DOCUMENT RESUME

ED 426 991 SP 038 289

AUTHOR Boe, Erling E.; Bobbitt, Sharon A.; Cook, Lynne H.; Barkanic, Gema; Maislin, Greg

INSTITUTION Pennsylvania Univ., Philadelphia. Center for Research and Evaluation in Social Policy.; Pennsylvania Univ., Philadelphia. Graduate School of Education.

SPONS AGENCY Department of Education, Washington, DC.

PUB DATE 1998-10-05

NOTE 93p.

CONTRACT H0-23C40102-95

PUB TYPE Numerical/Quantitative Data (110) -- Reports - Research (143)

EDRS PRICE MF01/PC04 Plus Postage.

DESCRIPTORS Career Change; Elementary Secondary Education; *Employment Patterns; *Labor Turnover; Public Schools; Quality of Working Life; Tables (Data); Teacher Attitudes; Teachers

ABSTRACT

This report contains national trend and predictor data for the turnover of K-12 public school teachers in eight cognate areas: general elementary education; mathematics and science education; language education; social studies education; arts, physical, and health education; business and vocational education; other general education; and special education. Data came from three national probability samples of teachers taken in school years 1987-89, 1990-92, and 1993-95 and were based on numbers of nationally estimated teachers in public schools. The main data sources were the Public School Teacher Questionnaires of the Schools and Staffing Surveys (SASS) and the Teacher Followup Surveys (TFS), a 1-year longitudinal component of the SASS which asked about teacher status the prior year and about why previously employed teachers had left. Descriptive data (reported in 15 tables) revealed major trends in three facets of teacher career paths: moving to different schools, switching to different teaching assignments, and voluntarily leaving the ranks of employed public school teachers. General categories of predictor variables included situational circumstances, teacher characteristics, teacher working conditions, teacher judgments, and changes in such variables from year to year. Results highlighted enormous teacher turnover, with patterns of turnover varying by cognate areas. Significant turnover was perceived to be involuntary. Many predictor variables related to teacher turnover. Switchers tended to improve their situation by transferring out of teaching assignments considered less desirable. Voluntary leaving was mostly a function of personal variables. Two appendices present data analysis methods and a glossary. (Contains 14 references.) (SM)

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TEACHER TURNOVER IN EIGHT COGNATE AREAS: NATIONAL TRENDS AND PREDICTORS

Erling E. Boe
Sharon A. Bobbitt
Lynne H. Cook
Gema Barkanic
and
Greg Maislin

Center for Research and Evaluation in Social Policy

SP 038 289

Graduate School of Education
University of Pennsylvania
3700 Walnut Street
Philadelphia, PA 19104

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TEACHER TURNOVER IN EIGHT COGNATE AREAS:

NATIONAL TRENDS AND PREDICTORS[1]

Data Analysis Report No. 1998-DAR3

Erling E. Boe, Ph.D.
Professor of Education
Graduate School of Education
University of Pennsylvania

Sharon A. Bobbitt, Ph.D.
Senior Educational Statistician
National Center for Education Statistics
U.S. Department of Education

Lynne H. Cook, Ph.D.
Professor of Special Education
Department of Special Education
California State University, Northridge

Gema Barkanic, B.A.
Research Specialist
Graduate School of Education
University of Pennsylvania

and

Greg Maislin, M.S., M.A.
Principal Biostatistician
Biomedical Statistical Consulting

Center for Research and Evaluation in Social Policy
Graduate School of Education
University of Pennsylvania
3700 Walnut Street
Philadelphia, PA 19104

October 5, 1998

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[1]Support for this research was provided by grant (Award Number H0 23C40102-95) from the Research in Education of Individuals with Disabilities Program (CFDA Number: 84-023C), Research to Practice Division, Office of Special Education Programs, the U.S. Department of Education to Erling E. Boe at the University of Pennsylvania; by the National Center for Education Statistics, the U.S. Department of Education; and by the Center for Research and Evaluation in Social Policy, the Graduate School of Education of the University of Pennsylvania.

DATA ANALYSIS REPORTS

Data Analysis Reports are a means for rapid dissemination of the results of data analyses in tabular and graphical form with minimal description and discussion. These results may later be used as the basis for fully-developed research reports, policy briefs, journal articles, and/or other modes of dissemination.

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INTRODUCTION[1]

This report contains national trend and predictor data for the turnover of public school teachers in eight cognate areas (i.e., groups of related main teaching assignment fields) at the K through 12 grade levels. The eight cognate areas included in these analyses were: general elementary education; mathematics and science education; language education; social studies education; arts, physical, and health education; business and vocational education; other general education; and special education. In contrast with other reports on the national turnover of all public and all private school teachers (e.g., Whitener, Gruber, Lynch, Tingos, Perona, & Fondelier, 1997), this report (a) provides teacher turnover data specifically for the eight cognate areas in public schools and (b) logistic regression analyses of predictor variables for three types of teacher turnover. The data were derived from three large national probability samples of teachers taken over a six-year period for school years 1987-89, 1990-92, and 1993-95. Thus, the trend and predictive data reported are based on the numbers of nationally estimated teachers in public schools. The main data sources were the Public School Teacher Questionnaires of the Schools and Staffing Surveys (SASS), and the Teacher Follow-up Surveys (TFS), a one-year longitudinal component of SASS, both of the National Center for Education Statistics (NCES), U.S. Department of Education. Data sources, the teacher sample, and data analysis procedures are described in Appendix A (Data Analysis Methods).

The descriptive data reported in Tables 1 through 15 reveal major trends (i.e., changes over time) in three facets of teacher career paths: (a) moving to a different school, (b) switching to a different teaching assignment, and (c) voluntary leaving the ranks of employed teachers in public schools. The predictive data reported in Tables 20 through 23 reveal variables that are associated with these three career path transitions of teachers. General categories of predictor variables analyzed by logistic regression methods include situational circumstances, teacher characteristics, teacher working conditions, teacher judgments, and changes in such variables from one year to the next.

A parallel "Data Analysis Report" issued by the Center for Research and Evaluation in Social Policy, Graduate School of Education, University of Pennsylvania (Boe, Bobbitt, Cook, Barkanic, & Maislin, 1998), provides similar data on trends and predictors of teacher supply--another major facet of teacher career paths.

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[1]See Appendix B (Glossary) for definitions used in this report.

The descriptive data on teacher turnover for Tables 1 through 15 are based on the Public School Teacher Questionnaires and the TFS questionnaires of SASS. In one of the TFS questionnaires, currently employed teachers during a particular school year (a TFS year) were asked about their status during the prior year (a SASS year) such as whether they taught in a different school and whether they had a different main teaching assignment. In a different TFS questionnaire, previously employed teachers during one year (a TFS year) who had left teaching at the end of the prior year (the SASS year) were identified and asked about the circumstances of their leaving the ranks of employed teachers. From answers to questions of this type, it is possible to determine which teachers had just moved to a different school, switched to a different teaching assignment, and left teaching altogether. Trend data on these, and related, aspects of teacher turnover are presented in the Tables 1 through 15.

The predictive data on teacher turnover for Tables 16 through 23 are also based on Public School Teacher Questionnaires and TFS questionnaires of SASS. In the TFS questionnaires, continuing and former teachers were asked about (a) situational variables (such as main teaching assignment by subject matter and level, community type, and region), (b) their characteristics (such as age, gender, race, marital status, certification status, and educational background), (c) their working conditions (such as employment status, salary, minority enrollment), (d) their judgments about future plans and school climate, (e) changes in status from one year to the next (such as change in marital status, number of dependents, employment status, and family income). Data on both the unadjusted and adjusted (by logistic regression) association of such predictor variables with various aspects of teacher turnover are presented in Tables 20 through 28.

SUMMARY RESULTS[1]

All group differences and trends over time discussed and interpreted in the results described below are statistically significant at least at the .05 level. The exact probability level of many comparisons and trends are reported in the tables of results presented in this report.

Trends in Teacher Turnover

1. School Transfer
   a. All Teachers: School transfer of public school teachers from one year to the next (reassignment among schools within districts and migration to schools in other districts, combined) has been stable at about 8% of continuing teachers annually during the six year period from 1987-88 to 1993-94. Annual reassignment percentages (about 5%) have consistently been higher than migration percentages (about 3%). (See Table 1.)
   b. By Cognate Area: The highest level of annual school transfer occurred in special education and other general education during the six year period studied (about 10% of all teachers in each of these two cognate areas), while the lowest average school transfer occurred in social studies (4.4%) and business/vocational education (5.1%). (See Table 3.) Not only has school transfer been highest in special education, but the percentage of entering teachers annually has also been highest in special education (about 8%) (Boe et al., 1998).
2. Teaching Assignment Transfer
   a. All Teachers: Teaching assignment transfer of public school teachers from one year to the next (switching among main teaching assignments within cognate areas and switching among main teaching assignments between cognate areas, combined) has gradually increased from about 15% of continuing teachers annually during the six year period from 1987-88 to about 20% during 1993-94. The main increase was observed in switching main teaching assignments within cognate areas instead of between cognate areas. By 1990-91 and 1993-94, the two types of switching occurred at about the same rate (roughly 9% annually for each type). (See Table 1.) These are the most detailed and extensive data reported on teaching assignment transfer, and demonstrate the prevalence of this neglected form of teacher turnover.

In terms of the numbers of teachers involved, many more switched main teaching assignments annually (about 400,000) than moved from one school to another and left teaching combined (about 325,000). (See Table 2.) From the perspective of particular cognate areas such as mathematics/science eduction, switching out of one area to another area is a form of attrition (i.e., cognate area attrition) that creates a demand for replacement teachers just as the loss of teachers through exit attrition.

b. By Cognate Area: As seen in the out-switcher percentages of Table 4, the highest level of annual cognate area transfer occurred from "other general education" during the six year period studied (49% of all teachers in this residual cognate area), while the lowest level of cognate area transfer occurred from business/vocational education (4.1%). However, the out-switching of teachers from a particular cognate areas (such as the 11.4% out-switching for mathematics/science education) was to some degree offset by in-switching teachers to the same area by out-switchers from all other cognate areas combined (such as the 8.1% in-switchers to mathematics/science education). Thus, mathematics/science education experienced an average annual net loss of 3.3% of its public school teaching force nationally through an unfavorable balance between out-switching and in-switching. By contrast, the general elementary/kindergarten cognate area experienced a average annual net gain of 4.2% (it lost only 5.6% out-switchers and gained 9.8% in-switchers). Cognate areas with an average annual net loss of out-switchers versus in-switchers of at least 3% were mathematics/science eduction and other general education, while cognate areas with an average annual net gain of in-switchers versus out-switchers of at least 3% were general elementary/kindergarten education and business/vocational education.

3. Exit Attrition

   a. All Teachers: Exit attrition of public school teachers from one year to the next has been fairly stable averaging about 6% of total teachers annually during the six year period from 1987-88 to 1993-94. (See Table 1.)

   b. By Cognate Area: The annual exit attrition percentage for all but one cognate areas was not significantly different than the overall national average of 5.8%. Only the average annual attrition percentage (9.5%) for other general education area was significantly higher than the national average.

4. School Transfer and Teaching Assignment Transfer. Since both movers and switchers from one year to the next are necessarily continuing teachers, it is possible that many continuing teachers simultaneously move to a different school and switch main teaching

assignments. According to TFS data, however, only about 3% of continuing teachers simultaneously moved and switched. It is therefore apparent these two forms of teacher turnover were largely independent of each other, as well as independent of exit attrition, the third form of turnover.

5. Irregular/Part-Time Teachers. A public school teacher's employment status can be (a) regular versus irregular (i.e., as an itinerant or long-term substitute teacher), and (b) full or part time. Individuals who are appointed as full-time regular teachers are assumed to have the best jobs in terms of stability, pay, and prestige, while teachers who have irregular and/or part-time appointments are assumed to have less desirable jobs. As described below, Tables 5 and 6 show the percentages of teachers who held the less desirable jobs (i.e., the percentage of irregular and/or part-time teachers, or %Irreg./PT) as a function of turnover status.
   a. All Teaches: Overall, 9.7% of total public school teachers in 1994 (or one in every ten teachers) held irregular/part-time jobs, a level comparable to that in the previous six years. (See Table 5.)
   b. By Cognate Area: There has been great variability in the percentage of irregular/part-time positions across the six cognate areas studied which averaged 9.4% during the six year period from 1987-88 to 1993-94. Areas with very low irregular/part-time percentages include general elementary education/kindergarten (2.6%), mathematics/science education (4.5%) and social studies education (4.7%), while areas with very high irregular/part-time percentages include arts/physical education (27.3%) and other general education (21.5%). (See Table 6, Total column.)
6. School Transfer by Irregular/Part-Time Teachers.
   a. All Teachers: During each of the three years studied, the percentage of movers (reassignees and migrants combined) who held irregular/part-time jobs (about 17% in 1994) was over twice the percentage of stayers (about 9% in 1994). Thus, it appears possible that teachers who have the less desirable irregular/part-time jobs might move to schools that can offer better employment terms. (See Table 5).
   b. By Cognate Area: There has been a huge amount of variability in the percentage of irregular/part-time movers across the six cognate areas studied which averaged 15.9% during the six year period from 1987-88 to 1993-94. Movers had relatively low Irregular/Part-time percentages in general elementary education/kindergarten (6.1%) and mathematics/science education (7.2%), while movers had very high Irregular/Part-

Time percentages in arts/physical education (35.2%) and language education (28.0%). (See Table 6.)

7. Teaching Assignment Transfer by Irregular/Part-Time Teachers. During each of the three years studied, the percentage of remainers who held irregular/part-time jobs (about 9% in 1994) was similar to that of stayers. On the whole, the irregular/part-time percentages of switchers (either within or between cognate areas) was similar to that of remainers. Thus, it appears possible that teachers who had the less desirable irregular/part-time jobs were not more inclined to switch to a different main teaching assignment. (See Table 5).
8. Exit Attrition by Irregular/Part-Time Teachers
   a. All Teachers: Over the six year period studied, the percentage of leavers who held irregular/part-time jobs (about 14%) was about 50% higher than the percentage of continuers who did (about 9%). As with movers, this difference implies that teachers who had the less desirable irregular/part-time jobs might have left teaching for better employment terms. (See Table 5).
   b. By Cognate Area: There has also been huge amount of variability in the percentage of irregular/part-time leavers across the six cognate areas studied which averaged 14.2% during the six year period from 1987-88 to 1993-94. Leavers had relatively low irregular/part-time percentages in general elementary education/kindergarten (2.8%) and social studies (4.4%), while leavers had very high irregular/part-time percentages in other general education (46.5%), arts/physical education (30.9%), and special education (24.9%). (See Tables 6.)
9. Trend in Partly-Certified Teachers.. Most public school teachers are fully certified in their main teaching assignment as defined by holding a regular or standard certificate, an advanced professional certificate, or a probationary certificate (a certificate for teachers who have satisfied all requirements for a regular certificate except for completing a probationary period). All other teachers are therefore lacking in this basic qualification for teaching, and are classified as partly certified in their main teaching assignments. As described below, Tables 7 and 8 show the percentage of teachers who lacked this basic qualification for teaching (i.e., the percentage of partly certified teachers).
   a. All Teachers: There has been a gradual trend toward an increasing percentage of total public school teachers who were only partly certified in their main teaching assignment (from 6.7% in 1987-88 to 7.8% in 1993-94) (or one in every thirteen teachers in 1993-94). (See Table 7.)

b. By Cognate Area: There has been considerable variability in the percentage of partly-certified teachers across the six cognate areas studied which averaged 7.2% during the six year period from 1987-88 to 1993-94. Areas with low partly-certified percentages include business/vocational education (3.8%) and arts/physical education (4.5%), while areas with high partly-certified percentages include other general education (19.5%) and special education (10.8%). (See Table 8, Total column.)

10. School Transfer by Partly-Certified Teachers.
    a. All Teachers: During each of the three years studied, there was a considerable difference in the percentage of reassignees and migrants who were only partly certified in their main teaching assignments (7.5% and 13.0%, respectively, over the three reporting years combined), while this percentage for reassignees was comparable to that of stayers (6.8%). Thus, teachers who were less fully certified were more likely to move to schools in other districts (i.e., the migrants), while districts tended to retain more fully certified teachers whether they stayed in the same school or moved to a different school in the same district. (See Table 7).
    b. By Cognate Area: There has been moderate variability in the percentage of partly-certified movers across the six cognate areas studied which averaged 9.8% during the six year period from 1987-88 to 1993-94. Movers had relatively low partly-certified percentages in social studies education (6.2%) and business/vocational education (6.7%), while movers had high partly-certified percentages in language education and other general education (16.3% for each). (See Table 8.)
11. Teaching Assignment Transfer by Partly-Certified Teachers. During each of the three years studied, the percentage of remainers who were partly certified (6.4% in 1994) was similar to that of stayers. On the whole, the partly-certified percentages of within cognate area switchers (about 13%) was comparable to that of between cognate area switchers (also about 13%), and much higher than that of remainers (about 6%). Thus, being a partly-certified teacher was associated with a higher level of switching--a type of turnover that has the potential to be constructive if there is switching into assignments for which the teachers are more qualified. (See Table 7).
12. Exit Attrition by Partly-Certified Teachers
    a. All Teachers: Over the six year period studied, the percentage of leavers who were only partly certified (about 10%) was somewhat higher than the percentage of continuers who were partly certified (about 7%). This difference implies that the loss

of many teachers through attrition might be constructive in that a disproportionate percentage of them are not fully certified to serve as teachers. (See Table 7).

b. By Cognate Area: There has been moderate variability in the percentage of partly-certified leavers across the six cognate areas studied which averaged 9.8% during the six year period from 1987-88 to 1993-94. Leavers had relatively low partly-certified percentages in general elementary education/kindergarten and business/vocational education (5.5% for both), while leavers had very high partly-certified percentages in other general education (19.7%) and special education (17.9%). (See Table 6.)

13. Reasons for School Transfer

a. All Teachers: The reasons for school transfer depended upon the type of transfer. For example, over 50% of school reassignment within the same public school district was involuntary (i.e., a staffing action) while only 13% of teacher migration between school districts was involuntary. By contrast, almost 50% of between-district migration was due to teachers' personal reasons, while only 15% of within-district assignment was for personal reasons. (See Table 9.)

b. By Cognate Area: There was little or no significant variability among cognate areas in whether school transfer was voluntary or involuntary, or whether it was of the reassignment or migration types. (See Table 10.)

14. Reasons for Exit Attrition

a. By Employment Status: Main reasons for leaving teaching depended to a considerable extent on teachers' employment status. For example, 14.2% of leavers were employed as irregular/part-time teachers. Of those who said they left for other work or better salary, a relatively high percentage (about 32%) were employed irregular and/or part-time. Looked at from the perspective of teachers who said they left to retire, a relatively low percentage (5.8%) were irregular/part-time teachers. By contrast, regular/full-time teachers left for sabbaticals and retirement more frequently than irregular/part-time teachers. (See Table 11.)

b. By Certification Status: Similarly, 9.8% of all leavers were only partly certified in their main teaching assignment. However, those who left for personal/family reasons, a somewhat disproportionate number of them were partly certified (15.9%). By contrast, of those who said they left to retire, a relatively low 2.9% were only partly certified. Moreover, fully-certified teachers left for poor health and retirement reasons more frequently than partly-certified teachers. (See Table 11.)

c. By Degree Level: Of all leavers, 53.8% had earned a bachelor's degree, or less. Of those who left for personal/family reasons, a relatively high percentage had only earned a bachelor's (or less) degree (70.8%). By contrast, of those who said they left for other work or a better salary, a low 31.5% had earned a bachelor's degree, or less. Thus, bachelor's degree level teachers were not as prone to leave for outside employment/income opportunities as were master's degree level teachers. (See Table 11.)

d. By Teaching Experience: Beginning teachers (<4 years teaching experience) who leave, in comparison with more experienced teachers, did so for personal reasons and to return to college. They were also three times more likely to be involuntarily removed by job action than were more experienced teachers. Leavers with 4 - 9 years of experience exited teaching predominantly for personal reasons. By contrast, later mid-career leavers (with 10 - 19 years experience), in comparison with other leavers in younger and older age categories, exited teaching more frequently to secure other employment and to take sabbaticals. By far, late career teachers (>19 years experience) left predominantly to retire. Surprisingly, only 7% of leavers cited dissatisfaction with teaching as the main reason for leaving, and this dissatisfaction did not vary with years of teaching experience. By contrast, involuntary leaving due to job actions was a sharply declining function of teaching experience, while retirement was a sharply increasing function of teaching experience. (See Table 12.)

e. By Cognate Area: The main reasons for leaving teaching varied dramatically with cognate area. For example, only 8.5% of general elementary leavers, in comparison with 29.2% of other general education leavers, did so for other employment, while 39.2% of elementary teachers, in comparison with only 10.2% of business/vocational teachers, left for personal/family reasons. Business/vocational teachers were twice as likely, however, to leave for dissatisfaction with teaching as were other teachers, while special education teachers were only half as likely as other teachers to leave for retirement. The targeting of efforts to improve retention of teachers might benefit from the different reasons for leaving characteristic of teachers in particular cognate areas. (See Table 13.)

f. By Plans to Return: Reentering experienced teachers constitute a major source of teacher supply (Boe et al., 1998). The possibility of a leaver reentering teaching at a later date varied with the main reason for leaving. For example, most teachers who left for other employment, dissatisfaction with teaching, and retirement planned never

to return to teaching (67%, 71%, and 88%, respectively). However, most teachers who left for personal/family reasons, sabbaticals, and staff action planed to return to teaching within five years (63%, 64%, and 57%, respectively). Interestingly, teachers who left to take courses and for poor health split close to 50/50 as to their plans to return within five years versus never to return (few of these two types of leavers were uncertain as to their plans to return). Again, there was considerable variability in leavers plans to return by cognate area. Among voluntary leavers, those from the areas of social studies, business/vocational, and other general education were less likely to plan to return within five years than teachers in other areas. (See Tables 14 and 15.)

