DOCUMENT RESUME

ED 361 352 TM 020 406

AUTHOR Rollefson, Mary R.
TITLE Teacher Supply in the United States: Sources of Newly Hired Teachers in Public and Private Schools. Statistical Analysis Report.
INSTITUTION National Center for Education Statistics (ED), Washington, DC.
REPORT NO ISBN-0-16-041855-0; NCES-93-424
PUB DATE Jul 93
NOTE 54p.
AVAILABLE FROM U.S. Government Printing Office, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Beginning Teachers; College Graduates; Elementary School Teachers; Elementary Secondary Education; Employment Patterns; *National Surveys; *Private Schools; *Public School Teachers; *School Statistics; Secondary School Teachers; Tables (Data); Teacher Characteristics; Teacher Qualifications; Teacher Recruitment; *Teacher Supply and Demand
IDENTIFIERS Reemployment; *Schools and Staffing Survey (NCES)

ABSTRACT

Data for this report are taken from the 1987-88 Schools and Staffing Survey (SASS), which was designed to measure teacher supply and demand conditions, characteristics of the teacher workforce, and factors related to teacher supply and demand. This analysis used a subsample of the SASS teacher sample consisting of 2,041 newly hired public school teachers and 954 newly hired private school teachers. In the 1987-88 school year, 152,000 teachers were newly hired, 112,000 in public and 40,000 in private schools. Only 27 percent of public and 19 percent of private school teachers were supplied by the pool of "newly minted" college graduates who have traditionally met the nation's demand for new teachers. The primary source for new hires was the reserve pool of former teachers. Reentrants supplied 41 percent of new hires for public schools and 44 percent in private schools. Transfers from other teaching positions supplied 19 percent of public and 23 percent of private new hires. A fourth source of new hires was the delayed entrant, first-year teachers who engaged in other activities after completing their degrees but before entering teaching. Measures of teacher qualifications are needed to distinguish better among teachers of varying quality. Continued reporting of these data will be useful in tracking the relative contribution of each supply source in meeting the demand for newly hired teachers. Ten tables and five figures present survey findings. Technical notes on survey methodology are included, and an appendix contains 10 tables of standard errors. (SLD)

NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report **July 1993**

Teacher Supply in The United States: Sources of Newly Hired Teachers in Public and Private Schools

U.S. Department of Education
Office of Educational Research and Improvement
NCES 93-424

NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report July 1993

Teacher Supply in The United States: Sources of Newly Hired Teachers in Public and Private Schools

Mary R. Rollefson
Elementary and Secondary Education Statistics Division
National Center for Education Statistics

U.S. Department of Education
Office of Educational Research and Improvement NCES 93-424

U.S. Department of Education
Richard W. Riley
Secretary

Office of Educational Research and Improvement
Sharon P. Robinson
Assistant Secretary

National Center for Education Statistics
Emerson J. Elliott
Commissioner

National Center for Education Statistics

"The purpose of the Center shall be to collect, analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e–1).

July 1993

Contact:
Mary R. Rollefson
(202) 219–1336

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328
ISBN 0-16-041855-0

HIGHLIGHTS

- In school year 1987-88, 152,000 teachers were newly hired in the Nation's schools, 112,000 in public and 40,000 in private schools.

- Of the newly hired teachers, only 27 percent of public and 19 percent of private school teachers were supplied by the pool of **newly minted** college graduates which the Nation has traditionally depended upon to meet the demand for new teachers.

- The primary source of new hires to teaching in both the public and private sectors was the reserve pool of former teachers. These **reentrants** supplied 41 percent of the new hires in public schools and 44 percent in private schools.

- Teachers who **transferred** from teaching positions in other States and/or the other sector supplied 19 percent of public and 23 percent of private new hires. In both sectors about 55 percent of these transfers were supplied by public schools--transferring across State lines from one public school to another, and across sector lines from public to private schools. Thus, from the point of view of the sector hiring the teachers, it appears that the gain was to the private schools. From the point of view of the sector losing the teachers, however, the loss to private schools was greater--the number of teachers they lost to public schools would have filled 24 percent of their new hires for the year, compared with equivalent loss to public schools of about 5 percent.

- Comparison of newly minted, transferred, and reentrant groups of new hires suggests that these represent different stages in traditional teacher career path--at entry straight out of college teacher preparation, moving across State or sector from one school to another, and returning to teaching after a break in service for childrearing, further education, or another career. Transfers and reentrants were older than newly minted teachers and were more likely to hold advanced degrees, but they were similar in the extent to which they hold the standard teacher credential (i.e., a major or minor with certification in field of assignment) that marks the usual path into teaching.

- A fourth source of new hires in both sectors was the **delayed entrant.** These were first-year teachers who, rather than coming straight from college into teaching, engaged in other activities between completion of their degrees and their first teaching jobs (about 14 percent). As a whole, this group was older than newly minted teachers and more diverse than the other groups in teaching qualifications. The extent to which this group lacks

standard qualifications suggests that many of them - about a third - did not prepare in advance to enter teaching, and that the market may be adjusting to shortages of teachers with standard qualifications.

- Of all new hires, about 17 percent of public and 22 percent of private transferred from other occupations into teaching. **Occupational transfers** came from the delayed entrant and reentrant supply sources, and accounted for 44 and 57 percent of public and private delayed entrants, respectively, and roughly 30 percent of public and private reentrants. Most occupational transfers were from jobs outside the field of education.

- Measures of teacher qualifications that better distinguish between teachers of varying quality are needed. Imbalances in supply and demand are often equated through adjustments in teacher quality. Better measures of teacher quality will thus help to define the extent of effective teacher shortages.

- Continued reporting of these data over the next decade will be useful in tracking the relative contribution of each supply source in meeting demand for newly hired teachers. Increased reliance on delayed entrants as a source of new hires should be monitored for its implications regarding alternative certification programs and policies that encourage recruitment from that source. The extent to which the Nation relies on reentrants to meet demand for new hires suggests the importance of studying the teacher reserve pool, its size and age structure.

CONTENTS

SOURCES OF NEWLY HIRED TEACHERS IN THE U.S.

Introduction

Concern about shortages of elementary and secondary school teachers, abundant in the last decade, has been mitigated by recent reports of low rates of attrition from the teaching profession (Bobbitt, NCES, 1991) and reports from several States of increasing numbers of teachers being hired from the reserve pool of former teachers (Kirby, Grissmer, and Hudson, 1991; Murnane, Singer, and Willet, 1988; National Academy of Sciences, 1990).

Past projections of teacher supply and demand by the National Center for Education Statistics (NCES, 1985) have been criticized by the National Academy of Sciences Panel on Teacher Supply and Demand (NAS, 1987) and others (Murnane et al., 1988) for the rudimentary assumptions that incorrectly balanced the supply and demand equations. The demand model assumed that the teacher attrition rate, the major factor driving demand for new teachers, was constant for teachers of all subject areas. The supply model, on the other side, was designed to project the numbers of new teacher graduates, and did not account for other possible sources of teacher supply, such as new non-education graduates seeking teaching jobs and former teachers not currently teaching, because data about them were not available (NCES, 1980). Even in the 1960s, when 67 percent of new teacher hires were new teacher graduates (National Education Association, 1987), this model did not fully account for teacher supply sources, and by the 1970s and 1980s when enrollments in teacher education programs had declined, shrinking that supply source to 17 percent of new hires (NEA, 1987), it was certainly inadequate. Although NCES explicitly acknowledged that its supply model did not account for supply sources other than new teacher graduates (NCES, 1980), data users, eager to compare the decreasing supply projections with the increasing demand projections, sounded the shortage alarm. More recently released NCES data from that same period (Hammer and Gerald, 1991) estimated teacher shortages[1] nationally at only 1 percent of total demand. Clearly the NCES projections models were not accounting for the full set of supply and demand conditions, and it was time for NCES to return to the field to collect better and more up to date data on teacher attrition, teacher supply, and the reserve pool.

In the late 1980s, in response to recommendations from the National Academy of Sciences Panel on Teacher Supply and Demand (NAS, 1987) and other advisors, NCES stopped its projections of teacher supply, and undertook the

---

[1]The Schools and Staffing Survey defines shortage as the total of teaching positions left vacant, abolished, or withdrawn because a qualified applicant could not be found.

design and implementation of a new survey, the Schools and Staffing Survey (SASS), to provide better measures of teacher supply and demand conditions, the factors influencing supply and demand balances, and the characteristics and career patterns of teachers. This report uses the resulting data set to examine the supply sources of newly hired teachers, profiling each supply source in terms of demographic characteristics, qualifications, and career patterns. The purpose of this report is to gain a better understanding of the diversity of the teacher supply pool and to stimulate further research and discussion on teacher supply and demand policies and models.

What, then, were the sources of supply of newly hired teachers or the paths into teaching that a comprehensive supply model should include? The answer to this question required a definition of newly hired teachers. Certainly, the definition must account for the entry of new first-time teachers, both new teacher graduates and those who transferred from other occupations or activities into teaching. It must also account for the return or reentry of former teachers who had taken a break from teaching for a year or more. Each of these was an important supply source to examine and relatively easy to define. A third supply source was teacher transfers or migrants, those who moved from other teaching positions in the previous year. This also was an important supply source, but one for which the definition varied depending on the level or the unit at which the hiring was being done, or by the types of transfers to be included in the model. For example, a national model of supply sources would define a new hire as any teacher employed this year who was not teaching in the Nation during the previous school year, and would not include transfers between schools, except schools outside the U.S. A public/private sector model would define a new hire as anyone who transferred from a public to a private school or vice versa, but would not count within-sector transfers. A State model would define a new hire as any teacher not teaching in that State in the previous year, and thus would exclude transfers within the State but would include transfers from other States; and so on down to the district or school level. The definition would expand to include teachers who transferred from another district or school regardless of State boundary.

