TRENDS IN THE TURNOVER OF TEACHERS FROM 1991 TO 2004:
ATTRITION, TEACHING AREA TRANSFER, AND SCHOOL MIGRATION

Data Analysis Report No. 2007-DAR2

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DATA ANALYSIS REPORTS

Data Analysis Reports are a means of rapid dissemination of the results of data analyses in tabular and graphical form with minimal research or theoretical background, and with minimal 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.
SUMMARY

Teacher turnover has become a major concern in educational research and policy analysis because of the demand it creates for replacement teachers, with associated programmatic and financial costs. Accordingly, the main purpose of this research was to quantify trends in teacher turnover phenomena during a 13-year period ending with the most recent national data for 2004 in order to provide information relevant to assessing the implications of turnover trends for teacher demand, supply, and shortage.

Teacher turnover refers to major changes in a teacher’s assignment from one school year to the next. Turnover includes three components: leaving teaching employment (commonly referred to as teacher attrition), transfer in a teaching assignment in one subject area to an assignment in another area teaching area transfer (referred to as teaching area transfer), and moving to a different school (commonly referred to as teacher migration).

This Data Analysis Report is based on analyses of national data from four administrations of the Schools and Staffing Survey (SASS) and the Teacher Follow-Up Survey (TFS), the one-year longitudinal component of SASS. The trends in teacher turnover reported here from 1991-02 to 2004-05 extend the earlier analyses reported by Boe, Cook, and Sunderland (in press) in three respects:

- The most recent turnover data from the 2004-05 TFS is used to extend turnover trends through 2000-01 as reported earlier by Boe et al.,
- Turnover trends for all public school teachers are analyzed here as well as separately for teachers from the fields of special education and general education.
- Trends in teacher attrition are compared with trends in employee attrition from other occupations.

Some of the key findings are summarized below:

1. With respect to all public school teachers, annual attrition and teaching area transfer percentages increased steadily and substantially during the 13-year period analyzed (to 8% and 15%, respectively, in 2004-05), whereas school migration percentages remained level at about 7-8%.

2. The annual attrition percentages for special education teachers (SETs) and general education teachers (GETs) have each increased steadily and substantially during the 13-year period analyzed, but do not differ significantly.
3. The annual teaching area transfer percentages for SETs and GETs have each increased steadily and substantially during the 13-year period analyzed, while the transfer percentage of GETs was significantly higher than that for SETs by 2004-05 (15% vs. 10%, respectively).

4. The annual school migration percentages for SETs and GETs have each increased steadily since 1994-05, with the migration percentage of SETs being significantly higher than that for GETs by 2004-05 (11% vs. 8%, respectively).

5. Total turnover has been high and has continued to increase during the 13-year period analyzed, to a level where almost 29% of public teachers either left teaching, switched teaching area, or moved to a different school annually during the 2004-05 school year.

6. Public school teachers did not have higher rates of “corporate attrition” than non-business employees, and possibly were even lower. Private school teachers, however, had considerably higher rates of corporate attrition than do non-business employees.

In conclusion, it is clear that the cumulative effects of initiatives in recent years to reduce the high and increasing rates of teacher turnover have not been effective at the overall national level. The turnover of teachers in public schools continues to be costly to the field and a significant contributor to the shortage of sufficient numbers of qualified teachers in both special and general education.
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INTRODUCTION

Teacher turnover has become a major concern in educational research and policy analysis because of the demand it creates for replacement teachers, with associated programmatic and financial costs [National Commission on Teaching and America’s Future (NCTAF), 2003; Kozleski, Mainzer, & Deshler, 2000; Johnson, Berg, & Donaldson, 2005]. Accordingly, the main purpose of this research was to quantify trends in teacher turnover phenomena during a recent 13-year period ending with the most recent national data for 2004 in order to provide information relevant to assessing its implications for teacher demand, supply, and shortage.

Teacher turnover refers to major changes in a teacher’s assignment from one school year to the next. Turnover includes three components: leaving teaching employment (commonly referred to as teacher attrition), transfer from a teaching assignment in one subject area to an assignment in another teaching area (referred to as teaching area transfer), and moving to a different school (commonly referred to as teacher migration).