15. Summary of Teacher Turnover. There has been an enormous amount of turnover in the public school teaching force: 7.4% movers, 17.0% switchers, and 5.8% leavers, or a total of 30.2%. Even with the 3% overlap of movers and switchers eliminated, an average of almost 700K teachers out of a teaching force of almost 2,500K teachers (27.4%) participated in one of three types of turnover annually.[2] The flows of teachers within the teaching force, out of the teaching force, and reentering the teaching force, on an annual basis constitutes an large and intricate system (or, as economists might say, labor market). Furthermore, the patterns of turnover vary in complicated ways as a function of various cognate areas of teaching. With this amount and complexity of turnover, it is certainly understandable that great difficulties have been encountered in filling positions with qualified teachers, and then retaining them to create a stable and qualified teaching force. Much of the turnover has been involuntary from the perspective of teachers (i.e., staffing actions, health reasons, and retirement): 35% of school transfer has been involuntary, 37% of leaving has been involuntary, and an unknown amount of switching has been involuntary (perhaps even more than moving and leaving). With much of involuntary turnover initiated at the discretion of school districts, it is reasonable to assume that most of it has been for constructive reasons (e.g., placing teachers in assignments where they are better qualified and/or needed, and dismissing ineffective teachers). Furthermore, the switching type of turnover has increased from 1988-89 to 1994-95, while the amount of moving and leaving has been stable during this period of time. Thus, the benefits and liabilities of teacher turnover show no sign of diminishing.

[2]The total turnover figure of 27.4% drops to 19.3% if switchers among main teaching assignments within cognate areas are eliminated. Still, about one if five teachers participates in turnover annually by this more restricted definition.

Predictors of Teacher Turnover

16. Situational Variables. One set of predictors for teacher turnover is variables that characterize the "situation" in which a teacher's main assignment is positioned, as shown in Table 16.[3] This table contains information about the percentage distribution of selected situational variables of employed teachers as a function of two groups of teachers relevant to analyzing turnover (i.e., the groups of continuers and voluntary leavers). For example, about 53% of "total teachers" were assigned to the elementary level, with the remaining 47% assigned to the secondary level. In addition, Table 16 provides national estimates of the numbers of teachers at each level of each situational variable. In subsequent analyses of teacher turnover, comparison of "voluntary leavers" with "continuers" defines the voluntary exit attrition type of turnover. Furthermore, two subdivisions of "continuers" represent other types of turnover: movers versus stayers (i.e., school transfer) and switchers versus remainers (i.e., teaching assignment transfer).
17. Teacher Characteristic Variables. Another set of predictors for teacher turnover is the characteristics of teachers, particularly demographic and qualification variables, as shown in Table 17. This table contains information about the percentage distribution of characteristics of employed teachers as a function of two groups of teachers relevant to analyzing turnover (i.e., continuers and voluntary leavers), as well as the national estimates of the numbers of teachers at each level of the teacher characteristic variables. For example, almost 30% of total teachers were male, about 87% were White (Non-Hispanic), and so on.
18. Teacher Working Condition Variables. A third set of predictors for teacher turnover is the working conditions of teachers, as shown in Table 18. This table contains information about the percentage distribution of the working conditions of teachers as a function of two groups of teachers relevant to analyzing turnover (i.e., continuers and voluntary leavers), as well as the national estimates of the numbers of teachers at each level of the working condition variables. For example, almost 6% of total teachers were employed as irregular teachers, and so on.
19. Teacher Career Judgment Variables. A fourth set of predictors for teacher turnover is the career judgments of teachers, also shown in Table 18. This table contains information

[3]Because our analyses of teacher turnover were based on three waves of SASS/TFS, we also included this variable in this set of predictors to analyze possible relationships between wave and each of the three types of turnover.

about the percentage distribution of teacher career judgments as a function of two groups of teachers relevant to analyzing turnover (i.e., continuers and voluntary leavers), as well as the national estimated numbers of teachers at each level of the career judgment variables. For example, 89.3% of all teachers planned to stay as teachers at the same school during the next year, and so on.

20. Teacher Characteristic and Employment Variables during the Follow-Up Year. A final set of predictors for teacher turnover is teacher characteristic and employment variables during the follow-up year, as shown in Table 19. This table contains information about the percentage distribution of teacher status variables and change variables from the SASS to TFS years, as a function of two groups of teachers relevant to analyzing turnover (i.e., continuers and voluntary leavers). Also shown are the national estimates of the numbers of teachers at each level of the predictor variables. With respect to teacher status variables, for example, 13.1% of all teachers during TFS years were enrolled in a college degree program, and so on. With respect to change variables, 95.2% of all teachers in SASS years had not changed their marital status one year later during the TFS years, and 3.7% of all teachers who had no dependent children during SASS years acquired at least one dependent child during the next (i.e., TFS) year.
21. Situational Variables Predictive of Teacher Turnover: Odds ratios for the bivariate association of each situational variable of Table 16 with each of three teacher turnover variables are shown in Table 20. At least one level of each of these situational variables was significantly associated with one, or more, types of teacher turnover. In general, the size of the associations of all levels of the situational variables with the three types of teacher turnover were modest (i.e., only one odds ratio was greater than 1.50 and one less than 0.67). In particular, it should be noted that neither of the three types of teacher turnover were associated to a substantial degree with SASS/TFS wave (i.e., there was no evidence of a substantial trend in turnover during the years from 1987-89 to 1993-95).
22. Teacher Characteristic Variables Predictive of Teacher Turnover: Odds ratios for the bivariate association of each teacher characteristic variable of Table 17 with each of three teacher turnover variables are shown in Table 21. Except for degree level, at least one level of each of these teacher characteristic variables was significantly associated with one, or more, types of teacher turnover. Moving was a sharply declining function of both increasing teacher age and teaching experience, and was most often observed among teachers who had never been married, were only partly certified in their main teaching

assignment, and were not given a teaching assignment in their best qualified area. Cognate area switching was most characteristic of teachers who were non-White, partly certified in their main teaching assignment, had not earned a degree major or minor in their main teaching assignment, and had not been given a teaching assignment in their best qualified area. Thus, switching was most strongly associated with teachers who lacked strong qualifications in their particular main teaching assignment. By contrast, voluntary leaving was less strongly associated with teacher characteristic variables. However, leaving was a declining function of both teacher age and teaching experience, and was most often observed among teachers who were female, partly certified in their main teaching assignment, had not been given a teaching assignment in their best qualified area, and had previously taken two or more breaks from teaching employment.

23. Working Condition Variables Predictive of Teacher Turnover: Odds ratios for the bivariate association of each working condition variable of Table 18 with each of three teacher turnover variables are shown in Table 22. At least one level of each these working condition variables was significantly associated with one, or more, types of teacher turnover. Moving was a sharply declining function of increasing teacher salary, and was most often observed among teachers who were employed in irregular positions and in part-time positions. Switching was also a sharply declining function of increasing teacher salary, and was also strongly associated with teachers who had split teaching assignments. As with moving, voluntary leaving was a sharply declining function of increasing salary, and was most often observed among teachers who were employed in irregular positions and in part-time positions. Thus, both moving and voluntary leaving were most strongly associated with less attractive conditions of employment.

24. Teacher Judgment Variables Predictive of Teacher Turnover: Odds ratios for the bivariate association of each teacher career judgment variable of Table 18 with each of three teacher turnover variables are shown in Table 22. Each of these teacher judgment variables was significantly associated with at least one type of teacher turnover. As might be expected, moving was particularly characteristic of teachers who reported that they planned to leave their school (for any reason). So was switching, but to a much lesser extent. By contrast, voluntary leaving was particularly characteristic of teachers who reported separately that they would both leave their particular school and leave teaching. Voluntary leaving was also most often observed in teachers who said they would not become teachers if they could start over.

25. Follow-up Year Variable Associated with Teacher Turnover: Odds ratios for the bivariate association of each follow-up year variable of Table 19 with each of three teacher turnover variables are shown in Table 23. At least one level of each of these follow-up year variables was significantly associated with one or more types of teacher turnover. Movers, of course, transferred from one school to another from a SASS year to the following TFS year. Surprisingly, according to the judgments of these movers, the chances of their moving again during the year following TFS were about twice that of continuers from the SASS to the TFS years. In addition, moving was most often observed among teachers who were recently married, had recently earned a degree, and had changed their employment status from part to full time. One downside was that movers were almost three times more likely to have changed from being fully certified to partly certified in their new main teaching assignment than to have had no change in certification status. Switching was not related strongly to most follow-up variables. However, switching was associated to an equivalent degree with changes in certification status from either partly to fully certified, or vice versa. By contrast, voluntary leaving was much more associated with changes from the SASS year to the TFS year such as becoming married, acquiring a new dependent child, earning a recent degree, and changing from a part-time teaching job to a full-time job outside of teaching. As might be expected, voluntary leaving was also associated with a loss of family income in contrast with no change in family income.
26. Reduced Logistic Regression Model of School Transfer: The full logistic regression model of Table 24 for school transfer was reduced to the model of Table 25 without appreciable loss of predictive power (the *c* index) or goodness-of-fit. Therefore, the odds ratios of Table 25 provide a basis for explaining how movers differed from stayers under the statistically controlled conditions of the reduced logistic regression model. In comparison with stayers, movers were (a) more than twice as likely (i.e., the ratio of the odds) to have changed from being fully certified to partly certified from one year to the next, in comparison with no change in certification status, and (b) about 1.7 times more likely to have experienced a decrease in family income than no change in family income. By contrast, in comparison with movers, stayers were (a) twice as likely to be in the oldest age category than in the youngest age category, (b) over twice as likely to be in the category with the greatest amount of teaching experience than in the category with the least teaching experience, (c) about 1.4 times more likely to be most qualified in their main teaching assignment (MTA) than in some other area, and (d) more than 12 times

more likely to have reported that they would be remaining as a teacher in the same school during the next year in comparison with transferring anywhere else. More generally, movers tended to experience adverse conditions following school transfer (loss of full certification and reduction of family income), while stayers tend to be the better qualified teachers (more teaching experience with an assignment in their best qualified area). By far, the strongest one-year predictor of moving versus staying, however, was teachers' reports about their intention to teach in the same school during the next year. The *c* index of 0.782 for the model containing these six predictor variables indicates good predictive power of the reduced regression model. In addition, this reduced model satisfied the Hosmer-Lemeshow goodness-of-fit (GOF) test ($p > .20$). Under the statistically controlled conditions of this model, it is also important to recognize which predictor variables did not appreciably add to its predictive power or improve its fit. For instance, teaching field, teaching level, degree level, community type, sex, race/ethnicity, and SASS/TFS wave were not sufficiently associated with the turnover variable of movers versus stayers to be helpful in predicting which teachers will stay in the same school during the next year and which will move to a different school.

27. Reduced Logistic Regression Model of Cognate Area Transfer: The full logistic regression model of Table 24 for cognate area transfer was reduced to the model of Table 25 without appreciable loss of predictive power (the *c* index) or goodness-of-fit. Therefore, the odds ratios of Table 25 provide a basis for explaining how switchers differed from remainers under the statistically controlled conditions of the reduced logistic regression model. In these analyses, switchers between cognate areas were analyzed instead of between specific main teaching assignments. In comparison with remainers, switchers were (a) almost three times as likely (i.e., the ratio of the odds) to be found in the general secondary education area than in the special education area, and almost twice as likely to be found in the other education area than in the special education area, (b) 2.6 times more likely to have a split teaching assignment than a single main teaching assignment, and (c) almost twice as likely to have changed from being partly certified to fully certified from one year to the next, or vice versa, in comparison with no change in certification status. By contrast, in comparison with switchers, remainers were (a) 2.3 times more likely to be most qualified in their MTA than in some other area, (b) 2.4 times more likely to be assigned to teach at the secondary level than at the elementary level, (c) over twice as likely to have earned a major or minor in the area of their MTA than in some other area, and (d) 1.8 times more likely to have reported that they would be remaining as a

teacher in the same school during the next year in comparison with transferring anywhere else. More generally, it appears that switchers tend to transfer teaching assignments when they have a split assignment, while remainers tend to remain in teaching assignments for which they are more qualified (i.e., if in a teaching assignment for which they are best qualified, and in assignments that they have earned a degree major or minor). The *c* index of 0.751 for the model containing these nine predictor variables indicates good predictive power of the reduced regression model. In addition, this reduced model satisfied the Hosmer-Lemeshow goodness-of-fit (GOF) test ($p > .20$). Under the statistically controlled conditions of this model, it is also important to recognize which predictor variables did not appreciably add to its predictive power or improve its fit. For instance, degree level, teaching experience, sex, salary, community type, and SASS/TFS wave were not sufficiently associated with the turnover variable of switchers versus remainers to be helpful in predicting which teachers will remain in the same cognate area during the next year and which will switch to a different area.

28. Reduced Logistic Regression Model for Voluntary Exit Attrition: The full logistic regression model of Table 24 for voluntary leaving was reduced to the model of Table 25 without appreciable loss of predictive power (the *c* index) or goodness-of-fit. Therefore, the odds ratios of Table 25 provide a basis for explaining how voluntary leavers differed from continuers under the statistically controlled conditions of the reduced logistic regression model. In comparison with continuers, voluntary leavers were (a) more than four times as likely (i.e., the ratio of the odds) to have changed from no dependent child during one year to one, or more, dependent children during the next year, in comparison with any other child dependents status, and (b) over two times as likely to have experienced a decrease in family income than no change in family income, (c) almost two times more likely to have recently earned a degree (during the past year) than not to have done so, and (d) about 1.8 times more likely to have changed from not married during one year to married during the next year, in comparison with no change in marital status. By contrast, in comparison with voluntary leavers, continuers were (a) about 2.7 times more likely to be employed full-time as teachers instead of part-time, (b) over 2.6 times more likely to be in the two oldest age quintiles than in the youngest age quintile, (c) almost 2.5 times as likely to have plans to continue as an employed teacher than to leave, and (d) over 6.5 times as likely to have reported that they would be remaining as a teacher in the same school during the next year in comparison with transferring anywhere else. More generally, voluntary leavers tend leave teaching employment following changes in

their personal lives (becoming married, acquisition of dependent children, and recently earned a degree), while continuers tend to be older with full-time teaching jobs. The strongest one-year predictor of voluntary leaving versus continuing, however, was teachers' reports about their intention to teach in the same school during the next year. The *c* index of 0.798 for the model containing these ten predictor variables indicates good predictive power of the reduced regression model. In addition, this reduced model satisfied the Hosmer-Lemeshow goodness-of-fit (GOF) test ($p > .20$). Under the statistically controlled conditions of this model, it is also important to recognize which predictor variables did not appreciably add to its predictive power or improve its fit. For instance, teaching field, teaching level, degree level, community type, sex, race/ethnicity, and SASS/TFS wave were not sufficiently associated with the dependent variable of voluntary leavers versus continuers to be helpful in predicting which teachers will leaving teaching during the next year and which will continue.

29. Separate Staged Logistic Regression Models for Teacher Turnover. As described in Appendix A, the full logistic regression model was constructed from five stages of predictor variables for three TFS years combined. The five stages, and the predictor variables included within each of the five stages in the full logistic regression model, are shown in Table 24. In constructing the full logistic regression model, the partial models were first constructed for each of the five stages separately (i.e., independently of other stages). Summary results of these separate logistic regression analyses of predictor variables with each of the three turnover variables are shown in Table 26. As seen in the sizes of the *c* indices of this Table, a teacher career judgment variable was most predictive of moving, while the teacher characteristic stage provided the second strongest predictors of moving. By contrast, the teacher career judgment variable was a poor predictor of switching, while the teacher characteristic and working condition stages provided the best predictors of switching. A somewhat different pattern was observed for voluntary leaving. As with moving, the career judgment stage was the most predictive of voluntary leaving, with the teacher characteristic and teacher follow-up stages following in second place as reasonable strong predictors. Overall, variation in the strength of predictions of moving and voluntary leaving by stage were quite similar, and differed from that of predictions of switching.

30. Cumulative Staged Logistic Regression Models of Teacher Turnover. After the separate logistic regression analyses by stage were completed as described above in paragraph 29, the full logistic regression model was constructed cumulatively by adding the variables

of one stage to the variables of the preceding stage(s) until all five stages had been combined (i.e., until the full model had been constructed by the combination of all five stages). Summary results of these cumulative logistic regression analyses of predictor variables with each of the three turnover variables are shown in Table 27. As seen in the sizes of the *c* indices of this Table, the situational variable stage was of little utility for predicting moving and voluntary leaving, but of more utility for predicting switching. When added to the situational stage, variables of the teacher characteristic stage increased the predictive utility of the models for all three turnover variables. The addition of variables in the working condition stage added little to the predictive utility of the models for moving and voluntary leaving, but enhanced somewhat the predictive utility of the model for switching. A different pattern emerged with the addition of teacher follow-up variables. They added little to the predictive utility of the models for moving and switching, but enhanced considerably the predictive utility of the model for voluntary leaving. By contrast, the addition of the career judgment stage enhanced the predictive utility substantially of the models for moving and voluntary leaving, but added little to predicting switching. Thus, the specific contributions of the several predicator variable stages to the predictive utility of the logistic regression models depended to a great deal on the type of teacher turnover being analyzed. This finding led to the final set of analyses described below in paragraph 31.

31. Restricted Logistic Regression Models. The independent contribution of each predictor variable stage separately to the predictive utility of the reduced logistic regression models shown in Table 27 was analyzed. This was accomplished by constructing a set of restricted logistic regression models in which each predictor variable stage was removed while the other four stages were retained. Summary results of these restricted logistic regression analyses of predictor variables for each of the three types of teacher turnover are shown in Table 28. As seen in the sizes of the *c* indices of this Table, either situational variables or teacher follow-up variables can be removed from the reduced logistic regression models without appreciably diminishing their predictive utility for any of the three types of teacher turnover. Except for a modest contribution to predicting switching, the same can be said for working condition variables. However, the removal of career judgment variables diminishes appreciably the predictive utility of the reduced logistic regression models for moving and voluntary leaving, but not for switching. Finally, the removal of teacher characteristic variables moderately diminishes the predictive utility of the reduced logistic regression models for movers and switchers, but

not for voluntary leavers. All this demonstrates that there is no one major set of variables that is key to predicting all three types of teacher turnover. They are, instead, distinctive phenomena in terms of which stages of predictor variables are essential to maintaining predictive power.

32. Summary of Predicting Teacher Turnover. As shown in Tables 19 through 23, a considerable number of predictor variables, taken one at a time, were associated with teacher turnover (moving, cognate area switching, and voluntary leaving). The independent contributions of these predictor variables (i.e., with redundancy among these variables statistically removed) to explaining teacher turnover is most parsimoniously understood from the reduced logistic regression models of Table 25. What has emerged from these analyses is that explanations for each type of turnover (i.e, moving, cognate area switching, and voluntary leaving) are needed, thereby demonstrating that the three types of turnover are quite different phenomena. The probability of a teacher moving to a different school was a sharply declining function of two temporal measures: chronological age and years of teaching experience. Even more so than these two variables, teachers' reports of their plans not to stay as teachers in the same school during the next year were highly predictive of moving. Thus, it was the ability of teachers to incorporate a multiplicity of personal and work-related factors into a subjective expression of their intentions for the next year that yielded, by far, the most powerful predictor of moving. Cognate area switching, however, was most closely related to teaching assignment factors. Variables predictive of switching cognate area were (a) being assigned to general secondary education instead of to special education, (b) having a split teaching assignment instead of a single assignment, (c) being placed in a teaching assignment for which the teacher is not best qualified instead of best qualified, and (d) transferring out of a teaching assignment for which one is only partly certified and into an assignment for which one is fully certified. In summary, switchers tended to improve their situation by transferring out of teaching assignments that are typically considered to be less desirable. By contrast, voluntary leaving was mostly a function of personal variables; i.e., the probability of voluntary leaving declined sharply with chronological age, and increased for teachers who had (a) recently become married, (b) recently changed from having no dependent child to one, or more, dependent children, and (c) recently earned a degree. In addition, the work-related factor of part-time employment as teachers was predictive of voluntary leaving in two respects: first, the chances of a part-time teacher leaving was almost three times that of a full-time teacher;

and, second, part-time teachers who have been able to find full-time employment outside of teaching were over twice as likely to leave as teachers with other employment statuses. As with moving, the prediction of voluntary leaving was most strongly associated with teachers' reports of their plans not to stay as teachers in the same school during the next year. Thus, it is the ability of teachers to incorporate a multiplicity of personal and work-related factors into a subjective expression of their intentions for the next year that yielded the most powerful single predictor of voluntary leaving.

Table 1. *School Transfer, Teaching Assignment Transfer, and Exit Attrition of Total Public School Teachers: National Estimates of the Percentages of Teacher Turnover Following Three School Years*

Teacher Status	Statistic[a]	Turnover Following School Years 1987-88	1990-91	1993-94
School Transfer[b]				
A. Retention: Same School	Col %	91.7%	92.4%	92.4%
	SE %	0.4%	0.4%	0.4%
B. School Reassignment: Same District	Col %	4.8%	4.5%	4.6%
	SE %	0.3%	0.3%	0.3%
C. School Migration: Different District	Col %	3.6%	3.2%	3.0%
	SE %	0.3%	0.3%	0.3%
Total: Continuing Teachers	Col %	100%	100%	100%
Teaching Assignment Transfer[b]				
A. Remained in Same MTA (Main Teaching Assignment)	Col %	84.9%	83.6%	80.5%
	SE %	0.8%	0.8%	0.9%
B. Switched MTA Within Same Cognate Area	Col %	5.7%[c]	8.2%	8.7%
	SE %	0.5%	0.5%	0.6%
C. Switched MTA Between Cognate Areas	Col %	9.4%	8.2%	10.8%
	SE %	0.7%	0.7%	0.7%
Total: Continuing Teachers	Col %	100%	100%	100%
Exit Attrition[b]				
A. Continuing Teachers	Col %	94.4%	94.9%	93.4%
	SE %	0.3%	0.4%	0.4%
B. Leavers from Teaching	Col %	5.6%	5.1%	6.6%
	SE %	0.3%	0.4%	0.4%
Total Teachers	Col %	100%	100%	100%
	Nat. Est.	2,381,022	2,541,863	2,538,841
	Sample (n)	4,798	4,740	4,503

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Nationally weighted percentages (Col %) of the total numbers of full-time and part-time teachers combined at the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the column percentages. Nat. Est. = nationally weighted estimates of the total number of teachers; SE Nat. Est. = standard error of the national estimates.

