey (SASS), the National Assessment of Educational Progress (NAEP), the National Education Longitudinal Study of 1988 (NELS:88), the Common Core of Data (CCD), the Recent College Graduates Study (RCG), and the National Survey of Postsecondary Faculty (NSOPF).

This report draws from all of these surveys to profile America's teachers. It covers a wide variety of topics, ranging from the size and demographic characteristics of the teaching work force, teacher supply and demand, teacher education and qualifications, the use of resources in the school and classroom, teacher compensation, and teachers' opinions about various aspects of teaching and the teaching profession. The report provides an easily understood, nontechnical reference source for teachers, administrators, researchers, policymakers, parents, and the interested public.

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HIGHLIGHTS

In 1987–88, the National Center for Education Statistics (NCES) conducted six major surveys that collected teacher data: the Schools and Staffing Survey (SASS), the National Assessment of Educational Progress (NAEP), the National Education Longitudinal Study of 1988 (NELS:88), the Common Core of Data (CCD), the Recent College Graduates Study (RCG), and the National Survey of Postsecondary Faculty (NSOPF). Each survey focused on different aspects of the educational system, and thus provides a unique perspective on the teaching work force. This report draws upon data from these surveys to profile America's teachers. (Unless otherwise indicated, all data refer to 1987–88.) Some highlights are as follows:

TEACHERS, SCHOOLS, AND STUDENTS

- In the fall of 1987, there were 2.6 million FTE teachers and 40 million students in the United States.
- Seventy-one percent of all teachers were female.
- The average age for teachers was 40 years.
- Eighty-seven percent of female teachers and 90 percent of male teachers were white, non-Hispanic.
- Public urban and suburban schools were similar in size.
- Relatively fewer minorities were in the teaching force than in the population they served. In public schools, 13 percent of teachers and 29 percent of students were minorities.

TEACHER SUPPLY AND DEMAND

- Eight percent of teachers were new to teaching, and 7 percent were returning to teaching after an absence of 1 year or more.
- Among 1985–86 bachelor's degree recipients, 12 percent were newly qualified teachers.
- Only 58 percent of newly qualified teachers were employed as teachers the year after they graduated.
- Twenty-eight percent of newly qualified teachers did not apply for teaching jobs.
- Fifty percent of public school administrators reported no difficulty in filling vacancies.

- Relatively few public school districts or private schools offered teachers incentives for teaching in locations or fields of shortage.
- Between 1987–88 and 1988–89, 8 percent of all teachers moved to different schools, and 6 percent left teaching.

TEACHER EDUCATION

- Thirty-nine percent of teachers majored in general education for their bachelor's degree (or associate's degree if they did not have a bachelor's degree).
- About one-half of all teachers earned an advanced degree.
- On average, teacher educators and other education faculty had lower base salaries and earned less income overall than did postsecondary faculty in other fields.

TEACHER QUALIFICATIONS

- A master's was the highest degree earned for 40 percent of public school teachers and 30 percent of private school teachers.
- Eighty-two percent of teachers reported that they were teaching the subject that they were best qualified to teach, and 94 percent held certification in their main teaching field.
- Forty-one percent of teachers had taught between 10 and 19 years, and 26 percent had taught 20 years or more.

HUMAN AND FISCAL RESOURCES

- Ninety percent of public school teachers and 84 percent of private school teachers were employed full time as teachers.
- Teacher assignments were associated with gender. In the public and private sector, females were more likely to teach kindergarten or general elementary, and males were more likely to teach mathematics, science, or social sciences.
- The average public school class size was 25.0 in 1987–88; for private schools, it was 21.7.

- Current expenditures per public elementary and secondary school student ranged from \$2,454 to \$7,151 in the 50 states and the District of Columbia.

INSTRUCTIONAL PRACTICES

- Teachers of self-contained classes at the K–4 level reported teaching English and language arts an average of 10.6 hours per week, arithmetic or mathematics 4.8 hours, and science and social studies/history about 2.5 hours per week each.
- NAEP fourth graders had teachers who reported spending about 44 percent of class time working in small groups and about 39 percent of class time providing individual instruction.
- About one-fourth of NAEP eighth graders had writing teachers who reported using a writing-to-learn method of teaching very often, whereas nearly 60 percent had teachers who reported using a grammar skill-based approach to writing very often.
- The percentage of NELS:88 eighth graders in public schools whose mathematics teachers reported covering algebra as a major topic was lower in schools with more than 20 percent minority enrollment than in schools with fewer minorities enrolled.
- Twenty-one percent of NELS:88 eighth graders had science teachers who never conducted science experiments or conducted them less than once a month.
- A majority of NELS:88 eighth graders had mathematics and science teachers who reported assigning from 1 to less than 3 hours of homework per week.
- A majority of NELS:88 eighth graders never used computers in their mathematics or science classes.

TEACHER COMPENSATION

- The average scheduled salary for a beginning teacher with a bachelor's degree was \$17,180 for public school teachers and \$12,389 for private school teachers.
- The average annual base salary was \$24,345 for full-time elementary school teachers and \$26,080 for their secondary school counterparts.

- Only 8 percent of public school teachers and 12 percent of private school teachers strongly agreed with the statement "I am satisfied with my teaching salary."
- Teachers were more likely to be offered medical, dental, and life insurance benefits in public schools than in private schools.
- Forty-three percent of teachers received income from a source other than a school in addition to their base salary.
- Relatively few teachers actually received any kind of incentive pay; many more strongly favored each type of pay incentive than received it.
- Recent college graduates who majored in education received lower salaries, on average, than did other recent college graduates.

TEACHERS' OPINIONS ABOUT THEIR SCHOOLS AND PROFESSION

- About 32 percent of newly qualified teachers who were teaching in 1987 reported that they became teachers because they enjoyed working with children, 30 percent because they found teaching satisfying, and 28 percent because they had always wanted to be a teacher.
- Private school teachers were more likely than public school teachers to find their superiors or peers at their schools extremely helpful in solving instructional or classroom management problems.
- At the secondary level, the most experienced public school teachers were less likely to be teaching lower achieving students.
- Public school teachers who did not rate school problems as serious were more likely than those who did to report that they certainly or probably would become teachers again.
- One-third of all teachers reported that they certainly would become teachers if they had the opportunity to return to college and make their career choices over again, and about one-quarter said that they probably would.
- Among those who left teaching between 1987–88 and 1988–89, nearly 18 percent of former public school teachers and about 12 percent of former private school teachers expected to return to teaching in 1989–90.

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CHAPTER 1 • INTRODUCTION

At the heart of the educational process is the interaction between teachers and students in the classroom. The quality of this interaction is greatly influenced by a variety of factors, including the backgrounds, qualifications, and attitudes of the teachers, the instructional practices used in the classroom, the working conditions and administrative constraints that teachers face, and the characteristics of the students. Because these aspects of teachers and teaching greatly affect the quality of the educational experience of students, the National Center for Education Statistics (NCES), the statistical agency of the U.S. Department of Education, is committed to collecting and disseminating data on the teaching profession.

Reflecting the importance of this information, every elementary and secondary school-based survey that NCES conducts collects data on teachers. The information collected ranges from basic counts of full-time-equivalent public school teachers obtained by surveying all public schools to detailed, individual-level data on the background, experience, training, teaching loads, and perceptions and attitudes of public and private school teachers gathered from large-scale sample surveys.

The 1987–88 school year was a watershed year for the collection of national data on teachers in the United States. NCES conducted six major surveys that collected teacher data that year: the Schools and Staffing Survey (SASS), the National Assessment of Educational Progress (NAEP), the National Education Longitudinal Study of 1988 (NELS:88), the Common Core of Data (CCD), the Recent College Graduates Study (RCG), and the National Survey of Postsecondary Faculty (NSOPF). Each survey focused on different aspects of the educational system, and thus provides a unique perspective on the teaching work force.

This report assembles data from all of these surveys to profile America's teachers and to provide an easily understood, nontechnical reference source for teachers, administrators, researchers, policymakers,

parents, and the interested public. Where possible, it includes comparisons with teachers in other countries, but the lack of comparable data severely limits the opportunities to do so.

ORGANIZATION OF THE REPORT

The report is organized by topic rather than data source. Each chapter focuses on a different aspect of teachers or teaching, drawing relevant data from the different surveys to provide multiple perspectives on each issue. The tables show data by teacher and school characteristics and in some cases also by state (for public school teachers) or affiliation group (for private school teachers).¹

As an introduction to the rest of the report, Chapter 2 contains basic descriptive information on the size and characteristics of the teaching work force.² To place this information in context, the chapter also includes data on schools and students and a comparison of the characteristics of new teachers with those of other recent college graduates. In Chapter 3, various aspects of teacher supply and demand are covered, such as sources of supply, indicators of shortages, strategies to deal with shortages, turnover, and attrition.

Teacher education and qualifications are dealt with next. Chapter 4 describes what teachers study and the faculty who teach teachers, while Chapter 5 looks at educational attainment, certification status, teaching experience, and how teachers' qualifications are related to their assigned teaching fields.

The focus of Chapters 6 and 7 is the use of resources in the school and classroom. The school-

¹The reader should note that variation is often very great within state and within affiliation group. Consequently, state and affiliation group estimates may not accurately describe the situation in individual districts or schools.

²References to "teachers" in this report mean elementary and secondary school teachers except in the chapter on postsecondary faculty. See Appendix A for the definition of "teacher" in each survey.

level perspective is taken in Chapter 6, which describes teacher assignments and work loads. However, the classroom perspective is taken in Chapter 7, where instructional practices in the areas of reading, writing, and mathematics and science are discussed. Teacher compensation is addressed in some detail in Chapter 8.

Chapter 9 contains information on teachers' opinions about various aspects of teaching and the teaching profession, including their reasons for becoming teachers, views of their school as a workplace, perceptions of students' abilities, perceptions of the severity of various school problems, job satisfaction, and plans for the future. The report ends by looking at the future of teachers and teaching in the year 2000 (Chapter 10).

This report does not require or assume any statistical expertise on the part of its readers. For those interested, Appendix A provides detailed information about the various surveys and their sample designs, the overall accuracy of the estimates, and the statistical procedures used. All differences noted in the text are statistically significant at the $p \leq .05$ level using a two-tailed t-test with Bonferroni adjustments for multiple comparisons. The procedure is explained in Appendix A. Not all significant differences are discussed. Appendix B contains the standard errors for all estimates cited in comparisons and selected other estimates.

SOURCES OF DATA

This section briefly describes each of the NCES surveys used in this report and identifies the policy issues related to teachers and teaching that each is used to address. Appendix A contains more detailed information about each survey.

The Schools and Staffing Survey (SASS), one of the best available sources of data on teachers, is the most frequently cited source of data in this report. It is the largest and most thorough national survey of elementary and secondary school teachers ever undertaken. First conducted in 1987–88, SASS collected a wealth of information about public and private school teachers' demographic characteristics, education, qualifications, income sources, working

conditions, and perceptions of the school environment and the teaching profession. SASS data can be used to compute state-level estimates for public school teachers and affiliation group estimates for private school teachers as well as national estimates. Because it is an integrated survey of teachers, principals, schools, and public school districts, teacher information can be linked to contextual data collected from school principals and public school district administrators.

The Teacher Followup Survey (TFS), a component of SASS, is a 1-year followup of some of the teachers who participated in SASS. It collects information on teachers who leave the teaching profession in the year following the SASS survey and on those who continue teaching, making it possible to determine who leaves, why they leave, where they go, and how they compare with nonleavers.

The National Assessment of Educational Progress (NAEP) and *the National Education Longitudinal Study of 1988 (NELS:88)* were both designed to provide data on students in elementary and secondary education, including their academic achievement. In order to understand the context of student learning, however, information was solicited from the students' teachers on the teachers' backgrounds, work assignments, and classroom instructional practices. NAEP, a cross-sectional survey of students, collected data from teachers who taught reading and writing to students who were in grades 4, 8, and 12 in 1987–88. NELS:88, a longitudinal survey of eighth-grade students initiated in 1988, collected data from English, social studies, mathematics, and science teachers of eighth graders in the 1987–88 school year. The information on mathematics and science instruction was much more detailed than the information on English and social studies.

NELS:88 and NAEP are the predominant data sources for information about classroom instructional practices. NAEP was used as the source of information on reading and writing instruction, because the information on instructional practices was more detailed in this survey than it was in NELS:88 and also included more than one grade level. NELS:88 was the source of information on mathematics and science instruction. Although NAEP and NELS:88

also collect information on teacher characteristics, educational background, and work load, these types of data are not tabulated in this report. Because this information was collected only from the teachers of students included in the survey sample, the teachers included in NAEP and NELS:88 are not nationally representative of teachers.

The Common Core of Data (CCD) annually collects data on all public elementary and secondary schools and school districts nationwide, providing data that are comparable across all states. It provides basic information and descriptive statistics on numbers of full-time-equivalent (FTE) teachers in each state. The CCD is used in this report to provide trend information and state-by-state comparisons of numbers of FTE teachers and pupil/teacher ratios in elementary and secondary public schools.

The Recent College Graduates Study (RCG) is a source of information on newly qualified teachers. In 1987, it surveyed recent bachelor's and master's degree recipients about their educational experiences and employment. RCG has a nationally representative sample of bachelor's and master's degree recipients, with a large oversample of education majors. One of the major objectives of RCG is to determine how many graduates become eligible or qualified to teach for the first time and how many are employed as teachers by teaching field in the year following graduation.

RCG provides information for this report about an important source of supply for teachers—newly prepared college graduates. These “newly qualified teachers” include both graduates who became teachers (regardless of whether they obtained a teaching certificate or participated in a formal teacher education program) and graduates who obtained a teaching credential but did not become teachers. Information is available on the newly qualified teachers who actually became teachers and the employment status and plans of those who did not become teachers. Reasons for entering or not enter-

ing the profession are explored, as well as teaching field and other teacher employment characteristics for newly qualified teachers who became teachers.

The National Survey of Postsecondary Faculty (NSOPF) focuses on postsecondary faculty rather than on elementary and secondary school teachers. It provides comprehensive national data on the backgrounds, responsibilities, work load, salary, benefits, and attitudes of full- and part-time faculty in various types of postsecondary institutions. Based on their teaching assignments, faculty members can be classified as teacher education faculty, other education faculty (for example, administration or research), and noneducation faculty. NSOPF allows comparisons among these groups in terms of their characteristics, backgrounds, and experience in various types of postsecondary institutions. It does not, however, provide data on the content or structure of teacher education programs nationally. Comprehensive information about teacher education programs is currently not available from NCES surveys.

In addition to the surveys described above, this report also presents information from international studies of education such as the Second International Mathematics Study (SIMS). Taken together, these data sources provide a comprehensive picture of teachers and teaching in the United States in 1987–88. Because NCES conducts many of these surveys on a regular basis, subsequent surveys will permit the examination of trends over time.

Comments about this report and suggestions for improvement are welcome. Please send your comments to:

Special Surveys and Analysis Branch
Elementary and Secondary Education
Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5651

CHAPTER 2 • TEACHERS, SCHOOLS, AND STUDENTS

Who teaches, where, and under what conditions? To provide a context for later discussion of important issues related to teachers and teaching, this chapter reports on the total number of teachers in our nation's schools and describes the characteristics of the teaching force in terms of gender, age, and race-ethnicity. Because recent studies of the teaching profession have suggested that working conditions are key to attracting and retaining good teachers,³ it also describes certain aspects of the teacher's workplace. To provide an overview of some important aspects of teachers' working conditions, this chapter presents data on school organization and size and on the characteristics of the students with whom teachers work each day. These data tell only part of the story about working conditions, however. Other aspects of teachers' working conditions, such as the amount of control teachers have over their work and the amount of support they receive from administrators, other teachers, and parents are discussed in Chapter 9.

NUMBER OF TEACHERS

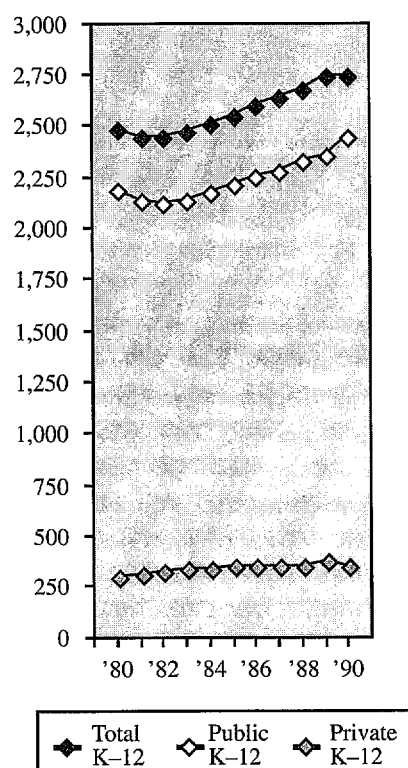
In the fall of 1987, there were 2.6 million FTE teachers and 40 million students in the United States.

The National Center for Education Statistics (NCES), through its Common Core of Data (CCD) survey, annually collects data from states on the number of full-time-equivalent (FTE) public school teachers by level. It obtains private school data through its Early Estimates surveys, periodic Private School Surveys, and the Schools and Staffing Survey (SASS). The data show a gradual increase in the total number of FTE teachers in public and private elementary and secondary schools over the past

decade, from 2.5 million in the fall of 1980 to 2.8 million in the fall of 1990 (figure 2.1 and table 2.1). In 1987, the year for which most of the data in this report are presented, there were 2.6 million FTE teachers and 40 million students in the United States.⁴ The vast majority of these teachers taught in public schools: 2.2 million in the fall of 1980, 2.3 million in the fall of 1987, and 2.4 million in the fall of 1990. In 1987, nearly 40 percent of all public school teachers taught in just seven states: California, Florida,

⁴See U.S. Department of Education, National Center for Education Statistics, *Schools and Staffing in the United States: A Statistical Profile, 1987-88* (Washington, D.C.: 1992), 7-8 for the total number of students in the United States and the number in each state.

Figure 2.1—Number of full-time-equivalent (FTE) teachers, by sector (in thousands): 1980-90



SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1992* (Washington, D.C.: 1992), 73.

³See, for example, The Holmes Group, *Tomorrow's Teachers* (East Lansing, MI: 1986), and Carnegie Forum on Education and the Economy, Task Force on Teaching as a Profession, *A Nation Prepared: Teachers for the 21st Century* (New York: 1986).

Table 2.1—Number of full-time-equivalent (FTE) teachers, by sector and level: 1980–90

| Year | Total | | | Public | | | Private | | |
|----------------|-------|------------|-----------|--------|------------|-----------|------------------|------------------|------------------|
| | K–12 | Elementary | Secondary | K–12 | Elementary | Secondary | K–12 | Elementary | Secondary |
| (in thousands) | | | | | | | | | |
| 1980 | 2,486 | 1,402 | 1,084 | 2,185 | 1,190 | 995 | 301 | 212 | 89 |
| 1981 | 2,440 | 1,404 | 1,037 | 2,127 | 1,183 | 945 | ¹ 313 | ¹ 221 | ¹ 92 |
| 1982 | 2,458 | 1,413 | 1,045 | 2,133 | 1,182 | 951 | ¹ 325 | ¹ 231 | ¹ 94 |
| 1983 | 2,478 | 1,428 | 1,050 | 2,139 | 1,166 | 953 | 337 | 240 | 97 |
| 1984 | 2,508 | 1,451 | 1,057 | 2,168 | 1,208 | 960 | ¹ 340 | ¹ 243 | ¹ 97 |
| 1985 | 2,548 | 1,483 | 1,066 | 2,206 | 1,237 | 969 | 343 | 246 | 97 |
| 1986 | 2,592 | 1,521 | 1,071 | 2,244 | 1,271 | 973 | ¹ 348 | ¹ 250 | ¹ 98 |
| 1987 | 2,632 | 1,564 | 1,068 | 2,279 | 1,307 | 973 | ¹ 353 | ¹ 257 | ¹ 95 |
| 1988 | 2,668 | 1,604 | 1,064 | 2,323 | 1,353 | 970 | ¹ 345 | ¹ 251 | ¹ 94 |
| 1989 | 2,734 | 1,662 | 1,072 | 2,357 | 1,387 | 970 | ¹ 377 | ¹ 275 | ¹ 102 |
| 1990 | 2,751 | 1,680 | 1,072 | 2,397 | 1,426 | 972 | 354 | 254 | 100 |

¹Estimated.

NOTE: Data for teachers are expressed in full-time-equivalents; distribution of unclassified teachers by level is estimated; and distribution of elementary and secondary school teachers by level is determined by reporting units. Kindergarten includes a relatively small number of nursery school teachers and students. Some data have been revised from previously published figures. Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1992* (Washington, D.C.: 1992), 73.

Illinois, New York, Ohio, Pennsylvania, and Texas (table 2.2). This concentration of teachers reflects a similar concentration of students: 42 percent of all students attended schools in these states.

GENDER AND AGE

Basic demographic information on teachers is important to monitor because it can point to potential problems in the overall supply of teachers or of certain types of teachers. An aging teaching force, for example, might signal the need to enhance recruitment efforts, especially if student enrollments are rising. A decline in the proportion of female teachers could mean that females are being lured away from this traditionally female-dominated field to other professions. Further, a shortage of teachers from certain racial-ethnic groups could indicate the need to implement measures to increase the number of teachers from those groups.

The 1987–88 SASS, which collected information on gender, age, and race-ethnicity, can be used to pro-

file teachers in terms of their demographic characteristics. The 1987 Recent College Graduates Study (RCG), which collected similar information, allows comparisons between newly qualified teachers and other recent college graduates. Comparisons between newly qualified teachers and those already in the teaching force can be made using RCG and SASS. Both types of comparisons are made in this report.

71 percent of all teachers were female.

Teaching has traditionally been a female-dominated profession, and it has remained so even though other attractive opportunities for college educated women have increased during the past few decades. The 1987–88 SASS data show that 71 percent of all teachers were female (table 2.3). The proportion was particularly high at the elementary level, where 88 percent were female, and the proportion of female teachers was higher in the private sector than in the public one. By comparison, in a sample of other

Table 2.2—Number of full-time-equivalent (FTE) public school teachers, by level and state: 1987

| | Total | Elementary | Secondary | Unclassified |
|----------------------|-----------|------------|-----------|--------------|
| UNITED STATES | 2,279,241 | 1,198,154 | 920,657 | 160,430 |
| Alabama | 37,716 | 20,239 | 17,477 | (*) |
| Alaska | 6,113 | 3,011 | 2,990 | 112 |
| Arizona | 30,707 | 22,322 | 8,385 | (*) |
| Arkansas | 25,572 | 12,148 | 12,106 | 1,318 |
| California | 195,864 | 139,435 | 56,195 | 234 |
| Colorado | 31,168 | 15,506 | 15,662 | (*) |
| Connecticut | 35,050 | 12,374 | 16,900 | 5,776 |
| Delaware | 5,951 | 2,907 | 3,044 | (*) |
| District of Columbia | 6,232 | 2,665 | 2,565 | 1,002 |
| Florida | 95,857 | 41,736 | 37,470 | 16,651 |
| Georgia | 62,280 | 33,847 | 21,407 | 7,026 |
| Hawaii | 7,684 | 4,230 | 3,280 | 174 |
| Idaho | 10,258 | 5,337 | 4,814 | 107 |
| Illinois | 105,217 | 58,844 | 30,098 | 16,275 |
| Indiana | 53,749 | 25,804 | 23,699 | 4,246 |
| Iowa | 30,873 | 15,917 | 14,017 | 939 |
| Kansas | 27,317 | 13,911 | 10,598 | 2,808 |
| Kentucky | 35,239 | 23,350 | 11,889 | (*) |
| Louisiana | 42,920 | 23,615 | 12,512 | 6,793 |
| Maine | 14,204 | 9,186 | 5,018 | (*) |
| Maryland | 40,093 | 19,891 | 20,202 | (*) |
| Massachusetts | 59,517 | 19,673 | 32,574 | 7,270 |
| Michigan | 79,972 | 30,531 | 40,294 | 9,147 |
| Minnesota | 42,132 | 21,803 | 20,329 | (*) |
| Mississippi | 26,930 | 15,064 | 11,866 | (*) |
| Missouri | 49,632 | 25,242 | 23,512 | 878 |
| Montana | 9,659 | 6,564 | 3,095 | (*) |
| Nebraska | 17,713 | 9,605 | 8,108 | (*) |
| Nevada | 8,348 | 4,579 | 3,769 | (*) |
| New Hampshire | 10,363 | 6,257 | 4,106 | (*) |
| New Jersey | 78,335 | 39,130 | 29,433 | 9,772 |
| New Mexico | 15,175 | 8,502 | 4,386 | 2,287 |
| New York | 170,236 | 78,455 | 67,372 | 24,409 |
| North Carolina | 59,771 | 30,483 | 21,067 | 8,221 |
| North Dakota | 7,632 | 4,958 | 2,674 | (*) |
| Ohio | 99,708 | 54,687 | 45,021 | (*) |
| Oklahoma | 34,515 | 15,950 | 14,991 | 3,574 |
| Oregon | 24,911 | 13,929 | 10,193 | 789 |
| Pennsylvania | 103,307 | 44,837 | 47,305 | 11,165 |
| Rhode Island | 8,934 | 3,974 | 3,761 | 1,199 |
| South Carolina | 35,701 | 23,138 | 12,563 | (*) |
| South Dakota | 8,172 | 4,780 | 3,339 | 53 |
| Tennessee | 42,082 | 26,462 | 15,620 | (*) |
| Texas | 187,159 | 96,826 | 86,211 | 4,122 |
| Utah | 17,124 | 9,251 | 5,916 | 1,957 |

Table 2.2—Number of full-time-equivalent (FTE) public school teachers, by level and state: 1987—Continued

| | Total | Elementary | Secondary | Unclassified |
|---------------|--------|------------|-----------|--------------|
| Vermont | 6,656 | 2,876 | 2,964 | 816 |
| Virginia | 59,928 | 33,919 | 25,525 | 484 |
| Washington | 38,344 | 18,677 | 16,005 | 3,662 |
| West Virginia | 22,702 | 10,956 | 7,985 | 3,761 |
| Wisconsin | 47,721 | 28,344 | 16,854 | 2,523 |
| Wyoming | 6,798 | 2,427 | 3,491 | 880 |

* Not available.

NOTE: Distribution of elementary and secondary teachers determined by reporting units. Teachers reported in full-time-equivalents. Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1990* (Washington, D.C.: 1990), 73.

Table 2.3—Number of teachers and percentage distribution by sex, by sector and selected teacher characteristics: 1987–88

| | Number | | Percent | |
|---------------------|---------|-----------|---------|--------|
| | Male | Female | Male | Female |
| TOTAL | 747,946 | 1,871,144 | 28.6 | 71.4 |
| PUBLIC | 681,161 | 1,631,168 | 29.5 | 70.5 |
| Teaching level | | | | |
| Elementary | 146,338 | 1,029,164 | 12.4 | 87.6 |
| Secondary | 534,823 | 602,004 | 47.0 | 53.0 |
| Age | | | | |
| Under 30 years | 69,003 | 241,806 | 22.2 | 77.8 |
| 30–39 years | 225,580 | 586,533 | 27.8 | 72.2 |
| 40–49 years | 247,054 | 504,627 | 32.9 | 67.1 |
| 50 years or over | 134,641 | 281,559 | 32.4 | 67.6 |
| Teaching experience | | | | |
| Beginning* | 56,288 | 172,185 | 24.6 | 75.4 |
| Experienced | 624,874 | 1,458,983 | 30.0 | 70.0 |
| PRIVATE | 66,785 | 239,975 | 21.8 | 78.2 |
| Teaching level | | | | |
| Elementary | 12,728 | 147,073 | 8.0 | 92.0 |
| Secondary | 54,057 | 92,902 | 36.8 | 63.2 |
| Age | | | | |
| Under 30 years | 13,288 | 52,555 | 20.2 | 79.8 |
| 30–39 years | 23,386 | 80,840 | 22.4 | 77.6 |
| 40–49 years | 18,211 | 64,810 | 21.9 | 78.1 |
| 50 years or over | 11,035 | 38,343 | 22.3 | 77.7 |
| Teaching experience | | | | |
| Beginning* | 12,933 | 42,809 | 23.2 | 76.8 |
| Experienced | 53,852 | 197,166 | 21.5 | 78.5 |

*Beginning teachers have taught for 3 years or fewer. Experienced teachers have taught for 4 years or more.

NOTE: Details may not add to totals due to rounding or item nonresponse.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

countries, the percentage of first-level teachers who were female ranged from 42 percent to 90 percent (table 2.4).⁵ In the United States, roughly one-half of the eighth-grade and advanced mathematics teachers were female, but in many other countries the percentages were much lower (table 2.5).

*The average age for teachers
was 40 years.*

The average age of all teachers in the United States was 40 years in 1987–88 (table 2.6). Fifteen percent of all teachers in the United States were under 30 years, the age group in which teachers are most likely to leave teaching for other careers or homemaking, and 18 percent were over 50 years old, and thus approaching retirement. Private schools in the United States had proportionately more young teachers than did public schools: 22 percent of all private school teachers were under 30 years old, compared with 14 percent of public school teachers.

RACE-ETHNICITY

*87 percent of female teachers and
90 percent of male teachers
were white, non-Hispanic.*

It is expected that by around the year 2000, about one-third of all Americans will be a member of a racial minority, and minority students already constitute a majority in 23 of the 25 largest city school systems.⁶ This situation has created concern over the adequate representation of minority members within the teaching force. Many educators have emphasized that it is important for both minority and nonminority children to have teachers who serve as role models of successful minority professionals who are valued contributors to their communities.

⁵Because the organization of schooling varies so much from country to country, strictly comparable levels are difficult to find. The footnote in table 2.4 explains how first- and second-level were defined.

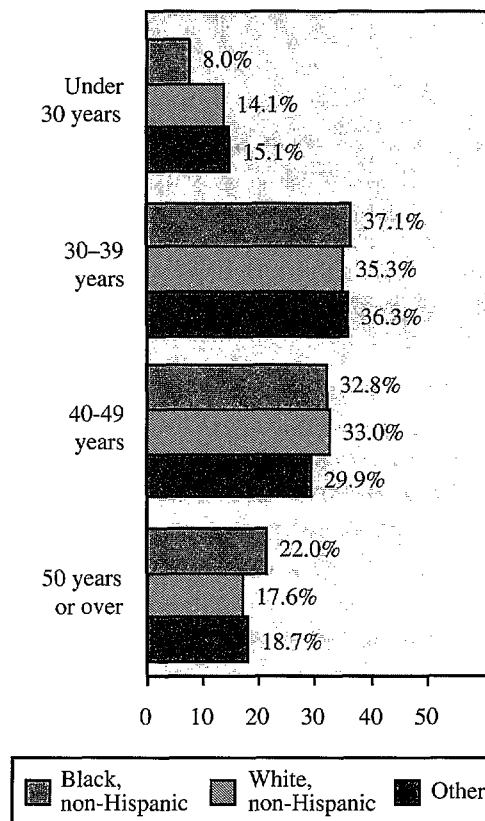
⁶Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century* (New York: Author, 1986), 79.

The need for black teachers is particularly acute.⁷ Among public school teachers, relatively fewer black, non-Hispanic teachers than teachers from other racial-ethnic backgrounds were under 30 years old (table 2.6). While 14 percent of white, non-Hispanic teachers and 15 percent of teachers in “other” racial-ethnic groups were under 30 years old, only 8 percent of black, non-Hispanic teachers were in this age group (figure 2.2).

Table 2.7 shows the number of male and female teachers by race-ethnicity. As a group, teachers are

⁷Patricia Alberg Graham, in “Black Teachers: A Drastically Scarce Resource,” *Phi Delta Kappan* 68 (8) (April 1987), 598–605, noted that proportionately fewer blacks are attending college; fewer of those going to college are choosing teaching; and not enough of those who do choose teaching are passing teacher tests.

Figure 2.2—Percentage distribution of public school teachers by age, by race-ethnicity: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 2.4—Percentage of teachers who were female, by level and country: 1987–88

| | First level | Second level first stage | Second level second stage |
|---------------------|-------------|-----------------------------|------------------------------|
| Austria | 80.6 | 59.9 | 52.7 |
| Belgium | 74.7 | (*) | 52.8 |
| Canada ¹ | 68.9 | (*) | 46.3 |
| France ² | 67.0 | 60.9 | 49.7 |
| Germany | 79.6 | 45.7 | 35.0 |
| Greece ³ | 49.3 | 62.2 | 47.6 |
| Ireland | 76.3 | (*) | 250.6 |
| Italy | 89.8 | 68.4 | 63.5 |
| Japan | 56.6 | 35.3 | 22.5 |
| Netherlands | 63.3 | (*) | 27.6 |
| Norway | 61.3 | (*) | 34.6 |
| Spain | 73.1 | 48.2 | 50.9 |
| Sweden | 68.1 | (*) | 43.8 |
| Turkey | 41.6 | 32.6 | 41.1 |
| United Kingdom | 78.1 | 50.4 | 50.6 |
| Yugoslavia | 71.5 | 54.2 | 48.3 |

*Not available.

¹The figures refer only to teachers in schools providing education solely at the pre-primary level and the first six grades. These schools involve about 50 percent of the total number of pupils enrolled in first level education. Women make up 65.6 percent of the teachers in schools that provide both first and second level education.

²Public sector only.

³1986–87.

NOTE: “*First level education*, which is compulsory in every country, begins at age five, six or seven and lasts for some five or six years. In countries providing what they term a ‘basic education,’ generally covering the entire period of compulsory education, only the first six years are considered as first level education. *Second level-first stage education* is provided for pupils who have already completed first level education as defined above. This level corresponds very often to the end of compulsory schooling. In most countries this consists of a general education, although some (France, Greece, and the Netherlands) also provide vocational education which it would be more accurate to describe, at this stage, as ‘pre-vocational’ since it is not intended to prepare pupils for a particular trade or job. *Second level-second stage education* refers to general, technical and vocational education, and teacher training provided for students who have already completed second level-first stage education. It may either be ‘terminal’ (i.e., preparing students for entry directly into working life) or it may prepare students for third level education in the university or non-university sectors.” Organization for Economic Cooperation and Development, *Education in OECD Countries 1987–88: A Compendium of Statistical Information*, 1990 Special Edition (Paris: Organization for Economic Cooperation and Development), 97.

SOURCE: Organization for Economic Cooperation and Development, *Education in OECD Countries 1987–88: A Compendium of Statistical Information*, 1990 Special Edition (Paris: Organization for Economic Cooperation and Development), 99–100.

predominantly white: in 1987–88, 87 percent of all female teachers and 90 percent of all male teachers were white, non-Hispanic (table 2.8). The proportion of black, non-Hispanic teachers was particularly small in the private sector. Only 3 percent of male private school teachers and 2 percent of female private school teachers were black, non-Hispanic, compared with 6 percent and 9 percent, respectively, in public schools. In both the private and public sectors, 4 percent of male teachers and 5 percent of female teachers belonged to racial-ethnic groups that were other than white, non-Hispanic or black, non-Hispanic. The racial-ethnic compositions of the

teacher and student populations are compared below in the description of student characteristics.

The adequacy of the supply of minority teachers can be examined not just overall, but also with respect to where and what they teach.⁸ In 1987–88, minority teachers were much more likely than white, non-Hispanic teachers to be teaching in schools with a student population that was more than 50 percent minority. In public schools, 59 per-

⁸In this report, “minority” includes all teachers other than white, non-Hispanic teachers.

Table 2.5—Percentage of eighth grade mathematics and advanced mathematics teachers who were female and their average years of experience in 15 countries (or provinces), by country or province: 1980–82

| | Eighth grade | | Advanced mathematics | |
|---------------------------|----------------|-----------------------------|----------------------|-----------------------------|
| | Percent female | Average years of experience | Percent female | Average years of experience |
| Average | 40.3 | 13 | 27.2 | (*) |
| Belgium (Flemish) | 51.3 | 15 | 25.9 | (*) |
| Belgium (French) | 50.5 | 15 | 33.8 | (*) |
| Canada (British Columbia) | 15.7 | 14 | 3.2 | (*) |
| England/Wales | 46.7 | 12 | 32.3 | (*) |
| Finland | 46.6 | 11 | 29.6 | (*) |
| France | 46.1 | 14 | 16.8 | (*) |
| Hungary | 77.1 | 14 | 59.6 | (*) |
| Japan | 22.6 | 17 | 37.3 | (*) |
| Netherlands | 9.3 | 11 | 5.3 | (*) |
| New Zealand | 35.2 | 10 | 22.8 | (*) |
| Scotland | 41.5 | 11 | 32.1 | (*) |
| Sweden | 20.4 | 12 | 17.3 | (*) |
| Thailand | 62.6 | 7 | 52.3 | (*) |
| United States | 50.5 | 14 | 48.0 | (*) |

*Not available.

SOURCE: Elizabeth Oldham, "Qualifications of Mathematics Teachers," paper prepared for the National Center for Education Statistics, August, 1986.

Table 2.6—Average age and percentage distribution of teachers by age, by sector and selected teacher characteristics: 1987–88

| | Average age | Percent of teachers | | | |
|---------------------|-------------|---------------------|-------------|-------------|------------------|
| | | Under 30 years | 30–39 years | 40–49 years | 50 years or over |
| TOTAL | 40.2 | 14.5 | 35.3 | 32.2 | 18.0 |
| PUBLIC | 40.4 | 13.6 | 35.5 | 32.8 | 18.2 |
| Teaching level | | | | | |
| Elementary | 40.2 | 14.4 | 36.4 | 30.6 | 18.5 |
| Secondary | 40.6 | 12.7 | 34.5 | 35.0 | 17.8 |
| Race–ethnicity | | | | | |
| Black, non-Hispanic | 41.8 | 8.0 | 37.1 | 32.8 | 22.0 |
| White, non-Hispanic | 40.2 | 14.1 | 35.3 | 33.0 | 17.6 |
| Other* | 40.1 | 15.1 | 36.3 | 29.9 | 18.7 |
| PRIVATE | 39.0 | 21.8 | 34.5 | 27.4 | 16.3 |
| Teaching level | | | | | |
| Elementary | 38.5 | 23.6 | 34.2 | 26.3 | 16.0 |
| Secondary | 39.5 | 19.8 | 34.8 | 28.7 | 16.7 |
| Race–ethnicity | | | | | |
| Black, non-Hispanic | 36.5 | 25.9 | 42.0 | 21.3 | 10.8 |
| White, non-Hispanic | 38.9 | 22.0 | 34.1 | 28.0 | 15.9 |
| Other* | 39.8 | 18.3 | 37.5 | 24.1 | 20.0 |

*Includes Asians, Pacific Islanders, Hispanics of any race, Native Americans, and other racial–ethnic categories.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 2.7—Number of teachers by race-ethnicity, sex, sector, selected teacher characteristics, and community type: 1987–88

| | Male | | | Female | | |
|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | Black non-Hispanic | White non-Hispanic | Other ¹ | Black non-Hispanic | White non-Hispanic | Other ¹ |
| TOTAL | 39,017 | 654,364 | 32,141 | 146,506 | 1,596,773 | 85,149 |
| PUBLIC | 37,229 | 594,448 | 29,324 | 141,776 | 1,378,045 | 73,777 |
| Teaching level | | | | | | |
| Elementary | 10,282 | 123,673 | 7,514 | 88,734 | 866,904 | 49,261 |
| Secondary | 26,946 | 470,775 | 21,809 | 53,043 | 511,141 | 24,516 |
| Age | | | | | | |
| Under 30 years | 3,030 | 60,399 | 3,653 | 11,016 | 216,404 | 11,871 |
| 30–49 years | 11,736 | 195,916 | 11,456 | 53,287 | 495,646 | 25,609 |
| 40–49 years | 13,750 | 218,518 | 8,500 | 43,737 | 427,330 | 22,130 |
| 50 years or over | 8,263 | 116,450 | 5,578 | 30,138 | 229,140 | 13,562 |
| Teaching experience | | | | | | |
| Beginning ² | 2,732 | 47,437 | 3,772 | 10,715 | 148,669 | 10,222 |
| Experienced | 34,496 | 547,011 | 25,552 | 131,061 | 1,229,376 | 63,555 |
| Community type | | | | | | |
| Urban | 18,165 | 121,786 | 11,285 | 70,864 | 297,246 | 30,529 |
| Suburban | 4,815 | 129,260 | 4,237 | 19,261 | 280,923 | 12,961 |
| Rural–small city | 10,926 | 299,831 | 10,662 | 40,453 | 706,095 | 24,338 |
| PRIVATE | 1,788 | 59,916 | 2,818 | 4,730 | 218,728 | 11,372 |
| Teaching level | | | | | | |
| Elementary | — | 11,622 | — | 3,979 | 133,545 | 6,228 |
| Secondary | — | 48,294 | 2,465 | — | 85,183 | 5,144 |
| Age | | | | | | |
| Under 30 years | — | 12,047 | — | — | 48,918 | 2,186 |
| 30–39 years | — | 21,180 | — | 2,034 | 73,332 | 4,407 |
| 40–49 years | — | 17,116 | — | — | 60,429 | 2,906 |
| 50 years or over | — | 9,193 | — | — | 34,771 | 1,870 |
| Teaching experience | | | | | | |
| Beginning ² | — | 11,249 | — | 1,269 | 38,963 | 1,983 |
| Experienced | — | 48,667 | 2,002 | 3,460 | 179,765 | 9,389 |
| Community type | | | | | | |
| Urban | — | 22,621 | — | 2,749 | 79,732 | 5,834 |
| Suburban | — | 13,631 | — | — | 54,524 | 2,359 |
| Rural–small city | — | 15,740 | — | — | 61,013 | 1,523 |

— Too few cases for a reliable estimate.

¹Includes Asians, Pacific Islanders, Hispanics of any race, Native Americans, and other racial-ethnic categories.

²Beginning teachers have taught for 3 years or fewer. Experienced teachers have taught for 4 years or more.

NOTE: Details may not add to totals due to rounding or item nonresponse.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 2.8—Percentage distribution of teachers by race–ethnicity, by sex, sector, selected teacher characteristics, and school community type: 1987–88

| | Male | | | Female | | |
|------------------------|-----------------------|-----------------------|--------------------|-----------------------|-----------------------|--------------------|
| | Black non-Hispanic | White non-Hispanic | Other ¹ | Black non-Hispanic | White non-Hispanic | Other ¹ |
| TOTAL | 5.4 | 90.2 | 4.4 | 8.0 | 87.3 | 4.7 |
| PUBLIC | 5.6 | 89.9 | 4.4 | 8.9 | 86.5 | 4.6 |
| Teaching level | | | | | | |
| Elementary | 7.3 | 87.4 | 5.3 | 8.8 | 86.3 | 4.9 |
| Secondary | 5.2 | 90.6 | 4.2 | 9.0 | 86.8 | 4.2 |
| Age | | | | | | |
| Under 30 years | 4.5 | 90.0 | 5.4 | 4.6 | 90.4 | 5.0 |
| 30–39 years | 5.4 | 89.4 | 5.2 | 9.3 | 86.3 | 4.5 |
| 40–49 years | 5.7 | 90.8 | 3.5 | 8.9 | 86.6 | 4.5 |
| 50 years or over | 6.3 | 89.4 | 4.3 | 11.0 | 84.0 | 5.0 |
| Teaching experience | | | | | | |
| Beginning ² | 5.1 | 87.9 | 7.0 | 6.3 | 87.7 | 6.0 |
| Experienced | 5.7 | 90.1 | 4.2 | 9.2 | 86.3 | 4.5 |
| Community type | | | | | | |
| Urban | 12.0 | 80.5 | 7.5 | 17.8 | 74.6 | 7.7 |
| Suburban | 3.5 | 93.5 | 3.1 | 6.2 | 89.7 | 4.1 |
| Rural–small city | 3.4 | 93.3 | 3.3 | 5.2 | 91.6 | 3.2 |
| PRIVATE | 2.8 | 92.9 | 4.4 | 2.0 | 93.1 | 4.8 |
| Teaching level | | | | | | |
| Elementary | 4.1 | 93.1 | 2.8 | 2.8 | 92.9 | 4.3 |
| Secondary | 2.4 | 92.8 | 4.7 | 0.8 | 93.5 | 5.6 |
| Age | | | | | | |
| Under 30 years | 4.1 | 92.7 | 3.2 | 2.2 | 93.6 | 4.2 |
| 30–39 years | 2.9 | 93.1 | 4.0 | 2.5 | 91.9 | 5.5 |
| 40–49 years | 1.6 | 95.6 | 2.8 | 1.7 | 93.8 | 4.5 |
| 50 years or over | 2.9 | 87.8 | 9.3 | 1.1 | 93.9 | 5.0 |
| Teaching experience | | | | | | |
| Beginning ² | 4.6 | 89.0 | 6.5 | 3.0 | 92.3 | 4.7 |
| Experienced | 2.3 | 93.8 | 3.9 | 1.8 | 93.3 | 4.9 |
| Community type | | | | | | |
| Urban | 3.0 | 91.2 | 5.8 | 3.1 | 90.3 | 6.6 |
| Suburban | 1.9 | 97.5 | 0.6 | 1.1 | 94.8 | 4.1 |
| Rural–small city | 1.5 | 95.2 | 3.3 | 1.1 | 96.5 | 2.4 |

¹Includes Asians, Pacific Islanders, Hispanics of any race, Native Americans, and other racial–ethnic categories.

²Beginning teachers have taught for 3 years or fewer. Experienced teachers have taught for 4 years or more.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

cent of Asian teachers, 64 percent of black, non-Hispanic teachers, and 64 percent of Hispanic teachers worked in schools with a student population that was more than 50 percent minority, compared with 16 percent of white, non-Hispanic teachers (table 2.9).

The SASS data also enable examination of the race-ethnicity of teachers by their main assignment field. The percentage of public school teachers who were white, non-Hispanic ranged from 87 percent to 90 percent in all teaching fields except bilingual education/English as a second language (table 2.10). Thirty-six percent of the bilingual education/English as a second language public school teachers were Hispanic. The percentage of private school teachers who were white, non-Hispanic ranged from 92 percent to 97 percent in all teaching fields. Tables 2.11 and 2.12 show the distribution of teachers by race-ethnicity in 1987-88, by state for public school teachers and by affiliation group for private school teachers.

The 1987 RCG allows comparisons of the demographic characteristics of newly qualified teachers and other recent college graduates. For this comparison, newly qualified teachers were defined as individuals 1) who received a bachelor's degree between July 1, 1985 and June 30, 1986, who became eligible or certified to teach during that period, and who had not been employed as teachers before receiving their degree; or 2) who were teaching without credentials, and who had not been employed as teachers before receiving their degree. Newly qualified teachers who received bachelor's degrees in 1985-86 were much more likely than other bachelor's degree recipients to be female (73 percent compared with 48 percent) (table 2.13). Newly qualified teachers and other 1985-86 bachelor's degree recipients were similar in terms of age and race-ethnicity.

SCHOOLS

About two-thirds of public and private schools were elementary in 1987-88 (table 2.14). In the public sector, another 25 percent were secondary, and 6 percent were combined elementary and secondary. The private sector had fewer secondary schools (9

percent) and more combined schools (27 percent) than did the public sector.

*Public urban and suburban schools
were similar in size.*

In urban and suburban communities, the average public elementary school had about 500 students, and the average public secondary school had about 1,000. At both the elementary and secondary levels across all community types, private schools were smaller, on average, than were public schools. Among combined schools, public schools were significantly larger, on average, only in urban and rural areas.

In 37 percent of the public schools, the minority student population was less than 5 percent of the total, and in 21 percent of these schools, it was 50 percent or more (table 2.14). In contrast, almost one-half (46 percent) of the private schools were less than 5 percent minority, and only 14 percent were 50 percent or more minority. Roughly 40 percent of both public and private schools had minority populations between 5 percent and 50 percent.

STUDENT CHARACTERISTICS

*Relatively fewer minorities were in the
teaching force than in the population
they served. In public schools, 13
percent of teachers and 29 percent of
students were minorities.*

SASS provides information on the diversity of the student population and the level of student poverty. In public schools, 71 percent of all students were white, non-Hispanic, 16 percent were black, non-Hispanic, 9 percent were Hispanic, 3 percent were Asian, and 1 percent were Native American (figure 2.3 and table 2.15). In the private sector, a greater proportion of the students were white, non-Hispanic (81 percent), and smaller proportions were black, non-Hispanic (8 percent), Hispanic (7 percent), and Native American (less than 1 percent). A comparison

Table 2.9—Percentage distribution of teachers by percentage minority (nonwhite) enrollment in the schools in which they taught, by sector and teacher race-ethnicity: 1987–88

| | Percent minority enrollment in school | | |
|------------------------|---------------------------------------|--------|------------------|
| | Less than 20% | 20–49% | Greater than 50% |
| TOTAL | 60.1 | 19.2 | 20.7 |
| PUBLIC | 58.2 | 20.0 | 21.8 |
| Teacher race-ethnicity | | | |
| Native American | 55.2 | 18.9 | 25.9 |
| Asian | 20.1 | 20.6 | 59.3 |
| Black, non-Hispanic | 11.9 | 24.1 | 64.0 |
| Hispanic | 18.7 | 17.0 | 64.3 |
| White, non-Hispanic | 64.3 | 19.8 | 15.8 |
| PRIVATE | 75.8 | 12.4 | 11.8 |
| Teacher race-ethnicity | | | |
| Native American | 68.2 | 14.6 | 17.2 |
| Asian | 10.9 | 8.6 | 80.5 |
| Black, non-Hispanic | 20.5 | 11.0 | 68.4 |
| Hispanic | 37.8 | 20.7 | 41.5 |
| White, non-Hispanic | 79.2 | 12.2 | 8.6 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “School Questionnaire” and “Teacher Questionnaire.”

Table 2.10—Percentage distribution of teachers by race-ethnicity, by sector and main assignment field: 1987–88

| | Native American | Asian/ Pacific Islander | Black, non-Hispanic | Hispanic | White, non-Hispanic |
|------------------------|-----------------|----------------------------|------------------------|----------|------------------------|
| TOTAL | 1.0 | 0.9 | 7.3 | 2.6 | 88.1 |
| PUBLIC | 1.0 | 0.9 | 8.0 | 2.6 | 87.5 |
| Main assignment | | | | | |
| K-general elementary | 0.9 | 1.1 | 8.8 | 2.6 | 86.5 |
| Math/science | 0.9 | 1.1 | 7.4 | 1.8 | 88.7 |
| English, language arts | 1.3 | 0.5 | 7.3 | 1.7 | 89.2 |
| Social studies | 0.9 | 0.7 | 6.4 | 2.6 | 89.4 |
| Special education | 1.3 | 0.8 | 9.1 | 2.0 | 86.8 |
| Bilingual/ESL | 0.8 | 5.3 | 5.4 | 36.4 | 52.1 |
| Vocational education | 1.0 | 0.2 | 6.7 | 2.2 | 90.0 |
| Other | 1.0 | 0.6 | 7.4 | 2.5 | 88.5 |
| PRIVATE | 0.9 | 1.2 | 2.2 | 2.7 | 93.1 |
| Main assignment | | | | | |
| K-general elementary | 0.9 | 0.8 | 3.1 | 2.0 | 93.2 |
| Math/science | 1.0 | 2.2 | 1.7 | 3.0 | 92.0 |
| English, language arts | 1.3 | 0.5 | 0.8 | 0.9 | 96.5 |
| Social studies | 1.0 | 2.7 | 1.8 | 2.3 | 92.2 |
| Special education | — | 0.0 | 3.0 | 0.0 | 96.1 |
| Bilingual/ESL | — | — | — | — | — |
| Vocational education | — | — | — | — | — |
| Other | 0.6 | 0.9 | 1.4 | 5.0 | 92.2 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 2.11—Percentage distribution of public school teachers by race-ethnicity, by state: 1987–88

| | Native American | Asian/ Pacific Islander | Black, non-Hispanic | Hispanic | White, non-Hispanic |
|-------------------|--------------------|----------------------------|------------------------|----------|------------------------|
| TOTAL | 1.0 | 0.9 | 8.0 | 2.6 | 87.5 |
| State | | | | | |
| Alabama | 0.6 | — | 20.8 | 0.8 | 77.5 |
| Alaska | 4.0 | 1.8 | 1.1 | — | 92.8 |
| Arizona | 3.2 | — | 0.7 | 7.0 | 88.7 |
| Arkansas | 0.2 | 0.0 | 11.5 | 0.6 | 87.8 |
| California | 1.3 | 3.5 | 4.0 | 6.0 | 85.2 |
| Colorado | 0.7 | 1.6 | 1.6 | 4.7 | 91.4 |
| Connecticut | — | 0.7 | 2.0 | 1.1 | 96.0 |
| Delaware | — | — | 12.5 | — | 86.0 |
| Dist. of Columbia | — | 0.0 | 81.7 | 2.3 | 14.8 |
| Florida | 1.4 | 0.3 | 13.1 | 4.8 | 80.4 |
| Georgia | 0.8 | — | 20.3 | 0.5 | 78.3 |
| Hawaii | 0.0 | 79.9 | 0.0 | 1.5 | 18.6 |
| Idaho | 0.9 | — | 0.0 | 0.7 | 98.1 |
| Illinois | 1.0 | 0.8 | 9.8 | 1.3 | 87.2 |
| Indiana | 1.3 | — | 3.3 | 1.0 | 94.4 |
| Iowa | 1.1 | 0.4 | 1.0 | 0.5 | 97.0 |
| Kansas | 1.8 | — | 2.3 | 1.3 | 94.5 |
| Kentucky | 0.9 | 0.0 | 2.3 | 1.5 | 95.3 |
| Louisiana | — | 0.0 | 30.3 | 1.0 | 68.5 |
| Maine | 2.5 | 0.0 | 0.0 | — | 97.3 |
| Maryland | — | — | 16.8 | — | 82.2 |
| Massachusetts | 1.0 | 0.6 | 1.9 | 1.5 | 94.9 |
| Michigan | 0.9 | 0.3 | 10.9 | 1.2 | 86.8 |
| Minnesota | 0.7 | 0.3 | — | 0.4 | 98.3 |
| Mississippi | 0.6 | 0.0 | 32.4 | 0.4 | 66.6 |
| Missouri | 1.3 | 0.0 | 3.5 | 0.4 | 94.8 |
| Montana | 2.6 | — | — | 0.8 | 96.3 |
| Nebraska | 0.8 | — | 1.0 | 0.9 | 97.0 |
| Nevada | 1.3 | 0.6 | 6.4 | 2.6 | 89.0 |
| New Hampshire | 0.6 | — | — | 1.1 | 97.7 |
| New Jersey | 1.1 | 0.3 | 7.2 | 2.8 | 88.6 |
| New Mexico | 3.2 | 0.7 | 1.4 | 21.3 | 73.4 |
| New York | 0.9 | 0.6 | 6.3 | 2.5 | 89.8 |
| North Carolina | 1.2 | — | 16.2 | 0.5 | 81.9 |
| North Dakota | 0.9 | — | — | 0.7 | 97.7 |
| Ohio | 0.8 | 0.1 | 6.1 | 0.3 | 92.7 |
| Oklahoma | 3.5 | — | 2.7 | 0.9 | 92.8 |
| Oregon | 1.1 | 1.1 | 0.6 | 1.3 | 95.8 |
| Pennsylvania | 0.9 | 0.3 | 5.8 | 0.6 | 92.4 |
| Rhode Island | 2.2 | — | — | — | 96.7 |
| South Carolina | 0.3 | — | 18.8 | 0.0 | 80.7 |
| South Dakota | 3.4 | — | 0.0 | — | 96.0 |
| Tennessee | 0.4 | — | 13.5 | 1.6 | 84.4 |
| Texas | 0.7 | 0.2 | 8.9 | 11.0 | 79.2 |
| Utah | 1.3 | 1.2 | 0.0 | 1.4 | 96.2 |

Table 2.11—Percentage distribution of public school teachers by race-ethnicity, by state: 1987–88—Continued

| | Native American | Asian/ Pacific Islander | Black, non-Hispanic | Hispanic | White, non-Hispanic |
|---------------|--------------------|----------------------------|------------------------|----------|------------------------|
| Vermont | — | 0.0 | 0.0 | 1.0 | 98.4 |
| Virginia | 0.5 | 0.3 | 16.8 | 0.5 | 81.9 |
| Washington | 0.7 | 2.1 | 1.3 | 0.4 | 95.5 |
| West Virginia | 1.6 | — | 1.7 | 0.9 | 95.5 |
| Wisconsin | 0.8 | — | 1.7 | 0.8 | 96.5 |
| Wyoming | — | 0.0 | 1.2 | 1.9 | 96.6 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

of the racial-ethnic composition of the students and teachers shows that there were proportionately fewer minorities in the teaching force than in the population they served. In public schools, for example, 8 percent of the teachers, but 16 percent of the students were black, non-Hispanic; 3 percent of the teachers, but 9 percent of the students were Hispanic; and 1 percent of the teachers, but 3 percent of the students were Asian (tables 2.10 and 2.15).

Teachers worked with different racial-ethnic mixes of students depending on what level they taught, the type of community where their school was located, and whether their school was public or private (table 2.15). At the elementary level, public school students were less likely than private school students to be white, non-Hispanic (69 percent compared with 79 percent), and were more likely to be black, non-Hispanic (17 percent compared with 9 percent). The pattern was similar at the secondary level where 73 percent of public school students were white, non-Hispanic, compared with 81 percent of private school students; and 15 percent of public school students were black, non-Hispanic, compared with 6 percent of private school students. Urban public schools were 48 percent white, non-Hispanic and 30 percent black, non-Hispanic, while urban private schools were 72 percent white, non-Hispanic and 13 percent black, non-Hispanic. Suburban public schools were 77 percent white, non-Hispanic and 11 percent black, non-Hispanic, compared with suburban private schools, which were 87 percent white, non-Hispanic and 5 percent black, non-Hispanic.

Differences in the economic circumstances of students were evident within and across sectors (table 2.16). SASS collected data on the number of students in each school who were eligible for the federal free lunch program, which can be used as an indicator of the number of poor children in the school.⁹ The data show that in 1987–88, 22 percent of all elementary public school students and 8 percent of all secondary public school students were identified as free lunch eligible.

Free lunch eligibility was associated with community type, particularly in the public schools, and with minority enrollment. Among public school elementary students, 31 percent of urban, 13 percent of suburban, and 21 percent of rural-small city students were free lunch eligible. At the secondary level, 9 percent of urban public school students, 5 percent of suburban, and 8 percent of rural-small city school students were free lunch eligible. Among public elementary schools that were less than 20 percent minority, 13 percent of students were free lunch eligible, compared with 33 percent of students in schools that were more than 20 percent minority. In public secondary schools, 5 percent of students from schools that were less than 20 percent minority were eligible, compared with 10 percent from schools that were more than 20 percent minority.

⁹The number of children who were reported free lunch eligible will be an underestimate of the number of poor children, because not all students who are eligible identify themselves as such (especially at the secondary level), and in the private sector not all schools participate in federal programs.

**Table 2.12—Percentage distribution of private school teachers by race-ethnicity, by private school type:
1987–88**

| | Native American | Asian/ Pacific Islander | Black, non-Hispanic | Hispanic | White, non-Hispanic |
|---------------------------------|--------------------|----------------------------|------------------------|----------|------------------------|
| TOTAL | 0.8 | 0.9 | 2.2 | 2.9 | 93.2 |
| Private school type | | | | | |
| Religious | 0.8 | 0.9 | 2.2 | 3.1 | 92.9 |
| Nonsectarian | 0.6 | 1.0 | 1.9 | 2.0 | 94.4 |
| Private school category | | | | | |
| Assembly of God | 0.0 | — | 3.5 | — | 94.0 |
| Baptist | — | — | 1.2 | 1.6 | 96.7 |
| Calvinist | 0.0 | 0.0 | — | 0.0 | 99.0 |
| Christian | 0.0 | 0.4 | 2.3 | 1.0 | 96.3 |
| Episcopal | — | 6.1 | 2.5 | 0.8 | 90.6 |
| Friends | 0.0 | — | 7.1 | 0.0 | 92.8 |
| Jewish | — | 0.0 | — | 1.8 | 97.3 |
| Lutheran | 1.2 | — | 3.0 | — | 95.3 |
| 7th Day Adventist | — | 2.9 | 8.2 | 6.7 | 81.9 |
| Roman Catholic | 1.2 | 0.9 | 2.1 | 4.1 | 91.8 |
| Other: Religious | 0.0 | — | 1.9 | 2.6 | 95.6 |
| Exceptional children | — | 0.0 | 1.5 | 0.0 | 94.5 |
| Montessori | — | 11.1 | 5.6 | 3.6 | 79.2 |
| Nat. Ass. of Indep. Schools | 0.5 | — | — | 2.7 | 96.2 |
| Other: Nonsectarian | 0.5 | 0.6 | 2.9 | 1.3 | 94.7 |
| 9-Category typology | | | | | |
| Catholic | | | | | |
| -Parochial | 1.3 | 0.7 | 2.4 | 3.3 | 92.3 |
| -Diocesan | 1.3 | 1.1 | 2.0 | 2.5 | 93.1 |
| -Private order | 0.6 | 1.5 | 0.8 | 8.8 | 88.3 |
| Other Religious | | | | | |
| -Conservative Christian | — | — | 1.0 | 2.1 | 96.7 |
| -Affiliated | 0.5 | 1.8 | 2.7 | 1.6 | 93.5 |
| -Unaffiliated | — | 0.2 | 4.3 | 1.3 | 94.1 |
| Nonsectarian | | | | | |
| -Regular | 0.4 | 0.3 | 1.4 | 1.9 | 96.0 |
| -Special emphasis | 0.7 | 2.9 | 2.0 | 2.8 | 91.5 |
| -Special education | 1.5 | 0.0 | 4.3 | 0.0 | 94.2 |
| NAIS membership status | | | | | |
| Not Nat. Ass. of Indep. Schools | 0.9 | 0.8 | 2.4 | 3.0 | 92.9 |
| Nat. Ass. of Indep. Schools | 0.3 | 1.8 | 0.8 | 2.0 | 95.1 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 2.13—Percentage distribution of 1985–86 bachelor's degree recipients by age, sex, and race–ethnicity, by whether or not they were newly qualified teachers: 1987

| | Age | | Sex | | Race–ethnicity | | |
|--------------------------|--------------------|------------------|------|--------|---------------------|---------------------|-------|
| | Less than 25 years | 25 years or more | Male | Female | Black, non-Hispanic | White, non-Hispanic | Other |
| TOTAL | 58.8 | 41.2 | 49.2 | 50.8 | 4.4 | 87.6 | 8.0 |
| Newly qualified teachers | 59.7 | 40.3 | 27.4 | 72.6 | 5.0 | 87.8 | 7.2 |
| Other bachelor's degree | 58.7 | 41.3 | 52.2 | 47.8 | 4.3 | 87.6 | 8.1 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–1986 College Graduates.

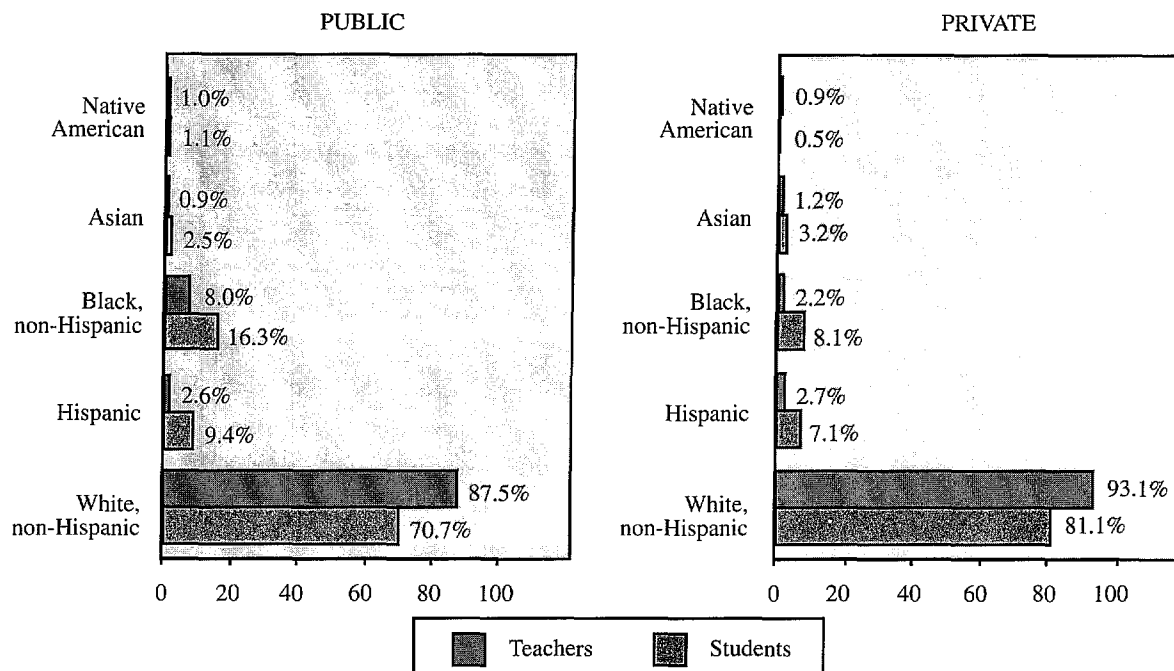
Table 2.14—Percentage distribution of schools by level, average school size, and percentage distribution of schools by minority enrollment, by sector: 1987–88

| | Total | Public | Private |
|-----------------------------|-------|--------|---------|
| PERCENT OF SCHOOLS | | | |
| School level | | | |
| Elementary | 68.1 | 69.5 | 63.7 |
| Secondary | 20.6 | 24.6 | 9.1 |
| Combined | 11.3 | 5.9 | 27.2 |
| AVERAGE SCHOOL SIZE | | | |
| Urban | | | |
| Elementary | 441 | 549 | 216 |
| Secondary | 925 | 1,097 | 383 |
| Combined | 262 | 367 | 221 |
| Suburban | | | |
| Elementary | 437 | 513 | 215 |
| Secondary | 970 | 1,027 | 543 |
| Combined | 286 | 324 | 276 |
| Rural–small city | | | |
| Elementary | 318 | 365 | 116 |
| Secondary | 525 | 543 | 232 |
| Combined | 231 | 341 | 126 |
| PERCENT OF SCHOOLS | | | |
| Percent minority enrollment | | | |
| Less than 5% | 39.5 | 37.2 | 46.1 |
| 5–19% | 23.9 | 22.7 | 27.7 |
| 20–49% | 17.4 | 19.1 | 12.4 |
| 50% or more | 19.2 | 21.1 | 13.8 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "School Questionnaire."

Figure 2.3—Percentage distribution of teachers and students by race-ethnicity, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 2.15—Percentage distribution of students by race-ethnicity, by sector and selected school characteristics: 1987–88

| | Public | | | | | Private | | | | |
|-----------------------|-----------------|------------------------|---------------------|----------|---------------------|-----------------|------------------------|---------------------|----------|---------------------|
| | Native American | Asian/Pacific Islander | Black, non-Hispanic | Hispanic | White, non-Hispanic | Native American | Asian/Pacific Islander | Black, non-Hispanic | Hispanic | White, non-Hispanic |
| TOTAL | 1.1 | 2.5 | 16.3 | 9.4 | 70.7 | 0.5 | 3.2 | 8.1 | 7.1 | 81.1 |
| School level | | | | | | | | | | |
| Elementary | 1.2 | 2.5 | 16.9 | 10.2 | 69.2 | 0.4 | 3.3 | 9.3 | 7.7 | 79.3 |
| Secondary | 0.8 | 2.7 | 15.2 | 8.3 | 73.0 | 0.2 | 4.0 | 5.8 | 9.2 | 80.7 |
| Combined | 2.3 | 1.4 | 16.6 | 5.9 | 73.8 | 0.8 | 2.5 | 6.9 | 4.4 | 85.5 |
| Community type | | | | | | | | | | |
| Urban | 0.7 | 4.1 | 29.6 | 17.4 | 48.2 | 0.2 | 4.4 | 12.5 | 11.1 | 71.8 |
| Suburban | 0.5 | 3.6 | 11.1 | 7.4 | 77.4 | 0.3 | 3.0 | 5.2 | 4.4 | 87.2 |
| Rural–small city | 1.6 | 1.1 | 10.2 | 5.2 | 81.8 | 1.1 | 1.5 | 3.5 | 3.3 | 90.6 |
| Region | | | | | | | | | | |
| Northeast | 0.2 | 2.6 | 14.4 | 8.4 | 74.3 | 0.1 | 2.3 | 10.7 | 7.1 | 79.8 |
| Midwest | 0.8 | 1.3 | 12.6 | 3.1 | 82.3 | 0.4 | 1.3 | 6.9 | 4.5 | 87.0 |
| South | 1.0 | 1.1 | 25.6 | 8.0 | 64.3 | 0.2 | 1.6 | 7.7 | 6.7 | 83.8 |
| West | 2.5 | 6.4 | 5.9 | 20.1 | 65.1 | 1.9 | 11.1 | 6.2 | 13.0 | 67.9 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “School Questionnaire.”

Table 2.16—Percentage of students who were eligible for free or reduced-price school lunch by sector, level, and selected school characteristics: 1987–88

| | Total | | | Public | | | Private | | |
|---------------------|-----------------|----------------|---------------|-----------------|----------------|---------------|-----------------|----------------|---------------|
| | Elemen- tary | Secon- dary | Com- bined | Elemen- tary | Secon- dary | Com- bined | Elemen- tary | Secon- dary | Com- bined |
| TOTAL | 20.1 | 6.8 | 1.7 | 22.1 | 7.5 | 1.6 | 4.8 | 0.8 | 2.2 |
| Community type | | | | | | | | | |
| Urban | 26.8 | 7.9 | 1.8 | 30.9 | 9.3 | 1.6 | 6.0 | 0.6 | 2.7 |
| Suburban | 11.5 | 4.2 | 0.3 | 13.0 | 4.7 | 0.2 | 1.7 | — | — |
| Rural—small city | 19.6 | 7.3 | 2.2 | 20.7 | 7.7 | 2.2 | 5.6 | 0.9 | 2.6 |
| Region | | | | | | | | | |
| Northeast | 17.0 | 5.4 | 1.8 | 19.2 | 6.4 | 1.5 | 5.8 | — | 3.2 |
| Midwest | 16.8 | 5.5 | 1.8 | 18.2 | 6.2 | 1.8 | 7.6 | — | 1.7 |
| South | 23.9 | 8.3 | 2.0 | 26.0 | 9.1 | 2.0 | 2.3 | — | — |
| West | 20.4 | 6.8 | 0.8 | 22.2 | 7.4 | 0.8 | 2.1 | — | — |
| Minority enrollment | | | | | | | | | |
| Less than 20% | 11.6 | 4.4 | 1.5 | 13.1 | 5.1 | 1.5 | 3.2 | 0.8 | 1.8 |
| 20% or more | 30.8 | 9.7 | 1.8 | 32.5 | 10.4 | 1.7 | 9.1 | — | 3.3 |

— Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “School Questionnaire.”