This Data Analysis Report is based on analyses of national data from four consecutive administrations of the Schools and Staffing Survey (SASS) and the Teacher Follow-Up Survey (TFS), the one-year longitudinal component of SASS. Data Analysis Reports are a means of rapid dissemination of the results of data analyses in tabular and graphical form with minimal research and theoretical background, and little 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.

The trends in teacher turnover reported here extend the analyses reported earlier by Boe, Cook, and Sunderland (in press) in three respects: (a) the most recent turnover data from the 2004-05 TFS is used to extend turnover trends through 2000-01 as reported earlier by Boe et al., (b) turnover trends for all public school teachers are analyzed as well as for special and general education teachers separately (as previously reported by Boe et al.), and (c) trends in teacher attrition are compared with trends in employee attrition from other occupations. In these respects, results reported here are original (instead of replications of prior published research). Specifically, we investigated the following research questions:

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2 Data sources, variable definitions, and analytic methods used in this research are provided in the Appendix to this Report.
• For all public school teachers, what trends occurred in the separate rates of teacher attrition, teaching area transfer, and school migration during a recent thirteen-year period?
• For special education teachers (GETs) and general education teachers (GETs) separately, what trends occurred in the separate rates of teacher attrition, teaching area transfer, and school migration during a recent thirteen-year period, and to what extent did SETs and GETs differ?
• What trends occurred in the combined rate of teacher turnover (unduplicated sum of attrition, teaching area transfer, and migration) during a recent thirteen-year period for all public school teachers, and to what extent did SETs and GETs differ?
• How did the rates of attrition of public school teachers and private school teachers compare with the rates of attrition in other occupations?

HIGHLIGHTS OF TURNOVER RESULTS
The results of our turnover analyses are presented in the six figures in the section “Figures of Results” (pages 7 to 13). Results of particular interest are highlighted and described in the body of this Report. Data sources, variable definitions, and analytic methods used in this research are provided in the Appendix to this Report.

Turnover of Public School Teachers: Attrition, Transfer, and Migration
As seen in Figure 1, the annual attrition percentages of public school teachers increased steadily and substantially from about 5% in 1991-02 to about 8% in 2004-05. This trend is statistically significant (p<.001). As also seen in Figure 1, annual teaching area transfer percentages likewise increased steadily and substantially (from about 8% 1991-00 to about 14% in 2004-05). This trend is also statistically significant (p<.001). In contrast, the rate of school migration was essentially flat from 1991-02 to 2004-05 (7% to 8%).

Turnover of General versus Special Education Teachers
Exit Attrition
As seen in Figure 2, the annual attrition percentages of both public school SETs and GETs increased steadily and substantially from a level of about 5% to 8-10% during the recent 13-year
period studied. Though attrition of SETs appears to have been higher that that of GETs in 2000-01 and 2004-05, these differences are not statistically significant. Significance was tested by a logistic regression model predicting leaving teaching versus continuing in teaching. The predictor variables included in the model were: teaching field (special vs. general education), TFS year (2000-01 vs. 2004-05), and interaction term of field by year. None of the differences analyzed in this model were statistically significant.

**Teaching Area Transfer**

As seen in Figure 3, the annual teaching area transfer percentages of both public school SETs and GETs increased substantially during the recent 13-year period studied, though the transfer percentages for SETs leveled from 2000-01 to 2004-05. The teaching area transfer of SETs was even lower than that of GETs in 2000-01 and 2004-05 combined (p<.05), while the difference in transfer between these two years was not significant. Significance was tested by a logistic regression model predicting teachers from the SASS year who transferred to a different teaching area in the following TFS year versus those who did not transfer (including those who left teaching). The predictor variables in the model were teaching field (special vs. general education), TFS year (2000-01 vs. 2004-05), and interaction term of field by year. The field-by-year interaction was not significant.