[b]The school transfer component by school year (3 x 3) χ^2 is 3.44 (ns); the teaching assignment transfer component by school year (3 x 3) χ^2 is 21.43 ($p < .001$); the exit attrition component by school year (2 x 3) χ^2 is 10.90 ($p < .01$).

[c]This column % for 1987-88 is not comparable to the similar column % for 1990-91 or 1993-94 due to differences in questionnaire wording.

Table 2. *School Transfer by Teaching Assignment Transfer of Total Public School Teachers: National Estimates of the Numbers and Percentages of Continuing Teachers by Turnover Status Following Two School Years Combined*

Teaching Assignment Transfer Status	Statistic[b]	School Transfer Status for Two Years Combined[a] (1991-92 and 1994-95) Stayers	Reassignees	Migrants	Total
Remainers	Nat. Est./Year	1,849,130	69,393	44,081	1,962,604
	% Total/Total	77.3%	2.9%	1.8%	82.1%
	SE%	0.6%	0.1%	0.1%	0.6%
	Sample (n)	3,228	662	638	4,528
Switched MTA Within Cognate Area	Nat. Est./Year	178,216	14,379	9,235	201,829
	% Total/Total	7.5%	0.6%	0.4%	8.4%
	SE%	0.4%	0.1%	0.1%	0.4%
	Sample (n)	338	137	171	646
Switched MTA Between Cognate Areas	Nat. Est./Year	182,310	25,116	19,948	227,373
	% Total/Total	7.6%	1.1%	0.8%	9.5%
	SE%	0.4%	0.1%	0.1%	0.4%
	Sample (n)	402	250	237	889
Total Continuing Teachers	Nat. Est./Year	2,209,656	108,887	73,264	2,391,807
	% Total	92.4%	4.6%	3.1%	100%
	SE%	0.3%	0.2%	0.2%	
	Sample (n)	3,968	1,049	1,046	6,063

Note. Data from the 1990-91 and 1993-94 Schools and Staffing Surveys and the 1991-92 and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The school transfer component (stayers, reassignees, migrants) by teaching assignment transfer component (remainers, within cognate area switchers, between cognate area switchers) (3 x 3) χ^2 is 120.30 ($p < .001$).

[b]Nationally weighted estimates per year (Nat. Est./Year): reported as the mean number of teachers per year of the total full-time and part-time teachers combined at the K-12 levels in each of two years. Totals may not sum exactly due to rounding. % Total = percentage of total nationally estimated teachers. SE % = standard error of the % total.

Table 3. *School Transfer and Exit Attrition of Public School Teachers for Eight Cognate Areas: National Estimates of the Numbers and Percentages of Teachers by Turnover Status Following Three School Years Combined*

Cognate Area[a]	Statistic[b]	Turnover Status for Three Years Combined (1988-89, 1991-92, 1994-95) Stayers	Movers	Leavers	Total
General Elementary/ Kindergarten	Nat. Est./Year	738,466	61,166	47,005	846,638
	Row%	87.2%	7.2%	5.6%	100%
	SE%	0.5%	0.4%	0.4%	
Math/Science	Nat. Est./Year	289,851	24,382	19,274	333,507
	Row%	86.9%	7.3%	5.8%	100%
	SE%	0.8%	0.6%	0.5%	
Language	Nat. Est./Year	274,813	23,188	18,724	316,725
	Row%	86.8%	7.3%	5.9%	100%
	SE%	1.0%	0.7%	0.5%	
Social Studies	Nat. Est./Year	134,691	6,574	8,173	149,439
	Row%	90.1%	4.4%	5.5%	100%
	SE%	1.2%	0.7%	0.8%	
Arts/Physical Education	Nat. Est./Year	283,317	24,601	15,797	323,715
	Row%	87.5%	7.6%	4.9%	100%
	SE%	1.0%	0.8%	0.7%	
Business/Vocational Education	Nat. Est./Year	145,138	8,395	9,846	163,379
	Row%	88.8%	5.1%	6.0%	100%
	SE%	1.0%	0.7%	0.7%	
Other General[c] Education	Nat. Est./Year	68,001	8,550	8,046	84,597
	Row%	80.4%	10.1%	9.5%	100%
	SE%	1.9%	1.1%	1.5%	
Special Education	Nat. Est./Year	225,657	27,144	16,442	269,243
	Row%	83.8%	10.1%	6.1%	100%
	SE%	1.0%	0.6%	0.6%	
Total Teachers	Nat. Est./Year	2,159,935	184,000	143,307	2,487,242
	Row%	86.8%	7.4%	5.8%	100%
	SE%	0.3%	0.2%	0.2%	
	Sample (n)	6,039	3,272	4,730	14,041

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Cognate area for the three years combined (1987-88, 1990-91, 1993-94) prior to turnover. The cognate area by turnover component (stayers, movers, leavers) (8 x 3) χ^2 is 52.71 ($p < .001$).

[b]Nationally weighted estimates per year (Nat. Est./Year): reported as the mean number of teachers per year of the total full-time and part-time teachers combined at the K-12 levels in each of three years. Totals may not sum exactly due to rounding. Row % = percentages of nationally estimated teachers of the row total of nationally estimated teachers. SE % = standard error of the row percentages.

[c]Other general education includes teaching fields that are not subject matter specific: basic skills and remedial education, bilingual education, gifted, military science, and "all other."

Table 4. *Cognate Area Transfer and Exit Attrition of Public School Teachers for Eight Cognate Areas: National Estimates of the Numbers and Percentages of Teachers by Turnover Status Following Three School Years Combined*

		Turnover Status for Three Years Combined (1988-89, 1991-92, 1994-95)				
Cognate Area[a]	Statistic[b]	Remainers	Out-Switchers	In-Switchers[c]	Leavers	Total[d]
General Elem./ Kindergarten	Nat. Est./Year	752,283	47,350	82,801	47,005	846,638
	Row%	88.9%	5.6%	9.8%	5.6%	100%
	SE%	0.6%	0.5%	0.6%	0.4%	
Math/Science	Nat. Est./Year	276,127	38,106	26,887	19,274	333,507
	Row%	82.8%	11.4%	8.1%	5.8%	100%
	SE%	1.3%	1.2%	1.1%	0.5%	
Language	Nat. Est./Year	260,861	37,140	36,732	18,724	316,725
	Row%	82.4%	11.7%	11.6%	5.9%	100%
	SE%	1.2%	1.2%	1.3%	0.5%	
Social Studies	Nat. Est./Year	128,345	12,921	10,418	8,173	149,439
	Row%	85.9%	8.7%	7.0%	5.5%	100%
	SE%	1.4%	1.2%	1.2%	0.8%	
Arts/Phys. Education	Nat. Est./Year	289,483	18,435	10,191	15,797	323,715
	Row%	89.4%	5.7%	3.1%	4.9%	100%
	SE%	1.0%	0.7%	0.5%	0.7%	
Business/Voc. Education	Nat. Est./Year	146,773	6,760	12,974	9,846	163,379
	Row%	89.8%	4.1%	7.9%	6.0%	100%
	SE%	1.2%	0.9%	1.2%	0.7%	
Other General Education	Nat. Est./Year	35,112	41,438	27,363	8,046	84,597
	Row%	41.5%	49.0%	32.3%	9.5%	100%
	SE%	3.9%	3.4%	3.6%	1.5%	
Special Education	Nat. Est./Year	232,794	20,007	14,792	16,442	269,243
	Row%	86.5%	7.4%	5.5%	6.1%	100%
	SE%	0.8%	0.9%	0.9%	0.6%	
Total Teachers	Nat. Est./Year	2,121,778	222,157	222,157	143,307	2,487,242
	Row%	85.3%	8.9%	8.9%	5.8%	100%
	SE%	0.5%	0.4%	0.4%	0.2%	
	Sample (n)	7,930	1,381	1,381	4,730	14,041

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Cognate area for the three years combined (1987-88, 1990-91, 1993-94) prior to turnover. The cognate area by turnover component (remainers, out-switchers, leavers) (8 x 3) χ^2 is 491.93 ($p < .001$).

[b]Nationally weighted estimates per year (Nat. Est./Year): reported as the mean number of teachers per year of the total full-time and part-time teachers combined at the K-12 levels in each of three years. Totals may not sum exactly due to rounding. Row % = percentages of nationally estimated teachers of the row total of nationally estimated teachers; SE % = standard error of the row percentages.

[c]In-switchers to a cognate area during the follow-up year as a percentage of total teachers in a cognate area during the prior year (as is the percentage of out-switchers). Therefore, since the computation of out-switchers and in-switchers is based on the same total numbers of teachers, differences between the two types of switching are directly comparable.

[d]Total teachers is the sum of the remainers, out-switchers, and leavers for each cognate area.

Table 5. *Irregular/Part-Time Teachers in Public Schools: National Estimates of the Percentages of Teachers Who Held Irregular/Part-Time Positions as a Function of Turnover Status Following Three School Years*

Teacher Status[a]	Statistics for Irregular/ Part-Time	Turnover Following Three School Years[a]			
School Transfer		1987-88*	1990-91***	1993-94***	Overall***
A. Retention: Same School ns	% Irreg./PT	9.0%	8.0%	8.6%	8.5%
	SE %	0.8%	0.5%	0.8%	0.4%
B. School Reassignment:ns Same District	% Irreg./PT	14.2%	18.2%	20.1%	17.5%
	SE %	2.5%	3.4%	2.8%	1.7%
C. School Migration:ns Different District	% Irreg./PT	12.3%	14.3%	14.2%	13.6%
	SE %	1.9%	2.6%	3.3%	1.5%
Total: Continuing Teachersns	% Irreg./PT	9.4%	8.7%	9.3%	9.1%
	SE %	0.7%	0.6%	0.7%	0.4%
Teaching Assignment Transfer		1987-88ns	1990-91ns	1993-94*	Overallns
A. Remained in Same MTA ns (Main Teaching Assignment)	% Irreg./PT	9.4%	8.3%	9.3%	9.0%
	SE %	0.8%	0.6%	0.8%	0.4%
B. Switched MTA Within ns Same Cognate Area	% Irreg./PT	9.6%	10.0%	5.5%	8.2%
	SE %	3.3%	2.7%	1.4%	1.5%
C. Switched MTA Between ns Cognate Areas	% Irreg./PT	9.2%	11.3%	12.1%	10.9%
	SE %	2.1%	2.3%	1.8%	1.3%
Total: Continuing Teachersns	% Irreg./PT	9.4%	8.7%	9.3%	9.1%
	SE %	0.7%	0.6%	0.7%	0.4%
Exit Attrition		1987 - 88**	1990 - 91ns	1993 - 94*	Overall***
Left Teaching Employmentns	% Irreg./PT	15.3%	10.9%	16.0%	14.2%
	SE %	2.2%	1.7%	2.7%	1.3%
Total Teachersns	% Irreg./PT	9.7%	8.8%	9.7%	9.4%
	Nat. Est.	230,503	222,741	246,091	699,335
	SE Nat. Est.	17,963	14,157	17,683	29,141
	Sample (n)	722	649	642	2,013

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The statistical significance of differences between the tabled percentages of irregular and/or part-time teachers (% Irreg./PT) was computed by chi square tests. For example, consider the three Irregular/Part-Time percentages for School Transfer tabulated in the column under 1987-88. The school transfer status by Regular/Full-Time vs. Irregular/Part-Time (3 x 2) χ^2 was 7.25 ($p < .05$). The same test was performed separately for 1990-91 and 1993-94. Similarly tested was the statistical significance of differences in the Irregular/Part-Time percentages for each of the three types of school transfer status across the three school years. The level of statistical significance computed is indicated by asterisks: *p<.05; **p<.01; ***p<.001; ns= not significant.

Similar tests were computed for column differences and row differences in the Irregular/PT percentages tabulated for Teaching Assignment Transfer. Finally, the significance of differences in the Irregular/PT percentages for Exit Attrition across three years was computed. The levels of statistical significance of all these chi square tests are likewise indicated by asterisks.

[b]Nationally weighted percentages of irregular/part-time teachers (% Irreg./PT) based on the cell total numbers of teachers at the elementary and secondary levels. SE % = standard error of the irregular/part-time percentages.

Table 6. *Irregular/Part-Time Public School Teachers for Six Cognate Areas: National Estimates of the Percentages of Teachers Who Held Irregular/Part-Time Positions as a Function of School Transfer Status and Exit Attrition Following Three School Years Combined*

		Turnover Status for Three Years Combined[a] (1988-89, 1991-92, 1994-95)			
Cognate Area[a,b]	Statistic[c]	Stayers***	Movers***	Leavers***	Total***
General Elementary/*** Kindergarten	Nat. Est./Year	17,309	3,718	1,324	22,352
	% Irreg./PT	2.3%	6.1%	2.8%	2.6%
	SE%	0.4%	1.0%	0.5%	0.4%
Math/Science***	Nat. Est./Year	11,378	1,763	1,857	14,998
	% Irreg./PT	3.9%	7.2%	9.6%	4.5%
	SE%	0.6%	1.5%	2.8%	0.6%
Language*	Nat. Est./Year	21,394	6,497	2,331	30,222
	% Irreg./PT	7.8%	28.0%	12.5%	9.5%
	SE%	1.1%	4.4%	1.9%	1.1%
Social Studies[ns]	Nat. Est./Year	5,851	870	357	7,078
	% Irreg./PT	4.3%[e]	13.2%[e]	4.4%[e]	4.7%
	SE%	1.3%	4.8%	1.1%	1.2%
Arts/Physical Education*	Nat. Est./Year	74,885	8,665	4,879	88,429
	% Irreg./PT	26.4%	35.2%	30.9%	27.3%
	SE%	1.7%	3.7%	3.0%	1.5%
Business/Vocational[ns] Education	Nat. Est./Year	12,293	1,420	1,743	15,455
	% Irreg./PT	8.5%	16.9%[e]	17.7%	9.5%
	SE%	1.8%	6.6%	4.1%	1.7%
Other General** Education[d]	Nat. Est./Year	13,362	1,109	3,743	18,214
	% Irreg./PT	19.7%	13.0%[e]	46.5%	21.5%
	SE%	3.0%	3.8%	8.5%	2.7%
Special Education**	Nat. Est./Year	27,058	5,208	4,097	36,363
	% Irreg./PT	12.0%	19.2%	24.9%	13.5%
	SE%	1.4%	2.7%	4.6%	1.2%
Total Teachers***	Nat. Est./Year	183,531	29,250	20,331	233,112
	% Irreg./PT	8.5%	15.9%	14.2%	9.4%
	SE%	0.4%	1.1%	1.3%	0.4%
	Sample (n)	788	515	710	2,013

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The statistical significance of differences between the tabled percentages of irregular and/or part-time teachers (% Irreg./PT) was computed by chi square tests. For example, consider the Irregular/Part-Time percentages tabulated in the column for Stayers. The Cognate Area by Regular/Full- Time vs. Irregular/Part-Time (8 x 2) χ^2 was 323.82 ($p < .001$). The same test was performed separately for Movers and Leavers. Similarly tested was the statistical significance of differences in the Irregular/Part-Time percentages for each of the eight Cognate Areas across the th;ree school years. The level of statistical significance computed is indicated by asterisks: $*p < .05$; $**p < .01$; $***p < .001$; ns = not significant.

[b]Cognate area for the three years combined (1987-88, 1990-91, 1993-94) prior to turnover.

[c]Nationally weighted percentages of irregular/part-time teachers (% Irreg./PT) based on the cell total numbers of teachers at the elementary and secondary levels. SE % = standard error of the irregular/part-time percentages.

[d]Other general education includes teaching fields that are not subject matter specific: basic skills and remedial education, bilingual education, gifted, military science, and "all other."

[e]Sample size (n) less than 30

Table 7. *Partly-Certified Teachers in Public Schools: National Estimates of the Percentages of Teachers Who Were Partly-Certified as a Function of Turnover Status Following Three School Years*

Teacher Status[a]	Statistics for Partly-Certified Teachers[b]	Turnover Following Three School Years[a]			
School Transfer		1987-88***	1990-91**	1993-94ns	Overall***
A. Retention:ns	% Part.-Cert.	6.1%	7.0%	7.4%	6.8%
Same School	SE %	0.6%	0.6%	0.5%	0.3%
B. School Reassignment:ns	% Part.-Cert.	7.5%	6.3%	8.6%	7.5%
Same District	SE %	1.3%	1.1%	1.7%	0.7%
C. School Migration:ns	% Part.-Cert.	14.1%	13.0%	11.8%	13.0%
Different District	SE %	1.9%	2.9%	2.0%	1.4%
Total: Continuing Teachersns	% Part.-Cert.	6.5%	7.1%	7.6%	7.1%
	SE %	0.6%	0.6%	0.5%	0.3%
Teaching Assignment Transfer		1987-88**	1990-91**	1993-94**	Overall***
A. Remained in Same MTAns	% Part.-Cert.	5.4%	6.0%	6.4%	5.9%
(Main Teaching Assignment)	SE %	0.5%	0.6%	0.6%	0.3%
B. Switched MTA Withinns	% Part.-Cert.	14.9%	14.5%	10.5%	13.0%
Same Cognate Area	SE %	3.6%	3.3%	2.6%	1.9%
C. Switched MTA Betweenns	% Part.-Cert.	11.5%	11.9%	14.0%	12.6%
Cognate Areas	SE %	2.7%	2.5%	2.0%	1.4%
Total: Continuing Teachersns	% Part.-Cert.	6.5%	7.1%	7.6%	7.1%
	SE %	0.6%	0.6%	0.5%	0.3%
Exit Attrition		1987-88ns	1990-91ns	1993-94ns	Overallns
Left Teaching Employmentns	% Part.-Cert.	9.7%	8.1%	11.1%	9.8%
	SE %	1.6%	1.5%	2.0%	1.0%
Total Teachers	% Part.-Cert.	6.7%	7.2%	7.8%	7.2%
	Nat. Est.	158,664	182,690	197,992	539,346
	SE Nat. Est.	13,878	13,923	11,899	19,463
	Sample (n)	511	495	502	1,508

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The statistical significance of differences between the tabled percentages of partly-certified teachers (% Part.-Cert.) was computed by chi square tests. For example, consider the three partly-certified percentages for School Transfer tabulated in the column under 1987-88. The school transfer status by Fully-Certified vs. Partly-Certified (3 x 2) χ^2 was 21.95 ($p < .001$). The same test was performed separately for 1990-91 and 1993-94. Similarly tested was the statistical significance of differences in the partly- certified percentages for each of the three types of school transfer status across the three school years. The level of statistical significance computed is indicated by asterisks: $*p < .05$; $**p < .01$;$***p < .001$; ns=not significant.

Similar tests were computed for column differences and row differences in the partly-certified percentages tabulated for Teaching Assignment Transfer. Finally, the significance of differences in the partly-certified percentages for Exit Attrition across three years was computed. The levels of statistical significance of all these chi square tests are likewise indicated by asterisks.

[b]Nationally weighted percentages of partly-certified teachers (% Part.-Cert.) out of the total numbers of teachers at the elementary and secondary levels. SE % = standard error of the partly-certified percentages.

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Table 8. *Partly-Certified Public School Teachers for Six Cognate Areas: National Estimates of the Percentages of Teachers Who Were Partly-Certified as a Function of School Transfer Status and Exit Attrition Following Three School Years Combined*

Cognate Area[a,b]	Statistic[c]	Turnover Status for Three Years Combined[a] (1988-89, 1991-92, 1994-95)			
		Stayers ***	Movers ***	Leavers **	Total ***
General Elementary/Kindergarten[ns]	Nat. Est./Year	34,028	4,426	2,568	41,022
	% Part.-Cert.	4.6%	7.2%	5.5%	4.9%
	SE%	0.5%	0.9%	1.8%	0.5%
Math/Science*	Nat. Est./Year	28,727	2,240	2,409	33,377
	% Part.-Cert.	9.9%	9.2%	12.5%	10.0%
	SE%	1.0%	1.4%	2.8%	0.9%
Language[ns]	Nat. Est./Year	24,453	3,782	2,000	30,235
	% Part.-Cert.	8.9%	16.3%	10.7%	9.6%
	SE%	1.1%	2.9%	3.1%	1.0%
Social Studies[ns]	Nat. Est./Year	7,970	405	329	8,704
	% Part.-Cert.	5.9%	6.2%[e]	4.0%[e]	5.8%
	SE%	1.2%	2.7%	1.4%	1.1%
Arts/Physical Education*	Nat. Est./Year	11,112	1,867	1,634	14,613
	% Part.-Cert.	3.9%	7.6%	10.3%	4.5%
	SE%	0.7%	2.3%	2.7%	0.6%
Business/Vocational Education[ns]	Nat. Est./Year	5,116	566	543	6,226
	% Part.-Cert.	3.5%[e]	6.7%[e]	5.5%	3.8%
	SE%	0.9%	2.1%	1.3%	0.9%
Other General Education[d] [ns]	Nat. Est./Year	13,551	1,396	1,587	16,534
	% Part.-Cert.	19.9%	16.3%	19.7%	19.5%
	SE%	3.1%	3.8%	6.2%	2.7%
Special Education[ns]	Nat. Est./Year	22,871	3,260	2,939	29,071
	% Part.-Cert.	10.1%	12.0%	17.9%	10.8%
	SE%	1.2%	1.8%	4.3%	1.1%
Total Teachers***	Nat. Est./Year	147,829	17,943	14,010	179,782
	% Part.-Cert.	6.8%	9.8%	9.8%	7.2%
	SE%	0.3%	0.7%	1.0%	0.3%
	Sample (n)	621	470	417	1,508

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The statistical significance of differences between the tabled percentages of partly-certified teachers (% Part.-Cert.) was computed by chi square tests. For example, consider the partly-certified percentages tabulated in the column for Stayers. The Cognate Area by Fully-Certified vs. Partly-Certified (8 x 2) χ^2 was 91.74 ($p < .001$). The same test was performed separately for Movers and Leavers. Similarly tested was the statistical significance of differences in the partly-certified percentages for each of the eight Cognate Areas across the three school years. The level of statistical significance computed is indicated by asterisks: *$p<.05$; **$p<.01$; ***$p<.001$; ns=not significant.