CHAPTER 3 • TEACHER SUPPLY AND DEMAND

The supply of and demand for elementary and secondary school teachers periodically become issues of public concern and debate, particularly during times when the demand for teachers appears to threaten to outstrip supply. Perhaps more than any other profession, the labor and job markets for teachers are heavily dependent upon population changes. Increases or decreases in birth or immigration rates affect the demand for teachers in general, the demand for specific kinds of teachers (for example, elementary versus secondary), and the supply of teachers (that is, the number of teachers seeking jobs).¹⁰

During the 1980s, research findings suggested that the 1990s might be a decade in our nation's history where the demand for teachers would overtake the supply due to increasing enrollments and declines in the proportions of college graduates, particularly women and minority group members, who become teachers.¹¹ Other researchers have predicted that the nation will have enough teachers, but have suggested that if the demand increases, the quality of newly hired teachers may decline, and progress toward improving education may be inhibited.¹² Most recently, researchers who have studied teacher attrition among Indiana teachers have concluded that the

rates at which teachers have left the profession have declined steadily since the mid-1960s, and that the shortages predicted in the 1980s may not materialize for a decade or more.¹³

In addition to demographic shifts and changes in labor market forces, public policy can affect teacher supply and demand. State governments and local school boards, for instance, can increase or decrease teachers' salaries and benefits, and can alter the working conditions and work loads of teachers. By improving teachers' salaries or working conditions, policymakers can encourage former teachers, currently in the teacher "reserve pool," to return to the classroom, thereby increasing the proportion of experienced teachers who participate in the nation's teacher work force.¹⁴ To the extent that such policies do affect teacher supply and demand, legislators and administrators can contribute, in part, to creating or solving difficulties. Therefore, understanding how various policy decisions affect teacher supply and demand becomes an important undertaking.

Data relevant to a number of teacher supply and demand issues are discussed elsewhere in this report. For instance, Chapter 5 discusses teachers' qualifications, and Chapter 10 presents projections of the demand for new hires into the 21st century. Estimating the relationship between teacher supply and demand amounts to more than simply comparing the number of students with the number of teachers. For example, in the last decade or so, some have predicted that the quality of the teacher work force may decline in the coming years because districts, out of necessity, will hire teachers with lower levels of academic achievement and teaching experience in order to meet the demands created by increasing enrollments. In order to fully understand the complexity of teacher supply and demand it would be necessary to conduct complex statistical analyses to study the interaction of population trends,

¹⁰Increases in birth rates have traditionally been associated with a decline in teacher supply because as more women have children and stay home to rear them, fewer women remain in the labor market as teachers. See J.A. Sweet and L.A. Jacobsen, "Demographic Aspects of the Supply and Demand for Teachers," in *Handbook of Teaching and Policy*, ed. L.S. Shulman and G. Sykes (New York: Longman, 1983). Changes in women's labor force participation, however, may affect this traditional pattern in a number of ways. Although in recent years fewer women have chosen to leave the labor force for long periods of time in order to rear children, schools and school districts face increasing competition from other occupations for the professional services of college-educated women.

¹¹See, for example, L. Darling-Hammond, *Beyond the Commission Reports: The Coming Crisis in Teaching* (Santa Monica, CA: RAND Corporation, 1984), and D.W. Grissmer and S.N. Kirby, *Teacher Attrition: The Uphill Battle to Staff the Nation's Schools* (Santa Monica, CA: RAND Corporation, 1987).

¹²R.J. Murnane, J.D. Singer, J.B. Willett, J.J. Kemple, and R.J. Olsen, *Who Will Teach? Policies that Matter* (Cambridge, MA: Harvard University Press, 1991).

¹³D.W. Grissmer and S.N. Kirby, *Patterns of Attrition Among Indiana Teachers, 1965-1987* (Santa Monica, CA: RAND Corporation, 1992).

¹⁴Murnane et al., 1991.

economic conditions, and labor force participation among women. Such analyses are beyond the scope of this report. In this chapter, the issue of teacher supply and demand is specifically addressed by focusing on the sources of the teacher work force, indicators of teacher shortages, the methods used by school administrators to cope with teaching vacancies and shortages, and the rates of turnover within and attrition from the teaching profession in the late 1980s.¹⁵

SOURCES OF SUPPLY

8 percent of teachers were new to teaching, and 7 percent were returning to teaching after an absence of 1 year or more.

Although many lament the turnover among teachers, implying that many teachers are inexperienced, teachers with at least some experience made up the largest proportion of teachers in both public and private schools in 1987–88. The Schools and Staffing Survey (SASS) data indicate that 85 percent of 1987–88 teachers had taught during the previous year (1986–87), 8 percent of 1987–88 teachers were new to teaching, and 7 percent were returning to teaching after 1 year or more out of the classroom (table 3.1). Private school teachers were more likely

than public school teachers to be new to teaching or to be returning to the classroom in 1987–88 (figure 3.1).

In the wake of concerns about having an adequate supply of teachers in the coming years, some have suggested that the reserve pool—qualified teachers who are not currently teaching—may be an important source of teachers as demand increases in the 1990s.¹⁶ Table 3.1 provides some indication of where the teacher reserve pool can be found by including data concerning the activities of teachers who rejoined the teaching force in 1987–88. About 40 percent of teachers who returned to the classroom in 1987–88 had spent the previous year homemaking or child rearing, and about 20 percent had worked outside of education (table 3.1). Approximately another 20 percent had been engaged in other activities during 1986–87, including teaching at the postsecondary level, working in a nonteaching job in education, looking for work, working in a military position, or performing some other activity. Fifteen percent of returning teachers had been enrolled in college in 1986–87, and about 3 percent had been retired.

Among 1985–86 bachelor's degree recipients, 12 percent were newly qualified teachers.

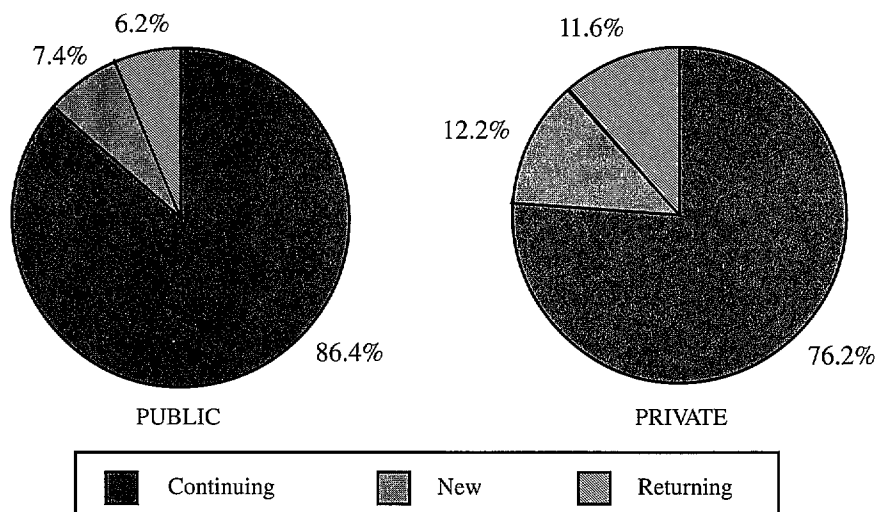
¹⁵Other NCES analyses of the SASS data provide more detailed information on the topics covered in this chapter. For a more detailed examination of the characteristics of newly hired teachers in 1987–88, including data on their demographic characteristics, qualifications, and activities in the year prior to hiring, see M.R. Rollefson, "Sources of Newly Hired Teachers in the U.S.: Results of the 1987–88 Schools and Staffing Survey" (paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA, April, 1992). NCES studies on teacher attrition and turnover include the following: S.A. Bobbitt, E. Faupel, and S. Burns, *Characteristics of Stayers, Movers, and Leavers: Results from the Teacher Followup Survey* (Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Educational Statistics, NCES 91-128, 1991); S.A. Bobbitt and S. Whitener, "Why Do Teachers Leave Teaching?: Results from the Teacher Followup Survey" (paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA, April, 1992); and K.J. Gruber, "Destinations of Movers and Leavers: Where Do They Go?" (paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA, April, 1992).

Traditionally, however, new college graduates have been the primary source of additional teachers. In the 1987 Survey of 1985–86 Recent College Graduates, conducted by NCES, a number of specific questions were asked about 1985–86 college graduates' training and experience in teaching. Among the approximately 933,100 bachelor's degree recipients in 1985–86, 12 percent (112,100) were newly qualified teachers (table 3.2).¹⁷ The percentage of graduates who were newly qualified

¹⁶Murnane et al., 1991.

¹⁷See Chapter 2 for the definition of "newly qualified teachers." The RCG definition requires the individual to 1) have graduated in 1985–86; 2) never have taught before June 30, 1986; and 3) have become eligible or certified to teach sometime between July 1, 1985 and June 30, 1986. A broader definition might require only two of these three conditions. This analysis is limited to bachelor's degree recipients.

Figure 3.1—Percentage distribution of teachers by whether they were continuing, new, or returning teachers, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

teachers varied according to the field of study in which the graduates had majored. After education majors, 76 percent of whom were newly qualified teachers, graduates who had majored in the humanities were the second most likely group to be newly qualified teachers (15 percent).

Only 58 percent of newly qualified teachers were employed as teachers the year after they graduated.

The number of recent college graduates who become qualified to teach is an indicator of the number of potential teachers, but not all those who become qualified actually teach. Of all recent bachelor's degree recipients, 10 percent were employed as teachers, 75 percent were employed in other occupations, and 15 percent were not employed (table 3.3). As one might expect, newly qualified teachers were more likely to teach than were other bachelor's degree recipients: whereas 58 percent of newly qualified teachers were employed as teachers, only 4 percent of other bachelor's degree recipients were teaching in 1987. Among those who were not employed, newly qualified teachers were more like-

ly than other bachelor's degree recipients to cite family responsibilities as the main reason for not being employed.¹⁸

Another important, and related, question concerns the career plans of new entrants to the teaching work force. If newly qualified teachers consider teaching to be a short-term job or a stepping stone to other careers, that has implications for the teacher supply. In 1987, 18 percent of newly qualified teachers who were teaching viewed their current principal job as temporary (table 3.4). However, newly qualified teachers who were teaching were more likely than those who were not teaching to report that their job

¹⁸In Dan Lortie's classic study of the teaching profession, *Schoolteacher: A Sociological Study* (Chicago: University of Chicago Press, 1975), he found that, among women in particular, the work schedule of teachers and its compatibility with family responsibilities was an incentive for entering the profession. More recent studies of teachers' reasons for entering the profession, however, have not found time compatibility to be a potent attractor to teaching. See M.D. Andrew, "The Characteristics of Students in a Five Year Teacher Education Program," *Journal of Teacher Education* 34 (1) (1983): 20–23; and Harris and Associates, *The American Teacher 1990, New Teachers: Expectations and Ideals, Part I: Entering the Classroom* (New York: Metropolitan Life Insurance Company, 1990). Thus, the data presented in table 3.3 are consistent with previous research.

Table 3.1—Percentage distribution of teachers by whether they were continuing, new, or returning teachers and percentage distribution of returning teachers by main activity in 1986–87, by sector and selected teacher characteristics: 1987–88

| | Continuing (taught in 1986–87) | New in 1987–88 | Returning in 1987–88 | Returning teachers' 1986–87 activity | | | | |
|-----------------------|--------------------------------------|-------------------|----------------------------|--------------------------------------|---------------------------------|---------------------------------------|---------|-------|
| | | | | Attending college | Working outside education | Home- making/ child- rearing | Retired | Other |
| TOTAL | 84.9 | 8.1 | 7.0 | 14.6 | 21.1 | 38.8 | 2.7 | 22.8 |
| PUBLIC | 86.4 | 7.4 | 6.2 | 13.6 | 20.8 | 39.5 | 0.9 | 25.2 |
| Teaching level | | | | | | | | |
| Elementary | 86.9 | 6.9 | 6.2 | 12.5 | 16.9 | 47.5 | 0.7 | 22.4 |
| Secondary | 85.7 | 8.1 | 6.2 | 15.1 | 25.8 | 29.5 | 1.1 | 28.6 |
| Sex | | | | | | | | |
| Male | 83.5 | 10.3 | 6.2 | 14.8 | 45.0 | — | 2.9 | 36.8 |
| Female | 87.0 | 6.8 | 6.2 | 13.4 | 16.1 | 47.1 | 0.5 | 23.0 |
| Age | | | | | | | | |
| Under 30 years | 22.2 | 69.0 | 8.9 | 36.5 | 29.6 | 17.0 | 0.0 | 17.0 |
| 30–39 years | 84.2 | 5.6 | 10.2 | 8.7 | 18.3 | 52.1 | 0.0 | 21.0 |
| 40–49 years | 93.6 | 1.3 | 5.1 | 15.0 | 18.4 | 34.0 | 0.0 | 32.5 |
| 50 years or over | 97.5 | 0.4 | 2.1 | 12.1 | 35.7 | 7.4 | 11.6 | 33.2 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 80.8 | 12.6 | 6.6 | 7.0 | 23.8 | 42.2 | 0.8 | 26.2 |
| MA/MS or more | 92.5 | 1.7 | 5.8 | 21.7 | 17.3 | 36.2 | 0.9 | 23.9 |
| PRIVATE | 76.2 | 12.2 | 11.6 | 17.2 | 21.8 | 36.9 | 7.6 | 16.4 |
| Teaching level | | | | | | | | |
| Elementary | 75.5 | 12.5 | 11.9 | 13.9 | 18.2 | 39.9 | — | 16.8 |
| Secondary | 77.1 | 11.8 | 11.1 | 21.4 | 26.3 | 33.3 | — | 16.0 |
| Sex | | | | | | | | |
| Male | 67.8 | 21.5 | 10.7 | 32.2 | 35.9 | 0.0 | — | 21.1 |
| Female | 77.7 | 10.6 | 11.7 | 15.1 | 19.8 | 42.1 | — | 15.8 |
| Age | | | | | | | | |
| Under 30 years | 20.1 | 66.5 | 13.4 | 24.6 | 48.0 | 12.3 | 0.0 | 15.2 |
| 30–39 years | 76.6 | 8.6 | 14.9 | 14.9 | 18.6 | 50.2 | — | 15.4 |
| 40–49 years | 88.4 | 2.0 | 9.6 | 17.9 | 21.5 | 41.4 | 0.0 | 19.2 |
| 50 years or over | 89.9 | 1.3 | 8.8 | — | — | — | — | — |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 71.2 | 16.7 | 12.0 | 13.0 | 27.3 | 32.5 | 11.1 | 16.1 |
| MA/MS or more | 85.4 | 4.0 | 10.7 | 26.4 | 10.0 | 46.5 | 0.0 | 17.1 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 3.2—Number of bachelor's degree recipients and newly qualified teachers who received their degree during the 1985–86 academic year, and percentage of all 1985–86 bachelor's degree recipients who were newly qualified teachers, by major field of study: 1987

| Major field of study | Bachelor's degree recipients | Newly qualified teachers | Percent newly qualified teachers |
|--|------------------------------|--------------------------|----------------------------------|
| TOTAL | 933,100 | 112,100 | 12.0 |
| Professional fields | 507,500 | 75,100 | 14.8 |
| Business and management | 242,400 | 3,900 | 1.6 |
| Education | 84,200 | 63,900 | 75.9 |
| Engineering | 89,900 | 2,500 | 2.8 |
| Health professions | 65,000 | 3,500 | 5.3 |
| Public affairs/social services | 26,100 | 1,300 | 5.2 |
| Arts and science fields | 333,200 | 30,100 | 9.0 |
| Biological science | 37,800 | 2,500 | 6.6 |
| Mathematics, computer science, and physical sciences | 92,500 | 6,000 | 6.4 |
| Social sciences | 81,200 | 5,500 | 6.7 |
| Humanities | 82,700 | 12,300 | 14.8 |
| Psychology | 39,100 | 3,900 | 9.9 |
| Other fields | 88,900 | 6,400 | 7.2 |

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *New Teachers in the Job Market, 1987 Update* (Washington, D.C: 1990), 7.

Table 3.3—Percentage distribution of 1985–86 bachelor's degree recipients by employment status and percentage distribution of those not employed by main reason not employed, by whether or not they were newly qualified teachers: 1987

| | Employment status | | | Main reason not employed | | | | | |
|--------------------------|---------------------|-------------------------|--------------|--------------------------|---------------------------|----------------------|--------------------|----------|-------|
| | Employed as teacher | Employed as non-teacher | Not employed | Atten- ding school | Family respon- sibilities | Could not find a job | Did not want a job | Laid off | Other |
| TOTAL | 10.2 | 74.7 | 15.1 | 49.8 | 7.3 | 15.1 | 3.3 | 3.4 | 21.0 |
| Newly qualified teachers | 57.8 | 31.3 | 11.0 | 47.7 | 16.2 | 15.3 | 4.7 | 2.9 | 13.1 |
| Other bachelor's degree | 3.7 | 80.6 | 15.7 | 50.1 | 6.4 | 15.1 | 3.2 | 3.5 | 21.7 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

Table 3.4—Percentage distribution of employed 1985–86 bachelor’s degree recipients according to their descriptions of principal job, by whether or not they were newly qualified teachers and teaching status: 1987

| | Possible career potential | Definite career potential | Temporary job/ other |
|--------------------------|---------------------------------|---------------------------------|----------------------------|
| TOTAL | 24.6 | 44.7 | 30.7 |
| Newly qualified teachers | 26.2 | 40.5 | 33.2 |
| Teaching | 30.2 | 51.9 | 17.9 |
| Not teaching | 20.4 | 23.9 | 55.7 |
| Other bachelor’s degree | 24.4 | 45.3 | 30.4 |
| Teaching | 26.7 | 47.8 | 25.5 |
| Not teaching | 24.3 | 45.2 | 30.5 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

had possible or definite career potential. Other recent bachelor’s degree recipients were about equally likely to think of their principal jobs as having career potential whether or not they were teaching.

*28 percent of newly qualified teachers
did not apply for teaching jobs.*

Finally, in order to increase the pool of teacher candidates, policymakers would want to know why some newly qualified teachers do not seek teaching positions. Table 3.5 presents data that shed some light on this issue. As shown in the table, 28 percent of newly qualified teachers did not apply for teaching jobs, and a number of newly qualified teachers expressed more or less negative attitudes toward teaching. For instance, 21 percent reported that at the time of the survey they had no interest in teaching, 6 percent were discouraged from teaching by their student teaching experience, 7 percent were offered jobs with larger salaries or more prestige, and 6 percent did not like their teaching conditions. Others did not apply for teaching positions because they felt unprepared: 21 percent of newly qualified teachers wanted to obtain more education before applying for a teaching position, and 5 percent felt they were not yet ready for a job. In addition, 3 percent of newly qualified teachers reported that teaching positions

were too difficult to get, and 32 percent had other reasons for not applying for a teaching position.

INDICATORS OF TEACHER SHORTAGES

Whereas the preceding tables address questions concerning the supply of teachers, in this section the demand for teachers is at issue, specifically the question of whether schools and school districts have experienced teacher shortages. As discussed in the introduction, the issue of teacher shortage can, and must, be addressed from a number of perspectives; this section describes several indicators of teacher shortage available from the SASS data set.

Public school districts and private schools filled almost all of their approved teaching positions in 1987–88. Of the more than 2 million teaching positions approved by public school districts in 1987–88, only about 1 percent were either vacant or withdrawn due to lack of qualified applicants (table 3.6). Private schools approved about 330,000 positions, of which about 1 percent each were either vacant or withdrawn.

Teachers’ certification status and the extent to which teachers teach outside their fields of certification also might indicate teacher shortages in particular fields. If too few certified teachers are available to teach in a given field, administrators may resort to

Table 3.5—Percentage of newly qualified teachers who did not apply for teaching jobs and percentage distribution of those who did not apply by main reason for not seeking a teaching position, by major field: 1987

| | Did not apply | Main reason for not seeking teaching position | | | | | | | Other |
|-----------------------------|---------------|---|-----------------------|---------------------|-----------------------------------|-----------------------------------|--|--------------------------------------|-------|
| | | No interest in teaching | Wanted more education | Not ready for a job | Teaching jobs are too hard to get | Student teaching was discouraging | Received more money/prestige elsewhere | Did not like teaching conditions/pay | |
| TOTAL | 27.9 | 21.1 | 20.6 | 5.1 | 2.8 | 6.0 | 6.9 | 6.0 | 31.6 |
| Major field | | | | | | | | | |
| Education | 13.4 | 5.2 | 17.5 | 10.3 | 3.5 | 12.8 | 9.0 | 8.2 | 33.6 |
| Math/science/engineering | 40.2 | 28.2 | 23.8 | — | — | 4.3 | 5.8 | 6.4 | 26.0 |
| Soc. science/public affairs | 48.3 | 28.3 | 21.3 | — | 5.7 | 3.3 | — | 8.3 | 29.0 |
| Humanities | 46.2 | 17.7 | 23.8 | 6.6 | — | 3.4 | 10.1 | 4.9 | 33.4 |
| Other | 53.4 | 30.8 | 20.4 | — | — | 2.3 | 5.5 | 2.2 | 34.2 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

Table 3.6—Number of FTE teaching positions that were approved and number and percentage of approved positions that were vacant or withdrawn in public school districts and private schools, by region: 1987–88

| | Number of approved positions | Number | | Percent | |
|----------------|------------------------------|---------------------|------------------------|---------------------|------------------------|
| | | Vacant ¹ | Withdrawn ² | Vacant ¹ | Withdrawn ² |
| PUBLIC | 2,339,920 | 15,989 | 6,989 | 0.6 | 0.4 |
| Region | | | | | |
| Northeast | 510,439 | 5,013 | 453 | 0.9 | 0.1 |
| Midwest | 588,622 | 3,893 | 1,587 | 0.3 | 0.4 |
| South | 832,656 | 4,861 | 3,263 | 0.8 | 0.4 |
| West | 408,203 | 2,221 | 1,685 | 0.4 | 0.7 |
| PRIVATE | 326,734 | 2,157 | 2,588 | 0.7 | 1.0 |
| Region | | | | | |
| Northeast | 94,793 | 807 | 609 | 0.9 | 0.9 |
| Midwest | 87,838 | 555 | 790 | 0.6 | 1.0 |
| South | 91,959 | 494 | 830 | 0.7 | 1.3 |
| West | 52,145 | 301 | 359 | 0.8 | 0.9 |

¹Includes positions temporarily filled by a substitute.

²Includes positions abolished.

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Demand and Shortage Questionnaire.”

assigning teachers to teach in fields other than those in which they are certified. Among public school teachers, 89 percent had obtained regular or standard certification in their main teaching fields, 8 percent had probationary or temporary certification, and 3 percent had no certification in their main teaching fields (table 3.7). About 65 percent of public school teachers had another assignment in addition to their main teaching assignment. Nearly 54 percent of public school teachers with another assignment had regular or standard certification in their other teaching assignment field, and 41 percent had no certification in their other teaching assignments.¹⁹

At first one might think that this apparently high percentage of public school teachers who teach in fields in which they have not been certified indicates a teacher shortage. However, this is not necessarily true: the proportion of teachers with other assignments may be related to enrollment within a school. To balance the number of teachers and the number of students in particular classes, a teacher's time may be spread across two or more fields. This could happen even in years when there are plenty of teachers for the number of students. Moreover, teachers could be teaching in "other" fields very closely related to their teaching field. For example, if a teacher certified in English literature were teaching drama, one would probably be less likely to consider that teacher unqualified to teach in the "other" field than if that same teacher were teaching physics without certification in that field. Therefore, the proportion of teachers who have been assigned to teach in fields of noncertification does not serve as a very good indicator of teacher shortages.

50 percent of public school administrators reported no difficulty in filling vacancies.

The individuals who hire teachers are perhaps in the best position to assess the market for teachers. Ten percent of public school administrators reported that

their schools had no teaching vacancies in 1987–88, and 50 percent reported that it was not at all difficult to find qualified applicants to fill their teaching vacancies (figure 3.2 and table 3.8). Fourteen percent reported that filling teaching vacancies was generally difficult, and 26 percent reported that it was difficult in some fields. Public school administrators in urban areas were especially likely to find it generally difficult to fill teaching vacancies. Administrators in private schools were more likely than administrators in public schools to report that they had no teaching vacancies in 1987–88 and were more likely to report that it was generally difficult to fill them. Table 3.9 shows the percentage distribution of public school administrators who had vacancies by difficulty in finding applicants by state, and table 3.10 shows the same percentage distribution of private school administrators by affiliation group.

COPING WITH SHORTAGES

When administrators have teaching vacancies that cannot be filled with a qualified teacher, they must find some way to cover those vacancies. The SASS data indicate that administrators' tendencies to use various methods to cope with unfilled vacancies varied with school sector and level (figure 3.3 and table 3.11). For example, administrators in private schools were more likely than administrators in public schools to hire part-time or itinerant teachers and to increase the number of classes that individual teachers taught (although this latter strategy was not used extensively in either public or private schools). Public school administrators in elementary schools were more likely than their secondary school counterparts to hire substitute teachers. Administrators in secondary schools of both sectors were more likely than elementary school administrators to cancel courses, increase class sizes, and increase the number of classes that teachers taught.

Relatively few public school districts or private schools offered teachers incentives for teaching in locations or fields of shortage.

One way of coping with shortages in specific locations (public districts) or in specific fields (public

¹⁹Teacher certification is less of an indicator of teacher shortage in the private sector because certification is not required by many private schools.

Table 3.7—Percentage distributions of teachers by certification status in their main and other assignment fields and percentage of teachers with another assignment, by sector, teaching level, and selected school characteristics: 1987–88

| | Certification status in main assignment field | | | | Percent teachers with other assignments | Certification status in other assignment field | | | |
|------------------|---|------------------------|-------------------------------------|------|---|--|------------------------|-------------------------------------|------|
| | Regular/standard | Probationary/temporary | Full, other than state [†] | None | | Regular/standard | Probationary/temporary | Full, other than state [†] | None |
| TOTAL | 84.1 | 8.2 | (*) | 7.2 | 63.4 | 48.8 | 5.0 | (*) | 45.7 |
| PUBLIC | 88.7 | 8.2 | (*) | 3.2 | 64.8 | 53.8 | 5.4 | (*) | 40.8 |
| Teaching level | | | | | | | | | |
| Elementary | 88.4 | 9.1 | (*) | 2.5 | 73.0 | 42.7 | 5.2 | (*) | 52.1 |
| Secondary | 89.0 | 7.2 | (*) | 3.8 | 56.5 | 60.0 | 5.5 | (*) | 34.5 |
| Community type | | | | | | | | | |
| Urban | 86.3 | 8.6 | (*) | 5.2 | 66.1 | 49.1 | 5.3 | (*) | 45.5 |
| Suburban | 90.6 | 7.0 | (*) | 2.4 | 66.4 | 54.1 | 4.5 | (*) | 41.4 |
| Rural—small city | 89.3 | 8.2 | (*) | 2.5 | 63.5 | 55.7 | 5.7 | (*) | 38.7 |
| Region | | | | | | | | | |
| Northeast | 87.0 | 9.3 | (*) | 3.8 | 69.6 | 48.2 | 6.3 | (*) | 45.5 |
| Midwest | 90.9 | 7.0 | (*) | 2.1 | 64.9 | 59.5 | 5.5 | (*) | 35.0 |
| South | 88.6 | 7.9 | (*) | 3.5 | 63.0 | 52.6 | 4.9 | (*) | 42.4 |
| West | 88.1 | 8.6 | (*) | 3.3 | 62.4 | 52.6 | 5.0 | (*) | 42.4 |
| PRIVATE | 52.5 | 8.8 | 3.6 | 35.2 | 52.9 | 24.5 | 3.3 | 2.5 | 69.8 |
| Teaching level | | | | | | | | | |
| Elementary | 55.6 | 11.0 | 3.5 | 30.0 | 62.4 | 19.7 | 3.1 | 3.1 | 74.0 |
| Secondary | 49.1 | 6.3 | 3.7 | 40.9 | 42.7 | 27.4 | 3.4 | 2.0 | 67.1 |
| Community type | | | | | | | | | |
| Urban | 52.9 | 8.3 | 3.4 | 35.4 | 49.9 | 26.2 | 3.3 | 3.1 | 67.4 |
| Suburban | 50.9 | 10.2 | 4.0 | 34.9 | 55.7 | 24.1 | 4.0 | 1.0 | 71.0 |
| Rural—small city | 55.3 | 9.2 | 2.6 | 33.0 | 52.7 | 23.7 | 2.8 | 1.6 | 71.8 |
| Region | | | | | | | | | |
| Northeast | 45.0 | 12.9 | 2.6 | 39.5 | 53.2 | 22.5 | 2.9 | 1.8 | 72.9 |
| Midwest | 68.7 | 9.3 | 2.4 | 19.7 | 51.0 | 32.6 | 3.5 | 2.4 | 61.5 |
| South | 49.6 | 5.1 | 4.9 | 40.3 | 53.9 | 22.0 | 3.4 | 2.3 | 72.3 |
| West | 45.1 | 8.8 | 3.4 | 42.7 | 50.6 | 21.2 | 3.7 | 2.0 | 73.1 |

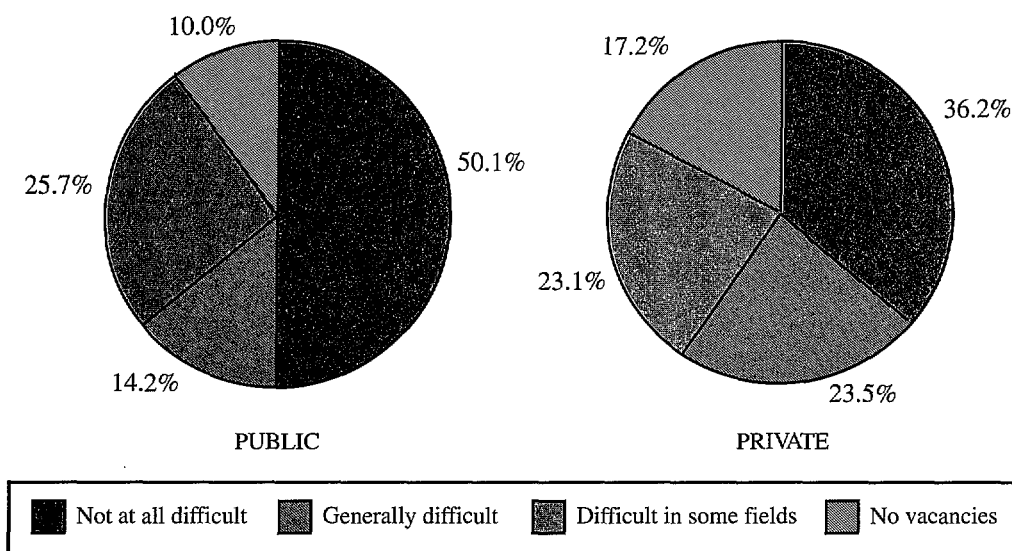
*Not applicable.

[†]This response choice was not available to public school teachers.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Figure 3.2—Percentage distribution of school administrators by reported difficulty finding qualified applicants to fill teaching vacancies, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Administrator Questionnaire."

Table 3.8—Percentage distribution of school administrators by reported difficulty finding qualified applicants to fill teaching vacancies, by sector and selected school characteristics: 1987–88

| | Public | | | | Private | | | |
|-----------------------|----------------------|---------------------|--------------------------|--------------|----------------------|---------------------|--------------------------|--------------|
| | Not at all difficult | Generally difficult | Difficult in some fields | No vacancies | Not at all difficult | Generally difficult | Difficult in some fields | No vacancies |
| TOTAL | 50.1 | 14.2 | 25.7 | 10.0 | 36.2 | 23.5 | 23.1 | 17.2 |
| School level | | | | | | | | |
| Elementary | 56.0 | 13.4 | 20.2 | 10.4 | 36.5 | 27.0 | 18.7 | 17.9 |
| Secondary | 37.4 | 14.7 | 38.3 | 9.6 | 39.1 | 12.1 | 38.7 | 10.0 |
| Combined | 35.8 | 19.1 | 34.8 | 10.3 | 34.3 | 20.0 | 29.0 | 16.7 |
| Community type | | | | | | | | |
| Urban | 43.9 | 21.2 | 26.2 | 8.8 | 35.2 | 27.1 | 24.8 | 12.8 |
| Suburban | 57.0 | 12.1 | 22.7 | 8.1 | 37.0 | 20.6 | 27.4 | 15.0 |
| Rural–small city | 50.7 | 11.8 | 26.1 | 11.4 | 36.5 | 21.8 | 20.0 | 21.7 |
| Region | | | | | | | | |
| Northeast | 45.7 | 17.3 | 27.4 | 9.6 | 28.2 | 30.0 | 31.4 | 10.3 |
| Midwest | 58.0 | 8.8 | 20.9 | 12.4 | 39.9 | 20.0 | 17.1 | 23.0 |
| South | 44.0 | 17.7 | 30.3 | 8.0 | 35.2 | 21.7 | 25.9 | 17.2 |
| West | 53.3 | 12.9 | 22.6 | 11.3 | 41.6 | 24.2 | 20.0 | 14.2 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Administrator Questionnaire."

Table 3.9—Percentage distribution of public school administrators by reported difficulty in finding qualified applicants, by state: 1987–88

| | Not at all difficult | Generally difficult | Difficult in some fields | No vacancies |
|-------------------|-------------------------|------------------------|-----------------------------|--------------|
| TOTAL | 50.1 | 14.2 | 25.7 | 10.0 |
| Alabama | 54.0 | 18.7 | 17.3 | 10.0 |
| Alaska | 46.3 | 8.1 | 23.0 | 22.6 |
| Arizona | 48.3 | 16.3 | 28.8 | 6.6 |
| Arkansas | 46.4 | 18.8 | 30.3 | 4.5 |
| California | 46.8 | 16.1 | 24.0 | 13.1 |
| Colorado | 63.0 | 6.7 | 23.4 | 7.0 |
| Connecticut | 47.8 | 14.9 | 21.9 | 15.5 |
| Delaware | 41.9 | 19.3 | 26.8 | 12.0 |
| Dist. of Columbia | 13.5 | 56.6 | 27.8 | — |
| Florida | 36.6 | 18.7 | 43.8 | — |
| Georgia | 37.5 | 20.1 | 37.4 | 5.0 |
| Hawaii | 49.2 | 14.6 | 34.9 | — |
| Idaho | 52.5 | 15.4 | 24.6 | 7.5 |
| Illinois | 44.1 | 15.0 | 27.3 | 13.7 |
| Indiana | 59.2 | 10.1 | 20.4 | 10.3 |
| Iowa | 59.5 | 6.1 | 24.5 | 10.0 |
| Kansas | 56.2 | 13.1 | 21.5 | 9.2 |
| Kentucky | 48.5 | 14.3 | 22.4 | 14.8 |
| Louisiana | 29.2 | 36.4 | 26.5 | 7.9 |
| Maine | 32.8 | 19.4 | 35.7 | 12.2 |
| Maryland | 52.9 | 15.5 | 27.1 | 4.4 |
| Massachusetts | 44.1 | 15.5 | 33.3 | 7.1 |
| Michigan | 57.9 | 4.8 | 22.6 | 14.7 |
| Minnesota | 67.4 | 5.2 | 18.3 | 9.2 |
| Mississippi | 25.2 | 25.2 | 38.8 | 10.8 |
| Missouri | 59.7 | 8.8 | 21.5 | 10.0 |
| Montana | 63.7 | 7.3 | 17.4 | 11.6 |
| Nebraska | 58.4 | 7.1 | 17.6 | 16.9 |
| Nevada | 54.7 | 16.7 | 26.7 | — |
| New Hampshire | 30.0 | 18.7 | 34.1 | 17.2 |
| New Jersey | 45.6 | 21.5 | 25.6 | 7.2 |
| New Mexico | 45.7 | 15.3 | 31.8 | 7.1 |
| New York | 42.1 | 21.8 | 30.3 | 5.8 |
| North Carolina | 43.6 | 20.9 | 32.3 | 3.2 |
| North Dakota | 69.1 | — | 13.0 | 17.2 |
| Ohio | 57.8 | 9.0 | 18.4 | 14.8 |
| Oklahoma | 56.4 | 7.3 | 21.5 | 14.9 |
| Oregon | 60.5 | 7.4 | 21.1 | 10.9 |
| Pennsylvania | 55.1 | 9.6 | 22.4 | 12.9 |
| Rhode Island | 57.8 | 11.0 | 19.1 | 12.1 |
| South Carolina | 46.3 | 17.0 | 33.9 | 2.9 |
| South Dakota | 57.3 | 13.4 | 15.8 | 13.5 |
| Tennessee | 41.4 | 17.4 | 29.6 | 11.6 |
| Texas | 42.9 | 15.4 | 34.9 | 6.8 |
| Utah | 56.1 | 19.2 | 15.9 | 8.8 |

Table 3.9—Percentage distribution of public school administrators by reported difficulty in finding qualified applicants, by state: 1987–88—Continued

| | Not at all difficult | Generally difficult | Difficult in some fields | No vacancies |
|---------------|-------------------------|------------------------|--------------------------------|--------------|
| Vermont | 49.1 | 17.6 | 22.5 | 10.8 |
| Virginia | 53.9 | 14.6 | 22.0 | 9.5 |
| Washington | 65.6 | 8.7 | 15.5 | 10.1 |
| West Virginia | 49.4 | 8.9 | 24.1 | 17.6 |
| Wisconsin | 70.2 | 6.2 | 17.6 | 6.0 |
| Wyoming | 61.6 | — | 16.7 | 19.5 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Administrator Questionnaire."

districts or private schools) is to offer teachers incentives for teaching in those locations or fields. However, relatively few public school districts or private schools did so. For teaching in a location of shortage, 3 percent of public school districts offered teachers an increase on the salary schedule, 2 percent offered some other pay increase, and 1 percent offered a cash bonus (table 3.12). Private schools were more likely than public schools to offer each of these types of incentive for teachers to teach in fields of shortage.

Even if no general shortages are apparent, it is nonetheless possible that teachers in specific teaching fields, specific geographical locations, certain types of communities, or particular schools are in short supply. Tables 3.13 and 3.14 provide data on the efforts of public school districts and private schools to increase the supply of teachers in specific teaching fields by offering teachers pay incentives for teaching in those fields or opportunities to retrain so that they might teach in fields of shortage without cost to them. The data in table 3.13 are consistent with those in table 3.12 in that relatively few public school districts or private schools offered pay incentives in any teaching field or in specific teaching fields.

Comparisons between tables 3.13 and 3.14 suggest that public school districts and private schools use

pay incentives and retraining differently. Whereas private schools offered teachers retraining and pay incentives in one or more fields about equally, a larger proportion of public school districts offered retraining than offered pay incentives. More public school districts used retraining than used incentives in all seven field categories. In comparison, private schools were more likely to offer free retraining than pay incentives in three fields out of seven: special education, mathematics, and computer science.

TEACHER TURNOVER AND ATTRITION

Persistent questions about the teacher work force concern the rates of turnover (the proportion of teachers who leave their schools) and attrition (the proportion of teachers who leave the profession) among teachers. Both turnover and attrition among the nation's teachers may inhibit students' progress. For example, in schools where many teachers leave, and therefore where many new teachers must be hired, students' progress may suffer because of insufficient continuity or stability in their schools' staffs or because the efforts of administrators are diverted from school improvement activities. Furthermore, when teachers not only leave their schools but also their profession, their teaching experience and expertise are withdrawn from the teacher

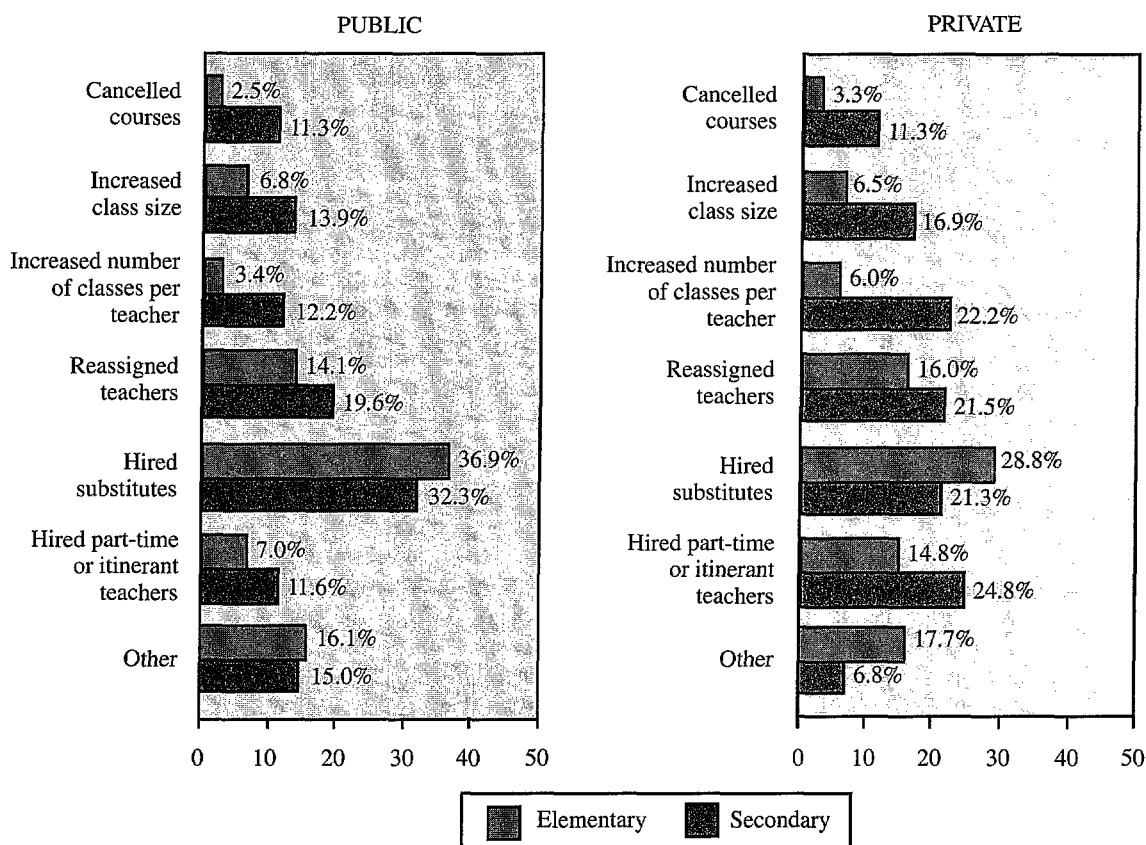
Table 3.10—Percentage distribution of private school administrators by reported difficulty finding qualified applicants to fill teaching vacancies, by private school type: 1987–88

| | Not at all difficult | Generally difficult | Difficult in some fields | No vacancies |
|---------------------------------|-------------------------|------------------------|--------------------------------|--------------|
| TOTAL | 36.2 | 23.5 | 23.1 | 17.2 |
| Private school type | | | | |
| Religious | 38.0 | 23.6 | 21.8 | 16.5 |
| Nonsectarian | 27.9 | 23.6 | 30.4 | 18.1 |
| Private school category | | | | |
| Assembly of God | 54.0 | 14.9 | 18.6 | 12.5 |
| Baptist | 27.4 | 25.5 | 23.1 | 24.1 |
| Calvinist | 51.8 | 9.5 | 21.2 | 17.5 |
| Christian | 53.0 | 20.9 | 13.5 | 12.7 |
| Episcopal | 53.6 | 22.2 | 21.8 | 2.5 |
| Friends | 52.6 | 17.8 | 24.4 | 5.2 |
| Jewish | 15.4 | 36.4 | 40.5 | 7.7 |
| Lutheran | 40.9 | 12.5 | 9.2 | 37.4 |
| 7th Day Adventist | 37.2 | 15.3 | 12.3 | 35.2 |
| Roman Catholic | 35.8 | 27.0 | 27.3 | 10.0 |
| Other: Religious | 39.3 | 24.4 | 15.1 | 21.1 |
| Exceptional children | 19.6 | 32.7 | 35.0 | 12.7 |
| Montessori | 31.2 | 22.4 | 14.2 | 32.3 |
| Nat. Ass. of Indep. Schools | 37.7 | 17.7 | 40.2 | 4.5 |
| Other: Nonsectarian | 25.9 | 24.3 | 30.6 | 19.2 |
| 9-Category typology | | | | |
| Catholic | | | | |
| -Parochial | 33.8 | 31.5 | 24.6 | 10.1 |
| -Diocesan | 41.6 | 19.2 | 28.6 | 10.6 |
| -Private order | 37.5 | 12.1 | 42.3 | 8.1 |
| Other Religious | | | | |
| -Conservative Christian | 41.0 | 19.2 | 17.5 | 22.4 |
| -Affiliated | 41.6 | 17.0 | 15.6 | 25.8 |
| -Unaffiliated | 35.7 | 29.6 | 18.3 | 16.4 |
| Nonsectarian | | | | |
| -Regular | 29.4 | 20.4 | 34.5 | 15.7 |
| -Special emphasis | 29.3 | 22.6 | 25.9 | 22.2 |
| -Special education | 21.2 | 33.7 | 29.2 | 15.9 |
| NAIS membership status | | | | |
| Not Nat. Ass. of Indep. Schools | 36.1 | 23.9 | 22.5 | 17.5 |
| Nat. Ass. of Indep. Schools | 35.6 | 18.3 | 42.4 | 3.8 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey.

Figure 3.3—Percentage of school administrators who used various methods to cover unfilled vacancies in their schools, by sector and level: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Administrator Questionnaire."

work force, perhaps lowering its effectiveness.²⁰ This problem may be especially acute if, as some have suggested, the most qualified teachers are the most likely to leave.²¹

In the 1987–88 SASS, school administrators were asked how many teachers had left and how many had joined their schools' staffs between October 1986 and October 1987. Turnover was greater in the private sector than in the public: an average of 20 percent of teachers in the private sector had left their schools, and an average of 23 percent had been added to private schools' staffs between fall 1986

and 1987, compared with public schools where 10 percent of teachers had left their schools and 13 percent had been added (table 3.15). In both the public and private sectors, rates of separation were higher in elementary schools than in secondary schools, and in schools with enrollments of less than 150 than in larger schools. The rate of addition was higher in private elementary schools than in private secondary schools.

*Between 1987–88 and 1988–89,
8 percent of all teachers moved
to different schools, and
6 percent left teaching.*

²⁰Thus, one returns full circle to the issue of teacher supply—if experienced teachers can be rehired from the reserve pool, creating in effect a revolving door of teachers, the negative effect of teacher attrition may be mitigated.

²¹See, for example, L. Darling-Hammond, *Beyond the Commission Reports*, and Murnane et al., *Who Will Teach?*

Rates of turnover, however, do not indicate how many teachers leave the profession in a year's time.

Table 3.11—Percentage of school administrators who used various methods to cover unfilled vacancies in their schools, by sector and selected school characteristics: 1987–88

| | Cancelled courses | Increased class size | Increased number of classes per teacher | Re-assigned teachers | Hired substitutes | Hired part-time or itinerant teachers | Other |
|------------------|----------------------|-------------------------|--|-------------------------|----------------------|--|-------|
| TOTAL | 5.1 | 9.0 | 7.3 | 16.7 | 34.0 | 11.0 | 16.2 |
| PUBLIC | 5.0 | 8.8 | 6.2 | 16.1 | 36.2 | 8.5 | 15.9 |
| School level | | | | | | | |
| Elementary | 2.5 | 6.8 | 3.4 | 14.1 | 36.9 | 7.0 | 16.1 |
| Secondary | 11.3 | 13.9 | 12.2 | 19.6 | 32.3 | 11.6 | 15.4 |
| Combined | 9.2 | 9.7 | 11.4 | 27.2 | 36.3 | 10.4 | 16.3 |
| Community type | | | | | | | |
| Urban | 3.8 | 8.1 | 5.1 | 15.9 | 51.4 | 8.5 | 14.6 |
| Suburban | 3.9 | 8.0 | 5.2 | 12.0 | 36.6 | 8.4 | 15.4 |
| Rural–small city | 6.0 | 9.3 | 6.7 | 17.7 | 29.0 | 8.3 | 16.6 |
| Region | | | | | | | |
| Northeast | 4.2 | 8.1 | 6.5 | 14.0 | 47.9 | 10.0 | 13.2 |
| Midwest | 5.7 | 9.4 | 7.6 | 12.7 | 30.6 | 8.2 | 17.5 |
| South | 5.1 | 8.4 | 4.9 | 20.5 | 33.4 | 7.6 | 16.9 |
| West | 5.0 | 9.0 | 5.5 | 15.9 | 36.0 | 8.5 | 14.4 |
| PRIVATE | 5.4 | 9.6 | 10.9 | 18.8 | 26.7 | 19.2 | 17.0 |
| School level | | | | | | | |
| Elementary | 3.3 | 6.5 | 6.0 | 16.0 | 28.8 | 14.8 | 17.7 |
| Secondary | 11.3 | 16.9 | 22.2 | 21.5 | 21.3 | 24.8 | 6.8 |
| Combined | 8.6 | 13.7 | 18.5 | 24.6 | 24.0 | 27.8 | 18.8 |
| Community type | | | | | | | |
| Urban | 5.7 | 11.3 | 11.4 | 18.9 | 28.4 | 18.3 | 15.1 |
| Suburban | 7.3 | 9.0 | 10.0 | 16.4 | 28.1 | 20.3 | 13.1 |
| Rural–small city | 4.4 | 8.0 | 11.4 | 20.4 | 24.1 | 20.2 | 21.0 |
| Region | | | | | | | |
| Northeast | 4.9 | 7.8 | 12.1 | 19.0 | 34.9 | 21.9 | 13.9 |
| Midwest | 6.4 | 9.5 | 8.8 | 18.7 | 22.1 | 13.1 | 16.9 |
| South | 4.5 | 12.1 | 13.7 | 21.6 | 24.3 | 21.2 | 16.7 |
| West | 6.7 | 8.5 | 9.5 | 15.4 | 25.8 | 23.6 | 21.7 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Administrator Questionnaire."

Table 3.12—Percentage of public school districts and private schools that used various pay incentives to recruit and retain teachers in less desirable locations and in fields of shortage, by public school district and private school size: 1987–88

| | Less desirable locations | | | Fields of shortage | | |
|-----------------|--------------------------|-----------------------------|--------------------|--------------------|-----------------------------|--------------------|
| | Cash bonus | Increase in salary schedule | Other pay increase | Cash bonus | Increase in salary schedule | Other pay increase |
| PUBLIC | 1.1 | 3.3 | 1.8 | 1.1 | 2.8 | 1.8 |
| District size | | | | | | |
| Less than 1,000 | 0.9 | 4.3 | 2.2 | 0.7 | 3.1 | 2.1 |
| 1,000 to 4,999 | 1.3 | 2.1 | 1.3 | 1.2 | 2.2 | 1.1 |
| 5,000 to 9,999 | 1.4 | 2.4 | 2.0 | 1.7 | 3.1 | 2.3 |
| 10,000 or more | 1.9 | 2.9 | 1.3 | 3.6 | 3.2 | 2.4 |
| PRIVATE | (*) | (*) | (*) | 2.4 | 7.3 | 5.0 |
| School size | | | | | | |
| Less than 150 | (*) | (*) | (*) | 1.8 | 4.5 | 4.3 |
| 150 to 499 | (*) | (*) | (*) | 2.7 | 9.4 | 5.4 |
| 500 to 749 | (*) | (*) | (*) | 3.7 | 9.2 | 7.6 |
| 750 or more | (*) | (*) | (*) | 3.2 | 13.0 | 4.5 |

*Not applicable. This information was not collected from private schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Demand and Shortage Questionnaire.”

Table 3.13—Percentage of public school districts and private schools that used pay incentives to attract teachers to various fields of shortage, by public school district and private school size: 1987–88

| | Any field | Special education | Mathematics | Computer science | Physical sciences | Biological sciences | Bilingual/ESL education | Other |
|-----------------|-----------|-------------------|-------------|------------------|-------------------|---------------------|-------------------------|-------|
| PUBLIC | 5.4 | 2.2 | 2.7 | 1.2 | 1.7 | 1.3 | 0.8 | 2.7 |
| District size | | | | | | | | |
| Less than 1,000 | 5.7 | 1.8 | 3.2 | 1.5 | 1.8 | 1.5 | 0.6 | 3.2 |
| 1,000 to 4,999 | 4.4 | 2.1 | 1.9 | 0.9 | 1.5 | 1.0 | 0.7 | 1.9 |
| 5,000 to 9,999 | 6.9 | 4.2 | 1.8 | 0.6 | 1.2 | 1.2 | 0.9 | 3.0 |
| 10,000 or more | 8.4 | 4.9 | 3.9 | 1.6 | 2.5 | 2.2 | 4.1 | 3.6 |
| PRIVATE | 12.5 | 1.5 | 4.2 | 2.3 | 3.5 | 2.9 | 0.7 | 9.5 |
| School size | | | | | | | | |
| Less than 150 | 9.7 | 1.8 | 2.6 | 1.0 | 2.2 | 1.6 | — | 7.5 |
| 150 to 499 | 14.6 | 1.3 | 4.9 | 3.2 | 3.9 | 3.6 | 1.3 | 11.7 |
| 500 to 749 | 15.0 | 1.1 | 9.9 | 3.4 | 8.7 | 4.3 | 1.1 | 7.3 |
| 750 or more | 16.8 | — | 7.6 | 5.3 | 9.5 | 6.8 | 0.0 | 9.9 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Demand and Shortage Questionnaire.”

Table 3.14—Percentage of public school districts and private schools that offered free retraining to prepare staff members to teach in various fields of shortage, by public school district and private school size: 1987–88

| | Any field | Special education | Mathematics | Computer science | Physical sciences | Biological sciences | Bilingual/ESL education | Other |
|-----------------|-----------|-------------------|-------------|------------------|-------------------|---------------------|-------------------------|-------|
| PUBLIC | 11.7 | 4.9 | 5.3 | 4.6 | 4.3 | 3.8 | 3.0 | 6.6 |
| District size | | | | | | | | |
| Less than 1,000 | 9.7 | 3.2 | 3.1 | 4.0 | 2.8 | 2.4 | 1.9 | 6.4 |
| 1,000 to 4,999 | 12.3 | 6.1 | 7.1 | 5.3 | 5.4 | 5.2 | 3.8 | 6.2 |
| 5,000 to 9,999 | 16.8 | 7.9 | 7.6 | 4.8 | 6.5 | 5.8 | 3.6 | 7.4 |
| 10,000 or more | 22.8 | 11.6 | 12.9 | 6.2 | 10.0 | 7.4 | 8.5 | 12.1 |
| PRIVATE | 13.7 | 3.9 | 6.2 | 7.5 | 4.7 | 4.1 | 1.0 | 7.5 |
| School size | | | | | | | | |
| Less than 150 | 15.1 | 4.9 | 5.9 | 8.6 | 5.0 | 4.4 | 1.1 | 8.3 |
| 150 to 499 | 12.5 | 3.4 | 6.8 | 6.7 | 4.7 | 4.0 | 0.9 | 6.6 |
| 500 to 749 | 14.4 | 2.1 | 4.8 | 8.1 | 3.5 | 4.0 | — | 9.6 |
| 750 or more | 10.3 | — | 5.9 | 1.9 | 1.7 | — | — | 6.6 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Demand and Shortage Questionnaire.”

Table 3.15—Average percentage of teacher separations and additions between October 1986 and October 1987, by sector and selected school characteristics: 1987–88

| | Public | | Private | |
|---------------------|--------------------------|------------------------|--------------------------|------------------------|
| | Separations ¹ | Additions ² | Separations ¹ | Additions ² |
| TOTAL | 9.8 | 13.3 | 20.3 | 22.6 |
| School level | | | | |
| Elementary | 10.1 | 13.5 | 21.2 | 22.7 |
| Secondary | 8.7 | 12.5 | 15.1 | 14.6 |
| Combined | 11.7 | 13.7 | 19.7 | 25.0 |
| School size | | | | |
| Less than 150 | 15.2 | 16.7 | 23.3 | 26.5 |
| 150 to 499 | 9.6 | 13.0 | 17.8 | 19.4 |
| 500 to 749 | 8.6 | 11.8 | 13.4 | 13.7 |
| 750 or more | 8.7 | 14.0 | 11.6 | 12.1 |
| Minority enrollment | | | | |
| Less than 20% | 9.1 | 12.1 | 19.8 | 22.4 |
| 20% or more | 10.9 | 15.1 | 21.5 | 23.3 |

¹“Percent separations” is the percentage of a school’s 1986 staff who had left the school by October 1, 1987.

²“Percent additions” is the percentage of a school’s 1987 staff who had not taught in the school in October 1986.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “School Questionnaire.”

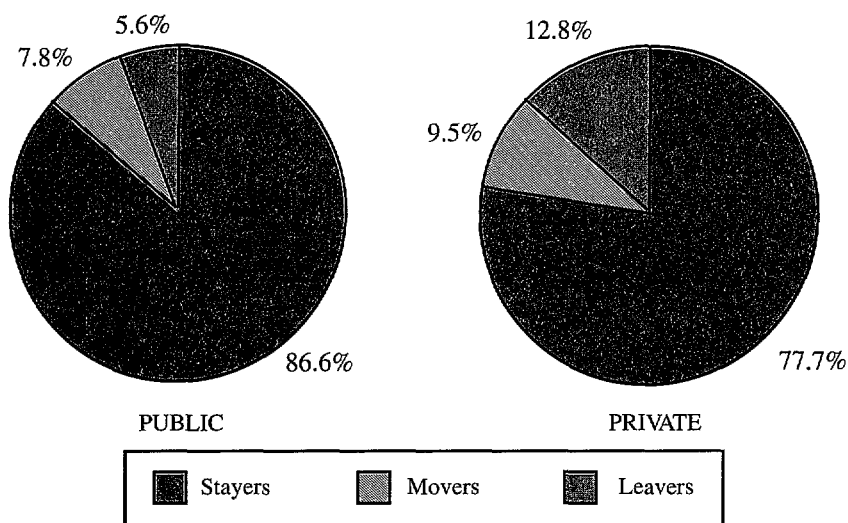
The Teacher Followup Survey provides data concerning teachers' tendencies to stay in their schools, change schools, or leave the profession altogether between 1987–88 and 1988–89. A large proportion of teachers in 1987–88 remained in their jobs 1 year later: 86 percent of teachers were still teaching in the same schools in 1988–89, and 8 percent had changed schools (table 3.16). Within 1 year after the initial administration of SASS was completed, a total of 6 percent of teachers had left teaching: 1 percent of teachers had switched to nonteaching jobs in elementary and secondary schools, another 1 percent had left teaching for occupations outside of education, less than 1 percent had returned to college, nearly 2 percent were homemakers or rearing children, and 2 percent were engaged in other activities. Private school teachers were more likely than public school teachers to change schools and to leave teaching (figure 3.4). Specifically, private school teachers were more likely than public school teachers to leave for employment outside of education, to return to college, and to be homemakers or to rear children.

Why do teachers change schools? Between 1987–88 and 1988–89, teachers were more likely to change schools because they or their families were moving,

or because of school staffing actions such as reassignments, than because they were seeking better teaching assignments, were dissatisfied with their 1987–88 schools, or wanted better salaries or benefits (table 3.17). Teachers' reasons for moving varied with the types of moves they made. For example, about one-half of the public school teachers who moved to different districts moved because of a family or personal move. About one-half of the public school teachers who moved within their district did so because of a school staffing action. Of the public school teachers who moved to private schools, about one-third did so because of a family or personal move and about one-third moved because of dissatisfaction with their previous school. About one-half of the private school teachers who moved to public schools moved for better salary or benefits.

Why do teachers leave teaching? Understanding why teachers leave the profession may help policymakers improve the working conditions of teachers or make other changes that will encourage talented people both to become teachers and to remain in the profession. Teachers were most likely to report that their primary reason for leaving teaching was a family or

Figure 3.4—Percentage distribution of 1987–88 teachers by whether they were teaching in the same school (stayers), had moved to another school (movers), or had left teaching (leavers), by sector: 1988–89



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

Table 3.16—Percentage distribution of 1987–88 teachers by primary occupational status in 1988–89, by sector, selected teacher characteristics, and public school class achievement level: 1988–89

| | Stayers ¹ | Movers ² | Total leavers ³ | Leavers | | | | Other ⁴ |
|---------------------------|----------------------|---------------------|----------------------------|-------------------------------|-----------------------|---------------------------------|------------------------------|--------------------|
| | | | | Non-teaching job in education | Job outside education | Attending college or university | Home-making or child-rearing | |
| TOTAL | 85.6 | 8.0 | 6.4 | 1.0 | 1.4 | 0.4 | 1.8 | 1.8 |
| PUBLIC | 86.6 | 7.8 | 5.6 | 1.0 | 1.0 | 0.3 | 1.5 | 1.8 |
| Teaching level | | | | | | | | |
| Elementary | 85.1 | 9.4 | 5.5 | 0.7 | 0.5 | 0.2 | 2.1 | 2.0 |
| Secondary | 88.2 | 6.2 | 5.7 | 1.3 | 1.5 | 0.4 | 0.9 | 1.6 |
| Sex | | | | | | | | |
| Male | 87.7 | 7.2 | 5.0 | 1.2 | 1.6 | 0.3 | 0.0 | 1.9 |
| Female | 86.1 | 8.1 | 5.8 | 0.9 | 0.7 | 0.3 | 2.1 | 1.8 |
| Age | | | | | | | | |
| Under 30 years | 75.3 | 15.1 | 9.6 | 1.5 | 2.6 | 1.0 | 4.0 | 0.5 |
| 30–39 years | 86.2 | 8.8 | 5.1 | 0.8 | 1.0 | 0.3 | 2.4 | 0.6 |
| 40–49 years | 91.7 | 5.9 | 2.3 | 1.0 | 0.6 | 0.1 | 0.3 | 0.3 |
| 50 years or over | 86.3 | 3.9 | 9.8 | 0.8 | 0.7 | 0.0 | 0.2 | 8.1 |
| Race–ethnicity | | | | | | | | |
| Black, non-Hispanic | 86.2 | 8.7 | 5.1 | 3.1 | 0.4 | 0.1 | 0.1 | 1.4 |
| White, non-Hispanic | 86.5 | 7.8 | 5.8 | 0.8 | 1.1 | 0.3 | 1.7 | 1.9 |
| Other | 88.6 | 8.3 | 3.1 | 0.8 | 0.3 | 0.2 | 0.9 | 0.9 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 85.9 | 8.6 | 5.6 | 0.5 | 1.1 | 0.4 | 2.1 | 1.5 |
| MA/MS or more | 87.4 | 7.0 | 5.6 | 1.4 | 0.9 | 0.2 | 0.9 | 2.2 |
| Years teaching experience | | | | | | | | |
| 3 or less | 76.2 | 15.1 | 8.6 | 0.9 | 3.1 | 1.1 | 2.6 | 0.9 |
| 4–9 | 81.8 | 11.6 | 6.5 | 0.5 | 1.7 | 0.4 | 3.6 | 0.3 |
| 10–19 | 89.4 | 6.7 | 3.8 | 1.1 | 0.5 | 0.2 | 1.1 | 0.9 |
| 20 or more | 89.4 | 4.0 | 6.6 | 1.0 | 0.5 | 0.1 | 0.1 | 4.9 |
| Class achievement | | | | | | | | |
| Lower | 84.2 | 9.1 | 6.6 | 1.2 | 1.5 | 0.4 | 1.9 | 1.6 |
| Average | 89.0 | 6.4 | 4.6 | 0.8 | 0.7 | 0.2 | 0.9 | 2.0 |
| Higher | 84.2 | 9.5 | 6.3 | 0.6 | 0.9 | 0.5 | 3.1 | 1.2 |
| Mixed | 86.7 | 8.2 | 5.0 | 1.0 | 0.8 | 0.2 | 1.5 | 1.5 |
| Main assignment | | | | | | | | |
| Kindergarten | 90.6 | 6.2 | 3.0 | 0.2 | 0.3 | — | 1.2 | 1.3 |
| General elementary | 85.4 | 9.0 | 5.6 | 0.6 | 0.3 | 0.2 | 2.3 | 2.2 |
| Math/science | 88.7 | 5.9 | 5.5 | 1.4 | 1.6 | 0.5 | 0.6 | 1.4 |
| English/ | | | | | | | | |
| language arts | 86.2 | 6.2 | 7.6 | 1.6 | 1.3 | 0.3 | 2.3 | 2.1 |
| Social studies | 90.3 | 4.7 | 5.0 | 0.5 | 1.1 | 0.2 | 0.3 | 2.9 |
| Special education | 80.0 | 12.7 | 7.3 | 1.9 | 1.2 | 0.3 | 2.2 | 1.7 |
| Bilingual/ESL | 78.2 | 13.7 | 8.0 | 1.5 | 0.8 | 0.4 | 4.1 | 1.2 |
| Vocational | | | | | | | | |
| education | 90.8 | 2.5 | 6.6 | 1.0 | 3.8 | — | 0.2 | 1.6 |
| Other | 87.9 | 7.7 | 4.4 | 0.7 | 1.1 | 0.4 | 0.8 | 1.4 |

Table 3.16—Percentage distribution of 1987–88 teachers by primary occupational status in 1988–89, by sector, selected teacher characteristics, and public school class achievement level: 1988–89—Continued

| | Stayers ¹ | Movers ² | Total leavers ³ | Leavers | | | | Other ⁴ |
|----------------|----------------------|---------------------|----------------------------|-------------------------------|-----------------------|---------------------------------|------------------------------|--------------------|
| | | | | Non-teaching job in education | Job outside education | Attending college or university | Home-making or child-rearing | |
| PRIVATE | 77.7 | 9.5 | 12.8 | 1.2 | 4.5 | 1.3 | 3.8 | 2.0 |
| Teaching level | | | | | | | | |
| Elementary | 76.5 | 10.9 | 12.6 | 1.1 | 3.0 | 1.5 | 4.5 | 2.5 |
| Secondary | 79.0 | 8.1 | 12.9 | 1.2 | 6.1 | 1.0 | 3.0 | 1.6 |

—Too few cases for a reliable estimate.

¹Stayers were teachers who were teaching in the same school.

²Movers were teachers who left one school to teach at another.

³Leavers were teachers who left teaching.

⁴“Other” includes teachers who were retired, disabled, or had some other occupational status.

NOTE: Percentages of stayers, movers, and total leavers may not add to 100, and percentages of leavers by occupational status may not sum to total percentage of leavers due to rounding.

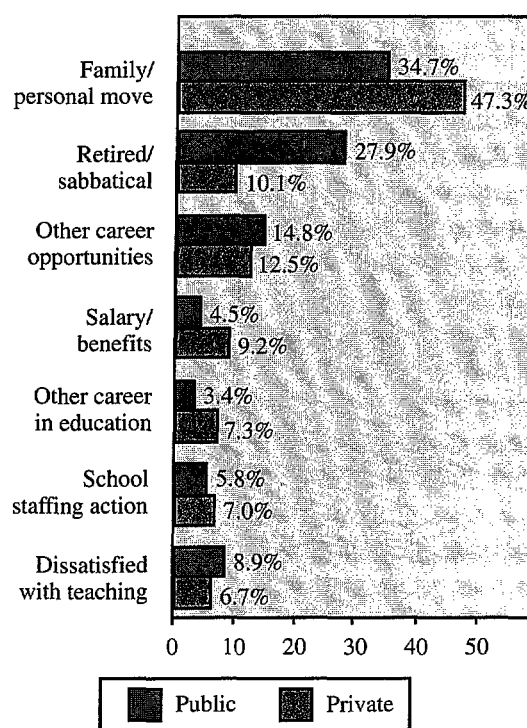
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

personal move (38 percent) (table 3.18). However, many left for reasons that suggest a dissatisfaction with teaching: 14 percent of 1987–88 teachers left the profession because they wanted to pursue career opportunities outside of education, 8 percent because they were dissatisfied with teaching, and 6 percent because they wanted to improve their salaries or benefits. Private school teachers were more likely than public school teachers to leave in order to improve their salaries or benefits (figure 3.5). Public school teachers were more likely than private school teachers to retire or take a sabbatical, which is consistent with the data in Chapter 2 concerning public–private differences in teachers’ ages.

Teachers may leave the classroom without leaving schools altogether. Fifteen percent of those who left classroom teaching left for nonteaching careers in elementary and secondary schools (table 3.19).²² Among these leavers, teachers who had been teaching in private schools were more likely than

²²Note that this percentage, which is based on what teachers were actually doing at the time of the followup, is greater than the percentage of leavers whose main reason for leaving teaching was an alternative career in education (4 percent, table 3.18). This may have occurred because some of the teachers who left for other reasons (salary, family, or personal move, for example) may have been in other elementary or secondary school occupations the following year, and thus may be included in the 15 percent shown in table 3.19.