This report uses a combination of sector (public/private) and State boundaries to define which transfers would be counted as newly hired teachers. In this model, all teachers who transferred from public to private and from private to public schools were counted as newly hired teachers because they reflected movements between the public and private labor markets, and they captured entries to and exits from the public school teaching force in the State. In addition, all teachers who transferred from one State to another State were counted as newly hired, regardless of sector. Teachers who stayed within the same State and sector (i.e., private to private or public to public within the same State), however, were not included as transfers. Choice of this model accomplished three objectives: 1) it used a unit of analysis, the State, that defined a teacher labor

market with certain conditions, such as certification requirements, and that were important in policy decisions about teacher supply and demand; 2) it provided direct comparison of results with the recent study of teacher supply in Indiana by the Rand Corporation (Grissmer, 1991); and 3) it allowed comparison of teacher supply sources in public and private schools.

Source of Data

The data for this report are from the 1987-88 Schools and Staffing Survey (SASS), which was designed to measure teacher supply and demand conditions, characteristics of the teacher workforce such as teacher qualifications and work histories, and factors related to teacher supply and demand such as workplace conditions, salaries, and other factors influencing supply and demand. SASS is a multilevel, linked survey of public and private schools, school districts, school principals, and teachers. Although supply and demand factors are measured on each of the four survey components, this analysis used only the Public and Private School Teacher Surveys. The technical characteristics of this survey are presented in the Technical Notes at the end of this report.

This analysis used a subsample of the SASS teacher sample defined as newly hired at the State and sector level based on individual teacher responses to selected items on the Teacher Survey. The sample consisted of 2,041 public newly hired teachers and 954 private newly hired teachers, defined as follows:

> **Newly Hired Teacher** - A regular teacher who in the 1987-88 school year was newly hired in that State and/or sector and who taught at least half time. Newly hired teachers were further categorized as one of four types, as follows:
>
> > 1. **Newly Minted Teacher**--A teacher with no prior teaching experience who in the previous year was either attending college or had earned his/her highest degree (sample size: 531 public, 234 private); or
> >
> > 2. **Delayed Entrant**--A teacher with no prior teaching experience who in the previous year was neither attending college nor had earned a degree, (i.e., did not meet criteria of newly minted) and who had delayed his/her entrance into teaching (sample size: 283 public, 136 private); or
> >
> > 3. **Transfer**--A teacher who in the previous year was teaching in another school and who transferred across a sector and/or a State line, specifically of two types:

o transfers into public schools from private schools in the same or any State (cross-sector transfer), or from public schools in a different State (cross-State transfer); and

o transfers into private schools from public schools in the same or different State (cross-sector), or from private schools in a different State (cross- transfer)

(sample size 845 public, 367 private).

The data were analyzed by these four types of new hires to produce estimates of the basic demographic characteristics; teaching qualifications, including degrees earned and qualifications in fields of assignment; and career paths and experiences, including main activity in previous year and former occupations.

Selected findings are discussed in the above order, and comparisons made to determine differences and similarities between the different sources of supply, contrasting in particular the two types of new inexperienced teachers, the newly minted and the delayed entrants, and the two types of experienced teachers, transfers and reentrants. With the exception of Table 2 which presents transfers by the two types, all other analyses group transfers together. Comparisons are also made between public and private teachers. Tables of standard errors are in the Appendix.

Results

In school year 1987-88, approximately 2.3 million public and 307,000 private school teachers were employed in the Nation's elementary and secondary schools. Of these, about 2.1 million public and 275,000 private school teachers were teaching half time or more and are reported in Table 1. The majority of these teachers, 94.6 percent of public and 85.4 percent of private, were continuing teachers, that is, teachers who had taught in the same State and/or sector the previous year. The remaining 5.4 percent and 14.6 percent, respectively, were newly hired in public and private schools in the 1987-88 school year (Table 1). This report focuses on those 112,000 public and 40,000 private teachers who were newly hired in that year.

The primary source of new hires in both public and private schools in 1987-88 was reentrants from the reserve pool of former teachers, accounting for about 41 percent of new hires in public schools and 44 percent in private schools (Table 2). The second source in public schools was newly minted college graduates, at

Table 1.--Number and percent of newly hired and continuing public and private school teachers: 1987-88

	Public		Private	
Source	Number	Percent	Number	Percent
Total	2,056,334	100.0	275,289	100.0
New hires	111,929	5.4	40,244	14.6
Continuing	1,944,404	94.6	235,044	85.4

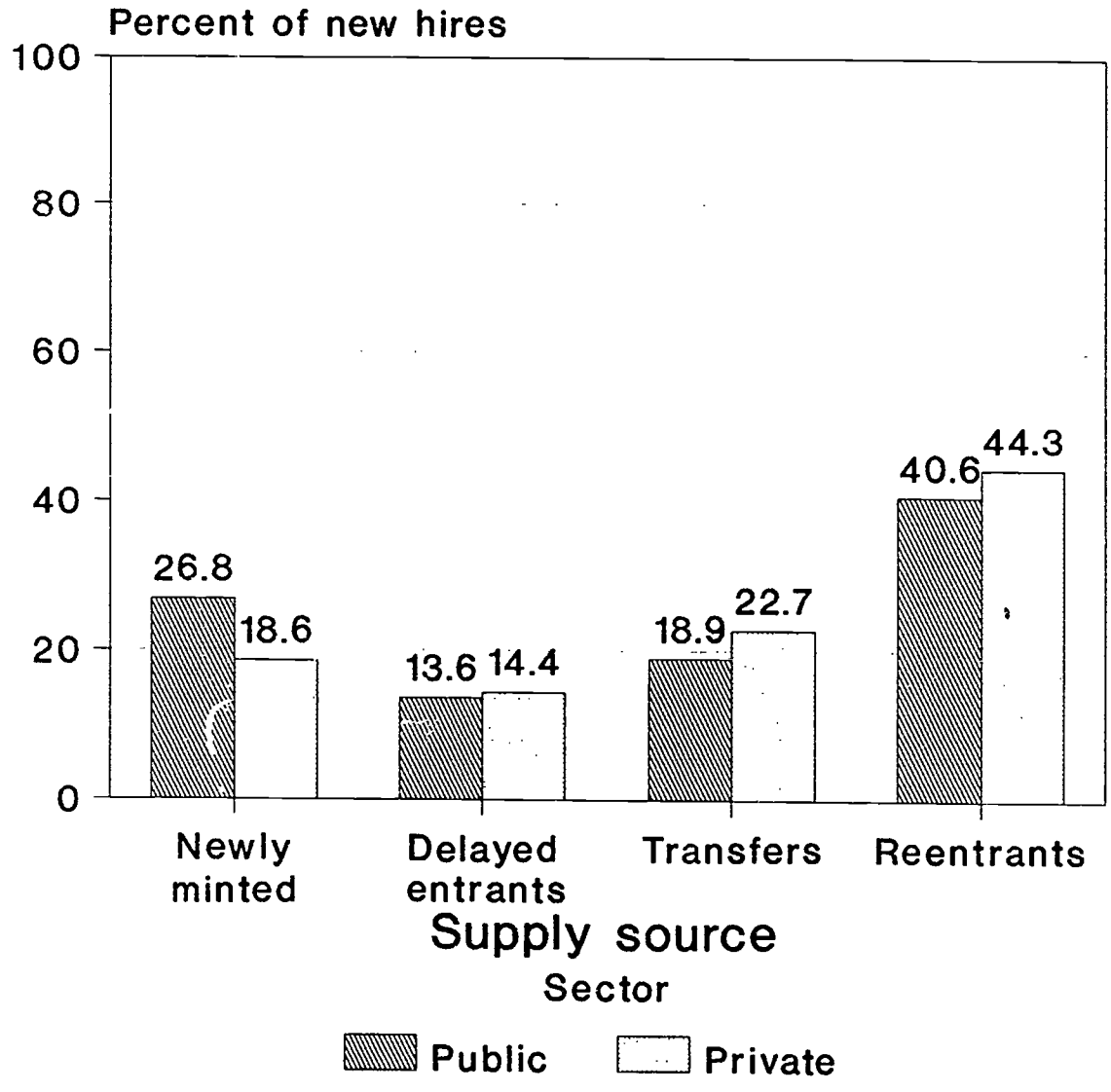
SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 2.--Number and percentage distribution of newly hired public and private school teachers by supply source: 1987-88

	Public		Private	
Source	Number	Percent	Number	Percent
Total	111,930	100.0	40,244	100.0
Newly minted	30,037	26.8	7,501	18.6
Delayed entrants	15,268	13.6	5,778	14.4
Transfers	21,206	18.9	9,139	22.7
Other sector (any state)	9,558	8.5	5,087	12.6
Other state (same sector)	11,648	10.4	4,052	10.1
Reentrants	45,419	40.6	17,826	44.3

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Figure 1--Newly hired public and private school teachers by supply source



SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teachers Questionnaire).

about 27 percent of new hires, followed by transfers (19 percent) and delayed entrants (14 percent). In private schools the rates of hire from the newly minted (19 percent), delayed entrant (14 percent) and transfer (23 percent) pools were about equal. This ranking of sources of newly hired teachers, and the predominance of reentrants compared to newly minted teachers, represents a clear change from the teacher labor market of the 1960s and 1970s when the majority of new hires were new graduates of teacher education programs. This confirms the recent findings of other researchers (Kirby, Grissmer, and Hudson, 1991) and several States (New York, Connecticut, North Carolina) that reentering teachers are filling a larger part of the demand for new hires.