[b]Cognate area for the three years combined (1987-88, 1990-91, 1993-94) prior to turnover.

[c]Nationally weighted percentages of partly-certified teachers (% Part.-Cert.) based on the cell total numbers of teachers at the elementary and secondary levels. SE % = standard error of the partly-certified percentages.

[d]Other general education includes teaching fields that are not subject matter specific: basic skills and remedial education, bilingual education, gifted, military science, and "all other."

[e]Sample size (n) less than 30.

Table 9. *Main Reasons for School Transfer as a Function of Mover Status: National Estimates of the Percentages of Public School Movers Following Three School Years Combined*

Reasons for Moving	Statistic[a]	Type of School Transfer* (1988-89, 1991-92, and 1994-95 Combined) Within District Reassignment	Between District Migration	Total
Voluntary Movers				
A. Better Teaching Assignment	Col %	23.4%	13.3%	19.2%
	SE %	1.7%	1.4%	1.1%
B. Better Salary or Benefits	Col %	1.6%	11.7%	5.8%
	SE %	0.6%	1.1%	0.6%
C. Personal Reasons	Col %	14.8%	48.9%	28.8%
	SE %	1.5%	2.5%	1.4%
D. Dissatisfied with School	Col %	9.2%	13.1%	10.8%
	SE %	0.7%	2.1%	1.0%
Subtotal: Voluntary	Col %	49.0%	87.0%	64.6%
	SE %	2.3%	1.7%	1.5%
Involuntary Movers (Staffing Action)	Col %	51.1%	13.0%	35.4%
	SE %	2.3%	1.7%	1.5%
Total Movers	Col %	100%	100%	100%
	Nat. Est./Year	108,191	75,809	184,000
	Sample (n)	1,581	1,691	3,272

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Nationally weighted column percentages (Col %) of the total numbers of full-time and part-time movers combined at the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the column percentages; Nat. Est./Year = the mean nationally weighted estimate of the total number of movers for years 1988-89, 1991-92, and 1994-95.

*The reason for moving by mover status (5 x 2) χ^2 was 252.39 ($p < .001$).

Table 10. *Main Reasons for School Transfer as a Function of Mover Status for Eight Cognate Areas: National Estimates of the Percentages of Public School Movers Following Three School Years Combined*

Reasons for Moving by Mover Status	Statistic[b]	Cognate Area Before Moving[a] (1987-88, 1990-91, and 1993-94 Combined)* General Elementary	Math/ Science	Language	Social Studies	Arts/PE	Business/ Vocational	Other General	Special Education	Total
Voluntary Movers										
A. Reassignees	Col %	35.7%	28.4%	20.0%	31.7%	21.8%	26.8%	35.7%	25.2%	28.8%
	SE %	2.8%	3.9%	3.5%	5.9%	2.7%	6.9%	6.9%	2.5%	1.4%
B. Migrants	Col %	32.3%	41.2%	33.3%	36.3%	39.7%	35.0%	32.8%	38.8%	35.9%
	SE %	2.6%	4.2%	4.1%	5.4%	4.0%	7.5%	6.6%	3.3%	1.4%
Subtotal: Voluntary	Col %	68.0%	69.7%	53.3%	68.0%	61.5%	61.8%	68.4%	64.1%	64.6%
	SE %	2.7%	3.4%	4.8%	6.7%	3.7%	5.4%	5.8%	3.8%	1.5%
Involuntary Movers										
A. Reassignees	Col %	29.1%	25.8%	35.3%	28.4%	30.5%	32.9%	26.3%	31.7%	30.0%
	SE %	2.8%	3.4%	4.4%	6.8%	3.1%	5.5%	5.7%	3.9%	1.6%
B. Migrants	Col %	3.0%	4.5%	11.4%	3.7%[c]	8.1%	5.3%[c]	5.3%[c]	4.3%[c]	5.4%
	SE %	0.6%	1.1%	2.8%	2.4%	2.9%	1.7%	4.2%	1.2%	0.7%
Subtotal: Involuntary	Col %	32.1%	30.3%	46.7%	32.0%	38.5%	38.2%	31.6%	35.9%	35.4%
	SE %	2.7%	3.4%	4.8%	6.7%	3.7%	5.4%	5.8%	3.8%	1.5%
Total Movers	Col %	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Nat. Est./Year	61,166	24,382	23,188	6,574	24,601	8,395	8,550	27,144	184,000
	Sample (n)	917	469	431	144	437	172	152	550	3,272

Note. Data from the 1993-94 Schools and Staffing Surveys, National Center for Education Statistics, USDE.

[a]Cognate area for the three years combined (1987-88, 1990-91, and 1993-94) prior to turnover.

[b]Nationally weighted column percentages (Col %) of the total numbers of full-time and part-time movers combined at the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the column percentages; Nat. Est./Year = the mean nationally weighted estimate of the total number of movers for years 1988-89, 1991-92, and 1994-95.

[c]Sample size (n) less than 30.

*The reason for moving by cognate area (4 x 8) χ^2 was 38.69 ($p < .001$).

Table 11. *Main Reasons for Exit Attrition as a Function of Teacher Employment Status, Certification, and Degree Level: National Estimates of the Percentages of Public School Leavers Following Three School Years Combined*

		Teacher Status Indicators Before Leaving (1987-88, 1990-91, and 1993-94 Combined)		
Reasons for Leaving	Statistic[a]	Irregular/Part-Time: Percent[b]	Partly-Certified: Percent[c]	Bachelor's Degree or Less: Percent[d]
A. Other Work or Better Salary	Percent	32.2%	7.5%	31.5%
	SE %	5.1%	1.5%	3.6%
B. Personal/Family Reasons	Percent	10.5%	15.9%	70.8%
	SE %	1.6%	2.5%	2.9%
C. Take Courses	Percent	27.3%	13.1%	48.8%
	SE %	7.7%	3.7%	6.1%
D. Sabbatical	Percent	6.9%[e]	4.0%[e]	45.5%
	SE %	3.0%	1.4%	8.5%
E. Dissatisfied	Percent	11.3%	12.1%	54.4%
	SE %	1.6%	2.8%	6.1%
F. Retirement	Percent	5.8%	2.9%	49.3%
	SE %	0.8%	0.6%	3.1%
G. Poor Health or Staffing Action	Percent	15.0%	11.8%	56.5%
	SE %	2.6%	2.9%	5.1%
Total Leavers	Percent	14.2%	9.8%	53.8%
	SE %	1.3%	1.0%	1.7%
	Nat. Est./Year	20,331	14,010	77,083
	Sample (n)	710	417	2,465

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Followup Surveys, National Center for Education Statistics, USDE.

[a]Nationally weighted percentages based on the total numbers of full-time and part-time leavers combined at the elementary and secondary levels. SE % = standard error of the tabled percentages; Nat. Est./Year = the mean nationally weighted estimate of the total number of leavers for years 1988-89, 1991-92, and 1994-95.

[b]The statistical significance of differences between the tabled percentages of irregular/part-time teachers was computed by a chi square test. The reason for leaving by Regular/Full-Time vs. Irregular/Part-Time (7 x 2) χ^2 was 46.26 ($p < .001$).

[c]The statistical significance of differences between the tabled percentages of partly-certified teachers was computed by a chi square test. The reason for leaving by Fully-Certified vs. Partly-Certified (7 x 2) χ^2 was 40.95 ($p < .001$).

[d]The statistical significance of differences between the tabled percentages of Bachelor's degree (or less) teachers was computed by a chi square test. The reason for leaving by Bachelor's degree (or less) vs. Master's degree (or more) (7 x 2) χ^2 was 61.17 ($p < .001$).

[e]Sample size (n) less than 30.

Table 12. *Main Reasons for Exit Attrition as a Function of the Number of Years of Full-Time Teaching Experience: National Estimates of the Percentages of Public School Leavers Based on Data for Three School Years Combined*

		Years of Full-Time Teaching Experience* (1987-88, 1990-91, and 1993-94 Combined)				
Main Reasons for Leaving	Statistic	< 4 Yrs.	4-9 Yrs.	10-19 Yrs.	> 19 Yrs.	Total
Voluntary Leavers						
A. Other Work or Better Salary	Col %	17.3%	14.4%	24.1%	11.5%	16.09%
	SE %	2.3%	2.6%	4.0%	2.0%	1.2%
B. Personal/Family Reasons	Col %	44.1%	55.6%	31.1%	5.6%	29.8%
	SE %	3.2%	4.0%	4.4%	1.4%	2.1%
C. Sabbatical	Col %	1.7%[b]	3.0%	8.5%	2.0%	3.7%
	SE %	0.7%	0.7%	2.6%	0.3%	0.7%
D. Take Courses	Col %	11.9%	9.3%	6.2%	1.8%[b]	6.3%
	SE %	1.5%	3.0%	1.4%	1.1%	1.0%
E. Dissatisfied	Col %	7.7%	7.5%	9.8%	5.5%	7.3%
	SE %	1.1%	1.9%	2.4%	1.1%	0.9%
Subtotal: Voluntary	Col %	82.6%	89.8%	79.8%	26.3%	63.3%
	SE %	3.1%	2.8%	2.7%	2.4%	1.8%
Involuntary Leavers						
A. Retirement	Col %	1.0%[b]	1.2%[b]	11.2%	67.0%	27.3%
	SE %	0.7%	0.3%	2.0%	2.2%	1.5%
B. Poor Health	Col %	1.3%[b]	2.3%[b]	5.5%	4.6%	3.7%
	SE %	0.6%	1.7%	1.6%	1.4%	0.7%
C. Staffing Action	Col %	15.0%	6.6%	3.5%	2.0%	5.7%
	SE %	3.0%	2.7%	0.6%	0.5%	0.9%
Subtotal: Involuntary	Col %	17.37%	10.2%	20.2%	73.7%	36.7%
	SE %	3.1%	2.8%	2.7%	2.4%	1.8%
Total Leavers	Col %	100%	100%	100%	100%	100%
	Nat. Est./Year	25,065	32,162	32,337	50,773	140,337
	Sample (n)	853	910	1,008	1,841	4,612

Note. Data from the 1987-88, 1990-91 and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Nationally weighted row percentages (Col %) of the total numbers of full-time and part-time leavers combined at the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the row percentages. Nat. Est./Year = the mean nationally weighted estimate of the total number of leavers for years 1988-89, 1991-92, and 1994-95.

[b]Sample size (n) less than 30.

*The reason for leaving by years of full-time experience (8 x 4) χ^2 was 449.27 ($p < .001$).

Table 13. *Main Reasons for Exit Attrition for Eight Cognate Areas: National Estimates of the Percentages of Public School Leavers Following Three School Years Combined*

Reasons for Leaving	Statistic[b]	Cognate Area Before Leaving[a] (1987-88, 1990-91, and 1993-94 Combined)* General Elementary	Math/ Science	Language	Social Studies	Arts/PE	Business/ Vocational	Other General	Special Education	Total
A. Other Work or Better Salary	Col %	8.5%	17.8%	16.9%	20.0%	15.9%	20.4%	29.2%	24.7%	16.2%
	SE %	1.7%	3.2%	3.3%	5.5%	2.9%	4.7%	8.9%	4.9%	1.2%
B. Personal/Family Reasons	Col %	39.2%	28.0%	25.1%	12.5%	30.8%	10.2%	25.3%	35.3%	30.2%
	SE %	3.8%	5.5%	4.2%	3.1%	4.3%	1.8%	6.2%	4.9%	2.1%
C. Sabbatical or Take Courses	Col %	7.1%	14.6%	13.1%	7.2%[c]	10.7%	7.6%	15.5%[c]	9.4%	10.1%
	SE %	1.5%	4.2%	2.8%	2.7%	2.3%	1.8%	8.6%	1.7%	1.1%
D. Dissatisfied	Col %	5.4%	7.6%	6.3%	7.3%	10.3%	15.4%	5.1%[c]	7.0%[c]	7.3%
	SE %	1.5%	1.5%	1.0%	1.4%	3.1%	6.0%	1.9%	2.7%	0.9%
E. Retirement	Col %	33.6%	20.8%	26.4%	39.9%	21.0%	33.3%	19.4%	13.2%	26.8%
	SE %	3.0%	2.4%	3.4%	7.0%	3.1%	3.6%	6.8%	2.7%	1.5%
F. Poor Health or Staffing Action	Col %	6.2%	11.2%	12.3%	13.1%[c]	11.4%	13.2%	5.5%[c]	10.4%	9.5%
	SE %	1.2%	3.9%	3.6%	7.2%	2.7%	2.8%	1.5%	3.5%	1.1%
Total Leavers	Col %	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Nat. Est./Year	47,005	19,274	18,724	8,173	15,797	9,846	8,046	16,442	143,307
	Sample (n)	1,063	781	729	316	557	580	227	477	4,730

Note. Data from the 1987-88, 1990-91, and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Cognate area for the three years combined (1987-88, 1990-91, and 1993-94) prior to turnover.

[b]Nationally weighted column percentages (Col %) of the total numbers of full-time and part-time leavers combined at the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the column percentages; Nat. Est./Year = the mean nationally weighted estimate of the total number of leavers for years 1988-89, 1991-92, and 1994-95.

[c]Sample size (n) less than 30.

*The reason for leaving by cognate area (6 x 8) χ^2 was 77.70 ($p < .001$).

Table 14. *Main Reasons for Exit Attrition as a Function of Plans to Return to Teaching: National Estimates of the Percentages of Public School Leavers Following Three School Years Combined*

		Plans to Return to Teaching* (1988-89, 1991-92, and 1994-95 Combined)			
Main Reason for Leaving	Statistic[a]	Within 5 Years	Uncertain	Never	Total
Voluntary Leavers					
A. Other Work or Better Salary	Row % SE %	12.0% 2.0%	21.5% 3.5%	66.6% 3.7%	100%
B. Personal/Family Reasons	Row % SE %	62.7% 3.8%	22.8% 2.8%	14.5% 2.6%	100%
C. Sabbatical	Row % SE %	64.3% 10.8%	14.3%[b] 4.6%	21.4%[b] 11.9%	100%
D. Take Courses	Row % SE %	49.5% 6.7%	9.2% 3.2%	41.3% 7.0%	100%
E. Dissatisfied	Row % SE %	16.9% 5.5%	11.8% 2.6%	71.4% 5.2%	100%
Subtotal: Voluntary	Row % SE %	43.3% 2.3%	19.3% 1.8%	37.4% 2.1%	100%
Involuntary Leavers					
A. Retirement	Row % SE %	7.3% 1.9%	4.6% 1.3%	88.1% 2.2%	100%
B. Poor Health	Row % SE %	46.7% 8.8%	5.3%[b] 1.9%	47.9% 9.1%	100%
C. Staffing Action	Row % SE %	57.4% 6.7%	24.3% 4.6%	18.3% 4.3%	100%
Subtotal: Involuntary	Row % SE %	19.4% 2.2%	7.9% 1.2%	72.7% 2.3%	100%
Total Leavers	Row % Nat. Est./Year Sample (n)	34.6% 49,642 1,477	15.2% 71,924 687	50.2% 21,741 2,566	100%

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Nationally weighted row percentages (Row %) of the total numbers of full-time and part-time leavers combined at both the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the row percentages. Nat. Est./Year = the mean nationally weighted estimate of the total number of leavers for years 1988-89, 1991-92, and 1994-95.

[b]Sample size (n) less than 30.

*The reason for leaving by plans to return (8 x 3) χ^2 was 401.55 ($p < .001$).

Table 15. *Voluntary and Involuntary Exit Attrition as a Function of Plans to Return to Teaching for Eight Cognate Areas: National Estimates of the Percentages of Public School Leavers Following Three School Years Combined*

Voluntary and Involuntary Leavers: Plans to Return	Statistic[b]	Cognate Area Before Leaving[a] (1987-88, 1990-91, and 1993-94 Combined)* General Elementary	Math/ Science	Language	Social Studies	Arts/ Phys Ed	Business/ Vocational	Other General	Special Education	Total
Voluntary Leavers										
A. Within 5 Years	Col %	30.9%	28.9%	31.3%	15.7%	34.7%	10.9%	14.1%	28.2%	27.6%
	SE %	2.7%	4.9%	4.6%	5.4%	4.5%	2.2%	3.6%	4.2%	1.8%
B. Uncertain	Col %	12.4%	13.6%	8.5%	7.3%	15.9%	10.7%	8.3%[c]	17.1%	12.3%
	SE %	2.5%	2.5%	1.3%	2.7%	3.3%	3.5%	3.1%	4.4%	1.2%
C. Never	Col %	17.0%	25.5%	21.6%	24.0%	17.0%	31.9%	52.7%	31.1%	23.8%
	SE %	2.8%	4.0%	3.8%	3.8%	2.8%	5.6%	7.6%	5.4%	1.3%
Subtotal: Voluntary	Col %	60.2%	68.0%	61.4%	47.0%	67.6%	53.5%	75.1%	76.4%	63.7%
	SE %	3.0%	4.4%	4.5%	7.9%	4.8%	4.4%	6.8%	4.4%	1.8%
Involuntary Leavers										
A. Within 5 Years	Col %	4.4%	7.5%	10.7%	12.1%[c]	8.7%	8.8%	2.2%[c]	7.1%	7.0%
	SE %	1.2%	3.3%	3.5%	7.9%	2.4%	2.8%	0.8%	3.4%	1.0%
B. Uncertain	Col %	2.1%[c]	4.1%[c]	4.0%[c]	2.8%[c]	3.1%[c]	3.1%[c]	1.6%[c]	2.4%[c]	2.9%
	SE %	0.6%	1.7%	2.4%	1.2%	1.5%	0.9%	0.7%	0.7%	0.5%
C. Never	Col %	33.3%	20.3%	23.9%	38.1%	20.6%	34.6%	21.1%	14.1%	26.4%
	SE %	3.0%	2.8%	2.9%	8.1%	3.2%	3.5%	6.8%	2.9%	1.2%
Subtotal: Involuntary	Col %	39.8%	32.0%	38.7%	53.0%	32.4%	46.5%	24.9%	23.6%	36.3%
	SE %	3.0%	4.4%	4.5%	7.9%	4.8%	4.4%	6.8%	4.4%	1.8%
Total Leavers	Col %	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Nat. Est./Year	47,005	19,274	18,724	8,173	15,797	9,846	8,046	16,442	143,307
	Sample (n)	1,063	781	729	316	557	580	227	477	4,730

Note. Data from the 1987-88, 1990-91, and 1993-94 Schools and Staffing Surveys and the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Cognate area for the three years combined (1987-88, 1990-91, and 1993-94) prior to turnover.

[b]Nationally weighted column percentages (Col %) of the total numbers of full-time and part-time leavers combined at the elementary and secondary levels. Totals may not sum exactly due to rounding. SE % = standard error of the column percentages; Nat. Est./Year = the mean nationally weighted estimate of the total number of leavers for years 1988-89, 1991-92, and 1994-95.

[c]Sample size (n) less than 30.

*The plans to return by cognate area (6 x 8) χ^2 was 77.01 ($p < .001$).

Table 16. *Situational Variables for Continuers, Voluntary Leaves, and Total[a] Teachers: Percentage Distributions and National Estimates of the Mean Numbers of Teachers Per Year in Public Schools for Three SASS Years (1987-88, 1990-91, and 1993-94), as Based on the Samples for the Teacher Follow-up Surveys*

Situational Variables		Column Percentages[b]			Weighted National Estimates (1000s)		
Name	Levels	Continuers	Voluntary Leavers	Total[a] Teachers	Continuers	Voluntary Leavers	Total[a] Teachers
Teaching Level	Secondary	47.1%	48.2%	47.2%	1,105	44	1,149
	Elementary	52.9%	51.8%	52.8%	1,239	47	1,286
Teaching Field	General Elem	37.3%	32.9%	37.1%	874	30	904
	General Second	39.5%	43.8%	39.7%	926	40	966
	Other Education	12.5%	9.5%	12.3%	291	9	300
	Special Education	10.8%	13.8%	10.9%	253	13	266
Community Type	Central City	28.1%	26.8%	28.0%	633	23	656
	Rural/Small Town	41.4%	43.2%	41.5%	934	38	972
	Suburban	30.5%	30.0%	30.5%	688	26	714
Region	West	17.7%	15.7%	17.6%	414	14	428
	South	36.1%	42.0%	36.3%	846	38	884
	Midwest	25.1%	26.0%	25.1%	589	24	613
	Northeast	21.1%	16.3%	20.9%	495	15	510
SASS/TFS Wave	1993-1995	33.7%	39.5%	33.9%	791	36	827
	1990-1992	34.3%	26.7%	34.0%	804	24	828
	1987-1989	32.0%	33.8%	32.0%	749	31	780
Total Teachers	Column %	100.0%	100.0%	100.0%			
	National Estimate				2,343,935	91,305	2,435,240
	TFS Sample (n)				9,311	2,730	12,041

Note. Data from the 1987-88, 1990-91, and 1993-94 Schools and Staffing Survey, National Center for Education Statistics, USDE.

[a]Excluding teachers who became involuntary leavers following the SASS year.

[b]Column percentages based on weighted national estimates of teachers from the samples of the Teacher Follow-Up Surveys.