Figure 3.5—Percentage distribution of 1987–88 teachers who left teaching (leavers) by main reason for leaving the teaching profession, by sector: 1988–89



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

Table 3.17—Percentage distribution of teachers who left their previous schools (movers) by main reason for moving, by sector, type of move, and selected teacher characteristics: 1988–89

| | Family/ personal move | Better salary or benefits | Better teaching assignments | School staffing action | Dissatisfaction with previous school |
|-------------------------------|-----------------------------|------------------------------|--------------------------------|---------------------------|--|
| TOTAL | 30.7 | 9.1 | 17.9 | 30.1 | 12.2 |
| PUBLIC | 31.6 | 5.8 | 18.3 | 32.1 | 12.3 |
| Type of move | | | | | |
| Public–public, same district | 16.8 | 0.4 | 23.2 | 49.9 | 9.7 |
| Public–public, diff. district | 51.8 | 12.7 | 12.6 | 8.6 | 14.2 |
| Public–private | 33.1 | — | 5.7 | 20.7 | 32.3 |
| Sex | | | | | |
| Male | 23.9 | 7.3 | 15.9 | 35.0 | 18.0 |
| Female | 34.5 | 5.3 | 19.0 | 30.9 | 10.4 |
| Age | | | | | |
| Under 30 years | 38.5 | 9.4 | 16.4 | 23.4 | 12.4 |
| 30–39 years | 30.7 | 5.6 | 15.7 | 34.1 | 13.9 |
| 40–49 years | 30.2 | 3.2 | 21.2 | 34.1 | 11.3 |
| 50 years or over | 16.9 | 2.4 | 21.4 | 50.7 | 8.6 |
| Race–ethnicity | | | | | |
| Black, non-Hispanic | 21.7 | 7.1 | 15.0 | 54.0 | — |
| White, non-Hispanic | 33.1 | 5.3 | 17.3 | 30.6 | 13.6 |
| Other | 27.2 | 6.6 | 36.7 | 23.2 | 6.3 |
| Years of teaching experience | | | | | |
| 3 or less | 37.8 | 9.3 | 15.2 | 28.2 | 9.4 |
| 4–9 | 34.5 | 6.0 | 19.2 | 25.9 | 14.5 |
| 10–19 | 26.5 | 5.2 | 17.6 | 39.9 | 10.7 |
| 20 or more | 30.2 | — | 23.3 | 28.5 | 17.1 |
| Highest degree earned | | | | | |
| BA/BS or less | 35.7 | 7.5 | 15.4 | 29.7 | 11.6 |
| MA/MS or more | 25.8 | 3.3 | 22.3 | 35.5 | 13.2 |
| PRIVATE | 25.3 | 30.0 | 15.5 | 17.7 | 11.5 |
| Type of move | | | | | |
| Private–public | 17.6 | 50.7 | 14.3 | 7.4 | 10.0 |
| Private–private | 31.2 | 11.2 | 16.3 | 28.2 | 13.1 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

Table 3.18—Percentage distribution of teachers who left teaching (leavers) by main reason for leaving the teaching profession, by sector and selected public school teacher characteristics: 1988–89

| | Family/ personal move ¹ | Retirement or Sabbatical | Other career oppor- tunities ² | Salary or benefits | Alternative career in education ³ | School staffing action ⁴ | Dissatis- faction with teaching |
|------------------------------|--|--------------------------------|---|-----------------------|--|---|--|
| TOTAL | 37.6 | 23.8 | 14.3 | 5.6 | 4.3 | 6.1 | 8.4 |
| PUBLIC | 34.7 | 27.9 | 14.8 | 4.5 | 3.4 | 5.8 | 8.9 |
| Sex | | | | | | | |
| Male | 11.4 | 30.6 | 23.6 | 10.1 | 6.0 | 6.9 | 11.4 |
| Female | 43.3 | 26.8 | 11.4 | 2.5 | 2.5 | 5.4 | 8.1 |
| Age | | | | | | | |
| Under 30 years | 52.6 | 9.1 | 14.6 | 3.2 | 6.3 | 8.2 | 6.1 |
| 30–39 years | 54.0 | 5.0 | 16.3 | 6.0 | 4.7 | 5.2 | 8.7 |
| 40–49 years | 18.8 | 12.6 | 30.8 | 11.9 | 3.3 | 11.6 | 11.0 |
| 50 years or over | 9.0 | 71.9 | 6.4 | 0.4 | 0.1 | 1.8 | 10.4 |
| Race–ethnicity | | | | | | | |
| Black, non-Hispanic | 12.6 | 52.6 | 24.1 | 4.3 | 1.2 | 4.1 | — |
| White, non-Hispanic | 36.6 | 25.8 | 14.3 | 4.0 | 3.6 | 6.1 | 9.7 |
| Other | 40.9 | 26.1 | 12.0 | 10.7 | 3.6 | 3.2 | 3.5 |
| Years teaching experience | | | | | | | |
| 3 or less | 44.9 | 1.9 | 18.4 | 6.0 | 7.8 | 12.2 | 8.8 |
| 4–9 | 61.9 | 3.8 | 9.4 | 4.0 | 4.4 | 6.5 | 10.0 |
| 10–19 | 36.2 | 17.5 | 19.7 | 6.6 | 3.1 | 5.2 | 11.7 |
| 20 or more | 7.6 | 69.7 | 12.2 | 1.9 | 0.7 | 2.4 | 5.5 |
| Highest degree earned | | | | | | | |
| BA/BS or less | 47.7 | 21.3 | 10.5 | 3.0 | 4.2 | 6.5 | 6.8 |
| MA/MS or more | 20.3 | 35.2 | 19.6 | 6.1 | 2.6 | 4.9 | 11.3 |
| PRIVATE | 47.3 | 10.1 | 12.5 | 9.2 | 7.3 | 7.0 | 6.7 |

—Too few cases for a reliable estimate.

¹Includes teachers who left teaching because of family or personal moves, pregnancy or child rearing, or health reasons.

²Includes teachers who left teaching to pursue other careers or to take courses in order to improve career opportunities outside education.

³Includes teachers who left teaching to take courses in order to improve career opportunities in the field of education.

⁴School staffing actions include reductions in force, layoffs, school closings, school reorganizations, and reassignments.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

Table 3.19—Percentage of leavers who left teaching for other elementary or secondary school occupations and percentage distribution of those leavers by nonteaching occupation, by sector and selected public school teacher characteristics: 1988–89

| | Percent of leavers who left for other elementary or secondary school occupations | <u>Leavers' 1988–89 nonteaching occupations</u> | | |
|------------------------------|--|---|------------------------|--------|
| | | Admini- strators | Other professionals | Others |
| TOTAL | 15.3 | 39.3 | 42.7 | 17.9 |
| PUBLIC | 17.2 | 35.9 | 46.8 | 17.3 |
| Sex | | | | |
| Male | 23.6 | 69.4 | 17.9 | 12.7 |
| Female | 14.9 | 16.3 | 63.7 | 20.0 |
| Age | | | | |
| Under 30 years | 15.9 | 11.8 | 58.9 | 29.4 |
| 30–39 years | 15.2 | 46.5 | 40.3 | 13.2 |
| 40–49 years | 42.8 | 29.7 | 55.6 | 14.7 |
| 50 years or over | 8.3 | — | — | — |
| Race–ethnicity | | | | |
| Black, non-Hispanic | 60.1 | — | — | — |
| White, non-Hispanic | 13.6 | 35.2 | 44.3 | 20.5 |
| Other | 25.6 | — | — | — |
| Years of teaching experience | | | | |
| 3 or less | 10.9 | — | — | — |
| 4–9 | 8.2 | 48.1 | 19.4 | 32.5 |
| 10–19 | 28.6 | 32.9 | 62.0 | 5.1 |
| 20 or more | 15.8 | 46.2 | 33.6 | 20.2 |
| Highest degree earned | | | | |
| BA/BS or less | 9.3 | 9.2 | 41.5 | 49.4 |
| MA/MS or more | 25.7 | 46.5 | 49.0 | 4.5 |
| PRIVATE | 9.2 | 61.1 | 16.9 | 22.0 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

those who had been teaching in public schools to become administrators. Furthermore, among public school leavers who began other careers in elementary and secondary education, males were more likely than females to become administrators, and females were more likely than males to assume other professional positions such as counselors, librarians, or support personnel for other teachers (such as resource teachers).

Almost one-third of the teachers who left for jobs outside of education became managers or profes-

sionals (table 3.20). Public school teachers who were male or who had earned a bachelor's degree or less were about as likely to become salespersons as they were to become managers or professionals. Among all teachers who left, 18 percent became salespersons, 13 percent became administrative support personnel or supervisors, 10 percent became clerical workers, 9 percent became postsecondary school teachers, 8 percent entered other occupations, 7 percent became service workers, 3 percent became engineers or scientists, and 2 percent became technicians.

Table 3.20—Percentage distribution of leavers who were employed outside elementary and secondary education by occupation, by sector and selected public school teacher characteristics: 1988–89

| | Man- agers & profes- sionals | Engi- neers & scien- tists | Postsec- ondary teachers | Tech- nicians | Sales | Admin- istrative support/ super- visors | Clerical | Service occu- pations | Other |
|---------------------------|---------------------------------------|-------------------------------------|--------------------------------|------------------|-------|---|----------|-----------------------------|-------|
| TOTAL | 30.5 | 2.8 | 8.7 | 2.3 | 18.4 | 12.8 | 10.1 | 7.0 | 7.5 |
| PUBLIC | 30.7 | 2.9 | 9.9 | 3.6 | 21.0 | 4.2 | 11.1 | 8.1 | 8.6 |
| Sex | | | | | | | | | |
| Male | 26.0 | 4.6 | 7.9 | 3.9 | 20.2 | — | 14.3 | 9.4 | 12.3 |
| Female | 35.8 | — | 12.0 | 3.2 | 21.8 | 7.3 | 7.5 | 6.7 | 4.6 |
| Highest degree earned | | | | | | | | | |
| BA/BS or less | 24.1 | 1.8 | 3.3 | 4.2 | 25.6 | 4.4 | 15.5 | 9.1 | 12.0 |
| MA/MS or more | 40.5 | 4.6 | 19.7 | 2.6 | 14.2 | 3.8 | 4.4 | 6.6 | 3.7 |
| Main assignment | | | | | | | | | |
| K-general | | | | | | | | | |
| elementary | 25.9 | — | — | — | 36.2 | 0.0 | 7.2 | 8.7 | — |
| Math/science | 20.4 | 9.1 | 9.9 | 9.6 | 16.9 | 3.2 | 5.8 | 9.2 | 15.8 |
| English/ language arts | 23.6 | 0.0 | 30.9 | — | 20.6 | — | 10.1 | — | 4.9 |
| Other | 37.7 | 0.0 | 6.1 | 1.0 | 19.8 | 5.7 | 14.2 | 8.4 | 7.1 |
| PRIVATE | 30.2 | 2.5 | 6.8 | 0.2 | 14.4 | 26.3 | 8.7 | 5.2 | 5.7 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

CHAPTER 4 • TEACHER EDUCATION

Excellence in our schools presupposes a large corps of well-trained teachers. The school reform proposals of the 1980s encouraged many to take a serious look at teacher education, and raised questions about what teachers needed to know in order to participate fully in the various school reform initiatives and how they should prepare themselves for this participation. Two major reports issued in 1986, *A Nation Prepared: Teachers for the 21st Century* and *Tomorrow's Teachers*, called for sweeping changes in the roles of teachers and in teacher education, focusing particularly on the appropriate content for teacher education at the undergraduate and graduate levels and on the relationship between elementary and secondary schools and schools of education.²³

The 1987–88 Schools and Staffing Survey (SASS) collected information on teachers' educational backgrounds. When examined in conjunction with teacher characteristics, these data provide useful information on who studied what and when. SASS also collected information on teachers' participation in continuing education courses. However, in this survey, teachers were only asked about courses that required 30 or more hours of classroom instruction. In reality, teachers participate in a wide variety of professional development activities that do not require this level of classroom time. To date, very little systematic information has been collected on teachers' participation in these types of activities.

INITIAL PREPARATION OF TEACHERS

The initial preparation of teachers typically culminates in an undergraduate degree, although some states require an additional year of study before certification. Those who plan to teach at the elementary level commonly have an undergraduate major in education, with only a modest amount of course-

work in other subjects beyond their institution's general education requirements. Those who plan to teach in high school, on the other hand, tend to major in the academic discipline in which they plan to teach and take only a few education courses. Current calls for reform have advocated that elementary school teachers pay greater attention to academics and that secondary teachers take more education coursework.²⁴

One frequently debated issue is whether teachers should be allowed to major in education at the undergraduate level at all or whether they should be required to major in another field and postpone their professional education until the graduate level. Both the Carnegie Forum and Holmes Group reports recommended that prospective teachers be required to earn a bachelor's degree in arts or science in order to obtain a thorough grounding in the subjects they plan to teach, and that they delay their professional education until the graduate level. These reports also called for the development of a new curriculum leading to a master's degree in teaching that includes school internships and residencies. These recommendations are still being debated. From a practical standpoint, the structure and content of teacher education programs are driven by state certification requirements.

39 percent of teachers majored in general education for their bachelor's degree (or associate's degree if they did not have a bachelor's degree).

In fact, relatively few teachers now major in a field other than education at the undergraduate level (table 4.1). The SASS data show that 39 percent of all teachers majored in general education (that is, elementary, pre-elementary/early childhood education,

²³Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century*, and The Holmes Group, *Tomorrow's Teachers*.

²⁴See, for example, Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century*, 69–71.

Table 4.1—Percentage distribution of teachers by major field of study for bachelor's degree (or associate degree if no bachelor's degree), by sector and selected teacher characteristics: 1987–88

| | Education fields of study | | | | | General fields of study | | | | |
|---------------------------|---------------------------|------------------------|---|-------------------|-----------------|---------------------------------------|------------------------------|--------------------------------|-----------------------|--------------------|
| | General education | Math/science education | Other subject area education ¹ | Special education | Other education | Math/science engineering ² | Social sciences ³ | Letters/languages ⁴ | Business ⁵ | Other ⁶ |
| TOTAL | 38.8 | 2.0 | 25.6 | 4.8 | 0.7 | 7.0 | 7.0 | 5.6 | 1.4 | 7.3 |
| PUBLIC | 38.9 | 2.1 | 26.7 | 5.1 | 0.6 | 6.7 | 6.7 | 5.0 | 1.4 | 6.9 |
| Teaching level | | | | | | | | | | |
| Elementary | 64.7 | 0.4 | 12.7 | 6.8 | 0.6 | 1.1 | 4.7 | 2.4 | 0.7 | 5.9 |
| Secondary | 11.9 | 3.9 | 41.3 | 3.3 | 0.6 | 12.6 | 8.8 | 7.8 | 2.2 | 7.8 |
| Sex | | | | | | | | | | |
| Male | 14.8 | 3.4 | 41.7 | 1.5 | 0.6 | 12.8 | 11.7 | 4.4 | 2.5 | 6.6 |
| Female | 48.8 | 1.5 | 20.5 | 6.5 | 0.6 | 4.2 | 4.6 | 5.3 | 1.0 | 7.0 |
| Highest degree earned | | | | | | | | | | |
| BA/BS or less | 42.7 | 1.9 | 26.8 | 5.3 | 0.6 | 5.7 | 5.3 | 3.8 | 1.4 | 6.4 |
| MA/MS or more | 34.6 | 2.2 | 26.6 | 4.8 | 0.6 | 7.8 | 8.2 | 6.4 | 1.5 | 7.4 |
| Years teaching experience | | | | | | | | | | |
| 3 or less | 37.0 | 2.9 | 22.2 | 7.1 | 0.7 | 7.6 | 4.8 | 4.3 | 2.5 | 10.9 |
| 4–9 | 38.8 | 1.4 | 27.1 | 9.6 | 0.5 | 5.2 | 4.4 | 4.1 | 1.2 | 7.6 |
| 10–19 | 39.4 | 2.0 | 27.1 | 5.0 | 0.5 | 6.2 | 7.1 | 5.5 | 1.0 | 6.1 |
| 20 or more | 38.8 | 2.3 | 27.4 | 0.9 | 0.6 | 8.4 | 8.4 | 5.3 | 1.8 | 6.0 |
| PRIVATE | 38.1 | 1.1 | 16.7 | 2.6 | 1.3 | 8.9 | 9.2 | 10.0 | 1.4 | 10.7 |
| Teaching level | | | | | | | | | | |
| Elementary | 60.3 | 0.4 | 9.3 | 4.1 | 1.4 | 2.3 | 6.4 | 5.2 | 1.1 | 9.5 |
| Secondary | 14.4 | 1.9 | 24.5 | 1.1 | 1.2 | 16.0 | 12.1 | 15.1 | 1.7 | 12.0 |
| Sex | | | | | | | | | | |
| Male | 13.6 | 1.7 | 21.8 | 0.6 | 1.5 | 14.6 | 18.1 | 10.1 | 2.8 | 15.1 |
| Female | 44.9 | 1.0 | 15.2 | 3.2 | 1.3 | 7.2 | 6.7 | 10.0 | 1.0 | 9.4 |
| Highest degree earned | | | | | | | | | | |
| BA/BS or less | 44.7 | 1.2 | 17.1 | 3.1 | 1.3 | 6.4 | 7.3 | 7.0 | 1.6 | 10.3 |
| MA/MS or more | 25.6 | 1.0 | 15.8 | 1.7 | 1.3 | 13.7 | 12.6 | 15.7 | 1.1 | 11.4 |
| Years teaching experience | | | | | | | | | | |
| 3 or less | 36.4 | 1.3 | 14.7 | 3.6 | 1.1 | 11.1 | 7.1 | 6.6 | 2.7 | 15.4 |
| 4–9 | 38.5 | 1.2 | 17.6 | 4.2 | 1.6 | 6.9 | 7.8 | 9.8 | 1.1 | 11.4 |
| 10–19 | 38.7 | 1.4 | 17.3 | 1.7 | 1.2 | 8.6 | 9.9 | 11.5 | 0.8 | 9.0 |
| 20 or more | 37.9 | 0.5 | 15.9 | 0.6 | 1.3 | 10.9 | 12.3 | 10.9 | 1.7 | 7.9 |

¹Includes majors in the education of agriculture, art, business, commerce, distribution, English as a second language, English, foreign languages, home economics, industrial arts, vocational–technical, music, physical education, health, reading, and social studies–social sciences, and in bilingual education.

²Includes majors in biological/life science, computer and information sciences, engineering, mathematics, chemistry, physics, geology/earth science, and other physical sciences.

³Includes majors in economics, history, political science and government, sociology, and other social sciences.

⁴Includes majors in foreign languages, English, literature, speech, and classics.

⁵Includes majors in business and management.

⁶Includes all other majors.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

or secondary education) for their bachelor's degree (or associate's degree if they did not have a bachelor's degree). Another 2 percent majored in mathematics or science education, 26 percent in other subject areas in education,²⁵ 5 percent in special education, and 1 percent in other education fields. The rest majored in fields other than education. The tendency to major in general education does not appear to have changed over time: for both public and private teachers, the percentage was about the same regardless of their years of experience.

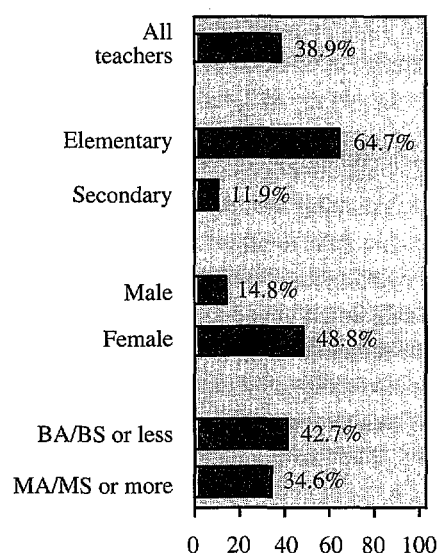
Elementary school teachers were much more likely than secondary school teachers to have majored in general education as undergraduates. Among public school teachers, 65 percent of elementary school teachers majored in education, but only 12 percent of secondary school teachers did so (figure 4.1 and table 4.1). The corresponding percentages were similar for private school teachers: 60 percent and 14 percent (table 4.1). Differences by gender existed as well for public and private school teachers, with females being more likely than males to have majored in general education. Teachers whose highest degree earned was a bachelor's degree or less were more likely than those with more education to have majored in general education at the undergraduate level (43 percent compared with 35 percent in the public sector, and 45 percent compared with 26 percent in the private sector).

Both public and private school teachers were equally likely to have majored in general education, but public school teachers were more likely than private school teachers to have majored in another subject area in education or special education. These differences may be related to teachers' educational backgrounds and to different teaching opportunities in public and private schools. A greater percentage of public school teachers have master's and education specialist's degrees (see Chapter 5), the level at which training in these

specialty areas often takes place. Also, public schools, because they are larger and serve a more diverse student population, are likely to have more opportunities for teachers who have specialized in areas such as special education. Furthermore, public school teachers sometimes provide special education services to private schools.

Private school teachers, on the other hand, were more likely than public school teachers to have majored in certain academic subjects including mathematics, science, or engineering; social science; letters or language; and "other" noneducation fields. These differences may be related to certification requirements. That is, private school teachers are not subject to the same certification requirements as are public school teachers and

Figure 4.1—Percentage of public school teachers who majored in general education for their bachelor's degree (or associate's degree, if no bachelor's degree), by selected teacher characteristics: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

²⁵Includes majors in the education of agriculture, art, business, commerce, distribution, English as a second language, English, foreign languages, home economics, industrial arts, vocational-technical, music, physical education, health, reading, and social studies—social sciences, and in bilingual education.

Table 4.2—Percentage of teachers who earned various degrees, by sector and field of bachelor's degree: 1987–88

| | No higher degree | MA/MS | | Education specialist | Doctorate | |
|----------------|------------------------|-----------------|-------------------|-------------------------|-----------------|-------------------|
| | | In education | In other field | | In education | In other field |
| TOTAL | 50.8 | 37.7 | 7.2 | 5.9 | 0.5 | 0.3 |
| Field of BA/BS | | | | | | |
| Education | 55.6 | 39.2 | 2.5 | 5.1 | 0.4 | 0.0 |
| Other field | 41.8 | 34.4 | 19.1 | 7.6 | 0.6 | 0.9 |
| PUBLIC | 49.7 | 39.8 | 6.6 | 6.3 | 0.5 | 0.2 |
| Field of BA/BS | | | | | | |
| Education | 54.0 | 40.8 | 2.5 | 5.5 | 0.4 | 0.0 |
| Other field | 40.3 | 36.8 | 17.9 | 8.2 | 0.6 | 0.5 |
| PRIVATE | 59.5 | 22.4 | 11.5 | 2.9 | 0.2 | 1.1 |
| Field of BA/BS | | | | | | |
| Education | 70.8 | 23.5 | 2.5 | 1.9 | 0.3 | 0.1 |
| Other field | 49.0 | 21.9 | 25.1 | 4.0 | 0.2 | 2.7 |

NOTE: Percentages add to more than 100 percent because teachers may have earned more than one advanced degree.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

sometimes are employed without formal training in education.

About one-half of all teachers earned an advanced degree.

Table 4.2 provides information on the relationship between teachers' undergraduate and graduate degrees. Approximately one-half of all teachers earned an advanced degree, with a master's in education being by far the most common degree (earned by 38 percent of all teachers). Public school teachers were more likely than private school teachers to earn a master's degree in education (40 percent compared with 22 percent), and private school teachers were more likely than public school teachers to earn a master's degree in another field (12 percent compared with 7 percent). Interestingly, teachers whose bachelor's degree was in education were less likely than those whose bachelor's degree was in another field to earn an advanced degree in a field other than education and were more likely to

earn a master's degree in education. Teachers with a bachelor's degree in education were not very likely to earn a master's degree in a field other than education (3 percent).

Another aspect of teacher education frequently of interest is the congruence between what teachers studied in college and their main assignment field. Assigning teachers to a field other than one in which they majored may be an indicator of teacher shortages, although not necessarily a good one, especially in smaller schools where many teachers commonly have responsibilities in more than one subject area (see Chapter 3). According to the SASS data, more than one-half (55 percent) of all teachers majored in their main teaching field, and another 12 percent minored in their main teaching field for their highest degree earned (table 4.3). The remaining 34 percent neither majored nor minored in their main teaching field. Note, however, that teachers who did not major or minor in their main teaching field for their highest degree earned may have done so for an earlier degree, or may have completed coursework in the field but not earned a

Table 4.3—Percentage distribution of teachers by whether they majored, minored, or neither majored nor minored in their main or other teaching field for their highest earned degree, by selected teacher characteristics: 1987–88

| | Main field | | | Other field | | |
|------------------------------|----------------|----------------|-------------------------|----------------|----------------|-------------------------|
| | Major in field | Minor in field | Neither major nor minor | Major in field | Minor in field | Neither major nor minor |
| TOTAL | 54.7 | 11.8 | 33.5 | 54.1 | 38.7 | 7.2 |
| PUBLIC | 55.1 | 11.7 | 33.3 | 52.8 | 39.3 | 7.9 |
| Teaching level | | | | | | |
| Elementary | 61.5 | 9.1 | 29.4 | 54.0 | 40.2 | 5.8 |
| Secondary | 48.2 | 14.4 | 37.4 | 52.4 | 39.0 | 8.6 |
| Highest degree earned | | | | | | |
| Less than BA/BS | 58.0 | 3.2 | 38.8 | — | — | — |
| BA/BS | 61.8 | 15.8 | 22.3 | 45.2 | 49.3 | 5.5 |
| MA/MS | 49.0 | 6.9 | 44.1 | 62.9 | 25.7 | 11.3 |
| More than MA/MS | 38.5 | 8.3 | 53.2 | 63.8 | 26.2 | 9.9 |
| Years of teaching experience | | | | | | |
| 3 or less | 59.1 | 15.2 | 25.7 | 48.4 | 45.8 | 5.8 |
| 4–9 | 56.8 | 14.3 | 28.9 | 53.6 | 38.9 | 7.5 |
| 10–19 | 54.0 | 10.7 | 35.2 | 54.8 | 37.4 | 7.8 |
| 20 or more | 53.8 | 9.8 | 36.4 | 50.5 | 39.4 | 10.1 |
| PRIVATE | 52.2 | 12.8 | 35.0 | 61.7 | 35.2 | 3.1 |
| School level | | | | | | |
| Elementary | 56.8 | 10.5 | 32.7 | 60.2 | 37.0 | — |
| Secondary | 47.2 | 15.4 | 37.4 | 62.4 | 34.4 | 3.3 |
| Highest degree earned | | | | | | |
| Less than BA/BS | 49.8 | 8.9 | 41.3 | — | — | — |
| BA/BS | 54.9 | 15.7 | 29.4 | 52.8 | 43.0 | 4.2 |
| MA/MS | 48.1 | 7.6 | 44.3 | 81.4 | 17.4 | 1.2 |
| More than MA/MS | 43.1 | 8.6 | 48.2 | 70.3 | 29.7 | 0.0 |
| Years of teaching experience | | | | | | |
| 3 or less | 54.1 | 14.7 | 31.2 | 57.6 | 40.0 | 2.4 |
| 4–9 | 54.1 | 12.4 | 33.6 | 58.4 | 38.9 | 2.7 |
| 10–19 | 50.4 | 12.6 | 37.0 | 63.5 | 32.5 | 4.1 |
| 20 or more | 50.6 | 12.1 | 37.3 | 71.8 | 25.1 | 3.1 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

degree. Public school teachers were slightly more likely than private school teachers to have majored in their main teaching field.

CONTINUING EDUCATION

The education of teachers does not stop with their initial training; formal and informal training continues throughout a teacher's career. Teachers are typically required to continue their education through school- or district-sponsored professional development activities, graduate programs, self-directed study, or some combination of these activities. In addition, many teachers voluntarily enroll in programs or summer institutes to keep up-to-date in their fields or teaching methodology or to advance on the salary schedule. Continuing education programs also provide experienced teachers who wish to change fields with an opportunity to learn about other fields. Because most teachers are, in fact, continuing teachers (Chapter 3), continuing education is already a vast enterprise. If major school reforms are implemented, one can expect it to grow further.

In 1987–88, about one-third (34 percent) of all teachers reported that they had taken teaching-related inservice or college courses requiring 30 or more hours of classroom study during the 2 school years before the survey (table 4.4). Most frequently, these courses were relevant to the teacher's main assignment field. Public school teachers of English or language arts/reading, social studies/science, and bilingual/ESL education were the least likely to take courses related to their own fields.

COMPARISONS WITH OTHER COUNTRIES

Although it would be very useful to be able to compare the educational backgrounds of teachers in the United States with those of their counterparts in other countries, very few comparable data are available on this topic. However, because of the current interest in mathematics and science education at the international level, efforts have been made to assemble data comparing the education of mathematics and science teachers across countries. Table 4.5 shows that the average years of postsecondary education for science teachers of 10-year-old children

ranged from 1 year in Nigeria to 4.5 years in the Philippines, with the United States at 3.3 years. For science teachers of slightly older children (14 years old), the averages ranged from 1.5 years in China to 5.7 years in Finland. The average in the United States was 3.4 years of postsecondary education for the teachers of 14-year-old children.

Table 4.6 compares the average number of semesters of postsecondary credit in mathematics pedagogy, general pedagogy, and general mathematics for teachers of eighth-grade students. In each of these areas, the United States was among the countries with the highest averages.

TEACHERS OF TEACHERS

On average, teacher educators and other education faculty had lower base salaries and earned less income overall than did postsecondary faculty in other fields.

The quality of teacher education is closely linked to the quality of the faculty who train teachers and to the structure and content of teacher education programs. Education faculty are frequently criticized for being too far removed from the K–12 education system, and students in teacher education programs have often complained that many of their teachers have not been in the classroom for years.

College and university faculty who teach prospective teachers straddle two cultures—higher education and the K–12 educational system—but over the past 25 years or so, the culture of the college or university has become the dominant one. As the research mission has gained preeminence on college campuses at the expense of teaching and service, scholarly work has taken precedence over professional education. Despite faculty efforts to appear more scholarly and research oriented, teacher education programs still typically have low status on college and university campuses and tend to be resource poor relative to other departments. Recommendations for revitalizing schools and departments of education to place greater emphasis

Table 4.4—Percentage of teachers who had taken inservice training or college courses in the past 2 years and percentage distribution of those who did by the assignment field for which the training or courses were relevant, by sector and teacher's main assignment field: 1987–88

| | Any field | Assignment field for which training or courses were relevant ¹ | | | | | | | |
|-----------------------------------|-----------|---|------------------|---|-------------------------------|----------------------|------------------------|-------------------------|---------------|
| | | Kinder- garten- general elemen- tary | Math/ science | English/ Language arts/read- ing | Social studies/ science | Special education | Bilin- gual/ ESL | Vocational education | All others |
| TOTAL | 33.8 | 27.1 | 16.7 | 9.8 | 3.7 | 10.8 | 1.4 | 2.1 | 28.4 |
| PUBLIC | 34.7 | 26.9 | 16.5 | 9.9 | 3.8 | 11.0 | 1.5 | 2.3 | 28.1 |
| Main assignment | | | | | | | | | |
| K–general elementary | 35.3 | 64.8 | 11.5 | 7.7 | 0.6 | 3.5 | 1.0 | — | 11.0 |
| Math/science | 36.3 | 4.9 | 66.0 | 1.4 | 1.1 | 3.5 | 0.4 | 0.3 | 22.2 |
| English/language arts/ reading | 34.2 | 8.3 | 5.7 | 55.9 | 2.1 | 3.0 | 1.1 | 0.3 | 23.6 |
| Social studies | 31.9 | 4.6 | 8.8 | 4.0 | 53.7 | 2.3 | 0.4 | 0.9 | 25.3 |
| Special education | 39.4 | 10.5 | 5.2 | 3.7 | 1.0 | 66.6 | 0.3 | 0.8 | 11.9 |
| Bilingual/ESL | 44.2 | 16.2 | 4.5 | 10.8 | — | 0.9 | 53.2 | 0.0 | 14.2 |
| Vocational education | 41.7 | 0.8 | 6.8 | 1.0 | — | 6.4 | 0.0 | 70.3 | 14.6 |
| Other | 30.7 | 6.6 | 8.4 | 3.1 | 1.3 | 4.0 | 0.9 | 1.0 | 74.5 |
| PRIVATE | 26.9 | 29.4 | 18.0 | 8.6 | 3.1 | 8.2 | 0.3 | 0.5 | 31.8 |
| Main assignment | | | | | | | | | |
| K–general elementary | 27.7 | 58.6 | 10.0 | 6.6 | 1.8 | 4.7 | 0.4 | — | 17.5 |
| Math/science | 29.2 | 6.7 | 61.1 | 1.1 | 0.8 | 7.8 | — | — | 2.2 |
| English/language arts/ reading | 22.3 | 10.6 | 8.7 | 54.1 | 2.4 | 4.8 | 0.0 | | 0.0 |
| 19.5 | | | | | | | | | |
| Social studies | 19.9 | 12.0 | — | 5.4 | 35.3 | 6.5 | — | 0.0 | 38.0 |
| Special education | 38.1 | 12.0 | 4.5 | 4.1 | 0.0 | 71.5 | 0.0 | 0.0 | — |
| Bilingual/ESL | — | — | — | — | — | — | — | — | — |
| Vocational education | — | — | — | — | — | — | — | — | — |
| Other | 26.5 | 5.3 | 9.0 | 1.4 | 2.6 | 3.4 | — | 1.1 | 76.8 |

—Too few cases for a reliable estimate.

¹Teachers could mark only one assignment field. Courses had to require 30 or more hours of classroom training.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 4.5—Average years of postsecondary education for teachers of science, by country: 1983–85

| | Average years postsecondary education (Population 1) ¹ | Average years postsecondary education (Population 2) ² | Average years postsecondary science education (Population 2) ² |
|-------------------------------|--|--|--|
| Australia | 3.5 | 4.6 | 2.5 |
| Canada (French speaking) | [3.9] | [4.8] | [1.3] |
| China ⁴ | (*) | 1.5 | (*) |
| England | 3.5 | 4.3 | (*) |
| Finland | 4.1 | 5.7 | 3.9 |
| Ghana ⁴ | (*) | 4.2 | 3.3 |
| Hong Kong | 1.9 | 2.8 | 2.3 |
| Hungary | 2.9 | 4.0 | 2.6 |
| Israel | 2.6 | 4.8 | 3.6 |
| Italy (grade 8) | (*) | 4.1 | 2.8 |
| Italy (grade 9) | (*) | 4.2 | 3.2 |
| Italy | 0.9 | (*) | (*) |
| Japan | 3.3 | 3.8 | 2.3 |
| Korea | 2.1 | 4.1 | 2.6 |
| Netherlands ⁴ | (*) | 5.3 | 3.0 |
| Nigeria | 1.1 | 4.8 | 3.9 |
| Norway | 3.3 | 4.7 | 3.5 |
| Papua New Guinea ⁴ | (*) | 3.4 | 1.6 |
| Phillipines | 4.5 | 4.8 | 0.8 |
| Poland | 3.8 | 4.1 | 2.4 |
| Singapore | 2.7 | 3.6 | 2.8 |
| Sweden (grade 3) | 2.0 | (*) | (*) |
| Sweden (grade 4) | 2.0 | (*) | (*) |
| Sweden (grade 7) | (*) | 2.0 | 0.5 |
| Sweden (grade 8) | (*) | 2.0 | 0.5 |
| Thailand ⁴ | (*) | 4.0 | 2.5 |
| United States | 3.3 | 3.4 | 2.1 |
| Zimbabwe ⁴ | (*) | 3.4 | 1.8 |

[]Data supplied by National Centers from other data sources.

*Not available.

NOTE: Canada (English speaking) did not collect any teacher data. It should also be noted that England, Norway and Sweden did not administer several questions because they were deemed either unacceptable (e.g. infringement of one's privacy) to the teacher or in the case of China, unavailable.

¹"Population 1" was defined as "all students aged 10:0 to 10:11 on the specified date of testing or all students in the grade where most 10 year olds were to be found on the specified date of testing" (T.N. Postlethwaite and D.E. Wiley, *The IEA Study of Science II: Science Achievement in Twenty-three Countries* [Oxford: Pergamon Press, 1992], 3). The figures reported here are averages of data from samples taken from this population.

²"Population 2" was defined as "all students aged 14:0 to 14:11 on the specified date of testing or all students in the grade where most 14 year olds were to be found on the specified date of testing" (T.N. Postlethwaite and D.E. Wiley, *The IEA Study of Science II: Science Achievement in Twenty-three Countries* [Oxford: Pergamon Press, 1992], 3). The figures reported here are averages of data from samples taken from this population.

³Did not participate in Population 2 data collection.

⁴Did not participate in Population 1 data collection.

SOURCE: T.N. Postlethwaite and D.E. Wiley, *The IEA Study of Science II: Science Achievement in Twenty-three Countries* (Oxford: Pergamon Press, 1992), 19, 28–29.

Table 4.6—Average number of semesters of postsecondary credit in mathematics pedagogy, general pedagogy, and general mathematics earned by teachers of eighth-grade (U.S. equivalent) students in 15 countries: 1980–82

| Country | Mathematics pedagogy | General pedagogy | General mathematics |
|---------------------------|----------------------|------------------|---------------------|
| TOTAL | 1.7 | 2.4 | 4.4 |
| Belgium | 3.1 | 3.4 | 3.6 |
| Canada (British Columbia) | 1.6 | 2.9 | 7.5 |
| Canada (Ontario) | 1.3 | 2.8 | 2.3 |
| England/Wales | 0.9 | 1.3 | 1.8 |
| Finland | 0.9 | 1.4 | 6.1 |
| France | 1.4 | 1.1 | 5.1 |
| Hong Kong | 1.4 | 1.3 | 2.0 |
| Hungary | 2.0 | 4.2 | 6.1 |
| Israel | 2.1 | 2.6 | 4.2 |
| Japan | 3.5 | 4.0 | 5.9 |
| Luxembourg | 1.1 | 1.7 | 3.5 |
| New Zealand | 1.4 | 2.4 | 4.0 |
| Scotland | 1.4 | 1.5 | 5.3 |
| Sweden | 1.0 | 1.9 | 2.1 |
| Thailand | 2.7 | 3.1 | 7.4 |
| United States | 3.7 | 5.0 | 8.0 |

SOURCE: International Association for the Evaluation of Educational Achievement, Second International Mathematics Study, Elizabeth Oldham, "Qualifications of Mathematics Teachers," paper prepared for the National Center for Education Statistics, August 1986.

on professional education are at odds with the focus on the research mission, and place education faculty in a difficult position.²⁶

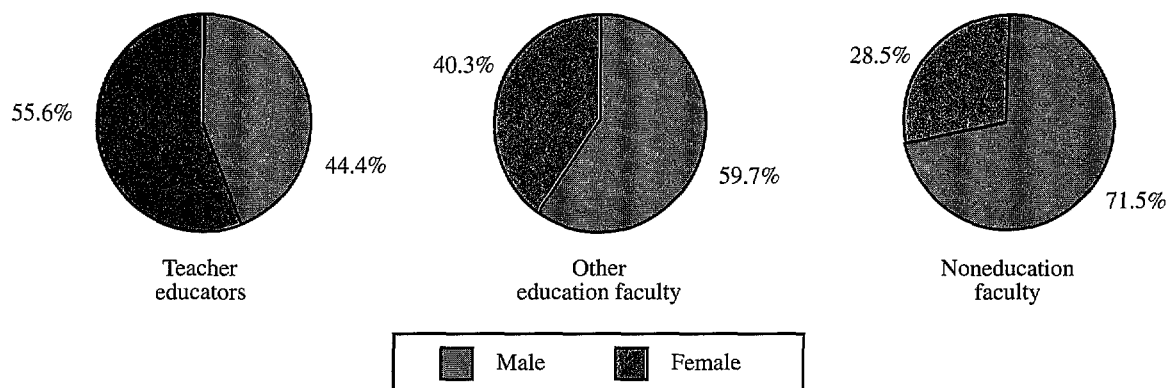
The National Survey of Postsecondary Faculty, conducted in the fall of 1987 and spring of 1988, collected data that enable comparisons of teacher educators, other education faculty, and noneducation faculty. Teacher educators are those who teach pre-elementary, elementary, secondary, adult and continuing education, other general education, or teacher education in specific subjects. Other education faculty are those who teach subjects such as curriculum and instruction, education administration, evaluation and research, or educational psychology.

²⁶The place of education faculty in colleges and universities is discussed at length in John I. Goodlad, *Teachers for Our Nation's Schools* (San Francisco: Jossey-Bass, 1990), and Geraldine Joncich Clifford and James W. Guthrie, *Ed School* (Chicago: University of Chicago Press, 1988).

Teacher educators and other education faculty differed from noneducation faculty with respect to some demographic characteristics. For example, although only 29 percent of noneducation faculty were female, 56 percent of teacher educators and 40 percent of other education faculty were female (figure 4.2 and table 4.7). This pattern reflects the fact that teacher educators are often former teachers, and teaching has traditionally been a female-dominated occupation. Education faculty other than teacher educators were more concentrated in the 55- to 64-year-old group than were noneducation faculty (table 4.8). Teacher educators were the least likely to have doctorates.

When all sources of earned income are considered (base salaries, other institutional sources, outside consulting, and other work), noneducation faculty earned the most, with an average of \$50,671 per year, followed by education faculty other than teacher educators, with an average of \$41,649

Figure 4.2—Percentage distribution of full-time regular postsecondary faculty by sex, by type of faculty: Fall 1987



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 4.7—Percentage distributions of full-time regular postsecondary faculty by sex and race-ethnicity, by faculty type: Fall 1987

| | Sex | | Race-ethnicity | | |
|---------------------------|------|--------|---------------------|---------------------|-------|
| | Male | Female | Black, non-Hispanic | White, non-Hispanic | Other |
| TOTAL | 70.0 | 30.0 | 3.2 | 89.6 | 7.2 |
| Faculty type | | | | | |
| Teacher educators | 44.4 | 55.6 | 5.6 | 91.5 | 2.8 |
| Other educational faculty | 59.7 | 40.3 | 6.8 | 87.6 | 5.7 |
| Noneducational faculty | 71.5 | 28.5 | 2.9 | 89.6 | 7.4 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 4.8—Percentage distribution of full-time regular postsecondary faculty by age, percentage with a doctorate or first professional degree, and percentage with tenure, by faculty type: Fall 1987

| | Age | | | | | Doctorate or first professional | Tenured |
|---------------------------|----------|-------|-------|-------|------------|---------------------------------|---------|
| | Under 30 | 30-44 | 45-54 | 55-64 | 65 or over | | |
| TOTAL | 3.8 | 45.1 | 29.9 | 17.7 | 3.4 | 68.5 | 46.6 |
| Faculty type | | | | | | | |
| Teacher educators | 3.5 | 43.3 | 28.0 | 23.4 | 1.8 | 54.5 | 44.7 |
| Other educational faculty | 4.4 | 33.9 | 32.7 | 25.3 | 3.8 | 69.1 | 51.9 |
| Noneducational faculty | 3.8 | 45.8 | 29.9 | 17.1 | 3.4 | 69.0 | 46.3 |

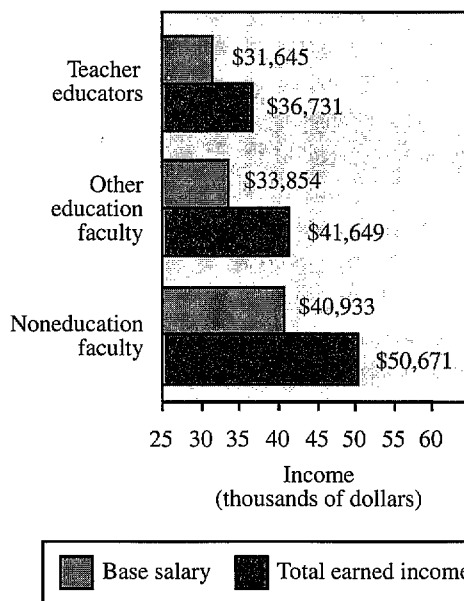
NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

(figure 4.3 and table 4.9). Teacher educators earned the least, averaging \$36,731 per year. Teacher educators and other education faculty also had lower annual base salaries than did noneducation faculty (\$31,645 and \$33,854, compared with \$40,933). Outside consulting income was much less available to teacher educators, who averaged \$605 per year, than to other education faculty, who averaged \$2,250, or to noneducation faculty, who averaged \$3,588.

Most teacher educators (90 percent), other education faculty (87 percent), and noneducation faculty (84 percent) reported that they were "somewhat" or "very" satisfied with their jobs overall (table 4.10). All three reported similar levels of satisfaction for many aspects of their jobs, such as their work load, authority over courses taught, time available to students, and the quality of their colleagues, program, and department. However, different types of faculty varied in their satisfaction with some aspects of their jobs. For example, teacher educators were somewhat more likely than other education or noneducation faculty to be satisfied with the quality of their undergraduate students, and other education faculty were more likely than noneducation faculty to be satisfied with the quality of their graduate students.

Figure 4.3—Average total earned income and average base salary for full-time regular postsecondary faculty, by discipline: Fall 1987



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 4.9—Average earned income for full-time regular postsecondary faculty, by source of income and faculty type: Fall 1987

| | Total earned income | Base salary | Other income from institution | Earned as outside consultants | Other |
|---------------------------|---------------------|-------------|-------------------------------|-------------------------------|---------|
| TOTAL | \$49,735 | \$40,257 | \$3,722 | \$3,417 | \$2,339 |
| Faculty type | | | | | |
| Teacher educators | 36,731 | 31,645 | 2,795 | 605 | 1,686 |
| Other educational faculty | 41,649 | 33,854 | 3,779 | 2,250 | 1,766 |
| Noneducational faculty | 50,671 | 40,933 | 3,755 | 3,588 | 2,395 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 4.10—Percentage of full-time regular postsecondary faculty who were *somewhat satisfied* or *very satisfied* with various aspects of their job, by faculty type: Fall 1987

| | Job overall | Work load | Authority over courses taught | Time available to students | Quality of col- leagues/ program/ department | Quality of graduate students | Quality of under- graduate students |
|---------------------------|----------------|--------------|--|-------------------------------------|--|---------------------------------------|--|
| TOTAL | 84.3 | 73.7 | 79.8 | 72.8 | 82.7 | 47.9 | 62.8 |
| Faculty type | | | | | | | |
| Teacher educators | 90.1 | 77.2 | 82.2 | 66.8 | 82.8 | 51.7 | 77.9 |
| Other educational faculty | 86.8 | 72.3 | 77.9 | 68.6 | 84.7 | 60.5 | 66.5 |
| Noneducational faculty | 84.0 | 73.7 | 79.8 | 73.3 | 82.6 | 47.1 | 62.1 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

CHAPTER 5 • TEACHER QUALIFICATIONS

One focus of the current school reform debate concerns efforts to build and ensure a well-trained work force.²⁷ However, the real issues underlying the debate have to do with teacher performance. Qualifications are often cited as accessible, if imperfect, proxies. While the qualifications of teachers alone do not assure success in the classroom, there is some agreement that teacher quality is linked to training, experience, and the match between skills and teaching assignments.

This debate extends from questions concerning whether teacher training, experience, and certification are consistently related to quality to questions concerning how much training and experience and what kind of certification are necessary to ensure that a teacher is truly qualified. In a forthcoming report on public school teacher qualifications, NCES researchers report that using different definitions of teaching in and out of field had profound effects on their estimates of the percentage of teachers who were teaching “out of field.” Using the 1987–88 Schools and Staffing Survey (SASS) data, the report compared the proportions of teachers who were teaching out of field using alternative definitions. These definitions used four combinations of three variables as indicators of teachers’ qualifications: teachers’ certification in their main assignment fields, teachers’ certification in all the fields in which they teach, and the field in which teachers earned their highest degrees.²⁸ The study showed widely ranging estimates of the proportions of public elementary and secondary teachers teaching out of field depending on the definition used. Whereas 2 percent of all public elementary and secondary school teachers had no certification in their main

assignment fields, 7 percent of teachers lacked full certification in their main assignment field. When the authors included teachers’ college education in the definition of teaching out of field, the percentage of teachers who were teaching out of field increased further. For example, the percentage of secondary teachers who neither were fully certified nor had majored in their teaching fields ranged from 10 percent among teachers of foreign language classes to 27 percent among teachers of mathematics classes. Clearly the definition of “qualified” that one uses has substantial impact on whether one believes that concern about the qualifications of public elementary and secondary school teachers is warranted.

Three indicators of teacher qualifications are described in this chapter: educational attainment, which offers a measure of the quantity or amount of teacher preparation (and may be indirectly associated with the “quality” of qualifications); certification status, which offers a measure of the degree to which teachers meet minimum public school teaching standards and qualifications set by their state; and years of teaching experience, which offers a measure of on-the-job professional growth, persistence, and commitment to teaching as a profession. It should be understood that while these indicators are perceived as important within the teaching profession, there is not a strong empirical basis upon which to assert the degree to which each is related to teacher quality or classroom effectiveness. At the same time, there is increasing interest in teacher assessments, particularly as they relate to student learning and achievement. Assessments may, in the future, provide measures of teacher quality and effectiveness that the imperfect proxies discussed in this chapter are designed to describe.²⁹

²⁷For an overview, see Joseph Murphy, ed., *The Educational Reform Movement of the 1980s* (Berkeley: McCutchan, 1990); and Denis P. Doyle, Bruce S. Cooper, and Roberta Trachtman, *Taking Charge: State Action on School Reform in the 1980s* (Indianapolis: Hudson Institute, 1991).

²⁸Marilyn M. McMillen and Sharon A. Bobbitt, *Teacher Training, Certification, and Assignment in Public Schools*, Statistical Analysis Report, U.S. Department of Education, forthcoming.

²⁹These issues are reviewed in Thomas L. Good and Mary M. McCaslin, “Teaching Effectiveness,” *Encyclopedia of Educational Research* (New York: Macmillan Publishing Co., 1992), 1,373–388.

EDUCATIONAL ATTAINMENT

A master's was the highest degree earned for 40 percent of public school teachers and 30 percent of private school teachers.

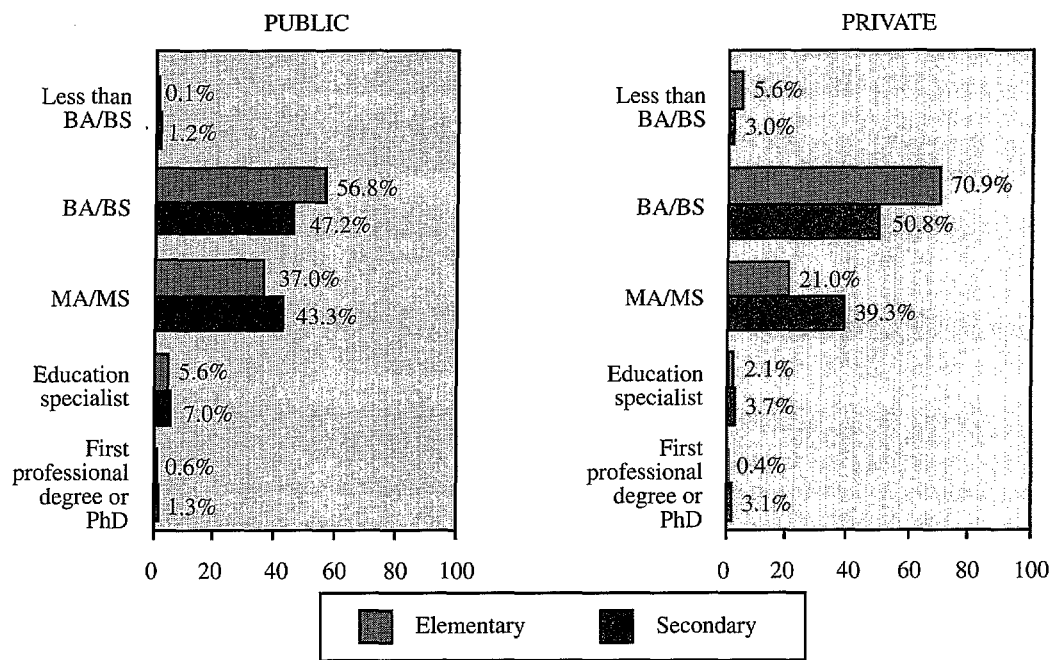
While evidence suggests a modest relationship between educational attainment and teacher effectiveness,³⁰ academic credentials are an important aspect of teacher preparation. In SASS, teachers were asked about each degree they had earned. Although the vast majority of teachers had earned at least a bachelor's degree, teachers in public and private schools differed

³⁰See, for example, Judith Bodenhausen, "Does Academic Background of Teachers Affect the Performance of Their Students?" (paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, April 5-9, 1988); John L. Knapp et al., "Should a Master's Degree Be Required of All Teachers?" *Journal of Teacher Education* 41 (2) (March-April 1990): 27-37; and Eleanor Lazarus, "Equity and Excellence in Arts Education," *Design for Arts in Education*, 90 (6) (July-August 1989): 30-32.

in their educational attainment (table 5.1). In public schools, only 1 percent of teachers had earned less than a bachelor's degree, compared with 4 percent of teachers in private schools. A larger percentage of public school teachers than private school teachers had earned more than a bachelor's degree. In public schools, 40 percent of teachers had earned a master's degree, and 6 percent had earned an education specialist degree. Among private school teachers, 30 percent had earned a master's degree, whereas 3 percent had earned an education specialist degree. Only very small percentages of either type of teacher had earned a Ph.D. or first-professional degree (1 percent of public school teachers and 2 percent of private school teachers).

For teachers in both sectors, highest degree earned varied with teaching level. Public and private secondary school teachers were more likely to have earned a master's or a professional or Ph.D. degree as their highest degree than were their elementary school counterparts (figure 5.1). Moreover, secondary school teachers were less likely than those teaching in elementary school to have earned a bachelor's as their highest degree.

Figure 5.1—Percentage distribution of teachers by highest degree earned, by sector and level: 1987-88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987-88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 5.1—Percentage distribution of teachers by highest degree earned, by sector and selected teacher characteristics: 1987–88

| | Public | | | | | Private | | | | |
|---------------------------|-----------------|-------|-------|------------------------|---------------------------|-----------------|-------|-------|------------------------|---------------------------|
| | Less than BA/BS | BA/BS | MA/MS | Educational specialist | First professional or PhD | Less than BA/BS | BA/BS | MA/MS | Educational specialist | First professional or PhD |
| TOTAL | 0.6 | 52.1 | 40.1 | 6.3 | 0.9 | 4.4 | 61.3 | 29.8 | 2.9 | 1.7 |
| Teaching level | | | | | | | | | | |
| Elementary | 0.1 | 56.8 | 37.0 | 5.6 | 0.6 | 5.6 | 70.9 | 21.0 | 2.1 | 0.4 |
| Secondary | 1.2 | 47.2 | 43.3 | 7.0 | 1.3 | 3.0 | 50.8 | 39.3 | 3.7 | 3.1 |
| Sex | | | | | | | | | | |
| Male | 1.7 | 44.1 | 45.0 | 7.5 | 1.6 | 2.3 | 50.9 | 38.2 | 3.6 | 5.0 |
| Female | 0.2 | 55.4 | 38.0 | 5.7 | 0.6 | 4.9 | 64.1 | 27.5 | 2.7 | 0.8 |
| Race–ethnicity | | | | | | | | | | |
| Black, non-Hispanic | 0.5 | 49.9 | 42.5 | 5.7 | 1.4 | 5.0 | 70.6 | 16.9 | 3.5 | 4.0 |
| White, non-Hispanic | 0.6 | 52.2 | 40.2 | 6.2 | 0.8 | 4.1 | 61.3 | 30.2 | 2.8 | 1.6 |
| Other | 1.1 | 56.7 | 31.9 | 8.2 | 2.1 | 6.4 | 61.4 | 24.9 | 4.7 | 2.6 |
| Years teaching experience | | | | | | | | | | |
| 3 or less | 1.2 | 85.4 | 11.3 | 1.4 | 0.6 | 9.0 | 78.0 | 11.1 | 0.7 | 1.2 |
| 4–9 | 1.0 | 66.1 | 29.2 | 3.1 | 0.5 | 4.5 | 67.1 | 25.0 | 1.8 | 1.6 |
| 10–19 | 0.6 | 45.3 | 46.0 | 7.0 | 1.0 | 2.6 | 56.0 | 35.8 | 3.6 | 2.0 |
| 20 or more | 0.2 | 39.6 | 49.8 | 9.2 | 1.2 | 2.6 | 44.4 | 45.7 | 5.5 | 1.8 |
| Age | | | | | | | | | | |
| Under 30 years | 0.3 | 82.8 | 15.5 | 1.1 | 0.3 | 4.7 | 83.4 | 11.4 | 0.4 | — |
| 30–39 years | 0.4 | 53.3 | 40.7 | 5.2 | 0.5 | 4.8 | 59.3 | 31.4 | 3.1 | 1.4 |
| 40–49 years | 0.7 | 44.1 | 46.1 | 7.8 | 1.3 | 3.3 | 51.7 | 39.3 | 3.1 | 2.6 |
| 50 years or over | 1.3 | 42.2 | 45.6 | 9.3 | 1.6 | 4.5 | 52.4 | 34.7 | 5.1 | 3.3 |
| Main assignment | | | | | | | | | | |
| Kindergarten | 0.1 | 64.6 | 30.4 | 4.1 | 0.8 | 11.3 | 70.7 | 14.5 | 2.5 | — |
| General elementary | 0.0 | 60.3 | 35.2 | 4.2 | 0.3 | 4.6 | 73.5 | 20.1 | 1.6 | 0.3 |
| Math/science | 0.0 | 47.6 | 44.4 | 6.6 | 1.3 | 1.9 | 53.2 | 37.6 | 3.6 | 3.9 |
| English/ | | | | | | | | | | |
| language arts | — | 45.9 | 44.4 | 8.4 | 1.3 | 2.0 | 46.2 | 45.3 | 5.0 | 1.5 |
| Social studies | — | 44.9 | 45.8 | 7.0 | 2.2 | 1.6 | 55.7 | 38.2 | 2.1 | 2.4 |
| Special education | 0.1 | 43.9 | 45.1 | 10.1 | 0.8 | 1.1 | 57.4 | 37.6 | 2.3 | 1.6 |
| Bilingual/ESL | 0.5 | 51.4 | 37.3 | 8.9 | 1.9 | — | — | — | — | — |
| Vocational education | 24.1 | 40.5 | 28.7 | 6.1 | 0.5 | — | — | — | — | — |
| Other | 0.3 | 50.9 | 41.5 | 6.2 | 1.0 | 6.0 | 53.7 | 33.7 | 3.9 | 2.7 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Among both males and females, public school teachers were less likely than private school teachers to have earned a bachelor's as their highest degree, and were more likely than private school teachers to have earned a master's or an education specialist degree (table 5.1). In public schools, a larger proportion of females than males had earned a bachelor's as their highest degree, while a larger percentage of males than females had earned a master's, education specialist, or a professional or Ph.D. degree.

Table 5.2 shows the percentage distribution of public school teachers by highest degree earned for each state. Table 5.3 reports the same information for private school teachers, by private school affiliation.

The academic qualifications of new and prospective teachers have become an issue of substantial interest to those concerned with the quality of the teacher work force. For instance, as reported by the National Commission on Excellence in Education, "Too many teachers are being drawn from the bottom quarter of graduating high school and college students."³¹ Other studies have raised similar concerns.³² Such studies have compared high school class rank percentiles, scholastic aptitude test scores, and collegiate grade-point averages of students in teacher training programs with those of other college students.³³ Although the findings of these studies have not been conclusive, some research suggests that the SAT scores of students enrolled in teacher education programs were slightly lower than those of other students, while the cumulative grade-point averages in college were similar for both groups.

The 1987 Recent College Graduates Study (RCG), which collected data on the educational and postde-

gree work experience of people who had obtained a bachelor's degree, also provides important information on the academic qualifications of teachers. Moreover, the RCG Study enables a comparison of the grade-point averages of newly qualified teachers (individuals who received a bachelor's degree between July 1, 1985 and June 30, 1986, who became eligible or certified to teach during that time, and who had not been employed as teachers before receiving their degree³⁴) with the grade-point averages of other college graduates. Even if these newly qualified teachers were not teaching at the time the survey was conducted, they represent a potential source of teacher supply. Among the graduates surveyed, 48 percent of newly qualified teachers self-reported grade-point averages exceeding 3.25, compared with 42 percent of other bachelor's degree recipients (table 5.4). This finding indicates that among recent graduates, those who were newly qualified to teach achieved at least as well or better while they were enrolled in college than did other graduates.³⁵

CERTIFICATION

Teacher certification policies figure prominently in current state school reform debates. Almost all states now require that public school teachers pass certification tests in their specialty area. At the same time, another trend associated with issues of teacher shortage has emerged. To expand the pool of eligible teachers, especially in areas of critical shortage, more than one-half the states (39 as of 1991) say they are implementing alternative certification.³⁶ Most of these alternative certification routes have been designed to recruit individuals who have at least a bachelor's degree in a field other than teaching. These certification routes typically include formal

³¹National Commission on Excellence in Education, *A Nation at Risk: The Imperatives for Educational Reform* (Washington, D.C., 1983), 22.

³²See, for example, E. Boyer, *High School: A Report on Secondary Education in America* (New York: Harper and Row, 1983); and The Carnegie Foundation for the Advancement of Teaching, *The Condition of Teaching: A State by State Analysis* (Princeton: Princeton University Press, 1983).

³³For an overview of these issues, see Victor S. Vance and Phillip C. Schlechty, "The Distribution of Academic Ability in the Teaching Force: Policy Implications," *Phi Delta Kappan* 64 (1) (September 1982): 22-27; Dorothy K. Stewart, "The Characteristics of Teacher Candidates," *Journal of Teacher Education* 32 (2) (March/April 1987): 52-54; Robert L. Fisher and Marilyn E. Feldmann, "Some Answers about the Quality of Teacher Education Students," *Journal of Teacher Education* 36 (3) (May/June 1985): 37-40.

³⁴Not all newly qualified teachers entered teaching directly upon graduation. Some took nonteaching positions or went on to graduate school. At the time of the 1987 survey, of the newly qualified teachers with bachelor's degrees in 1987, 39 percent were not employed as teachers.

³⁵It has been argued that students in teacher education programs may take "easier" courses than other students, or that grades are artificially inflated in teacher education programs. If this is true, questions could be raised about the meaning of this finding. Such comparisons, however, cannot be made with these data. This issue is discussed in articles cited in footnote 32 above.

³⁶Emily Feistritzer and David Chester, *Alternative Teaching Certification: A State by State Analysis* (Washington, D.C.: National Center for Education Information, 1991), 13.

Table 5.2—Percentage distribution of public school teachers by highest degree earned, by state: 1987–88

| | Less than BA/BS | BA/BS | Higher than BA/BS |
|-------------------|-----------------------|-------|-------------------------|
| TOTAL | 0.6 | 52.1 | 47.3 |
| Alabama | 1.1 | 40.3 | 58.6 |
| Alaska | — | 59.2 | 40.8 |
| Arizona | — | 56.3 | 43.4 |
| Arkansas | 0.3 | 66.5 | 33.3 |
| California | 0.1 | 55.3 | 44.6 |
| Colorado | 0.3 | 50.4 | 49.2 |
| Connecticut | 0.9 | 22.6 | 76.5 |
| Delaware | 1.4 | 65.2 | 33.4 |
| Dist. of Columbia | — | 42.5 | 56.2 |
| Florida | 0.9 | 58.7 | 40.4 |
| Georgia | 0.7 | 44.9 | 54.4 |
| Hawaii | — | 53.6 | 45.9 |
| Idaho | 0.5 | 72.4 | 27.1 |
| Illinois | — | 51.4 | 48.5 |
| Indiana | 0.7 | 14.9 | 84.5 |
| Iowa | 0.7 | 65.5 | 33.8 |
| Kansas | — | 53.3 | 46.6 |
| Kentucky | 1.1 | 23.6 | 75.4 |
| Louisiana | 0.8 | 53.2 | 46.0 |
| Maine | — | 68.8 | 31.0 |
| Maryland | 0.9 | 41.0 | 58.1 |
| Massachusetts | 1.6 | 46.3 | 52.2 |
| Michigan | — | 39.7 | 60.2 |
| Minnesota | 0.3 | 64.6 | 35.1 |
| Mississippi | 0.5 | 56.7 | 42.8 |
| Missouri | 0.9 | 52.4 | 46.7 |
| Montana | 0.0 | 75.6 | 24.4 |
| Nebraska | — | 61.2 | 38.5 |
| Nevada | — | 47.0 | 52.4 |
| New Hampshire | 2.2 | 65.2 | 32.6 |
| New Jersey | 0.6 | 57.6 | 41.8 |
| New Mexico | — | 47.2 | 52.6 |
| New York | 0.4 | 31.9 | 67.7 |
| North Carolina | 1.2 | 66.9 | 31.8 |
| North Dakota | 0.7 | 82.2 | 17.1 |
| Ohio | 1.2 | 55.0 | 43.8 |
| Oklahoma | 0.6 | 54.9 | 44.6 |
| Oregon | 0.0 | 53.9 | 46.1 |
| Pennsylvania | 0.8 | 47.6 | 51.6 |
| Rhode Island | 0.0 | 37.1 | 62.9 |
| South Carolina | 0.9 | 50.0 | 49.1 |
| South Dakota | — | 82.0 | 17.5 |
| Tennessee | 1.5 | 52.0 | 46.5 |
| Texas | 1.0 | 64.3 | 34.7 |
| Utah | 0.6 | 73.3 | 26.1 |

Table 5.2—Percentage distribution of public school teachers by highest degree earned, by state: 1987–88—Continued

| | Less than BA/BS | BA/BS | Higher than BA/BS |
|---------------|--------------------|-------|----------------------|
| Vermont | 0.8 | 57.5 | 41.6 |
| Virginia | 0.9 | 61.4 | 37.7 |
| Washington | 0.6 | 68.8 | 30.6 |
| West Virginia | 0.7 | 51.7 | 47.6 |
| Wisconsin | 0.0 | 63.2 | 36.8 |
| Wyoming | 0.0 | 70.7 | 29.3 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

instruction and mentoring while teaching, and may or may not be restricted to areas of shortages or to specific grade levels.

Therefore, reformers are simultaneously working in two directions—strengthening requirements, on the one hand, and developing alternative ways of bringing talented, capable people into teaching, on the other. Ultimately traditional distinctions will probably give way to a more complicated array of certification models. (However, today a teacher is either certified or not.) But certification is clearly related to standards, and certification policies affect the supply of teachers, the social composition of the teacher corps, teacher education, and more. Although the link to teacher quality is uncertain, certification is a highly visible indicator of professionalism, hence a cornerstone of efforts to enhance the quality of the work force.

82 percent of teachers reported that they were teaching the subject that they were best qualified to teach, and 94 percent held certification in their main teaching field.

In the best of circumstances, all teachers would teach only those subjects in which they were well qualified. In SASS, teachers were asked whether they thought that they were, in fact, teaching the subject area that was most suitable for them. Most teachers (82 percent) reported that they were teach-

ing such subjects, and 94 percent held some type of certification in their main teaching field (table 5.5). In both public and private sectors, most teachers reported that their main assignment was the one in which they were best qualified to teach. However, a large proportion of public and private sector teachers with other assignments did not feel that they were teaching in a field for which they were best or second best qualified.

Although differences were apparent across sectors in the extent to which teachers were teaching the subjects that they were most qualified to teach, these differences may reflect the fact that not all teachers in private schools are subject to compulsory, state-mandated certification requirements, or, if they are, the certification requirements may be less than those required in the public schools of that state. Among public school teachers, 97 percent reported that they were certified in their main teaching field, compared with 68 percent of private school teachers. At the same time, 82 percent of public school teachers reported that they were teaching in the area in which they were best qualified, as were 76 percent of private school teachers.³⁷ It is interesting to note that such a large proportion of private school teachers

³⁷No doubt there are many reasons why private school teachers attain certification: Some may teach in private schools that do require certification; some may receive higher salaries if they are certified; some may have taught in public schools (where certification was required); others may want to teach in the public schools sometime in the future, and have left that option open by becoming certified; and some teachers may have achieved certification without knowing where they would be employed (that is, in a public or a private school).