In what ways were these different supply sources alike and in what ways were they different from each other? Did each provide a distinctly different type of teacher, or merely the same teachers at different stages in their careers? To answer these questions NCES compared and contrasted the two types of new inexperienced teachers, the newly minted and the delayed entrant, and the two types of experienced teachers, the transfers and the reentrants, in terms of selected demographic characteristics, teaching qualifications, and career patterns.

Demographic Characteristics

Compared with the teacher workforce as a whole, newly hired teachers, both public and private, were younger (by 6 and 4 years, respectively), and in the public sector were more likely to be female (Table 3). In gender and minority status, private school new hires were not different from the workforce as a whole. Public new hires also were like all other public teachers in minority status.

Examined by supply source, the age distribution of new hires showed interesting differences (Figure 2). Newly minted teachers, who were straight out of college, looked quite different from the typical image of new college graduates. Less than half of the public newly minted teachers were under 25 years of age, 27 percent were between ages 25 and 29 years, and a not insignificant number were age 35 and older (16 percent). The age structure of private newly minted teachers was very similar to that of public newly minted, with slightly more under age 25 and slightly fewer over age 35. Delayed entrants, in contrast to the newly minted, were more concentrated in the 25 to 35 age ranges for public, and in the 30 and over age ranges for private, with only 11 and 14 percent, respectively, under the age of 25. The distributions of transfers and reentrants were similar to one another, with reentrants being more concentrated in ages of 35 and older and transfers in the 25 to 29 range. The pattern for private transfers and reentrants was similar to public. (See also Tables 4 and 5.)

Table 3.--Selected demographic characteristics of newly hired and total public and private teachers: 1987–88

Characteristics	Public		Private	
	New hires	All teachers	New hires	All teachers
Percent female	78.5	71.4	78.8	79.2
Percent minority	10.7	11.9	6.8	6.9
Mean age	33.9	40.4	34.9	39.0

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987–88 (Teacher Questionnaire).

Table 4.--Newly hired public school teachers, by type and by selected demographic characteristics: 1987-88

Characteristics	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Number new hires	164,871	32,235	17,535	23,453	91,648
Percent female	78.5	79.4	71.8	78.4	80.1
Percent minority	10.7	9.2	16.6	10.2	9.9
Age					
Mean total	33.9	28.0	31.1	36.0	37.8
Mean male	34.3	29.7	31.6	35.6	38.1
Mean female	33.8	27.5	30.9	36.1	37.8
Percent less than 25	15.7	47.2	10.9	2.6	2.5
25-29	23.1	26.7	39.9	25.5	13.8
30-34	15.7	9.8	22.6	17.7	16.4
35-39	20.1	8.2	15.5	23.9	27.8
40-44	14.2	4.8	8.0	16.4	21.4
45-49	6.5	1.7	2.6	6.3	11.2
50 or more	4.7	1.6	0.6	7.6	6.7
Percent 35 or more	45.5	16.3	26.6	54.2	67.2
Marital status					
Percent married	64.9	44.8	64.0	69.8	76.4
Dependents					
Percent with any	50.3	23.3	46.6	53.1	67.7
Percent of above with any less than 5 years	36.7	29.1	58.5	26.3	37.6
Income/salary					
Base year salary	19,380	17,723	17,300	21,133	20,419
Total year round income	21,392	19,552	19,644	22,701	22,615
Percent moonlighting	15.5	16.1	21.4	11.7	14.9
Family income					
Percent less than $25,000	30.9	57.6	47.7	26.9	19.1
Percent $25,000 but less than $50,000	42.5	29.4	40.0	47.4	42.5
Percent $50,000 or more	26.6	13.0	12.3	27.9	33.9

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

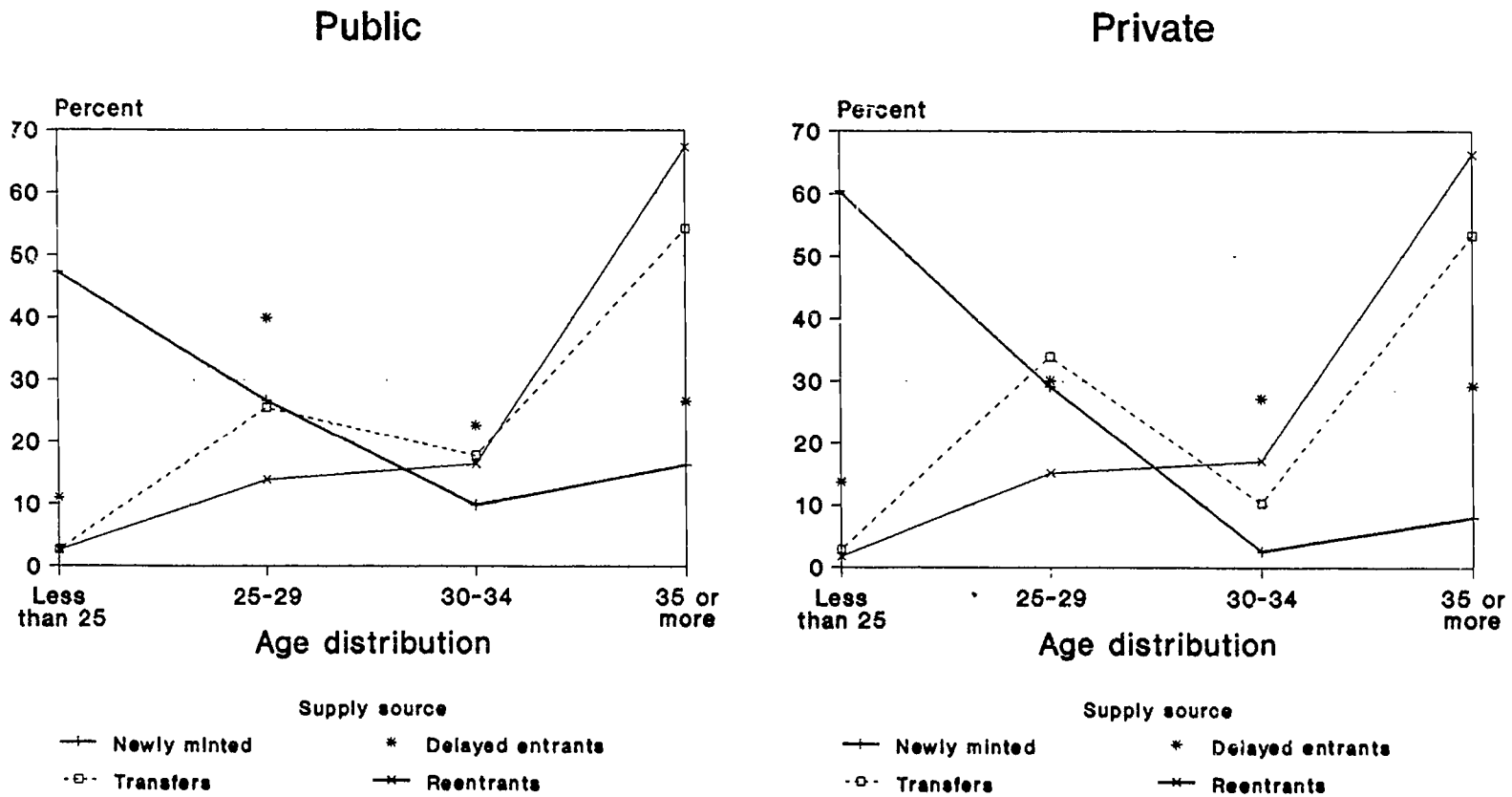
Table 5.---Newly hired private school teachers, by type and by selected demographic characteristics: 1987–88

Characteristics	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Number of new hires	40,244	7,501	5,778	9,139	17,826
Percent female	78.8	77.3	71.6	78.7	81.8
Percent minority	6.8	3.8	9.3	3.6	8.9
Age					
Mean total	34.9	25.5	31.8	36.1	39.2
Mean male	34.3	26.6	35.5	36.8	36.4
Mean female	35.0	25.2	30.3	35.9	39.8
Percent less than 25	14.6	60.3	13.6	2.8	1.7
25–29	24.1	29.1	30.1	33.8	15.1
30–34	14.2	2.6	27.1	10.2	17.0
35–39	19.2	6.2	17.3	24.5	22.7
40–44	11.4	1.8	3.7	5.2	21.1
45–49	7.6	0.0	3.5	13.6	9.0
50 or more	8.9	0.0	--	10.0	13.5
Percent 35 or more	47.1	8.0	29.2	53.3	66.2
Marital status					
Percent married	56.9	29.2	62.5	64.3	63.0
Dependents					
Percent with any	41.2	10.6	44.5	44.4	51.1
Percent of above with any less than 5 years	31.6	46.4	49.2	28.2	26.8
Income/salary					
Base year salary	13,048	12,675	10,933	14,100	13,317
Total year round income	15,467	15,536	14,380	16,027	15,488
Percent moonlighting	26.0	25.6	29.1	21.9	27.2
Family income					
Percent less than $25,000	39.2	69.7	44.5	42.1	29.3
Percent $25,000 but less than $50,000	41.7	18.6	39.6	38.3	49.1
Percent $50,000 or more	19.2	11.7	15.9	19.7	21.6

-- Too few sample cases for a reliable estimate.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987–88 (Teacher Questionnaire).

Figure 2--Age distribution of newly hired public and private school teachers by supply source



SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teachers Questionnaire).