**School Migration**

As seen in Figure 4, the annual school migration percentages of both public school SETs and GETs increased from a level of about 7% in 1994-05. The migration of SETs was significantly higher than that of GETs in 2000-01 and 2004-05 combined (over 10% for SETs compared with about 7.5% for GETs; p<.001), while the difference in migration between these two years was not significant. Statistical significance was tested by a logistic regression model predicting teachers from the SASS year who migrated to a different school in the following TFS year versus those who did not migrate (including those who left teaching). The predictor variables in the model were teaching field (special vs. general education), TFS year (2000-01 vs. 2004-05), and field-by-year interaction. The field-by-year interaction was not significant.
Total Turnover: Attrition, Transfer, and Migration Aggregated

The trend over years in total annual turnover (attrition, teaching area transfer, and school migration aggregated) is shown in Figure 5 for all public school teachers, and separately for SETs and GETs. These total turnover percentages are unduplicated counts. That is, teachers who both switched teaching area and moved to a different school are counted only once.

Total turnover from all public teachers increased steadily from 18.8% in 1991-92 to 28.8% in 2004-05—a statistically significant trend (p<.001) representing an increase of 50% (in the turnover percentages) during this 13-year period. The same trend was seen for both SETs and GETs separately.

The total number of public teachers turning over increased even more dramatically from 478,000 in 1991-92 to 925,000 in 2004-05. This represents an increase of 94% since 1991-92.

Teacher Attrition Compared with Other Occupations

To examine the possibility that teachers leave at a higher rate than in other vocations, we obtained a type of turnover percentage for other vocations from the only available national data source for calendar years 1991, 1994, 2000, and 2004 (BNA, 1992, 1995, 2001, 2005). Among the various business and non-business occupations for which BNA reported data, we identified the non-business category as most comparable to the national teaching force. BNA reported turnover at the corporate level, viz. the percentage of employees of particular corporations who leave their corporate employers annually (excluding departures due to reductions in force). For public school teachers, this is equivalent to attrition plus the migration of teachers from a local education agency (LEA) (i.e., the employing entity) to schools in a different LEA or to private schools. We termed this specific type of turnover “corporate attrition.” For public school teachers, corporate attrition therefore excludes the migration of teachers among schools within an LEA.

As seen in Figure 6, the annual corporate attrition percentage of public school teachers grew steadily from 8% in 1991 to 12% in 2004, but clearly was less than that of non-business employees through 2001 when non-business corporate attrition peaked at 16%. Since then, the corporate attrition of non-business employees declined precipitously to 12% in 2004—the same level seen for public teachers. In making this comparison, it is important to recognize that BNA corporate attrition data for non-business occupations excluded attrition due to reductions in force.
whereas the teacher attrition data includes reductions in force approximating 0.3% annually. Thus, there is no evidence that public school teachers left their LEA of employment at a higher rate than did employees from non-business employers nationally. In fact, the corporate attrition rate of public teachers was actually lower than for non-business occupations during three of the four years shown in Figure 6.

The corporate attrition of private school teachers, as also seen in Figure 6, is much higher than that of public school teachers and non-business employees. According to results reported by Boe, Cook, and Sunderland (2005), the corporate attrition of private school teachers has been comparable to that of employees in health care occupations.

**CONCLUSIONS**

Trends in the attrition and school migration of all public teachers have been previously reported by the National Center for Education Statistics (NCES) (Marvel, Lyter, Peltola, Strizek, & Morton, 2007) for the 13-year period from 1991-92 to 2004-05, as also analyzed here. However, our analyses produced original information about trends in the amount of teaching area transfer for all public teachers, a component of teacher turnover not analyzed by NCES. With data on this third component of teacher turnover, we have been able to aggregate all three components to obtain estimates of total teacher turnover by year. Thus, our analyses extend NCES's analyses in these respects.

The result is that total turnover has been high and has continued to increase through this 13-year period to the level where almost 29% of public teachers either left teaching, switched teaching area, or moved to a different school during the 2004-05 school year. This increasing trend was observed for attrition and teaching area transfer percentages, but not for school migration percentages.

The results reported here also extend the turnover trend data reported by Boe et al. (in press) for SETs and GETs from the 2000-01 to the 2004-05 school years. Though attrition percentages for both SETs and GETs were higher in 2004-05 compared with 2000-01, the differences were not statistically significant. As reported by Boe et al. with earlier TFS data, the difference between SETs and GETs in attrition percentages likewise was not significant in the most recent data analyzed here. In contrast, teaching area transfer of SETs did not increase from 2000-01 to 2004-05, and was significantly less than the transfer of GETs during these years. However, the
school migration of SETs was significantly higher than that of GETs during the 2000-01 and 2004-05 years. Thus, there are distinct differences in recent years between SETs and GETs in two components of turnover—findings that will require additional research to explain.