Table 5.3—Percentage distribution of private school teachers by highest degree earned, by private school type: 1987–88

| | No degree | AA | BA/BS | MA/MS | Ed. Spec. | First prof. | PhD |
|--------------------------------|-----------|-----|-------|-------|-----------|-------------|-----|
| TOTAL | 2.9 | 1.5 | 62.5 | 28.6 | 2.9 | 0.2 | 1.4 |
| Private school type | | | | | | | |
| Religious | 3.2 | 1.5 | 65.3 | 26.3 | 2.5 | 0.3 | 0.8 |
| Nonsectarian | 1.6 | 1.5 | 51.2 | 37.7 | 4.4 | 0.1 | 3.5 |
| Private school category | | | | | | | |
| Assembly of God | 12.2 | 2.1 | 73.8 | 10.3 | — | 0.0 | 0.0 |
| Baptist | 5.4 | 7.4 | 70.7 | 15.6 | 0.8 | 0.0 | 0.0 |
| Calvinist | — | — | 69.3 | 29.6 | — | 0.0 | 0.0 |
| Christian | 4.1 | 1.2 | 67.6 | 21.4 | 3.1 | — | 2.4 |
| Episcopal | 0.7 | — | 53.8 | 38.0 | 5.3 | — | 1.8 |
| Friends | — | 0.0 | 57.2 | 35.5 | 2.3 | — | 3.6 |
| Jewish | — | 3.6 | 50.5 | 36.2 | 5.4 | 1.3 | 2.0 |
| Lutheran | 4.2 | 1.0 | 72.7 | 20.7 | 1.3 | — | 0.0 |
| 7th Day Adventist | 1.4 | — | 46.7 | 46.4 | 4.1 | 0.0 | — |
| Roman Catholic | 1.6 | 0.7 | 66.4 | 27.9 | 2.4 | 0.3 | 0.8 |
| Other: Religious | 12.8 | 3.6 | 59.1 | 20.5 | 3.5 | 0.0 | 0.4 |
| Exceptional children | 0.0 | — | 46.7 | 47.5 | 2.2 | 0.0 | 3.4 |
| Montessori | 3.5 | 6.4 | 66.3 | 19.4 | 3.8 | — | — |
| Nat. Ass. of Indep. Schools | 1.7 | 0.3 | 44.4 | 45.0 | 2.4 | 0.0 | 6.2 |
| Other: Nonsectarian | 1.5 | 2.0 | 55.7 | 32.7 | 6.3 | — | 1.5 |
| 9-Category typology | | | | | | | |
| Catholic | | | | | | | |
| -Parochial | 2.0 | 0.9 | 72.6 | 21.7 | 2.1 | 0.2 | 0.5 |
| -Diocesan | 1.0 | — | 62.9 | 33.2 | 2.0 | — | 0.5 |
| -Private order | — | 0.3 | 49.2 | 42.4 | 4.3 | — | 2.2 |
| Other Religious | | | | | | | |
| -Conservative Christian | 6.7 | 3.9 | 69.3 | 18.2 | 1.9 | — | 0.0 |
| -Affiliated | 2.4 | 1.0 | 61.5 | 30.5 | 3.2 | 0.3 | 0.9 |
| -Unaffiliated | 10.8 | 4.8 | 60.0 | 19.5 | 3.0 | — | 1.9 |
| Nonsectarian | | | | | | | |
| -Regular | 1.4 | 1.6 | 48.9 | 40.2 | 3.4 | 0.0 | 4.5 |
| -Special emphasis | 2.6 | 1.6 | 52.9 | 34.0 | 6.5 | — | 2.3 |
| -Special education | 0.0 | 0.5 | 59.0 | 34.3 | 3.8 | — | 1.6 |
| NAIS membership status | | | | | | | |
| Not Nat. Ass. of Indep. Schl. | 3.1 | 1.7 | 65.0 | 26.3 | 2.9 | 0.3 | 0.7 |
| Nat. Ass. of Indep. Schools | 1.6 | 0.2 | 46.4 | 43.5 | 3.0 | — | 5.3 |

—Too few sample cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 5.4—Percentage distribution of 1985–86 bachelor’s degree recipients by college grade-point average, by whether or not they were newly qualified teachers: 1987

| | Grade-point average | | | | No graded courses |
|--------------------------|---------------------|--------------|--------------|----------------|-------------------|
| | 3.25 to 4.00 | 2.25 to 3.24 | 1.25 to 2.24 | Less than 1.25 | |
| TOTAL | 42.7 | 54.3 | 2.9 | — | 0.1 |
| Newly qualified teachers | 47.8 | 50.5 | 1.7 | — | — |
| Other bachelor’s degree | 42.0 | 54.8 | 3.1 | — | 0.1 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

Table 5.5—Percentage distribution of teachers by self-reported qualifications in their main or other teaching assignment fields and percentage of teachers certified in their main or other assignment fields, by sector and assignment field: 1987–88

| | Best qualified | Second best qualified | Neither first nor second best qualified | Certified in assignment |
|-----------------------|-------------------|--------------------------|--|----------------------------|
| TOTAL | 81.7 | 5.3 | 13.0 | 93.9 |
| PUBLIC | 82.4 | 5.1 | 12.5 | 97.4 |
| Main assignment | | | | |
| Kindergarten | 71.7 | 5.2 | 23.0 | 98.4 |
| General elementary | 84.3 | 2.4 | 13.3 | 98.9 |
| Math/science | 75.3 | 10.4 | 14.3 | 94.3 |
| English/language arts | 82.7 | 7.4 | 9.8 | 96.6 |
| Social studies | 87.7 | 5.9 | 6.4 | 97.4 |
| Special education | 76.0 | 7.0 | 17.0 | 97.2 |
| Bilingual/ESL | 57.3 | 12.6 | 30.2 | 87.6 |
| Vocational education | 87.6 | 4.4 | 8.0 | 97.6 |
| Other | 88.1 | 3.3 | 8.6 | 97.7 |
| Other assignment | | | | |
| Kindergarten | 19.0 | 22.8 | 58.1 | 57.4 |
| General elementary | 31.8 | 40.2 | 28.0 | 65.2 |
| Math/science | 14.6 | 42.6 | 42.8 | 63.8 |
| English/language arts | 17.0 | 36.1 | 46.8 | 66.0 |
| Social studies | 20.1 | 43.1 | 36.8 | 68.2 |
| Special education | 14.5 | 31.7 | 53.8 | 71.1 |
| Bilingual/ESL | 14.2 | 29.7 | 56.1 | 51.4 |
| Vocational education | 17.6 | 31.3 | 51.1 | 65.2 |
| Other | 18.6 | 36.6 | 44.7 | 64.3 |
| PRIVATE | 75.9 | 6.8 | 17.3 | 68.1 |
| Main assignment | | | | |
| Kindergarten | 67.7 | 7.8 | 24.5 | 71.7 |
| General elementary | 73.8 | 3.2 | 23.0 | 75.9 |
| Math/science | 69.6 | 13.3 | 17.1 | 63.7 |
| English/language arts | 79.0 | 11.4 | 9.6 | 63.0 |
| Social studies | 85.0 | 6.5 | 8.4 | 67.6 |
| Special education | 70.8 | 11.2 | 18.0 | 79.0 |
| Bilingual/ESL | — | — | — | — |
| Vocational education | — | — | — | — |
| Other | 83.4 | 4.8 | 11.8 | 59.0 |
| Other assignment | | | | |
| Kindergarten | 24.8 | 26.8 | 48.4 | 35.2 |
| General elementary | 15.0 | 40.9 | 44.0 | 31.7 |
| Math/science | 14.7 | 37.8 | 47.4 | 33.5 |
| English/language arts | 21.9 | 37.5 | 40.6 | 34.1 |
| Social studies | 23.2 | 38.1 | 38.7 | 42.6 |
| Special education | 30.7 | 32.1 | 37.2 | 49.6 |
| Bilingual/ESL | — | — | — | — |
| Vocational education | — | — | — | — |
| Other | 13.8 | 36.0 | 50.2 | 27.8 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

have been certified, even though this is not always a requirement of the states. Further, it is important to recognize that private school teachers who are not certified may be as well qualified to teach as those who are certified. Certification status does not assure skill in the classroom; it only signifies completing specified state requirements and attaining a certificate enabling one to teach in public schools.

Public and private school teachers differed in terms of their main field of certification. For instance, in public schools, 99 percent of teachers with main assignments in general elementary said that they were certified in that field, compared with 76 percent of private school teachers. Among those with main assignments in math/science, 94 percent of public school teachers reported that they were certified in that subject area, as opposed to 64 percent of private school teachers. Moreover, 97 percent of public school teachers with main assignments in English/language arts said that they were certified in that field, in comparison with 63 percent of private school teachers. Table 5.6 reports the percentage distribution of public school teachers by certification in main assignment field by state.

EXPERIENCE

41 percent of teachers had taught between 10 and 19 years, and 26 percent had taught 20 years or more.

American teachers have considerable classroom experience, as shown in figure 5.2 and table 5.7. In 1987–88, public school teachers averaged 14.5 years of teaching experience, while private school teachers averaged 12 years. Most teachers had taught for more than 10 years. For example, 41 percent had taught between 10 and 19 years, and 26 percent had taught 20 years or more. Most teachers (77 percent) reported that they had always taught full time (table 5.7).

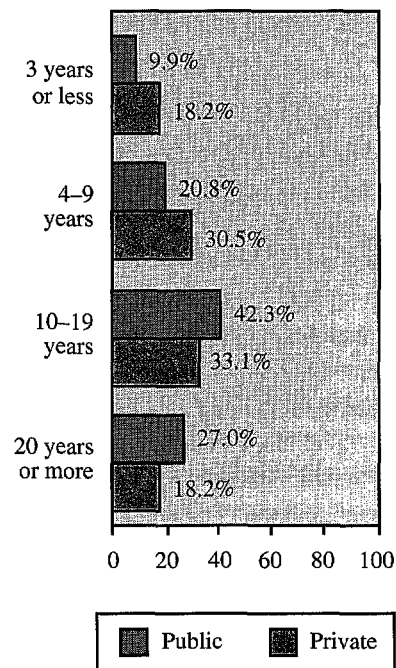
Public school teachers, both elementary and secondary, tended to be more experienced, to have taught at least 10 years, and to have always taught full time, compared with their private school coun-

terparts. This is not surprising given the fact that private school teachers tend to be younger than public school teachers, as was noted in Chapter 2.

In the public schools, there were differences in employment status and in teaching experience between males and females. Male teachers were more likely than female teachers to have always worked full time. On average, female teachers had taught for fewer years than male teachers (about 14 years compared with 16 years). Female teachers were more likely than male teachers to have taught for 3 years or less (11 percent compared with 8 percent), and were less likely to have taught 20 years or more (24 percent compared with 35 percent).

Public school teachers were also more likely than their private school counterparts to have had additional training in the last 2 years (table 5.8).

Figure 5.2—Percentage distribution of teachers by total number of years taught, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 5.6—Percentage distribution of public school teachers by type of certification in main assignment field, by state: 1987–88

| | Regular | Probationary | Temporary | None |
|-------------------|---------|--------------|-----------|------|
| TOTAL | 88.7 | 2.9 | 5.2 | 3.2 |
| Alabama | 94.3 | 2.0 | 2.0 | 1.7 |
| Alaska | 90.6 | 0.0 | — | 8.7 |
| Arizona | 86.7 | 3.0 | 6.1 | 4.2 |
| Arkansas | 93.1 | 1.2 | 3.5 | 2.2 |
| California | 86.2 | 3.5 | 6.6 | 3.8 |
| Colorado | 91.4 | 2.3 | 2.8 | 3.5 |
| Connecticut | 77.1 | 6.7 | 14.3 | 1.9 |
| Delaware | 89.7 | 3.1 | 3.2 | 4.0 |
| Dist. of Columbia | 72.8 | 12.5 | 5.4 | 9.3 |
| Florida | 82.7 | 4.5 | 6.3 | 6.5 |
| Georgia | 88.9 | 3.4 | 5.7 | 2.0 |
| Hawaii | 84.9 | 6.9 | 2.3 | 5.9 |
| Idaho | 93.7 | 0.7 | 4.2 | 1.4 |
| Illinois | 86.8 | 1.2 | 6.6 | 5.4 |
| Indiana | 93.3 | 1.0 | 4.1 | 1.6 |
| Iowa | 93.8 | 1.4 | 3.2 | 1.6 |
| Kansas | 96.2 | — | 2.1 | 1.5 |
| Kentucky | 89.0 | 1.8 | 8.1 | 1.1 |
| Louisiana | 88.7 | 1.9 | 4.3 | 5.1 |
| Maine | 83.3 | 5.9 | 7.8 | 2.9 |
| Maryland | 90.4 | 3.4 | 3.7 | 2.4 |
| Massachusetts | 91.1 | — | 3.1 | 5.7 |
| Michigan | 86.8 | 3.4 | 7.3 | 2.5 |
| Minnesota | 91.8 | 3.8 | 2.8 | 1.6 |
| Mississippi | 93.6 | 1.5 | 3.9 | 0.9 |
| Missouri | 95.6 | 0.4 | 2.6 | 1.4 |
| Montana | 91.4 | 4.5 | 2.8 | 1.3 |
| Nebraska | 89.5 | 7.5 | 1.1 | 1.8 |
| Nevada | 87.8 | 3.2 | 4.6 | 4.4 |
| New Hampshire | 89.3 | 3.0 | 2.7 | 5.0 |
| New Jersey | 95.4 | — | 1.6 | 2.8 |
| New Mexico | 92.0 | — | 3.8 | 3.6 |
| New York | 81.2 | 4.9 | 8.6 | 5.3 |
| North Carolina | 87.8 | 6.0 | 3.5 | 2.6 |
| North Dakota | 96.2 | 2.1 | 0.8 | 0.9 |
| Ohio | 89.0 | 1.2 | 8.7 | 1.1 |
| Oklahoma | 92.7 | 1.1 | 3.8 | 2.4 |
| Oregon | 88.9 | 5.6 | 3.4 | 2.1 |
| Pennsylvania | 91.1 | 3.3 | 3.7 | 1.9 |
| Rhode Island | 91.0 | 2.8 | 4.1 | 2.1 |
| South Carolina | 92.3 | — | 2.9 | 4.7 |
| South Dakota | 96.6 | 1.6 | 1.0 | 0.8 |
| Tennessee | 86.2 | 6.5 | 4.6 | 2.7 |
| Texas | 88.0 | 2.2 | 6.1 | 3.7 |
| Utah | 91.8 | 1.9 | 4.0 | 2.3 |

Table 5.6—Percentage distribution of public school teachers by type of certification in main assignment field, by state: 1987–88—Continued

| | Regular | Probationary | Temporary | None |
|---------------|---------|--------------|-----------|------|
| Vermont | 86.4 | 10.8 | 1.4 | 1.4 |
| Virginia | 87.4 | 4.1 | 4.0 | 4.5 |
| Washington | 88.0 | 5.5 | 4.2 | 2.4 |
| West Virginia | 86.3 | 4.2 | 7.2 | 2.4 |
| Wisconsin | 93.9 | 1.6 | 4.0 | 0.5 |
| Wyoming | 94.6 | 1.1 | 3.1 | 1.2 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 5.7—Percentage of teachers who had taught full time, part time, or both; average number of years taught; and percentage distribution of teachers by total number of years taught, by sector and selected teacher characteristics: 1987–88

| | Percent always full time | Percent always part time | Percent both full time and part time | Average number of years taught | Percent of teachers by total number of years taught | | | |
|-----------------------------------|--------------------------------|--------------------------------|---|---|--|-----------------|-------------------|---------------------|
| | | | | | 3 or less years | 4 to 9 years | 10 to 19 years | 20 years or more |
| TOTAL | 77.2 | 1.2 | 21.6 | 14.2 | 10.8 | 21.9 | 41.2 | 26.0 |
| PUBLIC | 78.8 | 0.8 | 20.4 | 14.5 | 9.9 | 20.8 | 42.3 | 27.0 |
| Teaching level | | | | | | | | |
| Elementary | 77.2 | 0.7 | 22.2 | 14.2 | 10.4 | 21.6 | 42.6 | 25.3 |
| Secondary | 80.5 | 0.9 | 18.6 | 14.9 | 9.3 | 20.0 | 41.9 | 28.8 |
| Sex | | | | | | | | |
| Male | 88.1 | 0.4 | 11.5 | 16.3 | 8.3 | 16.2 | 40.5 | 35.0 |
| Female | 74.9 | 0.9 | 24.2 | 13.8 | 10.6 | 22.8 | 43.0 | 23.7 |
| Race-ethnicity | | | | | | | | |
| Black, non-Hispanic | 87.5 | 0.6 | 11.9 | 16.1 | 7.5 | 16.4 | 43.1 | 33.0 |
| White, non-Hispanic | 77.7 | 0.8 | 21.5 | 14.4 | 9.9 | 21.2 | 42.3 | 26.5 |
| Other | 82.0 | 0.7 | 17.3 | 13.3 | 13.6 | 23.1 | 40.7 | 22.7 |
| Marital status | | | | | | | | |
| Married | 77.9 | 0.8 | 21.3 | 14.8 | 7.8 | 20.4 | 44.7 | 27.1 |
| Not married | 81.0 | 0.7 | 18.2 | 13.8 | 15.6 | 22.0 | 35.6 | 26.8 |
| Dependents (other than spouse) | | | | | | | | |
| None | 81.4 | 0.8 | 17.8 | 14.7 | 15.5 | 21.3 | 30.9 | 32.3 |
| One or more | 77.0 | 0.7 | 22.2 | 14.5 | 6.0 | 20.5 | 50.2 | 23.4 |
| PRIVATE | 65.1 | 4.6 | 30.2 | 12.0 | 18.2 | 30.5 | 33.1 | 18.2 |
| Teaching level | | | | | | | | |
| Elementary | 67.0 | 3.6 | 29.4 | 11.3 | 19.0 | 32.7 | 32.5 | 15.9 |
| Secondary | 63.0 | 5.8 | 31.1 | 12.7 | 17.3 | 28.2 | 33.7 | 20.8 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Overall, 35 percent of public school teachers had more than 30 hours of additional training in the last 2 years, compared with 27 percent of teachers in private school. Teachers who were newer to the profession were more likely to have had recent inservice training of 30 hours or more, perhaps reflecting new credentialing and advancement requirements, but possibly also because new teachers want to reach higher levels of the salary scale, which requires additional education. Among public school teachers with 1 to 2 years of experience, 50 percent had more than 30 additional hours of training, in contrast with 25 percent of those with more than 20 years of experience. Further, in general, teaching experience was related to degree attainment. In both the public and private sectors, teachers with 5 or more years of experience were more

likely to have a master's degree or more than were teachers with less than 5 years of experience.

How do American teachers compare with teachers from other countries in terms of their teaching experience? One survey conducted in the early 1980s—the Second International Mathematics Study (SIMS)—enables comparisons across 15 countries of students' teachers in their last year of high school. The mean years of teaching experience for teachers sampled from the United States was 17 years. This equaled or exceeded experience levels among teachers from all but one country participating in the survey (table 5.9). Similarly, across this survey sample, American teachers compared favorably with teachers from other countries in terms of the number of years they had taught mathematics to high school students.

Table 5.8—Percentage of teachers with various levels of certification, education, and training, by sector and number of years of teaching experience: 1987–88

| | Public | | | Private | | |
|-------------------------------------|--|-------------------------------|---|--|-------------------------------|---|
| | Certification in main assignment | Master's degree or more | 30 hours or more of inservice training in past 2 years | Certification in main assignment | Master's degree or more | 30 hours or more of inservice training in past 2 years |
| TOTAL | 97.4 | 47.3 | 34.7 | 67.8 | 34.4 | 26.9 |
| Years of teaching experience | | | | | | |
| 1–2 | 93.8 | 12.0 | 50.4 | 51.5 | 12.8 | 38.0 |
| 3–4 | 96.0 | 18.3 | 40.6 | 58.6 | 17.8 | 29.2 |
| 5–10 | 97.3 | 37.2 | 39.2 | 68.2 | 30.2 | 28.5 |
| 11–15 | 97.9 | 52.1 | 35.9 | 73.8 | 41.2 | 25.2 |
| 16–20 | 98.0 | 59.7 | 32.1 | 75.6 | 47.0 | 22.0 |
| More than 20 | 97.7 | 60.0 | 25.4 | 74.1 | 53.8 | 19.4 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 5.9—Average years of teaching experience and average years teaching mathematics at current level for secondary school mathematics teachers¹ in 20 countries: 1980–82

| | Number of years teaching | Number of years teaching mathematics at current level |
|---------------------------|-----------------------------|--|
| Belgium (Flemish) | 15 | 11 |
| Belgium (French) | 15 | 10 |
| Canada (British Columbia) | 17 | 11 |
| Canada (Ontario) | 16 | 11 |
| England and Wales | 14 | 12 |
| Finland | 15 | 11 |
| Hong Kong | 9 | 6 |
| Hungary | 16 | 10 |
| Israel | 17 | 12 |
| Japan | 17 | 9 |
| New Zealand | 13 | 7 |
| Scotland | 14 | ² (*) |
| Sweden | 18 | 8 |
| Thailand | 10 | 6 |
| United States | 17 | 10 |

¹These data were obtained from teachers of Population B students. The universe from which the "Population B" sample was drawn was defined as "all students who are in the normally accepted terminal grade of the secondary education system and who are studying mathematics as a substantial part of their academic program."

²This item omitted in Scotland.

SOURCE: K.J. Travers, R.A. Garden, & M. Raier, "Introduction to the Study," in D.F. Robitaille and R.A. Garden (Eds.), *The IEA Study of Mathematics II: Contexts and Outcomes of School Mathematics* (Oxford: Pergamon Press, 1989, 43).

CHAPTER 6 • HUMAN AND FISCAL RESOURCES

This chapter describes how schools use the human and fiscal resources available to them. Decisions around human and fiscal resources

... have significant implications for the types of learning environments offered to students and for working conditions experienced by instructional personnel. . . . [A]lternative staffing arrangements are related to many current high-priority issues of school policy. . . . such as how to attract and hold outstanding teachers . . . [and] how to upgrade student learning of higher order skills throughout the curriculum and ensure the learning success of all students.³⁸

Four measures related to the deployment of resources are discussed in this chapter: teacher staffing patterns and assignments, teacher work loads, how teachers spend their time inside and outside of the classroom, and expenditures on students. These measures indicate how scarce resources are allocated in schools, and they provide a perspective on how the school work environment is organized. Under any circumstances, resource allocation issues will be central to school policy debates in the 1990s as policymakers and educators at state and local levels look for ways of responding to reform mandates focused on improving the quality of the teaching force and enhancing classroom instructional standards.

CURRENT EMPLOYMENT STATUS

*90 percent of public school teachers and
84 percent of private school teachers
were employed full time as teachers.*

Teaching is full-time work in American schools. The Schools and Staffing Survey (SASS) found that 90

³⁸James M. McPartland and Ralph Fessler, "Staffing Patterns," in Marvin C. Alkin, ed., *Encyclopedia of Educational Research*, Vol. 4 (New York: Macmillan, 1992), 1,252.

percent of all teachers held full-time assignments in 1987–88. Another 5 percent worked as teachers half time or more, but not full time, and just 1 percent worked as teachers less than half time (table 6.1). Public school teachers were more likely to be teaching full time than were their private school counterparts. Additional information related to teachers' employment status may be found in Chapter 2 (number of FTE teachers) and Chapter 5 (teachers' experience as full- and part-time teachers).

Not all teachers who were employed full time in schools had full-time classroom responsibilities (table 6.2). Among those who worked full time, but only taught part time, 34 percent were resource persons for other teachers (for example, department heads and curriculum coordinators), 21 percent were administrators (for example, principals and assistant principals), and 8 percent were nonteaching specialists (for example, counselors and librarians). Gender differences were apparent. Among public sector teachers, males were more likely than females to be administrators or coaches, and females were more likely than males to be resource persons. Teachers with a master's degree or more were more likely than those with a bachelor's degree or less to be resource persons.

ASSIGNMENTS

Staffing patterns influence and reflect, among other things, teacher supply and demand, school personnel policies, class configurations and size, and teacher satisfaction on the job. Figure 6.1 and table 6.3 show teachers' main assignments. Across the entire teaching work force, more than one-third of the teachers were assigned to kindergarten and general elementary positions, 13 percent were assigned to positions in mathematics or science, 10 percent in English or language arts, 10 percent in special education, and 6 percent in social sciences.

Table 6.1—Percentage distribution of teachers by whether they were full time, part time, itinerant, or long-term substitutes, by sector and selected teacher characteristics: 1987–88

| | Regular full time | Regular part time | | Itinerant* | Long-term substitute* |
|--------------------------------|-------------------|-------------------------------------|---------------|------------|-----------------------|
| | | 50% or more and less than full time | Less than 50% | | |
| TOTAL | 89.5 | 4.5 | 1.2 | 4.4 | 0.4 |
| PUBLIC | 90.3 | 3.6 | 0.8 | 4.9 | 0.5 |
| Teaching level | | | | | |
| Elementary | 89.3 | 3.2 | 0.6 | 6.4 | 0.6 |
| Secondary | 91.3 | 4.0 | 1.0 | 3.3 | 0.4 |
| Sex | | | | | |
| Male | 91.5 | 2.7 | 1.0 | 4.4 | 0.3 |
| Female | 89.8 | 3.9 | 0.7 | 5.0 | 0.5 |
| Age | | | | | |
| Under 30 years | 89.0 | 3.4 | 0.8 | 6.0 | 0.9 |
| 30–39 years | 89.2 | 4.1 | 0.8 | 5.4 | 0.5 |
| 40–49 years | 90.9 | 3.6 | 0.8 | 4.3 | 0.5 |
| 50 years or over | 92.4 | 2.7 | 0.8 | 3.9 | 0.2 |
| Highest degree earned | | | | | |
| BA/BS or less | 90.4 | 3.7 | 0.8 | 4.5 | 0.6 |
| MA/MS or more | 90.2 | 3.4 | 0.8 | 5.3 | 0.3 |
| Years of teaching experience | | | | | |
| Beginning | 87.3 | 4.4 | 1.1 | 4.9 | 2.3 |
| Experienced | 90.6 | 3.5 | 0.8 | 4.9 | 0.3 |
| Marital status | | | | | |
| Married | 89.9 | 4.1 | 0.8 | 4.9 | 0.4 |
| Not married | 91.4 | 2.2 | 0.8 | 4.9 | 0.7 |
| Dependents (other than spouse) | | | | | |
| None | 91.1 | 2.7 | 0.7 | 5.0 | 0.5 |
| One or more | 89.8 | 4.2 | 0.8 | 4.8 | 0.4 |
| PRIVATE | 83.8 | 11.4 | 3.9 | 0.8 | 0.1 |
| Teaching level | | | | | |
| Elementary | 88.5 | 8.6 | 2.0 | 0.8 | 0.1 |
| Secondary | 78.6 | 14.4 | 6.0 | 0.9 | 0.1 |

*Itinerant and long-term substitutes may be full or part time.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 6.2—Percentage distribution of part-time teachers who were full-time school employees by their other school assignment,* by sector and selected teacher characteristics: 1987–88

| | Admini- strator | Nonteaching specialist | Resource person | Support staff | Coach | Other |
|-----------------------|--------------------|---------------------------|--------------------|------------------|-------|-------|
| TOTAL | 20.9 | 8.3 | 33.8 | 0.9 | 7.3 | 28.8 |
| PUBLIC | 16.2 | 8.5 | 35.4 | 0.8 | 7.4 | 31.7 |
| Teaching level | | | | | | |
| Elementary | 4.2 | 5.1 | 43.3 | — | 6.2 | 40.4 |
| Secondary | 22.5 | 10.3 | 31.3 | 0.7 | 8.0 | 27.2 |
| Sex | | | | | | |
| Male | 23.2 | 7.0 | 24.7 | 0.9 | 13.6 | 30.6 |
| Female | 9.5 | 10.0 | 45.6 | 0.7 | 1.8 | 32.5 |
| Highest degree earned | | | | | | |
| BA/BS or less | 11.2 | 5.5 | 18.8 | 1.9 | 16.8 | 45.9 |
| MA/MS or more | 18.6 | 10.0 | 43.4 | — | 2.8 | 24.9 |
| PRIVATE | 40.6 | 7.4 | 26.9 | 1.7 | 7.1 | 16.3 |

—Too few cases for a reliable estimate.

*Teachers could mark only one.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Teacher assignments were associated with gender. In the public and private sector, females were more likely to teach kindergarten or general elementary, and males were more likely to teach mathematics, science, or social sciences.

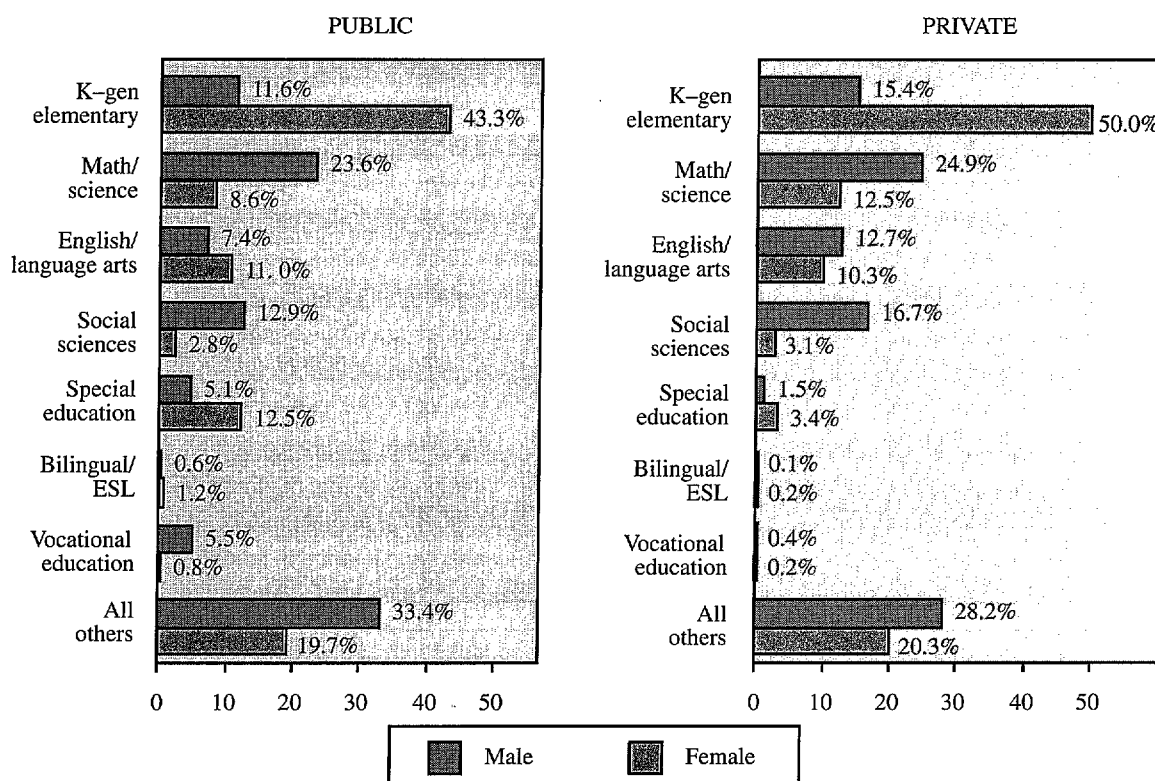
Among public school teachers, females were more likely than males to be teaching kindergarten and general elementary and English or language arts, while males were more likely to be teaching mathematics or science and social sciences. Among private school teachers, females were also more likely than males to be teaching kindergarten and general elementary, and males were more likely to be teaching mathematics or science and social sciences.

The academic degrees that teachers had earned were also associated with their teaching assign-

ments. In both public and private schools, teachers with a bachelor's degree or less were more likely to be teaching kindergarten or elementary than were those with a master's degree or more. Further, teachers with a master's degree or more were more likely to be teaching mathematics or science and English or language arts than were those with a bachelor's degree or less. Chapter 4 discusses an important related issue—the match between teachers' college majors and their teaching field.

Gifted education represents a special category of classroom instruction. The National Education Longitudinal Study of 1988 (NELS:88), which surveyed exclusively eighth-grade students and their teachers, found that 16 percent of eighth graders had mathematics teachers who reported teaching gifted students. Twelve percent of eighth graders' science teachers, 13 percent of their English teachers, and 12 percent of their social studies teachers reported the same (table 6.4). In each subject area,

Figure 6.1—Percentage distribution of teachers by main assignment field, by sector and gender: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

eighth-grade public school students were more likely than their private school counterparts to have had a teacher who provided instruction for the gifted.

The SASS data help to describe the stability of teachers' assignments (table 6.5). In the survey, teachers were asked about both their current and previous assignments. Over the course of their teaching careers, it was found that some teachers' assignments remained the same, while others changed fields one or more times. As noted in Chapter 3, school districts and administrators often adjust teaching assignments in response to staffing vacancies and shortages. Such shifts may affect the quality of classroom instruction, teacher morale, and professional commitment. Overall, 71 percent of teachers surveyed in 1987–88 reported that they had

never had a change of field, but there was quite a range in the amount of change across fields. In the public sector, while 81 percent of general elementary and vocational education teachers had never had a change in assignment, only 48 percent of bilingual/English as a second language teachers and 46 percent of kindergarten teachers had never changed fields. In the private sector, 82 percent of general elementary teachers had never had a change in assignment, as compared with kindergarten teachers, of whom only 49 percent had never changed fields.

TEACHING LOAD

There is considerable interest among both policymakers and practitioners in the nature of the teaching day. Issues of class size, contact time with stu-

Table 6.3—Percentage distribution of teachers by main assignment field, by sector and selected teacher characteristics: 1987–88

| | K–general elementary | Math/ science | English/ language arts | Social sciences | Special education | Bilingual/ ESL education | Vocational education | All others |
|-----------------------|-------------------------|------------------|------------------------------|--------------------|----------------------|--------------------------------|-------------------------|---------------|
| TOTAL | 35.0 | 13.3 | 10.1 | 5.8 | 9.5 | 0.9 | 1.9 | 23.6 |
| PUBLIC | 34.0 | 13.0 | 10.0 | 5.8 | 10.3 | 1.0 | 2.2 | 23.8 |
| Teaching level | | | | | | | | |
| Elementary | 66.8 | 2.5 | 3.8 | 0.7 | 12.5 | 1.3 | 0.0 | 12.4 |
| Secondary | 0.0 | 23.9 | 16.4 | 11.0 | 8.1 | 0.8 | 4.4 | 35.6 |
| Sex | | | | | | | | |
| Male | 11.6 | 23.6 | 7.4 | 12.9 | 5.1 | 0.6 | 5.5 | 33.4 |
| Female | 43.3 | 8.6 | 11.0 | 2.8 | 12.5 | 1.2 | 0.8 | 19.7 |
| Race–ethnicity | | | | | | | | |
| Black, non-Hispanic | 37.7 | 12.2 | 9.2 | 4.6 | 11.9 | 0.7 | 1.8 | 21.9 |
| White, non-Hispanic | 33.7 | 13.3 | 10.2 | 5.9 | 10.3 | 0.6 | 2.2 | 24.0 |
| Other | 34.8 | 11.1 | 7.5 | 5.3 | 9.2 | 9.0 | 1.6 | 21.5 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 39.3 | 11.8 | 8.7 | 4.9 | 8.6 | 1.0 | 2.6 | 23.1 |
| MA/MS or more | 28.1 | 14.4 | 11.4 | 6.7 | 12.2 | 1.1 | 1.6 | 24.5 |
| PRIVATE | 42.4 | 15.2 | 10.8 | 6.0 | 3.0 | 0.2 | 0.2 | 22.1 |
| Teaching level | | | | | | | | |
| Elementary | 81.4 | 2.9 | 3.1 | 0.7 | 4.1 | 0.2 | 0.0 | 7.6 |
| Secondary | — | 28.6 | 19.2 | 11.8 | 1.8 | 0.2 | 0.5 | 37.8 |
| Sex | | | | | | | | |
| Male | 15.4 | 24.9 | 12.7 | 16.7 | 1.5 | 0.1 | 0.4 | 28.2 |
| Female | 50.0 | 12.5 | 10.3 | 3.1 | 3.4 | 0.2 | 0.2 | 20.3 |
| Race–ethnicity | | | | | | | | |
| Black, non-Hispanic | 61.4 | 12.0 | 3.7 | 5.0 | 4.2 | 0.0 | 0.0 | 13.7 |
| White, non-Hispanic | 42.6 | 15.0 | 11.2 | 6.0 | 3.1 | 0.1 | 0.2 | 21.8 |
| Other | 33.3 | 19.9 | 6.2 | 7.7 | — | — | — | 30.2 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 50.9 | 12.8 | 7.9 | 5.3 | 2.7 | 0.2 | 0.2 | 20.1 |
| MA/MS or more | 26.4 | 19.9 | 16.3 | 7.5 | 3.6 | 0.1 | — | 25.9 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 6.4a—Percentage of eighth-grade students whose teachers provided instruction for the gifted, and the percentage of those teachers who received any education for teaching the gifted, by teaching field, sector, and public school region: 1988

| | Math | | | Science | | |
|-----------|-----------------|-------------------------|------|-----------------|-------------------------|------|
| | Teach gifted | <u>Gifted education</u> | | Teach gifted | <u>Gifted education</u> | |
| | | Yes | No | | Yes | No |
| TOTAL | 16.3 | 48.4 | 51.5 | 11.6 | 70.8 | 29.2 |
| PUBLIC | 17.7 | 49.8 | 50.0 | 12.4 | 70.8 | 29.2 |
| Region | | | | | | |
| Northeast | 20.5 | 38.5 | 61.5 | 10.5 | 55.3 | 44.7 |
| Midwest | 19.1 | 50.4 | 49.0 | 11.0 | 75.8 | 24.2 |
| South | 13.8 | 56.9 | 43.1 | 9.9 | 70.5 | 29.5 |
| West | 21.5 | 50.5 | 49.5 | 20.8 | 74.8 | 25.2 |
| PRIVATE | 5.5 | 12.4 | 87.6 | 6.0 | 70.7 | 29.3 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

Table 6.4b—Percentage of eighth-grade students whose teachers provided instruction for the gifted, and the percentage of those teachers who received any education for teaching the gifted, by teaching field, sector, and public school region: 1988

| | English | | | Social studies | | |
|-----------|-----------------|-------------------------|------|-----------------|-------------------------|------|
| | Teach gifted | <u>Gifted education</u> | | Teach gifted | <u>Gifted education</u> | |
| | | Yes | No | | Yes | No |
| TOTAL | 13.4 | 82.2 | 18.8 | 12.3 | 72.2 | 27.8 |
| PUBLIC | 14.8 | 82.9 | 18.1 | 13.0 | 71.9 | 28.1 |
| Region | | | | | | |
| Northeast | 14.6 | 64.3 | 35.7 | 16.0 | 52.4 | 47.6 |
| Midwest | 14.7 | 83.7 | 16.3 | 8.6 | 65.0 | 35.0 |
| South | 13.3 | 89.8 | 13.0 | 12.1 | 79.3 | 20.7 |
| West | 18.1 | 85.6 | 14.4 | 17.7 | 83.0 | 17.0 |
| PRIVATE | 4.6 | 66.4 | 33.6 | 6.0 | 78.0 | 22.0 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

Table 6.5—Percentage of teachers who had not changed assignment field, and percentage distribution of teachers who had changed assignment field by their previous assignment field, by sector and current assignment field: 1987–88

| | No change in assign- ment field | Teachers' previous assignment field | | | | | | | | |
|-----------------------|---|-------------------------------------|----------------------------|------------------|-----------------------------------|-------------------|---------------------------|------------------------|-----------------------------------|---------------|
| | | Kinder- garten | General elemen- tary | Math/ science | English/ lan- guage arts | Social studies | Special educa- tion | Bilin- gual/ ESL | Voca- tional educa- tion | All others |
| TOTAL | 71.3 | 1.9 | 8.9 | 3.7 | 3.3 | 1.6 | 3.2 | 0.3 | 0.2 | 5.6 |
| PUBLIC | 71.0 | 1.9 | 8.9 | 3.8 | 3.3 | 1.6 | 3.4 | 0.3 | 0.2 | 5.6 |
| Main assignment | | | | | | | | | | |
| Kindergarten | 46.4 | 0.0 | 40.6 | 0.9 | 1.8 | — | 2.7 | 0.4 | 0.0 | 6.9 |
| General elementary | 81.2 | 5.1 | 0.0 | 1.7 | 3.0 | 0.7 | 3.1 | 0.3 | 0.0 | 4.8 |
| Math/science | 62.9 | 0.3 | 9.5 | 14.5 | 2.7 | 2.1 | 0.8 | 0.2 | 0.4 | 6.7 |
| English/language arts | 62.1 | 0.7 | 17.5 | 2.1 | 4.5 | 4.1 | 1.2 | 0.4 | 0.0 | 7.3 |
| Social studies | 68.4 | 0.4 | 8.0 | 4.4 | 7.0 | 0.0 | 1.3 | 0.2 | 0.2 | 10.1 |
| Special education | 54.5 | 1.0 | 15.7 | 1.2 | 2.6 | 2.0 | 17.4 | 0.3 | 0.3 | 5.1 |
| Bilingual/ESL | 48.0 | 1.1 | 24.9 | 0.6 | 5.5 | 1.5 | 1.1 | 3.1 | 0.0 | 14.2 |
| Vocational education | 81.3 | 0.0 | 1.0 | 2.9 | 1.0 | 2.1 | 0.9 | — | 0.0 | 10.7 |
| Other | 78.9 | 0.6 | 7.6 | 2.9 | 3.3 | 1.8 | 0.9 | 0.4 | 0.3 | 3.3 |
| PRIVATE | 73.1 | 1.9 | 8.8 | 3.4 | 3.2 | 2.0 | 1.9 | 0.2 | 0.0 | 5.5 |
| Main assignment | | | | | | | | | | |
| Kindergarten | 49.2 | 0.0 | 32.7 | 0.6 | 1.9 | 1.4 | 2.2 | 0.0 | 0.0 | 12.1 |
| General elementary | 81.8 | 4.4 | 0.0 | 1.5 | 2.9 | 0.7 | 2.6 | — | 0.1 | 6.0 |
| Math/science | 64.6 | 0.2 | 10.4 | 12.4 | 4.0 | 3.4 | 0.7 | — | — | 4.0 |
| English/language arts | 67.3 | 0.5 | 16.1 | 1.9 | 1.6 | 4.2 | 1.5 | — | 0.0 | 6.8 |
| Social studies | 70.9 | 0.0 | 13.6 | 3.2 | 5.7 | 0.0 | 1.1 | — | 0.0 | 5.1 |
| Special education | 58.9 | 3.5 | 19.1 | 1.1 | 3.3 | 2.6 | 9.4 | 0.0 | 0.0 | 2.1 |
| Bilingual/ESL | — | — | — | — | — | — | — | — | — | — |
| Vocational education | — | — | — | — | — | — | — | — | — | — |
| Other | 77.4 | 0.5 | 9.0 | 2.1 | 3.7 | 2.7 | 0.7 | 0.4 | — | 3.5 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

dents, and so forth are viewed as essential indicators of the quality of the learning experience for students. Without question, the amount of time teachers spend in the classroom also determines the amount of time available within the professional day for planning and thinking through instructional activities. If the day is completely filled with in-class responsibilities, little opportunity exists for lesson preparation and other activities that can improve teaching capabilities.³⁹

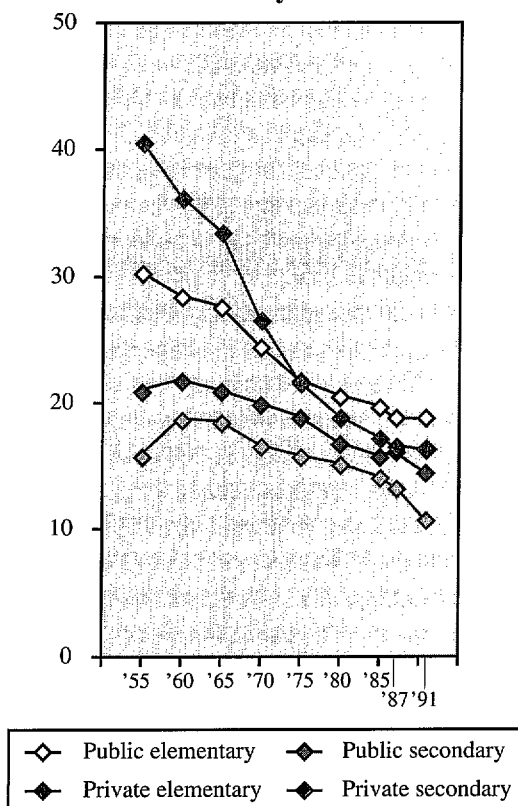
One measure of teacher work load is the pupil/teacher ratio, which describes the relationship between the number of students enrolled in school and the number of full-time-equivalent instructional personnel available to teach these students. (This includes regular classroom teachers and those who do not have regular classroom assignments, but have teaching responsibilities for subjects such as music or special education.) Figure 6.2 and table 6.6 show that over a 35-year period (1955–91), pupil/teacher ratios declined considerably at elementary and secondary levels in both public and private schools.

The average public school class size was 25.0 in 1987–88; for private school, it was 21.7.

Class size is another measure of teacher work load, and the subject of considerable debate among practitioners and researchers. Many argue that students in smaller classes benefit from greater attention, which results in higher student achievement. There is, however, little empirical evidence to support this hypothesis. Literature reviews suggest that only very small classes (in which instruction is nearly one-to-one) produce significant differences in average student achievement. However, relatively modest changes in class size appear to improve teacher morale and, at least, provide teachers with opportu-

³⁹For a discussion of this issue in Japan and Taiwan, in contrast to the United States, see Harold Stevenson et al., *Making the Grade in Mathematics* (Reston, VA: National Council of Teachers of Mathematics, 1990). This monograph, among others by the same authors, contrasts the nature of the teaching day in elementary schools in these three countries.

Figure 6.2—Pupil/teacher ratios, by sector and level: 1955–91, selected years



NOTE: Pupil/teacher ratios for 1991 are estimated.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1992* (Washington, D.C.: 1992), 73.

nities for using instructional strategies associated with higher achievement.⁴⁰

According to the 1987–88 SASS, average class size in the public and private sectors varied considerably (table 6.7). Overall, average class size for public school teachers was 25.0, while the average class

⁴⁰For an overview, see U.S. Department of Education, *Programs for the Improvement of Practice, Class Size and Public Policy: Politics and Panaceas* (Washington, D.C.: March 1988). Other works defining class size issues include Allan Odden, "Class Size and Student Achievement: Research Based Policy Alternatives," *Education Evaluation and Policy Analysis* 12 (2) (Summer 1990): 213–27; G. Glass, L. Cahen, M.L. Smith, and N. Filby, *School Class Size* (Beverly Hills: Sage, 1982); and Robert E. Slavin, "Class Size and Student Achievement: Small Effects of Small Classes," *Educational Psychologist* 24 (1): 99–110.

Table 6.6—Pupil/teacher ratios, by sector and level: 1955–91, selected years

| Year | Public and private schools | | | Public schools | | | Private schools | | |
|-------------------|----------------------------|------------|-----------|----------------|------------|-----------|-------------------|-------------------|-------------------|
| | K–12 | Elementary | Secondary | K–12 | Elementary | Secondary | K–12 | Elementary | Secondary |
| 1955 | 27.4 | 31.4 | 20.3 | 26.9 | 30.2 | 20.9 | ¹ 31.7 | ¹ 40.4 | ¹ 15.7 |
| 1960 | 26.4 | 29.4 | 21.4 | 25.8 | 28.4 | 21.7 | ¹ 30.7 | ¹ 36.1 | 18.6 |
| 1965 | 25.1 | 28.4 | 20.6 | 24.7 | 27.6 | 20.8 | 28.3 | 33.3 | 18.4 |
| 1970 | 22.4 | 24.6 | 19.6 | 22.3 | 24.4 | 19.9 | 23.0 | 26.5 | 16.4 |
| 1975 | 20.3 | 21.7 | 18.6 | 20.4 | 21.7 | 18.8 | ¹ 19.6 | ¹ 21.5 | ¹ 15.7 |
| 1980 | 18.6 | 20.1 | 16.6 | 18.7 | 20.4 | 16.8 | 17.7 | 18.8 | 15.0 |
| 1985 | 17.6 | 19.2 | 15.5 | 17.9 | 19.6 | 15.7 | 16.2 | 17.1 | 14.0 |
| 1987 | 17.3 | 18.4 | 15.7 | 17.6 | 18.7 | 16.0 | 15.5 | ¹ 16.4 | ¹ 13.1 |
| 1991 ¹ | 16.6 | 18.4 | 14.0 | 16.9 | 18.8 | 14.4 | ¹ 14.6 | ¹ 16.3 | ¹ 10.7 |

¹Estimated.

NOTE: Data for teachers are expressed in full-time equivalents; distribution of unclassified teachers by level is estimated; distribution of elementary and secondary school teachers by level is determined by reporting units. Kindergarten includes a relatively small number of nursery school teachers and students. Some data have been revised from previously published figures. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1992* (Washington, D.C: 1992), 73.

Table 6.7—Teachers' average class size, by sector and selected teacher characteristics: 1987–88

| | Public | Private |
|-----------------------|--------|---------|
| TOTAL | 25.0 | 21.7 |
| Teaching level | | |
| Elementary | 25.3 | 21.7 |
| Secondary | 24.7 | 21.7 |
| Teaching experience | | |
| Beginning | 23.8 | 20.6 |
| Experienced | 25.2 | 21.9 |
| Main assignment | | |
| Kindergarten | 25.4 | 20.5 |
| General elementary | 24.7 | 21.7 |
| Math/science | 25.1 | 21.4 |
| English/language arts | 26.9 | 21.6 |
| Social studies | 26.9 | 22.4 |
| Special education | 16.6 | 11.0 |
| Bilingual/ESL | 26.0 | — |
| Vocational education | 21.8 | — |
| Other | 28.5 | 23.7 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

size for private school teachers was 21.7. Similar differences between sectors were also found in elementary and secondary schools and in most class assignment fields. On average, beginning teachers in public schools were assigned to slightly smaller classes (23.8) than were experienced teachers (25.2). In both public and private schools, special education classes were small, averaging 16.6 in public schools, and 11.0 in private schools.

As with class size, differences between public and private schools were evident across a variety of time and student contact variables (table 6.8). On average, teachers in public schools taught more periods per day and taught more students, compared with their private school counterparts. New teachers (1 to 2 years of experience) in public schools taught more periods per day and more students than did new teachers in private schools. Among those with more than 20 years of teaching experience, teachers in public schools taught more periods per day than did private school teachers, but not significantly more students.

All teachers have school-related responsibilities in addition to classroom instruction. In the NELS:88 eighth-grade survey mentioned above, teachers were

asked about the amount of time they spent preparing for teaching, correcting papers, doing other paperwork, communicating with parents, and performing other activities (table 6.9). By and large, eighth-grade mathematics, science, English, and social studies teachers in public and private schools spent about the same amount of time, on average, performing each type of task. Generally, they spent the most time preparing for class and correcting papers, somewhat less time on other paperwork and supervising students, and the least amount of time working with other teachers, coordinating curriculum, and communicating with parents. However, these activities, taken together, represent significant time commitments and cannot be viewed as simply peripheral to the teacher's role.

Comparisons of some teaching load and assignment issues across the 50 states are shown in table 6.10. When asked about class size, 36 percent of all teachers said that their classes were too large (varying from a low of 19 percent in one state to a high of 66 percent in another). Only 11 percent said that they spent less than 40 hours per week on their work, and 20 percent said that they were teaching subjects that they were not qualified to teach. State differences on each of these measures were substantial.

Table 6.8—Average number of subject areas taught, periods taught per day, and students taught per secondary school teacher teaching in a department, by sector and teacher experience: 1987–88

| | Public | | | Private | | |
|------------------------------|----------------------|------------------------|-------------------------|----------------------|----------------|-----------------|
| | Subject areas taught | Periods taught per day | Subject Students taught | Periods areas taught | taught per day | Students taught |
| TOTAL | 3.8 | 5.1 | 111.3 | 3.8 | 4.5 | 98.1 |
| Years of teaching experience | | | | | | |
| 1–2 | 3.7 | 4.9 | 107.8 | 3.8 | 4.3 | 93.2 |
| 3–4 | 3.8 | 5.1 | 107.1 | 3.6 | 4.6 | 93.2 |
| 5–10 | 3.8 | 5.0 | 109.8 | 4.0 | 4.5 | 99.8 |
| 11–15 | 3.8 | 5.1 | 111.3 | 3.8 | 4.6 | 95.0 |
| 16–20 | 3.9 | 5.1 | 114.5 | 3.8 | 4.8 | 96.0 |
| more than 20 | 3.8 | 5.0 | 111.6 | 3.5 | 4.5 | 106.2 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Considerable research in recent years has focused on classroom and teaching responsibilities among samples of teachers from around the world. These comparisons offer a context within which to view the American teaching experience. One set of measures, which offers an opportunity to compare the ways in which different countries organize schools and the school day, is provided by the Second International Mathematics Study (SIMS), conducted in 1981–82 by the International Association for the Evaluation of Educational Achievement. As reported in that study (table 6.11), among the 15 countries and educational systems surveyed, only the Belgium system had fewer mean days of school than the United States, and 7 out of 15 entities had a higher mean class size than the United States. Teachers in only 4 of

the 15 participating entities had a higher mean number of teaching hours per week.

EXPENDITURES FOR INSTRUCTION

Current expenditures per public elementary and secondary school student ranged from \$2,690 to \$8,737 in the 50 states and the District of Columbia.

Teachers are a basic element of the educational expenditure equation. Expenditures on elementary and secondary education, which includes spending on teachers, provide one way of describing the over-

Table 6.9—Average number of hours per week that teachers of eighth graders spent outside of school on various school-related activities, by subject and sector: 1988

| | Plan and prepare for teaching | Correct papers | Other paper- work | Work with other teachers | Coor- dinate curriculum | Super- vise students | Coach or advise extra- curricular activities | Communi- cate with parents |
|-----------------------|--|-------------------|-------------------------|-----------------------------------|-------------------------------|----------------------------|--|----------------------------------|
| <i>Mathematics</i> | | | | | | | | |
| TOTAL | 2.5 | 2.6 | 1.5 | 0.8 | 0.4 | 1.3 | 1.2 | 0.8 |
| Public | 2.5 | 2.6 | 1.5 | 0.8 | 0.4 | 1.3 | 1.2 | 0.8 |
| Private | 3.1 | 3.2 | 1.5 | 0.7 | 0.4 | 1.3 | 1.1 | 1.1 |
| <i>Science</i> | | | | | | | | |
| TOTAL | 2.9 | 2.6 | 1.5 | 0.7 | 0.5 | 1.5 | 1.3 | 0.8 |
| Public | 2.8 | 2.5 | 1.5 | 0.8 | 0.5 | 1.5 | 1.3 | 0.8 |
| Private | 3.4 | 2.9 | 1.6 | 0.6 | 0.3 | 1.1 | 1.0 | 0.8 |
| <i>English</i> | | | | | | | | |
| TOTAL | 2.8 | 3.5 | 1.6 | 0.8 | 0.4 | 1.3 | 1.2 | 0.9 |
| Public | 2.7 | 3.5 | 1.6 | 0.8 | 0.4 | 1.3 | 1.1 | 0.9 |
| Private | 3.4 | 3.8 | 1.6 | 0.9 | 0.3 | 1.3 | 1.3 | 1.0 |
| <i>Social studies</i> | | | | | | | | |
| TOTAL | 2.9 | 2.8 | 1.5 | 0.8 | 0.5 | 1.5 | 1.5 | 0.8 |
| Public | 2.9 | 2.8 | 1.5 | 0.8 | 0.5 | 1.5 | 1.5 | 0.8 |
| Private | 3.3 | 3.0 | 1.5 | 0.8 | 0.6 | 1.3 | 1.0 | 0.9 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

Table 6.10—Selected characteristics of public school teachers' current teaching assignments,¹ by state: 1987

| | Average number of students per class | Percent of teachers | | | | | | | | | Teaching subjects unquali- fied to teach |
|----------------|---|---|-------------|---------------|---|----------------|--------------|---|-------------|---------------|--|
| | | Number of students per typical class | | | Feelings about most typical class size | | | Average number of hours per week spent on job ² | | | |
| | | 19 or less | 20 to 29 | 30 or more | Too large | About right | Too small | Less than 40 | 40 to 59 | 60 or more | |
| TOTAL | 23 | 20 | 64 | 16 | 36 | 62 | 1 | 11 | 78 | 11 | 20 |
| Alabama | 26 | 10 | 61 | 28 | 38 | 61 | 1 | 10 | 83 | 7 | 20 |
| Alaska | 21 | 33 | 60 | 7 | 25 | 74 | 2 | 6 | 80 | 15 | 29 |
| Arizona | 25 | 15 | 65 | 21 | 43 | 56 | 2 | 7 | 82 | 11 | 25 |
| Arkansas | 22 | 24 | 68 | 7 | 29 | 71 | 1 | 8 | 82 | 11 | 20 |
| California | 28 | 7 | 38 | 55 | 66 | 33 | 2 | 8 | 75 | 16 | 28 |
| Colorado | 23 | 21 | 69 | 11 | 31 | 67 | 2 | 9 | 78 | 13 | 23 |
| Connecticut | 20 | 40 | 60 | 0 | 26 | 74 | 0 | 21 | 72 | 7 | 15 |
| Delaware | 23 | 20 | 72 | 9 | 37 | 63 | 0 | 10 | 78 | 11 | 13 |
| Florida | 26 | 12 | 58 | 31 | 49 | 50 | 1 | 10 | 82 | 8 | 16 |
| Georgia | 25 | 11 | 74 | 16 | 37 | 63 | 1 | 6 | 80 | 14 | 24 |
| Hawaii | 26 | 12 | 61 | 28 | 55 | 44 | 1 | 14 | 72 | 14 | 29 |
| Idaho | 24 | 15 | 67 | 18 | 38 | 59 | 2 | 6 | 81 | 12 | 22 |
| Illinois | 23 | 24 | 59 | 16 | 31 | 67 | 2 | 10 | 76 | 14 | 18 |
| Indiana | 23 | 21 | 69 | 8 | 35 | 65 | 0 | 9 | 78 | 13 | 19 |
| Iowa | 21 | 36 | 58 | 7 | 20 | 79 | 1 | 7 | 78 | 15 | 18 |
| Kansas | 20 | 42 | 53 | 5 | 20 | 77 | 3 | 9 | 78 | 12 | 16 |
| Kentucky | 24 | 14 | 72 | 15 | 37 | 62 | 1 | 15 | 77 | 8 | 25 |
| Louisiana | 24 | 16 | 71 | 13 | 34 | 64 | 1 | 17 | 72 | 10 | 20 |
| Maine | 20 | 29 | 71 | 1 | 28 | 70 | 3 | 8 | 80 | 12 | 17 |
| Maryland | 25 | 11 | 66 | 23 | 41 | 59 | 1 | 7 | 79 | 15 | 20 |
| Massachusetts | 21 | 28 | 67 | 4 | 27 | 71 | 2 | 20 | 73 | 7 | 18 |
| Michigan | 25 | 11 | 66 | 22 | 47 | 52 | 1 | 14 | 79 | 7 | 22 |
| Minnesota | 25 | 13 | 69 | 18 | 44 | 55 | 1 | 8 | 81 | 11 | 25 |
| Mississippi | 24 | 12 | 71 | 17 | 32 | 66 | 2 | 10 | 81 | 9 | 17 |
| Missouri | 22 | 24 | 66 | 19 | 32 | 67 | 1 | 10 | 78 | 11 | 15 |
| Montana | 20 | 36 | 61 | 3 | 24 | 72 | 4 | 6 | 84 | 10 | 14 |
| Nebraska | 20 | 40 | 53 | 6 | 21 | 74 | 5 | 7 | 78 | 15 | 18 |
| Nevada | 26 | 13 | 61 | 27 | 48 | 50 | 2 | 13 | 76 | 11 | 20 |
| New Hampshire | 21 | 32 | 65 | 3 | 26 | 73 | 1 | 8 | 80 | 11 | 12 |
| New Jersey | 20 | 35 | 60 | 4 | 25 | 74 | 1 | 23 | 72 | 6 | 20 |
| New Mexico | 23 | 19 | 72 | 9 | 32 | 66 | 2 | 12 | 76 | 12 | 21 |
| New York | 22 | 23 | 69 | 8 | 31 | 67 | 2 | 19 | 72 | 9 | 14 |
| North Carolina | 25 | 7 | 83 | 10 | 47 | 53 | 1 | 5 | 82 | 13 | 20 |
| North Dakota | 19 | 45 | 51 | 4 | 19 | 74 | 7 | 9 | 78 | 13 | 18 |
| Ohio | 24 | 18 | 76 | 6 | 34 | 65 | 1 | 12 | 78 | 10 | 20 |
| Oklahoma | 21 | 34 | 59 | 6 | 25 | 72 | 3 | 10 | 77 | 13 | 21 |
| Oregon | 23 | 19 | 75 | 6 | 33 | 65 | 2 | 6 | 78 | 16 | 20 |
| Pennsylvania | 23 | 18 | 73 | 9 | 38 | 62 | 0 | 14 | 81 | 5 | 15 |
| Rhode Island | 22 | 20 | 78 | 2 | 33 | 66 | 0 | 28 | 70 | 2 | 16 |
| South Carolina | 23 | 20 | 73 | 6 | 29 | 70 | 2 | 11 | 80 | 9 | 17 |
| South Dakota | 19 | 42 | 55 | 3 | 20 | 77 | 3 | 8 | 77 | 15 | 21 |
| Tennessee | 25 | 12 | 65 | 23 | 53 | 45 | 1 | 9 | 80 | 11 | 19 |
| Texas | 22 | 28 | 61 | 11 | 24 | 74 | 1 | 6 | 79 | 16 | 19 |
| Utah | 28 | 6 | 49 | 45 | 58 | 41 | 1 | 10 | 79 | 11 | 30 |
| Vermont | 19 | 44 | 54 | 1 | 23 | 76 | 1 | 10 | 80 | 10 | 19 |

Table 6.10—Selected characteristics of public school teachers' current teaching assignments,¹ by state: 1987—Continued

| | Average number of students per class | Percent of teachers | | | | | | | | | Teaching subjects unqualified to teach |
|---------------|--------------------------------------|--------------------------------------|----------|------------|--|-------------|-----------|--|----------|------------|--|
| | | Number of students per typical class | | | Feelings about most typical class size | | | Average number of hours per week spent on job ² | | | |
| | | 19 or less | 20 to 29 | 30 or more | Too large | About right | Too small | Less than 40 | 40 to 59 | 60 or more | |
| Virginia | 22 | 21 | 71 | 8 | 33 | 67 | 1 | 9 | 80 | 11 | 22 |
| Washington | 25 | 13 | 68 | 19 | 44 | 54 | 2 | 6 | 83 | 10 | 30 |
| West Virginia | 21 | 26 | 71 | 4 | 20 | 78 | 2 | 12 | 75 | 12 | 23 |
| Wisconsin | 22 | 21 | 74 | 5 | 29 | 69 | 2 | 9 | 82 | 9 | 17 |
| Wyoming | 20 | 41 | 56 | 2 | 20 | 76 | 4 | 6 | 81 | 12 | 16 |

¹As reported by the teachers.

²Includes time spent inside and outside of school.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: Data drawn from the Carnegie Foundation for the Advancement of Teaching, *The Condition of Teaching: A State-by-State Analysis, 1988*, (Princeton, NJ: Author), 21-23.

Table 6.11—Average number of days per school year, number of hours of mathematics class instruction per year, class size, and teaching hours per week for U.S. equivalent eighth-grade classes in 15 countries: 1980–82

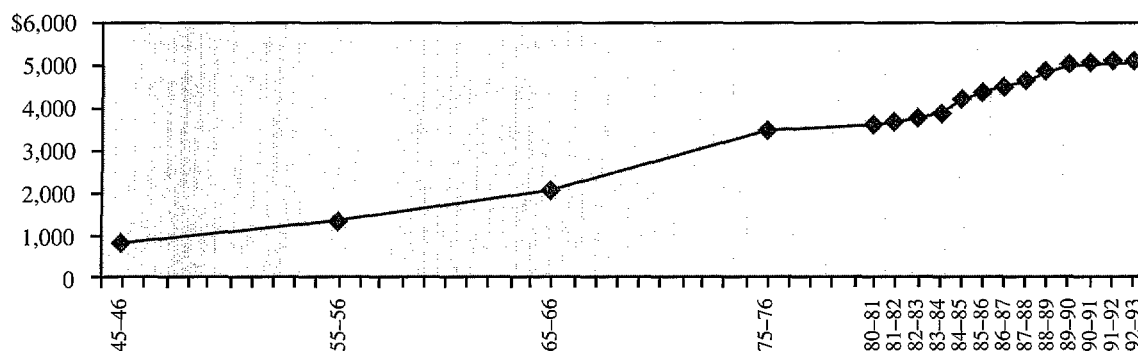
| Country | Days per school year | Hours of mathematics class instruction per year | Class size | Teaching hours per week |
|---------------------------|----------------------|---|------------|-------------------------|
| TOTAL | 191 | 123 | 27 | 18.0 |
| Belgium (Flemish) | 160 | 140 | 21 | 16.7 |
| Belgium (French) | 175 | 150 | 20 | 13.1 |
| Canada (British Columbia) | 195 | 120 | 28 | 20.8 |
| Canada (Ontario) | 186 | 133 | 29 | 21.1 |
| England/Wales | 192 | 115 | 27 | 19.3 |
| Finland | 190 | 84 | 22 | 17.1 |
| France | 185 | 130 | 24 | 17.6 |
| Hungary | 192 | 96 | 26 | 16.4 |
| Japan | 243 | 101 | 41 | 16.8 |
| Netherlands | 200 | 112 | 24 | 22.4 |
| New Zealand | 190 | 130 | 29 | 19.4 |
| Scotland | 200 | 147 | 29 | 20.7 |
| Sweden | 180 | 96 | 20 | 15.6 |
| Thailand | 200 | 100 | 43 | 14.5 |
| United States | 180 | 145 | 26 | 20.6 |

SOURCE: Kenneth Travers, "Summary of the IEA Second International Mathematics Study," paper prepared for the National Center for Education Statistics.

all commitment of public funds to education. While there is a considerable literature on issues relating to education finance, per pupil expenditures are linked to classroom resources, and vary considerably from state to state. Figure 6.3 and tables 6.12 and 6.13 show public school expenditures on students along several dimensions. In constant 1991-92 dollars, table 6.12 shows that based on *per pupil in average daily attendance*, total expenditures almost doubled between 1965-66 and 1986-87, and that current expenditures more than doubled. Between 1987-88 and 1989-90, however, the amount and rate of increase was small. Total expenditures in 1989-90 averaged \$6,015, and current

expenditures averaged \$5,399. Based on *per pupil in fall enrollment* between 1965-66 and 1986-87, total expenditures increased almost 90 percent, and current expenditures doubled. Between 1987-88 and 1989-90, the increases were modest. Total expenditure in 1989-90 averaged \$5,605, and current expenditure averaged \$5,031. Table 6.13 uses a different base (constant 1989-90 dollars) and shows state-by-state pupil expenditures in average daily attendance between 1969-70 and 1987-88. Current expenditures in the United States averaged \$4,648 per public elementary and secondary school pupil in 1987-88, ranging from \$2,690 to \$8,737 in the 50 states and the District of Columbia.

Figure 6.3—Current expenditures per pupil in fall enrollment in public elementary and secondary schools in constant 1991-92 dollars: 1945-46 to 1992-93, selected years



NOTE: Data for 1990-91 to 1992-93 were estimated.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1992* (Washington, D.C.: 1992), 159.

**Table 6.12—Total and current expenditures per pupil in public schools in constant 1991–92 dollars,¹ by level:
1945–46 to 1992–93, selected years**

| | Expenditure per pupil in average daily attendance | | Expenditure per pupil in fall enrollment ² | |
|---------|--|------------------------|--|------------------------|
| | Total expenditure | Current expenditure | Total expenditure | Current expenditure |
| 1945–46 | \$1,105 | \$1,033 | \$941 | \$880 |
| 1955–56 | 1,990 | 1,513 | 1,819 | 1,383 |
| 1965–66 | 2,832 | 2,329 | 2,629 | 2,162 |
| 1975–76 | 4,230 | 3,747 | 3,897 | 3,453 |
| 1980–81 | ³ 4,375 | 3,991 | ³ 4,036 | 3,681 |
| 1981–82 | ³ 4,367 | 4,003 | ³ 4,045 | 3,708 |
| 1982–83 | ³ 4,511 | 4,161 | ³ 4,177 | 3,853 |
| 1983–84 | ³ 4,714 | 4,309 | ³ 4,367 | 3,992 |
| 1984–85 | ³ 4,863 | 4,535 | ³ 4,516 | 4,211 |
| 1985–86 | ³ 5,106 | 4,770 | ³ 4,730 | 4,419 |
| 1986–87 | ³ 5,353 | 4,933 | ³ 4,964 | 4,575 |
| 1987–88 | ³ 5,553 | 5,059 | ³ 5,142 | 4,685 |
| 1988–89 | 5,827 | 5,297 | 5,403 | 4,912 |
| 1989–90 | 6,015 | 5,399 | 5,605 | 5,031 |
| 1990–91 | ³ 6,028 | ³ 5,411 | ³ 5,617 | ³ 5,042 |
| 1991–92 | ³ 6,094 | ³ 5,470 | ³ 5,678 | ³ 5,097 |
| 1992–93 | ³ 6,043 | ³ 5,424 | ³ 5,631 | ³ 5,054 |

¹Based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor, adjusted to a school-year basis.

²Data for 1945–46 are based on school-year enrollment.

³Estimated.

NOTE: Total expenditures per pupil includes all expenditures allocable to per pupil costs. These allocable expenditures include current expenditures for regular school programs, interest on school debt, and capital outlay. Current expenditures for operating local public schools during the regular school term, including such items as salaries for school personnel, fixed charges, student transportation, school books and materials, and energy costs. Current expenditures exclude capital outlay and interest on school debt. Beginning in 1980–81, two changes in definitions were made. State administration expenditures are excluded from both “total” and “current” expenditures, and “other programs,” such as summer schools and community services, are included in both “total” and “current” expenditures. Some data have been revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education, *Digest of Education Statistics 1992* (Washington, D.C.: 1992), 159.