The number of dependents a teacher had, particularly children under school age, may explain some of the patterns of delayed entry and reentry into teaching. The data provided a mixed picture. Public delayed entrants were about twice as likely as newly minted teachers to have dependents of any age as well as those under 5 (47 versus 23 percent). Private delayed entrants were four times as likely to have dependents as newly minted teachers (45 versus 11 percent) but no more likely to have had young dependents. In spite of this, relatively few delayed entrants reported homemaking/childrearing as their main activity the previous year (only 9 and 16 percent) (Table 9). Among the experienced new hires, public reentrants were more likely than transfers to have dependents (68 versus 53 percent) although not younger dependents, and over 28 percent of the public reentrants indicated homemaking/childrearing as their main activity in the preceding year. Thirty percent of private reentrants were homemaking/childrearing the previous year, but were no more likely than transfers to have dependents. Thus, although large proportions of both delayed entrantsand reentrants have dependents, reentrants were more likely to have been at home with them in the previous year than delayed entrants.

Teacher Qualifications

Teacher qualifications are an important aspect of teacher supply and demand, since imbalances in supply and demand conditions are often equated through adjustments in teacher quality. It is important, therefore, to compare the qualifications of teachers coming from different supply sources. Available data on qualifications are degree attainment, major or minor field of study, and teacher certification status. These measures are limited, however, and research is needed to develop measures of teacher qualifications that better distinguish among teachers along a quality dimension.

Degree attainment in the teacher workforce is largely a function of age and experience, and this was apparent from these data on newly hired teachers. Experienced teachers (transfers and reentrants) were more likely to have degrees beyond a bachelor's than inexperienced teachers (newly minted and delayed entrants). About 38 percent to 41 percent of public experienced teachers had degrees beyond a bachelor's compared with about 12 and 10 percent of new inexperienced teachers (i.e., newly minted and delayed entrants). Among private school teachers the same pattern held, and overall private new hires held degrees beyond the bachelor's at the same rate as public.

A more telling set of qualifications than highest degree was the teachers' qualifications in their primary and secondary teaching assignment fields (the first and second fields in which teachers spend most of their time). Tables 7 and 8 show all combinations of major or minor and certification in both primary and

Table 6.--Percentage distribution of newly hired public and private school teachers, by type, highest degree earned, and average years of teaching experience: 1987–88

Characteristics	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Public					
BA/BS	71.3	87.8	90.4	62.1	58.7
MA/MS	24.2	11.1	7.8	33.8	33.7
Ed. Spec.	3.4	1.0	0.6	3.1	5.9
PhD/FPD	1.1	0.1	1.2	1.1	1.7
Years teaching experience	NA	NA	NA	7.5	6.2
Total number	111,930	30,037	15,268	21,206	45,419
Private					
BA/BS	73.4	92.9	85.2	67.0	65.1
MA/MS	22.8	6.4	14.4	28.9	28.9
Ed. Spec.	2.5	--	--	3.6	3.4
PhD/FPD	1.3	--	--	--	2.6
Years teaching experience	NA	NA	NA	8.1	6.8
Total number	40,244	7,501	5,778	9,139	17,826

-- Too few sample cases for a reliable estimate.
NA = Not applicable.
NOTE: Percents may not add to 100 due to rounding.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987–88 (Teacher Questionnaire).

Table 7.---Percent of newly hired public school teachers, by type with various qualifications in assignment field: 1987–88

Characteristic	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Primary Field					
Major/minor With certification	78.4	83.5	64.7	80.8	78.0
Certified only	15.8	12.1	21.2	13.6	17.7
Major/minor Without certification	3.7	2.5	7.4	4.9	2.9
Total certified	94.2	95.6	85.9	94.3	95.7
Total major or minor	82.1	86.0	72.0	85.7	80.9
None of the above	2.1	1.9	6.7	0.7	1.4
Secondary Field					
Major/minor With certification	39.5	36.1	35.2	36.4	44.4
Certified only	49.5	53.0	44.3	56.6	45.5
Major/minor Without certification	4.6	4.5	--	3.8	5.3
Total certified	89.0	89.0	79.5	93.0	89.9
Total major or minor	44.1	40.6	38.8	40.1	49.7
None of the above	6.4	6.4	16.9	3.2	4.8

-- Too few sample cases for a reliable estimate.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987–88 (Teacher Questionnaire).

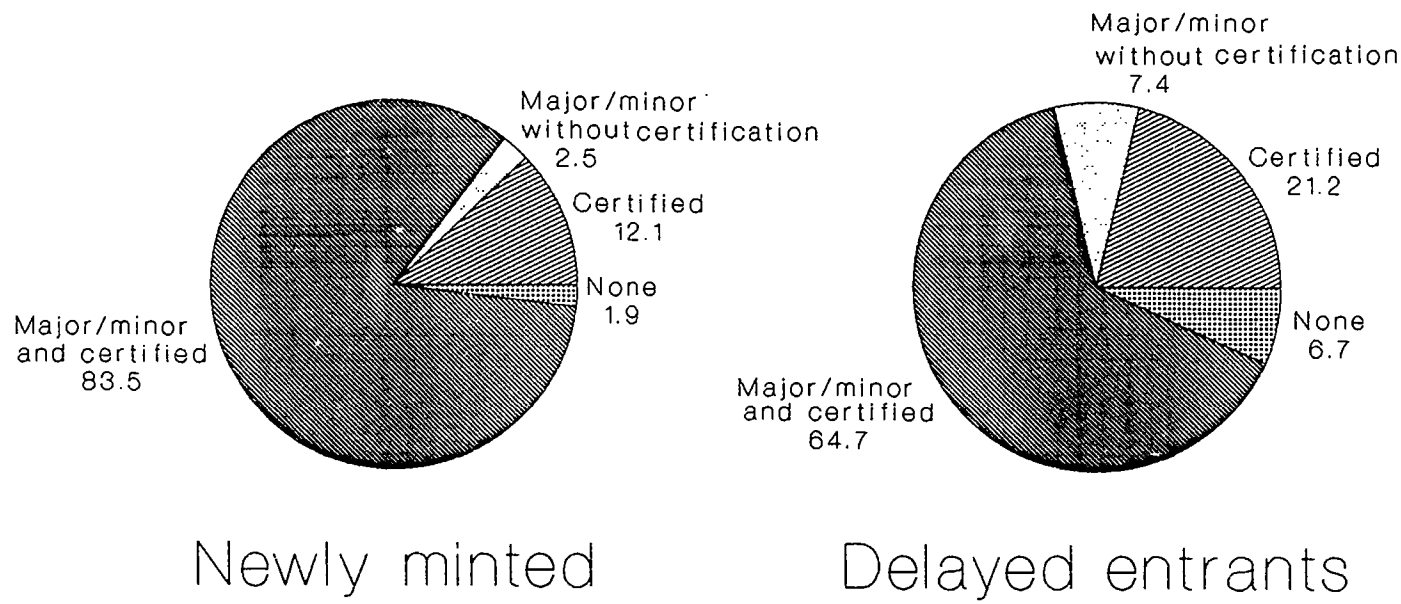
Table 8.--Percent of newly hired private school teachers, by type with various qualifications in assignment field: 1987–88

Characteristic	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Primary Field					
Major/minor With certification	49.1	55.2	27.4	49.9	53.4
Certified only	10.3	5.0	7.6	13.0	12.2
Major/minor Without certification	22.1	27.1	13.6	22.5	22.6
Total certified	59.5	60.2	34.9	62.9	65.6
Total major or minor	71.2	82.3	40.9	72.5	76.0
None of the above	18.4	12.7	51.5	14.5	11.8
Secondary Field					
Major/minor With certification	22.3	17.8	7.1	34.9	25.3
Certified only	27.2	35.0	14.3	16.1	36.4
Major/minor Without certification	17.4	18.2	17.2	22.4	14.4
Total certified	49.5	52.8	21.4	51.0	61.7
Total major or minor	39.7	36.0	24.3	57.3	39.7
None of the above	33.1	29.0	61.4	26.6	23.9

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

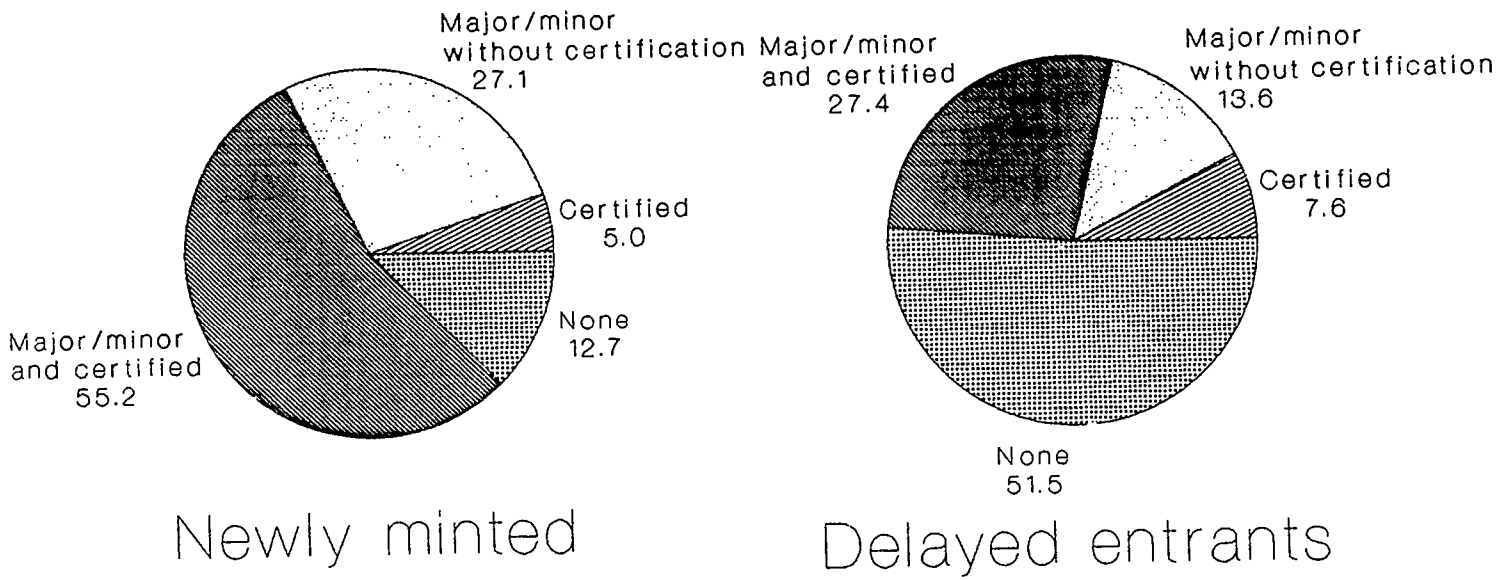
SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987–88 (Teacher Questionnaire).