This research also expanded analyses reported by Boe et al. (in press) on the rate of “corporate attrition” of teachers in comparison with employees in non-business occupations. Even though teacher attrition has increased substantially during the 13-years studied here, so has the attrition of non-business employees nation-wide. The results clearly demonstrate that public school teachers do not have higher rates of corporate attrition than non-business employees, and are possibly lower. Private school teachers, however, have higher rates of corporate attrition than do non-business employees.

Boe et al. (in press) recognized “. . . that some initiatives to reduce the high and increasing rates of teacher turnover have been effective at the state and local levels. However, the cumulative effects of these initiatives have not been sufficient to halt the steady growth of turnover at the overall national level. The turnover of teachers in public schools has been costly to the field and a significant contributor to the shortage of sufficient numbers of qualified teachers in both special and general education.” (p. 30). In light of the results of the four-year update reported here, these conclusions not only remain valid, but are even more compelling since the growth of turnover at the overall national level has continued.
FIGURES OF RESULTS
Figure 1. Annual percentage of all public school teachers who left teaching employment, migrated to another school, or transferred teaching areas, by school year. The trends of increasing exit attrition and teaching area transfer were statistically significant (p<.001), whereas the change in school migration over years was not. Data from the 1991-92, 1994-95, 2000-01, and 2004-05 Teacher Follow-Up Surveys, NCES, USDE.
Figure 2. Annual percentage of public school teachers who left teaching employment in special education and general education, by school year. The differences between special and general education in exit attrition were not statistically significant. Data from the 1991-92, 1994-95, 2000-01, and 2004-05 Teacher Follow-Up Surveys, NCES, USDE.
Figure 3. Annual percentage of public school teachers in special and general education who transferred to one of eleven teaching areas, by school year. The differences between special and general education in teaching area transfer were not statistically significant. Aggregated data from the: 1991-92, 1994-95, 2000-01, and 2004-05 Teacher Follow-Up Surveys, NCES, USDE
Figure 4. Annual percentage of public school teachers in special and general education who migrated to a different school, by school year. Overall, school migration was significantly higher for special education than for general education (p=.02). Data from the 1991-92, 1994-95, 2000-01, and 2004-05 Teacher Follow-Up Surveys, NCES, USDE.
Figure 5. Annual total turnover of public school teachers in special and general education (attrition, teaching area transfer, and school migration, combined) based on unduplicated counts of teachers. Data from the 1991-92, 1994-95, 2000-01, and 2004-05 Teacher Follow-Up Surveys, NCES, USDE.
Figure 6. Annual corporate attrition percent for teachers in comparison with other occupation fields. Corporate attrition is defined by leaving an employer, such as a corporation or school district. For public school teachers, transfer between schools within a public district (Tr.) is shown as an increment of turnover to corporate attrition. Teacher data from Teacher Follow-Up Surveys, NCES, USDE. Other occupation data from the Employer Surveys by the Bureau of National Affairs (BNA), Inc.
References


Trends in Teacher Turnover


Appendix: Data Analysis Methods

Data Sources

Data sources were teachers' self reports to four versions of the Schools and Staffing Surveys (SASS) (1990-91, 1993-94, 1999-00, and 2003-04), and to their one-year longitudinal components, the TFS (1991-92, 1994-95, 2000-01, and 2004-05), conducted by NCES, USDE. Otherwise, the four SASSs were independent successive cross-sectional surveys.

The SASS teacher questionnaires provided national information about public school teachers (including public charter school teachers) during the school year prior to turnover. The TFS provided extensive information about various aspects of the turnover of these teachers.