Table 17. *Teacher Characteristic Variables for Continuers, Voluntary Leavers, and Total[a] Teachers: Percentage Distributions and National Estimates of the Mean Numbers of Teachers Per Year in Public Schools for Three SASS Years (1987-88, 1990-91, and 1993-94), as Based on the Samples for the Teacher Follow-up Surveys*

Teacher Characteristic Variables		Column Percentages[b]			Weighted National Estimates (1000s)		
Name	Levels	Continuers	Voluntary Leavers	Total[a] Teachers	Continuers	Voluntary Leavers	Total[a] Teachers
Sex	Female	71.4%	78.9%	71.6%	1,673	72	1,745
	Male	28.6%	21.1%	28.4%	671	19	690
Race/Ethnicity	White, Non-Hisp	87.3%	88.2%	87.3%	2,046	81	2,127
	Non-White	12.7%	11.8%	12.7%	298	11	309
Age (Quintiles)	52 - 89 years	16.2%	9.7%	15.9%	379	9	388
	43 - 51 years	33.3%	17.9%	32.7%	781	16	797
	37 - 42 years	23.2%	21.8%	23.1%	543	20	563
	29 - 36 years	18.9%	30.5%	19.4%	444	28	472
	21 - 28 years	8.4%	20.2%	8.9%	197	18	215
Marital Status	Married	73.1%	72.2%	73.1%	1,714	66	1,780
	Previously Married	12.1%	10.6%	12.1%	284	10	294
	Never Married	14.8%	17.1%	14.9%	346	16	362
Child Age	Child < 6 years	16.8%	27.0%	17.2%	394	25	419
	Child > 5 years	42.6%	27.7%	42.0%	998	25	1,023
	No Child	40.6%	45.3%	40.8%	951	41	992
Certification	Fully Certified	92.9%	87.6%	92.7%	2,177	80	2,257
	Partly Certified	7.1%	12.4%	7.3%	166	11	177
Teaching Exp (Quintiles)	23- 53 years	19.9%	10.5%	19.6%	467	10	477
	14- 22 years	33.4%	21.7%	32.9%	782	20	802
	7- 13 years	25.0%	30.9%	25.2%	585	28	613
	3- 6 years	14.3%	22.5%	14.6%	334	21	355
	1- 2 years	7.5%	14.3%	7.7%	176	13	189
Degree Level	MA or Higher	46.1%	44.7%	46.1%	1,081	41	1,122
	BA or Lower	53.9%	55.3%	53.9%	1,263	50	1,313
Major/Minor in MTA	Major/Minor	74.2%	70.3%	74.0%	1,739	64	1,803
	No Major/Minor	25.8%	29.7%	26.0%	605	27	632
Best Qualified in MTA	Best Qualified	82.2%	76.0%	82.0%	1,927	69	1,996
	Not Best Qualified	17.8%	24.0%	18.0%	417	22	439
Teaching Breaks	Two or More	9.6%	6.6%	9.5%	225	6	231
	Only One	23.6%	24.0%	23.6%	553	22	575
	No Breaks	66.8%	69.4%	66.9%	1,565	63	1,628

Note. See Table 16 for national estimates and sample sizes for total teachers. Data from the 1987-88, 1990-91, and 1993-94 Schools and Staffing Survey, National Center for Education Statistics, USDE.

[a]Excluding teachers who became involuntary leavers following the SASS year.

[b]Column percentages based on weighted national estimates of teachers from the samples of the Teacher Follow-Up Surveys.

Table 18. *Teacher Working Condition and Career Judgment Variables for Continuers, Voluntary Leavers, and Total[a] Teachers: Percentage Distributions and National Estimates of the Mean Numbers of TeachersPer Year in Public Schools for Three SASS Years (1987-88, 1990-91, and 1993-94), as Based on the Samples for the Teacher Follow-up Surveys*

Teacher Variables		Column Percentages[b]			Weighted National Estimates (1000s)		
Name	Levels	Continuers	Voluntary Leavers	Total[a] Teachers	Continuers	Voluntary Leavers	Total[a] Teachers
Teacher Working Conditions							
Employment	Regular	94.4%	89.3%	94.2%	2,213	82	2,295
	Irregular	5.6%	10.7%	5.8%	131	10	141
Employment Level	Full-Time	91.8%	83.8%	91.5%	2,153	77	2,230
	Part-Time	8.2%	16.2%	8.5%	191	15	206
Salary (Quintiles)	$34,353 - $84,000	29.6%	19.4%	29.2%	693	18	711
	$27,500 - $34,347	24.6%	18.2%	24.3%	576	17	593
	$23,000 - $27,479	20.9%	25.8%	21.1%	490	24	514
	$19,100 - $22,995	15.3%	19.9%	15.5%	359	18	377
	$0 - $19,097	9.6%	16.7%	9.9%	225	15	240
Minority	> 20% Minority	43.1%	43.2%	43.1%	1,010	39	1,049
	< 20% Minority	56.9%	56.8%	56.9%	1,334	52	1,386
Teacher Control	High Control	91.4%	88.9%	91.3%	2,143	81	2,224
	Low/Mod Control	8.6%	11.1%	8.7%	201	10	211
Teacher Influence	High Influence	56.9%	51.5%	56.7%	1,335	47	1,382
	Low/Mod	43.1%	48.5%	43.3%	1,009	44	1,053
Split Assignment	> One Field	22.1%	21.9%	22.1%	518	20	538
	Only One Field	77.9%	78.1%	77.9%	1,826	71	1,897
Extra Hours (Other)	> 6 Extra Hours	47.5%	41.0%	47.2%	1,113	37	1,150
	< 7 Extra Hours	52.5%	59.0%	52.8%	1,231	54	1,285
Teacher Career Judgments							
Become Teacher	Become Again	63.3%	50.2%	62.8%	1,483	46	1,529
	Not Become Again	36.7%	49.8%	37.2%	861	45	906
Stay School (next year)	Stay at School	90.8%	51.7%	89.3%	2,128	47	2,175
	Leave School	9.2%	48.3%	10.7%	216	44	260
Continue Teaching (next year)	Continue Teaching	96.9%	84.7%	96.5%	2,272	77	2,349
	Leave Teaching	3.1%	15.3%	3.5%	72	14	86

Note. See Table 16 for national estimates and sample sizes for total teachers. Data from the 1987-88, 1990-91, and 1993-94 Schools and Staffing Survey, National Center for Education Statistics, USDE.

[a]Excluding teachers who became involuntary leavers following the SASS year.

[b]Column percentages based on weighted national estimates of teachers from the samples of the Teacher Follow-Up Surveys.

Table 19. *Teacher Follow-Up Variables for Continuers, Voluntary Leavers, and Total[a] Teachers During Follow-Up Years: Percentage Distribution and National Estimates of the Mean Numbers of Teachers Per Year in Public Schools for Three TFS Years (198-89, 1991-92, and 1994-95), as Based on the Samples for the Teacher Follow-up Surveys*

Teacher Follow-Up Variables		Column Percentages[b]			Weighted National Estimates (1000s)		
Name	Levels	Continuers	Voluntary Leavers	Total[a] Teachers	Continuers	Voluntary Leavers	Total[a] Teachers
Status Variables (TFS)							
Degree Enrollment	Enrolled	12.9%	18.6%	13.1%	302	17	319
	Not Enrolled	87.1%	81.4%	86.9%	2,042	74	2,116
Extra Pay	Receive	44.8%	-[c]	44.8%	1,050	-[c]	1,050
	Don't Receive	55.2%	-[c]	55.2%	1,294	-[c]	1,294
Stay School (next year)	Stay at School	91.7%	-[c]	91.7%	2,149	-[c]	2,149
	Leave School	8.3%	-[c]	8.3%	195	-[c]	195
Change Variables (SASS to TFS)							
Marital Status Change	Got Married	2.6%	6.5%	2.7%	60	6	66
	Got Unmarried	2.1%	3.2%	2.1%	48	3	51
	No Change	95.4%	90.3%	95.2%	2,236	82	2,318
Dependents Change	TFS Year Only	3.3%	13.9%	3.7%	77	13	90
	All Other	96.7%	86.1%	96.3%	2,267	79	2,346
Earned Recent Degree	Yes	3.0%	6.4%	3.1%	70	6	76
	No	97.0%	93.6%	96.9%	2,274	85	2,359
Certification Change	Partly to Fully	4.5%	-[c]	4.5%	107	-[c]	107
	Fully to Partly	2.8%	-[c]	2.8%	65	-[c]	65
	No Change	92.7%	-[c]	92.7%	2,173	-[c]	2,173
Employment Change	Part- to Full-Time	6.2%	9.6%	6.3%	145	9	154
	All Other Status	93.8%	90.4%	93.7%	2,199	83	2,282
Salary Change	Increase	70.5%	-[c]	70.5%	1,651	-[c]	1,651
	Decrease	17.7%	-[c]	17.7%	415	-[c]	415
	No Change	11.9%	-[c]	11.9%	278	-[c]	278
Income Change	Increase	35.4%	29.1%	35.2%	830	27	857
	Decrease	18.8%	37.8%	19.5%	441	35	476
	No Change	45.7%	33.0%	45.3%	1,072	30	1,102

Note. See Table 16 for national estimates of total teachers and sample sizes. Data from the 1987-88, 1990-91, and 1993-94 Schools and Staffing Survey, National Center for Education Statistics, USDE.

[a]Excluding teachers who became involuntary leavers following the SASS year.

[b]Column percentages based on weighted national estimates of teachers from the samples of the Teacher Follow-Up Surveys.

[c]Predictor variable data not collected for former teachers (i.e., leavers).

Table 20. *Situational Variables Predictive of Teacher Turnover in Public Schools Nationally for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

Situational Variables[a]		Teacher Turnover Percentages[c]			Odds Ratios[d]		
Name	Levels[b]	Movers	Cog Area Switchers	Voluntary Leavers	Movers[b]	Cog Area Switchers[b]	Voluntary Leavers[b]
Teaching Level	Secondary	6.86%	8.19%	3.83%	0.77***	0.75***	1.04
	Elementary	8.74%	10.63%	3.68%			
Teaching Field	General Elementary	7.94%	7.89%	3.33%	0.90***	1.00	0.79*
	General Secondary	6.81%	12.49%	3.82%	0.85***	1.66***	0.98
	Other Education	7.65%	5.99%	3.87%	0.76***	0.74	0.56*
	Special Education	10.74%	7.91%	4.73%			
Community Type	Central City	9.03%	10.54%	3.56%	1.19*	1.27*	0.95
	Rural/Small Town	7.20%	9.54%	3.88%	0.93	1.12	1.03
	Suburban	7.55%	8.35%	3.66%			
Region	West	8.63%	9.53%	3.33%	1.47***	1.23	1.15
	South	9.03%	11.05%	4.34%	1.54***	1.45*	1.49*
	Midwest	7.11%	8.53%	3.88%	1.19	1.09	1.33
	Northeast	6.06%	7.87%	2.93%			
SASS/TFS Wave	1993-1995	7.58%	10.79%	4.36%	0.90	1.16	1.11
	1990-1992	7.65%	8.24%	2.95%	0.91	0.86	0.74*
	1987-1989	8.35%	9.42%	3.95%			
Total Teachers	Turnover %	7.85%	9.48%	3.75%			
	National Estimate	552,000	666,472	273,914			
	SE Nat'l Estimate	15,213	29,130	12,956			
	TFS Sample (n)	3,272	1,381	2,730			

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]See Glossary for more information about situational variables.

[b]The dependent variables were coded as follows: movers=1 vs stayers=0; switchers=1 vs remainers=0; voluntary leavers=1 vs continuers=0. Switching was defined as between cognate areas. The situational variables were all treated as indicator variables with the lower level listed as the reference category coded as "0." The other (comparision) levels were coded as "1."

[c]Teacher turnover percentages for movers and switchers pertain to total continuing teachers from SASS and TFS years, while percentages for voluntary leavers pertain to total teachers during SASS years.

[d]Ratio of the odds of being a mover (vs a stayer), a switcher (vs a remainer), and a voluntary leaver (vs a continuer), respectively (*p< .05, **p< .01, ***p< .001). See Glossary for a description of odds ratios.

Table 21. *Teacher Characteristic Variables Predictive of Teacher Turnover in Public Schools Nationally for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

Teacher Characteristic Variables[a]		Teacher Turnover Percentages[c]			Odds Ratios[d]		
Name	Levels[b]	Movers	Cog Area Switchers	Voluntary Leavers	Movers[b]	Cog Area Switchers[b]	Voluntary Leavers[b]
Sex	Female	8.16%	9.70%	4.13%	1.16	1.10	1.49***
	Male	7.08%	8.93%	2.78%			
Race/Ethnicity	White, Non-Hisp	7.68%	8.71%	3.79%	0.84	0.55***	1.09
	Non-White	9.02%	14.73%	3.49%			
Age (Quintiles)	52 – 89 years	4.19%	7.65%	2.28%	0.21***	0.65**	0.25***
	43 – 51 years	5.80%	8.81%	2.05%	0.30***	0.75*	0.22***
	37 – 42 years	7.67%	10.61%	3.53%	0.40***	0.93	0.39***
	29 – 36 years	10.61%	9.98%	5.91%	0.57***	0.86	0.67***
	21 – 28 years	17.25%	11.40%	8.53%			
Marital Status	Married	7.42%	9.67%	3.71%	0.69***	1.22	0.85
	Prev Married	7.43%	10.02%	3.31%	0.69**	0.79	0.76
	Never Married	10.34%	8.07%	4.33%			
Child Age	Child < 6 years	9.58%	10.16%	5.89%	1.12	1.25	1.43
	Child > 5 years	6.48%	10.31%	2.47%	0.74***	1.27*	0.58***
	No Child	8.57%	8.33%	4.17%			
Certification	Fully Certified	7.62%	8.92%	3.54%	0.68***	0.49***	0.54***
	Partly Certified	10.83%	16.77%	6.35%			
Teaching Exp (Quintiles)	23- 53 years	3.67%	8.62%	2.01%	0.20***	0.65**	0.28***
	14- 22 years	5.63%	8.55%	2.47%	0.32***	0.65**	0.34***
	7- 13 years	9.08%	10.85%	4.60%	0.53***	0.84	0.65***
	3 – 6 years	12.58%	8.80%	5.80%	0.77	0.67***	0.83
	1 - 2 years	15.75%	12.61%	6.94%			
Degree Level	MA or Higher	7.41%	8.86%	3.64%	0.89	0.88	0.94
	BA or Lower	8.22%	10.00%	3.84%			
Major/Minor in MTA	Major/Minor	7.35%	6.55%	3.56%	0.78**	0.32***	0.82
	No Major/Minor	9.28%	17.88%	4.29%			
Best Qualified in MTA	Best Qualified	7.10%	6.78%	3.47%	0.60***	0.26***	0.68**
	Not Best Qualified	11.29%	21.92%	5.00%			
Teaching Breaks	Two or More	8.44%	10.20%	2.59%	1.09	1.11	0.66*
	Only One	7.62%	9.73%	3.81%	0.97	1.05	0.98
	No Breaks	7.85%	9.29%	3.89%			

Note. See Table 20 for national estimates and sample sizes for total teachers. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]See Glossary for more information about teacher characteristic variables.

[b]The dependent variables were coded as follows: movers=1 vs stayers=0; switchers=1 vs remainers=0; voluntary leavers=1 vs continuers=0. Switching was defined as between cognate areas. The teacher characteristic variables were all treated as indicator variables with the lower level listed as the reference category coded as "0." The other (comparision) levels were coded as "1."

[c]Teacher turnover percentages for movers and switchers pertain to total continuing teachers from SASS and TFS years, while percentages for voluntary leavers pertain to total teachers during SASS years.

[d]Ratio of the odds of being a mover (vs a stayer), a switcher (vs a remainer), and a voluntary leaver (vs a continuer), respectively (*p< .05, **p< .01, ***p< .001). See Glossary for a description of odds ratios.

Table 22. *Teacher Working Condition and Career Judgment Variables Predictive of Teacher Turnover in Public Schools Nationally for Three TFS Years (1988-89, 1991-92, and 1994-95)*

Teacher Variables[a]		Teacher Turnover Percentages[c]			Odds Ratios[d]		
Name	Levels[b]	Movers	Cog Area Switchers	Voluntary Leavers	Movers[b]	Cog Area Switchers[b]	Voluntary Leavers[b]
Teacher Working Conditions							
Employment Status	Regular	7.42%	9.43%	3.55%	0.45***	0.90	0.49***
	Irregular	15.07%	10.34%	6.95%			
Employment Level	Full-Time	7.36%	9.30%	3.43%	0.52***	0.79	0.46***
	Part-Time	13.37%	11.48%	7.19%			
Salary (Quintiles)	$34,353 - $84,000	5.14%	7.58%	2.49%	0.37***	0.55***	0.38***
	$27,500 - $34,347	6.02%	8.63%	2.80%	0.44***	0.63**	0.43***
	$23,000 - $74,479	9.28%	10.36%	4.58%	0.70***	0.77*	0.71**
	$19,100 - $22,995	10.97%	11.07%	4.81%	0.84	0.83	0.75*
	$0 - $19,097	12.76%	13.03%	6.34%			
Minority Enrollmnt	> 20% Minority	9.13%	11.76%	3.76%	1.39***	1.59***	1.00
	< 20% Minority	6.88%	7.75%	3.74%			
Teacher Control	High Control	7.62%	9.25%	3.65%	0.72**	0.75	0.75
	Low/Mod Control	10.25%	11.90%	4.79%			
Teacher Influence	High Influence	7.28%	9.37%	3.40%	0.83**	0.97	0.81*
	Low/Mod Influence	8.61%	9.62%	4.20%			
Split Assignment	> One Field	8.51%	18.89%	3.71%	1.12	3.23***	0.99
	Only One Field	7.66%	6.81%	3.76%			
Extra Hours (Other)	> 6 Extra Hours	7.38%	8.85%	3.25%	0.88	0.87	0.77*
	< 7 Extra Hours	8.27%	10.05%	4.19%			
Teacher Career Judgments							
Become Teacher	Become Again	7.40%	9.70%	3.00%	0.85*	1.08	0.58***
	Not Become Again	8.62%	9.09%	5.02%			
Stay School (next year)	Stay at School	4.57%	8.84%	2.17%	0.07***	0.52***	0.11***
	Leave School	40.20%	15.75%	16.99%			
Continue Teaching (next year)	Continue Teaching	7.65%	9.48%	3.29%	0.51***	1.01	0.17***
	Leave Teaching	14.08%	9.42%	16.35%			

Note. See Table 20 for national estimates and sample sizes for total teachers. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]See Glossary for more information about teacher variables.

[b]The dependent variables were coded as follows: movers=1 vs stayers=0; switchers=1 vs remainers=0; voluntary leavers=1 vs continuers=0. Switching was defined as between cognate areas. The teacher variables were all treated as indicator variables with the lower level listed as the reference category coded as "0." The other (comparision) levels were coded as "1."

[c]Teacher turnover percentages for movers and switchers pertain to total continuing teachers from SASS and TFS years, while percentages for voluntary leavers pertain to total teachers during SASS years.

[d]Ratio of the odds of being a mover (vs a stayer), a switcher (vs a remainer), and a voluntary leaver (vs a continuer), respectively (*p< .05, **p< .01, ***p< .001). See Glossary for a description of odds ratios.

Table 23. *Teacher Follow-Up Variables Predictive of Teacher Turnover in Public Schools Nationally for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

Teacher Follow-Up Variables[a]		Teacher Turnover Percentages[c]			Odds Ratios[d]		
Name	Levels[b]	Movers	Cog Area Switchers	Voluntary Leavers	Movers[b]	Cog Area Switchers[b]	Voluntary Leavers[b]
Status Variables (TFS)							
Degree Enrollment	Enrolled	10.59%	11.14%	5.33%	1.47***	1.23	1.54***
	Not Enrolled	7.44%	9.23%	3.51%			
Extra Pay	Receive	6.83%	9.29%	-e	0.77***	0.96	-e
	Don't Receive	8.68%	9.63%	-e			
Stay School (next year)	Stay at School	7.35%	9.17%	-e	0.51***	0.68**	-e
	Leave School	13.39%	12.92%	-e			
Change Variables (SASS to TFS)							
Marital Status Change	Became Married	13.73%	9.91%	9.00%	1.92***	1.07	2.70***
	Became Unmarried	8.18%	15.19%	5.74%	1.06	1.74	1.64
	No Change	7.68%	9.34%	3.56%			
Dependents Change	TFS Year Only	8.40%	13.70%	14.07%	1.08	1.54	4.76***
Change	All Other	7.83%	9.33%	3.35%			
Earned Recent Degree	Yes	13.03%	12.80%	7.70%	1.79***	1.41*	2.22**
	No	7.69%	9.38%	3.62%			
Certification Change	Partly to Fully	10.45%	19.70%	-e	1.45**	2.58***	-e
	Fully to Partly	17.91%	19.55%	-e	2.70***	2.56***	-e
	No Change	7.42%	8.68%	-e			
Employment Change	Part- to Full-Time	14.58%	12.54%	5.71%	2.13***	1.40*	3.85*
	All Other Status	7.41%	9.28%	3.62%			
Salary Change	Increase	7.45%	9.11%	-e	1.12	0.70***	-e
	Decrease	10.26%	8.94%	-e	1.59**	0.69	-e
	No Change	6.66%	12.45%	-e			
Income Change	Increase	8.95%	10.64%	3.10%	1.49***	1.25*	1.14
	Decrease	9.91%	9.46%	7.26%	1.67***	1.11	2.78***
	No Change	6.15%	8.59%	2.73%			

Note. See Table 20 for national estimates and sample sizes for total teachers. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]See Glossary for more information about teacher follow-up variables.

[b]The dependent variables were coded as follows: movers=1 vs stayers=0; switchers=1 vs remainers=0; voluntary leavers=1 vs continuers=0. Switching was defined as between cognate areas. The teacher follow-up variables were all treated as indicator variables with the lower level listed as the reference category coded as "0." The other (comparision) levels were coded as "1."