Figure 3--Percent of public inexperienced teachers by qualifications in primary field



SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teachers Questionnaire).

Figure 4--Percent of private inexperienced teachers by qualifications in primary field



SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teachers Questionnaire).

secondary assignment fields. When these more specific qualifications were examined, some interesting differences by source and by sector, especially among the new inexperienced teachers emerged. In both sectors, delayed entrants were noticeably different from newly minted teachers in qualifications in their primary field of assignment. In the public sector, fewer delayed entrants than newly minted teachers had college majors or minors (regardless of certification) in their primary assignment fields (72 percent versus 86 percent), and fewer of them were certified, regardless of major or minor (86 percent versus 96 percent). Only 65 percent of delayed entrants held the standard credential of major or minor with certification, compared to 85 percent of newly minted. These differences were more pronounced among private school teachers where delayed entrants had majors or minors in their teaching field at half the rate of newly minted teachers (41 percent vs. 82 percent); and half of the delayed entrants met none of these criteria. (It should be noted here that only a few States require certification for private school teachers.)

Among the experienced new hires, that is, transfers and reentrants, qualifications in primary assignment field were the same. In both sectors, these teachers held virtually the same qualifications in their assignment fields, and were very similar to newly minted teachers. This similarity in qualifications between the newly minted and the experienced transfers and reentrants suggests a standardization of criteria (i.e., a major or minor plus certification in the teaching assignment field) that characterizes the usual path into the teaching profession. In contrast, the less than standard credentials of many delayed entrants, in particular the lower rate at which they had a major or minor with certification (about 65 percent versus 78 to 84 percent for public, and 27 versus 50 to 55 percent for private), suggests that fewer of them prepared in advance to enter teaching.

For those who taught a second field, the story was not of differences across supply sources, but rather between primary and secondary fields of assignment. In the public sector, across supply sources, new hires were equally lacking in the standard qualification of major or minor with certification in their secondary field. Total major or minor in field occurred at roughly half the rate (two thirds for reentrants) in secondary field as in primary field; and across all new hires, both experienced and inexperienced, 45 to 56 percent had certification as their only qualification to teach in that field.

Career Patterns of Newly Hired Teachers

Comparisons of prior year activities of newly hired teachers showed some interesting patterns and diversity of experiences within and across supply sources. For newly minted and transfers the prior year activities were, to some extent, just

Table 9.--Percentage distribution of newly hired public and private school teachers, by type and by prior year activity: 1987-88

Activity	Newly minted	Delayed entrants	Transfers	Reentrants
Public				
Teaching total	NA	19.7	100.0	3.2
Public, other state	NA	*12.8	54.9	NA
Private, any state	NA	*3.4	45.1	NA
Postsecondary	NA	3.4	NA	3.2
Attending college	95.2	NA	NA	16.7
Working other occupation	1.9	43.8	NA	27.8
In education	1.4	14.2	NA	9.7
Outside education	0.5	29.6	NA	18.1
Home/child	0.3	9.0	NA	28.1
Other	1.9	27.5	NA	24.3
Number new hires	30,037	15,268	21,206	45,419
Private				
Teaching total	NA	7.0	100.0	1.6
Private, other state	NA	*3.3	44.3	NA
Public, any state	NA	*3.3	55.7	NA
Postsecondary	NA	--	NA	1.6
Attending college	92.8	NA	NA	18.4
Working other occupation	3.9	56.6	NA	30.3
In education	--	9.1	NA	8.8
Outside education	3.2	47.5	NA	21.5
Home/child	1.1	15.8	NA	29.5
Other	2.2	20.6	NA	20.1
Number new hires	7,501	5,778	9,139	17,826

-- Too few sample cases for a reliable estimate.
NA = Not applicable.
*These teachers met the criteria for delayed entrants, i.e. they reported no previous teaching experience and 1987-88 as their first year of teaching, and met none of the criteria of newly minted teachers. Therefore, their report of teaching at the elementary or secondary level in the previous year was interpreted to mean that they had been substitute teachers.
NOTE: Percents may not add to 100 due to rounding.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

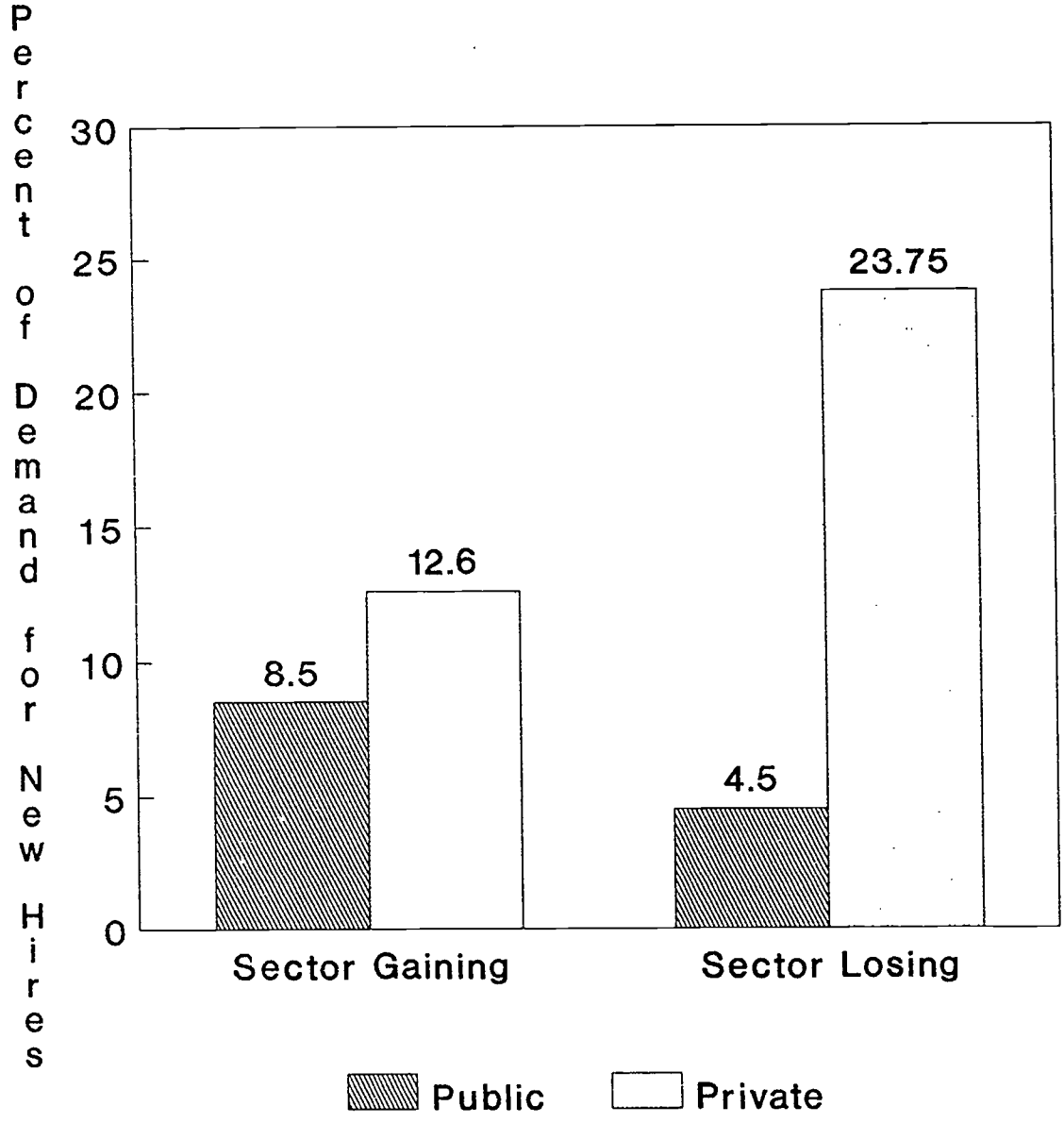
a confirmation of the definition. Newly minted teachers, for instance, were defined as those inexperienced teachers who were attending college or had earned their highest degree in the previous year. And indeed, 95 percent of public and 93 percent of private new mints were in college and the remainder had earned their highest degree during 1987 and were engaged in other activities (Table 9).