Definitions of Teachers from SASS and TFS

In keeping with the SASS definition, a teacher was any individual who reported either being employed full-time or part-time at a public school (including public charter schools) with a main assignment 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 SASS teacher questionnaires for 1990-91, 1994-95, and 1999-00 asked teachers to designate one of 64 “main teaching assignment fields” (MTA) as “the field in which you teach the most classes.” We grouped these 64 fields into two main areas: special education and general education. Special education included 15 main teaching assignment fields such as deaf and hard-of-haring, developmentally delayed, and learning disabilities. All teachers who designated one of these 15 fields as their main teaching assignment were defined as SETs. Given that these teacher questionnaires included a category for “other special education,” all elementary and secondary teachers with a main assignment in any area of special education should have been able to identify themselves as such, regardless of the particular certification terminology used in their home state. GETs were then defined as all public school teachers (K-12) other than SETs. Teachers were classified as SETs or GETs based on their main teaching assignment (MTA) during a SASS year prior to turnover.
The SASS teacher questionnaire for 2003-04 was changed in this respect. Teachers were asked to designate whether their MTA was in any specialization of special education, or in one of 72 specializations in general education. Those who designated any special education were defined as SETs; all others were defined as GETs.

**Teacher Samples**


**Design**

This research was designed to quantify and analyze, from a national perspective, three types of year-to-year turnover of all public school teachers, and in two broad fields of public education—special education in comparison to general education. Trends in each type of turnover were analyzed over the four administrations of SASS/TFS (1990-92, 1993-95, 1999-01, and 2003-05).

**Types of Teacher Turnover**

Three types of teacher turnover from four SASS school years (1990-91, 1993-94, 1999-00, and 2003-04) to the following TFS years are defined below. Each type of turnover can be voluntary on the part of a teacher, or based on administrative decision (i.e., involuntary on the part of a teacher).

**Attrition.** The TFSs provided information about teachers who left teaching employment following each of the four SASS school years (referred to as “leavers”). Those who continued teaching employment are referred to as “continuers.” Leaving teaching employment is called
Table A-1. *SASS* and *TFS* Public School Teachers: Numbers of Completed Interviews Available for Secondary Analyses from the 1990-92, 1993-95, and 1999-02 SASS/TFS Administrations

<table>
<thead>
<tr>
<th>Public Education: Teacher Field</th>
<th>SASS (^a)</th>
<th>TFS (^a)</th>
<th>Turnover</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>School Year</td>
<td>Teacher Sample</td>
<td>Response Rate (^c)</td>
</tr>
<tr>
<td><strong>Special Education</strong></td>
<td>1990-91</td>
<td>5,054</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1993-94</td>
<td>5,288</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1999-00 (^f)</td>
<td>4,919</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2003-04 (^f)</td>
<td>5,455</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20,716</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Education</strong></td>
<td>1990-91</td>
<td>41,545</td>
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<tr>
<td></td>
<td>1993-94</td>
<td>41,706</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1999-00 (^f)</td>
<td>39,977</td>
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</tr>
<tr>
<td></td>
<td>2003-04 (^f)</td>
<td>37,736</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td>160,964</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>181,680</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>1993-94</td>
<td>46,944</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>1999-00 (^f)</td>
<td>44,896</td>
<td>83%(^g)</td>
</tr>
<tr>
<td></td>
<td>2003-04 (^f)</td>
<td>43,191</td>
<td>85%(^g)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>181,680</td>
<td></td>
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</tr>
</tbody>
</table>

\(^a\) Schools and Staffing Survey (SASS) and Teacher Follow-Up Survey (TFS), both by the National Center for Education Statistics, USDE.

\(^b\) Includes stayers, as well as leavers, switchers, and movers.

\(^c\) Weighted response rates for public teachers.

\(^d\) Weighted response rates for public current teachers / former teachers

\(^e\) Some switchers included in movers, and vice versa.

\(^f\) Includes regular public and charter public teachers.

\(^g\) Approximate rate for regular public and charter public combined.
attrition. It is sometimes referred to as exit attrition to distinguished from other forms of attrition such as school attrition (i.e., leaving teaching in a particular school) and teaching area attrition (e.g., leaving a teaching assignment in special education for some other teaching assignment).

Teaching Area Transfer. For teachers continuing teaching employment from one school year to the next, the TFSs provided information about who transferred from one teaching area to a different area (such as from special education to elementary education) following the four SASS years. Teachers who transferred to a different area are referred to as “switchers,” whereas teachers who remained in the same teaching area are referred to as “remainers.” Switching is distinguished from other forms of transfer such as migrating to a different school. Teaching area transfer can co-occur with school migration (defined next). Annual teaching area transfer is computed as the percentage of switchers from a SASS year to a TFS year of the total teachers in the SASS year.