[c]Teacher turnover percentages for movers and switchers pertain to total continuing teachers from SASS and TFS years, while percentages for voluntary leavers pertain to total teachers during SASS years.

[d]Ratio of the odds of being a mover (vs a stayer), a switcher (vs a remainer), and a voluntary leaver (vs a continuer), respectively (*$p<$ .05, **$p<$ .01, ***$p<$ .001). See Glossary for a description of odds ratios.

[e]Predictor variable data not collected for former teachers (i.e, leavers).

Table 24. *Predicting Teacher Turnover in Public Schools Nationally: Full Logistic Regression Models for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

Predictor Variable[b]		Type of Teacher Turnover					
		Movers[a]		Cog Area Switchers[a]		Voluntary Leavers[a]	
Name	Level[a]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]
Situational Variables							
Teaching Level	Secondary	0.98	0.79 – 1.21	0.41***	0.31 – 0.55		
	Elementary						
Teaching Field	General Elementary	0.94	0.72 – 1.21	1.24	0.87 – 1.74	1.03	0.73 – 1.46
	General Secondary	0.92	0.72 – 1.19	2.91***	2.16 – 3.94	1.16	0.80 – 1.69
	Other Education	0.90	0.64 – 1.28	1.92*	1.22 – 3.02	0.86	0.58 – 1.27
	Special Education						
Community Type	Central City			1.04	0.82 – 1.33		
	Rural/Small Town			1.07	0.88 – 1.31		
	Suburban						
SASS/TFS Wave	1993-1995			1.37**	1.08 – 1.72	1.41*	1.08 – 1.83
	1990-1992			0.98	0.73 – 1.32	0.80	0.61 – 1.04
	1987-1989						
Teacher Characteristic Variables							
Sex	Female			0.99	0.80 – 1.22	1.32*	1.05 – 1.67
	Male						
Race/Ethnicity	White, Non-Hisp			0.73*	0.54 – 0.98		
	Non-White						
Age	52 - 89 years	0.42***	0.27 – 0.64	0.70	0.49 – 1.02	0.36***	0.23 – 0.55
	43 - 51 years	0.56**	0.40 – 0.78	0.73	0.52 – 1.04	0.35***	0.23 – 0.52
	37 - 42 years	0.69*	0.50 – 0.95	0.91	0.62 – 1.34	0.57*	0.36 – 0.90
	29 - 36 years	0.71*	0.53 – 0.96	0.79	0.53 – 1.17	0.83	0.60 – 1.14
	21 - 28 years						
Marital Status	Married			1.25	0.94 – 1.66		
	Previously Married			1.10	0.74 – 1.62		
	Never Married						
Child Age	Child < 6 years			1.15	0.78 – 1.69		
	Child > 5 years			1.37*	1.02 – 1.82		
	No Child						
Certification	Fully Certified			1.42	0.84 – 2.39	0.80***	0.54 – 1.19
	Partly Certified						
Teaching Experience	23- 53 years	0.46***	0.30 – 0.71				
	14- 22 years	0.58**	0.43 – 0.79				
	7- 13 years	0.69*	0.51 – 0.95				
	3- 6 years	0.80	0.63 – 1.02				
	1- 2 years						
Degree Level	MA or Higher	1.30**	1.10 – 1.54			1.35*	1.07 – 1.71
	BA or Lower						
Major/Minor in MTA	Major/Minor			0.44***	0.36 – 0.55		
	No Major/Minor						
Best Qualified in MTA	Best Qualified	0.74**	0.60 – 0.91	0.44***	0.35 – 0.56	0.83	0.63 – 1.08
	Not Best Qualified						
Teaching Breaks	Two or More	1.44*	1.06 - 1.97			0.85	0.52 – 1.36
	Only One	1.23	1.00 – 1.53			1.16	0.84 – 1.61
	No Breaks						

Table 24 (Continued). *Predicting Teacher Turnover in Public Schools Nationally: Full Logistic Regression Models for Three School Years Combined (1988-89, 1991-92, and 1994-95)*

Predictor Variable[b]		Type of Teacher Turnover					
		Movers[a]		Cog Area Switchers[a]		Voluntary Leavers[a]	
Name	Level[a]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]
Teacher Working Conditions							
Employment	Regular Irregular	1.03	0.70 – 1.51				
Employment Level	Full-Time Part-Time					0.42***	0.28 – 0.63
Salary (Quintiles)	$34,353 - $84,000 $27,500 - $34,347 $23,000 - $27,479 $19,100 - $22,995 $0 - $19,097	0.78 0.68* 0.91 0.93	0.57 – 1.08 0.50 – 0.93 0.72 – 1.14 0.72 – 1.21	0.84 0.83 0.92 0.90	0.61 – 1.15 0.59 – 1.15 0.70 – 1.20 0.62 – 1.32	0.92 0.71 0.99 0.85	0.58 – 1.48 0.49 – 1.01 0.70 – 1.40 0.64 – 1.13
Minority	>20% Minority <20% Minority	1.25**	1.07 – 1.45	1.33**	1.07 – 1.63		
Teacher Control	High Control Low/Mod Control	0.81	0.62 – 1.06				
Teacher Influence	High Influence Low/Mod Influence					1.08	0.83 – 1.42
Split Assignment	> One Field Only One Field			2.70***	2.11 – 3.44		
Extra Hours (Other)	>6 Extra Hours <7 Extra Hours			0.88	0.71 – 1.11	0.80	0.62 – 1.02
Teacher Follow-Up Status Variables During TFS Year							
Degree Enrollment	Enrolled Not Enrolled	1.01	0.86 – 1.19	1.03	0.79 – 1.34	1.10	0.86 – 1.41
Extra Pay	Receive Don't Receive	0.68***	0.57 – 0.81				
Stay at School (next year)	Stay at School Leave School	0.96	0.70 – 1.31	0.79**	0.58 – 1.06		
Teacher Follow-Up Change Variables From SASS to TFS Year							
Marital Status Change	Become Married Become Unmarried No Change	1.37* 0.94	1.03 – 1.81 0.54 – 1.63			1.77** 1.08	1.17 – 2.68 0.44 – 2.66
Dependents Change	TFS Year Only All Other Status					4.24***	2.89 – 6.17
Earned Recent Degree	Yes No	1.43	0.93 – 2.21			1.85*	1.10 – 3.09

Table 24 (Continued). *Predicting Teacher Turnover in Public Schools Nationally: Full Logistic Regression Models for Three School Years Combined (1988-89, 1991-92, and 1994-95)*

Predictor Variable[b]		Type of Teacher Turnover					
		Movers[a]		Cog Area Switchers[a]		Voluntary Leavers[a]	
Name	Level[a]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]
Teacher Follow-Up Change Variables From SASS to TFS Year (cont.)							
Certification Change	Partly to Fully	1.07	0.79 – 1.46	2.13**	1.27 – 3.59		
	Fully to Partly	2.13***	1.52 – 2.95	2.01**	1.30 – 3.13		
	No Change						
Employment Change	Part- to Full-Time	1.13	0.79 – 1.61			0.46**	0.26 – 0.81
	All Other Status						
Salary Change	Increase	1.01	0.80 – 1.27	0.72**	0.58 – 0.90		
	Decrease	1.43*	1.07 – 1.92	0.68	0.44 – 1.04		
	No Change						
Income Change	Increase	1.35**	1.09 – 1.67	1.20	0.99 – 1.47	0.93	0.73 – 1.16
	Decrease	1.56***	1.23 – 2.00	1.10	0.82 – 1.46	2.36***	1.76 – 3.17
	No Change						
Teacher Career Judgments							
Become Teacher	Become Again					0.67**	0.52 – 1.17
	Not Become Again						
Stay at School (next year)	Stay at School	0.08***	0.06 – 1.02	0.55***	0.43 – 0.71	0.15***	0.12 – 0.19
	Leave School						
Continue Teaching	Continue Teaching					0.43***	0.30 – 0.62
	Leave Teaching						
Concordance Index (c)[d]		0.800		0.771		0.813	
GOF Test (χ^2)[e]		p>.20		p>.20		p>.10	

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The dependent variables were coded as follows: movers=1 vs stayers=0; switchers=1 vs remainers=0; voluntary leavers=1 vs continuers=0. Switching was defined as between cognate areas. The teacher follow-up variables were all treated as indicator variables with the lower level listed as the reference category coded as "0." The other (comparision) levels were coded as "1."

[b]See Glossary for more information about teacher characteristic variables.

[c]Ratio of the odds of being a mover (vs a stayer), a switcher (vs a remainer), and a voluntary leaver (vs a continuer), respectively (*p< .05, **p< .01, ***p< .001). Confidence limits are 95%. The SAS formula for converting an odds ratio to its Beta weight is LOG(OR). See Glossary for a description of odds ratios.

[d]The concordance index (c) estimates the probability that the model correctly orders a randomly selected pair of teachers (e.g.,one moving, the other staying). It is equal to the area under a receiver operating characteristics curve (ROC), defined on the basis of model estimated predicted probabilities, and is arithmetically equivalent to one-half Summer's D rank correlation index plus 0.5.

[e]Hosmer-Lemeshow Goodness-of-Fit Test.

[f]Predictor variable data not collected from former teachers (i.e., leavers).

Table 25. *Predicting Teacher Turnover in Public Schools Nationally: Reduced Logistic Regression Models for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

Predictor Variable[b]		Type of Teacher Turnover					
		Movers[a]		Cog Area Switchers[a]		Voluntary Leavers[a]	
Name	Level[a]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]
Situational Variables							
Teaching Level	Secondary			0.42***	0.33 – 0.54		
	Elementary						
Teaching Field	General			1.23	0.87 – 1.75		
	General Secondary			2.90***	2.12 – 3.93		
	Other Education			1.95*	1.24 – 3.09		
	Special Education						
SASS/TFS Wave	1993-1995						
	1990-1992						
	1987-1989						
Teacher Characteristic Variables							
Race/Ethnicity	White, Non-Hisp			0.66**	0.52 – 0.83		
	Non-White						
Age	52 - 89 years	0.50**	0.33 – 0.76	0.79	0.58 – 1.06	0.38***	0.26 – 0.55
	43 - 51 years	0.64**	0.46 – 0.88	0.89	0.66 – 1.19	0.37***	0.28 – 0.49
	37 - 42 years	0.76	0.55 – 1.04	1.08	0.76 – 1.54	0.59*	0.40 – 0.89
	29 - 36 years	0.74*	0.56 – 0.99	0.89	0.62 – 1.27	0.83	0.63 – 1.09
	21 - 28 years						
Teaching Experience	23- 53 years	0.44***	0.30 – 0.65				
	14- 22 years	0.55***	0.42 – 0.73				
	7- 13 years	0.71*	0.53 – 0.95				
	3- 6 years	0.81	0.64 – 1.01				
	1- 2 years						
Major/Minor in MTA	Major/Minor			0.45***	0.37 – 0.55		
	No Major/Minor						
Best Qualified in MTA	Best Qualified	0.71**	0.59 – 0.87	0.43***	0.35 – 0.54		
	Not Best Qualified						
Teacher Working Conditions							
Employment Level	Full-Time					0.37***	0.25 – 0.54
	Part-Time						
Split Assignment	> One Field			2.60***	2.08 – 3.27		
	Only One Field						
Teacher Follow-Up Change Variables From SASS to TFS Year							
Marital Status Change	Become Married					1.79*	1.16 – 2.74
	Become					1.09	0.44 – 2.65
	No Change						
Dependents Change	TFS Year Only					4.17***	2.82 – 5.94
	All Other Status						
Earned Recent Degree	Yes					1.92**	1.16 – 3.23
	No						

Table 25 (Continued). *Predicting Teacher Turnover in Public Schools Nationally: Reduced Logistic Regression Models for Three School Years Combined (1988-89, 1991-92, and 1994-95)*

Predictor Variable[b]		Type of Teacher Turnover					
		Movers[a]		Cog Area Switchers[a]		Voluntary Leavers[a]	
Name	Level[a]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]	Odds Ratio[c]	Confidence Limits[c]
Teacher Follow-Up Change Variables From SASS to TFS Year (cont.)							
Certification Change	Partly to Fully	1.08	0.80 – 1.44	1.62**	1.16 – 2.26	-f	
	Fully to Partly	2.08***	1.55 – 2.84	1.94**	1.27 – 2.95	-f	
	No Change						
Employment Change	Part- to Full-Time					0.43**	0.25 – 0.75
	All Other Status						
Income Change	Increase	1.37**	1.12 – 1.70			0.94	0.77 – 1.18
	Decrease	1.67***	1.34 – 2.11			2.38***	1.80 – 3.17
	No Change						
Teacher Career Judgments							
Become Teacher	Become Again					0.69**	0.54 – 0.88
	Not Become Again						
Stay at School (next year)	Stay at School	0.08***	0.07 – 0.09	0.55***	0.43 – 0.70	0.15***	0.12 – 0.19
	Leave School						
Continue Teaching	Continue Teaching					0.41***	0.29 – 0.58
	Leave Teaching						
Concordance Index (c)[d]		0.782		0.751		0.798	
GOF Test (χ^2)[e]		p>.20		p>.20		p>.20	

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]The dependent variables were coded as follows: movers=1 vs stayers=0; switchers=1 vs remainers=0; voluntary leavers=1 vs continuers=0. Switching was defined as between cognate areas. The teacher follow-up variables were all treated as indicator variables with the lower level listed as the reference category coded as "0." The other (comparision) levels were coded as "1."

[b]See Glossary for more information about teacher characteristic variables.

[c]Ratio of the odds of being a mover (vs a stayer), a switcher (vs a remainer), and a voluntary leaver (vs a continuer), respectively (*p< .05, **p< .01, ***p< .001). Confidence limits are 95%. The SAS formula for converting an odds ratio to its Beta weight is LOG(OR). See Glossary for a description of odds ratios.

[d]The concordance index (c) estimates the probability that the model correctly orders a randomly selected pair of teachers (e.g.,one moving, the other staying). It is equal to the area under a receiver operating characteristics curve (ROC), defined on the basis of model estimated predicted probabilities, and is arithmetically equivalent to one-half Summer's D rank correlation index plus 0.5.

[e]Hosmer-Lemeshow Goodness-of-Fit Test.

[f]Predictor variable data not collected from former teachers (i.e., leavers).

Table 26. *Separate Logistic Regression Analyses for Each of Five Stages of Predictor Variables for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

	Type of Teacher Turnover														
	Movers vs Stayers					Cog Area Switchers vs Remainers					Voluntary Leavers vs Continuers				
			GOF Test[c]					GOF Test[c]					GOF Test[c]		
Separate Stages: Predictor Variables	Number Parms[a]	c[b]	Adj χ^2	df	p	Number Parms[a]	c[b]	Adj χ^2	df	p	Number Parms[a]	c[b]	Adj χ^2	df	p
Situational Variables	4	.552	0.37	5	>.05	8	.622	67.35	9	<.05	5	.566	2.39	7	>.05
Teacher Characteristics	12	.664	5.39	8	>.05	13	.708	31.57	8	<.05	10	.672	8.66	9	>.05
Working Conditions	7	.628	2.66	7	>.05	7	.675	11.97	8	>.05	7	.625	9.00	7	>.05
Teacher Follow-Up	12	.630	2.95	6	>.05	8	.587	4.94	7	>.05	8	.680	14.76	4	<.05
Career Judgments	1	.706	-[d]	-[d]	-[d]	1	.534	-[d]	-[d]	-[d]	3	.720	0.76	2	>.05

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Number of parameters also equals the number of indicator variables.

[b]The concordance index (c) estimates the probability that the model correctly orders a randomly selected pair of teachers (one entering, the other continuing). It is equal to the area under a receiver operating characteristics curve (ROC), defined on the basis of model estimated predicted probabilities, and is arithmetically equivalent to one-half Summer's D rank correlation index plus 0.5.

[c]Hosmer-Lemeshow Goodness-of-Fit Test.

[d]Goodness-of-Fit statistics could not be computed for a single parameter.

Table 27. *Cumulative Logistic Regression Analyses for Each of Five Stages of Predictor Variables for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

	Type of Teacher Turnover														
	Movers vs Stayers					Cog Area Switchers vs Remainers					Voluntary Leavers vs Continuers				
			GOF Test[c]					GOF Test[c]					GOF Test[c]		
Cumulative Stages: Predictor Variables	Number Parms[a]	c[b]	Adj χ^2	df	p	Number Parms[a]	c[b]	Adj χ^2	df	p	Number Parms[a]	c[b]	Adj χ^2	df	p
Situational Variables	4	.552	0.37	5	>.05	8	.622	67.35	9	<.05	5	.566	2.39	7	>.05
Teacher Characteristics	16	.668	4.55	8	>.05	21	.725	16.13	8	<.05	15	.685	25.44	8	<.05
Working Conditions	23	.683	8.98	8	>.05	28	.758	8.63	8	>.05	22	.700	21.01	8	<.05
Teacher Follow-Up	36	.708	10.80	8	>.05	36	.766	11.85	8	>.05	30	.747	7.76	8	>.05
Career Judgments (Full Model)	37	.800	8.75	8	>.05	37	.771	10.09	8	>.05	33	.813	11.99	8	>.05
Reduced Model	14	.782	5.32	8	>.05	15	.751	11.04	8	>.05	15	.798	8.31	8	>.05

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Number of parameters also equals the number of indicator variables.

[b]The concordance index (c) estimates the probability that the model correctly orders a randomly selected pair of teachers (one entering, the other continuing). It is equal to the area under a receiver operating characteristics curve (ROC), defined on the basis of model estimated predicted probabilities, and is arithmetically equivalent to one-half Summer's D rank correlation index plus 0.5.

[c]Hosmer-Lemeshow Goodness-of-Fit Test.

Table 28. *Restricted Logistic Regression Analyses Compared with Reduced Logistic Regression Models in which Each of Five Stages Has Been Separately Removed for Three TFS Years Combined (1988-89, 1991-92, and 1994-95)*

Restricted Logistic Regression Models with Predictor Variables Removed by Stage	Type of Teacher Turnover														
	Movers vs Stayers					Cog Area Switchers vs Remainers					Voluntary Leavers vs Continuers				
			GOF Test[c]					GOF Test[c]					GOF Test[c]		
	Number Parms[a]	c[b]	Adj χ^2	df	p	Number Parms[a]	c[b]	Adj χ^2	df	p	Number Parms[a]	c[b]	Adj χ^2	df	p
Standard Reduced Model	14	.782	5.32	8	>.05	15	.751	11.04	8	>.05	15	.798	8.31	8	>.05
Situational Variables Removed	14	.782	5.32	8	>.05	11	.744	12.85	9	>.05	15	.798	8.31	8	>.05
Teacher Characteristics Removed	5	.744	1.24	4	>.05	8	.696	30.54	5	<.05	11	.784	26.30	6	<.05
Working Conditions Removed	14	.782	5.32	8	>.05	14	.723	18.34	8	<.05	14	.793	9.57	9	>.05
Teacher Follow-Up Removed	10	.776	10.66	8	>.05	13	.747	8.76	8	>.05	8	.780	14.65	8	>.05
Career Judgments Removed	13	.666	7.21	8	>.05	14	.745	7.67	8	>.05	12	.718	10.52	8	>.05

Note. Data from the 1988-89, 1991-92, and 1994-95 Teacher Follow-Up Surveys, National Center for Education Statistics, USDE.

[a]Number of parameters also equals the number of indicator variables.

[b]The concordance index (c) estimates the probability that the model correctly orders a randomly selected pair of teachers (one entering, the other continuing). It is equal to the area under a receiver operating characteristics curve (ROC), defined on the basis of model estimated predicted probabilities, and is arithmetically equivalent to one-half Summer's D rank correlation index plus 0.5.

[c]Hosmer-Lemeshow Goodness-of-Fit Test.

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APPENDIX A: DATA ANALYSIS METHODS

Data Sources

Public School Teacher Questionnaire: Schools and Staffing Surveys

One source of data was teachers' self reports to the Public School Teacher Questionnaires (PSTQ) of the 1987-88, 1990-91, and 1993-94 Schools and Staffing Survey (SASS), conducted by the National Center for Education Statistics (NCES), U.S. Department of Education. Information from the PSTQs was used in these analyses to identify employed teachers who had entered teaching during the years of the surveys and others who had continued as employed teachers from the year prior to the survey. Such teachers were analyzed as a function of various sources of teacher supply.

The PSTQ data were obtained from three large national-probability samples of K - 12 public school teachers (N = 40,522 teachers in early 1988, N = 46,599 teachers in early 1991, and N = 46,944 in early 1994) with high weighted response rates (86% in 1988, 91% in 1991, and 88% in 1994). Therefore, this data base provides nationally representative estimates of the numbers of public school teachers in each of the three survey years, including sources of teacher supply (e.g., entering recent degree graduates, delayed entering degree graduates, reentering experienced teachers, continuing teachers, etc.) and whether their main teaching assignment was in one of eight cognate areas. Furthermore, there are no missing data for completed PSTQs because NCES has imputed values for item nonresponse. More detailed information about SASS is found in an overview published by NCES (1996), and in technical descriptions published by NCES (e.g., see Choy, Medrich, Henke, & Bobbitt, 1992, Appendix A for the 1987-88 SASS; Choy, Henke, Alt, Medrich, & Bobbitt, 1993, Appendix C, for the 1990-91 SASS; and Henke, Choy, Geis, & Broughman, 1996, Appendix C, for the 1993-94 SASS).

Teacher Follow-up Surveys: Schools and Staffing Surveys

The second source of data was teachers' self reports to the Teacher Follow-up Survey (TFS) that was conducted by NCES in each of the years following SASS (i.e., 1988-89, 1991-92, and 1994-95) as a longitudinal component of SASS. Information from the TFSs was used in these analyses to identify turnover of employed teachers from one year (i.e., the SASS year) to the next year (i.e., the TFS year). Such teachers were analyzed as a function of three types of turnover (i.e., transferring or moving from one school to another, switching cognate area, and voluntarily leaving or exiting teaching).