Table 6.13—Current expenditures per pupil in average daily attendance in public schools in constant 1989–90 dollars,¹ by state: 1969–70 to 1987–88, selected years

| State or other area | 1969–70 | 1979–80 | 1984–85 | 1985–86 | 1986–87 | 1987–88 |
|----------------------|---------|---------|---------|---------|---------|---------|
| United States | \$2,743 | \$3,345 | \$4,166 | \$4,382 | \$4,532 | \$4,648 |
| Alabama | 1,828 | 2,281 | 2,791 | 2,993 | 2,937 | 2,979 |
| Alaska | 3,773 | 5,978 | 9,416 | 9,689 | 9,144 | 8,737 |
| Arizona | 2,421 | 2,980 | 3,612 | 3,893 | 4,046 | 4,104 |
| Arkansas | 1,908 | 2,190 | 2,980 | 3,101 | 3,120 | 3,276 |
| California | 2,915 | 3,351 | 3,909 | 4,134 | 4,255 | 4,209 |
| Colorado | 2,480 | 3,154 | 4,438 | 4,638 | 4,734 | 4,625 |
| Connecticut | 3,197 | 3,816 | 5,688 | 5,534 | 6,204 | 6,829 |
| Delaware | 3,025 | 3,711 | 5,023 | 5,379 | 5,508 | 5,500 |
| District of Columbia | 3,423 | 4,361 | 6,126 | 6,228 | 6,555 | 6,722 |
| Florida | 2,461 | 3,198 | 3,890 | 4,118 | 4,331 | 4,485 |
| Georgia | 1,976 | 2,586 | 3,190 | 3,461 | 3,631 | 3,764 |
| Hawaii | 2,825 | 3,378 | 4,159 | 4,442 | 4,323 | 4,295 |
| Idaho | 2,028 | 2,491 | 2,836 | 2,898 | 2,951 | 2,924 |
| Illinois | 3,057 | 3,717 | 4,248 | 4,412 | 4,687 | 4,789 |
| Indiana | 2,447 | 2,731 | 3,663 | 3,822 | 4,059 | 4,158 |
| Iowa | 2,837 | 3,086 | 4,162 | 4,223 | 4,304 | 4,520 |
| Kansas | 2,592 | 3,114 | 4,274 | 4,468 | 4,489 | 4,468 |
| Kentucky | 1,833 | 2,218 | 2,869 | 2,901 | 3,120 | 3,300 |
| Louisiana | 2,178 | 2,771 | 3,590 | 3,719 | 3,504 | 3,440 |
| Maine | 2,328 | 2,717 | 3,631 | 4,051 | 4,394 | 4,668 |
| Maryland | 3,087 | 3,838 | 4,925 | 5,189 | 5,453 | 5,701 |
| Massachusetts | 2,888 | 3,630 | 4,833 | 5,324 | 5,873 | 5,997 |
| Michigan | 3,038 | 3,737 | 4,620 | 4,873 | 4,969 | 5,142 |
| Minnesota | 3,037 | 3,785 | 4,411 | 4,598 | 4,772 | 4,807 |
| Mississippi | 1,684 | 2,149 | 2,821 | 2,756 | 2,683 | 2,793 |
| Missouri | 2,382 | 2,816 | 3,551 | 3,721 | 3,963 | 4,150 |
| Montana | 2,628 | 3,313 | 4,619 | 4,773 | 4,788 | 4,654 |
| Nebraska | 2,475 | 3,115 | 4,167 | 4,240 | 4,287 | 4,322 |
| Nevada | 2,586 | 2,913 | 3,397 | 4,014 | 3,927 | 3,971 |
| New Hampshire | 2,430 | 2,893 | 3,927 | 4,133 | 4,490 | 4,886 |
| New Jersey | 3,416 | 4,371 | 5,407 | 6,499 | 6,795 | 7,195 |
| New Mexico | 2,376 | 2,731 | 3,786 | 3,728 | 4,061 | 4,046 |
| New York | 4,460 | 5,659 | 6,593 | 7,014 | 7,417 | 7,839 |
| North Carolina | 2,058 | 2,677 | 3,152 | 3,440 | 3,571 | 3,691 |
| North Dakota | 2,318 | 2,724 | 4,008 | 4,064 | 3,924 | 3,858 |
| Ohio | 2,454 | 2,862 | 3,944 | 4,115 | 4,193 | 4,382 |
| Oklahoma | 2,032 | 2,517 | 3,421 | 3,671 | 3,583 | 3,390 |
| Oregon | 3,108 | 3,826 | 4,669 | 4,832 | 4,951 | 5,249 |
| Pennsylvania | 2,964 | 3,712 | 5,087 | 5,047 | 5,270 | 5,469 |
| Rhode Island | 2,996 | 3,933 | 5,147 | 5,446 | 5,691 | 5,841 |
| South Carolina | \$2,059 | \$2,531 | \$3,341 | \$3,568 | \$3,669 | \$3,735 |
| South Dakota | 2,319 | 2,626 | 3,472 | 3,560 | 3,536 | 3,561 |
| Tennessee | 1,903 | 2,429 | 2,863 | 3,048 | 3,227 | 3,363 |
| Texas | 2,098 | 2,607 | 3,750 | 3,848 | 3,892 | 3,955 |
| Utah | 2,105 | 2,510 | 2,665 | 2,789 | 2,756 | 2,690 |

Table 6.13—Current expenditures per pupil in average daily attendance in public schools in constant 1989–90 dollars,¹ by state: 1969–70 to 1987–88, selected years—Continued

| State or other area | 1969–70 | 1979–80 | 1984–85 | 1985–86 | 1986–87 | 1987–88 |
|---------------------|---------|---------|---------|---------|---------|---------|
| Vermont | 2,713 | 3,348 | 4,383 | 4,704 | 5,022 | 5,708 |
| Virginia | 2,379 | 2,941 | 3,787 | 4,108 | 4,315 | 4,548 |
| Washington | 3,077 | 3,419 | 4,472 | 4,529 | 4,525 | 4,564 |
| West Virginia | 2,252 | 2,567 | 3,894 | 4,117 | 4,320 | 4,229 |
| Wisconsin | 2,967 | 3,454 | 4,580 | 4,863 | 5,163 | 5,204 |
| Wyoming | 2,877 | 3,496 | 5,761 | 5,967 | 5,937 | 5,537 |

¹Based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor, adjusted to a school-year basis. These data do not reflect differences in inflation rates from state to state.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1992* (Washington, D.C: 1992), 161.

CHAPTER 7 • INSTRUCTIONAL PRACTICES

In a recent review article examining curriculum and instruction in the middle grades, the author begins: "Opportunities for students at any level of schooling to become competent and knowledgeable are largely determined by two things: the content and skills they are taught and the way their instruction is provided."⁴¹ Large-scale comparisons of instructional practices among different groups of teachers and students are difficult and complex. What is taught in classrooms and how it is taught may vary not only for students in different classes and attending different schools but also for students within the same classroom. Many other factors such as community type, school district resources, and the size of the school can have an impact on curricular practices. At the same time, in order to address issues and problems that may affect teachers' abilities to provide curricula that are comprehensive and equitable to all students, it is necessary to try to determine how some of the more common instructional practices may vary according to teaching environment.

This chapter does not provide a comprehensive review of instructional practices. Rather, it summarizes the limited information reported on this very broad topic by teachers in three surveys: the 1987–88 Schools and Staffing Survey (SASS), the 1988 National Assessment of Educational Progress (NAEP), and the National Education Longitudinal Study of 1988 (NELS:88). Teachers participating in SASS reported on the amount of time they devoted to various academic subjects in self-contained classes from kindergarten through high school. In the 1988 NAEP survey, the reading teachers of the fourth-grade students and the writing teachers of the eighth-grade students reported on different reading and writing teaching practices. The mathematics and science teachers of students who participated in the NELS:88 survey reported on various aspects of their curricula. While SASS is based on a representative sample of teachers and staff working

in American schools, neither the NAEP nor the NELS survey is representative of teachers. Teachers included in the NAEP and NELS surveys were selected if they taught the students who were sampled for the student surveys. The surveys are, however, nationally representative of students (either fourth or eighth graders). Therefore, instructional practices reported by teachers in the NAEP and NELS:88 surveys are presented in relation to the students they represent.

SELF-CONTAINED CLASSES⁴²

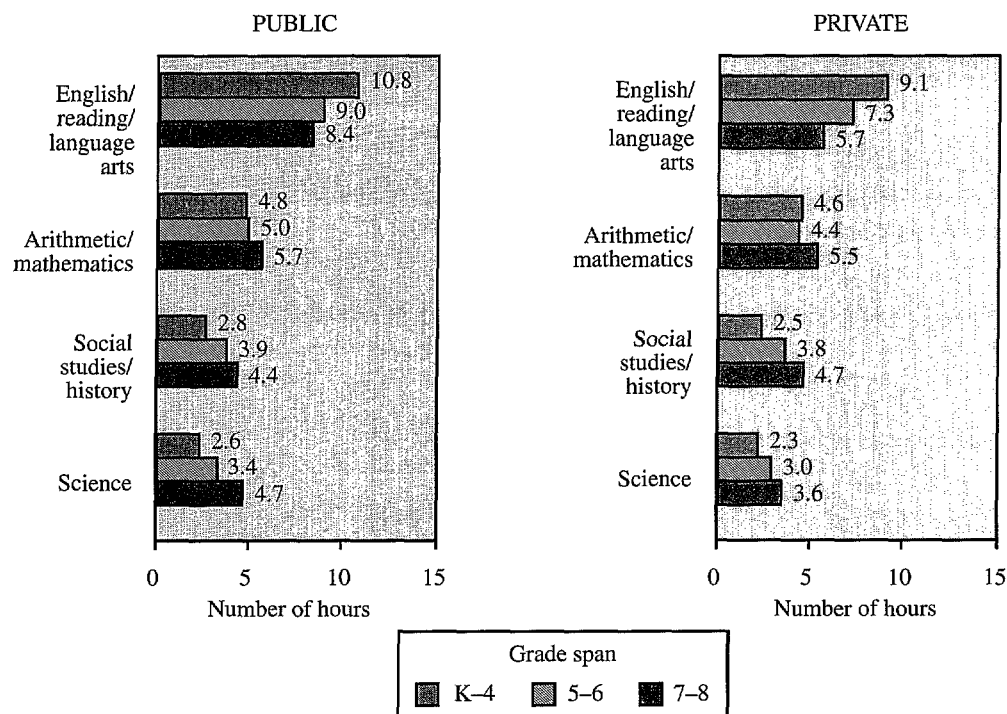
Teachers of self-contained classes at the K–4 level reported teaching English and language arts an average of 10.6 hours per week, arithmetic or mathematics 4.8 hours, and science and social studies/history about 2.5 hours per week each.

Given the immediate concern that educators have regarding the lack of science education offered in American schools, it is striking to note how little time teachers in self-contained classes reported devoting to science, compared with the amount of time spent on other subjects (figure 7.1 and table 7.1). For example, teachers who taught at the kindergarten to fourth-grade levels reported spending 2.5 hours per week teaching science and about the same amount of time teaching social studies/history. In contrast, about 4 times as much time was spent teaching English and language arts (10.6 hours), and 4.8 hours per week were spent teaching arithmetic or mathematics. At the fifth- and sixth-grade levels, the amount of time spent on science education increased about 1 hour per week, while the amount of time spent teaching English and language arts declined to about 9 hours per week.

⁴¹H.J. Becker, "Curriculum and Instruction in Middle Grade Schools," *Phi Delta Kappan* 71 (February 1990): 450–57.

⁴²Self-contained classes are defined on the Schools and Staffing Teacher Questionnaires as classes in which teachers taught "multiple subjects to the same class of students all or most of the day."

Figure 7.1—Average number of hours per week spent teaching various subjects in self-contained classes, by sector and grade span: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 7.1—Average number of hours per week spent teaching various subjects in self-contained classes, by sector and grade span: 1987–88

| | English/reading/ language arts | Arithmetic/ mathematics | Social studies/ history | Science | Average for all four areas |
|----------------|-----------------------------------|----------------------------|----------------------------|---------|-------------------------------|
| TOTAL | | | | | |
| Grades | | | | | |
| K-4 | 10.6 | 4.8 | 2.7 | 2.5 | 20.6 |
| 5-6 | 8.8 | 4.9 | 3.9 | 3.4 | 21.0 |
| 7-8 | 7.9 | 5.6 | 4.4 | 4.5 | 22.4 |
| PUBLIC | | | | | |
| Grades | | | | | |
| K-4 | 10.8 | 4.8 | 2.8 | 2.6 | 21.0 |
| 5-6 | 9.0 | 5.0 | 3.9 | 3.4 | 21.4 |
| 7-8 | 8.4 | 5.7 | 4.4 | 4.7 | 23.2 |
| PRIVATE | | | | | |
| Grades | | | | | |
| K-4 | 9.1 | 4.6 | 2.5 | 2.3 | 18.5 |
| 5-6 | 7.3 | 4.4 | 3.8 | 3.0 | 18.5 |
| 7-8 | 5.7 | 5.5 | 4.7 | 3.6 | 19.4 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

There were no appreciable differences between public and private school teachers in the amount of time they reported teaching individual subjects in self-contained classes.

The relatively small amount of time these teachers reported spending on science education may reflect elementary school teachers' lack of confidence in their ability to teach science. Elementary school teachers surveyed in the 1985–86 National Survey of Science and Mathematics Education indicated that they were much more confident in their ability to teach reading than in their ability to teach science. The overwhelming majority (86 percent) of elementary teachers participating in this survey indicated that they felt very well qualified to teach reading. On the other hand, only 27 percent and 15 percent, respectively, felt well qualified to teach life sciences or physical sciences.⁴³

⁴³For a review, see Horizon Research, Inc., *Science and Mathematics Education Briefing Book* (Chapel Hill: Author, 1989), 7.

READING

NAEP fourth graders had teachers who reported spending about 44 percent of class time working in small groups and about 39 percent of class time providing individual instruction.

A common teaching approach that educators and researchers believe enhances student performance is rearranging instructional groups to achieve different purposes—for example, changing from whole-class instruction to smaller groups that necessitate student interaction.⁴⁴ The NAEP survey indicated that fourth graders spent a considerable amount of time in small groups and receiving individual instruction in reading (table 7.2). In fact, these students' reading teachers

⁴⁴See, for example, discussion in J. Goodlad, *A Place Called School: Prospects for the Future* (New York: McGraw Hill, 1984),

Table 7.2—Average percentage of reading instruction time that fourth graders spent in various reading group practices as reported by their teachers, by sector and selected public school and public school teacher characteristics: 1988

| | 4th-grade reading class grouping | | |
|------------------------------|----------------------------------|--------------|-------------|
| | Whole class | Small groups | Individuals |
| TOTAL | 18.2 | 43.5 | 38.6 |
| PUBLIC | 18.0 | 43.0 | 39.3 |
| School minority enrollment | | | |
| Less than 20% | 19.2 | 43.6 | 37.2 |
| 20% or more | 16.8 | 41.9 | 41.6 |
| Class achievement level | | | |
| Lower | 17.9 | 41.9 | 41.6 |
| Average | 18.2 | 43.6 | 38.4 |
| Higher | 20.2 | 30.6 | 48.9 |
| Mixed | 17.1 | 47.1 | 35.7 |
| Highest degree earned | | | |
| BA/BS or less | 18.2 | 42.2 | 39.6 |
| MA/MS or more | 17.7 | 43.9 | 39.0 |
| Years of teaching experience | | | |
| 3 or less | 22.4 | 33.5 | 45.0 |
| 4–9 | 16.5 | 44.5 | 38.7 |
| 10–19 | 17.3 | 47.2 | 36.0 |
| 20 or more | 18.0 | 38.7 | 43.2 |
| PRIVATE | 19.4 | 46.6 | 34.2 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1988.

reported that they spent less than 20 percent of reading class time in whole-class instruction. These grouping practices did not appear to vary markedly for different student or teacher characteristics.⁴⁵

The NAEP fourth-grade teachers were also asked about the specific teaching methods they used in their reading classes. For instance, as shown in table 7.3, almost all of the NAEP fourth graders (97 percent) had teachers who reported giving workbook

assignments at least once a week. A smaller proportion of fourth graders (59 percent) had reading teachers who reported having their students write about what they were reading at least once a week. Not surprisingly, a higher percentage of fourth graders in low-ability classes had teachers who reported helping students with reading aloud and with word-attack skills several times a week or daily, compared with students in high-ability classes (figure 7.2 and table 7.4).

⁴⁵It should be noted, however, that the sample of NAEP fourth-grade teachers was relatively small and, therefore, all but obvious differences among various subgroups would not be statistically significant. For example, with respect to class achievement level, it appears that students in higher ability classes spend less time in small groups and more time getting individual instruction than do students in lower or average ability classes. However, the standard errors for these groups of students were too high to find differences that were statistically significant.

The sources of reading material available in the fourth-grade reading classes also appeared to vary with the class ability level and, to a lesser extent, with the teachers' experience. For example, students in high-ability classes tended to have children's book collections and newspapers available to them more often than did students in low-ability classes. Furthermore, fourth graders in classes where their reading teacher had 20 or

Table 7.3—Percentage of fourth graders whose teachers reported using various methods of reading instruction at least once a week, by sector and selected public school and public school teacher characteristics: 1988

| | Write about reading | Work book assignments | Student chooses own reading | Student reads informational material | Class goes to library |
|------------------------------|---------------------------|-----------------------------|--------------------------------------|---|-----------------------------|
| TOTAL | 59.2 | 96.5 | 80.7 | 60.5 | 79.0 |
| PUBLIC | 58.3 | 96.0 | 81.8 | 61.8 | 78.8 |
| School minority enrollment | | | | | |
| Less than 20% | 56.1 | 98.9 | 78.2 | 58.2 | 78.8 |
| 20% or more | 64.0 | 90.8 | 86.0 | 69.5 | 76.0 |
| Class achievement level | | | | | |
| Lower | 54.7 | 94.2 | 72.6 | 60.6 | 73.7 |
| Average | 59.0 | 94.9 | 83.0 | 58.7 | 80.8 |
| Higher | 57.2 | 96.3 | 76.9 | 60.3 | 69.9 |
| Mixed | 58.8 | 97.8 | 87.0 | 67.7 | 83.7 |
| Highest degree earned | | | | | |
| BA/BS or less | 57.9 | 95.8 | 82.5 | 58.9 | 78.9 |
| MA/MS or more | 58.7 | 96.4 | 80.7 | 64.9 | 78.7 |
| Years of teaching experience | | | | | |
| 3 or less | 56.3 | 95.6 | 95.1 | 64.5 | 88.1 |
| 4–9 | 60.0 | 94.0 | 84.2 | 50.8 | 68.5 |
| 10–19 | 58.3 | 96.6 | 83.9 | 66.9 | 84.8 |
| 20 or more | 57.6 | 97.8 | 72.9 | 58.4 | 71.7 |
| PRIVATE | 66.0 | 100.0 | 72.7 | 51.2 | 80.4 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1988.

more years of experience were more likely to have reading kits available to them than were students with relatively inexperienced teachers (that is, 3 years or less of teaching experience).

WRITING

About one-fourth of NAEP eighth graders had writing teachers who reported using a writing-to-learn method of teaching very often, whereas nearly 60 percent had teachers who reported using a grammar skill-based approach to writing very often.

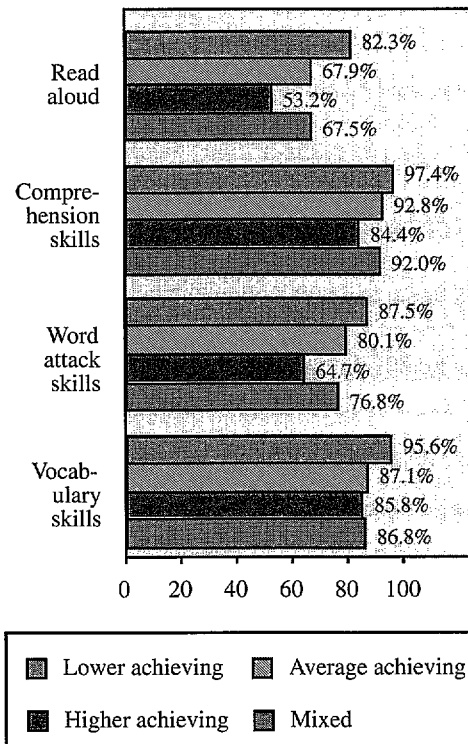
In the preface to the book *Writing to be Read*, three reasons were given for bad writing:

1. Teachers have been saying "Wrong! wrong! wrong!" when they should have been saying "Right, good! keep going!" even if they said it about only one word or one sentence in a paper.
2. In their study of English, teachers have spent their time reading, not writing...
3. English teachers have often allowed themselves to be the only readers students write for.⁴⁶

The author of this book and other researchers have made significant contributions to integrated teaching methods such as process-based writing, writing across the curriculum, and writing as a way of learning. As a result, more and more teachers have altered their approaches to teaching writing, and phrases such as "process writing" and "writing to learn" are now commonly heard among educators. Concentration on the composing process by teachers at all levels of instruction has heightened interest in writing and has produced many books and articles on the subject. Consequently, writing workshop institutes and inservice training are

⁴⁶K. Macrorie, *Writing to be Read* (New York: Hayden, 1968). This book was reviewed in E. Jenkinson, "Learning to Write/Writing to Learn," *Phi Delta Kappan* 69 (June 1988): 712-17.

Figure 7.2—Percentage of fourth graders in public schools whose teachers focused on various reading skills several times a week or daily when working with target student, by class achievement level: 1988



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Assessment of Educational Progress.

available nationwide as teachers attempt to find out first what does and does not work.⁴⁷

The writing teachers of NAEP eighth graders were asked a variety of questions regarding their teaching methods, including how often they used grammar or skill-based instruction, writing process instruction, the integration of reading and writing, and the writing-to-learn approach. Nearly 60 percent of the eighth graders had writing teachers who responded that they used a grammar or skill-based approach to teaching very often, while 52 percent had teachers

⁴⁷E. Jenkinson, 715.

Table 7.4—Percentage of fourth graders whose teachers focused on various reading skills several times a week or daily when working with target student, and percentage who used different types of reading material in the classroom, by sector and selected public school and public school teacher characteristics: 1988

| | Reading skills | | | | Source of reading material | | |
|------------------------------|----------------|----------------------|--------------------|-------------------|----------------------------|----------------------|--------------|
| | Read aloud | Comprehension skills | Word attack skills | Vocabulary skills | Children's book collection | Children's newspaper | Reading kits |
| TOTAL | 68.0 | 90.2 | 77.5 | 87.4 | 76.0 | 57.5 | 51.4 |
| PUBLIC | 67.7 | 91.4 | 77.9 | 88.0 | 75.5 | 56.9 | 49.8 |
| School minority enrollment | | | | | | | |
| Less than 20% | 67.4 | 90.0 | 74.1 | 86.5 | 76.2 | 56.0 | 55.5 |
| 20% or more | 70.0 | 92.4 | 82.3 | 90.3 | 74.6 | 56.1 | 43.4 |
| Class achievement level | | | | | | | |
| Lower | 82.3 | 97.4 | 87.5 | 95.8 | 69.8 | 47.4 | 51.1 |
| Average | 67.9 | 92.8 | 80.1 | 87.1 | 77.6 | 56.4 | 49.8 |
| Higher | 53.2 | 84.4 | 64.7 | 85.8 | 89.8 | 68.4 | 52.8 |
| Mixed | 67.5 | 92.0 | 76.8 | 86.8 | 81.5 | 66.5 | 56.5 |
| Highest degree earned | | | | | | | |
| BA/BS or less | 66.5 | 90.5 | 76.8 | 87.8 | 76.3 | 61.7 | 49.2 |
| MA/MS or more | 68.5 | 92.2 | 78.7 | 88.0 | 79.0 | 54.9 | 53.4 |
| Years of teaching experience | | | | | | | |
| 3 or less | 65.9 | 83.2 | 60.9 | 78.6 | 82.0 | 54.9 | 30.8 |
| 4–9 | 66.3 | 90.8 | 77.1 | 89.7 | 78.6 | 55.4 | 48.4 |
| 10–19 | 67.4 | 94.0 | 79.4 | 87.2 | 80.1 | 62.8 | 51.0 |
| 20 or more | 68.8 | 89.9 | 80.6 | 91.0 | 70.5 | 54.3 | 58.9 |
| PRIVATE | 70.2 | 81.2 | 74.6 | 83.4 | 79.3 | 61.1 | 63.0 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1988.

who used writing process techniques very often (table 7.5). Slightly less than one-half of eighth graders (46 percent) had teachers who reported using an integrated reading and writing approach, and only about one-fourth (23 percent) had teachers who frequently used a writing-to-learn approach.

Teachers were also asked about how much they focused on specific aspects of writing such as the mechanics of writing, frequent long or short assignments, giving a variety of assignments, or having students prepare several drafts of an assignment. Variations among students in classes of different ability levels were found (table 7.6). For example, students in low-ability classes more often had teachers who responded that they focused on the mechanics of writing than did those in high-ability classes.

At the same time, students in high-ability classes were more often given long writing assignments or were more likely to prepare several drafts of an assignment than were students in low-ability classes.

MATHEMATICS AND SCIENCE

Researchers have observed that lecturing and explaining by a teacher standing or sitting in front of the entire class is one of the most frequent teaching activities reported by both students and teachers. Furthermore, the frequency of these activities appears to increase from the primary to the senior high school years.⁴⁸ The experiences of NELS:88 eighth graders'

⁴⁸J. Goodlad, 105.

Table 7.5—Percentage of eighth graders whose teachers reported using various methods of teaching writing very often, by sector and selected public school and public school teacher characteristics: 1988

| | Grammar or skill-based approach | Writing process approach | Integrating reading & writing | Writing-to- learn approach |
|------------------------------|---------------------------------------|--------------------------------|-------------------------------------|----------------------------------|
| TOTAL | 59.4 | 51.8 | 46.1 | 23.4 |
| PUBLIC | 56.6 | 53.1 | 47.6 | 22.7 |
| School minority enrollment | | | | |
| Less than 20% | 55.6 | 50.8 | 49.9 | 19.2 |
| 20% or more | 59.2 | 50.8 | 40.1 | 24.4 |
| Class achievement level | | | | |
| Lower | 54.7 | 49.9 | 45.0 | 20.9 |
| Average | 56.3 | 53.3 | 50.6 | 21.6 |
| Higher | 51.0 | 66.2 | 59.3 | 28.9 |
| Mixed | 65.7 | 43.5 | 31.5 | 21.5 |
| Highest degree earned | | | | |
| BA/BS or less | 57.9 | 56.9 | 44.9 | 20.0 |
| MA/MS or more | 55.5 | 49.8 | 50.3 | 25.6 |
| Years of teaching experience | | | | |
| 3 or less | 55.4 | 68.0 | 52.0 | 24.6 |
| 4–9 | 45.2 | 55.3 | 51.6 | 23.1 |
| 10–19 | 59.0 | 53.9 | 52.2 | 25.3 |
| 20 or more | 59.9 | 47.0 | 37.3 | 18.0 |
| PRIVATE | 74.8 | 44.3 | 38.1 | 27.7 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1988.

mathematics and science teachers support this observation. Unlike the grouping practices reported by the NAEP fourth-grade reading teachers where most of the time was spent in small groups or working on individual assignments, in both mathematics and science classes, NELS:88 eighth graders had teachers who reported that, on average, about one-half of the class time was spent in whole-class instruction (table 7.7). Only about 17 percent of both mathematics and science class time was spent in small groups, while less than one-quarter of the time was spent providing individual instruction.⁴⁹

Grouping practices in mathematics classes tended to vary according to the ability level of the class. For example, eighth graders in high-ability mathematics

classes spent more time getting whole-class instruction and less time getting individual instruction than those in low-ability classes. It is possible that the frequency of individual instruction for students in low-ability mathematics classes reflects remedial instruction typically provided to students at this level. The same pattern, linking ability level with individual instruction, was not found for science classes. However, eighth graders in private schools were more likely to have whole-group instruction reported by their science teachers than were their counterparts in public schools.

In the Second International Mathematics Study (SIMS), conducted in 1981–82 under the auspices of the International Association for the Evaluation of Educational Achievement, researchers determined that compared with other countries the United States had a more diffuse and “arithmetic-driven” mathematics curriculum, in which relatively equal amounts

⁴⁹The remainder of the class time in either mathematics or science classes was spent performing administrative tasks, taking tests, keeping order, and so on.

Table 7.6—Percentage of eighth graders whose writing teachers focused on various aspects of writing for at least half the class time, by sector and selected public school and public school teacher characteristics: 1988

| | Mechanics of writing | Variety of assignments | Frequent short assignments | Frequent long assignments | Revise several drafts |
|------------------------------|----------------------------|------------------------------|----------------------------------|---------------------------------|-----------------------------|
| TOTAL | 78.5 | 66.8 | 87.3 | 32.2 | 58.9 |
| PUBLIC | 76.6 | 67.6 | 88.1 | 33.5 | 58.7 |
| School minority enrollment | | | | | |
| Less than 20% | 74.0 | 69.1 | 88.5 | 33.3 | 57.4 |
| 20% or more | 79.7 | 66.0 | 86.7 | 33.3 | 59.4 |
| Class achievement level | | | | | |
| Lower | 82.4 | 66.1 | 88.9 | 23.4 | 47.4 |
| Average | 77.6 | 69.8 | 91.1 | 34.7 | 62.7 |
| Higher | 60.4 | 68.1 | 85.6 | 47.7 | 69.3 |
| Mixed | 83.2 | 64.3 | 82.7 | 31.7 | 55.5 |
| Highest degree earned | | | | | |
| BA/BS or less | 75.6 | 65.9 | 85.3 | 33.1 | 58.6 |
| MA/MS or more | 77.7 | 69.9 | 90.8 | 34.6 | 59.0 |
| Years of teaching experience | | | | | |
| 3 or less | 59.9 | 64.4 | 82.0 | 37.7 | 55.7 |
| 4–9 | 64.4 | 65.9 | 93.6 | 38.8 | 61.8 |
| 10–19 | 80.1 | 66.1 | 88.6 | 34.6 | 58.2 |
| 20 or more | 84.1 | 73.2 | 85.4 | 28.6 | 58.0 |
| PRIVATE | 88.8 | 62.4 | 82.5 | 24.6 | 59.6 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1988.

of time were allocated to a number of mathematics topics. Japan, on the other hand, had a more intensive curriculum focused on algebra in the middle school years and calculus in the secondary school years.⁵⁰

These findings are supported by those from the NELS:88 survey in which eighth-grade mathematics teachers reported covering various subjects as major topics with relatively equal intensity. For example, as shown in figure 7.3 and table 7.8, similar proportions of eighth graders' mathematics teachers reported covering fractions as a major topic as reported covering algebra (64 percent and 62 percent, respectively). These two subjects represent the extremes in the eighth-grade mathematics curricu-

lum—fractions being one of the most elementary topics and algebra one of the most advanced.

The percentage of NELS:88 eighth graders in public schools whose mathematics teachers reported covering algebra as a major topic was lower in schools with more than 20 percent minority enrollment than in schools with fewer minorities enrolled.

Not surprisingly, the exposure that NELS:88 students had to the coverage of these topics varied according to a number of factors including school sector, minority enrollment, and class ability level. Eighth graders attending private schools, public schools with less than 20 percent minority enroll-

⁵⁰C. McKnight et al., *The Underachieving Curriculum* (Champaign, IL: Stipes Publishing, 1987).

Table 7.7—Average percentage of class time that eighth graders spent in groups in mathematics and science classes as reported by their teachers, by sector, selected public school characteristics, and public school teacher highest degree earned: 1988

| | Mathematics | | | Science | | |
|----------------------------|-------------|--------------|-------------|-------------|--------------|-------------|
| | Whole class | Small groups | Individuals | Whole class | Small groups | Individuals |
| TOTAL | 51.9 | 16.6 | 22.8 | 52.7 | 17.0 | 17.6 |
| PUBLIC | 51.3 | 16.6 | 23.0 | 51.0 | 17.0 | 17.9 |
| School minority enrollment | | | | | | |
| 20% or less | 51.8 | 15.3 | 21.9 | 49.4 | 16.0 | 16.8 |
| More than 20% | 50.5 | 18.6 | 24.8 | 53.5 | 18.5 | 19.6 |
| Class achievement level | | | | | | |
| Lower | 46.2 | 18.6 | 26.0 | 52.8 | 17.3 | 19.2 |
| Average | 52.2 | 16.6 | 23.1 | 50.3 | 16.2 | 17.5 |
| Higher | 55.0 | 15.1 | 20.0 | 53.4 | 17.7 | 17.6 |
| Mixed | 48.7 | 15.8 | 24.0 | 48.4 | 17.2 | 17.9 |
| Highest degree earned | | | | | | |
| BA/BS or less | 50.3 | 15.9 | 22.6 | 51.3 | 17.1 | 18.0 |
| MA/MS or more | 52.6 | 17.3 | 23.6 | 50.6 | 16.9 | 17.7 |
| PRIVATE | 56.5 | 16.8 | 20.7 | 65.4 | 16.6 | 15.3 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

ment, or those in high-ability public school classes had teachers who reported covering algebra as a major topic more often and fractions less often than their counterparts; that is, those in public schools, public schools with greater than 20 percent minority enrollments, or low-ability public school classes.

The eighth-grade science curriculum is more difficult to characterize than that of mathematics. Topic coverage in mathematics typically defines the ability level of the class, whereas this is not necessarily true for science.⁵¹ For example, table 7.9 shows the percentage of NELS:88 eighth graders whose science teachers reported covering various science subjects as major topics.⁵² This table illustrates a relatively broad science curriculum taught at the eighth-grade level, with topics related to earth science,

weather/astronomy, environmental science/oceanography, and chemistry covered with relatively equal intensity. Furthermore, it is widely reported that science teachers spend most of their instructional time helping students learn and memorize facts rather than teaching them to think scientifically. In the National Survey of Practices and Trends, for instance, most principals indicated that in the middle grades, their typical science teachers taught basic facts every day, but only about one-third reported that discussions of scientific methods were a regular part of their lessons.⁵³

21 percent of NELS:88 eighth graders had science teachers who never conducted science experiments or conducted them less than once a month.

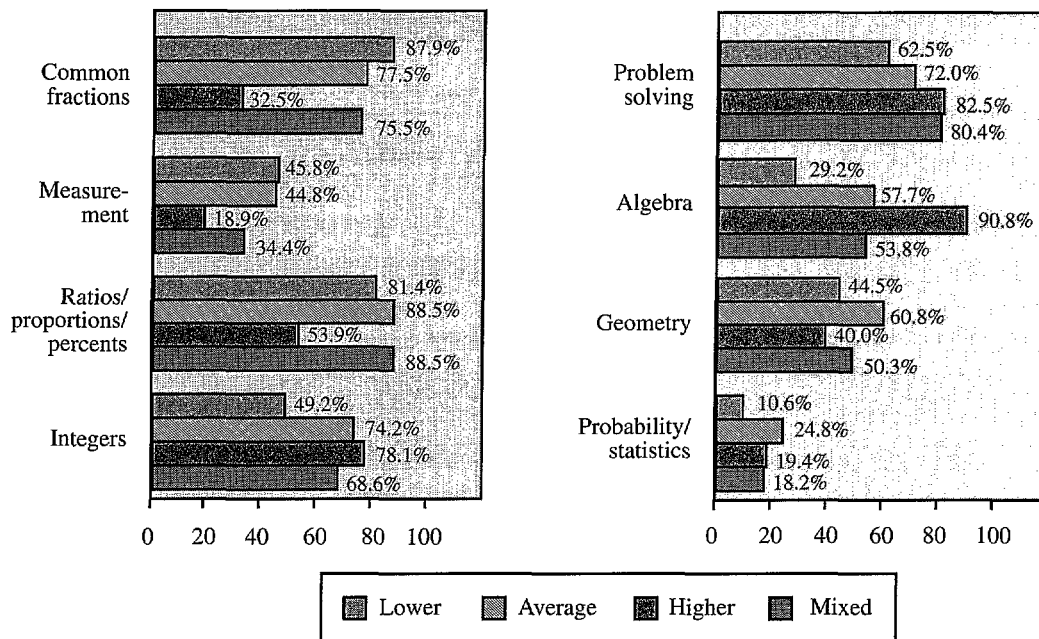
⁵¹See U.S. Department of Education, National Center for Education Statistics, *A Profile of American Eighth-Grade Mathematics and Science Instruction* (1992) for a more detailed discussion of the findings of the NELS:88 survey.

⁵²Ibid., 16.

One way of discovering how much hands-on work science teachers provide for their students is to

⁵³H.J. Becker, 453.

Figure 7.3—Percentage of eighth graders in public schools whose mathematics teachers reported teaching various topics as major subjects, by class achievement level: 1988



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Educational Longitudinal Study of 1988, "Student and Teacher Surveys."

determine how often they have their students conduct science experiments. In the NELS:88 survey, it appeared that a significant proportion of eighth graders had little exposure to conducting science experiments (table 7.10). About 21 percent had science teachers who reported that they either never conducted science experiments or conducted them less than once a month in their classes. About 47 percent of eighth graders, on the other hand, were in classes where weekly experiments were conducted, and about 11 percent were in classes where experiments were conducted almost daily. The frequency of conducting science experiments did not appear to vary markedly for different student or teacher characteristics.

International comparisons of the percentage of instructional time in science spent working in the laboratory is shown in table 7.11. Students in population 1 are primarily 10-year-olds and those in

population 2 are primarily 14-year-olds. It is striking to note that only 19 percent of science instruction time was spent in the laboratory by 14-year-olds in the United States, while students in many of the other participating countries spent 50 percent or more of their science class time in the laboratory.

A majority of NELS:88 eighth graders had mathematics and science teachers who reported assigning from 1 to less than 3 hours of homework per week.

The mathematics and science teachers of the NELS:88 students reported the average number of hours of homework they assigned per week in their respective classes (table 7.12). According to their teachers, eighth graders tended to be assigned more

Table 7.8—Percentage of eighth graders whose mathematics teachers reported teaching various topics as major subjects, by sector and selected public school and public school teacher characteristics: 1988

| | Common fractions | Measure- ment | Ratios/ propor- tions/per- cents | Integers | Problem solving | Algebra | Geometry | Proba- bility/ statis- tics |
|----------------------------|---------------------|------------------|---|----------|--------------------|---------|----------|--------------------------------------|
| TOTAL | 64.3 | 36.6 | 77.2 | 70.4 | 74.7 | 62.0 | 50.2 | 20.0 |
| PUBLIC | 67.7 | 36.9 | 78.1 | 69.3 | 74.1 | 59.8 | 50.7 | 19.8 |
| School minority enrollment | | | | | | | | |
| 20% or less | 64.1 | 32.8 | 77.1 | 68.5 | 73.5 | 62.3 | 48.9 | 17.9 |
| More than 20% | 73.4 | 43.3 | 79.6 | 70.3 | 74.5 | 55.9 | 53.2 | 22.7 |
| Class achievement level | | | | | | | | |
| Lower | 87.9 | 45.8 | 81.4 | 49.2 | 62.5 | 29.2 | 44.5 | 10.6 |
| Average | 77.5 | 44.8 | 88.5 | 74.2 | 72.0 | 57.7 | 60.8 | 24.8 |
| Higher | 32.5 | 18.9 | 53.9 | 78.1 | 82.5 | 90.8 | 40.0 | 19.4 |
| Mixed | 75.5 | 34.4 | 88.5 | 68.6 | 80.4 | 53.8 | 50.3 | 18.2 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 69.5 | 36.2 | 79.2 | 68.8 | 71.9 | 59.5 | 50.8 | 16.6 |
| MA/MS or more | 65.7 | 37.5 | 76.8 | 70.3 | 76.7 | 60.4 | 51.0 | 23.1 |
| Community type | | | | | | | | |
| Urban | 65.5 | 39.2 | 79.4 | 72.6 | 75.7 | 60.6 | 49.2 | 22.6 |
| Suburban | 60.0 | 31.8 | 73.3 | 69.6 | 74.8 | 66.3 | 49.9 | 19.8 |
| Rural—small city | 69.2 | 41.1 | 80.8 | 69.9 | 73.9 | 57.2 | 51.4 | 18.2 |
| PRIVATE | 37.8 | 34.0 | 70.3 | 79.0 | 79.6 | 78.8 | 46.6 | 21.4 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

Table 7.9—Percentage of public school eighth graders whose science teachers reported teaching various topics as major subjects: 1988

| | |
|---|-------|
| Total (for each mutually exclusive topic) | 100.0 |
| Earth science | 57.2 |
| Weather/astronomy | 54.8 |
| Environmental science/oceanography | 47.9 |
| Chemistry | 46.1 |
| Various physics subjects* | 41.3 |
| Atomic theory | 41.6 |
| Science in society | 21.8 |
| Human biology/genetics | 18.6 |
| Plants/animals | 15.7 |
| Personal health | 9.2 |

*Electricity, mechanics, and heat or optics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

Table 7.10—Percentage of eighth graders whose science teachers reported conducting various numbers of experiments, by sector, selected public school characteristics, and public school teacher highest degree earned: 1988

| | None or less than one per month | About one per month | About one per week | About one per day |
|----------------------------|---------------------------------------|------------------------|-----------------------|----------------------|
| TOTAL | 21.1 | 20.9 | 46.5 | 11.4 |
| PUBLIC | 20.6 | 20.4 | 46.9 | 12.1 |
| School minority enrollment | | | | |
| 20% or less | 19.4 | 20.0 | 47.3 | 13.3 |
| More than 20% | 22.2 | 21.7 | 46.0 | 10.1 |
| Class achievement level | | | | |
| Lower | 25.6 | 24.0 | 40.8 | 9.6 |
| Average | 20.7 | 21.8 | 45.1 | 12.4 |
| Higher | 15.5 | 19.2 | 50.3 | 14.9 |
| Mixed | 21.3 | 16.5 | 51.8 | 10.4 |
| Highest degree earned | | | | |
| BA/BS or less | 22.2 | 20.8 | 47.1 | 9.9 |
| MA/MS or more | 18.7 | 20.0 | 46.7 | 14.7 |
| PRIVATE | 24.8 | 25.1 | 44.0 | 6.1 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

mathematics than science homework. For example, 10 percent of eighth graders had mathematics teachers who assigned more than 4 hours of homework per week, compared with only 4 percent whose science teachers reported the same. At the other extreme, only 6 percent of eighth graders had mathematics teachers who reported assigning less than 1 hour of homework per week, compared with 11 percent whose science teachers reported assigning equally little homework.

In mathematics, the level of class that eighth graders attended was related to the amount of homework they were assigned. For example, students in remedial-level classes were about twice as likely to have mathematics teachers who assigned less than 1 hour of homework per week as were eighth graders in any of the higher level classes including general, enriched, or advanced classes.

A majority of NELS:88 eighth graders never used computers in their mathematics or science classes.

Finally, according to the NELS:88 teachers, it appeared that computers were used little by 1988 eighth graders in either their mathematics or science classes (table 7.13). Approximately 63 percent of eighth graders had mathematics teachers and 65 percent had science teachers who reported no use of computers in their classes. Similar results were seen in the National Survey of Practices and Trends in Middle Schools, where principals reported that few of their typical science teachers used computer or video technology in their science classes.⁵⁴

⁵⁴Ibid.

Table 7.11—Average percentage of instructional time in science spent working in a laboratory, by student population and country: 1983–85

| | Population 1 ¹ | Population 2 ² |
|-------------------------------|---------------------------|---------------------------|
| Australia | 6 | 77 |
| Canada (French speaking) | 4 | 74 |
| England | 11 | 86 |
| Finland | 5 | 72 |
| Ghana ³ | (*) | 69 |
| Hong Kong | 3 | 57 |
| Hungary | 32 | 67 |
| Israel | 55 | 50 |
| Italy (grade 8) | (*) | 13 |
| Italy (grade 9) | (*) | 23 |
| Italy | 2 | (*) |
| Japan | 45 | 46 |
| Korea | 38 | 37 |
| Netherlands ³ | (*) | 67 |
| Nigeria | 45 | 55 |
| Papua New Guinea ³ | (*) | 78 |
| Phillipines | 31 | 46 |
| Poland | 35 | 45 |
| Singapore | 15 | 52 |
| Thailand ³ | (*) | 60 |
| United States | 26 | 19 |
| Zimbabwe ³ | (*) | 66 |

* Not available or not applicable.

¹“Population 1” was defined as “all students aged 10:0 to 10:11 on the specified date of testing or all students in the grade where most 10 year olds were to be found on the specified date of testing” (T.N. Postlethwaite and D.E. Wiley, *The IEA Study of Science II: Science Achievement in Twenty-three Countries* [Oxford: Pergamon Press, 1992], 3). The figures reported here are averages of data from samples taken from this population.

²“Population 2” was defined as “all students aged 14:0 to 14:11 on the specified date of testing or all students in the grade where most 14 year olds were to be found on the specified date of testing” (T.N. Postlethwaite and D.E. Wiley, *The IEA Study of Science II: Science Achievement in Twenty-three Countries* [Oxford: Pergamon Press, 1992], 3). The figures reported here are averages of data from samples taken from this population.

³Did not participate in Population 1 data collection.

SOURCE: T.N. Postlethwaite and D.E. Wiley, *The IEA Study of Science II: Science Achievement in Twenty-three Countries* (Oxford: Pergamon Press, 1992), 19, 28–29.

Table 7.12—Percentage of public school eighth graders whose mathematics or science teachers reported assigning various amounts of homework (hours/week) to their classes, by class type and mathematics class level: 1988

| | Less than 1 hour | 1 to less than 3 hours | 3 to 4 hours | More than 4 hours |
|-------------------------|------------------------|------------------------------|-----------------|-------------------------|
| Science | 11.2 | 73.3 | 11.7 | 3.8 |
| Mathematics | 5.6 | 65.2 | 19.6 | 9.6 |
| Mathematics class level | | | | |
| Advanced | 4.3 | 55.6 | 26.5 | 13.6 |
| Enriched | 5.4 | 67.1 | 17.3 | 10.2 |
| General | 5.5 | 70.0 | 17.3 | 7.1 |
| Remedial | 10.4 | 66.8 | 14.6 | 8.2 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

Table 7.13—Percentage of eighth graders whose mathematics or science teachers reported that various proportions of the class had regular use of a computer, by sector and public school percent minority enrollment: 1988

| | Mathematics | | | | Science | | | |
|---------------------|-----------------------|----------------------------|--------------------|------------------------------|-----------------------|----------------------------|--------------------|------------------------------|
| | No computer use | 25% or less of class | 26–50% of class | More than 50% of class | No computer use | 25% or less of class | 26–50% of class | More than 50% of class |
| TOTAL | 62.7 | 26.4 | 2.8 | 8.2 | 64.5 | 29.0 | 2.2 | 4.2 |
| PUBLIC | 62.5 | 27.7 | 2.6 | 7.2 | 65.5 | 28.5 | 1.5 | 4.6 |
| Minority enrollment | | | | | | | | |
| 20% or less | 60.0 | 31.5 | 1.7 | 6.8 | 63.6 | 31.7 | 1.2 | 3.5 |
| More than 20% | 66.1 | 22.0 | 4.0 | 7.9 | 68.1 | 24.6 | 1.8 | 5.4 |
| PRIVATE | 63.6 | 16.1 | 4.4 | 15.8 | 57.1 | 33.0 | 8.1 | 1.8 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, "Eighth Grade Student and Teacher Questionnaires."

CHAPTER 8 • TEACHER COMPENSATION

Teacher compensation was a major issue in school reform discussions in the 1980s,⁵⁵ in particular, how much teachers are paid. The salaries and benefits offered to teachers affect the appeal of teaching relative to other occupations requiring similar background and training, and they affect the ability of schools and districts to retain and motivate those who have chosen teaching. However, average annual salaries for teachers have ranked near the bottom among most occupations requiring a college degree, and even below a number of occupations only requiring a high school education.⁵⁶

Another important issue discussed at length in recent years is the structure of teacher compensation systems.⁵⁷ Teachers are typically paid according to objective measures of education and experience such as degrees earned and years taught, but many have proposed that teacher performance be taken into account as well through merit pay. Those in favor of merit pay believe that teachers should be rewarded for high performance and that they will perform better if their pay is dependent upon their performance. Opponents of merit pay do not necessarily refute this logic, but tend to argue that evaluating teacher performance is too subjective to form the basis for salary differentials. Although merit pay remains a controversial issue, many districts have implemented various types of rewards based on increased responsibilities or other types of merit. In addition to various forms of merit pay, teacher compensation systems sometimes include incentive pay to attract teachers to fields or locations with teacher shortages.

The 1987–88 Schools and Staffing Survey (SASS) collected data that can be useful in understanding

various aspects of teacher compensation, including scheduled salaries, actual salaries and benefits, teacher satisfaction with their salaries, the prevalence of “moonlighting,” how many teachers receive incentive income, teachers’ attitudes toward different types of incentives, and what happens to teachers’ incomes when they leave the profession.⁵⁸ Data from the Recent College Graduates Study (RCG) allow comparison of the salaries of recent bachelor’s degree recipients who had majored in education with the salaries of those who had majored in other fields. To place these salary data in context, information from other sources is presented to show teacher salaries over time and across countries.

SCHEDULED SALARIES

The average scheduled salary for a beginning teacher with a bachelor’s degree was \$17,180 for public school teachers and \$12,389 for private school teachers.

One of the simplest ways to examine teacher compensation is to look at district salary schedules, in which the various steps are usually determined by a combination of educational attainment and years of teaching experience. Starting salaries and potential salaries over time are important considerations for prospective and current teachers making a decision to enter or stay in the profession. These are by no means the only considerations, however. Working conditions, various aspects of which are discussed in Chapters 2, 6, and 9, are also very important.

⁵⁵K. Jordan, “Teacher Education Recommendations in the School Reform Reports,” in *Attracting and Compensating America’s Teachers*, eds., K. Alexander and D. Monk (Cambridge, MA: Ballinger, 1988).

⁵⁶Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century*, 37.

⁵⁷K. Alexander and D. Monk, eds., *Attracting and Compensating America’s Teachers*.

⁵⁸Further details on teacher “moonlighting” can be found in S.A. Bobbitt, “Moonlighting Among Public and Private School Teachers” (paper presented at the annual meeting of the American Educational Research Association, Boston, MA, 1990).

In 1987–88, the average salary across all public school districts for a beginning teacher with a bachelor's degree was \$17,180 (figure 8.1 and table 8.1). If the teacher had a master's degree, it rose to \$18,806. At the upper end of the scale, the average scheduled salary for a teacher with a master's degree and 20 years of experience was \$28,415. Scheduled salaries for public and private school teachers differed significantly. At each level just described, the salary for private school teachers was much less than the corresponding salary for public school teachers. The difference was particularly striking at the top end of the scale. Private school teachers with a master's degree and 20 years of experience earned an average of \$18,854, almost \$10,000 less than public school teachers with the same education and experience and almost the same as public school teachers with a master's degree and no experience. Differences in averaged scheduled teacher salaries

by state for public schools and by affiliation for private schools are shown in tables 8.2 and 8.3.

In the public sector, scheduled salaries varied with school district size, and tended to be higher in districts with 5,000 or more students than in districts with less than 5,000 students (table 8.1). For example, the average scheduled salary for a teacher with a master's degree and 20 years of experience was \$32,209 in a district with 10,000 or more students, compared with \$26,276 for a teacher with the same qualifications in a district with less than 1,000 students.

Among private schools, scheduled salaries varied by school size and type. They were higher in schools with 750 or more students than in schools with fewer than 150 students. In addition, the scheduled salaries of private school teachers in nonsectarian schools were, on average, higher than those of private school teachers in religious schools (table 8.3).

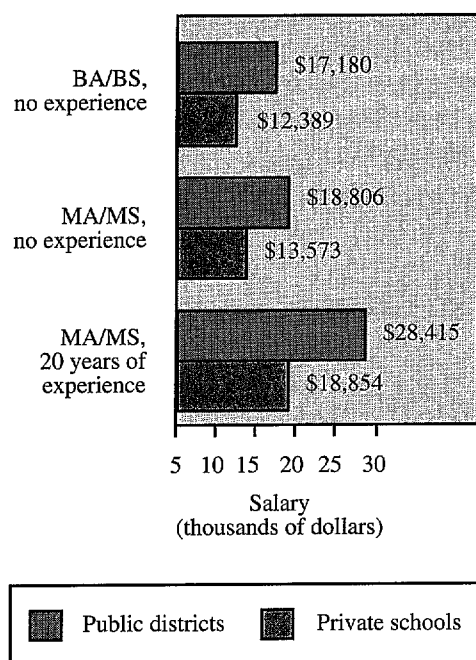
Regional differences may reflect cost of living differences. In the public sector, scheduled salaries were higher in the Northeast and West than in the Midwest or South. In the private sector, salary schedules in the West were generally higher than those in any other region. These regional differences in scheduled salaries in the private sector may be due partly to the mix of private school types in each region.

BASE SALARIES

The average annual base salary was \$24,345 for full-time elementary school teachers and \$26,080 for their secondary school counterparts.

Base salaries provide another way to examine teacher compensation. In contrast with scheduled salaries, they reflect the actual distribution of the teaching work force by education and experience. In 1987–88, the average base salary for a full-time elementary school teacher was \$24,345; for a secondary school teacher, it was \$26,080 (table 8.4). As with scheduled salaries, the average public

Figure 8.1—Average scheduled teacher salaries by degree and years of teaching experience, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Demand and Shortage Questionnaire."

Table 8.1—Average scheduled teacher salaries by degree and years of teaching experience, by sector and selected public district and private school characteristics: 1987–88

| | Bachelor's and no experience | Master's and no experience | Master's and 20 years of experience |
|-----------------|---------------------------------|-------------------------------|--|
| PUBLIC | \$17,180 | \$18,806 | \$28,415 |
| District size | | | |
| Less than 1,000 | 16,443 | 18,033 | 26,276 |
| 1,000 to 4,999 | 17,806 | 19,430 | 30,393 |
| 5,000 to 9,999 | 18,445 | 20,395 | 31,861 |
| 10,000 or more | 18,875 | 20,517 | 32,209 |
| Region | | | |
| Northeast | 18,169 | 19,693 | 32,066 |
| Midwest | 16,470 | 18,138 | 27,303 |
| South | 16,678 | 17,815 | 25,489 |
| West | 18,217 | 20,478 | 30,382 |
| PRIVATE | 12,389 | 13,573 | 18,854 |
| School size | | | |
| Less than 150 | 11,762 | 12,903 | 16,916 |
| 150 to 499 | 12,722 | 13,926 | 19,887 |
| 500 to 749 | 13,525 | 14,770 | 22,626 |
| 750 or more | 14,811 | 16,231 | 25,824 |
| Region | | | |
| Northeast | 11,756 | 12,811 | 18,495 |
| Midwest | 12,172 | 13,290 | 19,035 |
| South | 12,174 | 13,315 | 17,563 |
| West | 13,980 | 15,525 | 20,965 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Demand and Shortage Questionnaire."

school teacher earned significantly more base salary than did the average private school teacher (\$25,578 compared with \$14,957 at the elementary level, and \$26,879 compared with \$18,540 at the secondary level).

As follows from typical salary schedules, teachers' base salaries increased as they gained experience, but private school teachers' salaries always lagged behind those of public school teachers. New public school teachers (those with 3 years of experience or less) received about \$19,000, on average, while new private school teachers averaged \$12,417 at the elementary level and \$14,182 at the secondary level (figure 8.2). The gap widened with experience. Public and private elementary school teachers with 20 or more years of experience received, on aver-

age, \$30,891 and \$17,030, respectively. With 20 or more years of experience, the average annual salary was \$32,225 for a public secondary school teacher, compared with \$21,209 for a private school teacher.

The above discussion of teacher pay in the 1987–88 school year provides no indication of whether or not economic conditions are improving for teachers. Trend data show that the average annual base salary for all public school teachers (in constant 1991 dollars) improved between 1960 and 1972 (table 8.5). After 1972, it declined for a decade, but then increased again in the 1980s. Since 1972, beginning salaries for public school teachers have followed a similar pattern. In 1991 constant dollars, there was little difference between a beginning teacher's salary in 1972 and in 1991 (figure 8.3).

**Table 8.2—Average scheduled teacher salaries by degree and years of teaching experience, by state:
1987–88**

| | Bachelor's and no experience | Master's and no experience | Master's and 20 years of experience |
|----------------------|---------------------------------|-------------------------------|--|
| TOTAL | \$17,180 | \$18,806 | \$28,416 |
| Alabama | 18,061 | 20,630 | 23,955 |
| Alaska | 28,448 | 32,132 | 46,585 |
| Arizona | 18,368 | 20,644 | 26,244 |
| Arkansas | 15,954 | 16,830 | 20,729 |
| California | 20,704 | 22,849 | 34,165 |
| Colorado | 17,001 | 18,919 | 27,169 |
| Connecticut | 20,757 | 22,195 | 34,209 |
| Delaware | 18,226 | 20,737 | 31,989 |
| District of Columbia | 19,116 | 21,029 | 37,288 |
| Florida | 18,679 | 20,111 | 28,539 |
| Georgia | 18,219 | 21,021 | 28,065 |
| Hawaii | 17,607 | 18,707 | 35,740 |
| Idaho | 14,856 | 16,537 | 24,461 |
| Illinois | 16,364 | 17,963 | 28,097 |
| Indiana | 17,154 | 18,286 | 29,867 |
| Iowa | 16,259 | 18,262 | 25,010 |
| Kansas | 17,777 | 19,137 | 25,990 |
| Kentucky | 16,494 | 18,755 | 25,675 |
| Louisiana | 14,941 | 15,278 | 20,762 |
| Maine | 15,692 | 16,918 | 26,558 |
| Maryland | 19,443 | 20,896 | 31,966 |
| Massachusetts | 17,764 | 19,133 | 29,327 |
| Michigan | 18,085 | 19,588 | 32,494 |
| Minnesota | 18,545 | 20,560 | 30,011 |
| Mississippi | 16,384 | 17,274 | 22,135 |
| Missouri | 15,897 | 17,061 | 22,033 |
| Montana | 14,944 | 17,584 | 26,835 |
| Nebraska | 13,987 | 16,627 | 22,324 |
| Nevada | 18,552 | 21,261 | 32,852 |
| New Hampshire | 16,342 | 17,864 | 27,258 |
| New Jersey | 19,915 | 21,406 | 35,368 |
| New Mexico | 17,366 | 19,254 | 26,361 |
| New York | 18,747 | 20,766 | 35,154 |
| North Carolina | 17,612 | 19,307 | 29,614 |
| North Dakota | 14,487 | 16,420 | 22,576 |
| Ohio | 16,533 | 18,255 | \$0,716 |
| Oklahoma | 15,825 | 16,930 | 22,622 |
| Oregon | 16,386 | 18,025 | 26,829 |
| Pennsylvania | 17,859 | 18,889 | 31,074 |
| Rhode Island | 17,623 | 18,894 | 34,077 |
| South Carolina | \$17,799 | \$20,253 | \$29,589 |
| South Dakota | 13,931 | 15,063 | 21,661 |
| Tennessee | 16,354 | 18,013 | 23,511 |
| Texas | 16,632 | 16,923 | 27,754 |
| Utah | 15,677 | 17,573 | 27,754 |

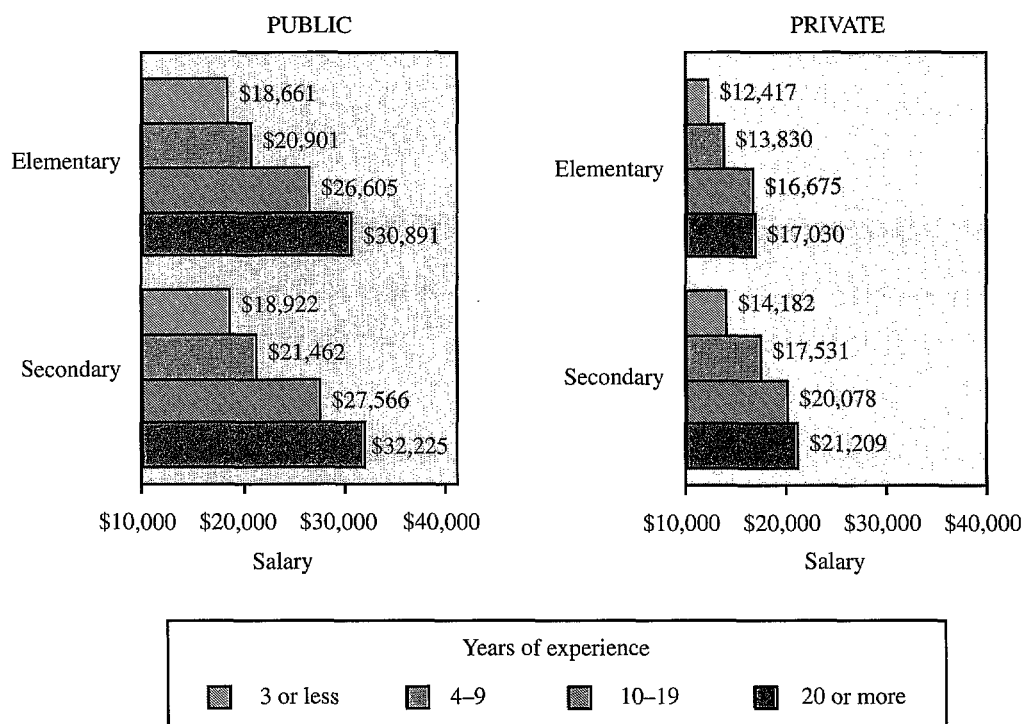
**Table 8.2—Average scheduled teacher salaries by degree and years of teaching experience, by state:
1987–88—Continued**

| State | Bachelor's and no experience | Master's and no experience | Master's and 20 years of experience |
|---------------|---------------------------------|-------------------------------|--|
| Vermont | 15,031 | 16,891 | 26,969 |
| Virginia | 18,464 | 19,835 | 28,912 |
| Washington | 16,978 | 20,052 | 31,692 |
| West Virginia | 15,251 | 17,018 | 24,460 |
| Wisconsin | 17,528 | 19,701 | 30,123 |
| Wyoming | 18,959 | 21,488 | 30,973 |

NOTE: Salary schedules for Delaware, the District of Columbia, Hawaii, Nevada, and West Virginia are universe figures because all school districts in these jurisdictions were included in the sample. Estimates for all other states except Maryland are based on samples of at least 30 cases. The number of cases for Maryland is 24.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Demand and Shortage Questionnaire."

Figure 8.2—Full-time teachers' average academic base salary, by sector, level, and years of teaching experience: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 8.3—Average scheduled teacher salaries by degree and years of teaching experience, by private school type: 1987–88

| | Bachelor's and no experience | Master's and no experience | Master's and 20 years of experience |
|--------------------------------------|---------------------------------|-------------------------------|--|
| TOTAL | \$12,395 | \$13,580 | \$18,879 |
| Private school type | | | |
| Religious | 12,065 | 13,229 | 18,515 |
| Non-sectarian | 13,969 | 15,256 | 20,614 |
| Private school category | | | |
| Assembly of God | 9,083 | 10,198 | 12,912 |
| Baptist | 9,714 | 10,311 | 12,775 |
| Calvinist | 15,212 | 16,296 | 25,438 |
| Christian | 10,673 | 11,949 | 15,437 |
| Episcopal | 14,011 | 15,242 | 20,603 |
| Friends | 13,679 | 15,235 | 22,957 |
| Jewish | 13,587 | 15,000 | 22,514 |
| Lutheran | 13,715 | 15,114 | 21,295 |
| 7th Day Adventist | 16,512 | 18,741 | 23,259 |
| Roman Catholic | 12,427 | 13,607 | 20,013 |
| Other: Religious | 9,499 | 10,092 | 13,211 |
| Exceptional children | 16,312 | 17,828 | 24,920 |
| Montessori | 14,397 | 15,923 | 20,095 |
| Nat. Ass. of Independent Schools | 14,741 | 16,361 | 24,903 |
| Other: Nonsectarian | 13,584 | 14,746 | 19,492 |
| 9-Category typology | | | |
| Catholic | | | |
| -Parochial | 12,239 | 13,415 | 19,426 |
| -Diocesan | 12,144 | 13,166 | 20,265 |
| -Private order | 14,161 | 15,668 | 23,307 |
| Other Religious | | | |
| -Conservative Christian | 10,098 | 11,131 | 14,307 |
| -Affiliated | 14,096 | 15,570 | 21,209 |
| -Unaffiliated | 10,068 | 10,852 | 14,066 |
| Nonsectarian | | | |
| -Regular | 12,895 | 14,082 | 19,110 |
| -Special emphasis | 14,546 | 15,972 | 21,080 |
| -Special education | 16,323 | 17,591 | 24,904 |
| NAIS membership status | | | |
| Not Nat. Ass. of Independent Schools | 12,278 | 13,445 | 18,611 |
| Nat. Ass. of Independent Schools | 14,803 | 16,351 | 24,389 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Demand and Shortage Questionnaire."

Table 8.4—Full-time teachers' average academic base salary, by sector, level, and selected teacher characteristics: 1987–88

| | Total | | Public | | Private | |
|------------------------------|------------|-----------|------------|-----------|------------|-----------|
| | Elementary | Secondary | Elementary | Secondary | Elementary | Secondary |
| TOTAL | \$24,345 | \$26,080 | \$25,578 | \$26,879 | \$14,957 | \$18,540 |
| Highest degree earned | | | | | | |
| BA/BS or less | 21,829 | 22,964 | 23,215 | 23,705 | 14,050 | 16,779 |
| MA/MS or more | 28,101 | 29,061 | 28,778 | 29,844 | 18,168 | 20,655 |
| Years of teaching experience | | | | | | |
| 3 or less | 17,487 | 18,118 | 18,661 | 18,922 | 12,417 | 14,182 |
| 4–9 | 19,701 | 20,960 | 20,901 | 21,462 | 13,830 | 17,531 |
| 10–19 | 25,722 | 26,964 | 26,605 | 27,566 | 16,675 | 20,078 |
| 20 or more | 29,836 | 31,475 | 30,891 | 32,225 | 17,030 | 21,209 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 8.5—Average annual public school teacher salary (in constant 1991 dollars), by level, average beginning teacher salary, and percent change in average salary since 1960: 1960–1991, selected years

| School year ending | All teachers | Elementary teachers | Secondary teachers | Beginning teacher salary |
|--------------------|--------------|---------------------|--------------------|--------------------------|
| 1960 | \$23,034 | \$22,204 | \$24,330 | (*) |
| 1964 | 26,397 | 25,561 | 27,591 | (*) |
| 1968 | 29,116 | 28,273 | 30,171 | (*) |
| 1972 | 31,692 | 30,775 | 32,757 | \$22,761 |
| 1976 | 30,227 | 29,459 | 31,035 | 21,794 |
| 1980 | 26,455 | 25,791 | 27,265 | 19,342 |
| 1984 | 28,817 | 28,229 | 29,631 | 20,340 |
| 1988 | 32,334 | 31,720 | 33,240 | 22,582 |
| 1991 | 33,015 | 32,448 | 33,701 | 22,830 |

*Not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1992* (Washington, D.C.: 1992), 144.

TEACHERS' SATISFACTION WITH THEIR SALARIES

Only 8 percent of public school teachers and 12 percent of private school teachers strongly agreed with the statement "I am satisfied with my teaching salary."

Are teachers satisfied with their salaries? In the 1987–88 SASS, teachers were asked whether they strongly agreed, somewhat agreed, somewhat disagreed, or strongly disagreed with the statement "I am satisfied with my teaching salary." The responses of public and private school teachers are interesting to compare (table 8.6). On one hand, private school teachers were more likely than public school teachers to agree strongly with the statement (12 percent compared with 8 percent), but on the other, they were also more likely to disagree strongly (38 percent compared with 33 percent).

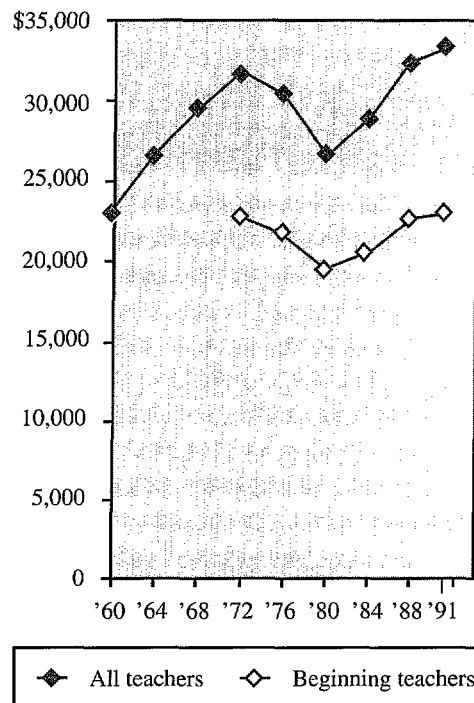
New public school teachers appeared to be more satisfied with their salaries than were more experienced ones. Public school teachers with 3 years of experience or less strongly agreed with the statement more frequently, and strongly disagreed with the statement less frequently than did public school teachers with more experience.⁵⁹

Interestingly, gender differences in satisfaction with salary varied by sector. Among public school teachers, males tended to be less satisfied with their salary than females. However, among private school teachers, males tended to be more satisfied with their salary. More males than females strongly agreed with the statement "I am satisfied with my teaching salary," and fewer strongly disagreed with it in the private sector.

Satisfaction also varied by race–ethnicity in the public sector, with black, non-Hispanic teachers being less satisfied with their salaries than white,

⁵⁹These differences support Stephen Jacobson's contention that beginning teachers do not care as much about monetary rewards because they entered teaching expecting nonmonetary rewards such as internal satisfaction. See S. Jacobson, "Merit Pay and Teaching as a Career," in *Attracting and Compensating America's Teachers*, eds., K. Alexander and D. Monk.

Figure 8.3—Average annual salary (in constant 1991 dollars) of all teachers and beginning teachers in public schools: 1960–91, selected years



NOTE: Data on salaries of beginning teachers before 1972 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1992* (Washington, D.C.: 1992), 144.

non-Hispanic teachers. Fewer black, non-Hispanic teachers agreed with the statement "I am satisfied with my teaching salary" and more of them strongly disagreed with it than did white, non-Hispanic teachers.

BENEFITS

Teachers were more likely to be offered medical, dental, and life insurance benefits in public schools than in private schools.