Delayed entrants, by contrast, had more diverse experiences prior to their first year of teaching than newly minted teachers. Two thirds of them (both public and private) were working in other occupations during the previous year. Jobs were about equally divided between those outside the field of education (30 percent) and those in teaching (about 16 percent substitute teaching in an elementary or secondary school[2], and the rest at the postsecondary level), and a smaller group (14 percent) in non-teaching jobs in education. Private delayed entrants were working mostly in occupations outside education (47.5 percent), and the rest were about evenly divided between non-teaching occupations in education (9.1 percent) and teaching (7 percent). Another 9 percent of public and 15.8 percent of private delayed entrants were engaged in homemaking or childrearing. (Below the occupational transfers from the delayed entrant and reentering supply sources, and the use of substitute and teacher aid positions as an entry route to teaching are examined more closely.)

Transfers were defined as those teachers who were teaching in an elementary or secondary school in another State and/or sector during the previous school year. Table 9 shows the distribution of cross-sector and cross-State transfers for public and private teachers. In both sectors, about 55 percent of transfers were supplied by public schools, cross-State transfers into other public schools, and cross-sector transfers into private schools. From the point of view of the sector gaining the teachers, the contribution of public schools was somewhat larger than that of private schools. From the point of view of the sector losing the teachers, however, the contributions look quite different. Although relatively small as a percentage of public demand for new hires (8.5 percent), transfers from private schools (numbering 9,558) account for almost 24 percent of private demand for new teachers (see Figure 5). Together with the reverse transfer of public teachers into private schools (numbering 5,087, see Table 2), the result was a net loss of about 4,500 teachers or 11 percent of their total demand for new hires. For public schools, on the other hand, these 4,500 teachers were a net gain, accounting for 4 percent of the total demand for new hires. Given the relative sizes of the private and public teacher workforces, it appeared that cross-

[2]These teachers met the criteria for delayed entrants, i.e. they reported no previous teaching experience and 1987-88 as their first year of teaching, and met none of the criteria of newly minted teachers. Therefore, their report of teaching at the elementary or secondary level in the previous year was interpreted to mean that they had been substitute teachers.

Figure 5--Cross-sector transfers as a percent of new hires by sector gaining and sector losing teachers



SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teachers Questionnaire).

sector transfer had a larger impact on private school retention and recruitment than on public.

Reentrants, having taken a break from teaching, were more diverse in their prior year experiences than transfers. Among both public and private reentrants, the primary known prior year activities were homemaking or childrearing (28 and 30 percent, respectively) and work in other occupations (also 28 and 30 percent), followed by attending college (17 and 18 percent). Those reentrants who were working were employed primarily outside elementary or secondary education(18 percent public and 22 percent private). In addition, a small percent were teaching at the postsecondary level.

This phenomenon of occupational transfer has captured the interest of policy makers and supply and demand experts. The sources of occupational transfers were delayed entrants and reentrants, and in both groups working in other (non-teaching) occupations was a major prior year activity (44 and 57 percent of public and private delayed entrants, respectively, and 28 and 30 percent of reentrants, respectively). In several States (e.g., New Jersey) policies have been implemented to actively recruit, and, if necessary, train and certify these teachers through alternative certification programs. During the last decade, when teacher shortages were anticipated, these groups of new hires were looked to as one solution to supply and demand imbalances; sources to be cultivated. From what occupations did these teachers transfer, and with what qualifications did they enter teaching? The extent of these transfers and the characteristics of teachers who entered by these routes have implications for the feasibility and needs of alternative route programs.

Those delayed entrants who transferred from occupations outside of education were about equally divided in the private sector among professional, support, and service occupations (the apparent differences were not statistically significant) (Table 10). In the public sector, the fewest came from the service occupations, and about equal proportions from other professions and support occupations. In the public sector, transfers from occupations in education came primarily from the nonprofessional ranks of teacher aides (61.5 percent) followed by nonprofessional school staff (31.4 percent). The fewest came from the ranks of school professionals (7.1 percent). Among this same group of occupational transfers in private schools there was no difference in transfers from professional and teacher aide positions, and too few from nonprofessional positions to estimate reliably.

Reentrants who transferred from occupations outside of education came mostly from professional and support occupations. Among those who transferred from occupations in education, there appeared to be a larger representation from school professionals among reentrants (40.7 percent) than among delayed entrants

Table 10.--Percentage distribution of newly hired public and private teachers by type and by previous occupation: 1987-88*

	Newly minted	Delayed entrants	Reentrants
Public			
Occupations in education	100.0	100.0	100.0
School professional	23.4	7.1	40.7
Teachers aide	62.9	61.5	31.1
Other staff	13.6	31.4	28.1
Total number	1,252	2,900	6,225
Occupation outside education	100.0	100.0	100.0
Professional (Mgr., Scientific)	29.3	44.0	42.8
Support (Tech., Sales, Admin.)	44.6	39.2	41.4
All other (Services, Mechanical, Construction, Farming)	26.1	16.8	15.8
Total number	1,439	4,885	8,814
Private			
Occupations in education	100.0	100.0	100.0
School professional	--	47.0	48.3
Teachers aide	74.7	45.5	34.8
Other staff	--	--	16.9
Total number	202	785	1,627
Occupation outside education	100.0	100.0	100.0
Professional (Mgr., Scientific)	44.8	40.1	32.1
Support (Tech., Sales, Admin.)	36.5	33.6	47.8
All other (Services, Mechanical, Construction, Farming)	18.7	26.3	20.1
Total number	551	2,729	4,097

-- Too few sample cases for a reliable estimate.

*Includes only those who transferred from other occupations.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

(7.1 percent). But a not insignificant portion of reentrants, about 31 percent of public and 35 percent of private, held teacher aide positions in the previous year--a strong suggestion that these aide positions served as an entry into teaching not only for inexperienced teachers but even for those who had taught before. For delayed entrants, substitute teaching positions, which were not uncommon (16 percent public and 7 percent private, see table 9), may have served this same entry purpose.

Discussion

Although detailed trend data were not available, a few data points from the last decades indicate that indeed the supply sources of newly hired teachers changed significantly between the 1960s and the time of this survey in 1987-88. The Nation no longer relied primarily on its traditional source of new college graduates to meet demand for new hires, but instead hired more teachers from the reserve pool of former teachers than from any other source, constituting 41 to 44 percent of new hires in public and private schools, respectively. Newly minted teachers, which in the 1960s provided 67 percent of new hires in public schools, by 1987-88 provided only 27 percent. Transfers and delayed entrants were the third and fourth sources at 19 percent and 14 percent, respectively. After reentrants, private schools drew equally from the newly minted, transfer, and delayed entrant pools. Both sectors drew a not insignificant number of teachers from the pool of delayed entrants (about 14 percent in each sector).

Did these different supply sources provide distinctly different types of teachers? Did they represent different paths into the profession or simply different stages of teachers' careers? Although preliminary and needing further analysis, these data suggested that newly minted and delayed entrants were indeed different from each other. The similarity of transfers and reentrants, however, suggested merely a difference in career stage.

Transfers and reentrants were remarkably similar across all variables examined in this report. In terms of their qualifications to teach (degrees earned, major or minor, and certification status in primary teaching field) they were virtually the same. Public transfers had about 1 more year of teaching experience than reentrants (7.5 vs 6.2 percent). They were about 2 (public) to 3 years (private) older on average than transfers and were more heavily concentrated in the 35 year and older ages. The combination of slight difference in age and similarity in length of teaching experience suggested that these two sources of new hires may just reflect different stages in the career paths of the same general type of teacher, i.e., before and after a break in service. Even though 17 and 18 percent of reentrants were in college the previous year, they returned looking no different from transfers in terms of their degree attainment or qualifications in their assignment fields.

Those reentrants who transferred from other occupations, however, (27.8 percent public, 30 percent private) may not be have been following the typical teacher career path. More analysis of these occupational transfers is needed to determine whether they were exhibiting typical and planned moves in teachers' careers, or were being drawn unexpectedly back into the classroom by changes in educational policy, societal values regarding education, or other conditions. Data are needed on length and number of breaks in service, career plans and reasons for leaving and reentering teaching. Forthcoming data from the 1990-91 SASS will help to answer these questions.

Asking the same question of the newly minted versus the delayed entrant sources of new teachers, the data suggested a different answer. These two supply sources seemed to provide different types of teachers. The extent to which delayed entrants lacked the standard teaching credentials, particularly major or minor with certification, suggested that as many as a third of them did not plan to enter the teaching profession when they were earning their highest degrees. Nearly half of public and more than half of private delayed entrants transferred from other occupations, most outside the field of education. Whether these teachers were responding to policies established to recruit new teachers or whether the policies developed in response to this new supply pool was not clear from these data. Whichever came first, if we hold to the standard of a major or minor with certification to qualify to teach, the data suggested that many in this group (about 35 percent of public) may benefit from alternative teacher training programs. Further, the extent to which this pool of teachers was drawn upon to meet demand illustrated an adjustment in teacher qualifications made when supply and demand imbalances occurred. In private schools where this supply source was equal in size to that of newly minted teachers, and where alternative teacher training programs were not as systematically implemented as in public schools, the implications for relaxing hiring criteria may have been even greater.

Repeated administrations of the Schools and Staffing Survey as well as continued reporting from s will suggest the nature and magnitude of these apparent trends. Certainly, if reentrants continue as the major source of new hires, the study of the definition, size and qualifications of the "reserve pool" will become more important. What was the implication of declining enrollments in teacher preparation programs for the reserve pool? If delayed entrants continue as a significant portion of new hires, and if their qualifications continue at the same level, the issue and redefinition of teacher shortage will become more important.