The TFS data were obtained from three national-probability samples of K - 12 public school teachers (N = 3,248 teachers in early 1989, N = 3,284 teachers in early 1992, and N = 2,779 in early 1995) with high weighted response rates (for current teachers, 98% in 1989, 97% in 1992, and 92% in 1995; for former teachers or exited teachers, 94% in 1989, 92% in 1992, and 89% in 1995). Therefore, this data base provides nationally representative estimates of the numbers of public school teachers in each of the three survey years, including the three types of turnover (i.e., movers, cognate area switchers, and voluntary leavers) and whether their main teaching assignment was in one of eight cognate areas. Furthermore, there are no missing data for completed TFS questionnaires because NCES has imputed values for item nonresponse. More detailed information about the TFS is found in an overview published by NCES (1996), and in technical descriptions published by NCES (see Bobbitt, Faupel, & Burnes, 1991, pp. 23-29 for the 1988-89 TFS; Bobbitt, Leich, Whitener, & Lynch, 1994, pp. 19-, for the 1991-92 TFS; and Whitener, Gruber, Lynch, Tingos, Perona, & Fondelier, 1997, pp. 19-46, for the 1994-95 TFS).

Sources of the Community Type Variable

The community type variable was scaled by seven levels (large city, mid-size city, urban fringe of large city, urban fringe of mid-size city, large town, small town, and rural). For the 1987-88 SASS, a community type code for each public school teacher was based upon the postal ZIP code of school in which the teacher was employed, and matched to the U.S. Census community size for that ZIP code. For the 1990-91 and 1993-94 SASSs, each public school teacher was given a community type code by matching the postal ZIP code of the school in which the teacher was employed to the LOCALE code on the NCES's Common Core of Data School File.

Teacher Sample

In keeping with the SASS definition based on teacher self reports to PSTQs, a teacher was any individual employed either full-time or part-time at a public school who reported his/her main assignment as teaching in any grade(s) K - 12, including itinerant teachers and long-term substitutes. Excluded from this definition of a teacher were individuals who identified their main assignment as pre-kindergarten teacher, short-term substitute, student teacher, teacher aide, or a non-teaching specialist of any kind.

The sizes of the samples of teachers used in the various analyses are presented in the several tables of results.

Procedures

Descriptive Trends in Teacher Turnover: Tables 1 - 15

Based on the sample sizes reported in the Tables 1 through 15, weighted national estimates of the numbers of teachers (as well as their percentages and standard errors) were computed by special procedures developed by NCES for complex sample survey data (Kaufman & Huang, 1993) for the various sources of teacher supply. These national estimates were used in the statistical analyses testing for associations among variables. Because SASS data are subject to design effects due to stratification and clustering of the sample, standard errors for the national estimates were computed using the method of balanced repeated replications with the statistical software "WesVarPC".

Logistic Regression of Teacher Turnover: Tables 16 - 28

Logistic regression analyses of three major dimensions of teacher turnover (i.e., dependent variables) were performed in sequence by the series of procedures described below. The dichotomous dependent variables analyzed were: (a) moving versus staying teachers (coded 1 vs. 0), (b) switching (between cognate areas) versus remaining teachers (coded 1 vs. 0), and (c) voluntary leaving versus continuing teachers (coded 1 vs. 0).

1. A comprehensive set of potential independent (i.e., predictor) variables was identified that might be associated with one or more of the three turnover variables and that were available for all three waves of SASS/TFS (i.e., from the 1987-89, 1990-92, and 1993-95 administrations of the surveys). Since TFS was composed of two questionnaires (one the Questionnaire for Current Teachers, the other the Questionnaire for Former Teachers), information that was exclusive to the latter questionnaire was not used for analyzing voluntary leavers because the same information was not available for its comparison group (continuing teachers). However, information that was available only for continuing teachers (but not for leavers) was used in analyses of movers versus stayers and switchers versus remainers because the same information was available for these four groups since they all completed the Questionnaire for Current Teachers.
2. These potential predictor variables were classified into five categories (situational, teacher characteristics, working conditions, follow-up variables, and career judgments) termed "stages" because they were subsequently analyzed by category in stages as described in the following paragraphs. The variables, as classified by five stages, are listed in Table A-1 (along with their coding) and defined connotatively in Appendix B (Glossary). Even

Table A-1. *List of Potential Predictor Variables Classified by Stages Along with Coding of Variable Levels*

Stage I: Situational Variables (From SASS)

Teaching Level: secondary (code = 1) vs. elementary (code = 0)
Teaching Field:
general elementary (1)
general secondary (1)
other education (1)
special education (0)
Community Type (Trichotomous): central city (1), vs. rural/small town (1), vs. suburban (0)
Region (Four Levels): West (1), vs. South (1), vs. Midwest (1), vs. Northeast (0)
SASS/TFS Wave (Trichotomous): 1993-95 (1), vs. 1990-92 (1), vs 1987-89 (0)

Stage II: Teacher Characteristic Variables (From SASS)

Demographic Variables

Sex: female (1) vs. male (0)
Race/Ethnicity: White (excluding Hispanic) (1) vs Non-white (including Hispanic) (0)
Age (Quintiles)
Marital Status (Trichotomous): married (1), vs. previously married (1), vs. never married (0)
Child Age (Trichotomous): child under age 6 (1), vs child over age 5 (1), vs. no child (0)

Qualification variables

Certification: fully certified in main teaching assignment (1) vs. partly certified (0)
Teaching Experience (Quintiles)
Degree Level: masters or higher (1) vs. bachelors or lower (0)
Major/Minor in MTA: major/minor in main teaching assignment (1) vs no such major/minor (0)
Best Qualified: best qualified in MTA (1) vs. not best qualified in MTA (0)
Degree Age: number of years since earning most recent degree[a]

Career Path

Teaching Breaks (Trichotomous): two or more (1), vs. one (1), vs. no breaks in teaching employment (0)
Private School: did teach in private school (1) vs. never taught in private school (0)[b]
Prior Activity:[b]
before teaching in this school, was working in non-educational position (1)
working in education in non-teaching position (1)
teaching (1)
not working (0)

Note. See the Glossary for definitions of stages and predictor variables.

[a]Reduced sample size. [b]Low association with dependent variables.

Table A-1 (Continued). *List of Potential Predictor Variables Classified by Stages Along with Coding of Variable Levels*

Stage III: Teacher Working Conditions (From SASS)

Employment Status: regular (1) vs. irregular (0) (i.e., itinerant or long-term substitutes)
Employment Level: full-time (1) vs. part-time (0)
Salary (Quintiles)
Extra Pay: earned income during academic year in addition to base salary (1) vs. none (0)[b]
Minority enrollment: > = 20% minority enrollment (1) vs. < 20% minority enrollment (0)
Free Lunch: > = 20% students with free lunch eligibility (1) vs. <20% eligibility (0)[a]
Teacher Control: teachers report high classroom control (1) vs. moderate or low control (0)
Teacher Influence: teachers report high policy influence (1) vs. moderate or low influence (0)
Split Assignment: assigned to teach in more than one field (1) vs assigned to one field only (0)
Self-Contained Classroom: self-contained classroom (1) vs. all others (0)[b]
Extra Hours (Student): teacher spent > =7 non-school hours/week with students (1) vs. <7 hours/week (0)[b]
Extra Hours (Other): teacher spent > =7 non-school hours/week on other school-related activities vs. (1) <7 hours/week (0)
Average Class Size (Deciles) [a,b]
School Problems[b] (See Glossary)
School Size (Deciles)[a,b]

Stage IV: Teacher Followup Variables

Followup Status Variables (From TFS)

Degree Enrollment: Enrolled in degree program (1) vs not enrolled (0)
Extra Pay: earned income during academic year in addition to base salary (1) vs. none (0)
Stay School: expect to teach in this school next year (1) vs. expect to leave school (0)

Followup Change Variables (Change from SASS to TFS)

Marital Change (Trichotomous): changed from unmarried to married (1), vs. all other marital change (1), vs no marital change (0)
Dependents Change: dependent child reported in TFS year only (1) vs. all other (0)
Earned Recent Degree: earned degree during past year (1) vs. did not earn degree (0)
Certification Change (Trichotomous): changed from partly to fully certified (1), vs. changed from fully to partly certified (1), vs. no certification change (0)
Earned Promotion: earned promotion in education (1) vs. no promotion[b] (0)
Employment Change: changed from part to full-time employment (1) vs. other employment status (0)
Salary Change (Trichot.): increased salary (1), vs. decreased salary (1) , vs. no change (0)
Income Change (Trichot.): increased family income (1), vs. decreased income (1), vs. no change (0)

Stage V: Teacher Career Judgments (From SASS)

Become teacher: would become a teacher again (1) vs. would not become a teacher again (0)
Stay School: expect to teach in this school next year (1) vs. expect to leave school (0)
Continue Teaching: expect to continue teaching next year (1) vs. expect to leave teaching (0)

[a]Reduced sample size. [b]Low association with dependent variables.

though variables classified here as "teacher career judgments" were intentionally excluded in a prior effort by NCES to model teacher attrition because they could "easily obscure the effects of other more policy-relevant variables" (Arnold, Choy, & Bobbitt, 1993, p. 45), we included such variables as the final stage. Thus, it was possible to determine to what extent teacher judgement variables might obscure the effects of policy-relevant predictor variables because our staged analyses would show the effects both with and without the inclusion of such variables. Operational definitions of all variables analyzed in this research are available upon request from the senior author.

3. Potential predictor variables listed in Table A-1 were subjected to the following analyses based on the three waves of SASS/TFS combined into one large database (i.e., data from the 1987-89, 1990-92, and 1993-95 administrations of the surveys were combined):
   a. Sample size: A few variables were defined by responses to the Public School Questionnaire of SASS. For teachers whose schools did not respond to the school questionnaire, there were missing data for such teachers with respect to variables originating in the school questionnaire. A few predictor variables were excluded from further use due to such missing data, as indicted by superscript "a" to the variables listed in Table A-1.
   b. Association with dependent variables: The association of each predictor variable of Table A-1 with each of the three dependent teacher turnover variables was examined separately by means of a series of bivariate logistic regression analyses as computed by SAS, a statistical software package. A few variables were excluded from further use due to low associations with all three turnover variables (i.e., typically with odds ratios less than 1.20 that were not statistically significant, as computed by SAS using the NORMWT option), as indicated by Superscript "b" to the variables listed in Table A-1. Thus, all predictor variables without a superscript "a" or "b", as listed in Table A-1, were used in one or more of the logistic regression analyses described below.
   c. Variable scaling: Several different forms of a few predictor variables were analyzed by the procedures described above. For example, the age variable was analyzed as a continuous variable scaled in quintiles. In addition, the age factor categorized in deciles and quintiles was analyzed as indicator variables, with the latter version selected for use because it consistently produced regression models that satisfied the Hosmer-Lemeshow goodness-of-fit (GOF) test and yielded results that were relatively simple to interpret, as shown in Table 25. Similar analyses were made of the salary variable. For both the age and salary quintile variables, the upper and lower limits of

the quintile categories were based on the unweighted SASS sample instead of on the weighted nationally-estimated number of teachers for computational efficiency. In a second example of analyzing different forms of a predictor variable, the dichotomous "dependents change" variable was tried as a dichotomous and trichotomous variable in these initial bivariate analyses. The final form of such variables selected for use in further analyses was based on consideration of three factors: (a) the strength of associations with dependent variables, (b) consistency with satisfying the GOF test, and (c) simplicity. The form for each variable used in the main logistic regression analyses is listed in Table A-1. All such variables were analyzed as indicator variables.

d. Refined set of predictor variables used: The set of predictor variables selected (from step "b" above) in the form used (from step "c" above), and their bivariate associations (i.e., odds ratios) with each of the three turnover variables, are shown in Tables 20 through 23. (See also step 9 below.)

4. After the selection of predictor variables to be used in multiple logistic regression analyses was completed, the possibility of interactions between pairs of predictor variables was examined extensively. The possibility of an interaction of each predictor variable was examined separately with each of selected set of eight basic variables (sex, age, certification, teaching level, teaching field, community type, region, and SASS/TFS wave) by means of a series of logistic regression analyses incorporating two predictor variables (a basic variable plus each other predictor variable, in turn). Partly because of the large sample sizes provided by SASS/TFS, it was common to find statistically significant interactions between such pairs of predictor variables with respect to each of the three teacher turnover variables. When included in larger logistic regression analyses, however, such interactions typically were of negligible value in increasing either the predictive power of regression models or in satisfying the GOF test. Consequently, the *c* indices for the logistic regression analyses of pairs of predictor variables with, and without, the interaction term were compared. If the interaction version of such logistic regressions increased the *c* index by 0.01, or greater, the interaction term was used in a full regression model to determine whether it contributed to the model's predictive power and/or to satisfying the GOF test. No interaction terms met this criterion for inclusion in subsequent analyses.

5. For each of the three teacher turnover variables separately, predictor variables that were significantly associated with a turnover variable (from step 3.b. above) were selected for inclusion in one of five independent logistic regression models (one model for each of the

five predictor variable stages). Thus, five such models were computed for each of the three teacher turnover variables separately to identify predictor variables that were significantly associated with a turnover variable as computed by SAS using the NORMWT option. The predictor variables thus identified as significant at the .05 level were used in the staged analyses described in step 6. below. Because SASS data are subject to design effects due to stratification and clustering of the sample, standard errors for the *beta* weights computed by SAS systematically underestimated their size. Therefore, the criterion for selection of predictor variables for inclusion in these analyses based on statistical significance computed by SAS was quite liberal (i.e., it tended to include variables of marginal statistical significance). This was acceptable, because we did not wish to exclude variables of potential importance at this beginning phase of the analyses.

6. For each of the three teacher turnover variables separately, the predictor variables that were significantly associated (as computed by SAS) with a turnover variable in the multiple logistic regression models in step 5 above were retained for inclusion in five trimmed independent logistic regression models (one model for each of the five predictor variable stages). Five such trimmed models were computed for each of the three teacher turnover variables, the results of which are summarized in Table 26.
7. For each of the three teacher turnover variables separately, the separate logistic regression models (as identified in step 6 above) for each predictor variable stage (see Table 26), were used incrementally to construct a series of increasingly large models in a cumulative staged process. The results are summarized in Table 27. The first stage was composed of the situational variables, as shown in the first rows of both Tables 26 and 27. Next, the variables of the second stage (teacher characteristics) were combined with the variables of the first stage, the results of which are summarized in the second row of Table 27. Next, the variables of the third stage (teacher working conditions) were combined with the variables of the first two stages, the results of which are summarized in the third row of Table 27. Then, the variables of the fourth stage (teacher follow-up variables) were combined with the variables of the first three stages, the results of which are summarized in the fourth row of Table 27. Finally, the variables of the fifth stage (teacher career judgments) were combined with the variables of the first four stages, the results of which are summarized in the fifth row of Table 27. This fifth row includes all the predictor variables selected within all five stages by the process described in step 5 above, and constitutes the "full logistic regression models," one for each teacher turnover variable, as shown in Table 24.

8. Upon fitting a full logistic regression model to each of the three teacher turnover variables (see Table 24), the variables with the greatest predictive power (i.e., with few exceptions, those with odds ratios greater than, or equal to, 1.50, or with odds ratios less than, or equal to, 0.67) were selected and used to construct reduced logistic regression models. As many predictor variables as possible were eliminated to attain the most parsimonious mode, while continuing to satisfy the GOF test and without appreciable loss in predictive power as determined by the size of the *c* index. These efforts were successful for all three dependent variables analyzed, the results of which are shown in Table 25. For example, decreasing the 33 predictor variable parameters of the full model for voluntary leaving versus continuing teachers to the 15 parameters of the reduced model resulted in no appreciable loss in predictive power (i.e., the *c* index of 0.813 for the full model was reduced by only 0.015 to .798 for the reduced model). Therefore, parsimony was achieved in the reduced model without appreciable loss of predicative power.
9. Because SASS data are subject to design effects due to stratification and clustering of the sample, standard errors for the *beta* weights computed by SAS systematically underestimated their size. Therefore, the standard errors for *beta* weights (a) of the bivariate logistic regressions (from which the odds ratios reported in Tables 20 through 23 were computed), and (b) of the full logistic regression models seen in Table 24 and the reduced logistic regression models seen in Table 25, were computed by using the method of balanced repeated replications with the statistical software "WesVarPC". These standard errors were then used to compute the statistical significance of the odds ratios seen in Tables 20 through 23 and the confidence limits for the odds ratios seen in Tables 24 and 25.
10. All logistic regression models included in this report were based on the number of nationally estimated teachers as computed from the SASS weights (rounded to the nearest whole number) for each teacher in the sample. Use of the nationally-weighted number of teachers was necessary to compute accurate *beta* weights, *c* indices, and GOF tests. Because the logistic regression analyses were based on the nationally estimated number of teachers instead of on the SASS sample, it was necessary to divide the χ^2 computed by SAS for the GOF test by the average weight of teachers in the relevant SASS sample in order for the χ^2 test to be based on true effective sample sizes rather than on the estimated national population.

APPENDIX B: GLOSSARY[4]

Attrition of Teachers

See Exit Attrition.

Age (Quintiles)

The age of teachers in years was converted to ranked quintiles for the three SASS years combined (1987-88, 1990-91, and 1993-94). The upper and lower limits for each of the quintile categories for the three SASS years combined are shown in Tables 17 and 21.

Become Teacher

Become teacher was defined as a dichotomous variable during SASS years: teachers who most likely would become a teacher again if they could go back to their college days and start over, versus teachers who probably would not become teachers again under these circumstances.

Best Qualified

Best qualified was defined as a dichotomous variable during SASS years: teachers report of the main teaching assignment for which they are best qualified matches their actual main teaching assignment, versus does not match.

***c* Index**

See Concordance Index

Certification

Certification of teachers was defined as a dichotomous variable during SASS years: fully certified versus partly certified teachers. See Fully-Certified Teachers.

Certification Change (Trichotomous)

Certification change (trichotomous) from a SASS to TFS year was defined as a three-category variable in which teachers were classified according to their certification status as follows: changed from partly to fully certified, changed from fully to partly certified, versus no change.

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[4]Operational definitions of variables analyzed in this research are available upon request from the senior author.

Child Age (Trichotomous)

Child age (trichotomous) was defined as a three-category variable during SASS years in which teachers were classified by the age of their youngest dependent child (if any) as follows: a dependent child under age six, a dependent child over age five, versus no dependent child.

Cognate Area

A cognate area is a group of main teaching assignment fields that were judged to be more related to each other in academic content than to different teaching assignments that are classified in other cognate areas (see Main Teaching Assignment). The 1990-91 and 1993-94 SASSs recognized 53 main teaching assignment fields in grades K - 12, including one termed "all others." In order to analyze teacher supply variables as a function of broad teaching assignment categories with a minimum acceptable sample sizes each, these 53 fields were grouped into eight cognate areas as follows:

General Elementary: Kindergarten, General elementary.

Language: English/language arts, English as a second language, Journalism, Reading, French, German, Latin, Russian, Spanish, Other foreign language.

Mathematics/Science: Computer science, Mathematics, Biology/life science, Chemistry, Geology/earth science, Physics, General and all other science.

Social Studies: American Indian studies (Native American), Philosophy, Religion, Social studies/social science.

Arts/Physical Education: Art, Dance, Drama/theater, Music, Physical education/health.

Business/Vocational Education: Home economics, Accounting, Agriculture, Business/marketing, Health occupations, Industrial arts, Trade and industry, Technical, Other vocational/technical education.

Other General Education: Included in this cognate area are main teaching assignments that are not subject matter specific. They are: Basic skills and remedial education, Bilingual education, Gifted, Military science, All others.

Special Education: Special education (general), Emotionally disturbed, Mentally retarded, Speech/language impaired, Deaf and hard-of-hearing, Visually handicapped, Orthopedically impaired, Mildly handicapped, Severely handicapped, Specific learning disabilities, Other special education.

Cognate Area Transfer

Cognate area transfer was defined as continuing teachers who switch from a main teaching assignment (either voluntarily or involuntarily) classified in one cognate area to a main teaching assignment classified in a different cognate area (e.g., from mentally retarded in special education to reading in language education) from one year to the next. See also Switchers: Cognate Area, and Switchers: Main Teaching Assignment.

Community Type (Trichotomous)

Community type (trichotomous) was defined as a three-category variable in which communities in which schools were located are scaled in terms of population density from low to high, as follows: (a) Rural/Small Town, (b) Suburban (including large towns, urban fringe of mid-size city, and urban fringe of large city), and (c) Central City (including mid-size city and large city). The locales included in the three categories are:

Rural: A place with fewer than 2,500 people or a place designated as rural by Census.

Small town: A town not within a metropolitan area and with a population less than 25,000 but greater than 2,500.

Large town: A town not inside a metropolitan area, with a population greater than or equal to 25,000.

Urban fringe of a mid-size city: Place with a metropolitan area of mid-size city and defined as urban.

Urban fringe of a large city: Place within a metropolitan area of a large city and defined as urban by Census (i.e., within same county).

Mid-size city: Central city of a standardized metropolitan area having a population less than 400,000 and a population density less than 6,000 people per square mile.

Large city: Central city of a standardized metropolitan area having a population greater than or equal to 400,000 or a population density greater than or equal to 6,000 people per square mile.