Benefits are another important aspect of teacher compensation. In 1987–88, 96 percent of all public

Table 8.6—Percentage distribution of teachers by their level of agreement with the statement *I am satisfied with my teaching salary*, by sector and selected teacher characteristics: 1987–88

| | Public | | | | Private | | | |
|------------------------------|----------------|----------------|-------------------|-------------------|----------------|----------------|-------------------|-------------------|
| | Strongly agree | Somewhat agree | Somewhat disagree | Strongly disagree | Strongly agree | Somewhat agree | Somewhat disagree | Strongly disagree |
| TOTAL | 7.6 | 33.1 | 25.9 | 33.4 | 11.5 | 26.4 | 24.0 | 38.2 |
| Teaching level | | | | | | | | |
| Elementary | 8.0 | 33.7 | 25.8 | 32.5 | 10.1 | 26.3 | 24.5 | 39.1 |
| Secondary | 7.2 | 32.6 | 25.9 | 34.3 | 13.0 | 26.4 | 23.4 | 37.2 |
| Sex | | | | | | | | |
| Male | 6.7 | 30.7 | 26.4 | 36.2 | 14.9 | 29.3 | 22.9 | 33.0 |
| Female | 8.0 | 34.2 | 25.7 | 32.1 | 10.6 | 25.5 | 24.3 | 39.6 |
| Race–ethnicity | | | | | | | | |
| Black, non-Hispanic | 4.5 | 22.8 | 24.4 | 48.4 | 7.5 | 21.6 | 21.5 | 49.4 |
| White, non-Hispanic | 7.9 | 34.2 | 26.1 | 31.8 | 11.5 | 26.5 | 24.0 | 38.0 |
| Other | 7.4 | 33.2 | 25.4 | 34.0 | 10.6 | 27.0 | 28.7 | 33.7 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 7.2 | 33.3 | 26.2 | 33.3 | 10.7 | 25.6 | 24.4 | 39.3 |
| MA/MS or more | 8.1 | 33.0 | 25.6 | 33.4 | 13.1 | 27.8 | 23.1 | 36.0 |
| Years of teaching experience | | | | | | | | |
| 3 or less | 10.6 | 35.9 | 25.8 | 27.8 | 11.1 | 25.6 | 23.2 | 40.0 |
| 4–9 | 6.4 | 32.8 | 27.3 | 33.6 | 9.5 | 23.5 | 25.6 | 41.3 |
| 10–19 | 7.2 | 31.7 | 25.9 | 35.2 | 9.2 | 26.3 | 25.8 | 38.7 |
| 20 or more | 8.2 | 34.6 | 24.9 | 32.3 | 19.5 | 32.0 | 18.5 | 29.9 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

school teachers and 85 percent of all private school teachers were offered medical insurance for which the school district or school paid at least part (table 8.7). Other benefits that a majority of teachers were offered (and that the district or school paid all or part of) were dental insurance (64 percent), life insurance (72 percent), and pension contributions (68 percent). Teachers in public schools tended to fare better than those in private schools, and were more likely to be offered medical, dental, and life insurance benefits. However, in both sectors, about two-thirds of the teachers were offered pension contributions.

OTHER INCOME

43 percent of teachers received income from a source other than a school in addition to their base salary.

For many teachers, base salaries are only a part of their total income. Many supplement their income through additional work at school, work outside of school, or both. This additional work may take place during the school year, the summer, or both times. At

**Table 8.7—Percentage of teachers offered various employee benefits and who paid for them, by sector:
1987–88**

| | General Medical Insurance | | Dental Insurance | | Group Life Insurance | | Pension contributions |
|---------------|-------------------------------|------------------|-------------------------------|------------------|-------------------------------|------------------|-----------------------|
| | District/school pays part/all | Teacher pays all | District/school pays part/all | Teacher pays all | District/school pays part/all | Teacher pays all | |
| TOTAL | 94.7 | 3.4 | 64.0 | 12.9 | 71.7 | 11.5 | 68.3 |
| Sector | | | | | | | |
| Public | 95.8 | 3.1 | 66.5 | 12.8 | 73.6 | 11.8 | 68.4 |
| Private | 85.4 | 6.3 | 42.4 | 13.6 | 55.8 | 9.4 | 68.0 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Demand and Shortage Questionnaire.”

school, teachers are often paid for assisting with extracurricular or additional activities such as coaching, student activity sponsorship, or evening classes. In 1987–88, 43 percent of all teachers received supplemental income from their school (table 8.8); the average amount they received was \$2,308 per year. With respect to nonschool outside income, 19 percent of all teachers received income from nonschool employment in the summer only, 17 percent during the academic year only, and 11 percent both in the summer and during the school year (table 8.9). The average amounts from nonschool sources ranged from \$2,118 for those who worked only during the summer to \$6,341 for those who worked both in the summer and during the school year.

Because private school teachers generally receive lower base salaries than do public school teachers, one might expect them to seek supplemental income more often. In fact, in 1987–88, private school teachers did have supplemental nonschool income more often than public school teachers (table 8.9). Public school teachers, however, were more likely than private school teachers to have additional school income, possibly due to more opportunities for this type of employment (table 8.8). On average, public school teachers earned higher amounts from nonschool sources than did private school teachers (table 8.9).

Secondary school teachers were more likely than elementary school teachers to receive supplemental

income from school sources and also from non-school sources (tables 8.8 and 8.9). In particular, elementary and secondary school teachers differed greatly in the amount of “additional school compensation” that they received. Whereas only 20 percent of public elementary school teachers received additional school compensation, 50 percent of public secondary school teachers did so. This difference may be due to the fact that secondary school teachers often have more opportunity than do elementary school teachers to earn such income from optional responsibilities such as coaching athletic teams, sponsoring student activities, or teaching evening classes.

Secondary school teachers were more likely than elementary school teachers to receive any supplemental school income and, in the public sector, the amount they received was generally higher. The average amount of school supplemental income that public secondary school teachers received was \$2,568, compared with \$1,814 for public elementary school teachers.

Some, but not all, years of experience comparisons were consistent with the expectation that teachers with less experience (and therefore lower base salaries) would seek supplemental income more often. Perhaps because less experienced teachers are often younger and have fewer family commitments, both public and private school teachers with 3 or fewer years of experience were more likely than

Table 8.8—Percentage of teachers who earned various types of supplemental school income and average amount earned, by sector and selected teacher characteristics: 1987–88

| | Any supplemental income | | Summer school salary | | Other summer compensation | | Additional school compensation | |
|--------------------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------|--------------------------------|-------------------------|
| | Percent teachers receiving | Average amount received | Percent teachers receiving | Average amount received | Percent teachers receiving | Average amount received | Percent teachers receiving | Average amount received |
| TOTAL | 43.2 | \$2,308 | 12.0 | \$2,180 | 6.8 | \$998 | 33.5 | \$2,007 |
| PUBLIC | 44.5 | 2,305 | 11.9 | 2,191 | 7.2 | 954 | 35.1 | 2,009 |
| Teaching level | | | | | | | | |
| Elementary | 31.1 | 1,814 | 10.4 | 2,029 | 5.8 | 699 | 20.4 | 1,553 |
| Secondary | 57.8 | 2,568 | 13.3 | 2,317 | 8.5 | 1,127 | 49.6 | 2,195 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 43.3 | 2,244 | 11.1 | 2,198 | 6.3 | 930 | 34.5 | 1,963 |
| MA/MS or more | 45.8 | 2,370 | 12.7 | 2,184 | 8.1 | 975 | 35.8 | 2,058 |
| Years of teaching experience | | | | | | | | |
| 3 or less | 46.2 | 1,966 | 13.4 | 2,107 | 5.8 | 871 | 36.0 | 1,613 |
| 4–9 | 47.8 | 2,322 | 13.4 | 2,310 | 6.7 | 1,032 | 37.4 | 1,967 |
| 10–19 | 44.4 | 2,312 | 11.0 | 2,132 | 7.8 | 980 | 35.1 | 2,053 |
| 20 or more | 41.6 | 2,422 | 11.4 | 2,211 | 7.1 | 878 | 32.9 | 2,135 |
| Marital status | | | | | | | | |
| Married | 43.7 | 2,316 | 11.0 | 2,198 | 6.9 | 963 | 35.0 | 2,026 |
| Not married | 46.8 | 2,281 | 14.0 | 2,191 | 7.9 | 933 | 35.4 | 1,961 |
| Dependents (other than spouse) | | | | | | | | |
| None | 44.2 | 2,145 | 11.5 | 2,118 | 6.8 | 935 | 34.5 | 1,870 |
| One or more | 44.8 | 2,416 | 12.1 | 2,240 | 7.4 | 966 | 35.5 | 2,103 |
| PRIVATE | 32.1 | 2,344 | 13.6 | 2,105 | 3.9 | 1,692 | 20.6 | 1,975 |
| Teaching level | | | | | | | | |
| Elementary | 20.3 | 2,045 | 10.6 | 2,139 | 2.4 | 1,293 | 10.0 | 1,599 |
| Secondary | 46.6 | 2,505 | 17.3 | 2,079 | 5.6 | 1,906 | 33.7 | 2,114 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 29.6 | 2,073 | 12.7 | 2,107 | 2.9 | 1,487 | 19.2 | 1,596 |
| MA/MS or more | 37.4 | 2,791 | 15.4 | 2,101 | 5.8 | 1,910 | 23.5 | 2,620 |
| Years of teaching experience | | | | | | | | |
| 3 or less | 34.5 | 1,884 | 16.5 | 2,038 | 4.1 | 1,196 | 21.0 | 1,284 |
| 4–9 | 33.0 | 2,020 | 14.1 | 2,075 | 4.4 | 1,455 | 20.6 | 1,547 |
| 10–19 | 31.7 | 2,460 | 13.4 | 1,979 | 3.9 | 2,154 | 21.2 | 2,058 |
| 20 or more | 28.8 | 3,349 | 10.0 | 2,617 | 2.6 | — | 19.2 | 3,431 |
| Marital status | | | | | | | | |
| Married | 29.8 | 2,521 | 11.0 | 2,073 | 3.4 | 1,645 | 20.1 | 2,353 |
| Not married | 35.9 | 2,093 | 17.5 | 2,169 | 4.7 | 1,754 | 21.8 | 1,369 |
| Dependents (other than spouse) | | | | | | | | |
| None | 33.0 | 2,335 | 14.9 | 2,194 | 3.8 | 1,584 | 20.7 | 1,880 |
| One or more | 31.2 | 2,354 | 12.2 | 1,991 | 4.0 | 1,800 | 20.5 | 2,077 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 8.9—Percentage of teachers who worked outside school at various times and average amount earned, by sector and selected teacher characteristics: 1987–88

| | Summer only | | Academic year only | | Both | |
|--------------------------------|------------------|-----------------------|--------------------|-----------------------|------------------|-----------------------|
| | Percent employed | Average amount earned | Percent employed | Average amount earned | Percent employed | Average amount earned |
| TOTAL | 19.2 | \$2,118 | 16.9 | \$4,069 | 10.8 | \$6,341 |
| PUBLIC | 18.4 | 2,174 | 16.5 | 4,220 | 10.6 | 6,578 |
| Teaching level | | | | | | |
| Elementary | 13.4 | 1,662 | 11.2 | 3,825 | 7.0 | 5,426 |
| Secondary | 23.4 | 2,466 | 21.8 | 4,422 | 14.2 | 7,143 |
| Highest degree earned | | | | | | |
| BA/BS or less | 19.8 | 2,035 | 15.3 | 3,860 | 10.2 | 6,152 |
| MA/MS or more | 16.9 | 2,358 | 17.8 | 4,566 | 11.0 | 7,022 |
| Years of teaching experience | | | | | | |
| 3 or less | 32.1 | 1,742 | 17.0 | 2,861 | 11.1 | 4,751 |
| 4–9 | 20.8 | 1,781 | 16.4 | 3,534 | 10.9 | 5,286 |
| 10–19 | 16.0 | 2,307 | 16.1 | 4,295 | 10.4 | 6,878 |
| 20 or more | 15.3 | 2,713 | 16.9 | 5,142 | 10.4 | 7,898 |
| Marital status | | | | | | |
| Married | 16.7 | 2,356 | 15.5 | 4,405 | 10.0 | 7,005 |
| Not married | 23.0 | 1,826 | 19.2 | 3,843 | 12.0 | 5,665 |
| Dependents (other than spouse) | | | | | | |
| None | 19.7 | 1,811 | 16.5 | 4,082 | 10.3 | 5,582 |
| One or more | 17.5 | 2,461 | 16.5 | 4,317 | 10.8 | 7,247 |
| PRIVATE | 25.2 | 1,775 | 20.5 | 3,051 | 13.0 | 4,721 |
| Teaching level | | | | | | |
| Elementary | 21.8 | 1,537 | 15.7 | 2,457 | 9.7 | 3,571 |
| Secondary | 29.3 | 1,996 | 26.3 | 3,490 | 17.2 | 5,527 |
| Highest degree earned | | | | | | |
| BA/BS or less | 27.3 | 1,806 | 19.3 | 2,803 | 13.3 | 4,664 |
| MA/MS or more | 20.7 | 1,692 | 22.8 | 3,491 | 12.5 | 4,848 |
| Years of teaching experience | | | | | | |
| 3 or less | 44.6 | 1,829 | 27.2 | 2,615 | 21.3 | 4,798 |
| 4–9 | 27.5 | 1,563 | 19.6 | 2,556 | 12.4 | 3,937 |
| 10–19 | 18.6 | 1,850 | 18.8 | 3,145 | 11.8 | 4,684 |
| 20 or more | 12.8 | 2,173 | 18.0 | 4,519 | 7.7 | 6,775 |
| Marital status | | | | | | |
| Married | 19.4 | 1,959 | 17.4 | 3,156 | 10.5 | 5,184 |
| Not married | 35.2 | 1,596 | 25.9 | 2,928 | 17.5 | 4,241 |
| Dependents (other than spouse) | | | | | | |
| None | 30.8 | 1,661 | 23.0 | 2,845 | 15.5 | 4,222 |
| One or more | 19.3 | 1,968 | 17.8 | 3,331 | 10.5 | 5,492 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

teachers with more experience to have nonschool summer income. This pattern did not exist with respect to supplemental school income, except that public school teachers with 3 or fewer years of experience were somewhat more likely than public school teachers with 20 or more years of experience to have supplemental school income.

Married teachers often have additional income from their spouse and may wish to spend time with their family. Therefore, it is not surprising that married public school teachers were less likely to receive supplemental school or nonschool income than were nonmarried public school teachers. However, other research has shown that in large families, the need for additional income increases, with the rate of moonlighting being greatest for single teachers with no dependents and teachers with six or more family members.⁶⁰

Finally, significant differences were found between public and private school teachers with respect to the in-kind income they earned. Larger proportions of private school teachers than public school teach-

ers received housing benefits, meals, tuition for their children, college tuition for themselves, and assistance with child care (table 8.10).

INCENTIVE INCOME

Relatively few teachers actually received any kind of incentive pay; many more strongly favored each type of pay incentive than received it.

In the SASS survey, teachers were asked questions about various types of incentive pay: master or mentor teacher pay for assuming additional responsibilities as a master or mentor teacher; additional pay for teaching in a field with an identified shortage, such as mathematics or science; additional pay for teaching in a less desirable location; career ladder incentives in which teachers progress through various levels based on their performance; merit pay bonus for performance in a given year; and schoolwide bonuses for exceptional school performance or improvement in a given year. For each incentive, teachers were asked whether or not they received it (table 8.11) and whether they strongly favored, mildly favored, mildly opposed, or strongly opposed the incentive (table 8.12).

⁶⁰Sharon A. Bobbitt, "Moonlighting Among Public and Private School Teachers" (paper presented to the American Educational Research Association, Boston, MA, April 1990).

Table 8.10—Percentage of teachers who received various types of in-kind income in addition to or in lieu of their teaching salaries, by sector and level: 1987–88

| | Housing or housing expenses | Meals | Tuition for children | Child care | College tuition for self | Transpor- tation expenses | None |
|----------------|-----------------------------------|-------|----------------------------|---------------|--------------------------------|---------------------------------|------|
| TOTAL | 1.2 | 1.6 | 1.6 | 0.5 | 3.3 | 3.8 | 90.5 |
| PUBLIC | 0.4 | 0.5 | 0.2 | 0.4 | 2.8 | 3.8 | 92.9 |
| Teaching level | | | | | | | |
| Elementary | 0.4 | 0.4 | 0.3 | 0.4 | 2.9 | 3.7 | 93.0 |
| Secondary | 0.4 | 0.5 | 0.2 | 0.4 | 2.7 | 3.9 | 92.9 |
| PRIVATE | 7.3 | 10.5 | 11.6 | 1.2 | 6.9 | 4.3 | 71.8 |
| Teaching level | | | | | | | |
| Elementary | 5.0 | 5.9 | 11.7 | 1.5 | 5.6 | 3.6 | 75.1 |
| Secondary | 9.8 | 15.5 | 11.5 | 0.8 | 8.3 | 5.1 | 68.3 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 8.11—Percentage of teachers who received various pay incentives, by sector and selected teacher characteristics: 1987–88

| | Additional pay for mentor or master duties | Additional pay for fields of shortage | Additional pay for locations of shortage | Career ladders | Merit pay bonus for individuals | Merit pay bonus on schoolwide basis |
|------------------------------|---|--|---|-------------------|---------------------------------------|--|
| TOTAL | 9.0 | 1.3 | 1.2 | 16.2 | 2.7 | 2.9 |
| PUBLIC | 9.2 | 1.3 | 1.3 | 16.3 | 2.5 | 2.7 |
| Teaching level | | | | | | |
| Elementary | 8.9 | 0.9 | 1.3 | 16.0 | 2.4 | 2.7 |
| Secondary | 9.6 | 1.6 | 1.2 | 16.6 | 2.5 | 2.8 |
| Sex | | | | | | |
| Male | 9.8 | 1.8 | 1.3 | 16.5 | 2.4 | 2.4 |
| Female | 9.0 | 1.1 | 1.3 | 16.2 | 2.5 | 2.8 |
| Race-ethnicity | | | | | | |
| Black, non-Hispanic | 9.2 | 2.4 | 3.1 | 17.0 | 3.3 | 3.7 |
| White, non-Hispanic | 9.1 | 1.0 | 1.0 | 16.0 | 2.3 | 2.5 |
| Other | 11.7 | 3.4 | 2.6 | 20.7 | 2.9 | 3.9 |
| Highest degree earned | | | | | | |
| BA/BS or less | 8.4 | 1.5 | 1.4 | 16.2 | 2.6 | 2.7 |
| MA/MS or more | 10.2 | 1.1 | 1.1 | 16.4 | 2.4 | 2.7 |
| Years of teaching experience | | | | | | |
| 3 or less | 6.0 | 1.8 | 1.8 | 12.6 | 2.2 | 3.0 |
| 4–9 | 8.2 | 1.5 | 1.3 | 16.2 | 2.6 | 2.7 |
| 10–19 | 9.5 | 1.2 | 1.2 | 16.4 | 2.4 | 2.7 |
| 20 or more | 10.7 | 1.2 | 1.1 | 17.7 | 2.5 | 2.5 |
| PRIVATE | 7.6 | 1.6 | 1.1 | 15.0 | 4.6 | 4.2 |
| Teaching level | | | | | | |
| Elementary | 6.4 | 0.7 | 1.4 | 13.6 | 3.4 | 4.4 |
| Secondary | 8.8 | 2.6 | 0.7 | 16.6 | 5.8 | 3.8 |
| Sex | | | | | | |
| Male | 10.9 | 3.1 | 0.5 | 18.9 | 6.2 | 3.5 |
| Female | 6.6 | 1.3 | 1.2 | 13.9 | 4.1 | 4.3 |
| Race-ethnicity | | | | | | |
| Black, non-Hispanic | 5.5 | 2.2 | 2.8 | 17.9 | 5.4 | 8.8 |
| White, non-Hispanic | 7.3 | 1.5 | 1.0 | 14.7 | 4.5 | 3.9 |
| Other | 9.5 | 5.1 | 1.7 | 20.1 | 3.2 | 6.9 |
| Highest degree earned | | | | | | |
| BA/BS or less | 6.5 | 1.6 | 1.4 | 13.9 | 4.0 | 4.6 |
| MA/MS or more | 9.6 | 1.7 | 0.4 | 17.2 | 5.8 | 3.3 |
| Years of teaching experience | | | | | | |
| 3 or less | 6.3 | 2.0 | 1.1 | 14.7 | 3.9 | 3.9 |
| 4–9 | 6.0 | 2.2 | 0.7 | 14.2 | 3.9 | 4.9 |
| 10–19 | 8.4 | 0.9 | 0.6 | 13.6 | 5.5 | 3.2 |
| 20 or more | 10.0 | 1.7 | 2.5 | 19.5 | 4.7 | 4.9 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 8.12—Percentage of teachers who strongly favored various pay incentives, by sector and selected teacher characteristics: 1987–88

| | Additional pay for mentor or master duties | Additional pay for fields of shortage | Additional pay for locations of shortage | Career ladders | Merit pay bonus for individuals | Merit pay bonus on schoolwide basis |
|-----------------------------------|---|--|---|-------------------|---------------------------------------|--|
| TOTAL | 58.9 | 24.2 | 40.9 | 41.1 | 28.6 | 34.5 |
| PUBLIC | 58.7 | 23.7 | 40.5 | 39.1 | 27.0 | 33.5 |
| Teaching level | | | | | | |
| Elementary | 58.8 | 21.1 | 40.0 | 37.3 | 24.9 | 32.2 |
| Secondary | 58.5 | 26.4 | 41.0 | 41.0 | 29.1 | 34.7 |
| Sex | | | | | | |
| Male | 55.9 | 27.8 | 41.1 | 40.6 | 27.9 | 32.6 |
| Female | 59.8 | 22.0 | 40.2 | 38.4 | 26.5 | 33.8 |
| Race–ethnicity | | | | | | |
| Black, non-Hispanic | 64.5 | 40.5 | 53.1 | 47.8 | 38.2 | 52.6 |
| White, non-Hispanic | 57.8 | 21.3 | 38.6 | 37.7 | 25.2 | 30.9 |
| Other | 63.9 | 36.4 | 50.0 | 48.6 | 38.8 | 44.9 |
| Highest degree earned | | | | | | |
| BA/BS or less | 57.5 | 24.5 | 40.5 | 39.8 | 28.4 | 35.6 |
| MA/MS or more | 60.0 | 22.9 | 40.4 | 38.4 | 25.3 | 31.0 |
| Years of teaching experience | | | | | | |
| 3 or less | 62.9 | 31.3 | 46.2 | 51.0 | 42.1 | 44.2 |
| 4–9 | 60.7 | 25.0 | 40.2 | 41.7 | 32.4 | 38.3 |
| 10–19 | 58.3 | 22.2 | 39.4 | 37.2 | 24.8 | 31.3 |
| 20 or more | 56.2 | 22.3 | 40.2 | 35.9 | 20.6 | 29.2 |
| Received master or mentor pay | | | | | | |
| Yes | 80.4 | 27.1 | 42.1 | 45.6 | 31.6 | 36.4 |
| No | 56.5 | 23.4 | 40.2 | 38.4 | 26.5 | 33.1 |
| Received field of shortage pay | | | | | | |
| Yes | 69.9 | 63.1 | 58.1 | 49.9 | 41.6 | 47.7 |
| No | 58.4 | 23.2 | 40.1 | 38.8 | 26.7 | 33.1 |
| Received location of shortage pay | | | | | | |
| Yes | 67.1 | 36.8 | 70.6 | 51.0 | 42.8 | 48.6 |
| No | 58.4 | 23.5 | 40.0 | 38.7 | 26.6 | 33.1 |
| Received career ladder | | | | | | |
| Yes | 63.2 | 26.3 | 42.6 | 62.5 | 31.0 | 37.0 |
| No | 57.8 | 23.2 | 40.0 | 34.5 | 26.2 | 32.7 |
| Received merit pay | | | | | | |
| Yes | 69.0 | 29.1 | 45.5 | 52.9 | 54.1 | 52.1 |
| No | 58.4 | 23.6 | 40.3 | 38.7 | 26.3 | 32.9 |
| Received schoolwide bonus | | | | | | |
| Yes | 66.8 | 32.1 | 46.2 | 51.5 | 42.2 | 72.0 |
| No | 58.4 | 23.5 | 40.3 | 38.8 | 26.6 | 32.4 |
| PRIVATE | 60.6 | 27.6 | 44.2 | 56.5 | 41.6 | 42.6 |
| Teaching level | | | | | | |
| Elementary | 60.3 | 26.6 | 43.6 | 54.3 | 40.2 | 43.5 |
| Secondary | 60.9 | 28.7 | 44.9 | 59.0 | 43.2 | 41.5 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Relatively few teachers actually received any kind of incentive pay; many more strongly favored each type of pay incentive than received it (figure 8.4). A majority (59 percent) of teachers strongly favored additional pay for mentoring or master teacher's duties (table 8.12), but only 9 percent received such pay (table 8.11). Forty-one percent favored additional pay for teaching in a location with a shortage, but only 1 percent received it. Because these types of incentives are designed only for some teachers, it is not surprising that more teachers favored than received them.

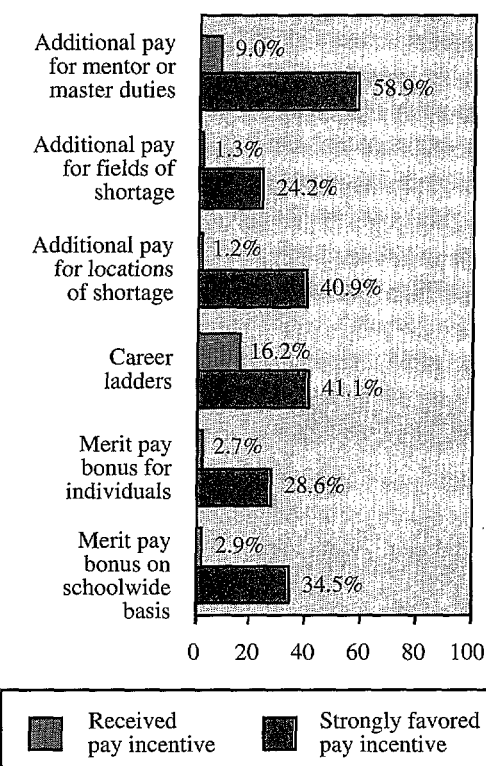
Other types of incentives, such as career ladders and individual merit pay, however, are designed to be available to any teacher in a district or school that provides it. While more than one-quarter of the teachers favored individual merit pay, only 3 percent received it. More teachers received career lad-

der pay than any other type of incentive pay, but still not close to number of teachers who favored it. Interestingly, more teachers favored schoolwide pay rather than individual merit pay. Teachers who received each type of pay were more likely to favor it than were teachers who did not receive it.

More private school teachers than public school teachers favored each type of incentive pay. When there were differences between elementary and secondary school teachers' perspectives, secondary school teachers were more likely to favor incentive pay. Similarly, when differences in attitude existed between teachers with varying levels of experience, public school teachers with 3 or fewer years of experience favored each type of incentive more than did public school teachers with more years of experience. For each type of incentive, white, non-Hispanic public school teachers favored incentive pay less often than did public school teachers who were black, non-Hispanic or those who belonged to "other" racial-ethnic groups.

Some incentives are intended to motivate teachers either to work in a field or location of shortage. Many have argued that in order to maintain economic competitiveness, the United States needs to improve mathematics and science education and the education of immigrant children. Although incentive pay can be used to recruit more teachers into these fields, the SASS data show that this strategy is rarely used. Only 1 percent of teachers received incentive pay to teach in a shortage field (figure 8.4). Similarly, incentive pay can be used to attract teachers to work in less desirable locations, such as inner cities or rural areas. But again, only 1 percent of teachers received this type of incentive.

Figure 8.4—Percentage of public and private school teachers who received and percentage who strongly favored various pay incentives: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

COMPARISON WITH OTHER PROFESSIONS AND OTHER COUNTRIES

Recent college graduates who majored in education received lower salaries, on average, than did other recent college graduates.

The SASS data show that teachers who left the profession in 1988–89 did not increase their

incomes, on average, at least immediately (table 8.13).⁶² These data, however, are for individuals

whose hiring qualifications (degrees and work experience) reflect their original decision to teach.

⁶²It should be noted that the sample of SASS former teachers was relatively small, and therefore all but obvious differences would not be statistically significant. See, for example, average total incomes for private school teachers. It appears that their 1988–89 income was higher than their 1987–88 income. However, the standard errors were too high to find statistical significance.

One indicator of whether or not entering education is an economically wise decision is to compare the salaries of college graduates with various majors. The data from the Recent College Graduate Study (RCG) allow comparison of the salaries of those who had majored in education with the salaries of

Table 8.13—Average annual income of former teachers,* by sector, year, and selected teacher characteristics: 1987–88 and 1988–89

| | Public | | Private | |
|---|----------|----------|----------|----------|
| | 1987–88 | 1988–89 | 1987–88 | 1988–89 |
| TOTAL | \$26,710 | \$25,999 | \$14,619 | \$15,927 |
| Highest degree earned | | | | |
| BA/BS or less | 23,314 | 20,766 | 13,352 | 14,314 |
| MA/MS or more | 30,413 | 29,848 | 17,645 | 19,307 |
| Years of teaching experience | | | | |
| 3 or less | 19,575 | 17,397 | 12,166 | 17,284 |
| 4–9 | 22,388 | 23,440 | 13,616 | 17,518 |
| 10–19 | 27,793 | 30,176 | 18,187 | 13,908 |
| 20 or more | 33,138 | 29,362 | 13,193 | — |
| 1987–88 teaching field | | | | |
| Kindergarten | 23,049 | — | 10,952 | — |
| General elementary | 25,377 | 26,796 | 13,266 | 15,755 |
| Math/science | 28,245 | 27,574 | 18,326 | 19,789 |
| English/language arts | 24,989 | 26,697 | 14,946 | — |
| Social studies | 36,425 | — | — | — |
| Special education | 27,146 | 22,695 | — | — |
| Bilingual/ESL | — | — | — | — |
| Vocational education | 28,668 | — | — | — |
| Other | 26,287 | 23,302 | 13,998 | 14,388 |
| 1988–89 Occupation | | | | |
| Managerial | 26,864 | 25,440 | 18,987 | 19,508 |
| Professional | 27,307 | 23,492 | 16,480 | 20,522 |
| Postsecondary education | 25,630 | — | — | — |
| Nonteaching occupation in elementary/secondary school | 28,261 | 30,301 | 13,794 | 17,816 |
| Other | 25,558 | 19,536 | 16,195 | 12,482 |

—Too few cases for a reliable estimate.

*1987–88 income includes income from both school and nonschool sources.

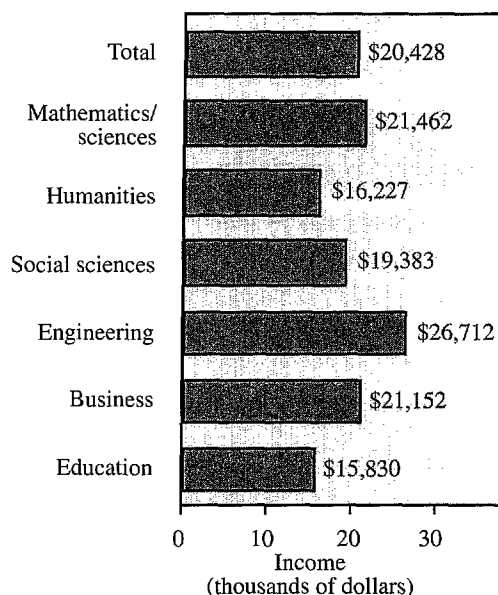
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

other graduates. Average salaries of recent college graduates in education were lower than the average salaries of all recent college graduates (figure 8.5 and table 8.14). The highest paid major was engineering, for which the average salary was \$26,712. The lowest paid majors were education and humanities, for which the average salaries were \$15,830 and \$16,227, respectively.

Table 8.15 shows teaching salaries from other countries in their own currency, in a U.S. dollar equivalent form,⁶² and as a proportion of the U.S. average salary in the same year. In 1984, average salaries in U.S. dollar equivalents ranged from \$13,836 (South Korean Middle schools) to \$31,956 (Canadian secondary schools), with the United States at \$22,667.

⁶²“PPP rates” are conversion factors between foreign currencies and the U.S. dollar that reflect the domestic purchasing power of each national currency. By using PPP rates, rather than market exchange rates, teachers’ pay in other countries will not be distorted by market fluctuations in currency exchange rates.

Figure 8.5—Average salaries of 1985–86 bachelor’s degree recipients who were employed full time, by college major: 1987



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

Table 8.14—Average salaries of full-time employed 1985–86 bachelor’s degree recipients, by college major and selected demographic characteristics: 1987

| | Total | Mathematics/sciences | Humanities | Social sciences | Engineering | Business | Education |
|------------------------|----------|----------------------|------------|-----------------|-------------|----------|-----------|
| TOTAL | \$20,428 | \$21,462 | \$16,227 | \$19,383 | \$26,712 | \$21,152 | \$15,830 |
| Age | | | | | | | |
| Under 25 years | 19,260 | 20,465 | 15,692 | 18,384 | 26,526 | 19,343 | 14,870 |
| 25 years or over | 22,009 | 22,819 | 17,093 | 20,944 | 26,854 | 23,662 | 17,049 |
| Sex | | | | | | | |
| Male | 22,261 | 22,390 | 17,335 | 20,807 | 26,658 | 22,494 | 18,003 |
| Female | 18,584 | 20,082 | 15,225 | 17,924 | 26,891 | 19,630 | 15,199 |
| Race-ethnicity | | | | | | | |
| Black, non-Hispanic | 19,237 | 17,264 | — | 18,307 | — | 21,382 | 16,384 |
| White, non-Hispanic | 20,403 | 21,612 | 16,161 | 19,304 | 26,869 | 21,111 | 15,666 |
| Other | 21,157 | 21,818 | 16,077 | 20,910 | 25,752 | 21,475 | 17,362 |
| Teaching status | | | | | | | |
| Teaching | 15,806 | 16,483 | 16,636 | 15,022 | — | — | 15,621 |
| Not teaching | 17,032 | 19,984 | 14,458 | — | — | — | 14,727 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

Table 8.15—Average salaries of teachers in selected countries and comparison with average salaries of teachers in the United States, by level: 1982–86

| Country and currency unit | Level of education | Year | Average salary U.S. dollar equivalent (PPP rate) ¹ | Average salary/ U.S. average salary in same year |
|-----------------------------|------------------------------|------|---|--|
| Canada | Elementary | 1982 | \$23,515 | 1.25 e |
| | | 1983 | 26,220 | 1.30 e |
| | | 1984 | 28,364 | 1.32 e |
| | Secondary | 1982 | 27,688 | 1.39 s |
| | | 1983 | 29,816 | 1.39 s |
| | | 1984 | 31,956 | 1.41 s |
| Denmark | Primary + lower secondary | 1982 | 17,709 | 0.94 e |
| | Upper secondary | 1982 | 25,498 | 1.28 s |
| Federal Republic of Germany | Primary | 1982 | 19,026 | 1.01 e |
| | Secondary | 1982 | 21,681 | 1.09 s |
| Japan | Elementary + lower secondary | 1982 | 18,621 | 0.99 e |
| | | 1983 | 19,570 | 0.97 e |
| | | 1984 | 20,359 | 0.95 e |
| | Upper secondary | 1982 | 20,148 | 1.01 s |
| | | 1983 | 21,419 | 1.00 s |
| | | 1984 | 22,406 | 0.99 s |
| Netherlands | Primary | 1982 | 16,858 | 0.90 e |
| | Secondary | 1982 | 25,495 | 1.28 s |
| New Zealand | Primary | 1986 | ² 16,212 | ³ 0.65 |
| | Secondary | 1986 | ² 20,382 | ³ 0.78 |
| South Korea | Primary | 1984 | 14,947 | 0.70 e |
| | Middle | 1984 | 13,836 | 0.64 e |
| | Senior high school | 1984 | 14,947 | 0.66 s |
| Sweden | Junior | 1984 | 15,759 | 0.73 e |
| | Intermediate | 1984 | 16,106 | 0.75 e |
| | Upper + Gymnasium | 1984 | 18,803 | 0.83 s |
| United Kingdom | Primary | 1982 | 15,648 | 0.83 e |
| | | 1984 | 16,959 | 0.79 e |
| | Secondary | 1982 | 16,377 | 0.83 s |
| | | 1984 | 17,731 | 0.78 s |

Table 8.15—Average salaries of teachers in selected countries and comparison with average salaries of teachers in the United States, by level: 1982–86—Continued

| Country and currency unit | Level of education | Year | Average salary U.S. dollar equivalent (PPP rate) ¹ | Average salary/ U.S. average salary in same year |
|------------------------------|--------------------|------|--|---|
| United States | Elementary | 1982 | \$18,801 | 1.00 |
| | | 1983 | 20,205 | 1.00 |
| | | 1984 | 21,452 | 1.00 |
| | Secondary | 1982 | 19,851 | 1.00 |
| | | 1983 | 21,380 | 1.00 |
| | | 1984 | 22,667 | 1.00 |

NOTE: The letters "e" and "s" in the last column indicate that the base of the salary comparison is the U.S. salary (for the same year) paid to elementary teachers or secondary teachers, respectively.

¹"PPP rates" are conversion factors between foreign currencies and the U.S. dollar that reflect the domestic purchasing power of each national currency. By using PPP rates, rather than market exchange rates, teachers' pay in other countries will not be distorted by market fluctuations in currency exchange rates.

²PPP rates are not available for New Zealand. Conversion is at a market rate of 1.7 New Zealand dollars per U.S. dollar.

³New Zealand salaries for primary and secondary teachers in 1986 are compared with the estimated average U.S. salaries of \$24,762 and \$26,080 for elementary and secondary teachers, respectively, as reported in the 1985–86 edition of the National Education Association's *Estimates of School Statistics*.

SOURCE: S.M. Barro, and L. Suter, *International Comparisons of Teachers' Salaries: An Exploratory Study* (Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, 1988), 15–17.

CHAPTER 9 • TEACHERS' OPINIONS ABOUT THEIR SCHOOLS AND PROFESSION

The data presented in this chapter address teachers' beliefs and attitudes about their students, colleagues, working conditions, schools, and profession. These data may inform further analyses of many of the issues discussed elsewhere in this report. For example, teachers' morale and satisfaction with various aspects of their work life may well impinge upon their performance, and therefore, upon student achievement. In addition, teachers' career plans no doubt will affect the supply and demand of teachers in future years. Furthermore, independent of their effect upon teachers' effort or length of stay in teaching, teachers' beliefs and opinions serve as important sources of data concerning exactly what is happening in our schools, including the problems that students, parents, teachers, and administrators face in achieving learning goals, and what they need to meet those goals.

This chapter opens with data relevant to the question "Why do people become teachers?" This is a question that teacher educators and other scholars of education have often addressed during the past three decades. Next, the chapter reports on teachers' assessments of schools as places to work. Specifically, it looks at teachers' views on the amount of control they had in their classrooms, on the influence they had over school policies, and on the support they received from other school personnel in solving problems. Third, teachers' perceptions of the seriousness of various problems in their schools and the relationship between teachers' perceptions of problems and their willingness to reenter the profession are examined. Fourth, teachers' satisfaction with specific aspects of their working conditions and with teaching generally are discussed, and comparisons are made between the job satisfaction of those who remained in teaching and that of those who left teaching for other employment. Finally, the chapter closes with data on the plans of teachers and former teachers for their future careers.

REASONS FOR BECOMING A TEACHER

About 32 percent of newly qualified teachers who were teaching in 1987 reported that they became teachers because they enjoyed working with children, 30 percent because they found teaching satisfying, and 28 percent because they had always wanted to be a teacher.

For more than 30 years, researchers have studied teachers' reasons for entering the profession with a number of objectives in mind. For example, a recent review of the literature concerning prospective teachers' demographic characteristics, motives, and beliefs about teaching focused on teacher educators, arguing that better knowledge of who prepares to teach and what prospective teachers believe when they begin that preparation would improve teacher education.⁶³ Others have suggested that teachers' motives for entering the profession influence their later practice as teachers, and therefore are of interest to researchers and policymakers as they seek to improve teaching practice.⁶⁴

In the 1987 Recent College Graduates Study (RCG), respondents who taught in elementary or secondary schools after receiving their degrees in 1985–86 were given six reasons for becoming a teacher and were asked which of these reasons best described why they decided upon teaching as a career. As in much of the previous research on current or prospective

⁶³S.M. Brookhart and D.J. Freeman, "Characteristics of Entering Teacher Candidates," *Review of Educational Research* 62 (1992): 37–60.

⁶⁴Lortie, for example, suggested that teachers who enter the profession because they enjoyed school might be more committed to traditional teaching practice and less receptive to innovation than other teachers (Lortie, *Schoolteacher*, 1975).

teachers' reasons for entering the profession, the majority of new teachers reported that the intrinsic satisfaction derived from teaching motivated them to become teachers. Among newly qualified teachers who were teaching, 32 percent reported that they had decided on teaching because they enjoyed working with children, 30 percent because they received satisfaction from teaching, and 28 percent because they had always wanted to be a teacher (table 9.1). Extrinsic reasons such as job security, teaching salaries, and the inability to find another job did not attract many new teachers to the profession.

VIEWS OF THE SCHOOL AS A WORKPLACE

Private school teachers were more likely than public school teachers to find their superiors or peers at their schools extremely helpful in solving instructional or classroom management problems.

Although research on schools and schooling has been going on for many years, schools have most often

Table 9.1—Percentage distribution of newly qualified teachers who were teaching by main reason for becoming a teacher, by sector, school level, and selected teacher characteristics: 1987

| | Always wanted to be a teacher | Likes to work with children | Job security | Receives satisfaction from teaching | Teacher salary is good | Found no other job | Other |
|--------------------|--|--------------------------------------|-----------------|--|------------------------------|--------------------------|-------|
| TOTAL | 28.4 | 31.8 | 2.1 | 30.2 | — | 1.3 | 6.0 |
| PUBLIC | 28.8 | 31.6 | 2.5 | 29.5 | — | 1.5 | 5.9 |
| School level | | | | | | | |
| Elementary | 31.1 | 35.0 | 0.8 | 27.6 | — | 0.7 | 4.4 |
| Secondary | 25.0 | 26.6 | 5.1 | 34.4 | — | 2.9 | 6.0 |
| Combined | 28.7 | 30.0 | 2.8 | 21.5 | — | — | 15.8 |
| Age | | | | | | | |
| Under 25 years | 31.2 | 32.0 | 1.7 | 28.1 | — | 1.6 | 5.1 |
| 25 years or over | 25.2 | 31.1 | 3.8 | 31.5 | — | 1.3 | 7.2 |
| Sex | | | | | | | |
| Male | 16.7 | 32.9 | 4.7 | 32.8 | — | 2.1 | 10.8 |
| Female | 32.2 | 31.4 | 1.9 | 28.3 | — | 1.3 | 4.6 |
| PRIVATE | 28.7 | 33.8 | — | 29.8 | — | — | 6.1 |
| School level | | | | | | | |
| Elementary | 30.4 | 38.7 | — | 27.3 | — | — | 2.4 |
| Secondary | 26.4 | 23.6 | — | 29.6 | — | — | 16.4 |
| Combined | — | — | — | — | — | — | — |
| Age | | | | | | | |
| Less than 25 years | 32.8 | 34.5 | — | 25.9 | — | — | 6.1 |
| 25 years or more | 20.2 | 31.3 | — | 38.5 | — | — | 6.1 |
| Sex | | | | | | | |
| Male | — | — | — | — | — | — | — |
| Female | 29.9 | 36.2 | — | 28.2 | — | — | 4.7 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 Survey of 1985–86 College Graduates.

been studied in terms of their success or failure as institutions in which children are, or are supposed to be, educated. In recent years, however, researchers in the United States, Great Britain, and Australia have studied schools as institutions in which adults work, that is, from the perspective of the adults, mostly the teachers, who staff them.⁶⁵ Moreover, particular issues concerning the work life and environment of teachers have received increasing attention among policymakers. Those who have called for school reform have claimed that the quality of instruction suffers when teachers have inadequate control over their work or insufficient support in terms of physical and human resources. Therefore, reformers have suggested that improving the conditions under which teachers work, including the amount of control and responsibility that teachers have over their work, will, in turn, improve the quality of instruction.⁶⁶

The Schools and Staffing Survey (SASS) data provide several avenues to explore teachers' attitudes about their schools as workplaces, three of which are included in this section: the amount of control teachers felt they had over teaching and planning in their classrooms, the amount of influence they felt they had over school policies in various areas, and the degree to which they felt that other school personnel helped them solve problems related to instruction or classroom management.

The majority of teachers reported that they had complete control over teaching and planning in four areas of classroom life: selecting textbooks and other instructional materials; selecting content, top-

ics, and skills to be taught; selecting teaching techniques; and determining the amount of homework to be assigned (figure 9.1 and table 9.2). Teachers were most likely to report that they had complete control over the amount of homework they assigned and selecting teaching techniques, content, and materials. In each area of classroom life, private school teachers were more likely than public school teachers to report that they had complete control (although the difference for the amount of homework assigned was slight). The same was true for secondary school teachers in both public and private schools compared with elementary school teachers.

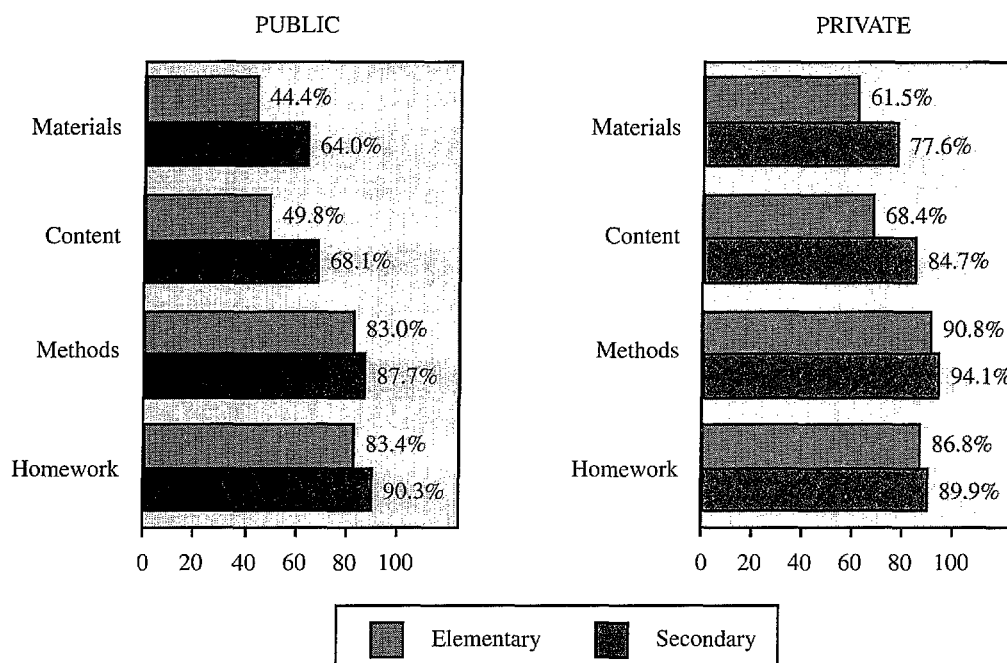
In the public sector, school district and size were associated with the extent to which teachers reported having complete control in their classrooms: generally, teachers in smaller districts and smaller schools were more likely than teachers in larger districts and schools to report that they had complete control in each area of classroom teaching.⁶⁷ Community type, which is often associated with school size because urban schools tend to be larger than schools in rural areas, small cities, or suburbs of large cities, was also associated with public school teachers' reports of control in the classroom. When asked about the amount of control they had over teaching materials and the content of their instruction, teachers in urban schools were less likely than teachers in suburban or rural-small city schools to report that they had complete control, as were teachers in suburban schools compared with their rural-small city counterparts. Although this pattern generally held true with respect to teachers' reports of control over teaching methods and assigning homework, not all differences among community types in these areas were significant. Neither school size nor community type was associated with consistent differences among private school teachers' reports of the amount of control they had over classroom teaching materials, content, or activities.

⁶⁵See, for example, R.W. Connell, *Teachers' Work* (Sydney: George, Allen & Unwin, 1985); A. Hargreaves and P. Woods, eds., *Classrooms and Staffrooms* (Milton Keynes, England: Open University Press, 1984); Richard Ingersoll, "Conflict and Control in American Schools: Teachers' Work and the Structure of Educational Organization" (unpublished dissertation, University of Pennsylvania, 1992); Richard Ingersoll, "Organizational Control in Secondary Schools" (paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1992); S.M. Johnson, *Teachers at Work: Achieving Success in Our Schools* (New York: Basic Books, 1990); L.M. McNeil, *Contradictions of Control: School Structure and School Knowledge* (New York: Routledge & Kegan Paul, 1986); and S.J. Rosenholtz, *Teachers' Workplace* (New York: Longman, 1989).

⁶⁶Holmes Group, *Tomorrow's Teachers* (East Lansing, MI: Author, 1986); Carnegie Forum on Education and the Economy, Task Force on Teaching as a Profession, *A Nation Prepared: Teachers for the 21st Century* (New York: Author, 1986).

⁶⁷Susan Moore Johnson has also found that school size is related to teachers' perceptions of the control they have over their work (Johnson, *Teachers at Work*, 1990). Recent school reform and restructuring efforts have been oriented toward decreasing school size to improve communication, climate, and instructional effectiveness in both elementary and secondary schools. See, for example, D. Meier, "Central Park East: An Alternative Story," *Phi Delta Kappan* 68 (1987): 753-57.

Figure 9.1—Percentage of teachers who reported that they felt they had a lot of control* in their classrooms over selected areas of planning and teaching, by sector and level: 1987–88



*Teachers were defined as having felt they had a lot of control if they responded with a 5 or 6 on a 6-point scale of control, with 6 representing *complete control*.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Beyond the confines of the classroom, 30 percent to 40 percent of teachers reported that they had a great deal of influence over school policies in the areas of discipline, inservice programs, ability grouping, and establishing curriculum (table 9.3). Teachers in both public and private schools were more likely to report that they had a great deal of influence over discipline policy and establishing curriculum than over inservice programs and ability grouping in their schools. In all four policy areas, private school teachers were more likely than public school teachers to report that they had a great deal of influence (figure 9.2). In the public sector, elementary school and female teachers were more likely than secondary school and male teachers to report that they had a great deal of influence over discipline policy, inservice programs, and ability grouping in their schools. In the area of establishing curriculum, however, public sec-

ondary school teachers were more likely than public elementary school teachers to report that they had a great deal of influence.

The isolation of classroom work has been commented upon by a number of researchers who study teachers and their work. Teachers have less contact with their peers than do many other professionals. In fact, some classroom teachers rarely communicate with other adults during the workday, and even fewer teachers frequently consult with peers or superiors concerning professional challenges.⁶⁸

⁶⁸See, for example, A. Hargreaves and R. Dawe, "Paths of Professional Development: Contrived Collegiality, Collaborative Culture, and the Case of Peer Coaching," *Teaching and Teacher Education* 6 (1990): 227–41. J.W. Little, "Norms of Collegiality and Experimentation: Workplace Conditions of School Success," *American Educational Research Journal* 19 (1982): 325–40.

Table 9.2—Percentage of teachers who reported that they felt they had a lot of control* in their classrooms over selected areas of planning and teaching, by sector and selected teacher, school, and district characteristics: 1987–88

| | Selecting materials | Content, topics, skills | Teaching techniques | Amount of homework |
|------------------|---------------------|-------------------------|---------------------|--------------------|
| TOTAL | 55.8 | 60.8 | 86.1 | 87.0 |
| PUBLIC | 54.1 | 58.8 | 85.3 | 86.8 |
| Teaching level | | | | |
| Elementary | 44.4 | 49.8 | 83.0 | 83.4 |
| Secondary | 64.0 | 68.1 | 87.7 | 90.3 |
| District size | | | | |
| Less than 1,000 | 76.8 | 77.0 | 90.6 | 91.0 |
| 1,000 to 4,999 | 63.7 | 65.7 | 87.7 | 89.1 |
| 5,000 to 9,999 | 50.6 | 57.1 | 85.7 | 86.3 |
| 10,000 or more | 40.0 | 48.0 | 81.5 | 83.9 |
| School size | | | | |
| Less than 150 | 70.1 | 73.2 | 90.4 | 88.9 |
| 150 to 499 | 56.8 | 60.9 | 86.6 | 87.1 |
| 500 to 749 | 51.3 | 55.5 | 84.7 | 85.7 |
| 750 or more | 52.0 | 57.6 | 84.3 | 87.7 |
| Community type | | | | |
| Urban | 41.1 | 49.1 | 81.4 | 84.7 |
| Suburban | 52.9 | 58.0 | 86.3 | 85.7 |
| Rural-small city | 61.5 | 64.2 | 87.2 | 88.7 |
| PRIVATE | 69.2 | 76.2 | 92.4 | 88.3 |
| Teaching level | | | | |
| Elementary | 61.5 | 68.4 | 90.8 | 86.8 |
| Secondary | 77.6 | 84.7 | 94.1 | 89.9 |
| School size | | | | |
| Less than 150 | 62.5 | 73.2 | 89.7 | 90.3 |
| 150 to 499 | 68.6 | 75.1 | 92.9 | 87.3 |
| 500 to 749 | 73.2 | 78.4 | 93.6 | 88.4 |
| 750 or more | 76.7 | 80.5 | 94.5 | 93.3 |
| Community type | | | | |
| Urban | 69.1 | 77.1 | 92.1 | 89.4 |
| Suburban | 71.6 | 77.4 | 93.3 | 85.5 |
| Rural-small city | 67.0 | 73.9 | 92.6 | 89.6 |

*Teachers were defined as having felt they had a lot of control if they responded with a 5 or 6 on a 6-point scale of control, with 6 representing *complete control*.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

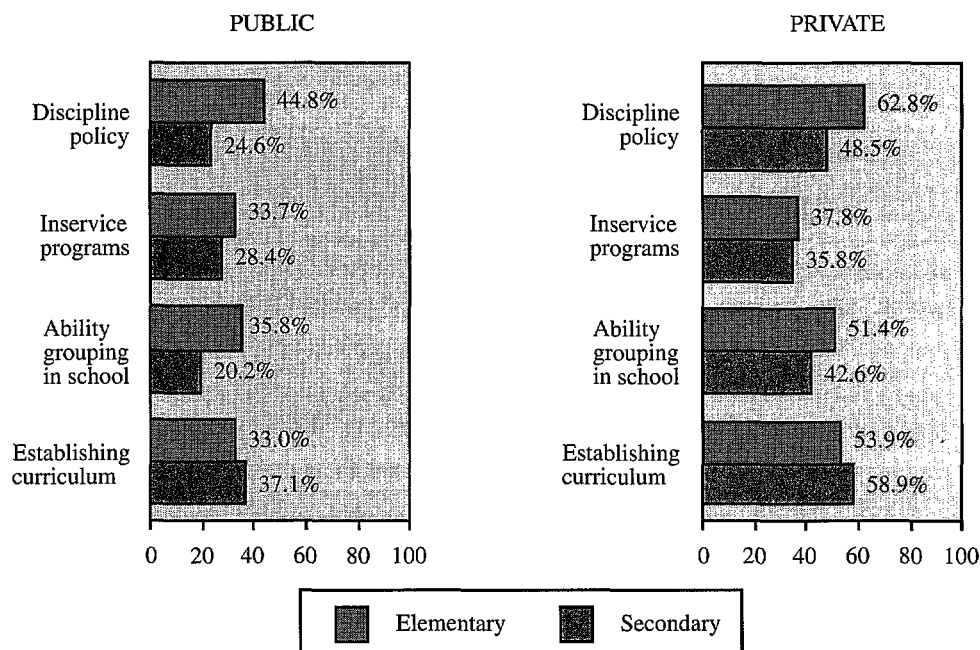
Table 9.3—Percentage of teachers who thought that they had a lot of influence* over school policy in certain areas, by sector and selected teacher characteristics: 1987–88

| | Disciplinary policy | Inservice programs | Ability grouping in school | Establishing curriculum |
|-----------------------|------------------------|-----------------------|-------------------------------|----------------------------|
| TOTAL | 37.3 | 31.8 | 30.3 | 37.5 |
| PUBLIC | 34.8 | 31.1 | 28.1 | 35.0 |
| Teaching level | | | | |
| Elementary | 44.8 | 33.7 | 35.8 | 33.0 |
| Secondary | 24.6 | 28.4 | 20.2 | 37.1 |
| Sex | | | | |
| Male | 26.4 | 27.1 | 22.2 | 35.5 |
| Female | 38.3 | 32.8 | 30.6 | 34.8 |
| Age | | | | |
| Under 30 years | 36.9 | 30.4 | 29.1 | 38.4 |
| 30–39 years | 34.3 | 30.0 | 27.2 | 35.8 |
| 40–49 years | 34.0 | 31.5 | 28.0 | 34.0 |
| 50 years or over | 36.0 | 33.1 | 29.3 | 32.7 |
| Highest degree earned | | | | |
| BA/BS or less | 37.1 | 31.8 | 29.5 | 36.8 |
| MA/MS or more | 32.3 | 30.4 | 26.6 | 33.0 |
| PRIVATE | 55.9 | 36.8 | 47.2 | 56.3 |
| Teaching level | | | | |
| Elementary | 62.8 | 37.8 | 51.4 | 53.9 |
| Secondary | 48.5 | 35.8 | 42.6 | 58.9 |
| Sex | | | | |
| Male | 47.9 | 36.2 | 40.9 | 57.3 |
| Female | 58.1 | 37.0 | 49.0 | 56.0 |
| Age | | | | |
| Under 30 years | 53.1 | 33.4 | 44.8 | 52.8 |
| 30–39 years | 55.3 | 36.8 | 47.3 | 58.0 |
| 40–49 years | 57.1 | 39.5 | 47.6 | 56.3 |
| 50 years or over | 59.2 | 36.7 | 49.5 | 56.8 |
| Highest degree earned | | | | |
| BA/BS or less | 57.5 | 35.6 | 46.9 | 54.9 |
| MA/MS or more | 52.8 | 39.3 | 47.7 | 58.9 |

*Teachers were defined as having thought they had a lot of influence if they responded with a 5 or 6 on a 6-point scale of influence with 6 representing *a great deal of influence*.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Figure 9.2—Percentage of teachers who thought that they had a lot of influence* over school policy in certain areas, by sector and level: 1987–88



*Teachers were defined as having thought they had a lot of influence if they responded with a 5 or 6 on a 6-point scale of influence, with 6 representing a great deal of influence.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Despite these findings, 54 percent of respondents to the 1987–88 SASS survey reported that other teachers had been extremely helpful in solving an instructional or classroom management problem (table 9.4). Public school teachers were most likely to report that other teachers had been extremely helpful, followed by their principal or school head, department chair, and other school administrators. In public schools, elementary school teachers were more likely than secondary school teachers to report that principals or other teachers had been extremely helpful, whereas secondary school teachers were more likely to report that department chairs or other administrators had been extremely helpful. In general, private school teachers were more likely than public school teachers to report that other school personnel had been helpful in solving problems.

TEACHERS' PERCEPTIONS OF STUDENT ACHIEVEMENT LEVELS

At the secondary level, the most experienced public school teachers were less likely to be teaching lower achieving students.

In SASS, teachers were asked to assess the achievement levels of their students compared with the achievement levels of other students at their school. Eleven percent of all elementary school teachers said that they mainly taught higher achieving students, 37 percent said that they mainly taught average achieving students, 20 percent said that they mainly taught lower achieving students,

Table 9.4—Percentage of teachers who had found various school personnel *very or extremely helpful in helping the teacher improve teaching or solve an instructional or management problem, by sector and selected teacher characteristics: 1987–88**

| | Principal or school head | Department chair | Other administrators | Other teachers |
|-----------------------|-----------------------------|---------------------|-------------------------|-------------------|
| TOTAL | 44.1 | 40.1 | 31.1 | 54.1 |
| PUBLIC | 42.8 | 38.9 | 29.9 | 53.0 |
| Teaching level | | | | |
| Elementary | 47.4 | 34.0 | 28.8 | 59.2 |
| Secondary | 37.9 | 41.7 | 30.8 | 46.4 |
| Sex | | | | |
| Male | 38.6 | 39.2 | 27.5 | 42.6 |
| Female | 44.6 | 38.8 | 31.1 | 57.2 |
| Age | | | | |
| Under 30 years | 47.4 | 44.6 | 32.7 | 63.9 |
| 30–39 years | 42.5 | 38.7 | 29.4 | 54.2 |
| 40–49 years | 41.2 | 37.5 | 28.8 | 50.4 |
| 50 years or over | 42.7 | 37.1 | 30.7 | 46.5 |
| Highest degree earned | | | | |
| BA/BS or less | 46.1 | 40.3 | 31.2 | 56.8 |
| MA/MS or more | 39.1 | 37.5 | 28.5 | 48.6 |
| PRIVATE | 53.9 | 52.2 | 43.9 | 62.7 |
| Teaching level | | | | |
| Elementary | 58.8 | 52.3 | 44.3 | 66.6 |
| Secondary | 48.5 | 52.1 | 43.7 | 58.4 |
| Sex | | | | |
| Male | 47.8 | 49.1 | 38.2 | 52.8 |
| Female | 55.5 | 53.3 | 46.3 | 65.4 |
| Age | | | | |
| Under 30 years | 53.7 | 48.3 | 40.9 | 64.0 |
| 30–39 years | 52.5 | 53.7 | 43.9 | 63.6 |
| 40–49 years | 53.7 | 50.7 | 45.1 | 62.2 |
| 50 years or over | 57.3 | 56.7 | 46.8 | 58.5 |
| Highest degree earned | | | | |
| BA/BS or less | 56.9 | 55.9 | 44.9 | 64.8 |
| MA/MS or more | 48.0 | 46.9 | 42.3 | 58.5 |

*Teachers were defined as finding school personnel *very or extremely helpful* if they responded with a 5 or 6 on a 6-point scale, with 6 representing *extremely helpful*.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

and 32 percent said that they taught students of differing levels of achievement (table 9.5). Among secondary school teachers, 8 percent said that they mainly taught higher achieving students, 35 percent average achieving, 29 percent lower achieving, and 28 percent said that they mainly taught students achieving at different levels.

Private school teachers were more likely than public school teachers to report that they were teaching students who were higher achieving relative to other students in the school. Whereas 9 percent of public

school elementary teachers said that they mainly taught higher achieving students, this was true for 25 percent of private school elementary teachers. In contrast, 22 percent of public school elementary teachers said that they mainly taught lower achieving students, compared with 5 percent of private school elementary teachers. Among secondary school teachers, 7 percent of public versus 15 percent of private school teachers said that they mainly taught higher achieving students, and 31 percent of public versus 17 percent of private school teachers said that they mainly taught lower achieving students.

Table 9.5—Percentage distribution of teachers by their descriptions of their students' achievement levels relative to other students in their school, by level, sector, and selected public school teacher characteristics: 1987–88

| | Elementary | | | | Secondary | | | |
|----------------------------------|----------------------------|-----------------------------|---------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|------------------------------|
| | Primarily higher achieving | Primarily average achieving | Primarily lower achieving | Widely differing achievement | Primarily higher achieving | Primarily average achieving | Primarily lower achieving | Widely differing achievement |
| TOTAL | 10.8 | 37.3 | 19.9 | 32.0 | 7.9 | 34.7 | 29.2 | 28.2 |
| PUBLIC | 8.9 | 36.3 | 21.9 | 32.9 | 7.0 | 33.6 | 30.8 | 28.6 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 8.5 | 39.0 | 19.7 | 32.8 | 6.0 | 32.2 | 31.2 | 30.6 |
| MA/MS or more | 9.3 | 32.9 | 24.8 | 33.1 | 7.9 | 34.9 | 30.5 | 26.7 |
| Years of teaching experience | | | | | | | | |
| 3 or less | 7.5 | 40.1 | 21.1 | 31.3 | 5.5 | 28.9 | 39.0 | 26.6 |
| 4–9 | 8.1 | 33.9 | 26.4 | 31.6 | 5.9 | 29.7 | 34.0 | 30.4 |
| 10–19 | 9.0 | 35.2 | 22.0 | 33.8 | 7.2 | 34.3 | 30.1 | 28.4 |
| 20 or more | 9.9 | 38.8 | 18.0 | 33.4 | 8.0 | 37.0 | 26.8 | 28.2 |
| Teaching in best qualified field | | | | | | | | |
| Yes | 8.9 | 37.5 | 20.1 | 33.5 | 7.0 | 35.0 | 29.4 | 28.7 |
| No | 8.7 | 31.1 | 29.5 | 30.6 | 7.1 | 26.0 | 39.4 | 27.6 |
| Would become teacher again | | | | | | | | |
| Certainly would | 10.1 | 37.7 | 20.4 | 31.9 | 7.8 | 33.3 | 29.2 | 29.6 |
| Probably would | 7.3 | 37.5 | 22.0 | 33.3 | 6.7 | 35.6 | 29.8 | 27.9 |
| PRIVATE | 25.0 | 44.6 | 5.0 | 25.4 | 15.3 | 43.0 | 16.7 | 25.0 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

At the secondary level, the most experienced public school teachers (those with 20 or more years of experience) were less likely to be teaching lower achieving students. Twenty-seven percent said that they mainly taught lower achieving students, compared with 39 percent of their counterparts with 3 or fewer years of experience.

PERCEPTIONS OF SCHOOL PROBLEMS

Public school teachers who did not rate school problems as serious were more likely than those who did to report that they certainly or probably would become teachers again.

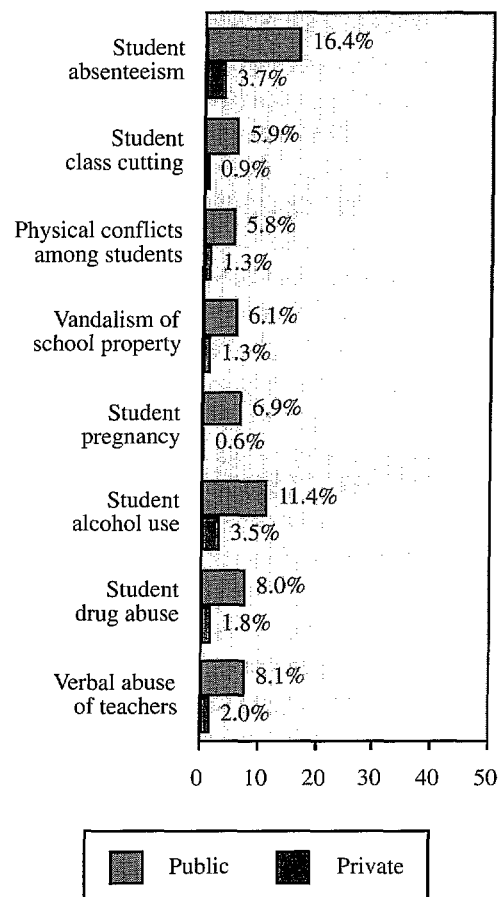
Schools are unique settings for adult work for a number of reasons: as institutions, they serve children exclusively, rather than adults or a combination of children and adults; their clients receive services involuntarily, rather than seeking the services of schools and teachers; and neither schools nor teachers select those whom they serve in their schools or classrooms.⁶⁹ Therefore, in addition to generic working conditions such as the issues of autonomy and support discussed above, schools and students have unique problems that affect the quality of the working environment for teachers.

In the 1987–88 SASS Teacher Questionnaire, teachers were asked whether various issues were serious, moderate, minor, or not problems in their schools. Fifteen percent rated student absenteeism and 11 percent rated student alcohol use as serious problems in their schools. Seven percent or fewer rated each of the other identified problems as serious (table 9.6). Public school teachers were more likely than private school teachers to rate each of the problems as serious (figure 9.3), and with the exception of physical conflict among students, public secondary school teachers were more likely than

public elementary school teachers to rank each of the problems as serious. Tables 9.7 and 9.8 show differences for public school teachers by state and for private school teachers by affiliation.

An area of great interest is the extent to which teachers' plans to remain in teaching are related to their perceptions of school problems. Among public school teachers, those who rated student absenteeism, student use of alcohol, student tardiness, student drug abuse, and verbal abuse of teachers as

Figure 9.3—Percentage of teachers who thought that certain matters were serious problems in their schools, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

⁶⁹The involuntariness and lack of selection is clearly more relevant in public schools than in private schools; although even in private schools, it may be the parents' choice to send the student.