School Migration. For teachers continuing teaching employment from one school year to the next, the TFSs provided information about who migrated from one public school to a different school following the three SASS years (referred to as “movers”). Teachers who stayed in the same school are referred to as “stayers.” Annual school migration is computed as the percentage of movers from a SASS year to a TFS year of the total teachers in the SASS year.

Teaching Area

Teaching areas were defined in order to compute the amount of switching among various areas. Of the MTAs listed in SASS teacher questionnaires, 15 were in special education with all the remaining MTAs in general education. A “teaching area” was defined as a cluster of MTAs that have more in common with each other than they do with MTAs in other areas. Accordingly, special education was defined as one teaching area, with general education represented by 11 teaching areas, as follows:

1. Special education (such as developmentally delayed, and 14 other specializations)
2. English (English, language arts, journalism, and reading)
3. Mathematics
4. Science (biology, chemistry, earth science, physics, and general science)
5. Social science (social studies or social science, including history)
6. Arts/music (art, dance, drama/theater, and music)
7. Foreign languages (French, German, Latin, Russian, Spanish, and other foreign languages)
8. Physical education and health education
9. Bilingual education and English as a second language
10. Elementary education (including kindergarten)
11. Vocational/business education (accounting, agricultural, business, career, health, etc.)
12. Other general education (home economics, philosophy, architecture, computer science, etc.)

This classification of the MTAs into 12 teaching areas was based on 10 categories NCES devised for this purpose (Seastrom, Gruber, Henke, McGrath, & Cohen, 2002). We adopted the 10 NCES categories, and added two more (vocational education and other general education) in order to classify all MTAs into 1 of the 12 teaching areas.

Teachers could out-switch at the end of each SASS school year from any one of these teaching areas to any one of the other 11 areas during the succeeding TFS year. Likewise, teachers could in-switch from a prior school year to any one of these teaching areas from any one of the other 11 areas. It was also possible, of course, for teachers to switch MTAs within a teaching area (such as switching from developmentally delayed to learning disabilities within special education). However, within-area switching was excluded from the definition of “teaching area transfer” for the purposes of this research.

Analysis Procedures

Based on the samples of public school teachers completing the SASS and TFS teacher questionnaires, national estimates of the weighted numbers of teachers of each type included in the design described above (along with associated percentages and standard errors) were computed by special procedures developed by NCES for complex sample survey data (Tourkin et al., 2004). Because SASS data are subject to design effects due to stratification and clustering of the sample, standard errors for the national estimates and tests of statistical significance were computed by the method of balanced repeated replications with software entitled WesVar Version 4.2. Chi-square tests of the statistical significance of differences in various turnover percentages were performed on the nationally estimated numbers of teachers, with probability levels based on the sample sizes available for these tests. Logistic regression was used to test the statistical significance of two predictors (special vs. general education, TFS year 2000-01 vs. 2004-05, and the teaching field X year interaction) of each of the three types of teacher turnover.
**Computation of Turnover Rates**

Annual rates of the nationally-estimated number of public school teachers who left teaching employment, switched teaching area, or migrated to a different school from one school year to the next (e.g., from 1999-00 to 2000-01) were each computed as a percentage of the total nationally-estimated number of public school teachers during the base SASS year (e.g., 1999-00). Thus, the rates of the three types of teacher turnover (attrition, teaching area transfer, and migration) are directly comparable because they were all computed by the same method.

**Limitations**

Since our results are based on large national-probability samples of public school teachers, they should *not* be interpreted as directly applicable to the state or local levels unless supported by other data from the relevant level. For example, attrition of SETs might be greater in urban than suburban school districts—another topic for further research. Other than the behavioral definitions of teacher attrition and school migration from TFS data, all other SASS and TFS data are from teacher self-reports, and therefore subject to errors of recall and bias. As with all sample data such as SASS, the estimates reported are subject to sampling error as well as to measurement and recording error. All estimates should therefore be interpreted as approximate.