Concordance Index (*c*)

The *c* (for concordance) index is a measure of the strength of the association between one or more independent variables (i.e., predictor variables) and a dichotomous dependent variable such as frequently analyzed by logistic regression. The *c* index estimates the probability that such a regression model correctly orders a randomly selected pair of teachers (e.g., one randomly selected from level "0" of a dichotomous dependent variable, such as continuing teachers; the other randomly selected from level "1" of a dichotomous dependent variable, such as voluntary leaving teachers). The *c* index ranges from a lower limit of 0.50 to an upper limit of 1.00. More specifically, for any such pair of teachers, the *c* index gives the probability that a correct judgment can be made, by using the *beta* weights of the logistic regression model, as to which one of the pair of teachers is of the level "0" type (e.g., continuing) and which one is of the level "1" type (e.g., voluntary leaving). If ($c = 0.50$), the probability of correctly assigning each of a pair of teachers by level is pure chance (i.e., the model has no predictive power); if ($c = 0.75$), the probability of correctly assigning each of the pair of teachers by level is 0.75 (i.e., the model provides substantial predictive power); if ($c = 1.00$), each of the pair of teachers will be correctly assigned by level (i.e., the model has perfect predictive power). The *c* index is equal to the area under a receiver operating characteristics curve (ROC), and is arithmetically equivalent to one-half Summer's D rank correlation index plus 0.5.

More information about the *c* index can be found in Harrell, Lee, and Mark (1996, pp. 370-71).

Continue Teaching

Continue teaching was defined as a dichotomous variable during SASS years: plan to continue teaching as long as possible or until retirement, versus plan to leave sometime before this.

Continuers

Teachers who continue teaching employment (in either public or private schools) from one year to the next are called Continuers. See also Continuing Teachers.

Continuing Teachers

Continuing teachers were defined as public school teachers who continued teaching in any school (public or private) from one year to the next.

Degree Enrollment

Degree enrollment defined as a dichotomous variable during TFS years: teachers enrolled in a degree program (full or part-time) during the TFS year versus not so enrolled.

Degree Level

Degree level was defined as a dichotomous variable during SASS years: teachers who had earned a masters degree or higher, versus teachers who had earned a bachelors degree or less (including no degree).

Dependent Change

Dependent change for teachers from a SASS to TFS year was defined as a dichotomous variable: change in dependent child from none in SASS year to one or more in TFS year versus all other dependent child status.

Earned Recent Degree

Earned recent degree was defined as a dichotomous variable during TFS years: teachers who earned a college degree during 12-month period prior to a TFS administration versus no such degree completion.

Employment Change

Employment change for teachers from a SASS to TFS year was defined as a dichotomous variable: changed from part to full-time employment (in or out of education) versus any other employment status.

Employment Level

Employment level was defined as a dichotomous variable during SASS years: Full-time teachers were those who reported being employed full time as teachers in public schools. All public school teachers who reported being employed less than full time as teachers were defined as part-time teachers.

Employment Status

Employment status was defined as a dichotomous variable during SASS years: Regular teachers were those who reported being employed as regular teachers in public schools. All teachers who reported being employed as itinerant or long-term substitute teachers in public schools were defined as irregular teachers. [Short-term substitute teachers, student teachers, teachers aides, and other school staff members were not defined as teachers.]

Exit Attrition

Exit attrition was defined as public school teachers (K through 12) in one year who did not continue as teachers in either public or private schools (K through 12) the following year. Since the focus is on public school teachers grades K through 12, such teachers who switched to pre-kindergarten the following year were included in exit attrition, as well as those who left the ranks of employed teachers entirely. If transfers to pre-K are not classified as exit attrition, slightly lower exit attrition percentages are obtained (Bobbitt, Leich, Whitener, & Lynch, 1994).

Experienced Teachers

Experienced teachers were defined as teachers who had at least one year of experience as a regular, itinerant, or long-term substitute teacher in a public or private school, either full-time or part-time.

Extra Pay

Extra pay was defined as a dichotomous variable during TFS years: teachers who received any earned income in addition to academic base year salary for teaching from any source during the school year, versus teachers who had no such income.

Extra Hours (Other)

Extra hours (other) was defined as a dichotomous variable during SASS years: teachers spend at least seven out-of-school hours per week on school related activities not involving student interaction versus less than seven such hours.

Follow-Up Change Variables

See Teacher Follow-Up Variables.

Follow-Up Status Variables

See Teacher Follow-Up Variables.

Full-Time Teachers

See Employment Level.

Fully-Certified vs. Partly-Certified Teachers

Most public school teachers are fully certified in their main teaching assignment as defined by holding a regular or standard certificate, an advanced professional certificate, or a probationary certificate (a certificate for teachers who have satisfied all requirements for a regular certificate except for completing a probationary period). All teachers lacking in this basic qualification for teaching are classified as partly certified in their main teaching assignments.

Goodness-of-Fit (GOF) Test (χ^2)

The Hosmer-Lemeshow Goodness-of-Fit (GOF) statistic (χ^2) of whether the frequencies predicted by a logistic regression model differ significantly from expected frequencies. The model is said to have a good fit to the data if the χ^2 is not statistically significant at $p < 0.05$ level. See also the text by Hosmer and Lemeshow (1989) entitled *Applied Logistic Regression.*

Income Change (Trichotomous)

Income change (trichotomous) from a SASS to TFS year was defined as a three-category variable in which teachers were classified according to their total family income as follows: family income increased, family income decreased, versus no change.

In-Switchers

See Out-Switchers.

Indicator Variables

Dichotomous variables are also called indicator variables, with one level designated as the reference category (code = 0), and the other level a comparison category (code = 1). In addition, a continuous variable such as age can be blocked into K ordered categories (e.g., the first, second, third, and fourth quartiles). Instead of analyzing such a categorized variable as continuous, it can be analyzed as a series of (K - 1) dichotomous variables, with (K - 1) of the categories being compared with the remaining category designated as the reference category. In this example, the first age quartile might be designated as the reference category (code = 0). The second (code = 1) vs. the first age quartile defines one indicator variable, the third (code = 1) vs. the first age quartile defines a second indicator variable, and the fourth (code = 1) vs. the first age quartile defines a third indicator variable. Thus, the association of the age factor (when so blocked into K ordered categories) with a dichotomous dependent variable can be analyzed as a set of three dichotomous indicator variables providing *beta* coefficients for

each indicator variable and associated odd ratios for comparing each of the (K - 1) categories with the reference category. Since the age factor represented by the three indicator variables includes an age category for each member of the sample, no reduction of sample size occurs in using indicator variables. Similarly, a set of indicator variables can be constructed for any multilevel categorical variable (of either the nominal or continuous types). Such categorical variables will include (K - 1) indicator variables, where K equals the number of levels of the categorical variable.

Involuntary Leavers

See Voluntary vs. Involuntary Leavers.

Involuntary Movers

See Voluntary vs. Involuntary Movers.

Irregular Teachers

See Employment Status.

Irregular/Part-Time Teachers vs. Regular/Full-Time Teachers

A public school teacher's employment status can be (a) regular versus irregular (i.e., as an itinerant or long-term substitute teacher), and (b) full or part time. Teachers who have regular full-time jobs are defined as regular/full-time teachers. All other teachers (i.e., those with irregular and/or part-time jobs) are defined as irregular/part-time teachers. [Individuals who are appointed as full-time regular teachers are assumed to have the best jobs in terms of stability, pay, and prestige, while teachers who have irregular and/or part-time appointments are assumed to have less desirable jobs.]

Leavers

Teachers who leave the ranks of employed teachers (K through 12) from one year to the next are called Leavers. See Exit Attrition.

Logistic Regression

A type of regression specifically designed for analyzing data with a dichotomous dependent variable and one or more independent variables. Independent variables may be either continuous or categorical. See also the text by Hosmer and Lemeshow (1989) entitled *Applied Logistic Regression*.

Logistic Regression Analysis Stages

In analyzing the relationship between predictor variables and teacher turnover variables by logistic regression, all predictor variables were classified into one of five ordered "stages" (i.e., categories) as follows: situational variables, teacher characteristic variables, teacher working condition variables, teacher follow-up variables, and teacher career judgments. As described in Appendix A (Data Analysis Methods), these five categories of variables were analyzed in stages.

Main Teaching Assignment (MTA)

The main teaching assignment of a teacher was defined as a teacher's selection of one of 54 subject matter assignment options provided by the Public School Teacher Questionnaire of SASS (excluding prekindergarten), 11 of which were defined as Special Education and the remaining 43 of which were classified in this study as General Education.

Major/Minor in MTA

Major/minor in MTA was defined as dichotomous variable during SASS years: teachers who had earned any degree at the bachelors or higher level with a major or minor field of study that corresponded with the subject matter of their main teaching assignment, versus teachers whose majors or minors did not so correspond. See Main Teaching Assignment.

Marital Change (Trichotomous)

Marital change (trichotomous) from a SASS to TFS year was defined as a three-category variable in which teachers were classified according to their marital status as follows: unmarried to married, all other marital status change, versus no change.

Marital Status (Trichotomous)

Marital status (trichotomous) was defined as a three-category variable during SASS years in which teachers were classified as follows: married, previously married, versus never married.

Migrant Teachers

Migrant teachers were defined as public school teachers who (a) transferred or moved to a different public school in a different district, or (b) to a private school teaching position from one year to the next. See also Reassignment of Teachers, and Movers.

Movers

Continuing teachers who transfer as teachers from one school to a different school are called Movers. See also School Transfer, Migrant Teachers, and Reassignment of Teachers.

Odds Ratio (OR)

General: The odds ratio (OR) is defined as the chances (i.e., odds) of one event (e.g., Event A) to the odds of a different comparison event (e.g., Event B). The odds of an event are defined as the probability of the event (p) divided by ($1 - p$). An OR is the ratio of the odds of an Event A ($p/(1-p)$) to the odds of an event B ($p/(1-p)$). Consequently, ORs can range from a lower limit of 0.00 to an upper limit of infinity. An OR is an indicator of the strength of association between two binary variables.

OR > 1.00: An OR > 1.00 means that the odds of an Event A are greater than the odds of an Event B. For example, suppose the proportion of continuing teachers who are fully certified (as contrasted with being partly certified) is 0.95 (an Event A). Next suppose the proportion of entering teachers who are fully certified is 0.80 (an Event B). The ratio of the odds (OR) of this Event A [$p/(1-p)$,or .95/(1-.95) = 19] to the odds of this Event B [$p/(1-p)$, or .80/(1-.80) = 4)] is therefore 19/4, or 4.75. This means that the chances (odds) of a continuing teacher being fully certified are almost five times higher (OR = 4.75) than the chances (odds) of an entering teacher being fully certified.

OR = 1.00: An OR = 1.00 means that the odds of an Event A are equal to the odds of an Event B.

OR < 1.00: An OR < 1.00 means that the odds of an Event A are less than the odds of an Event B. For example, suppose that the ratio of the odds of a continuing teacher being a female (an Event A) to the odds of an entering teacher being a female (an Event B) is 0.50 (OR = 0.50). This means that the odds of being a female continuing teacher are only half as great as the odds of being a female entering teacher. By computing the reciprocal of an OR < 1.00 such as this (i.e., 1.00/.50 = 2.00), it can be converted to the odds of the more likely event (this Event B) to the less likely event (this Event A). In this example, the converted OR = 2.00 means that the chances of an entering teacher being a female instead of a male are twice as great as the same odds for continuing teachers. Similarly, to compare the magnitude of an OR < 1.00 for one predictor variable on the same metric with the magnitude of an OR > than 1.00 for a different predictor variable, compute the reciprocal of the OR < 1.00 just for comparison purposes.

Out-Switchers

Continuing teachers who switch their main teaching assignment from one year to the next are classified in two separate ways: by the cognate area out of which they switch (called Out-Switchers) and the cognate area into which they switch (called In-Switchers). For teachers who switch from one main teaching assignment to a different main teaching assignment in the same cognate area, their cognate areas of out-switching and in-switching are the same (i.e., there is no cognate area transfer). See also Main Teaching Assignment and Cognate Area.

Partly-Certified Teachers

See Fully-Certified vs. Partly-Certified Teachers

Part-Time Teachers

See Employment Level.

Phases of Logistic Regression Analysis

See Logistic Regression Analysis Phases

Public School Migrant Teachers

Public school migrant teachers were defined as public school teachers in one year who transferred to a teaching position in a different public school or in a private school (either in- or out-of-state) the following year.

Race/Ethnicity

Race/ethnicity was defined as a dichotomous variable during SASS years: teachers who were White (non-hispanic), versus all minority teachers.

Ratio of the Odds

See Odds Ratio.

Reassignees

See Reassignment of Teachers.

Reassignment of Teachers

Reassignment of teachers was defined as the transfer of public school teachers from one school to a teaching position to another school within the same school district from one year to the next. School transfer within a district could be either voluntary or involuntary. See also Migrant Teachers, and Movers.

Region

Region was defined as four areas of the United States. The four areas defined by clusters of states were as follows:

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

Regular Teachers

See Employment Status.

Regular/Full-Time Teachers

See Irregular/Part-Time Teachers

Remainers

Continuing teachers who remained in the same main teaching assignment from one year to the next are called Remainers. See Main Teaching Assignment and Teaching Assignment Remaining

Retention

See School Retention of Teachers.

Salary Change (Trichotomous)

Salary change (trichotomous) from a SASS to TFS year for continuing teachers was defined as a three-category variable in which teachers were classified according to their academic year base salary as follows: salary increased, salary decreased, versus no change.

Salary (Quintiles)

The academic year base salary of teachers in dollars during the SASS year was converted to ranked quintiles for each of the three SASS years. The upper and lower limits for each of the quintile categories for the 1993-94 school year are shown in Tables 18 and 22.

SASS/TFS Wave (Trichotomous)

SASS/TFS wave (trichotomous) was defined as a three-category continuous variable in which three SASS/TFS administrations were classified by pairs of survey years (the first year of a pair for SASS, the second for TFS) as follows: 1993-95, 1990-92, versus 1987-89.

School Migration of Teachers

See Migrant Teachers.

School Problems

A series of seven possible school problems were defined as dichotomous variables during SASS years. In short, these possible problems were student absenteeism, student physical conflicts, student substance abuse, student misbehavior, student possession of weapons, principals not enforcing school rules, and teachers not enforcing school rules. The bivariate relationships of each of these problems (at a moderate or serious level versus at minor or nonexistent level) with teacher turnover dependent variables were not statistically significantly, and were not analyzed further.

School Reassignment of Teachers

See Reassignment of Teachers.

School Retention of Teachers

School retention was defined as public school teachers in one year who continued as teachers in the same school the following year.

School Transfer of Teachers

School transfer was defined as public school teachers in one year who transferred to a teaching position in a different public or private school the following year, either in- or out-of-state. School transfer is the sum of school reassignment and school migration of teachers.

Sector

Sector refers to the dimension of public versus private schools. Public schools are in the public sector, while private schools are in the private sector.

Sex

Sex was defined as a dichotomous variable during SASS years: teachers who were male versus teachers who were female.

Situational Variables

Situational variables were a stage (i.e., category) of contextual predictor variables based on how teaching appointments were situated in terms of level, teaching field, community type, and region. In addition, the SASS/TFS Wave variable was included in this category.

Stay School (SASS)

Stay school was defined as a dichotomous variable during SASS years: teachers expect to continue teaching in the same school during the next year, versus do not so expect.

Stay School (TFS)

Stay school was also defined as a dichotomous variable during TFS years: teachers expect to continue teaching in the same school during the next year, versus do not so expect.

Split Assignment

Split Assignment was defined as a dichotomous variable during SASS years: teachers responsible for teaching courses in more than one main assignment field versus teaching courses in only one main teaching assignment field.

Stages

See Logistic Regression Analysis Stages

Stayers

Continuing public school teachers who stay as teachers in the same school from one year to the next are called Stayers. See School Retention of Teachers

Switchers: Cognate Area

Continuing teachers who switch from a main teaching assignment (either voluntarily or involuntarily) classified in one cognate area to a main teaching assignment classified in a different cognate area (e.g., from mentally retarded in special education to reading in language education) from one year to the next are called Cognate Area Switchers.

Switchers: Main Teaching Assignment

Continuing teachers who change from one main teaching assignment to a different main teaching assignment (e.g., from mathematics to chemistry) from one year to the next are called Teaching Assignment Switchers. See also Teaching Assignment Transfer and Main Teaching Assignment.

Teacher

In keeping with the SASS definition, a teacher was any individual employed either full-time or part-time at a school who reported their main assignment as teaching in any grade(s) K - 12, including itinerant teachers and long-term substitutes. Excluded from this definition of a teacher were individuals who identified their main assignment as a pre-kindergarten teacher, short-term substitute, student teacher, teacher aide, and a non-teaching specialist of any kind.

Teacher Attrition

See Exit Attrition

Teacher Career Judgments

Teacher career judgments were a stage (i.e., category) of predictor variables based on responses of teachers to questionnaire items (during the SASS year) asking about whether they would elect to go into teaching again if they could start over, about their plans for the following year, and about how long they expect to continue teaching.

Teacher Characteristic Variables

Teacher characteristic variables were a stage (i.e., category) of predictor variables based on attributes specifically of teachers such as their demographic characteristics, their qualifications for being employed as teachers, and their career path expectations.

Teacher Control

Teacher control was defined as a composite dichotomous variable during SASS years: teachers reporting a high degree of control in his/her classroom averaged over various student instruction, assessment, and discipline factors, versus teachers who reported only moderate or low control over such classroom factors.

Teacher Follow-Up Variables

Teacher follow-up variables were a stage (i.e., category) of predictor variables based on (a) employment considerations during a TFS year, and (b) change variables from a SASS to a TFS year, such as change in dependence status, marital status, certification status, employment status, income, etc.

Teacher Influence

Teacher influence was defined as a composite dichotomous variable during SASS years: teachers reporting a high degree of influence over school policy averaged over various curriculum, student discipline, student grouping, and in-service programs versus teachers who reported only moderate or low influence over such school policy factors.

Teacher Migration

See Migrant Teachers.

Teacher Retention

See School Retention of Teachers.

Teacher Supply

See Sources of Teacher Supply.

Teacher Transfer

Teacher transfer is a generic term defined as teachers who transfer from one school to another, or to a different main teaching assignment, or both, from one year to the next. See School Transfer of Teachers and Teaching Assignment Transfer.

Teacher Turnover

Teacher turnover is a generic term encompassing the following three major changes in a teacher's status from one year to the next: School Transfer of Teachers (Movers), Teaching Assignment Transfer (Switchers), and Exit Attrition (Leavers).

Teacher Working Conditions

Teacher working conditions were a stage (i.e., category) of predictor variables based on attributes of the work environment of teachers including their employment status, salary,

teacher classroom control, and minority enrollment in the school to which they were assigned.

Teaching Assignment Remaining

Teaching assignment remaining was defined as teachers who continued in the same main teaching assignment from one year to the next. See Main Teaching Assignment.

Teaching Assignment Transfer

Teaching assignment transfer was defined as continuing teachers who switch (either voluntarily or involuntarily) from one main teaching assignment to a different main teaching assignment (e.g., from mathematics to chemistry) from one year to the next, either within or between cognate areas. See also Switchers: Cognate Area, and Switchers: Main Teaching Assignment.

Teaching Assignment Switching

See Teaching Assignment Transfer.

Teaching Breaks (Trichotomous)

Teaching breaks (trichotomous) was defined as a three-category variable in which the number of previous breaks in teaching service of one year or more were reported during SASS years as follows: two or more prior breaks in teaching service, one break, versus no such breaks.

Teaching Experience (Quintiles)

Teaching experience in years (with both full and part-time years counted as one year) in public and private schools combined was converted to ranked quintiles for the three SASS years combined (1987-88, 1990-91, and 1993-94). The upper and lower limits for each of the quintile categories for the three SASS years combined are shown in Tables 17 and 21.

Teaching Experience (Full-Time)

Full-time teaching experience in years was based on such experience in public and private schools combined.

Teaching Field

Teaching field was defined by four general categories of teaching that represented groupings of related main teaching assignments (see Main Teaching Assignments). The 1990-91 and 1993-94 SASSs recognized 53 main teaching assignment fields in grades K - 12, including one termed "all others." These 53 main teaching assignments were grouped into four teaching fields as follows:

General Elementary: Kindergarten, general elementary, bilingual education, reading.

General Secondary: American Indian/Native American studies, art, basic skills and remedial education, computer science, dance, drama/theater, English/language arts, English as a second language, gifted, journalism, mathematics, military science, music, philosophy, religion, social studies/social science (including history), French, German, Latin, Russian, Spanish, other foreign language, biology/life science, chemistry, geology/earth science/space science, physical science, physics, general and all other science, all others.

Other Education: Physical education, health education, home economics, accounting, agriculture, business/marketing, health occupations, industrial arts, trade and industry, technical, other vocational/technical education.

Special Education: Special education (general), emotionally disturbed, mentally retarded, speech/language impaired, deaf and hard-of-hearing, visually handicapped, orthopedically impaired, mildly handicapped, severely handicapped, specific learning disabilities, other special education.

Teaching Level

Teaching level (i.e., the level at which a teacher taught) was defined during SASS years as a dichotomous variable based on the grade(s) a teacher was assigned to teach instead of on the type of schools in which they taught: secondary teaching level teachers (mostly 9th through 12th grades) versus elementary level teachers (mostly K through 6th grades). Teaching level was coded by NCES based on a complex set of criteria that assigned 7th and 8th grade teachers to either the secondary or elementary level depending on an algorithm described by Henke, Choy, Geis, & Broughman (1996, Appendix C, p. 201).

Turnover of Teachers

See Teacher Turnover

Voluntary vs. Involuntary Leavers

The distinction between voluntary versus involuntary leavers was based on reasons given for leaving during TFS years. Voluntary leavers were defined as those who reported leaving for the following reasons: family or personal move, pregnancy/child rearing, to pursue another career, for better salary or benefits, to take courses for improving career opportunities either in or out of the field of education, to take a sabbatical break, and dissatisfied with teaching. Involuntary leavers were defined as those who reported leaving for the following reasons: retirement, health, and school staffing action.

Voluntary vs. Involuntary Movers

The distinction between voluntary versus involuntary movers was based on reasons given for moving during TFS years. Voluntary movers were defined as those who reported moving for the following reasons: family or personal move, for a better salary or benefits, for a better teaching assignment, and dissatisfied with the school. Involuntary movers were defined as those who reported moving for school staffing action.

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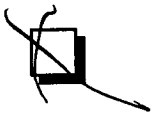

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