Table 9.6—Percentage of teachers who thought that certain matters were serious problems in their schools, by sector and selected teacher characteristics: 1987–88

| | Student absen- teeism | Students cutting classes | Physical conflicts among students | Vandalism of school property | Student pregnancy | Student alcohol use | Student drug abuse | Verbal abuse of teachers |
|-----------------------|-----------------------------|--------------------------------|--|------------------------------------|----------------------|---------------------------|--------------------------|--------------------------------|
| TOTAL | 14.9 | 5.3 | 5.3 | 5.6 | 6.2 | 10.5 | 7.3 | 7.4 |
| PUBLIC | 16.4 | 5.9 | 5.8 | 6.1 | 6.9 | 11.4 | 8.0 | 8.1 |
| Teaching level | | | | | | | | |
| Elementary | 6.7 | 1.0 | 5.8 | 4.1 | 1.0 | 1.5 | 1.2 | 4.9 |
| Secondary | 26.4 | 11.1 | 5.9 | 8.2 | 13.0 | 21.6 | 15.0 | 11.4 |
| Sex | | | | | | | | |
| Male | 22.4 | 9.4 | 5.3 | 7.8 | 8.8 | 16.7 | 11.5 | 9.8 |
| Female | 13.9 | 4.5 | 6.1 | 5.4 | 6.1 | 9.2 | 6.5 | 7.4 |
| Age | | | | | | | | |
| Under 30 years | 18.3 | 6.1 | 7.5 | 6.6 | 7.3 | 14.2 | 10.7 | 10.5 |
| 30–39 years | 16.2 | 5.7 | 5.7 | 6.1 | 7.5 | 12.3 | 8.3 | 8.4 |
| 40–49 years | 15.7 | 5.7 | 5.6 | 5.7 | 6.5 | 11.0 | 7.4 | 7.6 |
| 50 years or over | 16.5 | 6.4 | 5.1 | 6.3 | 6.2 | 8.6 | 6.2 | 6.3 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 15.6 | 5.3 | 5.8 | 6.0 | 6.5 | 11.3 | 7.8 | 7.7 |
| MA/MS or more | 17.3 | 6.6 | 5.9 | 6.3 | 7.4 | 11.6 | 8.3 | 8.5 |
| PRIVATE | 3.7 | 0.9 | 1.3 | 1.3 | 0.6 | 3.5 | 1.8 | 2.0 |
| Teaching level | | | | | | | | |
| Elementary | 1.1 | 0.6 | 1.4 | 1.3 | 0.4 | 0.7 | 0.6 | 1.3 |
| Secondary | 6.4 | 1.2 | 1.2 | 1.3 | 0.9 | 6.7 | 3.1 | 2.7 |
| Sex | | | | | | | | |
| Male | 7.0 | 1.4 | 1.8 | 1.2 | 0.4 | 6.3 | 3.1 | 2.0 |
| Female | 2.8 | 0.8 | 1.2 | 1.3 | 0.7 | 2.8 | 1.4 | 2.0 |
| Age | | | | | | | | |
| Under 30 years | 4.7 | 1.6 | 2.6 | 2.6 | 1.4 | 4.5 | 3.7 | 4.2 |
| 30–39 years | 4.5 | 0.7 | 1.1 | 1.3 | 0.5 | 3.7 | 1.5 | 1.8 |
| 40–49 years | 2.5 | 0.5 | 1.0 | 0.9 | 0.5 | 3.3 | 1.2 | 0.9 |
| 50 years or over | 2.7 | 0.9 | 0.6 | 0.2 | 0.2 | 1.9 | 0.6 | 1.1 |
| Highest degree earned | | | | | | | | |
| BA/BS or less | 3.5 | 0.9 | 1.6 | 1.4 | 0.6 | 2.9 | 1.8 | 2.2 |
| MA/MS or more | 4.1 | 0.9 | 0.8 | 1.1 | 0.7 | 4.8 | 1.8 | 1.6 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 9.7—Percentage of public school teachers who thought that certain matters were serious problems in their schools, by state: 1987–88

| | Student absen- teeism | Student alcohol use | Student tardi- ness | Student drug abuse | Student verbal abuse of teachers |
|-------------------|-----------------------------|---------------------------|---------------------------|--------------------------|--|
| TOTAL | 16.4 | 11.4 | 10.5 | 8.0 | 8.1 |
| Alabama | 16.7 | 9.2 | 9.5 | 5.0 | 8.7 |
| Alaska | 26.3 | 22.7 | 15.1 | 18.8 | 8.0 |
| Arizona | 18.2 | 9.5 | 7.9 | 11.0 | 6.7 |
| Arkansas | 11.0 | 11.8 | 6.7 | 7.2 | 5.0 |
| California | 24.4 | 10.2 | 15.0 | 9.5 | 7.5 |
| Colorado | 19.8 | 14.6 | 11.0 | 8.3 | 6.1 |
| Connecticut | 15.2 | 10.9 | 12.9 | 9.6 | 8.4 |
| Delaware | 19.5 | 9.3 | 11.5 | 6.9 | 11.7 |
| Dist. of Columbia | 30.0 | — | 17.9 | 4.5 | 10.5 |
| Florida | 22.3 | 9.4 | 13.7 | 8.4 | 14.5 |
| Georgia | 16.4 | 9.8 | 10.1 | 7.1 | 9.4 |
| Hawaii | 14.9 | 7.2 | 8.7 | 6.3 | 6.3 |
| Idaho | 7.8 | 12.6 | 6.3 | 6.3 | 4.6 |
| Illinois | 15.5 | 10.2 | 10.1 | 6.4 | 7.5 |
| Indiana | 14.5 | 10.9 | 8.7 | 7.4 | 6.3 |
| Iowa | 10.5 | 18.5 | 3.8 | 6.6 | 4.2 |
| Kansas | 12.7 | 15.2 | 6.6 | 6.4 | 4.0 |
| Kentucky | 16.7 | 11.5 | 7.5 | 7.6 | 7.4 |
| Louisiana | 13.6 | 10.9 | 8.3 | 9.0 | 10.1 |
| Maine | 11.7 | 10.4 | 5.8 | 4.8 | 3.4 |
| Maryland | 21.6 | 6.3 | 12.5 | 5.1 | 12.2 |
| Massachusetts | 16.6 | 9.3 | 10.1 | 6.5 | 6.9 |
| Michigan | 17.5 | 11.5 | 10.9 | 8.5 | 6.5 |
| Minnesota | 12.9 | 16.2 | 5.3 | 7.7 | 3.7 |
| Mississippi | 14.8 | 8.8 | 7.0 | 7.4 | 6.3 |
| Missouri | 12.8 | 14.5 | 6.4 | 7.0 | 7.5 |
| Montana | 14.5 | 17.8 | 9.6 | 8.7 | 6.1 |
| Nebraska | 6.4 | 14.0 | 4.8 | 5.2 | 2.9 |
| Nevada | 23.8 | 18.6 | 13.1 | 13.8 | 11.0 |
| New Hampshire | 12.5 | 12.7 | 6.2 | 8.5 | 4.3 |
| New Jersey | 16.5 | 9.8 | 12.3 | 8.4 | 11.1 |
| New Mexico | 20.7 | 16.9 | 11.3 | 14.4 | 6.9 |
| New York | 18.0 | 9.9 | 16.0 | 8.0 | 13.3 |
| North Carolina | 13.6 | 9.6 | 8.7 | 7.1 | 7.3 |
| North Dakota | 6.9 | 17.6 | 3.7 | 7.2 | 2.4 |
| Ohio | 15.1 | 16.3 | 9.6 | 10.1 | 9.8 |
| Oklahoma | 13.2 | 14.6 | 8.4 | 8.2 | 4.7 |
| Oregon | 15.6 | 13.2 | 7.6 | 8.7 | 5.1 |
| Pennsylvania | 16.6 | 10.4 | 12.0 | 5.9 | 8.7 |
| Rhode Island | 14.6 | 6.7 | 7.2 | 4.0 | 9.9 |
| South Carolina | 10.1 | 8.1 | 6.4 | 5.3 | 7.8 |
| South Dakota | 9.4 | 16.6 | 7.8 | 4.5 | 3.3 |
| Tennessee | 15.6 | 9.8 | 8.4 | 7.0 | 5.4 |
| Texas | 16.3 | 12.6 | 12.2 | 11.2 | 7.8 |
| Utah | 13.5 | 6.1 | 10.1 | 4.7 | 5.5 |

Table 9.7—Percentage of public school teachers who thought that certain matters were serious problems in their schools, by state: 1987–88—Continued

| | Student absen- teeism | Student alcohol use | Student tardi- ness | Student drug abuse | Student verbal abuse of teachers |
|---------------|-----------------------------|---------------------------|---------------------------|--------------------------|--|
| Vermont | 6.8 | 10.5 | 3.4 | 5.9 | 4.6 |
| Virginia | 14.5 | 8.5 | 10.4 | 6.2 | 8.0 |
| Washington | 17.0 | 12.6 | 8.8 | 10.6 | 5.4 |
| West Virginia | 14.2 | 8.6 | 3.7 | 3.7 | 7.5 |
| Wisconsin | 13.0 | 13.8 | 9.0 | 6.9 | 7.1 |
| Wyoming | 15.6 | 18.4 | 10.8 | 10.5 | 3.5 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

less than serious were more likely than those who reported them as serious to respond that they certainly or probably would teach again (table 9.9). Among private school teachers, those who rated student absenteeism and verbal abuse of teachers as serious problems in their schools were less likely than those who did not report such information to respond that they certainly or probably would become a teacher again.

JOB SATISFACTION

One-third of all teachers reported that they certainly would become teachers if they had the opportunity to return to college and make their career choices over again, and about one-quarter said that they probably would.

Over the last decade, public commissions, researchers, and educators have claimed that poor working conditions have demoralized the teaching profession. They have argued that because teachers perceive a lack of support for their work, they find little motivation to do their best in the classroom, and that when teachers are not satisfied with their working conditions, they are more likely to change schools or to leave the profession altogether. A number of calls for school reform have included

proposals to improve the quality of work life for teachers by providing them with greater control over various aspects of their work, creating new teaching positions that allow teachers with more experience and talent to assume more responsibility, and redesigning the workday or workweek to give teachers more time to collaborate with their colleagues.

Although plausible, theories linking teacher satisfaction with their job performance and attrition rates must be tested through the empirical examination of questions such as: How satisfied are teachers? With what aspects of their work or working conditions are they most satisfied or dissatisfied? In what kinds of schools are teachers more or less likely to be satisfied with their work and working conditions? What are the consequences, in terms of teacher performance and teacher retention, of teacher satisfaction and dissatisfaction?

The 1987–88 SASS and the Teacher Followup Survey contain several indicators of teacher job satisfaction. One set of indicators reflects teachers’ satisfaction with various aspects of working conditions in their school, including the extent to which they receive support from school administrators and share common goals; the degree to which teachers are buffered from non-teaching activities and the extent to which rules are enforced; the amount of collaboration among

Table 9.8—Percentage of private school teachers who thought that certain matters were serious problems in their schools, by private school type: 1987–88

| | Student absen- teeism | Student alcohol use | Student tardi- ness | Student drug abuse | Student verbal abuse of teachers |
|------------------------------|-----------------------------|---------------------------|---------------------------|--------------------------|--|
| TOTAL | 3.7 | 3.5 | 3.6 | 1.8 | 2.0 |
| Private school type | | | | | |
| Religious | 3.1 | 3.3 | 3.3 | 1.3 | 1.2 |
| Nonsectarian | 5.8 | 4.0 | 4.7 | 3.3 | 5.1 |
| Private school category | | | | | |
| Assembly of God | 7.4 | 0.0 | 4.2 | 0.0 | — |
| Baptist | 4.2 | 0.6 | 4.8 | — | 0.9 |
| Calvinist | 0.0 | 3.3 | — | 0.0 | 0.0 |
| Christian | 0.9 | 1.6 | 3.6 | — | — |
| Episcopal | 1.9 | 4.0 | 3.2 | 2.2 | 0.9 |
| Friends | — | 6.0 | — | 5.7 | 0.0 |
| Jewish | 3.6 | 0.0 | 2.6 | 0.0 | — |
| Lutheran | 1.5 | 0.6 | 2.8 | 0.6 | 0.9 |
| 7th Day Adventist | 8.1 | — | 9.3 | — | 2.0 |
| Roman Catholic | 3.3 | 4.7 | 3.3 | 1.7 | 1.5 |
| Other: Religious | 1.5 | 1.0 | 1.3 | 0.9 | 1.1 |
| Exceptional children | 8.1 | 4.7 | 3.1 | 5.6 | 15.2 |
| Montessori | — | 0.0 | 2.0 | 0.0 | — |
| Nat. Ass. of Indep. Schools | 5.1 | 5.1 | 4.7 | 4.5 | 2.2 |
| Other: Nonsectarian | 6.7 | 3.5 | 5.2 | 2.5 | 7.4 |
| 9-Category typology | | | | | |
| Catholic | | | | | |
| -Parochial | 1.8 | 2.2 | 2.3 | 1.0 | 1.7 |
| -Diocesan | 4.3 | 7.2 | 2.9 | 3.0 | 1.3 |
| -Private order | 7.4 | 10.2 | 7.3 | 2.4 | 1.2 |
| Other Religious | | | | | |
| -Conservative Christian | 3.5 | — | 4.3 | — | 0.7 |
| -Affiliated | 2.0 | 1.6 | 2.8 | 1.0 | 0.9 |
| -Unaffiliated | 3.2 | 2.1 | 2.9 | 0.9 | 1.0 |
| Nonsectarian | | | | | |
| -Regular | 5.6 | 4.4 | 4.8 | 3.6 | 2.6 |
| -Special emphasis | 2.7 | 3.4 | 3.7 | 2.1 | 1.8 |
| -Special education | 14.7 | 3.8 | 7.0 | 5.3 | 26.3 |
| NAIS membership status | | | | | |
| Not Nat. Ass. of Indep. Sch. | 3.5 | 3.2 | 3.6 | 1.4 | 2.1 |
| Nat. Ass. of Indep. Schools | 4.3 | 4.9 | 3.9 | 3.5 | 1.6 |

—Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 9.9—Percentage distribution of teachers by willingness to become a teacher again, by sector and perceptions of the seriousness of various problems: 1987–88

| | Public | | | Private | | |
|-------------------------|--|---|--|--|---|--|
| | Certainly/ probably would be a teacher again | Chances of being a teacher again about even | Certainly/ probably would not be a teacher again | Certainly/ probably would be a teacher again | Chances of being a teacher again about even | Certainly/ probably would not be a teacher again |
| TOTAL | 58.1 | 18.1 | 23.8 | 73.3 | 14.4 | 12.2 |
| Student absenteeism | | | | | | |
| Serious | 50.8 | 18.2 | 31.1 | 62.1 | 16.3 | 21.7 |
| Less than serious | 59.5 | 18.1 | 22.4 | 73.8 | 14.4 | 11.9 |
| Student use of alcohol | | | | | | |
| Serious | 50.7 | 18.9 | 30.4 | 69.5 | 19.3 | 11.2 |
| Less than serious | 59.1 | 18.0 | 23.0 | 73.4 | 14.3 | 12.3 |
| Student tardiness | | | | | | |
| Serious | 48.1 | 19.2 | 32.7 | 68.1 | 15.1 | 16.8 |
| Less than serious | 59.3 | 17.9 | 22.7 | 73.5 | 14.4 | 12.1 |
| Student drug abuse | | | | | | |
| Serious | 49.7 | 18.4 | 31.9 | 68.1 | 18.8 | 13.2 |
| Less than serious | 58.8 | 18.0 | 23.1 | 73.5 | 14.3 | 12.1 |
| Verbal abuse of teacher | | | | | | |
| Serious | 39.9 | 19.0 | 41.1 | 55.5 | 18.4 | 26.1 |
| Less than serious | 59.7 | 18.0 | 22.3 | 73.7 | 14.3 | 12.0 |

*Problems included as row variables were the five problems that the greatest percentage of teachers defined as *serious*.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

faculty members and teacher participation in decisionmaking; and the adequacy of resources available for teaching.⁷⁰

⁷⁰Teachers were asked whether they “strongly agreed,” “somewhat agreed,” “somewhat disagreed,” or “strongly disagreed” with 23 statements about various aspects of their work environment. Statements that tapped similar sets of issues were grouped together, forming indices of teachers’ satisfaction with aspects of their work environment. Indices were created to describe teachers’ satisfaction with the level and quality of administrative support and sharing of common goals; buffering and the enforcement of rules; the collaboration among faculty members and teachers’ role in decisionmaking; and the adequacy of resources available for teaching. An index score was obtained by averaging teachers’ scores on individual items making up that index. Those with scores averaging between 1 and 1.5 on a scale of 1 to 4 on a particular index were described as “highly satisfied.” A summary index (“overall satisfaction”) was derived by averaging each teacher’s responses to all 23 items.

Teachers’ satisfaction varied significantly among different areas of their work life. Whereas 34 percent of teachers reported being highly satisfied with buffering and rule enforcement in their schools, only 2 percent reported being highly satisfied with the adequacy of resources for teaching (table 9.10). About one-quarter reported being highly satisfied with the extent of administrative support and common goals, and about one-tenth with the collaboration among staff members and participation in school decisionmaking.

Not all teachers were equally likely to be satisfied with these aspects of their work, however. With the exception of resources, private school teachers were more likely than public school teachers to be satisfied. Both overall and in the two areas of administrative support/common goals and buffering/rule

Table 9.10—Percentage of teachers who were highly satisfied with various aspects of their working conditions, by sector and selected teacher characteristics: 1987–88

| | Overall view of working conditions | Administrative support/ establishment of common goals | Buffering and enforcing of rules | Collaboration/ teacher participation in decision- making | Adequacy of resources |
|------------------|--|---|--|--|--------------------------|
| TOTAL | 31.9 | 23.5 | 34.1 | 9.2 | 2.1 |
| PUBLIC | 30.1 | 20.5 | 31.8 | 7.4 | 2.1 |
| Teaching level | | | | | |
| Elementary | 36.0 | 27.6 | 42.6 | 7.6 | 2.0 |
| Secondary | 24.0 | 13.1 | 20.7 | 7.2 | 2.2 |
| Sex | | | | | |
| Male | 25.0 | 13.3 | 21.5 | 7.5 | 2.2 |
| Female | 32.2 | 23.5 | 36.1 | 7.4 | 2.1 |
| Age | | | | | |
| Under 30 years | 31.7 | 18.8 | 28.8 | 8.7 | 2.1 |
| 30–39 years | 29.2 | 19.4 | 28.8 | 6.8 | 2.1 |
| 40–49 years | 29.6 | 21.5 | 33.3 | 6.8 | 2.1 |
| 50 years or over | 31.3 | 22.1 | 37.3 | 8.8 | 2.1 |
| Highest degree | | | | | |
| BA/BS or less | 32.1 | 21.6 | 34.0 | 7.7 | 2.1 |
| MA/MS or more | 27.8 | 19.2 | 29.3 | 7.1 | 2.1 |
| PRIVATE | 45.3 | 46.5 | 51.0 | 22.5 | 1.8 |
| Teaching level | | | | | |
| Elementary | 49.3 | 51.6 | 60.7 | 21.5 | 1.7 |
| Secondary | 40.9 | 40.9 | 40.6 | 23.6 | 1.9 |
| Sex | | | | | |
| Male | 38.5 | 35.4 | 37.2 | 23.0 | 1.9 |
| Female | 47.1 | 49.6 | 54.9 | 22.4 | 1.8 |
| Age | | | | | |
| Under 30 years | 41.5 | 39.5 | 44.5 | 16.9 | 1.9 |
| 30–39 years | 42.1 | 46.5 | 49.0 | 21.5 | 1.8 |
| 40–49 years | 47.0 | 49.8 | 54.2 | 22.5 | 1.8 |
| 50 years or over | 53.3 | 50.4 | 58.6 | 32.7 | 1.7 |
| Highest degree | | | | | |
| BA/BS or less | 47.2 | 46.3 | 54.4 | 21.2 | 1.8 |
| MA/MS or more | 41.6 | 46.9 | 44.5 | 25.0 | 1.8 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

enforcement, elementary school teachers were more likely than secondary school teachers and females more likely than males to report that they were highly satisfied. In both sectors, teachers without advanced degrees were more likely than teachers with such degrees to be highly satisfied overall.

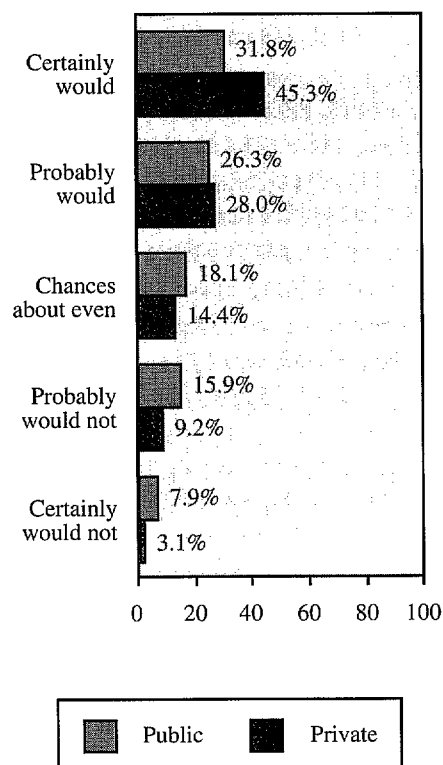
A second indicator of teacher satisfaction reflects teachers' satisfaction with teaching as a profession as opposed to their satisfaction with the working conditions in their particular schools. The majority of teachers appeared to be satisfied with their career choice. In response to the question "If you could go back to your college days and start over again, would you become a teacher or not?", about one-third reported that they certainly would become a teacher again, and about one-quarter reported that they probably would become a teacher again (table 9.11).

Again, various groups of teachers responded differently to this question. Private school teachers were more likely than public school teachers to report that they would become a teacher again (figure 9.4). In both sectors, elementary school teachers were more likely than secondary school teachers to report that they certainly would become a teacher again. Whereas in the public sector females were more likely than males to report that they would become a teacher again, in the private sector females and males were about equally likely to report that they would become a teacher again. Public school teachers' willingness to become teachers again varied with their age. Generally, younger teachers were more likely than older teachers to report that they would teach again. Among both public and private school teachers, those with advanced degrees were less likely than those without such degrees to report that they certainly would become a teacher again.

The third indicator of teacher satisfaction compares the job satisfaction of teachers who remained in the profession with those who left teaching for other paid employment. Such comparisons indicate whether the work and working conditions of teaching are less satisfying than other work available to individuals with similar education, experience, and inclinations. Within 1 year of leaving, those who left

teaching (especially those who left public schools) were more satisfied in many areas of their work life than were those who remained in teaching. Among public school teachers, for example, leavers were more satisfied than stayers with their salaries, their opportunities for advancement, the support they received from their supervisors, the influence they had over policy decisions, the control they had over their work, the esteem of society for their profession, the procedures used to evaluate their work, the resources available to them to carry out their work, and their working conditions in general (table 9.12a and b).

Figure 9.4—Percentage distribution of teachers by willingness to become a teacher again, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 9.11—Percentage distribution of teachers by willingness to become a teacher again, by sector and selected teacher characteristics: 1987–88 and 1988–89

| | Certainly would become a teacher again | Probably would become a teacher again | Chances about even for or against | Probably would not become a teacher again | Certainly would not become a teacher again |
|-------------------------|---|--|---|--|---|
| TOTAL | 33.4 | 26.5 | 17.7 | 15.1 | 7.4 |
| PUBLIC | 31.8 | 26.3 | 18.1 | 15.9 | 7.9 |
| Teaching level | | | | | |
| Elementary | 35.8 | 27.1 | 16.6 | 14.1 | 6.3 |
| Secondary | 27.7 | 25.5 | 19.6 | 17.7 | 9.6 |
| Sex | | | | | |
| Male | 26.2 | 24.3 | 19.8 | 19.0 | 10.6 |
| Female | 34.1 | 27.2 | 17.4 | 14.6 | 6.8 |
| Race–ethnicity | | | | | |
| Black, non-Hispanic | 34.2 | 20.8 | 17.5 | 15.8 | 11.6 |
| White, non-Hispanic | 31.3 | 27.0 | 18.3 | 16.0 | 7.5 |
| Other | 36.6 | 24.5 | 15.9 | 15.5 | 7.6 |
| Age | | | | | |
| Under 30 years | 40.3 | 28.9 | 17.4 | 9.9 | 3.6 |
| 30–39 years | 30.8 | 27.0 | 18.8 | 15.7 | 7.7 |
| 40–49 years | 28.3 | 25.0 | 18.7 | 18.4 | 9.5 |
| 50 years or over | 33.4 | 25.6 | 16.1 | 16.3 | 8.6 |
| Highest degree earned | | | | | |
| BA/BS or less | 34.6 | 26.8 | 17.7 | 14.2 | 6.7 |
| MA/MS or more | 28.7 | 25.7 | 18.5 | 17.7 | 9.3 |
| 1988–89 teaching status | | | | | |
| Still teaching | 34.5 | 26.5 | 17.8 | 13.8 | 7.3 |
| Leaver | 26.6 | 26.8 | 16.3 | 20.7 | 9.7 |
| PRIVATE | 45.3 | 28.0 | 14.4 | 9.2 | 3.1 |
| Teaching level | | | | | |
| Elementary | 49.6 | 27.2 | 12.6 | 8.3 | 2.3 |
| Secondary | 40.7 | 28.9 | 16.4 | 10.1 | 3.9 |
| Sex | | | | | |
| Male | 42.1 | 26.1 | 16.6 | 11.4 | 3.8 |
| Female | 46.2 | 28.6 | 13.8 | 8.6 | 2.9 |
| Race–ethnicity | | | | | |
| Black, non-Hispanic | 48.7 | 18.0 | 16.2 | 7.6 | 9.6 |
| White, non-Hispanic | 44.9 | 28.5 | 14.4 | 9.2 | 2.9 |
| Other | 45.9 | 28.0 | 15.0 | 9.3 | 1.8 |
| Age | | | | | |
| Under 30 years | 46.9 | 30.9 | 14.6 | 5.4 | 2.1 |
| 30–39 years | 43.3 | 29.3 | 14.6 | 9.1 | 3.8 |
| 40–49 years | 42.4 | 26.2 | 15.8 | 12.2 | 3.4 |
| 50 years or over | 52.1 | 24.6 | 11.3 | 9.6 | 2.5 |
| Highest degree earned | | | | | |
| BA/BS or less | 47.0 | 28.6 | 13.8 | 8.2 | 2.4 |
| MA/MS or more | 42.2 | 26.8 | 15.6 | 11.1 | 4.3 |
| 1988–89 teaching status | | | | | |
| Still teaching | 46.2 | 29.2 | 13.2 | 9.3 | 2.1 |
| Leaver | 29.9 | 35.1 | 21.3 | 9.3 | 4.4 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire,” and 1988–89 Followup Survey.

Table 9.12a—Percentage of 1987–88 teachers who were very or somewhat satisfied with various aspects of their current jobs, by sector and current activity: 1988–89

| | Salary | Benefits | Opportunities for advancement | Support from manager | Safety of environment | Influence over policy | Autonomy/ control | Caliber of colleagues |
|---------------------------|--------|----------|----------------------------------|-------------------------|--------------------------|--------------------------|----------------------|--------------------------|
| TOTAL | 54.1 | 64.3 | 57.8 | 60.4 | 78.7 | 51.2 | 88.4 | 84.3 |
| PUBLIC | 55.2 | 65.3 | 57.2 | 58.1 | 77.0 | 48.5 | 87.4 | 83.9 |
| Still teaching | 54.9 | 65.2 | 56.8 | 57.4 | 76.7 | 47.7 | 87.2 | 83.8 |
| Stayers | 55.6 | 65.4 | 56.7 | 56.9 | 77.0 | 47.5 | 87.4 | 83.6 |
| Movers | 46.4 | 63.4 | 57.9 | 62.7 | 73.7 | 49.4 | 86.2 | 86.7 |
| Employed leavers | 73.1 | 69.4 | 79.3 | 90.9 | 88.9 | 88.5 | 95.5 | 90.2 |
| Working in education | 74.3 | 75.2 | 77.4 | 92.4 | 83.8 | 90.2 | 95.1 | 92.6 |
| Working outside education | 71.5 | 63.6 | 82.9 | 90.4 | 91.9 | 87.4 | 95.9 | 88.1 |
| PRIVATE | 44.5 | 55.6 | 62.3 | 79.0 | 92.5 | 72.8 | 96.0 | 87.2 |
| Still teaching | 43.4 | 54.8 | 61.2 | 78.7 | 92.2 | 72.2 | 96.2 | 87.6 |
| Stayers | 41.5 | 53.5 | 60.1 | 79.7 | 93.2 | 72.1 | 96.7 | 87.8 |
| Movers | 57.8 | 66.7 | 69.1 | 72.6 | 86.6 | 71.5 | 91.8 | 85.7 |
| Employed leavers | 62.6 | 68.9 | 79.7 | 83.4 | 96.6 | 82.7 | 93.2 | 80.3 |
| Working in education | 66.2 | 60.2 | 83.2 | 73.2 | 99.2 | 79.5 | 96.5 | 92.4 |
| Working outside education | 62.8 | 71.3 | 79.0 | 85.5 | 95.7 | 83.9 | 92.9 | 78.1 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

Table 9.12b—Percentage of 1987–88 teachers who were very or somewhat satisfied with various aspects of their current jobs, by sector and current activity: 1988–89

| | Social esteem for profession | Evaluation procedures | Work load | Resources available for job | General working conditions | Job security | Intellectual challenges |
|---------------------------|------------------------------------|--------------------------|-----------|-----------------------------------|----------------------------------|-----------------|----------------------------|
| TOTAL | 25.6 | 63.9 | 63.4 | 62.5 | 76.0 | 88.6 | 80.9 |
| PUBLIC | 23.8 | 62.6 | 61.8 | 61.6 | 74.0 | 89.1 | 80.2 |
| Still teaching | 22.8 | 62.2 | 61.5 | 61.0 | 73.6 | 89.3 | 80.2 |
| Stayers | 22.9 | 62.3 | 61.8 | 61.6 | 73.6 | 90.1 | 80.3 |
| Movers | 21.4 | 60.7 | 57.5 | 54.1 | 73.7 | 80.1 | 80.2 |
| Employed leavers | 70.4 | 80.0 | 77.2 | 90.2 | 95.0 | 82.9 | 81.3 |
| Working in education | 59.0 | 75.1 | 72.6 | 89.0 | 95.0 | 83.6 | 80.0 |
| Working outside education | 80.6 | 85.0 | 88.8 | 90.4 | 94.2 | 82.9 | 80.1 |
| PRIVATE | 40.1 | 74.5 | 76.0 | 69.6 | 91.4 | 83.8 | 86.7 |
| Still teaching | 37.9 | 74.0 | 75.4 | 68.6 | 91.0 | 83.7 | 87.2 |
| Stayers | 38.8 | 74.1 | 75.8 | 69.4 | 91.6 | 84.6 | 87.4 |
| Movers | 29.1 | 75.0 | 71.6 | 63.7 | 85.4 | 75.3 | 85.1 |
| Employed leavers | 74.3 | 82.6 | 84.0 | 85.9 | 96.9 | 85.4 | 79.2 |
| Working in education | 64.8 | 69.4 | 63.9 | 62.2 | 94.5 | 81.2 | 90.3 |
| Working outside education | 78.3 | 86.2 | 88.5 | 91.8 | 97.7 | 86.2 | 75.9 |

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988–89 Teacher Followup Survey.

PLANS FOR THE FUTURE

Among those who left teaching between 1987–88 and 1988–89, nearly 18 percent of former public school teachers and about 12 percent of former private school teachers expected to return to teaching in 1989–90.

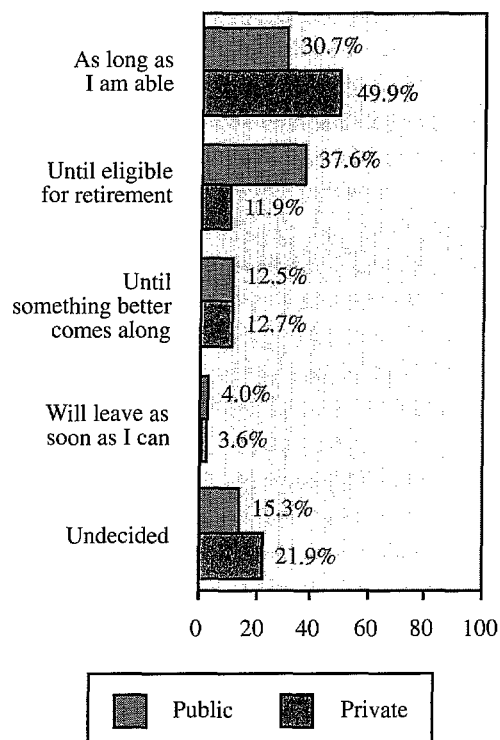
This section addresses teachers' plans for the future: their plans to remain in teaching, their expectations for their activities in 1988–89, and comparisons between the career plans of current and former teachers for 1989–90. Thus, these data relate both to teachers' satisfaction with their occupation, the topic of the last section, and to the issues of teacher supply, turnover, and attrition, which were discussed in Chapter 3 and will also be addressed in Chapter 10. Presumably, teachers who plan to remain in the profession as long as they are able are more satisfied with some aspects of teaching than those who plan to leave as soon as possible. To the extent that relationships such as these hold true, teachers' plans to remain in teaching indicate their satisfaction or attitudes about the profession. Similarly, to the extent that teachers' plans match their actions with respect to career changes, their plans offer some indication of teacher turnover and attrition in the coming years, which, in turn, may affect the future supply of teachers.

Generally, teachers were more likely to report that they would continue teaching for an extended period of time (either as long as they were able to teach or until they were eligible to retire) than they were to report that they would teach until something better came along, that they would leave as soon as possible, or that they were undecided as to how long they would teach (table 9.13). Public school teachers were most likely to respond that they would remain teachers until they were eligible to retire, and next most likely to report that they would teach as long as they were able (figure 9.5). Being undecided about teaching was the third most popular response, teaching until something better came along was fourth, and leaving as soon as possible was fifth.⁷¹

⁷¹Teachers were offered these five options as possible responses to the question "How long do you plan to remain in teaching?"

The pattern of responses among private school teachers, however, was quite different. Private school teachers were most likely to report that they planned to teach as long as they were able. Fifty percent of private school teachers reported that they planned to teach as long as they were able, compared with 31 percent of public school teachers. The second most common response among private school teachers was "undecided," and private school teachers were more likely than public school teachers to report that they were undecided. The proportions of private school teachers who responded that they would teach until they were eligible for retirement or until something better came along tied for the third most common response. Although public school teachers were more likely than private school teachers to report that they would teach until they could retire, public and private school teachers did

Figure 9.5—Percentage distribution of teachers by plans to remain in teaching, by sector: 1987–88



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Questionnaire."

Table 9.13—Percentage distribution of teachers by plans to remain in teaching, by sector and selected teacher characteristics: 1987–88

| | As long as I am able | Until eligible for retirement | Until some- thing better comes along | Will leave as soon as I can | Undecided |
|-----------------------|-------------------------|-------------------------------------|--|-----------------------------------|-----------|
| TOTAL | 32.9 | 34.6 | 12.5 | 3.9 | 16.1 |
| PUBLIC | 30.7 | 37.6 | 12.5 | 4.0 | 15.3 |
| Teaching level | | | | | |
| Elementary | 33.6 | 36.9 | 10.7 | 3.3 | 15.6 |
| Secondary | 27.7 | 38.3 | 14.3 | 4.7 | 15.0 |
| Sex | | | | | |
| Male | 26.0 | 42.1 | 14.6 | 4.9 | 12.4 |
| Female | 32.7 | 35.7 | 11.5 | 3.5 | 16.5 |
| Age | | | | | |
| Under 30 years | 37.1 | 14.3 | 19.3 | 4.6 | 24.8 |
| 30–39 years | 31.6 | 31.0 | 17.2 | 3.9 | 16.2 |
| 40–49 years | 28.3 | 46.9 | 10.0 | 3.2 | 11.6 |
| 50 years or over | 28.6 | 51.3 | 2.3 | 4.5 | 13.3 |
| Highest degree earned | | | | | |
| BA/BS or less | 32.8 | 32.7 | 13.2 | 4.0 | 17.3 |
| MA/MS or more | 28.3 | 43.0 | 11.6 | 3.9 | 13.2 |
| PRIVATE | 49.9 | 11.9 | 12.7 | 3.6 | 21.9 |
| Teaching level | | | | | |
| Elementary | 54.0 | 11.5 | 10.8 | 2.9 | 20.7 |
| Secondary | 45.3 | 12.4 | 14.8 | 4.3 | 23.2 |
| Sex | | | | | |
| Male | 48.3 | 13.8 | 14.0 | 5.0 | 18.9 |
| Female | 50.3 | 11.4 | 12.3 | 3.2 | 22.8 |
| Age | | | | | |
| Under 30 years | 44.9 | 5.1 | 16.2 | 4.0 | 29.8 |
| 30–39 years | 50.3 | 9.6 | 14.7 | 3.3 | 22.1 |
| 40–49 years | 49.2 | 15.8 | 12.7 | 3.4 | 18.9 |
| 50 years or over | 55.9 | 20.3 | 3.8 | 3.9 | 16.0 |
| Highest degree earned | | | | | |
| BA/BS or less | 51.0 | 10.1 | 12.0 | 3.5 | 23.4 |
| MA/MS or more | 47.7 | 15.5 | 14.1 | 3.7 | 19.1 |

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

not differ in the proportions who planned to teach until something better came along or to leave as soon as possible.

Teachers' plans in 1987–88 for 1988–89 were consistent with their general expectations about their teaching careers in that most teachers expected they would continue teaching in elementary and secondary schools the next year (table 9.14). Eighty-seven percent of public school teachers expected to remain in their current school in 1988–89, compared with 79 percent of private school teachers. Private school teachers were somewhat more likely than public school teachers to expect to change schools between 1987–88 and 1988–89: 9 percent of private school teachers expected to move, compared with 7 percent of public school teachers. Although public and private school teachers were about equally as likely to expect to retire, private school teachers were more likely than their public school counterparts to expect that they would teach at the postsecondary level, take a nonteaching job in elementary or secondary education, attend a college or university, take a job outside of education, homemaker or rear children, or engage in some other activity in 1988–89. The youngest teachers in both public and private schools were less likely than other teachers to expect that they would stay in the same school and were more likely to expect to change schools in the coming year.⁷²

Finally, in the Teacher Followup Survey, current and former teachers were asked what they expected to be doing in the following year, 1989–90. Nearly 18 percent of former public school teachers and about 12 percent of former private school teachers expected to return to teaching in 1989–90 (table 9.15). These data are consistent with other research findings: in their studies of teachers in Michigan and North Carolina, Murnane and his colleagues found that about 25 percent of former teachers reentered the profession within 5 years of leaving, and most who reentered did so within 1 to 2 years of leaving.⁷³

⁷²The reader is invited to compare teachers' expectations for 1988–89 with the results from the Teacher Followup Survey completed in 1988–89, which is displayed in table 3.14. Although the various leaver categories are not strictly comparable across these two tables, note the similarity in the proportions of stayers, movers, and leavers generally.

⁷³Murnane et al., 1991, 79–81.

Among current teachers, those in public schools were more likely than their private school counterparts to report that they expected to teach in an elementary or secondary school during the next school year (1989–90).

Although these data do not address the question of whether teachers' opinions of their workplace or satisfaction with their work are related to their performance in the classroom, they do raise interesting and important questions concerning teachers' opinions and their tendencies to remain in the classroom. Improving the extrinsic rewards of teaching, such as salary and opportunities to advance in a career path, have been suggested as ways of attracting more and more qualified people into teaching. However, national data sets as well as smaller studies have indicated that the intrinsic rewards of teaching were the most powerful attractors, and that most teachers who either left or changed schools did not cite salary or benefits as the most important reasons for their decisions (tables 9.1, 3.17, and 3.18). At the same time, less than one-half of all teachers reported that they were satisfied with their teaching salaries (table 8.6).

Comparisons between public and private school teachers may illustrate this finding most clearly. Private school teachers earned significantly lower salaries, and were more likely to change schools or leave teaching in order to improve their salaries than were public school teachers. At the same time, private school teachers were more likely than public school teachers to report that they were highly satisfied with their working conditions overall (table 9.10), and that they intended to remain in teaching as long as they were able (table 9.13). Other variables may mediate these relationships: for example, private school teachers were more likely to report that they had a great deal of influence over school policies (table 9.13), and that other school personnel had been very helpful in solving instructional or management problems (table 9.4). Thus, in addition to serving as an important source of information about teachers and their experiences in the nation's schools, these data demonstrate the need for further research in order to discover the interactive relationships and mediating variables that might explain what seem to be inconsistencies.

Table 9.14—Percentage distribution of teachers by expected 1988–89 activities, by sector and selected teacher characteristics: 1987–88

| | Teaching | | | Job outside education | | | | | |
|-----------------------|-------------|--------------|----------------------|------------------------------|---------------------------------|------------------------------|------------------------------|------------|-------|
| | Same school | Other school | Post-secondary level | Nonteaching job in education | Attending college or university | Occupation outside education | Home-making or child-rearing | Retirement | Other |
| TOTAL | 86.4 | 6.9 | 0.1 | 0.7 | 0.5 | 1.0 | 1.2 | 0.9 | 2.3 |
| PUBLIC | 87.4 | 6.7 | 0.1 | 0.6 | 0.4 | 0.8 | 1.0 | 0.9 | 2.1 |
| Teaching level | | | | | | | | | |
| Elementary | 86.6 | 7.7 | 0.1 | 0.5 | 0.3 | 0.5 | 1.2 | 1.0 | 2.2 |
| Secondary | 88.2 | 5.7 | 0.2 | 0.8 | 0.5 | 1.1 | 0.8 | 0.8 | 2.0 |
| Sex | | | | | | | | | |
| Male | 87.9 | 6.3 | 0.2 | 0.8 | 0.5 | 1.4 | 0.0 | 1.0 | 1.9 |
| Female | 87.2 | 6.9 | 0.1 | 0.5 | 0.4 | 0.6 | 1.4 | 0.8 | 2.2 |
| Age | | | | | | | | | |
| Under 30 years | 79.1 | 13.3 | 0.1 | 0.4 | 0.9 | 1.4 | 2.2 | 0.0 | 2.5 |
| 30–39 years | 86.5 | 7.4 | 0.1 | 0.8 | 0.5 | 0.9 | 1.5 | — | 2.3 |
| 40–49 years | 90.9 | 5.3 | 0.2 | 0.6 | 0.3 | 0.5 | 0.3 | 0.0 | 1.9 |
| 50 years or over | 88.9 | 3.0 | 0.1 | 0.4 | 0.2 | 0.6 | 0.2 | 4.8 | 1.9 |
| Highest degree earned | | | | | | | | | |
| BA/BS or less | 86.8 | 7.6 | 0.0 | 0.3 | 0.5 | 0.8 | 1.2 | 0.7 | 2.0 |
| MA/MS or more | 87.9 | 5.7 | 0.2 | 1.0 | 0.3 | 0.8 | 0.7 | 1.1 | 2.2 |
| PRIVATE | 79.1 | 8.7 | 0.3 | 1.0 | 1.2 | 2.3 | 3.3 | 0.6 | 3.6 |
| Teaching level | | | | | | | | | |
| Elementary | 78.7 | 10.1 | 0.1 | 0.6 | 1.3 | 1.7 | 3.8 | 0.6 | 3.0 |
| Secondary | 79.5 | 7.2 | 0.4 | 1.5 | 1.1 | 2.8 | 2.7 | 0.5 | 4.2 |
| Sex | | | | | | | | | |
| Male | 79.9 | 8.3 | 0.8 | 1.7 | 1.0 | 4.9 | — | 0.4 | 3.0 |
| Female | 78.9 | 8.8 | 0.1 | 0.8 | 1.3 | 1.5 | 4.2 | 0.6 | 3.7 |
| Age | | | | | | | | | |
| Under 30 years | 64.2 | 17.2 | 0.3 | 1.0 | 3.0 | 3.2 | 6.0 | 0.0 | 5.1 |
| 30–39 years | 81.0 | 7.3 | 0.2 | 0.6 | 0.7 | 2.1 | 4.4 | 0.0 | 3.7 |
| 40–49 years | 84.3 | 6.5 | 0.3 | 1.6 | 0.9 | 2.1 | 1.4 | 0.0 | 2.8 |
| 50 years or over | 85.6 | 4.2 | 0.3 | 1.0 | 0.3 | 1.8 | 0.5 | 3.6 | 2.7 |
| Highest degree earned | | | | | | | | | |
| BA/BS or less | 77.8 | 9.7 | 0.0 | 0.5 | 1.6 | 2.4 | 3.7 | 0.6 | 3.5 |
| MA/MS or more | 81.6 | 6.8 | 0.7 | 1.9 | 0.4 | 1.9 | 2.4 | 0.6 | 3.7 |

—Too few cases for a reliable estimate.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, “Teacher Questionnaire.”

Table 9.15—Percentage distributions of current and former teachers by expected main activity during the next school year (1989–90), by sector: 1988–89

| Activity | Current teachers | | Former teachers | |
|--|------------------|---------|-----------------|---------|
| | Number | Percent | Number | Percent |
| PUBLIC in 1987–88 | 2,238,343 | 100.0 | 131,851 | 100.0 |
| Teaching any of grades K–12 | 2,099,421 | 93.8 | 23,388 | 17.7 |
| Teaching at pre-K or postsecondary level | — | 0.1 | 3,362 | 2.5 |
| Attending a college or university | — | 0.3 | 5,582 | 4.2 |
| Working in nonteaching occupation in education | 19,694 | 0.9 | 23,373 | 17.7 |
| Working outside the field of education | 19,017 | 0.8 | 17,394 | 13.2 |
| Homemaking and/or child rearing | 11,441 | 0.5 | 20,131 | 15.3 |
| Unemployed and seeking work | — | 0.2 | — | 1.0 |
| Retired | 29,882 | 1.3 | 27,011 | 20.5 |
| Other | 33,833 | 1.5 | 9,674 | 7.3 |
| Not reported | — | 0.5 | — | 0.5 |
| PRIVATE in 1987–88 | 269,244 | 100.0 | 39,317 | 100.0 |
| Teaching any of grades K–12 | 239,338 | 88.9 | 4,841 | 12.3 |
| Teaching at pre-K or postsecondary level | — | 0.4 | — | 1.6 |
| Attending a college or university | — | 1.0 | 3,686 | 9.4 |
| Working in nonteaching occupation in education | — | 1.4 | 3,221 | 8.2 |
| Working outside the field of education | — | 1.6 | 8,307 | 21.1 |
| Homemaking and/or child rearing | 6,991 | 2.6 | 10,234 | 26.0 |
| Unemployed and seeking work | — | 0.1 | — | 1.7 |
| Retired | — | 0.6 | 1,965 | 5.0 |
| Other | 7,566 | 2.8 | 5,424 | 14.1 |
| Not reported | — | 0.7 | — | 0.6 |

—Too few cases for reliable estimate. Caution should be used in interpreting corresponding percentage.

NOTE: Details may not add to totals due to rounding.

SOURCE: S.A. Bobbitt, E. Faupel, and S. Burns, *Characteristics of Stayers, Movers, and Leavers: Results from the Teacher Followup Survey, 1988–89* (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics), 13.

CHAPTER 10 • TRENDS IN EDUCATION AFFECTING THE TEACHER WORKFORCE: TEACHING IN THE YEAR 2000

What will be the status of teachers and teaching in the 21st century? Major reform and redesign efforts in elementary and secondary education and in the postsecondary preparation of new teachers have the potential to make teaching in the year 2000 quite a different profession from the one described in this report. During the 1980s, the authors of a number of reports suggested ways in which teacher education and the teaching profession could be improved, and described their visions for the future.⁷⁴ Among other things, they called for revamping teacher education and certification, decentralizing decision-making authority, and empowering teachers. This chapter examines not only demographic trends that will affect the demand for teachers but also trends in teaching prompted by current major reform efforts, and discusses the information needed to monitor them.

PROJECTIONS TO THE YEAR 2000

How many teachers will there be in the year 2000? How many teachers will schools and school districts need to hire to fill vacancies during the next decade? What are the implications of these projections for teacher educators, prospective teachers, current teachers, and school administrators? According to NCES projections, the number of classroom teachers in public and private elementary and secondary schools will increase from 2.8 million in 1991 to 3.3 million in 2002 (table 10.1).⁷⁵ Approximately 272,000 of these new teachers will be working at the elementary level, and 157,000 at the secondary level. At the same time, student enrollment is

expected to increase from 46.8 million in 1991 to 53.0 million in 2002 (table 10.2).

This projected increase in the number of teachers, however, could have different implications depending on the sources of newly hired teachers and the reasons for new hiring.⁷⁶ If, for example, no former teachers could be induced to return to the profession, newly prepared teachers would have to supply all of the expected increase in the number of classroom teachers. If, on the other hand, the “reserve pool” of teachers filled the entire demand for new hires, there would be no need to prepare new teachers.

Similarly, the factors that drive demand for new teacher hires have important policy implications. If most of the new teacher demand were fueled by teacher turnover due to factors other than retirement, policies supporting the retention of qualified teachers would have the most impact. On the other hand, if turnover were minimal but increases in student enrollment were driving the demand for more teachers, policies encouraging former teachers to return to the profession or motivating more college students to consider teaching might be more fruitful.

While projections are useful for looking toward the future, it is important to remember that many factors will influence the future direction of these trends. Changes in the health of the economy, resources allocated for education, or educational policies such as class size could affect both the numbers of teachers and the demand for new hires. As NCES continues to collect data on teachers through the year 2000, these projections may be validated or altered.

⁷⁴The best known of these are the reports prepared by the Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century*, and the Holmes Group, *Tomorrow's Teachers*.

⁷⁵For more information on these projections, see U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 2001: An Update* (Washington, D.C.: 1991).

⁷⁶Newly hired teachers can include newly minted teachers (inexperienced teachers who have just graduated), delayed entrants (other inexperienced teachers), transfers or migrants, and re-entrants (experienced teachers who have not been teaching). See Mary R. Rollefson, “Sources of Newly Hired Teachers in the U.S.” (paper presented to the American Educational Research Association, San Francisco, April 1992).

Table 10.1—Projected number of classroom teachers, by sector and level: Fall 1991 to Fall 2002

| | Total | | | Public | | | Private | | |
|----------------|-------|------------|-----------|--------|------------|-----------|---------|------------|-----------|
| | K-12 | Elementary | Secondary | K-12 | Elementary | Secondary | K-12 | Elementary | Secondary |
| (in thousands) | | | | | | | | | |
| 1991 | 2,826 | 1,631 | 1,194 | 2,465 | 1,378 | 1,087 | 360 | 253 | 107 |
| 1992 | 2,791 | 1,645 | 1,146 | 2,433 | 1,389 | 1,043 | 358 | 255 | 103 |
| 1993 | 2,847 | 1,674 | 1,173 | 2,482 | 1,414 | 1,067 | 365 | 260 | 105 |
| 1994 | 2,902 | 1,704 | 1,198 | 2,530 | 1,439 | 1,090 | 372 | 264 | 108 |
| 1995 | 2,958 | 1,736 | 1,222 | 2,579 | 1,467 | 1,112 | 379 | 269 | 110 |
| 1996 | 3,015 | 1,770 | 1,245 | 2,628 | 1,495 | 1,133 | 387 | 275 | 112 |
| 1997 | 3,066 | 1,799 | 1,267 | 2,673 | 1,520 | 1,153 | 393 | 279 | 114 |
| 1998 | 3,107 | 1,824 | 1,283 | 2,709 | 1,541 | 1,167 | 398 | 283 | 115 |
| 1999 | 3,145 | 1,846 | 1,299 | 2,742 | 1,559 | 1,182 | 403 | 286 | 117 |
| 2000 | 3,181 | 1,866 | 1,316 | 2,774 | 1,576 | 1,198 | 408 | 289 | 118 |
| 2001 | 3,217 | 1,884 | 1,333 | 2,805 | 1,592 | 1,213 | 412 | 292 | 120 |
| 2002 | 3,254 | 1,903 | 1,351 | 2,838 | 1,608 | 1,230 | 417 | 295 | 122 |

NOTE: Projections are based on data through 1989. Because of rounding, details may not add to totals. The projections presented in this table are the middle alternative projections presented in the source publication.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 2002* (Washington, D.C.: 1991), 75.

Table 10.2—Projected enrollment in grades K-8¹ and 9-12 of elementary and secondary schools, by control of institution, with projections: 50 states and Washington, D.C.: Fall 1977 to Fall 2002

| | Total | | | Public | | | Private | | |
|----------------|-------------------|------------------|--------|-------------------|------------------|--------|-------------------|------------------|-------|
| | K-12 ¹ | K-8 ¹ | 9-12 | K-12 ¹ | K-8 ¹ | 9-12 | K-12 ¹ | K-8 ¹ | 9-12 |
| (in thousands) | | | | | | | | | |
| 1991 | 46,841 | 34,313 | 12,529 | 41,575 | 30,186 | 11,389 | 5,266 | 4,127 | 1,140 |
| 1992 | 47,601 | 34,855 | 12,746 | 42,250 | 30,663 | 11,587 | 5,351 | 4,192 | 1,159 |
| 1993 | 48,410 | 35,341 | 13,069 | 42,971 | 31,091 | 11,880 | 5,439 | 4,250 | 1,189 |
| 1994 | 49,279 | 35,751 | 13,528 | 43,749 | 31,451 | 12,298 | 5,530 | 4,300 | 1,230 |
| 1995 | 50,054 | 36,127 | 13,927 | 44,442 | 31,782 | 12,660 | 5,612 | 4,345 | 1,267 |
| 1996 | 50,759 | 36,452 | 14,307 | 45,074 | 32,068 | 13,006 | 5,685 | 4,384 | 1,301 |
| 1997 | 51,331 | 36,765 | 14,567 | 45,585 | 32,343 | 13,242 | 5,746 | 4,422 | 1,325 |
| 1998 | 51,750 | 37,126 | 14,624 | 45,955 | 32,661 | 13,294 | 5,795 | 4,465 | 1,330 |
| 1999 | 52,110 | 37,333 | 14,777 | 46,276 | 32,843 | 13,433 | 5,834 | 4,490 | 1,344 |
| 2000 | 52,406 | 37,548 | 14,858 | 46,539 | 33,032 | 13,507 | 5,867 | 4,516 | 1,351 |
| 2001 | 52,679 | 37,707 | 14,972 | 46,782 | 33,172 | 13,610 | 5,897 | 4,535 | 1,362 |
| 2002 | 52,996 | 37,790 | 15,206 | 47,068 | 33,245 | 13,823 | 5,928 | 4,545 | 1,383 |

¹Includes most kindergarten and some nursery school enrollment.

NOTE: Projections are based on data through 1989. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 2002* (Washington, D.C.: 1991), 9.

In the meantime, they provide one way to anticipate the future of the teaching work force.

TEACHER PREPARATION, CERTIFICATION, AND ASSESSMENT

Teachers who were prepared in the 1990s will form the continuing teacher pool for the 21st century. Moreover, reforms in teacher education and certification that were suggested in the late 1980s and in the 1990s could affect the qualifications of the teacher work force in the year 2000. Therefore, it will be particularly important for NCES to design its data collection programs so that it can monitor changes expected in these areas and can maintain the flexibility to collect data on unanticipated developments. Some of the potential changes that can be anticipated and monitored are shifts in teacher education, growth in the numbers of teachers seeking and receiving certification through alternate routes, and changes in how teachers' qualifications are assessed.

Teacher Education

Both the Carnegie Forum on Education and the Economy and the Holmes Group have proposed that all teachers receive a comprehensive liberal arts education at the undergraduate level to gain subject-matter expertise, and that most teacher education courses be shifted to the graduate level. As the data presented in Chapter 4 show, this is not how the majority of current teachers have been educated. Thus, such a reform would greatly change teacher education.

Another proposal calls for separating teachers into different professional tiers, depending on their qualifications and experience. The Holmes Group, for example, has suggested that these levels include Practitioners (novice teachers), Professional Teachers (competent experienced teachers), and Career Professionals (advanced instructional leaders).⁷⁷ These types of proposals would require restructuring certification requirements and teacher responsibilities to reflect the different levels of the teaching profession, enabling

good teachers to be promoted to higher levels of responsibility and compensation without having to leave teaching.

Both the Holmes Group and the Carnegie Forum on Education and the Economy recommended teacher training that includes internships and residencies analogous to teaching hospitals in the medical profession.⁷⁸ This model would represent a new approach for teacher education and induction into the profession, using expert teachers as mentors for newly prepared teachers.

Another recent development in teacher education has been subject-specific guidelines for teacher preparation. In the 1980s, the National Council of Teachers of Mathematics released its Guidelines for the Preparation of Teachers of Mathematics, which described competencies that every teacher of mathematics should be able to demonstrate after completing a teacher preparation program. The guidelines addressed the preparation of elementary school teachers as well as that of departmentalized secondary teachers of mathematics. This first comprehensive model of mathematics teacher preparation has been emulated by the National Science Teachers Association and other subject-oriented groups. The move toward standards in the subject-matter preparation of teachers is one development that will undoubtedly continue into the next century.

Taken together, these proposals form a vision of teacher education that is different from the experiences reported by teachers in the 1987–88 Schools and Staffing Survey (SASS). In order to monitor whether and how these proposals develop and are implemented, NCES must collect data on teacher education and the professional roles of teachers in schools. As was evident in this report, NCES currently collects minimal amounts of data on teacher education. Although data are collected on the educational attainment and major fields of study of teachers and on the characteristics of teacher educators, data are not currently collected on the types of pre-service and inservice educational programs in which

⁷⁷The Holmes Group, *Tomorrow's Teachers*, 36–41.

⁷⁸The Holmes Group, *Tomorrow's Teachers*, 56; Carnegie Forum on Education and the Economy, *A Nation Prepared: Teachers for the 21st Century*, 70.

teachers participate. In addition, and perhaps more importantly, data are not collected on the effect that preservice and inservice education have on classroom teaching and children's learning. This data gap is one that NCES must attempt to fill as it monitors changes in teacher education into the next century.

Certification

Many education reformers have suggested revising current teacher licensing procedures to reflect more adequately the skills and knowledge essential to good teaching practice. For example, the National Board for Professional Teaching Standards is developing innovative teacher assessments for advanced teachers (described below under Teacher Assessment), as is the Educational Testing Service for entry into the profession.

At the same time, many are asking if individuals who do not go through traditional (or even reformed) teacher preparation programs can, in fact, become teachers. Alternative certification has recently begun to provide a route into the profession for "the growing market of adults who already have at least a bachelor's degree—many of whom have considerable life experience and success in other careers—who wanted to become licensed to teach."⁷⁹ According to data from the National Center for Education Information, about 20,000 individuals were certified as teachers through an alternate route between 1985 and 1990. This phenomenon is clearly growing. For example, since 1990, an estimated 40,000 teachers have received alternative certification.

Feistritzer and Chester defined eight classes of alternative certification programs.⁸⁰ These programs, designed to attract talented bachelor's degree holders into the profession, generally enable the candidate to begin teaching almost immediately. Some of them provide instruction in teaching theory and classroom management during the summer before the school year in which the candidate

begins teaching, while all of them provide additional assistance, coursework, and mentoring from an experienced teacher during the first year of teaching. At the end of this "apprenticeship" year, teachers receive their teaching certificates.

To date, NCES has not collected data on teachers who have entered the profession through alternate routes to teacher certification. Beginning in 1994, SASS will collect data from teachers in order to determine whether their teaching certificate was obtained through an alternate route. This data collection will provide researchers with an opportunity to monitor the prevalence of alternative certification and how it changes over time, and to analyze the characteristics and qualifications of teachers who receive such certification. As this phenomenon grows in size, it will become increasingly important to monitor.

Assessment

At the present time, measures of teacher quality represent one of the most important data gaps in understanding how teachers affect the educational process. Although degrees earned, certification, years of experience, and academic ability have all been presumed to be indicative of teacher quality, the results of studies examining their relevance to student learning have been equivocal.⁸¹

To assess teacher quality, it is important to define what teachers should know and be able to do. In recent years, several efforts have been undertaken to define standards for excellence in teaching. One focus has been to develop innovative assessments that measure teacher quality more accurately. Toward this end, the Educational Testing Service is currently creating new performance-based assessments to replace the National Teachers Examination. The largest effort, however, has been made by the National Board for Professional Teaching Standards (NBPTS); they are currently developing assessments with which to identify superior teachers in various subjects across school levels.⁸²

⁷⁹C. Emily Feistritzer, *Who Wants to Teach?*, National Center for Education Information (1992), 6.

⁸⁰C. Emily Feistritzer and David Chester, *Alternative Teaching Certification: A State by State Analysis* (Washington, D.C.: National Center for Education Information, 1991).

⁸¹U.S. Department of Education, National Center for Education Statistics, *Filling the Gaps: An Overview of Data on Education*

⁸²See John W. Porter, "A Call for National Certification of Teachers," *NASSP Bulletin* (October 1990), 64–70.

The purpose of the NBPTS is to develop a voluntary national system of teacher certification. Under this system, national certification would be the hallmark of excellent teachers after they successfully complete a rigorous series of assessments. The NBPTS believes that board-certified teachers will be rewarded with additional authority and responsibility for instructional leadership in schools, and perhaps, as districts compete to recruit these teachers, with additional compensation.

National certificates will be awarded based upon both the developmental level of students and the subject level. These two dimensions (plus one more for teachers of limited English proficient, special education, and exceptional needs children) will constitute the 34 certification fields. Standards committees, in which teachers are the majority, will set the requirements of what teachers should know and be able to do in these fields.⁸³ The assessment for one field, early adolescence/language arts, has been developed by the University of Pittsburgh and the Connecticut Department of Education.⁸⁴ Based upon the work of the standards committee, the assessment was piloted during the summer of 1992. One proposed component of the assessment is a portfolio of the teacher's work completed over a 2-year period, which would contain required sections that demonstrate the teacher's planning, evaluation, and classroom discussion skills. Other components of the assessment would include a written test of subject-matter knowledge and a series of exercises at an assessment center. Comparable assessments are being developed for other areas of certification.

The National Board for Professional Teaching Standards has taken an important step toward improving our understanding of teachers as professionals and our knowledge of how to identify excellent teachers. The work that the Board has performed, and will continue to do, has the potential to change the teaching profession in ways that are only imaginable at this time. As superior teachers become board certified, NCES will assume a role in collect-

ing data on the number and types of such teachers. Thus, the work of the NBPTS will enhance the ability of NCES to understand, and perhaps measure, teacher quality.

SCHOOL RESTRUCTURING

A central theme of the reform reports of the late 1980s was that the structure of schooling was a "chief culprit" in the failure of the educational system. While early reform efforts focused on changing specific programs and policies within the structure of the existing school system, later reformers argued that problems in America's schools stem fundamentally from the nature and structure of the educational system. Proponents of systemic school "restructuring" argue that the ways in which schools operate and are organized hinders innovation and dampens incentives to reform. Some confusion exists among educators, researchers, and policymakers, however, about what "restructuring" means. One interpretation is that of Boe and Boruch who state: "In practice, the term 'restructuring' has been applied to a wide array of actions intended to improve public education, and is often used interchangeably with educational reform."⁸⁵ They further argue that "the concept of restructuring implies a fundamental change in the organization of something," as opposed to reform that addresses specific problems with the existing system.⁸⁶ Such fundamental change clearly can affect the way teachers teach and the context in which they work.

Boe and Boruch have attached the label of "entrepreneurial restructuring" to fundamental change in which schools adopt some of the characteristics and policies of private businesses. The three components of entrepreneurial restructuring are 1) a focus on school outcomes, or accountability; 2) the use of incentives linked to school performance; and 3) the devolution of authority, including site-based management.

⁸³Barbara B. Laws, "Why Teachers Must Play a Role in Setting National Standards," *Educational Leadership* (November 1991), 37.

⁸⁴Ann Bradley, "Pilot Test Offers a Glimpse of Board's Teacher Assessment," *Education Week* (September 16, 1992).

⁸⁵Erling E. Boe and Robert F. Boruch, "Unpacking the Concept of Educational Restructuring with a Focus on the Entrepreneurial Approach," *Research Report*, No. 1992-ER1, Center for Research and Evaluation in Social Policy (December, 1992).

⁸⁶See also A. Lieberman and L. Miller, "Restructuring Schools: What Matters and What Works," *Phi Delta Kappan* (June 1990), 759-64.

The focus of restructuring on school outcomes and incentives based upon those outcomes reflects a fundamental shift in the rhetoric of reform, because previous reform efforts emphasized school inputs and processes rather than outcomes. For example, efforts to introduce teacher competency testing and new graduation requirements were pervasive in the 1980s. A move toward school accountability implies a shift in how one views and evaluates our schools, and, more importantly, means an increased emphasis on assessment and testing. Anrig notes that "to assess without defined standards is to put the cart before the horse. To assess without the opportunity to be taught is to blame students for educational inequality."⁸⁷ Thus, the definition of standards, or what students should know and be able to do, has become an important part of the restructuring movement.

The National Council for Teachers of Mathematics and the National Science Teachers Association have taken the lead in academic subject area reform by defining standards for the education of American children. Other efforts are currently under way in history, geography, English, and foreign languages. A recent report by the National Council on Educational Standards and Testing, *Raising Standards for American Education*, emphasized that assessments linked to well-defined standards for student learning could be used for school accountability. It also noted that "standards and assessments linked to the standards can become the cornerstone of the fundamental, systemic reform necessary to improve schools."

Accountability implies responsibility. Implementing standards and improving education outcomes ultimately comes down to what a given teacher does in a specific classroom context. The third element of entrepreneurial restructuring, therefore, is decentralized decisionmaking and site-based management.⁸⁸ The idea of site-based management was implicit in calls by the Holmes Group, the Carnegie Forum on Education and the Economy, and others for increased professionalization of the teacher work force. By providing teachers with more authority (and more

responsibility) for running their classrooms and their schools, reformers hope that teachers will feel that they have a greater investment in the educational enterprise. As Lieberman and Miller noted:

What distinguished the restructuring movement from other school reform efforts is the understanding that it is necessary to create the conditions that will enable teachers to accomplish the desired outcomes. . . . The strong connection between students' learning and teachers' working conditions is often ignored, since schools tend to emphasize one factor at the expense of the other.⁸⁹

However, decentralized decisionmaking and site-based management go beyond simply providing more authority for teachers. Lieberman and Miller state that "school conditions must be altered to enable schoolpeople to play active roles in making decisions about their work and their workplace." By including all key school participants, such as principals, teachers, parents, and even students in decisionmaking, schools will become infused with a core of committed participants who will strive to improve the learning environment.

If new models such as those implied by the restructuring movement are widely adopted, teachers may soon find themselves working in revitalized settings under new rules. Both preservice and inservice education must play a large role in helping teachers adapt to these potential sweeping changes in the school environment. In moving toward the 21st century, NCES will play an important role in collecting data needed to monitor changes in school inputs, processes, and outcomes and on their impact on principals, teachers, and students.

CONCLUSION

The trends in education described above are only a few of the changes that we can anticipate in the 21st century. Some of these reform efforts may fail, while others may be enormously successful. In the current

⁸⁷Gregory Anrig, "Testing and Accountability," *The American School Board Journal* (September 1992), 34-36.

⁸⁸For a discussion of this aspect of restructuring, see also Kenneth A. Tye, "Restructuring Our Schools: Beyond the Rhetoric," *Phi Delta Kappan* (September 1992), 8-14.

⁸⁹A. Lieberman and L. Miller, "Restructuring Schools: What Matters and What Works," *Phi Delta Kappan* (June 1990), 759-64.

climate of reform, however, the teaching profession may have a very different character in the next century. As teachers and schools adapt to changing student demographics and respond to our greater understanding of how to help all children learn, the role of teachers in schools will undoubtedly change. NCES will try to be at the forefront of measurement issues as they pertain to examining topics discussed in this chapter, and will work to respond to the data needs of a changing educational system.

At the same time, NCES will continue to collect and report data on the demographic and economic characteristics of teachers; on their education, qualifications, and experience; and on their working conditions, perceptions, and attitudes. Finally, NCES will also continue to monitor teacher supply and demand using longitudinal data, and will try to develop better information on how teachers in the United States compare with their counterparts in other countries.

APPENDIX A • TECHNICAL NOTES

GENERAL INFORMATION

The information presented in this report was obtained from National Center for Education Statistics (NCES) databases and private research organizations in the United States and abroad. Whereas some of the data presented in this report were collected from census-like surveys, most of the data were gathered by surveying samples drawn from populations. In addition, a few of the tables provide projections of education statistics into the future, for example, estimates of the number of students who will be enrolled in elementary schools in the year 2000. Due to the variation in data collection methodology among studies, users of this report should take particular care when comparing data from different sources. Differences in procedures, timing, phrasing of questions, interviewer training, and so forth mean that the results from different NCES sources are not strictly comparable. Following the general discussion of data accuracy below, descriptions of the information sources and research methods are presented.

Accuracy of Estimates

The accuracy of any statistic is determined by the joint effects of sampling and nonsampling errors. Both types of error affect the estimates presented in this report.

Nonsampling error. Both universe and sample surveys are subject to nonsampling errors, which are extremely difficult to estimate. Nonsampling errors are of two kinds—nonobservation error and measurement error.

Nonobservation error may be due to noncoverage, which occurs when members of the population of interest are excluded from the sampling frame, and therefore are not included in the survey sample. Nonobservation error also occurs when sampled units (for example, schools, teachers, or students) refuse to answer some or all of the survey questions. These types of errors are referred to as ques-

tionnaire nonresponse (where the entire questionnaire is missing) and item nonresponse (where only some items are missing), respectively. Through the adjustment of sample weights and imputation procedures, survey researchers sometimes attempt to correct for nonresponse. Information concerning whether and how such adjustments were made in individual studies can be found in the technical report that describes in detail the methodology used in each study.

Measurement error occurs when mistakes are made when data are edited, coded, or entered into computers (processing errors), when the responses that subjects provide differ from the “true” responses (response errors), and when measurement instruments such as tests or questionnaires fail to measure the characteristics they are intended to measure. Sources of response errors include differences in the ways that respondents interpret questions, faulty respondent memory, and mistakes that respondents make when recording their answers. Because estimating the magnitude of these various types of non-sampling errors would require special experiments or access to independent data, information on these magnitudes is seldom available.

Sampling error. Sampling error occurs when members of a population are selected (sampled), and only sample members respond to survey questions; surveys of universes, such as the Common Core of Data, are not subject to sampling error. Estimates that are based on a sample will differ somewhat from the data that would have been obtained if a complete census of the relevant population had been taken using the same survey instruments, instructions, and procedures. The estimated standard error of a statistic is a measure of the variation due to sampling and can be used to examine the precision obtained in a particular sample.

The standard errors of statistics that are discussed in the text of this report and selected other standard errors are provided in Appendix B. Some of the estimates shown in the tables in this report may have

large standard errors. For example, cells with small sample sizes would tend to have large standard errors. Therefore, numbers that are in the tables but not presented in the text should be interpreted with caution. Standard errors of all estimates that have been reported in the tables and figures are available from NCES.

Statistical Procedures

The comparisons in the text have been tested for statistical significance to ensure that the differences are larger than might be expected due to sampling variation. These statistical tests were based on the Student's *t* statistic. Generally, whether a difference is considered significant is determined by calculating a *t* value for the difference between a pair of means, or proportions, and comparing this value to published tables of values at certain critical levels, called alpha levels. The alpha level is an a priori statement of the probability of inferring that a difference exists when, in fact, it does not.

In order to make proper inferences and interpretations from the statistics several points must be kept in mind. First, comparisons resulting in large *t* statistics may appear to merit special note. This is not always the case, because the size of the *t* statistic depends not only on the observed differences in means or the percentages being compared, but also on the standard error of the difference. Thus, a small difference between two groups with a much smaller standard error could result in a large *t* statistic, but this small difference is not necessarily noteworthy. Second, when multiple statistical comparisons are made on the same data, it becomes increasingly likely that an indication of a population difference is erroneous. Even when there is no difference in the population, at an alpha level of .05, there is still a 5 percent chance of concluding that an observed *t* value representing one comparison in the sample is large enough to be statistically significant. As the number of comparisons increases, the risk of making such an error in inference also increases.