The issues of teacher supply, demand and shortage cannot be adequately addressed without better measures of teacher quality since shortages often take the form of decreasing quality of those hires rather than decreasing numbers. Certainly, as the debate on teacher preparation and credentialing shows, certification does not equal quality; and even though substantive preparation in

field is an important part of teacher quality, major or minor field alone does not go far enough. Improvement in this area requires research to define the dimensions of teacher quality and to develop methods to measure them.

Finally, to be able to influence supply and demand balances and to draw and retain the best qualified teachers, a better understanding of the factors that influence individuals' decisions to enter, leave and return to the teaching profession is needed. To the extent that these decisions are related to factors that can be changed by policy initiatives, policy makers can influence the level of quality at which the supply and demand balance is struck.

Technical Notes

Data were analyzed using SAS procedures, primarily percentage distributions and estimates of totals and means. The data were weighted to national estimates for both public and private school teachers, and standard errors for the estimates were produced using the Wesvar Procedure (Westat, 1989). The estimates and standard errors are presented in tables 1-9 in the text and 1A-9A in the appendix. All comparisons of estimates in this paper were tested with a t statistic, at an alpha level of .05, using the Bonferonni adjustment for multiple comparisons.

The data for this paper were collected with the Public and Private School Teacher Questionnaires, two of four questionnaires comprising the 1987-88 Schools and Staffing Survey (SASS). SASS was designed by the Rand Corporation under contract to the U.S. Department of Education's National Center for Education Statistics. Data were collected by the U.S. Bureau of the Census.

The SASS is a mail survey which collects 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. Each of the four questionnaires of SASS has a separate form for public and private sector respondents. The four questionnaires are:

1. The Teacher Demand and Shortage Questionnaire (for public school districts and private schools),

2. The School Administrator Questionnaire,

3. The School Questionnaire, and

4. The Teacher Questionnaire.

Sample selection

Public and private schools were the primary unit of sampling for SASS. The teacher sample was drawn from the 9,317 public and 3,513 private schools in the SASS sample. In each sample school, a list which included all full-time and part-time teachers, itinerant teachers, and long-term substitutes was obtained. Within each school, teachers were stratified by experience; one stratum included new teachers, and a second stratum included all other teachers. New teachers were those who, counting the 1987-88 school year, were in the first, second, or third year of their teaching career in either a public or private school system. Within each teacher stratum, teachers were sorted by subject (General Elementary Education, Special Education, Mathematics, Science, English, Social Science,

Vocational Education, other). A sample of 54,340 public and 11,412 private school teachers was drawn. A supplemental sample of Bilingual/ESL (English as a Second Language) teachers was also drawn, adding another 2,258 public and 183 private school teachers.

The basic sample of teachers required for the school strata was allocated to the sample schools in each stratum so that the teacher weights were equal. The specified average teacher sample size for each sample school (four, eight, and six teachers for each public elementary, secondary, and combined school, respectively) was then allocated to the two-teacher strata to obtain an oversampling of new private school teachers at a fixed rate, and proportional allocation of public school teachers. Finally, a systematic sampling scheme was then applied to select the basic sample within each teacher stratum. An independent systematic sampling scheme was applied to bilingual teachers in each sample school to select the bilingual supplement. To control the number of teachers in each of the six bilingual strata (California, Texas, Florida, Illinois, New York, and all other States), the supplement was subsampled systematically with equal probabilities by stratum. Teachers selected in both the supplement and the basic sample were unduplicated so that each teacher appears only once. For more information on sampling and other technical aspects of the survey design see Kaufman, 1991.

Data collection

The Teacher Questionnaires were mailed to the sampled schools in February 1988. Approximately 10 days after this mailout, a letter was sent to the survey coordinator in each school identifying the school's sample teachers and requesting the coordinator to remind the sample teachers to complete and return their questionnaires. Approximately 6 weeks after the mailout, a second set of questionnaires, for sample teachers who had not returned the first questionnaire, was sent in a package to the school coordinators for distribution to nonresponding teachers. During the time of this second mailout, each coordinator was telephoned and asked to remind those teachers who had not returned the first questionnaire to complete the second one and mail it back. A telephone follow-up was conducted during April, May, and June. Due to the large number of nonrespondents and the necessity for completing the follow-up prior to the closing of schools for the summer, only a subsample of nonresponding teachers was included in this effort. This subsample of nonresponding teachers had their weights adjusted to represent the nonresponding teachers who were not selected for the followup.

Questionnaire response rates

Weighted response rates were 86.4 percent for the Public School Teacher Questionnaire and 79.1 percent for the Private School Teacher Questionnaire.

Included among the nonrespondent teachers were those teachers in nonrespondent schools.

Effects of item nonresponse

There was no explicit imputation for item nonresponse. Not imputing for item nonresponse leads to a bias in the estimates. In tables which present averages, the nature of this bias is unknown. For each estimate in this report, nonrespondents to the items were excluded from the analysis. All of the items used in this report had response rates above 90 percent, with the exceptions of years of teaching experience of private teachers (response rate of 72.6 percent), and certification in second assignment field (75.7 percent public and 83.1 percent private).

Standard errors

The estimates in these tables are based on samples and are subject to sampling variability. Standard errors were estimated using a balanced repeated replication procedure that incorporates the design features of this complex sample survey. The standard errors provide indications of the accuracy of each estimate. If all possible samples of the same size were surveyed under the same conditions, an interval of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the universe value in approximately 95 percent of the cases. Note, however, that the standard errors in the tables do not take into account the effects of biases due to item nonresponse, measurement error, data processing error, or other systematic error.

Comments and More Information

We are interested in your reaction to the information presented here and to the content of the surveys used to produce these results. We welcome your recommendations for improving our survey work. If you have suggestions or comments or want more information about this report, please contact:

Special Surveys and Analysis Branch
Elementary and Secondary Education Statistics Division
National Center for Education Statistics
U.S. Department of Education
555 New Jersey Avenue NW
Washington, D.C. 20208-5651

References

Bobbitt, Sharon, Movers, Leavers, and Stayers: Results of the 1988-89 Teacher Followup Survey, U.S. Department of Education, National Center for Education Statistics, 1991, NCES 91-128.

Choy, S., Medrich, A., Henke, R., and Bobbitt, S., Schools and Staffing in the United States: A Statistical Profile, 1987-88, U.S. Department of Education, National Center for Education Statistics, 1992, NCES 92-120.

Hammer, Charles, and Gerald, Elizabeth, Aspects of Teacher Supply and Demand in Public School Districts and Private Schools: 1987-88, U.S. Department of Education, National Center for Education Statistics, 1991, NCES 91-133.

Kaufman, Steven, 1988 Schools and Staffing Survey Sample Design and Estimation, U.S. Department of Education, National Center for Education Statistics, 1991, NCES 91-127.

Kirby, Sheila N., Grissmer, David W., and Hudson, Lisa, New and Returning Teachers in Indiana: Sources of Supply, the Rand Corporation, Washington, D.C., 1991.

Murnane, Richard J., Singer, Judith D., and Willett, John B., "The Career Paths of Teachers: Implications for Teacher Supply and Methodological Lessons for Research," Educational Researcher, Volume 17, 1988.

National Academy of Sciences, Precollege Science and Mathematics Teachers: Monitoring Supply, Demand, and Quality, National Academy Press, Washington, D.C., 1990.

National Academy of Sciences, Toward Understanding Teacher Supply and Demand, National Academy Press, Washington, D.C., 1987.

National Center for Education Statistics, Projections of Education Statistics to 1992-93, U.S. Department of Education, National Center for Education Statistics, 1985.

National Center for Education Statistics, Projections of Education Statistics to 1988-89, U.S. Department of Education, National Center for Education Statistics, 1980.

National Education Association, Status of the American Public School Teacher: 1985-86, Washington, D.C., 1987.

Westat, Inc., The Wesvar Procedure, Rockville, Md., May 1989.

Acknowledgments

The data programming for this report was done by Ross Merlin of Pinkerton Associates and Summer Whitener of NCES. Carol Rohr of Pinkerton Associates prepared the tables and figures. Dorothy Gilford of the National Academy of Sciences, David Grissmer of the Rand Corporation, and Sue Ahmed, Debra Gerald, Marilyn McMillen, and Gayle Rogers of NCES reviewed the report for the analysis and interpretation of the data. The author thanks all of these people for their fine contributions.