To guard against errors of inference based upon multiple comparisons, the Bonferroni procedure to correct significance tests for multiple contrasts was

used. This method corrects the significance (or alpha) level for the total number of contrasts made with a particular classification variable. For each classification variable, there are $(K*(K-1)/2)$ possible contrasts (or nonredundant pairwise comparisons), where *K* is the number of categories. For example, because race-ethnicity has three categories (black, non-Hispanic; white, non-Hispanic; and other), *K* = 3 and there are $(3*2)/2 = 3$ possible comparisons among the categories. The Bonferroni procedure divides the alpha level for a single *t* test (for example, .05) by the number of possible pairwise comparisons in order to give a new alpha that is corrected for the fact that multiple contrasts are being made.

The formula used to compute the *t* statistic was as follows:

$$t = \frac{P_1 - P_2}{\sqrt{se_1^2 + se_2^2}}$$

where *P*1 and *P*2 are the estimates to be compared and *se*1 and *se*2 are their corresponding standard errors. This formula is valid only for independent estimates. When the estimates were not independent (for example, when comparing the percentages of students in different age groups), a covariance term was added to the denominator of the *t*-test formula. Because the actual covariance terms were not known, it was assumed that the estimates were perfectly negatively correlated. Consequently, $2(se_1*se_2)$ was added to the denominator of the *t*-test formula.

SOURCES OF DATA

Common Core of Data (CCD)

NCES uses the Common Core of Data (CCD) survey to acquire and maintain statistical data on the 50 states, the District of Columbia, and the outlying areas from the universe of state-level education agencies. Information about staff and students in public schools is collected annually at the school, LEA (local education agency or school district), and state levels. Information about revenues and expenditures is also collected at the state level.

Since the CCD is a universe study, the CCD information presented in this report is not subject to sampling error. However, nonsampling error could come from two sources: nonreturn and inaccurate reporting. Typically, misreporting occurs from varying interpretations of NCES definitions and differing record-keeping systems. NCES subjects data from the education agencies to a comprehensive edit. Where data are determined to be inconsistent, missing, or out of range, NCES contacts the education agencies for verification.

Questions concerning the Common Core of Data can be directed to:

General Surveys and Analysis Branch
Elementary and Secondary Education Statistics
Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5651

1988 National Assessment of Educational Progress (NAEP)

The National Assessment of Educational Progress (NAEP) is an ongoing congressionally mandated, national survey of the knowledge, skills, understanding, and attitudes of young Americans in major subjects usually taught in school. Its primary goals are to detect and report the current status of and long-term changes in the educational attainments of young Americans. NAEP has been conducted since 1969.

Students were selected for participation in the 1988 NAEP using a multi-stage sample design in which geographical areas, schools, and then students were sampled. Within primary sampling units, schools were sampled with probability proportional to size, and schools with high-minority populations were over-sampled to enhance the reliability of estimates for minority groups. Within schools, students were sampled by both age and grade to enhance comparability of NAEP assessments over time. In 1988, the student sample for grade 4/age 9 included 23,012 children, and for grade 8/age 13, it included 31,601 children.

The teacher questionnaire was administered to the reading teachers of fourth-grade students and to the

writing teachers of eighth-grade students. The purpose of drawing these samples was not to estimate the attributes of the teacher population, but to estimate the number (proportion) of students whose teachers had various attributes and to correlate student characteristics and performance with the characteristics of their teachers. Therefore, the findings in this report are discussed in terms of the percentage of fourth- or eighth-grade students whose teachers reported that they used various teaching practices, rather than in terms of the percentage of teachers who reported using them.

Up to seven of the reading teachers and up to seven of the writing teachers within each school were selected to complete the teacher questionnaire. In schools with more than seven reading teachers, a sample of five of these teachers was selected. NAEP collected information from 3,808 teachers of the 4,534 fourth graders who participated in the 1988 reading assessment, and from 756 teachers who were linked with 3,437 of the 6,525 eighth graders who participated in the 1988 writing assessment. Teachers were asked questions about the individual students who participated in the assessment, their own teaching practices, and about themselves.⁹⁰

For further information concerning the methodology used in NAEP, contact:

Educational Assessment Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5656

National Education Longitudinal Study of 1988 (NELS:88)

The National Education Longitudinal Study of 1988 (NELS:88) is the third in a series of longitudinal studies sponsored by NCES. NELS:88 began with eighth graders in 1988 and is broader in scope than its predecessors, the National Longitudinal Study of

⁹⁰The NAEP sample design is described in detail in E. Johnson, R. Zwick, and N. Allen, *Focusing the New Design: The NAEP 1988 Technical Report* (Princeton, NJ: Educational Testing Service, 1990).

the High School Class of 1972 (NLS-72) and High School and Beyond (HS&B). The base-year survey described the eighth-grade experiences of approximately 25,000 participants and included additional surveys of teachers, parents, and school administrators. Followups have been conducted in 1990 and 1992, and will be conducted in 2-year intervals thereafter.

The NELS:88 base-year study employed a two-stage, stratified random sample design. In the first stage of the sampling process, "regular" public and private schools with eighth graders in the United States were stratified by region, urbanicity, and minority percentage. From this population, 1,734 schools were selected. The final sample size was 1,052 schools, about 70 percent of which were originally sampled and about 30 percent of which were replacement schools (schools drawn from the sampling stratum to replace an initial selection that refused to participate). The second stage of the sampling process included the selection of students within schools. Students who were judged by a representative of the school to be unable to complete the survey instruments, because of mental or physical handicaps or language barriers (about 5.4 percent of the potential sample), were ineligible for sampling. Students of Hispanic, Asian, or Pacific Islander origin were oversampled to ensure sufficient sample sizes for analyses of language minority students. On average, 26 students were sampled per school, resulting in more than 24,999 eighth graders in the sample (weighted questionnaire completion rate of 93.4 percent).

Teachers of eighth graders were selected for participation in NELS:88 on a pre-assigned basis in two of four subject areas—mathematics, science, English, and social studies. Each school was randomly assigned to one of the following combinations of curriculum areas: mathematics and English, mathematics and social studies, science and English, and science and social studies. At any school, each sampled student's current teacher(s) in each of the two assigned subject areas was selected to receive a teacher questionnaire. This selection procedure was designed to ensure representation of mathematics or science and English or social studies curriculum in all schools. An average of five teachers per school participated. About 92 percent

of teachers who were selected to complete teacher questionnaires responded.⁹¹

Given this sample design, the teacher component of the NELS:88 survey does not constitute a nationally representative sample of eighth-grade teachers. NELS:88 teachers were not independently selected, and their inclusion in the sample depended upon their linkage to a student who was selected for the survey. Therefore, in this study the student is the basic unit of analysis: the characteristics of teachers and their instruction have been analyzed in relation to student-teacher pairs.

Further information concerning NELS:88 can be obtained from:

Longitudinal and Household Studies Branch
Elementary/Secondary Education Statistics
Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5734

1988 National Survey of Postsecondary Faculty (NSOPF-88)

The National Survey of Postsecondary Faculty (NSOPF-88) was designed by NCES to gather data concerning the background characteristics, work load, compensation, retirement plans, and job satisfaction of faculty in 2- and 4-year postsecondary institutions. The data used in this report were gathered in the first cycle of the study, which was conducted between December 1987 and October 1988.

The sample of faculty members for the survey was obtained in a two-stage sampling process. First, nonproprietary postsecondary institutions were stratified into 12 primary strata based on level of degree offered, emphasis placed on research, and control (public versus private). Random samples of faculty were drawn within each of the 12 strata, for a total of 480 institutions. Second, 449 participat-

⁹¹For a detailed description of the NELS:88 sample design, see B. Spencer, M. Frankel, S. Ingels, K. Rasinski, and R. Tourangeau, *National Education Longitudinal Study of 1988: Base Year Sample Design Report*, NCES 90-463 (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1990).

ing institutions provided lists of their fall 1987 instructional faculty, who were stratified by program area and employment status (full- and part-time). Random samples of faculty members were drawn from each faculty stratum. A total of 12,569 faculty members were sampled, of whom 11,071 were estimated to be eligible sample members, i.e., sample members who had at least some instructional duties that were related to for-credit courses given at the sampled institution during the 1987 fall term. Questionnaire responses were obtained from 88 percent of sampled institutions and 76 percent of the eligible sampled faculty members. Missing responses to particular items were imputed by assigning the response to the omitted item that was provided by a randomly selected other respondent who matched the target respondent on employment status, tenure status, academic rank, gender, minority/nonminority status, program area, and institutional stratum.⁹²

Further information on the NSOPF-88 may be obtained from:

Cross-Sectional Studies Branch
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652
Projections of Education Statistics

Since 1964, NCES has published Projections of Education Statistics, projecting key statistics, including enrollments, instructional staff, graduates, and earned degrees for elementary and secondary schools and institutions of higher education. Projections includes several alternative projection series and a methodology section describing the techniques and assumptions used to prepare them. Data in this report reflect the intermediate Projections series only.

⁹²The sampling design and other technical information on NSOPF:88 can be found in the Technical Appendix to S. Russell, R. Cox, C. Williamson, J. Boismier, H. Javitz, J. Fairweather, and L. Zimbler, *Faculty in Higher Education Institutions, 1988*, NCES 90-365 (Washington, DC: U.S. Department of Education, National Center for Education Statistics, March 1990), 93-101.

Differences between reported and projected values are almost inevitable. An evaluation of past projections at the elementary and secondary levels reveals that projections of enrollment have been quite accurate: mean absolute percentage differences for enrollment were less than 1 percent for projections from 1 to 5 years into the future, while those for teachers were less than 4 percent.

Since projections of time series are subject to errors both by the nature of statistics and the properties of projection methodologies, users are cautioned not to place too much confidence in the numerical values of the projections. Important, but unforeseeable, economic and social changes may lead to differences. These projections are to be considered indicators of broad trends.

For further information about projection methodology and accuracy, contact:

Statistical Standards and Methodology Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5650

Recent College Graduates Study

NCES has conducted periodic surveys to collect information on college outcomes. The Recent College Graduates Study (RCG), a collection of six surveys conducted since 1976, has concentrated on those college graduates who have entered the teaching profession. The survey involved a two-stage sampling procedure. First, a sample of institutions awarding bachelor's and master's degrees was selected and stratified by percent of education graduates, control, and geographic region. Approximately 95 percent of the sampled institutions responded to the survey. Then for each selected institution, a sample of degree recipients was chosen within each of seven strata based on degree level (bachelor's or master's) and program area. To obtain accurate results on graduates who were newly qualified to teach, education majors were oversampled. For the 1987 survey, questionnaires were mailed to 18,825 eligible members of the bachelor's degree sample, and responses were received from 15,088 by mail and follow-up telephone interview, for a final response rate of 80.1 percent.

Two kinds of adjustment were made for nonresponse. First, to account for nonparticipating institutions and nonresponding graduates, a poststratification ratio adjustment procedure was used. The initial weight for each graduate was adjusted so that the sum of the graduate weights in each poststrata equaled the corresponding number of graduates tabulated from the U.S. Department of Education, National Center for Education Statistics, the Higher Education General Information (HEGIS) XXI Survey, 1985–86 Survey of Earned Degrees. Second, imputation for item nonresponse was conducted using logical imputation, regression imputation, or random imputation within class.⁹³

For this report, respondents were categorized as teachers if they reported that their principal job during the week of April 27, 1987 was that of a school teacher (prekindergarten through grade 12).

Further information on this survey may be obtained from:

Postsecondary Education Statistics Division
Cross-Sectional Studies Branch
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

***1987-88 Schools and Staffing Survey (SASS) and
1988-89 Teacher Followup Survey (TFS)***

The 1987–88 Schools and Staffing Survey (SASS) was a mail survey that collected public- and private-sector data on the nation's elementary and secondary teaching force, aspects of teacher supply and demand, teacher workplace conditions, characteristics of school administrators, and school policies and practices. Public and private schools were sampled from the Quality Education Data (QED) files stratified by the 50 states and the District of Columbia, and then by three grade levels (elemen-

tary, secondary, and combined). The survey includes seven questionnaires that were sent to public school districts and private schools, administrators, and teachers. Details concerning sampling strategies, response rates, and imputation procedures for individual questionnaires follow.⁹⁴

The Teacher Demand and Shortage Questionnaires for Public School Districts and Private Schools. All local education agencies (LEAs) that had at least one school selected for the school sample were included in the LEA sample for the "Teacher Demand and Shortage (TDS) Questionnaire." In addition, a sample of 70 LEAs that did not contain eligible schools was selected directly. Only 8 of these 70 were actually in scope (that is, they reported hiring teachers). The total LEA sample was 5,592, and the total private school sample was 3,513.

Weighted response rates were 90.8 percent for the public school TDS questionnaire and 66.0 percent for the private school TDS questionnaire. The data were weighted to reflect the universe of public school districts and the universe of private schools. The weights were subsequently adjusted for survey nonresponse. Data items on both questionnaires were imputed for item nonresponse using a hot-deck procedure.

The Public and Private School Administrator Questionnaires. School Administrator Questionnaires were mailed to the administrators of all 9,317 public and 3,513 private schools in the school samples. Weighted response rates for the School Administrator Questionnaire were 94.4 percent for public school administrators and 79.3 percent for private school administrators. There was no explicit imputation for item nonresponse. Caution must be exercised in the use or interpretation of the estimates from an unimputed data file, especially estimates with low-item response rates.

The Public and Private School Schools Questionnaires. School questionnaires were mailed to the administrators of all 9,317 public and 3,513

⁹³Details concerning the sample design of the 1987 Survey of 1985–86 College Graduates may be found in J.A. Riccobono, G.J. Burkheimer, and V.G. Iannacchione, "Final Methodology Report: 1987 Survey of 1985–86 College Graduates" (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1989).

⁹⁴For a detailed description of the sample design, see Steven Kaufman, *1988 Schools and Staffing Survey Sample Design and Estimation, Technical Report*, NCES 91-127 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, May 1991), 23–43.

private schools in the school samples. Weighted response rates were calculated using the sampling weights. The weighted response rate for the Public School Questionnaire was 91.9 percent; for the Private School Questionnaire, it was 78.6 percent. The average unweighted item response rate for the entire Public School Questionnaire was 89.6 percent; for the Private School Questionnaire, it was 89.1 percent. Data items on the School Questionnaires were imputed for item nonresponse using a hot-deck procedure.

In this report, schools have been categorized into three levels, three types of communities, and two categories based on the number of enrolled students who are of minority backgrounds. The school levels—elementary, secondary, and combined schools—were defined as follows: elementary schools had grade 6 or lower, or “ungraded,” and no grade higher than the 8th grade; secondary schools had grade 9 or higher and no grade lower than the 7th, or “ungraded”; and combined schools had grades higher than the 8th and lower than the 7th. The school community types—urban, suburban, and rural—were defined as follows: urban schools were located in medium-sized cities (50,000 to 100,000 people), large cities (100,000 to 500,000 people), or very large cities (more than 500,000 people); suburban schools were located in suburbs of medium-sized, large, or very large cities, or in a military base or station; and rural schools were located in rural or farming communities, small cities or towns of fewer than 50,000 people that were not suburbs of larger cities, or Indian reservations.⁹⁵ The percent minority enrollment of each school was defined as the proportion of each school’s enrolled students who were American Indian or Alaskan Native; Asian or Pacific Islander;

Hispanic, regardless of race (Mexican, Puerto Rican, Cuban, Central or South American, or other culture or origin); or Black (not of Hispanic origin). Schools were classified into two categories based upon this proportion: schools with less than 20 percent minority enrollment, and schools with 20 or more percent minority enrollment.

The Public and Private School Teachers Questionnaires. For the purposes of SASS, a teacher was any full- or part-time teacher whose primary assignment was to teach in any of grades K–12. Itinerant teachers and long-term substitutes who were filling the role of a regular teacher on an indefinite basis were also included. An itinerant teacher was defined as a teacher who taught at more than one school.

Teachers were sampled from each sampled school. Teacher samples were stratified by experience (new and all other teachers), level (elementary and secondary teachers), and subject area. Teachers were classified as elementary or secondary on the basis of the grades they taught rather than on the schools in which they taught. An elementary school teacher was one who, when asked for the grades taught, checked the following:

- Only “ungraded” and was designated as an elementary teacher on the list of teachers provided by the school; or
- 6th grade or lower, or “ungraded,” and no grade higher than 6th; or
- 6th grade or lower and 7th grade or higher, and reported a primary assignment of prekindergarten, kindergarten, or general elementary; or
- 7th and 8th grades only, and a reported primary assignment of prekindergarten, kindergarten, or general elementary; or
- 6th grade or lower and 7th grade or higher, and reported a primary assignment of special education and was designated as an elementary teacher on the list of teachers provided by the school; or
- 7th and 8th grades only, and reported a primary assignment of special education and was designated as an elementary teacher on the list of teachers provided by the school.

⁹⁵In tables that report NELS:88 data, community type was defined in slightly different terms. Whereas in SASS the data used to classify schools into these categories were supplied by the people who filled out the school questionnaires, in NELS:88 the community type rows were derived from the variable G8URBAN, which categorizes schools as urban, suburban, or rural based on their classification in QED, as drawn from U.S. Census data and definitions. Urban means central city; suburban is the area surrounding a central city but within a county constituting the MSA (or Metropolitan Statistical Area); and rural is outside the MSA.

A secondary school teacher was one who, when asked for the grades taught, checked:

- “Ungraded” and was designated as a secondary teacher on the list of teachers provided by the school; or
- 6th grade or lower and 7th grade or higher, and reported a primary assignment other than prekindergarten, kindergarten, or general elementary; or
- 9th grade or higher, or 9th grade or higher and “ungraded”; or
- 7th and 8th grades only, and reported a primary assignment other than prekindergarten, kindergarten, or general elementary; or
- 7th and 8th grades only, and reported a primary assignment of special education and was designated as a secondary teacher on the list of teachers provided by the school; or
- 6th grade or lower and 7th grade or higher, or 7th and 8th grades only, and was not categorized above as either elementary or secondary.

The public and private school teacher samples were also designed to include a basic sample and a Bilingual/ESL supplement. The sample sizes were as follows: public basic sample, 54,340; private basic sample, 11,412; public bilingual/ESL supplement sample, 2,258; and private bilingual/ESL supplement sample, 183.

Weighted response rates were 86.4 percent for the Public School Teachers Questionnaire and 79.1 percent for the Private School Teachers Questionnaire. The data were weighted to reflect the universe of public school teachers and the universe of private school teachers, and the weights were adjusted for nonresponse. There was no explicit imputation for item nonresponse. Caution must be exercised in the use or interpretation of the estimates from an unimputed data file, especially estimates with low-item response rates.

Teacher Followup Survey. Another component of SASS is the Teacher Followup Survey (TFS), which provides data used to study teacher attrition and retention in public and private schools and to project teacher demand during the 1990s. It consists of a

subsample of SASS teachers, and was implemented 1 year after the base-year survey. The TFS identifies and collects data from various groups of teachers who were surveyed the previous year. Teachers who remain in the teaching profession, including those who remain in the same school (stayers) and those who have changed schools (movers), as well as those who have left teaching (leavers), are included in the followup sample.

The 1988–89 occupational status of teachers responding to the 1987–88 SASS was determined by contacting their schools to learn whether they were still at the school, had moved, or had left teaching. All leavers were included in the sample. Stayers and movers in public schools were stratified by level, experience, sector, and teaching status (stayer or mover). They were sorted by census region, urbanicity, teacher subject, and school enrollment; in private schools, they were sorted by affiliation, urbanicity, teacher subject, and school enrollment. The total sample size was 7,172 teachers, of whom 2,987 were leavers and 4,185 were stayers or movers. Response rates for the TFS were 84.1 among public school teachers and 75.9 percent among private school teachers.⁹⁶ The TFS was not imputed for item nonresponse.

The two tables that follow present unweighted response rates for the variables used in the tables of this report, by table. The first table presents item response rates for variables from the Teacher Questionnaire, and the second presents response rates for variables used from the Teacher Followup Survey. Unweighted response rates do not reflect additional response loss due to complete questionnaire refusal. Variables are listed under the table in which they first occurred, and are not repeated under the listing for subsequent tables in which they occurred. Within tables, column variables are presented first, followed by row variables. Item response rates for variables from the Teacher Questionnaire were as follows:

⁹⁶These response rates are the products of the respective response rates to the Teacher Questionnaires (86.4 percent among public teachers and 79.1 percent among private teachers) and the Followup Survey (97.3 percent among public teachers and 96.0 percent among private teachers).

Item response rates for variables from the Teacher Questionnaire

| Table number | Variable name | Response rate for public sector (percent) | Response rate for private sector (percent) |
|--------------|--|---|--|
| Table 2.3 | Teacher sex | 99.6 | 99.9 |
| | Teacher level | 100.0 | 100.0 |
| | Teacher age | 98.9 | 98.2 |
| | Teacher years of experience | 100.0 | 100.0 |
| Table 2.5 | Teacher race | 98.3 | 98.3 |
| | Teacher ethnicity | 97.9 | 97.8 |
| Table 2.10 | Teacher main assignment field | 100.0 | 100.0 |
| Table 2.17 | Academic achievement level of students in self-contained classes | 98.4 | 98.4 |
| | Class academic achievement level for teachers in departments | 91.2 | 91.1 |
| | Teacher highest degree | 100.0 | 100.0 |
| | Best qualified field | 98.2 | 97.9 |
| | Would become a teacher again | 99.6 | 99.0 |
| | | | |
| Table 3.1 | Consecutive years teaching | 99.0 | 98.5 |
| | Main activity in 1986–87 | 99.3 | 99.5 |
| Table 3.7 | Has state certification in main assignment field | 99.0 | 99.4 |
| | Type of certification in main assignment field | 82.1 | 87.1 |
| | Has other teaching assignment | 79.2 | 83.6 |
| | Type of certification in other assignment field | 77.8 | 84.0 |
| | | | |
| Table 3.8 | Difficulty finding qualified applicants | 99.1 | 99.1 |
| Table 3.11 | Methods for compensating for vacancies | 70.3 | 72.3 |
| Table 4.1 | Major field of study | 100.00 | 99.9 |
| Table 4.4 | Whether teacher had taken inservice or college courses | 99.1 | 98.2 |
| | Field of inservice or college courses | 84.5 | 85.6 |
| Table 5.5 | Second best qualified field | 96.3 | 95.9 |
| Table 6.1 | Description of main assignment at school | 100.0 | 100.0 |
| | Marital status | 99.2 | 98.2 |
| | Number of dependents | 99.1 | 97.5 |
| Table 6.2 | Other school assignment | 83.9 | 90.2 |
| Table 6.5 | Whether main assignment field had changed | 99.2 | 98.4 |
| | Previous assignment field | 96.8 | 95.7 |

Item response rates for variables from the Teacher Questionnaire—Continued

| Table number | Variable name | Response rate for public sector (percent) | Response rate for private sector (percent) |
|--------------|---|---|--|
| Table 6.7 | Class size (self-contained classes only) | 94.8 | 96.5 |
| | Class size (teachers in departments) | 90.0 | 90.5 |
| Table 6.8 | Subject areas taught | 90.5 | 91.2 |
| | Number of periods taught per week | 91.0 | 91.1 |
| Table 7.1 | Hours spent teaching various subjects in self-contained classes | 95.1 | 95.9 |
| Table 8.4 | Teacher base salary | 91.5 | 90.3 |
| Table 8.6 | Teacher satisfaction with salary | 99.4 | 98.4 |
| Table 8.8 | Receipt of summer school salary | 100.0 | 100.0 |
| | Receipt of other summer comp. | 100.0 | 100.0 |
| | Receipt of other school income | 100.0 | 100.0 |
| Table 8.9 | Receipt of nonschool income during summer | 90.5 | 86.9 |
| | Receipt of nonschool income during academic year | 100.0 | 100.0 |
| Table 8.10 | Receipt of in-kind income | 96.5 | 95.8 |
| Table 8.11 | Receipt of master/mentor teacher pay | 97.2 | 95.9 |
| | Receipt of field shortage pay | 96.3 | 94.8 |
| | Receipt of location shortage pay | 95.6 | 94.1 |
| | Receipt of career ladder pay | 96.0 | 94.5 |
| | Receipt of merit pay for individuals | 96.0 | 94.6 |
| | Receipt of merit pay for schools | 95.7 | 94.3 |
| Table 8.12 | Favor master/mentor teacher pay | 97.2 | 96.6 |
| | Favor field shortage pay | 98.6 | 96.2 |
| | Favor location shortage pay | 98.3 | 95.7 |
| | Favor career ladder pay | 98.5 | 96.6 |
| | Favor merit pay for individuals | 98.6 | 96.6 |
| | Favor merit pay for schools | 98.6 | 96.4 |
| Table 9.2 | Teacher rating of control | | |
| | Selecting materials | 99.5 | 99.1 |
| | Content, topics, skills | 99.6 | 99.2 |
| | Teaching techniques | 99.6 | 99.3 |
| | Amount of homework | 99.1 | 98.2 |

Item response rates for variables from the Teacher Questionnaire—Continued

| Table number | Variable name | Response rate for public sector (percent) | Response rate for private sector (percent) |
|--------------|---|---|--|
| Table 9.3 | Teacher rating of teacher influence | | |
| | Determining discipline policy | 99.5 | 98.9 |
| | Determining content of inservice | 99.4 | 97.7 |
| | Setting policy on ability grouping | 98.9 | 96.8 |
| | Establishing curriculum | 99.3 | 98.7 |
| Table 9.4 | Teacher rating of help from others | | |
| | Principal or school head | 99.5 | 99.1 |
| | Department chair | 98.7 | 97.9 |
| | Other administrators | 99.2 | 98.0 |
| | Other teachers | 99.4 | 98.9 |
| Table 9.5 | Teacher rating of problems | | |
| | Student absenteeism | 99.4 | 99.2 |
| | Students cutting classes | 99.4 | 99.2 |
| | Physical conflicts among students | 99.5 | 99.2 |
| | Vandalism of school property | 99.5 | 99.3 |
| | Student pregnancy | 99.3 | 99.0 |
| | Student alcohol use | 99.2 | 99.0 |
| | Student drug abuse | 99.1 | 98.9 |
| | Verbal abuse of teachers | 99.5 | 99.2 |
| Table 9.6 | Teacher rating of student tardiness as school problem | 98.6 | 98.8 |
| Table 9.9 | Teacher satisfaction with working conditions—23 items | Response rates ranged from 98.8 to 99.6 | 98.3 to 99.2 |
| Table 9.12 | Plans to remain in teaching | 99.4 | 99.3 |
| Table 9.13 | Expected 1988–89 activities | 99.4 | 99.4 |

Item response rates for the TFS survey were as follows:

| Table number | Variable name | Response rate for Stayers and Movers (percent) | Response rate for Leavers (percent) |
|------------------------|--|--|-------------------------------------|
| Table 3.16 | Teaching in same school | 99.9 | N.A. |
| | Leavers' occupational status | N.A. | 100.0 |
| Table 3.17 | Main reason for moving | 94.1 | N.A. |
| Table 3.18 | Main reason for leaving | N.A. | 99.4 |
| Table 3.19 | Leavers' 1988–89 nonteaching occupations | N.A. | 99.2 |
| Table 3.20 | Leavers' 1988–89 occupations outside elementary or secondary schools | N.A. | 100.0 |
| Table 8.13 | 1988–89 total income for leavers | N.A. | 80.5 |
| Tables 9.11a and 9.11b | Satisfaction with . . . | | |
| | Salary | 99.4 | 89.2 |
| | Benefits | 99.0 | 89.0 |
| | Opportunity for advancement | 99.1 | 86.0 |
| | Support/recognition of administrators | 99.0 | 86.3 |
| | Safety of work environment | 99.1 | 90.3 |
| | Influence over policies and practices | 99.3 | 87.0 |
| | Autonomy over work | 99.3 | 90.2 |
| | Professional caliber of colleagues | 99.4 | 86.0 |
| | Esteem of society for profession | 99.4 | 90.0 |
| | Procedures for evaluation | 99.4 | 86.0 |
| | Work load | 99.3 | 90.1 |
| | Availability of resources | 99.4 | 86.9 |
| | General working conditions | 99.4 | 90.3 |
| | Job security | 99.3 | 90.0 |
| | Intellectual challenge | 99.1 | 90.0 |
| Table 9.14 | Expected main activity in 1989–90 | 93.6 | 99.5 |

For further information on the 1987–88 SASS or general information on SASS and its products, contact:

Special Surveys and Analysis Branch
 Elementary and Secondary Statistics Division
 National Center for Education Statistics
 555 New Jersey Avenue NW
 Washington, DC 20208-5651

APPENDIX B • SELECTED STANDARD ERRORS

I. STANDARD ERRORS FOR ESTIMATES DISCUSSED IN THE TEXT AND SELECTED ADDITIONAL STANDARD ERRORS

CHAPTER 2

Table 2.3

| | |
|--|-----|
| Percentage of teachers who were female | |
| Total | .24 |
| Public | |
| Level | |
| Elementary | .26 |

Table 2.5

| | |
|---|-----|
| Average teacher age | .05 |
| Percentage of teachers under 30 years old | |
| Total | .17 |
| Public | .19 |
| Race-ethnicity | |
| Black | .72 |
| White | .21 |
| Other | .81 |
| Private | .77 |

| | |
|--|-----|
| Percentage of teachers over 50 years old | .21 |
|--|-----|

Table 2.7

| | |
|---|---------|
| Number of teachers in the following race-ethnicity and sex categories | |
| Black male, Total | 1720.7 |
| White male, Total | 7491.1 |
| Other male, Total | 1219.8 |
| Black female, Total | 3769.1 |
| White female, Total | 11575.9 |
| Other female, Total | 2913.2 |

Table 2.8

| | |
|--|-----|
| Percentage of male teachers who were black | |
| Public | .25 |
| Private | .61 |
| Percentage of male teachers who were white | |
| Total | .26 |
| Percentage of male teachers who were members of other racial-ethnic groups | |
| Public | .17 |
| Private | .98 |

| | |
|--|-----|
| Percentage of female teachers who were black | |
| Public | .22 |
| Private | .27 |

| | |
|--|-----|
| Percentage of female teachers who were white | |
| Total | .28 |

| | |
|--|-----|
| Percentage of female teachers who were members of other racial-ethnic groups | |
| Public | .16 |
| Private | .43 |

Table 2.9

| | |
|---|------|
| Percentage of public school teachers in schools with 50+ percentage minority students | |
| Race-ethnicity | |
| Asian | 3.17 |
| Black | 1.37 |
| Hispanic | 2.19 |
| White | .42 |

Table 2.10

| | |
|--|-----|
| Percentage of teachers who were Asian/Pacific Islander | |
| Public | .05 |
| Main assignment field | |
| Bilingual ed./ESL | .87 |

| | |
|---------------------------------------|-----|
| Percentage of teachers who were black | |
| Public | .20 |

| | |
|--|------|
| Percentage of teachers who were Hispanic | |
| Public | .10 |
| Main assignment field | |
| Bilingual ed./ESL | 2.70 |

| | |
|---------------------------------------|------|
| Percentage of teachers who were white | |
| Public | |
| Main assignment field | |
| K-General elementary | .45 |
| Special education | .66 |
| Bilingual ed./ESL | 2.48 |
| Vocational education | 1.18 |

Table 2.11

| | |
|---|-----|
| Percentage of public school teachers in the following race-ethnicity categories | |
| Native American, Total | .06 |
| Asian/Pacific Islander, Total | .05 |
| Black, Total | .20 |
| Hispanic, Total | .10 |
| White, Total | .24 |

Table 2.12

Percentage of private school teachers in the following race-ethnicity categories

| | |
|-------------------------------|-----|
| Native American, Total | .12 |
| Asian/Pacific Islander, Total | .25 |
| Black, Total | .25 |
| Hispanic, Total | .34 |
| White, Total | .49 |

Table 2.13

Percentage who were female of:

| | |
|-----------------------------|------|
| Newly qualified teachers | 1.61 |
| Other bachelor's recipients | .91 |

Table 2.14

Percentage of schools that were elementary

| | |
|-----------|-----|
| Public | .24 |
| Private 1 | .38 |

Percentage of schools that were secondary

| | |
|-----------|-----|
| Public | .20 |
| Private . | .59 |

Percentage of schools that were combined

| | |
|---------|------|
| Public | .21 |
| Private | 1.27 |

Percentage of schools with less than 5 percent minority enrollment

| | |
|---------|------|
| Public | .30 |
| Private | 1.50 |

Percentage of schools with 50+ percent minority enrollment

| | |
|--------------|-----|
| Public | .50 |
| Private 1.10 | |

Table 2.15

Percentage of students who were Native American

| | |
|---------|-----|
| Public | .06 |
| Private | .11 |

Percentage of students who were Asian/Pacific Islander

| | |
|---------|-----|
| Public | .09 |
| Private | .29 |

Percentage of students who were black

| | |
|----------------|-----|
| Public | .23 |
| Level | |
| Elementary | .27 |
| Secondary | .44 |
| Community type | |
| Urban | .64 |
| Suburban | .48 |

| | |
|---------|-----|
| Private | .50 |
| Level | |

| | |
|------------|-----|
| Elementary | .67 |
| Secondary | .68 |

| | |
|----------------|------|
| Community type | |
| Urban | 1.04 |
| Suburban | .63 |

Percentage of students who were Hispanic

| | |
|---------|-----|
| Public | .20 |
| Private | .67 |

Percentage of students who were white

| | |
|--------|-----|
| Public | .27 |
| Level | |

| | |
|------------|-----|
| Elementary | .36 |
| Secondary | .46 |

| | |
|----------------|-----|
| Community type | |
| Urban | .71 |
| Suburban | .83 |

| | |
|---------|-----|
| Private | .77 |
| Level | |

| | |
|------------|------|
| Elementary | .86 |
| Secondary | 1.96 |

| | |
|----------------|------|
| Community type | |
| Urban | 1.26 |
| Suburban | 1.10 |

Table 2.16

Percentage of students eligible for free or reduced-price lunches in public elementary schools

| | |
|-------|-----|
| Total | .19 |
|-------|-----|

| | |
|------------------|-----|
| Community type | |
| Urban | .59 |
| Suburban | .44 |
| Rural-small city | .28 |

| | |
|-------------------------|-----|
| Minority enrollment | |
| Less than 20 percentage | .26 |
| 20 percentage or more | .41 |

Percentage of students eligible for free or reduced-price lunches in public secondary schools

| | |
|-------|-----|
| Total | .13 |
|-------|-----|

| | |
|------------------|-----|
| Community type | |
| Urban | .35 |
| Suburban | .36 |
| Rural-small city | .19 |

| | |
|-------------------------|-----|
| Minority enrollment | |
| Less than 20 percentage | .11 |
| 20 percentage or more | .29 |

CHAPTER 3

Table 3.1

| | |
|--|------|
| Percentage of teachers who were continuing in 1987–88 | |
| Total | .28 |
| Percentage of teachers who were new in 1987–88 | |
| Total | .21 |
| Percentage of teachers who were returning in 1987–88 | |
| Total | .21 |
| Percentage of returning teachers who were in college in 1986–87 | |
| Total | 1.25 |
| Percentage of returning teachers who worked outside of education in 1986–87 | |
| Total | 1.30 |
| Percentage of returning teachers who were homemaking in 1986–87 | |
| Total | 2.27 |
| Percentage of returning teachers who were retired in 1986–87 | |
| Total | 1.67 |
| Percentage of returning teachers who were engaged in other activities in 1986–87 | |
| Total | 1.59 |

Table 3.3

| | |
|--|------|
| Percentage of bachelor's degree recipients who were employed as teachers | |
| Total | .45 |
| Newly qualified teachers | 1.41 |
| Other bachelor's degree recipients | .22 |
| Percentage of bachelor's degree recipients who were employed as non-teachers | |
| Total | .58 |
| Percentage of bachelor's degree recipients who were not employed | |
| Total | .44 |

Table 3.4

| | |
|--|-----|
| Percentage of employed 1985-86 bachelor's degree recipients who described their principal job as | |
| Possible career potential, Total | .57 |
| Definite career potential, Total | .55 |
| Temporary job/other, Total | .56 |

Table 3.5

| | |
|--|------|
| Percentage of newly qualified teachers who did not apply for teaching jobs | |
| Total | 1.70 |

Percentage of newly qualified teachers who did not apply for teaching jobs:

| | |
|--|------|
| Because they were not interested in teaching | |
| Total | 2.34 |
| Because they wanted more education | |
| Total | 2.21 |
| Because they were not ready for a job | |
| Total | .98 |
| Because teaching jobs were too hard to get | |
| Total | .86 |
| Because student teaching discouraged them | |
| Total | 1.05 |
| Because they were offered jobs with higher salaries or more prestige | |
| Total | 1.27 |
| Because they didn't like teaching conditions or teachers' salaries | |
| Total | 1.21 |
| For other reasons | |
| Total | 2.75 |

Table 3.6

| | |
|---------------------------------------|---------|
| Number of approved teaching positions | |
| Public | 10153.0 |
| Private | 8865.1 |

| | |
|---|-----|
| Percentage of approved positions that were vacant | |
| Public | .07 |
| Private | .10 |

| | |
|--|-----|
| Percentage of approved positions that were withdrawn | |
| Public | .05 |
| Private | .18 |

Table 3.7

| | |
|---|-----|
| Percentage of teachers with regular or standard certification in their main assignment fields | |
| Public | .26 |
| Percentage of teachers with probationary or temporary certification in their main assignment fields | |
| Public | .25 |
| Percentage of teachers with no certification in their main assignment fields | |
| Public | .11 |
| Percentage of teachers with other assignments | |
| Public | .27 |
| Percentage of teachers with regular or standard certification in their other assignment fields | |
| Public | .63 |
| Percentage of teachers with no certification in their other assignment fields | |
| Public | .61 |

Table 3.8

| | |
|--|-----|
| Percentage of public school administrators who did not find it difficult to fill teaching vacancies | |
| Total | .58 |
| Percentage of public school administrators who found it generally difficult to fill teaching vacancies | |
| Total | .41 |
| Percentage of public school administrators who found it difficult to fill teaching vacancies in some areas | |
| Total | .54 |
| Percentage of public school administrators who reported no teaching vacancies | |
| Total | .47 |

Table 3.9

| | |
|--|-----|
| Percentage of public school administrators who reported the following difficulty in finding qualified applicants | |
| Not at all difficult | .58 |
| Generally difficult | .41 |
| Difficult in some fields | .54 |
| No vacancies | .47 |

Table 3.10

| | |
|---|------|
| Percentage of private school administrators who reported the following difficulty in finding qualified applicants | |
| Not at all difficult | 1.36 |
| Generally difficult | 1.15 |
| Difficult in some fields | 1.23 |
| No vacancies | 1.51 |

Table 3.11

| | |
|---|-----|
| Percentage of school administrators who reported using one of the following methods to cover unfilled vacancies | |
| Cancelled courses, Total | .23 |
| Increased class size, Total | .33 |
| Increased number of classes per teacher, Total | .35 |
| Re-assigned teachers, Total | .45 |
| Hired substitutes, Total | .44 |
| Hired part-time or itinerant teachers, Total | .42 |
| Other, Total | .44 |

Table 3.12

| | |
|--|-----|
| Percentage of public school districts that offered teachers the following incentives for teaching in less desirable locations: | |
| Cash bonuses, Total | .17 |
| An increase on the salary schedule, Total | .32 |
| Other pay increases, Total | .23 |

Table 3.13

| | |
|--|-----|
| Percentage of public school districts and private schools that used pay incentives to attract teachers to fields of shortage | |
| Public districts, any field | .39 |
| Private schools, any field | .89 |

Table 3.14

| | |
|---|------|
| Percentage of public school districts and private schools that offered free retraining to teach in fields of shortage | |
| Public districts, any field | .59 |
| Private schools, any field | 1.12 |

Table 3.15

| | |
|---|------|
| Average percentage separations in public schools between October 1986 and October 1987 | |
| Total | .17 |
| Average percentage additions in public schools between October 1986 and October 1987 | |
| Total | .59 |
| Average percentage separations in private schools between October 1986 and October 1987 | |
| Total | .59 |
| Average percentage additions in private schools between October 1986 and October 1987 | |
| Total | 1.04 |

Table 3.16

| | |
|---|-----|
| Percentage stayers in 1988–89, Total | .43 |
| Percentage movers in 1988–89, Total | .38 |
| Percentage leavers in 1988–89, Total | .28 |
| Percentage 1987–88 teachers in non-teaching jobs in education in 1988–89, Total | |
| | .13 |
| Percentage 1987–88 teachers working outside of education in 1988–89, Total | |
| | .09 |
| Percentage of 1987–88 teachers in college in 1988–89, Total | |
| | .04 |
| Percentage of 1987–88 teachers homemaking or childrearing in 1988–89, Total | |
| | .18 |
| Percentage of 1987–88 teachers who were other leavers in 1988–89, Total | |
| | .16 |

Table 3.17

| | |
|---|------|
| Percentage of teachers who left their previous schools for the following main reasons | |
| Family/personal move, Total | 1.90 |
| Better salary or benefits, Total | .79 |
| Better assignments, Total | 1.62 |
| School staffing action, Total | 1.88 |
| Dissatisfaction with previous school, Total | 1.20 |

Table 3.18

| | |
|--|------|
| Percentage of leavers who left for the following reasons | |
| Family or personal move, Total | 2.54 |
| Retire-ment or sabbatical, Total | 2.04 |
| Other career outside of education, Total | 1.94 |
| To improve salaries or other benefits, Total | .71 |
| Another career in education, Total | .64 |
| School staffing action, Total | .64 |
| Dissatisfaction with teaching, Total | 1.00 |

Table 3.19

| | |
|--|------|
| Percentage of leavers who left for non-teaching job in elementary or secondary education | |
| Total | 1.90 |

Table 3.20

| | |
|---|------|
| Percentage of leavers who were employed outside of elementary or secondary education: | |
| As engineers or scientists, Total | .84 |
| As postsecondary instructors, Total | 1.51 |
| As technicians, Total | .69 |
| As salespeople, Total | 2.24 |
| As administrative support or supervisors, Total | 3.06 |
| As clerical staff, Total | 3.40 |
| In service occupations, Total | 1.23 |
| In other occupations, Total | 1.52 |

CHAPTER 4

Table 4.1

| | |
|--|-----|
| Percentage of teachers who majored in general education for their highest degree | |
| Total | .28 |

Table 4.2

| | |
|--|-----|
| Percentage of teachers who did not earn degrees beyond a BA/BS | |
| Total | .29 |
| Percentage of teachers who earned MA/MS in education | |
| Total | .29 |
| Public | .29 |
| Private | .63 |
| Percentage of teachers who earned MA/MS not in education | |
| Public | .14 |
| Private | .64 |

Table 4.3

| | |
|--|-----|
| Percentage of teachers who majored in their main assignment field, Total | |
| | .29 |
| Percentage of teachers who minored in their main assignment field, Total | |
| | .17 |
| Percentage of teachers who neither majored nor minored in their main assignment field, Total | |
| | .26 |

Table 4.4

| | |
|--|-----|
| Percentage of teachers who have taken inservice or college courses in past two years | |
| Total | .29 |

Table 4.7

| | |
|---|------|
| Percentage of postsecondary faculty who were female | |
| Discipline | |
| Teacher educators | 3.91 |
| Other education faculty | 3.27 |
| Non-education faculty | .98 |

Table 4.8

| | |
|--|------|
| Percentage of full-time regular postsecondary faculty by age group, percentage who hold a doctorate or first professional degree, and percentage with tenure | |
| Under 30, Total | .34 |
| 30-44, Total | 1.00 |
| 45-54, Total | .79 |
| 55-64, Total | .93 |
| 65 or over, Total | .30 |
| Holding doctorate or first professional degree | |
| Total | .76 |
| Tenured, Total | 1.51 |

Table 4.9

| | |
|---|--------|
| Average total earned income for full-time postsecondary faculty | |
| Discipline | |
| Teacher educators | 947.0 |
| Other education faculty | 866.0 |
| Non-education faculty | 1193.5 |
| Average base salary for full-time postsecondary faculty | |
| Discipline | |
| Teacher educators | 871.5 |
| Other education faculty | 540.1 |
| Non-education faculty | 786.3 |
| Average income from consulting | |
| Discipline | |
| Teacher educators | 102.3 |
| Other education faculty | 470.9 |

Table 4.10

Percentage of postsecondary faculty who were somewhat or very satisfied with their jobs overall

| | |
|-------------------------|------|
| Discipline | |
| Teacher educators | 2.86 |
| Other education faculty | 1.72 |
| Non-education faculty | .81 |

CHAPTER 5

Table 5.1

| | |
|--|-----|
| Percentage of public school teachers with less than a bachelor's degree, Total | .04 |
| Percentage of public school teachers with master's degrees, Total | .30 |
| Percentage of public school teachers with education specialist's degrees, Total | .14 |
| Percentage of private school teachers with less than a bachelor's degree, Total | .42 |
| Percentage of private school teachers with master's degrees, Total | .75 |
| Percentage of private school teachers with education specialist's degrees, Total | .29 |

Table 5.2

| | |
|---|-----|
| Percentage of public school teachers with the following as their highest degree | |
| Less than BA/BS | .04 |
| BA/BS | .29 |
| Higher than BA/BS | .28 |

Table 5.3

| | |
|--|-----|
| Percentage of private school teachers with the following as their highest degree | |
| Less than BA/BS | .42 |
| BA/BS | .75 |
| Higher than BA/BS | .69 |

Table 5.4

| | |
|---|------|
| Percentage of recent college graduates with GPA of 3.25 to 4.00 | |
| Newly qualified teachers | 1.41 |
| Other bachelor's degree recipients | .72 |

Table 5.5

| | |
|--|-----|
| Percentage of teachers who reported that they were teaching in their best-qualified fields | |
| Total | .22 |
| Public | .25 |
| Private | .59 |

Percentage of teachers who were certified in their main assignment field

| | |
|-----------------------|------|
| Total | .17 |
| Public | .09 |
| Main assignment field | |
| General elementary | .16 |
| Math/science | .38 |
| English/language arts | .36 |
| Private | .84 |
| Main assignment field | |
| General elementary | 1.22 |
| Math/science | 2.39 |
| English/language arts | 2.50 |

Percentage of teachers who have always taught full time

| | |
|------------|------|
| Total | .26 |
| Public | |
| Level | |
| Elementary | .31 |
| Secondary | .34 |
| Private | |
| Level | |
| Elementary | 1.13 |
| Secondary | 1.42 |

Average number of years taught

| | |
|---------|-----|
| Public | .05 |
| Sex | |
| Male | .08 |
| Female | .05 |
| Private | .16 |

Percentage of teachers who had taught 3 years or fewer

| | |
|---------|-----|
| Public | .15 |
| Sex | |
| Male | .29 |
| Female | .18 |
| Private | .51 |

Percentage of teachers who had taught 4–9 years

| | |
|---------|-----|
| Public | .23 |
| Private | .83 |

Percentage of teachers who had taught 10–19 years

| | |
|---------|-----|
| Total | .23 |
| Public | .24 |
| Private | .80 |

Percentage of teachers who had taught 20 years or more

| | |
|------------|------|
| Total | .22 |
| Public | .24 |
| Level | |
| Elementary | .42 |
| Secondary | .28 |
| Sex | |
| Male | .38 |
| Female | .32 |
| Private | .68 |
| Level | |
| Elementary | .79 |
| Secondary | 1.16 |

Table 5.6

Percentage of public school teachers who had the following types of certification in their main assignment field

| | |
|--------------|-----|
| Regular | .26 |
| Probationary | .10 |
| Temporary | .20 |
| None | .11 |

Table 5.7

Percentage of teachers who have taught full time and/or part time, average number of years taught, and percentage of teachers in the following categories of teaching experience

| | |
|---------------------------------------|-----|
| Always full time, Total | .26 |
| Always part time, Total | .06 |
| Both full and part time, Total | .24 |
| Average years taught, Total | .04 |
| 3 or fewer years of experience, Total | .13 |
| 4-9 years, Total | .22 |
| 10-19 years, Total | .23 |
| 20 years or more, Total | .22 |

Table 5.8

Percentage of public school teachers certified in their main assignment fields

| | |
|---------------------------|-----|
| Years teaching experience | |
| 1-2 years | .56 |
| 3-4 years | .43 |
| 5-10 years | .21 |

Percentage of public school teachers with 30 hours or more of inservice training in past two years

| | |
|---------------------------|------|
| Total | .33 |
| Years teaching experience | |
| 1-2 years | 1.14 |

Percentage of private school teachers certified in their main assignment fields

| | |
|---------------------------|------|
| Years teaching experience | |
| 1-2 years | 2.00 |
| 3-4 years | 2.30 |
| 5-10 years | 1.51 |

Percentage of private school teachers with 30 hours or more of inservice training in past two years

| | |
|---------------------------|------|
| Total | .66 |
| Years teaching experience | |
| 1-2 years | 1.91 |

CHAPTER 6

Table 6.1

Percentage of teachers with regular, full-time teaching positions, Total

.18

Percentage of teachers with regular, 50% or more but less than full-time positions, Total

.12

Percentage of teachers with regular, less than 50% time teaching positions, Total

.07

Table 6.2

Percentage of part-time teachers who were also administrators, Total

1.93

Percentage of part-time teachers who were also non-teaching specialists, Total

1.07

Percentage of part-time teachers who were resource people, Total

2.43

Table 6.3

Percentage of teachers who taught K- General elementary grades, Total

.26

Percentage of teachers who taught math or science

.17

Percentage of teachers who taught English or language arts, Total

.15

Percentage of teachers who taught social sciences

.11

Percentage of teachers who taught special education

.15

Table 6.4

Percentage of NELS:88 students whose teachers for the following subjects provided instruction for the gifted:

| | |
|----------------|------|
| Math | |
| Total | 1.29 |
| Science | |
| Total | 1.25 |
| English | |
| Total | 1.26 |
| Social studies | |
| Total | 1.21 |

Table 6.5

Percentage of teachers who had not had a change in their assignments

| | |
|-----------------------|------|
| Total | .27 |
| Public | |
| Main assignment field | |
| Kindergarten | 1.59 |
| General elementary | .49 |
| Bilingual ed./ESL | 2.52 |
| Vocational education | 1.57 |
| Private | |
| Main assignment field | |
| Kindergarten | 3.75 |
| General elementary | .99 |

Table 6.7

| | |
|---|-----|
| Public school teachers' average class size | .08 |
| Private school teachers' average class size | .25 |

Table 6.8

Average number of subjects, periods per day, grade levels, and students taught per public and private secondary school teacher

| | |
|-----------------|------|
| Public: | |
| subjects | .02 |
| periods per day | .02 |
| grade levels | .01 |
| students | .50 |
| Private: | |
| subjects | .06 |
| periods per day | .07 |
| grade levels | .03 |
| students | 1.73 |

Table 6.9

Average hours per week that teachers of NELS:88 eighth graders spent outside school on the following school-related activities

| | |
|--|-----|
| Math teachers | |
| Math Plan preparation, Total | .07 |
| Correcting papers, Total | .06 |
| Science teachers | |
| Science Plan preparation, Total | .08 |
| Correcting papers, Total | .07 |
| English teachers | |
| English Plan preparation, Total | .06 |
| Correcting papers, Total | .07 |
| Social Studies teachers | |
| Social Studies Plan preparation, Total | .08 |
| Correcting papers, Total | .07 |

CHAPTER 7

Table 7.1

Average number of hours per week spent on the following subjects in self-contained classes:

| | |
|-------------------------------|-----|
| English/reading/language arts | |
| Total, grade span | |
| K-4 | .06 |
| 5-6 | .13 |
| Arithmetic | |
| Total, grade span | |
| K-4 | .03 |

Science

| | |
|-------------------|-----|
| Total, grade span | |
| K-4 | .03 |
| 5-6 | .06 |

Table 7.2

Average percentage of reading instruction time that 1988 NAEP 4th graders' teachers reported devoting to the following forms of instruction

| | |
|-----------------------------------|------|
| Whole class instruction, Total | .65 |
| Small group instruction, Total | 1.92 |
| Individualized instruction, Total | 1.86 |

Table 7.3

Percentage of 1988 NAEP 4th graders whose teachers reported using work book assignments at least once per week

| | |
|-------|-----|
| Total | .87 |
|-------|-----|

Percentage of 1988 NAEP 4th graders whose teachers reported having students read informational material

| | |
|-------|------|
| Total | 2.90 |
|-------|------|

Table 7.4

Percentage of 1988 NAEP 4th graders whose teachers focused on various reading skills at least several times per week, and percentage of teachers who used different types of reading material in the classroom

| | |
|-----------------------------------|------|
| Reading aloud, Total | 2.19 |
| Comprehension, Total | 1.18 |
| Word attack, Total | 1.55 |
| Vocabulary | 1.35 |
| Children's book collection, Total | 2.35 |
| Children's newspaper, Total | 2.44 |
| Reading kits, Total | 2.48 |

Table 7.5

Percentage of 1988 NAEP 8th graders whose teachers reported using the following approaches to teaching writing very often

| | |
|---|------|
| Grammar/skills | |
| Total | 3.13 |
| Writing process | |
| Total | 2.97 |
| Integrating reading and writing instruction | |
| Total | 3.51 |
| Write-to-learn approaches | |
| Total | 2.01 |

Table 7.6

Percentage of 1988 NAEP 8th graders whose writing teachers focused on various aspects of writing for at least half the class time

| | |
|-----------------------------------|------|
| Mechanics of writing, Total | 2.12 |
| Variety in assignments, Total | 2.88 |
| Frequent short assignments, Total | 1.54 |
| Frequent long assignments, Total | 2.36 |
| Several revisions, Total | 2.64 |

Table 7.7

Average percentage of class time that NELS:88 8th graders spent in the following forms of instruction as reported by their mathematics teachers

| | |
|-------------|-----|
| Whole class | |
| Total | .75 |
| Small group | |
| Total | .68 |
| Individual | |
| Total | .71 |

Table 7.8

Percentage of NELS:88 8th graders whose mathematics teachers reported teaching common fractions and decimals as major topics

| | |
|-------|------|
| Total | 1.48 |
|-------|------|

Percentage of NELS:88 8th graders whose mathematics teachers reported teaching algebra as a major topic

| | |
|-------|------|
| Total | 1.49 |
|-------|------|

Table 7.9

Percentage of NELS:88 8th graders whose science teachers reported teaching various topics as major subjects

| | |
|-------------------------------------|-----|
| Earth science, Total | 2.3 |
| Weather/astronomy, Total | 2.2 |
| Environmental science/oceanography, | |
| Total | 2.0 |
| Chemistry, Total | 2.2 |

Table 7.10

Percentage of NELS:88 8th graders whose science teachers reported conducting about one science experiment per week

| | |
|-------|------|
| Total | 2.24 |
|-------|------|

Percentage of NELS:88 8th graders whose science teachers reported conducting about one science experiment per day

| | |
|-------|------|
| Total | 1.42 |
|-------|------|

Table 7.11

Percentage of NELS:88 8th graders whose mathematics teachers reported that none of the class had regular use of a computer

| | |
|-------|------|
| Total | 1.83 |
|-------|------|

Percentage of NELS:88 8th graders whose science teachers reported that none of the class had regular use of a computer

| | |
|-------|------|
| Total | 2.06 |
|-------|------|

Table 7.12

Percentage of NELS:88 8th graders whose math or science teachers reported assigning various amounts of homework

| | |
|--|-----|
| Science | |
| less than 1 hour per week | 1.3 |
| more than 4 hours per week | .69 |
| Math | |
| less than 1 hour per week | .65 |
| more than 4 hours per week | 1.2 |
| Advanced math, less than 1 hour per week | .77 |
| Remedial math, less than 1 hour per week | 1.7 |

CHAPTER 8

Table 8.1

Average scheduled salary for teachers with the following education and experience:

| | |
|---|-------|
| Bachelor's degree and no experience | |
| Public districts | 48.8 |
| Master's degree and no experience | |
| Public districts | 48.3 |
| Master's degree and 20 years experience | |
| Public districts | 113.1 |
| Less than 1000 | 195.9 |
| 10,000 or more | 68.0 |
| Private schools | 253.0 |

Table 8.2

Average scheduled salary for public school teachers with the following degrees and experience

| | |
|---|------|
| Bachelor's degree and no experience | 22.0 |
| Master's degree and no experience | 25.8 |
| Master's degree and 20 years experience | 51.6 |

Table 8.3

Average scheduled salary for private school teachers with the following degrees and experience

| | |
|---|-------|
| Bachelor's degree and no experience | 118.2 |
| Master's degree and no experience | 138.6 |
| Master's degree and 20 years experience | 214.1 |

Table 8.4

| | |
|--|-------|
| Average base salary for elementary school teacher | |
| Total | 85.1 |
| Average base salary for secondary school teacher | |
| Total | 74.7 |
| Average base salary for public, elementary school teacher | |
| Total | 90.1 |
| Years teaching experience | |
| 3 or fewer | 118.8 |
| 20 or more | 188.1 |
| Average base salary for public, secondary school teacher | |
| Total | 78.5 |
| Years teaching experience | |
| 3 or fewer | 81.0 |
| 20 or more | 170.8 |
| Average base salary for private, elementary school teacher | |
| Total | 156.2 |
| Years teaching experience | |
| 3 or fewer | 220.8 |
| 20 or more | 521.0 |
| Average base salary for private, secondary school teacher | |
| Total | 227.9 |
| Years teaching experience | |
| 3 or fewer | 246.7 |
| 20 or more | 719.2 |

Table 8.6

Percentage of public school teachers who had the following reaction to the statement "I am satisfied with my teaching salary":

| | |
|--------------------|------|
| Strongly agreed | |
| Total | 0.19 |
| Strongly disagreed | |
| Total | 0.28 |

Percentage of private school teachers who:

| | |
|--------------------|------|
| Strongly agreed | |
| Total | 0.65 |
| Strongly disagreed | |
| Total | 1.17 |

Table 8.7

Percentage of teachers whose district or school paid all or part of the cost of the following benefits:

| | |
|---------------------------|------|
| Medical insurance premium | |
| Total | 0.20 |
| Dental insurance premium | |
| Total | 0.42 |
| Life insurance premium | |
| Total | 0.53 |
| Pension contributions | |
| Total | 0.52 |

Table 8.8

Percentage of teachers who earned supplemental school income

| | |
|---------------------------|------|
| Total | 0.33 |
| Years teaching experience | |
| 3 or fewer | 0.93 |
| 4-9 | 0.77 |
| 10-19 | 0.43 |
| 20 or more | 0.60 |

Average amount of supplemental school income earned

| | |
|------------|------|
| Total | 29.8 |
| Level | |
| Elementary | 70.1 |
| Secondary | 34.2 |

Percentage of teachers who earned other school compensation

| | |
|------------|------|
| Level | |
| Elementary | 0.44 |
| Secondary | 0.58 |

Table 8.9

Percentage of teachers with summer nonschool employment

| | |
|-------|------|
| Total | 0.24 |
|-------|------|

Average amount earned from summer nonschool employment

| | |
|-------|------|
| Total | 33.7 |
|-------|------|

Percentage teachers with academic year nonschool employment

| | |
|-------|------|
| Total | 0.25 |
|-------|------|

Percentage teachers with year-round nonschool employment

| | |
|-------|------|
| Total | 0.21 |
|-------|------|

Average amount earned in year-round nonschool employment

| | |
|-------|-------|
| Total | 100.3 |
|-------|-------|

Table 8.10

Percentage of teachers who received various types of in-kind income

| | |
|--------------------------|-----|
| Housing, Total | .07 |
| Meals, Total | .11 |
| Child's tuition, Total | .09 |
| Child care, Total | .04 |
| College tuition, Total | .09 |
| Transportation, Total | .10 |
| No in-kind income, Total | .19 |

Table 8.11

Percentage of teachers who received additional pay for mentor/master teacher duties

| | |
|-------|------|
| Total | 0.18 |
|-------|------|

| | |
|---|------|
| Percentage of teachers who received additional pay for teaching in a field of shortage | |
| Total | 0.07 |
| Percentage of teachers who received additional pay for teaching in a location of shortage | |
| Total | 0.08 |
| Percentage of teachers who received individual merit pay | |
| Total | 0.13 |

Table 8.12

| | |
|---|------|
| Percentage of teachers who favored the following teacher compensation policies: | |
| Additional pay for mentor/master teacher duties | |
| Total | 0.34 |
| Additional pay for teaching in locations of shortage | |
| Total | 0.28 |
| Individual merit pay | |
| Total | 0.27 |
| School-wide merit pay | |
| Total | 0.24 |

Table 8.13

| | |
|--|--------|
| Average annual income of former teachers | |
| Public schools, 1987-88, Total | 443.1 |
| Public schools, 1988-89, Total | 949.9 |
| Private schools, 1987-88, Total | 453.5 |
| Private schools, 1988-89, Total | 1239.3 |

Table 8.14

| | |
|--|-------|
| Average salary of full-time employed recent college graduates with degrees in the following areas: | |
| Humanities | |
| Total | 320.1 |
| Engineering | |
| Total | 253.1 |
| Education | |
| Total | 176.6 |

CHAPTER 9

Table 9.1

| | |
|--|------|
| Percentage of newly qualified teachers who were teaching who reported the following reasons for becoming teachers: | |
| They always wanted to be teachers | |
| Total | 1.12 |

| | |
|---------------------------------------|------|
| They liked working with children | |
| Total | 1.21 |
| They found satisfaction from teaching | |
| Total | 1.26 |

Table 9.2

| | |
|--|-----|
| Percentage of teachers who reported having a lot of control over selected areas of planning and teaching | |
| Materials, Total | .33 |
| Content, Total | .33 |
| Methods, Total | .18 |
| Homework, Total | .20 |

Table 9.3

| | |
|---|------|
| Percentage of teachers who thought they had a great deal of influence over the following school policies: | |
| Discipline policy | |
| Total | 0.36 |
| Inservice programs in their schools | |
| Total | 0.32 |
| Ability grouping in their schools | |
| Total | 0.33 |
| Establishing curriculum in their schools | |
| Total | 0.34 |

Table 9.4

| | |
|--|------|
| Percentage of teachers who felt that other teachers had been extremely helpful to them in solving an instructional or classroom management problem | |
| Total | 0.32 |

Table 9.5

| | |
|---|------|
| Percentage of elementary school teachers who reported teaching primarily students of the following achievement levels, relative to other students in their schools: | |
| Higher achieving students | |
| Total | .33 |
| Public | .27 |
| Private | 1.29 |
| Average achieving students | |
| Total | .51 |
| Lower achieving students | |
| Total | .39 |
| Public | .45 |
| Private | .42 |
| Students of widely differing achievement levels | |
| Total | .48 |

Percentage of secondary school teachers who reported teaching primarily students of the following achievement levels, relative to other students in their schools:

| | |
|---|------|
| Higher achieving students | |
| Total | .24 |
| Public | .24 |
| Years of teaching experience | |
| 20 or more years | .45 |
| Fewer than 3 years | .57 |
| Private | .97 |
| Average achieving students | |
| Total | .39 |
| Lower achieving students | |
| Total | .33 |
| Public | .36 |
| Years of teaching experience | |
| 20 or more years | .67 |
| Fewer than 3 years | 1.36 |
| Private | 1.04 |
| Students of widely differing achievement levels | |
| Total | .36 |

Table 9.6

Percentage of teachers who thought that the following issues were serious problems in their school:

| | |
|----------------------------------|------|
| Student absenteeism | |
| Total | 0.22 |
| Student class cutting | |
| Total | 0.15 |
| Physical conflict among students | |
| Total | 0.16 |
| Vandalism of school property | |
| Total | 0.13 |
| Student pregnancy | |
| Total | 0.16 |
| Student alcohol use | |
| Total | 0.17 |
| Student drug abuse | |
| Total | 0.13 |
| Verbal abuse of teachers | |
| Total | 0.20 |

Table 9.7

Percentage of public school teachers who thought the following matters were serious problems in their schools

| | |
|---------------------|-----|
| Student absenteeism | .23 |
| Student alcohol use | .18 |
| Student tardiness | .19 |
| Student drug abuse | .14 |

Students' abuse of teachers .21

Table 9.8

Percentage of private school teachers who thought the following matters were serious problems in their schools

| | |
|-----------------------------|-----|
| Student absenteeism | .39 |
| Student alcohol use | .27 |
| Student tardiness | .36 |
| Student drug abuse | .22 |
| Students' abuse of teachers | .24 |

Table 9.9

Percentage distribution of teachers by willingness to become a teacher again

| | |
|-------------------------|-----|
| Public school teachers | |
| would teach again | .30 |
| chances about even | .22 |
| would not teach again | .22 |
| Private school teachers | |
| would teach again | .75 |
| chances about even | .56 |
| would not teach again | .50 |

Table 9.10

Percentage of teachers who were highly satisfied with the following conditions in their schools:

| | |
|--|------|
| Administrative support they received | |
| Total | 0.28 |
| School climate and enforcement of rules | |
| Total | 0.31 |
| Collaboration and participation of teachers in decision-making | |
| Total | 0.20 |
| Resources | |
| Total | 0.00 |

Table 9.11

Percentage of teachers who reported they certainly would become a teacher again

| | |
|--|------|
| Total | 0.28 |
| Percentage of teachers who reported they probably would become a teacher again | |
| Total | 0.25 |

Table 9.12

Percentage of 1987-88 teachers who were satisfied with the following aspects of their current jobs

| | |
|-----------------------------|------|
| Salary | 1.16 |
| Benefits | 1.09 |
| Opportunity for advancement | 1.17 |
| Support | 1.21 |
| Safety | 1.08 |
| Influence over policy | .80 |
| Autonomy | .80 |
| Caliber of colleagues | .94 |
| Esteem of profession | 1.02 |
| Evaluation procedures | .84 |

Table 9.13

Percentage of teachers who reported they would teach as long as they were able

| | |
|---------|------|
| Public | 0.29 |
| Private | 0.89 |

Table 9.14

Percentage of teachers who reported they would be teaching in the same school in 1988-89

| | |
|---------|------|
| Public | 0.23 |
| Private | 0.68 |

Percentage of teachers who reported they would be teaching in another elementary or secondary school in 1988-89

| | |
|---------|------|
| Public | 0.18 |
| Private | 0.42 |

Table 9.15

Percentage of 1988-89 teachers who expected to be teaching in elementary or secondary schools in 1989-90

| | |
|---------|------|
| Public | 0.71 |
| Private | 1.39 |

II. STANDARD ERRORS FOR TABLE 8.2

Table 8.2—Standard errors for average scheduled teacher salaries by degree and years of teaching experience, by state: 1987-88

| | Bachelor's and no experience | Master's and no experience | Master's and 20 years of experience |
|----------------------|---------------------------------|-------------------------------|--|
| TOTAL | \$48.8 | \$48.3 | \$113.1 |
| Alabama | 111.2 | 119.4 | 82.8 |
| Alaska | 328.0 | 276.5 | 655.3 |
| Arizona | 303.6 | 257.0 | 841.3 |
| Arkansas | 144.2 | 139.6 | 234.4 |
| California | 198.4 | 288.2 | 736.0 |
| Colorado | 196.7 | 229.7 | 461.5 |
| Connecticut | 153.3 | 264.4 | 621.2 |
| Delaware | 0.0 | 0.0 | 0.0 |
| District of Columbia | 0.0 | 0.0 | 0.0 |
| Florida | 377.4 | 329.2 | 540.2 |
| Georgia | 84.6 | 124.6 | 194.8 |
| Hawaii | 0.0 | 0.0 | 0.0 |
| Idaho | 112.5 | 261.5 | 423.2 |
| Illinois | 213.6 | 228.5 | 539.6 |
| Indiana | 74.7 | 172.9 | 301.0 |

Table 8.2—Standard errors for average scheduled teacher salaries by degree and years of teaching experience, by state: 1987–88—Continued

| State | Bachelor's and no experience | Master's and no experience | Master's and 20 years of experience |
|----------------|---------------------------------|-------------------------------|--|
| Iowa | 160.0 | 115.5 | 193.1 |
| Kansas | 110.2 | 126.8 | 321.9 |
| Kentucky | 84.7 | 84.8 | 279.3 |
| Louisiana | 137.0 | 139.2 | 319.0 |
| Maine | 58.3 | 83.7 | 482.1 |
| Maryland | 30.1 | 79.1 | 99.2 |
| Massachusetts | 330.9 | 432.3 | 954.4 |
| Michigan | 109.6 | 129.5 | 346.4 |
| Minnesota | 207.8 | 182.8 | 311.9 |
| Mississippi | 64.1 | 67.0 | 155.7 |
| Missouri | 194.2 | 225.5 | 430.7 |
| Montana | 306.1 | 328.3 | 540.5 |
| Nebraska | 184.1 | 321.8 | 508.8 |
| Nevada | 0.0 | 0.0 | 0.0 |
| New Hampshire | 268.5 | 499.1 | 572.4 |
| New Jersey | 137.4 | 180.6 | 442.2 |
| New Mexico | 228.0 | 296.4 | 1039.7 |
| New York | 125.4 | 218.1 | 321.6 |
| North Carolina | 41.4 | 41.6 | 240.3 |
| North Dakota | 154.5 | 266.3 | 394.7 |
| Ohio | 123.6 | 140.1 | 414.5 |
| Oklahoma | 118.1 | 121.4 | 269.7 |
| Oregon | 176.7 | 243.3 | 771.7 |
| Pennsylvania | 201.0 | 213.1 | 301.1 |
| Rhode Island | 88.0 | 112.8 | 225.7 |
| South Carolina | 176.5 | 141.9 | 353.9 |
| South Dakota | 80.2 | 133.2 | 318.6 |
| Tennessee | 150.5 | 220.5 | 499.2 |
| Texas | 91.1 | 92.5 | 132.5 |
| Utah | 182.5 | 252.9 | 371.1 |
| Vermont | 143.8 | 173.6 | 455.7 |
| Virginia | 163.5 | 186.2 | 389.5 |
| Washington | 65.6 | 135.4 | 420.4 |
| West Virginia | 0.0 | 0.0 | 0.0 |
| Wisconsin | 110.3 | 191.0 | 257.9 |
| Wyoming | 110.7 | 124.2 | 305.1 |

NOTE: Standard errors for Delaware, the District of Columbia, Hawaii, Nevada, and West Virginia are "0.0" because all school districts in these jurisdictions were included in the sample.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987–88 Schools and Staffing Survey, "Teacher Demand and Shortage Questionnaire."

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