APPENDIX

Tables of Standard Errors

Table 1A.--Standard errors for number and percent of newly hired and continuing public and private school teachers: 1987-88

Source	Public		Private	
	Number	Percent	Number	Percent
Total	14,740.0		7,496.0	
New hires	3,195.0	0.14	2,058.0	0.63
Continuing	13,481.0	0.14	6,679.0	0.63

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 2A.--Standard errors for number and percentage distribution of newly hired public and private school teachers by supply source: 1987-88

Source	Public		Private	
	Number	Percent	Number	Percent
Total	3,195.0		2,058.0	
Newly minted	1,112.1	1.03	675.5	1.48
Delayed entrants	1,363.2	1.04	509.5	1.07
Transfers	1,670.5	1.35	875.2	1.87
Other sector (any state)	1,080.2	0.91	635.4	1.40
Other state (same sector)	978.6	0.83	575.8	1.39
Reentrants	1,899.6	1.20	1,421.4	2.45

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 3A.--Standard errors for selected demographic characteristics of newly hired and total public and private teachers: 1987-88

Characteristics	Public		Private	
	New hires	All teachers	New hires	All teachers
Percent female	1.33	1.06	1.91	0.86
Percent minority	0.77	0.22	0.81	0.80
Mean age	0.20	0.16	0.70	0.52

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 4A.--Standard errors for newly hired public school teachers, by type and by selected demographic characteristics: 1987-88

Characteristics	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Percent female	1.33	2.15	3.43	2.95	1.71
Percent minority	0.77	1.68	3.01	2.05	1.18
Age					
Mean total	0.20	0.33	0.48	0.54	0.32
Mean male	0.56	0.97	0.77	1.35	0.84
Mean female	0.23	0.33	0.60	0.62	0.31
Percent less than 25	0.76	2.23	2.53	1.08	0.68
25-29	1.10	2.22	4.49	2.27	1.47
30-34	1.00	1.66	2.78	2.13	1.46
35-39	1.24	1.22	2.80	2.71	1.86
40-44	0.92	0.86	1.84	3.05	1.57
45-49	0.66	0.73	0.94	1.74	1.43
50 or more	0.64	0.79	0.36	1.67	1.04
Percent 35 or more	1.33	1.83	3.43	3.33	1.59
Marital status					
Percent married	1.40	2.64	3.58	3.88	1.50
Dependents					
Percent with any	1.19	2.56	3.65	2.74	1.83
Percent of above with any less than 5 years	1.96	4.51	5.32	3.84	2.53
Income/salary					
Base year salary	207.7	206.5	436.1	487.8	334.5
Total year round income	239.0	259.1	538.8	534.1	366.1
Percent moonlighting	0.95	2.00	3.28	1.61	1.56
Family income					
Percent less than $25,000	1.07	2.55	3.37	2.90	1.17
Percent $25,000 but less than $50,000	1.25	2.49	3.24	3.34	1.67
Percent $50,000 or more	1.20	1.83	1.47	3.14	1.67

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 5A.--Standard errors for newly hired private school teachers, by type and by selected demographic characteristics: 1987-88

Characteristics	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Percent female	1.91	3.39	6.87	3.28	2.71
Percent minority	0.81	1.77	4.85	1.20	1.50
Age					
Mean total	0.70	0.29	1.16	0.79	1.22
Mean male	0.97	0.67	3.38	1.63	1.77
Mean female	0.85	0.35	0.60	0.98	1.43
Percent less than 25	1.16	3.63	3.29	0.99	0.67
25-29	1.75	3.72	5.39	4.06	2.18
30-34	2.26	1.22	8.05	2.10	3.64
35-39	1.78	1.63	3.80	3.78	3.52
40-44	1.35	1.07	2.08	1.42	3.08
45-49	1.06	0.00	1.34	2.93	1.95
50 or more	2.37	0.00	--	2.28	4.92
Percent 35 or more	2.67	1.97	6.04	4.22	4.03
Marital status					
Percent married	2.25	4.05	4.78	4.15	3.74
Dependents					
Percent with any	2.08	2.17	4.87	4.28	4.57
Percent of above with any less than 5 years	3.19	12.42	15.87	5.12	5.59
Income/salary					
Base year salary	257.1	300.1	481.2	566.2	441.9
Total year round income	362.0	645.2	1,073.3	707.9	523.1
Percent moonlighting	2.63	3.75	7.23	3.40	5.31
Family income					
Percent less than $25,000	2.14	4.41	5.86	4.43	2.74
Percent $25,000 but less than $50,000	2.07	2.81	5.10	4.59	2.75
Percent $50,000 or more	1.51	3.19	4.82	3.40	2.40

-- Too few sample cases for a reliable estimate.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 6A.--Standard errors for percentage distribution of newly hired public and private school teachers, by type, highest degree earned, and average years of teaching experience: 1987-88

Characteristics	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Public					
BA/BS	0.98	1.88	2.02	3.15	1.76
MA/MS	0.85	1.80	1.70	2.74	1.63
Ed. Spec.	0.44	0.51	0.49	0.98	0.97
PhD/FPD	0.27	0.13	0.89	0.82	0.46
Years teaching experience	NA	NA	NA	0.45	0.24
Total number	3,195.0	1,112.1	1,363.2	1,670.5	1,899.6
Private					
BA/BS	2.25	2.17	4.57	4.26	3.67
MA/MS	2.31	2.15	4.59	4.21	3.99
Ed. Spec.	0.66	--	--	1.76	1.03
PhD/FPD	0.61	--	--	--	1.38
Years teaching experience	NA	NA	NA	0.78	1.45
Total number	2,058.0	675.5	509.5	875.2	1,421.4

-- Too few sample cases for a reliable estimate.
NA = Not applicable.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 7A.--Standard errors for percent of newly hired public school teachers, by type with various qualifications in assignment field: 1987-88

Characteristic	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Primary Field					
Major/minor With certification	1.02	1.70	3.17	2.72	1.88
Certified only	1.05	1.66	2.53	2.45	1.78
Major/minor Without certification	0.47	0.77	2.30	1.70	0.74
Total certified	0.60	1.04	2.75	1.70	0.93
Total major or minor	1.07	1.60	2.75	2.50	1.77
None of the above	0.40	0.66	1.73	0.38	0.57
Secondary Field					
Major/minor With certification	2.83	5.30	7.05	5.12	4.06
Certified only	2.75	5.28	6.76	5.38	4.29
Major/minor Without certification	0.90	2.30	--	0.72	1.69
Total certified	1.74	3.26	6.10	2.02	2.77
Total major or minor	2.80	5.16	7.32	5.34	4.32
None of the above	1.44	2.17	5.38	1.78	2.22

-- Too few sample cases for a reliable estimate.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 8A.--Standard errors for percent of newly hired private school teachers, by type with various qualifications in assignment field: 1987-88

Characteristic	Total	Newly minted	Delayed entrants	Transfers	Reentrants
Primary Field					
Major/minor With certification	2.89	3.95	4.37	4.79	5.55
Certified only	1.17	1.88	3.56	2.99	2.05
Major/minor Without certification	2.77	3.61	3.54	3.69	5.28
Total certified	2.77	3.87	4.90	4.32	5.22
Total major or minor	1.76	3.21	5.49	4.17	3.09
None of the above	1.71	2.57	5.50	2.86	2.33
Secondary Field					
Major/minor With certification	3.16	5.54	5.34	7.71	5.51
Certified only	3.06	6.67	4.28	5.01	5.31
Major/minor Without certification	3.20	6.22	7.55	6.56	5.54
Total certified	3.37	6.68	6.93	6.60	6.52
Total major or minor	4.16	7.23	6.39	7.99	6.69
None of the above	3.35	6.25	6.29	6.48	5.41

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 9A.--Standard errors for percentage distribution of newly hired public and private school teachers, by type and by prior year activity: 1987-88

Activity	Newly minted	Delayed entrants	Transfers	Reentrants
Public				
Teaching total	NA	3.68		0.71
Public, other state	NA	*2.22	2.99	NA
Private, any state	NA	*1.37	2.99	NA
Postsecondary	NA	1.24	NA	0.71
Attending college	1.04	NA	NA	1.70
Working other occupation	0.72	3.50	NA	1.64
In education	0.64	2.59	NA	0.95
Outside education	0.28	2.85	NA	1.16
Home/child	0.24	2.09	NA	2.14
Other	0.78	3.34	NA	1.78
Number new hires	1,112.1	1,363.2	1,670.5	1,899.6
Private				
Teaching total	NA	2.81		0.91
Private, other state	NA	*1.76	4.58	NA
Public, any state	NA	*2.24	4.58	NA
Postsecondary	NA	--	NA	0.91
Attending college	2.04	NA	NA	2.94
Working other occupation	1.74	7.47	NA	3.73
In education	--	2.94	NA	2.21
Outside education	1.63	7.39	NA	2.81
Home/child	0.81	7.84	NA	3.25
Other	0.82	3.57	NA	4.34
Number new hires	675.5	509.5	875.2	1,421.4

-- Too few sample cases for a reliable estimate.
NA = Not applicable.
*These teachers met the criteria for delayed entrants, i.e. they reported no previous teaching experience and 1987-88 as their first year of teaching, and met none of the criteria of newly minted teachers. Therefore, their report of teaching at the elementary or secondary level in the previous year was interpreted to mean that they had been substitute teachers.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

Table 10A.--Standard errors for percentage distribution of newly hired public and private teachers by type and by previous occupation: 1987-88*

	Newly minted	Delayed entrants	Reentrants
Public			
Occupations in education			
School professional	12.38	4.04	5.79
Teachers aide	11.67	7.33	5.17
Other staff	10.09	8.20	5.00
Total number	417.8	511.9	579.8
Occupation outside education			
Professional (Mgr., Scientific)	11.64	6.48	3.88
Support (Tech., Sales, Admin.)	14.42	5.91	3.99
All other (Services, Mechanical, Construction, Farming)	8.64	3.88	3.02
Total number	360.0	532.4	670.0
Private			
Occupations in education			
School professional	--	13.06	11.69
Teachers aide	17.80	14.24	13.57
Other staff	--	--	6.53
Total number	78.5	191.5	427.6
Occupation outside education			
Professional (Mgr., Scientific)	23.00	10.19	7.90
Support (Tech., Sales, Admin.)	19.86	8.43	8.41
All other (Services, Mechanical, Construction, Farming)	16.78	8.59	4.37
Total number	209.6	445.9	505.7

-- Too few sample cases for a reliable estimate.
*Includes only those who transferred from other occupations.

SOURCE: National Center for Education Statistics, Schools and Staffing Survey, 1987-88 (Teacher Questionnaire).

ISBN 0-16-041855-0

United States
Department of Education
Washington, D.C. 20208–5650

Official Business
Penalty for Private Use, $300

Postage and Fees Paid
U.S. Department of Education
Permit No. G–17

FOURTH CLASS BOOK RATE